



IMPACT OF FUEL SUBSIDY REMOVAL ON HOUSEHOLDS SPENDING IN MUBI: A CROSS SECTIONAL STUDY

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ABSTRACT

Fuel subsidy in Nigeria has been a controversial subject for many years. This study was conducted to evaluate the impact of fuel subsidy removal on households spending in Mubi, Adamawa State Nigeria. A sample of 150 respondents was selected from eight communities. Using multi-stage and random sampling techniques. Descriptive statistics and multiple regressions were employed for data analysis. The findings revealed that (65.3%) of the respondents were household heads and they were found between the age bracket of 30 years and above. (66%) were married with 53.3% household size ranging from 4 – 6 persons. The dominant source of livelihood was civil/public service (64.7%), with 64.7% having attended tertiary education. 42.7% have monthly income of less than ₦50,000. 68% of the respondents strongly agreed that fuel subsidy removal adversely led to high-cost food items, 52.7% and 28.7% agreed and strongly agreed high cost of transportation and health care is due to fuel subsidy removal. 33% of the respondents strongly disagreed that fuel subsidy removal has led to increase in saving while 42% agreed that it leads to decreased in savings. Furthermore, 39.3% of the respondents disagreed that fuel subsidy removal did not lead to increase assets, while 48% strongly agreed that fuel subsidy removal has led to decrease in asset. The coefficient of determination (R^2) indicates that 78% of the total coefficient of explanatory variables has influence on the dependent variable (household spending). This study recommended that There should be an improve wages through minimum wage by the government and create a conducive environment for business to reduce hardship accompanied by fuel subsidy removal. Government should put in place measures to subsidies transportation services in other to reduce the hardship of increase in price of petroleum products which relatively causes the increase of price of goods and services and Government should also intervene in addressing the challenges faced by people by price control on goods and services.

Keywords: *Effect, Fuel Subsidy Removal, Livelihood, Households*

1. INTRODUCTION.

Subsidy is one of the means of tricking economic effect used to reach the majority adopted by the government. It comes as a rebate on price of a commodity, it is an economic policy embarked on to make essential goods and services affordable for low- income earners to improve their standard of living.

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A subsidy is a financial aid or economic advantage that the government offers to promote a desired activity in order to maintain low prices, sustain the income of vital or strategic product producers, sustain employment levels or encourage investment to lower unemployment. It can be broadly described as any government initiative that has the potential to enable a business to generate higher profit than it otherwise would have in the absence of the initiative. (El-said, 2006) it promotes the sale of exports, subsidies on various goods to lower living expenses and to promote farm production growth and attain self-reliance in food production. (Ajayi, 2008)

Fuel Subsidy is the difference between the Petroleum Products Pricing Regulatory Agency (PPPRA) determined price (landed product cost + regulated margins) of petroleum products and the Ex-Depot price at which government directs NNPC to sell the products. Fuel subsidy is a form of price manipulation whereby the government fixed the pump price of fuel for sale to consumers and pays the retailer the difference between the actual price and the regulated or official price per liter (Iyobhebhe, 2011; Nwafor, Ogujiuba & Asogwa, 2006)

Household on the other hand is a group of individual living together and shearing income and expenses, it is the basic unit of consumption in an economy and is responsible for making decisions regarding what good and services to purchase, how much to save and how much to invest. In economic analysis, household are often viewed as rational decision makers that aim to maximize their utility or wellbeing given their budget constraints (Ricardo, 1817).

The fuel subsidy removal in Nigeria was implemented to address the economic challenges facing the country. The government claims that the removal of fuel subsidies will free up funds for other critical areas such as infrastructure development, education and healthcare. The removal of the subsidy is also seen as a way to promote economic growth and increase foreign investment in the country and can also lead to cost saving for the government and increased efficiency in the petroleum sector, however, this benefit must be balanced against potential negative effects on households (Oluwabukola, 2023).

The removal of the subsidies has sparked protests and strikes across the country, with citizens expressing their discontent over the sudden increase in fuel prices. Many authors argue that the removal of the subsidy will lead to an increase in the cost of living and place a heavier financial burden on the already struggling citizens. The removal of fuel subsidies has also had a significant impact on businesses, as the increase in the cost of fuel is likely to lead to higher transportation cost and ultimately result in inflation (Ikena & Oluka, 2023). This could have a ripple effect on the economy, leading to reduced consumer spending behavior of Nigerian household and a slowdown in economic growth. Furthermore, the removal of fuel subsidies has also raised concerns about the government's ability to effectively manage the economy and provide for its citizens. (Ikena & Oluka, 2023).

Many authors also question whether the government has put in place adequate measure to mitigate the negative effect of the subsidy removal, such as implementing social safety nets or providing alternative sources of energy for citizens, on the other hand, the proponents of the subsidy removal argue that it is a necessary step to address the economic challenges facing Nigerian. They believe that the removal of fuel subsidies will lead to a more efficient allocation of resources and will ultimately benefit the economy in the long run.

Numerical studies have delved into the impact of fuel subsidy removal on household spending. Monsuru (2024) examine the impact of fuel subsidy removal on household spending in Nigeria restricted his study to Abuja Municipal Area and found out that fuel subsidy removal had significantly negative impact among the people in the study area. Abdulkadir et al., (2020) however found inferential statistic result revealed that the household characteristic variables were positively related to fuel subsidy removal. Furthermore, Idisi (2024) also discovered negative impact of fuel subsidy removal among the household in Bwari Area Council, Federal Capital Territory, Nigeria.

In light to this consideration, this research focused on the effect of fuel subsidy removal on household spending, with specific focus on Mubi Local Government of Adamawa State. A significant contribution of this paper lies on the responses from the respondents which will offer valuable insight into the topic for the intending study area.

The main objective of the study is to evaluate the impact of fuel subsidy removal on the livelihood of household in Mubi with the following specific objective: to Describe the socioeconomic characteristic of household in the study area, Evaluate the impact of fuel subsidy removal on the livelihood spending in the study are and determine the impact of fuel subsidy on household livelihood spending in the study area.

2. LITERATURE REVIEW

2.1. Theoretical Framework

The Structural Theory of Poverty: According to Jung and Smith (2007), the economic theory of poverty explains poverty are brought on by underdevelopment of economy, underdevelopment of human Capital, capitalism/dysfunctional market, social and political pressures, individual behavioral traits choices and welfare dependency or poverty traps.

The removal of fuel subsidies in Nigeria has been a contentious issue, with debates surrounding its impact on household spending. The Ricardian and Non-Ricardian models, Cost saving and efficiency, Broader Socioeconomic Implications, Todaro and Smith also provide theoretical frameworks for understanding the potential effects of fuel subsidy removal on household spending.

Ricardian model Theory: The Ricardian model posits that households are rational and forward-looking and adjust their consumption patterns in response to changes in income and prices (Ricardo, 1817). In the context of fuel subsidy removal, the Ricardian model suggests that household will adjust their spending patterns in response to the increases in petroleum product prices. The model assumes that household is forward-looking and considers future income when making consumption decisions. Consumption of non-essential goods and services, such as luxury items, and increasing consumption of essential goods and services, such as food and transportation.

On the other hand, the non-Ricardian model suggests that households may not adjust their spending patterns in response to changes in income and prices, particularly in the short run (Blanchard, 1985). In the context of fuel subsidy removal, the non-Ricardian model suggests that households may continue to consume the same amount of goods and services even if the prices of these goods and services increase. This may be due to habit formation, liquidity constraints, and imperfect information. For Todaro and Smith (2003), development must be conceived of as a multidimensional process involving major changes in social structures, attitudes and

national institutions as well as the acceleration of economic growth, the reduction of inequality and the eradication of absolute poverty. The Nigerian government contradict the definition of development by its claims for removing fuel subsidy by saying that the cost of fuel subsidy has continued to grow exponentially and affecting budget implementation to the extent that government can no longer sustain it, while in the real sense, fuel subsidy was characterized by monumental fraud where portfolio contractors were paid for product that where never supplied (Tell Magazine 2012).

2.2. Empirical Literature

Empirical works on fuel subsidy removal on household spending vis-à-vis poverty are reviewed under this section. Reviews revealed that different measures are used. The most recent and relevant works are thus revealed below. Idisi et al. (2024) examines the effect of fuel subsidy removal on the livelihood of household in Bwari Area Council Federal Capital Territory, Nigeria. A sample of 80 respondents from eight communities was selected using multi-stage and random sampling techniques. The study employed descriptive statistics, multi-regression and Garrett ranking to analysis the data. The findings revealed that most (60%) of the respondents were household and they were found between the age bracket of 30 – 39 years (42.5%) with mean age of 39. The regression analysis showed that each monthly income and primary livelihood were significant at 1%. Level while household size was significant at 10%. The coefficient of the determination of (R^2) indicates that 64% is the effect of the variable on household income on fuel subsidy removal by government explained by independent variable. The garrets ranking highlighted high cost of food items ranks first as the primary concern, high cost of transportation ranked second and social unrest ranked third. The study recommend that the government should implement price control and enhance distribution channel to curb inflation make credit facilities more accessible to all farmers.

Edime et al. (2023) examines fuel subsidy removal and poverty in Nigeria. Secondary data was used. The study employed content analysis in review of the related literature. The findings show that, practice of fuel subsidy in Nigerian has been unsustainable as it has led to dept crises in the medium to long term over the years. The study recommended that government should re-strategies its approach and fucus on targeting the poorest of the poor because targeted subsidy removal with viable palliatives will reduce corruption, increase in government saving and investment in infrastructure thereby reduce poverty and hardship on the masses.

Monsuru Alabi Sodeeq (2024) examines the impact of fuel subsidy removal on household spending in Nigeria. A qualitative research design is employed, utilizing a literature review to explore the multifaceted implications of fuel subsidy removal. The findings reveal that while subsidy removal can lead to cost savings for the government and increased efficiency in the petroleum sector, concerns about inflationary effects and affordability of essential goods and services persist. The study recommends that policymakers design subsidy reform plans that protect the poorest and most vulnerable, phase any price increase appropriately, communicate effectively to all groups, invest additional funds in productive sectors, and implement transparency mechanisms. Understanding the dynamics of household spending in the context of fuel subsidy removal is crucial for informed policymaking to mitigate adverse effects and capitalize on potential benefits.

Abdulkadir et al (2020) conduct a study on assessment of impact of fuel subsidy removal Subsidy on socio-economic characteristic: A survey of households in Maiduguri, Borno State; subsidy has been one of the means of trickling economic effect down to reach majority adopted by many countries, including Nigeria. Recently, in Nigeria, subsidy on petroleum was removed which has led to a great macro-based debate. However, a study on such effect on individual might better provide important information on the impact of the policy, especially the impact on wellbeing of the poor. Thus, this study assessed the impact of fuel subsidy removal on the socioeconomic characteristics of households in Maiduguri metropolis, Borno state, Nigeria. Survey data were collected and analyzed using descriptive statistics and simple regression method. Result on socioeconomic characteristics revealed that the households' characteristics variable was positively related to fuel subsidy removal, significant at 1%, except households' age. For sustainability, attention should be focused on workers' wages and salaries increase, family planning and transportation costs reduction as these may alleviate hardship of fuel subsidy removal on low-income earners in Nigeria.

Nkagu R. (2012) conducted a study on fuel subsidy removal and Nigerian economy. The study examined how fuel subsidy removal affects some key sectors of the economy as well as its effects on economic development of the country. These sectors include health, transportation, education and power sector. Descriptive statistic was used to analyze the impact of fuel subsidy removal on the development of those sectors. Findings of the research work revealed a high level of impact in health, transportation, education and power sector, a low impact was felt in agriculture, infrastructure and basic amenities. If these sectors of the economy are in a very good shape, it will not only go a long way in sustaining and reviving other sectors of the economy, it will also help to hasten growth and development in Nigeria.

Oluwale S. (2013) also conducted a study on subsidy removal and investment challenge in Nigeria's petroleum industry. The study examined the various regimes of petroleum products price increases, subsidy payments and its effectiveness in stimulating investments in the industry in Nigeria. Secondary data were collected from the Nigerian National Petroleum Corporation (NNPC), Central Bank of Nigeria (CBN), Petroleum Products Pricing and Regulatory Agency (PPPRA), and government records. Deregulation would have immediate negative effects on real household incomes. Negative reactions can be mitigated with adequate palliative measures and effective education and public enlightenment. In the short run, the prices of petroleum products would go up significantly but would drop when the products of the new refineries are released into the market. This study went beyond subsidy removal. It conducted empirical study on its effectiveness or otherwise on investment generation to proffer alternative. It revealed that subsidy removal did not stimulate investment. Alternative course of action was recommended. The studies indicate that there exist benefits to be derived from subsidy removal which only come in the long run. Therefore, adequate measures should be put in place to alleviate short term disruption in the form of palliative measures to cushioned the hardship subsidy removal might cause. The result is also consistent with theoretical and some empirical findings that removal of fuel subsidy results in efficiency leading to economic growth.

3.0 METHODOLOGY

This section discusses the methods used in estimating the parameters of the model. It follows the following subsections;

3.1. Research Design: The study will adopt a quantitative research design, which involves collecting and analyzing numerical data. Specifically, the study will use a descriptive and cross-sectional survey design to collect data from the selected sample to evaluate the effect of fuel subsidy removal on the livelihood of the households and identify the constraints faced by the households in the study area.

3.2. Sampling Techniques and Sample Size: The study will use a multi-stage sampling technique to select households for the survey. In the first stage, local government areas will be selected using a random sampling technique. In the second stage, ward in the local government will be selected using a systematic sampling technique. Thirdly, random of selection of communities from each Ward making a total of eight communities (Kolere, Adsu, Fed Poly, Lokuwa, Sabongari, Garkeji, Yelwa, and Wuropatuji) selected for the study. Finally, a random selection of households in each of communities selected which gave a total of 150 households. This study employed the formula advanced by Yamane (1967) in the determination or estimation of the sample size.

The formula is stated thus:

$$n = \frac{N}{1 + N(e)^2}$$

$$n = N = 150 \text{ ----- (1)}$$

$$1 + N(e)^2$$

Where;

n = Desired sample size

N = Finite size of the population

e = Maximum acceptable margin of error as determined by the researcher

3.3. Method of Data Collection: The data for the study were mainly from primary source. The data were collected using a structured questionnaire with the help of personal interviewed to collect household data. The questionnaire consists of closed-ended questions that is used to collect information on household spending patterns before and after fuel subsidy removal, as well as demographic information such as age, gender, and income.

3.4. Method of Data Analysis:

Descriptive Statistics

Data collected from the field survey on households were summarized using mean, frequency distributions, and percentages. The descriptive statistics was used to determine the socioeconomics characteristics of households as stated in objectives.

The Multiple Regression Model

The ordinary least square (OLS) analysis was used to determine the relationship between household income and socio-economic variables in the study area. The explicit form of regression model is specified below: -

$$Y = f(X1, X2, X,3 \text{ -----}, X6) \text{ ----- (2)}$$

$$Y = \alpha X_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \dots + \alpha_6 X_6 + \epsilon \quad (3)$$

Where; Y = Household income

X1 = Age of household (Years)

X2 = Household size of respondent (Number)

X3 = Household head of the respondent (Number)

X4 = Transportation cost after fuel subsidy removal (Naira)

X5 = Feeding cost after fuel subsidy removal (Naira)

X6 = Primary livelihood of the respondent (Number)

e = Error term

The data collected were fitted into four functional forms; linear, semi-log, Exponential and Double-log functions.

RESULTS AND DISCUSSION

Table 1: socioeconomic Characteristics of Respondents.

		Frequency	Percentage
Household head	Yes	98	65.3
	No	52	34.7
Gender	Male	83	55.3
	Female	67	44.7
Age	20-29	32	21.3
	30-39	45	30
	40-49	36	24
	50-59	30	20
	60 and above	7	4.7
Marital Status	Single	30	20
	Married	99	66
	Divorced	8	5.3
	Widow/Widower	13	8.7
Household size	1-3	41	27.3
	4-6	86	57.3
	7-9	17	11.3
	10 and above	6	4
Occupation	Civil/public servant	65	43.3
	Farming	33	22
	Trading	29	19.3
	Artisan	9	6
	Students	14	9.3
Educational Level	Tertiary	97	64.7
	Secondary	19	12.7
	Primary	14	9.3
	No formal	20	13.3

Monthly household income	Less than 50,000	64	42.7
	50,000-100,000	33	22
	101,000-150,000	18	12
	151,000-200,000	10	6.7
	210,000-300,000	14	9.3
	301,000 and above	11	7.3

Source: Field data survey 2024

Table 1 present the socioeconomic characteristic of the respondents in the study area. Frequency distribution and percentages were used to obtain the mentioned table. The table revealed that 65% of the respondents were the head of the households sampled in the area.

The respondents were made up of 55.3% male and 44.7% female respectively in which the age bracket from 30 – 39 years (30%) are in their active stage to take on livelihood occupation to earn a living. This means the respondents can cope up the challenges that comes as a result of fuel subsidy removal now and in the future. The second category with 24% age bracket is respondent that are in their 40s are in their active and productive stage in life.

There is an implication that fuel subsidy removal affected more of the married respondents than the singles with the higher percentage of 66% followed by the singles with 20%. This could have a close relationship with the respondents that could not be able to meet the needs of their families and generally, married people have more responsibilities to provide for their household, spouse family than the single respondents.

The household size of the respondents ranges between 4 – 6 with the highest average of 57.3%. this implies that household with more numbers of the family were more affected by the removal of fuel subsidy due to inflation and high cost of food items, transportation, payment of school fees, medical bills etc. than the remaining 43. 7% with less member of the family.

Majority of the respondents in the study area were civil/public servant with 43.3% followed by farming with 22%. The implication may be as a result of influence of Mubi, a local government in Adamawe state that is dominated with institution of high learning like the Adamawa State University, The Federal Polytechnic, College of Health and Technology and other private institutions that provided employment. Same is the case for the study carried out by (Idisi et al., 2024) and (Abdulkadir et al., 2020) found that 30.0% and 52.1% of the respondents and households were civil/public servants respectively.

The table also revealed that 64.7% of the respondents had attended tertiary education, it may be as a result of living within Mubi which is dominated by institutions of high learning and also environmental influence that made the opulence attend tertiary education for future opportunities that may arise.

The table also revealed that most (42.7%) have less than 50,000 as their monthly household income followed by 22% that have their household monthly income range from 50,000 – 100,000. The implication is that most of the respondents cannot cope up the challenges that emanate as a result of fuel subsidy removal that made the cost of food stuff tripled, high cost of transportation, unable to pay children’s school fees, payment of medical bills and to meet other responsibilities as is the case for the study carried out by (Abdulkadir et al., 2020) found that 34.5% have income level ranges between 40,000 – 59,999 monthly are the worst hit by the fuel subsidy removal.

Table 2: Impact of fuel subsidy removal on household expenditure patterns and livelihood.

Statement	SA	A	N	SD	D
High cost of food items	102 (68%)	17(11.3%)	4 (2.7%)	16 (10.7%)	11 (7.3%)
High cost of transportation	32 (21.3%)	79 (52.7%)	9 (6%)	24 (16%)	6 (4%)
High cost of health care (drugs)	43 (28.7%)	30 (20%)	14(9.3%)	35(23.3%)	28(18.7%)
Increase in saving	25(16.7%)	39(26%)	10(6.7%)	50(33.3%)	26(17.3%)
Decrease in saving	48 (32%)	63 (42%)	0 (0%)	22(14.7%)	17(11.3%)
Increase in assets	14(9.3%)	32(21.3%)	1(1%)	44(29.3%)	59(39.3%)
Decrease in assets	72(48%)	42(28%)	4(2.7%)	13(8.7%)	19(12.7%)
Decrease in other responsibilities.	39(26%)	45(30%)	10(6.7%)	26(17.3%)	30(20%)

Source: Field data survey 2024

Table 2 describe the impact of fuel subsidy removal on household expenditure pattern and livelihood of the household in the study area. 68% of the respondents strongly agreed that the high cost of food items which affected almost all the household in the study area are coursed by high cost of transportation, high cost of farming implements, cost of storage of farm products coupled with insecurity in and around the study area.

About 74% strongly agreed and agreed that fuel subsidy removal made them battling with the high cost of transportation to their work place, place of worship, market, travelling for emergencies and visiting relations. The implication is that workers cannot go to their work place every day due to high cost of transportation. The majority (48.7%) of the respondents strongly agreed and agreed that they cannot easily access medical care due to its high cost as a result of the fuel subsidy removal. This could lead to unstable and low productivity in the place of work which may have multiplier effect on the economy.

The table reveal that 33.3% of the respondents strongly disagree that fuel subsidy removal did not increase saving. The implication is that the most household had used their monthly income for feeding, payment of children’s school fees, transportation to work place and no income remain to save due high cost of feeding, transportation and other logistics as the monthly budget is greater the income due to subsidy removal. Most (74%) of the respondents had experience decrease in saving as all their monthly income was channeled toward feeding, transportation and medical bills due to its high cost. By implication, most of the respondent’s monthly income cannot adequately sustain the household not talk more of saving for future use.

The table shows that about 68.6% strongly disagreed and disagreed that the impact of fuel subsidy removal on their household expenditure pattern and livelihood has led to their inability to save and invest in asset. By implication most of the monthly income received were consumed to take care of the household.

Furthermore, about 76% of the respondents strongly agreed and agreed that they had experienced decrease in acquiring assets due to inadequate fund that cannot sustain their livelihood not to talk about saving to invest in acquiring asset due to hardship that caused by the removal of fuel subsidy. By implication most of the respondent could not invest in assets because they are struggling to survive.

Table 3: Summery Statistics of the output on household income

	Y	X1	X2	X3	X4	X5	X6
Mean	2.400000	39.98667	1.920000	0.653333	1.780000	2.286667	2.160000
Median	2.000000	39.00000	2.000000	1.000000	1.000000	2.000000	2.000000
Maximum	6.000000	67.00000	4.000000	1.000000	5.000000	5.000000	5.000000
Minimum	1.000000	20.00000	1.000000	0.000000	1.000000	1.000000	1.000000
Std. Dev.	1.638464	11.81853	0.737491	0.477503	1.325385	1.095057	1.300903
Skewness	0.958975	0.173442	0.730717	-0.644382	1.450032	0.891300	0.894196
Kurtosis	2.626800	2.125772	3.764237	1.415228	3.542274	2.925324	2.703639
Jarque-Bera	23.86133	5.528769	16.99905	26.07759	54.40273	19.89525	20.53859
Probability	0.000007	0.063015	0.000204	0.000002	0.000000	0.000048	0.000035
Sum	360.0000	5998.000	288.0000	98.00000	267.0000	343.0000	324.0000
Sum Sq. Dev.	400.0000	20811.97	81.04000	33.97333	261.7400	178.6733	252.1600
Observations	150	150	150	150	150	150	150

Source: Author’s computation using Eviews 10.

From Table 3: Based on the results of descriptive statistical analysis in table 1, age of household (X1) has an average value of 39.98667 over the period. It has a maximum and minimum value of 67.00000 and 20.000000 respectively. It has a standard deviation of 11.81853 and probability of it Jarque-Bera statistic is 0.063015 which shows that the observation was normally distributed. The value of the skewness was 0.173442 which means the distribution of variable were positive skewed to the right. The kurtosis value which was 2.125772 means that the observation platykurtic distribution, which has no fatter or wider peak than the normal distribution since it is not greater than 3.

Based on the results of descriptive statistical analysis in table 1, households size (X2) has an average value of 1.920000 over the period. It has a maximum and minimum value of 4.00000 and 1.000000 respectively. It has a standard deviation of 0.7307491 and probability of it Jarque-Bera statistic is 0.000204 which shows that the observation was normally distributed. The value of the skewness was 0.730717 which means the distribution of variable were positive skewed to the right. The kurtosis value which was 3.764237 means that the observation leptokurtic distribution, which has fatter or wider peak than the normal distribution since it is greater than 3.

Based on the results of descriptive statistical analysis in table 1, household head (X3) has an average value of 0.653333 over the period. It has a maximum and minimum value of 1.00000 and 0.000000 respectively. It has a standard deviation of 0.477503 and probability of it Jarque-Bera statistic is 0.000002 which shows that the observation was normally distributed. The value of the skewness was -0.644382 which means the distribution of variable were negative skewed to the left. The kurtosis value which was 1.415228 means that the observation platykurtic distribution, which has no fatter or wider peak than the normal distribution since it is not greater than 3.

Based on the results of descriptive statistical analysis in table 1, transport cost (X4) has an average value of 1.780000 over the period. It has a maximum and minimum value of 5.000000 and 1.000000 respectively. It has a standard deviation of 1.325385 and probability of it Jarque-Bera statistic is 0.000000 which shows that the

observation was 100% normally distributed. The value of the skewness was 1.450032 which means the distribution of variable were positive skewed to the right. The kurtosis value which was 3.542274 means that the observation leptokurtic distribution, which has fatter or wider peak than the normal distribution since it is greater than 3.

Based on the results of descriptive statistical analysis in table 1, feeding cost (x5) has an average value of 2.286667 over the period. It has a maximum and minimum value of 5.000000 and 1.000000 respectively. It has a standard deviation of 1.095057 and probability of it Jarque-Bera statistic is 0.063015 which shows that the observation was normally distributed. The value of the skewness was 0.891300 which means the distribution of variable were positive skewed to the right. The kurtosis value which was 2.925324 means that the observation platykurtic distribution, which has no fatter or wider peak than the normal distribution since it is not greater than 3.

Based on the results of descriptive statistical analysis in table 1, primary livelihood (x6) has an average value of 2.160000 over the period. It has a maximum and minimum value of 5.000000 and 1.000000 respectively. It has a standard deviation of 11.81853 and probability of it Jarque-Bera statistic is 1.300903 which shows that the observation was normally distributed. The value of the skewness was 0.894196 which means the distribution of variable were positive skewed to the right. The kurtosis value which was 2.703639 means that the observation platykurtic distribution, which has no fatter or wider peak than the normal distribution since it is not greater than 3.

Table 4: Least Square method.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X1	-0.005674	0.004113	-1.379490	0.1699
X2	-0.278514	0.065997	-4.220087	0.0000
X3	0.021015	0.043890	0.478819	0.6328
X4	0.253845	0.052609	4.825144	0.0000
X5	0.313678	0.070608	4.442542	0.0000
X6	0.924641	0.048724	18.97714	0.0000
R-squared	0.976600	Mean dependent var	2.400000	
Adjusted R-squared	0.975788	S.D. dependent var	1.638464	
S.E. of regression	0.254948	Akaike info criterion	0.143667	
Sum squared resid	9.359816	Schwarz criterion	0.264093	
Log likelihood	-4.775054	Hannan-Quinn criter.	0.192592	
Durbin-Watson stat	0.855791			

Source: Author’s computation using Eviews 10

The results of table 4 revealed that the coefficient of household head (X3), transport cost (X4), feeding cost (X5) and primary livelihood x6 turns to be positive while that of age of household (X1) and household size (X2) turns to be negative. This indicates that one percent increase in X3, X4, X5 and X6 will increase livelihood by 2%, 25%, 31% and 92% respectively. X4, X5 and X6 are statistically significant at 1% while X3

is statistically significant at 10%. Which is in conformity with the study of Idesi et' al. (2024) which shows that primary livelihood in Bwari Area Council Federal Territory, Abuja is statistically significant at 1%. The negative sign for X1 and X2 indicates that one percent increase in them will decrease livelihood by about 0.56% and 27% and it is statistically significant at 10% and 1% respectively. The value of R² which is 0.978600 indicates that about 98% variation of the dependent variable were able to explained by the independent variables. The value of Durbin –Watson statistic is 0.856791 which indicates the presence of autocorrelation.

Table 5: ML- Censored Normal (TOBIT)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
X1	-0.005674	0.004030	-1.407936	0.1592
X2	-0.278514	0.064664	-4.307108	0.0000
X3	0.021015	0.043003	0.488692	0.6251
X4	0.253845	0.051546	4.924642	0.0000
X5	0.313678	0.069181	4.534150	0.0000
X6	0.924641	0.047740	19.36846	0.0000
Error Distribution				
SCALE:C(7)	0.249797	0.014422	17.32051	0.0000
Mean dependent var	2.400000	S.D. dependent var	1.638464	
S.E. of regression	0.255838	Akaike info criterion	0.157001	
Sum squared resid	9.359818	Schwarz criterion	0.297497	
Log likelihood	-4.775054	Hannan-Quinn criter.	0.214080	
Avg. log likelihood	-0.031834			
Left censored obs	0	Right censored obs	0	
Uncensored obs	150	Total obs	150	

Source: Author’s computation using Eviews 10

Furthermore, the coefficient estimate provided insights into how changes in the variables impact the dependent variable (household income), while controlling for other factors. The coefficient for X1 and X2 is -0.005674 and -0.278514 with a significant t-statistic of -1.407936 and -4.307108 and with probability 0.1592 and 0.0000 negatively influences household income.

SUMMARY, CONCLUSION & RECOMMENDATION

The impact of fuel subsidy removal has brought insight to various economic challenges and hardships faced by the population. It is evident that the immediate removal of fuel subsidy without gradual approach has led to personal, social and economic hardship; therefore transparency, accountability and government intervention are crucial in addressing these challenges and mitigating the adverse impact of fuel subsidy removal.

RECOMMENDATIONS

Based on the insights from the impact of subsidy removal, I recommend the following:

1. There should be an improve wages through minimum wage by the government and create a conducive environment for business to reduce hardship accompanied by fuel subsidy removal.

2. Government should put in place measures to subsidize transportation services in order to reduce the hardship of increase in price of petroleum products which relatively causes the increase of price of goods and services.
3. Government should also intervene in addressing the challenges faced by people by price control on goods and services.

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