FUEL SUBSIDY REMOVAL AND AGRICULTURAL COOPERATIVE BUSINESS PERFORMANCE IN IMO STATE.

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Abstract
This research focuses on the impact of fuel subsidy removal on cooperative business performance in Imo state, Nigeria. It examines the effects of fuel subsidy removal on cooperative members' income and input supply. The research investigates the intricate relationship between fuel subsidy policies and the operational dynamics of agricultural cooperatives input supply and members' income performance. The study used survey research methodology, collecting data from cooperative societies in Ehime Mbano local government area. The study employs a mixed-methods approach, combining quantitative surveys and qualitative interviews with members and leaders of selected agricultural cooperatives in Imo State. The area of the study is Ehime Mbano local government area of Imo state. Ehime Mbano is a Local Government Area of Imo State. The population of selected agricultural cooperative societies are total membership strength of 2,180. A sample size 338 derived using Taro Yamani formula. Descriptive statistics such as frequency distribution, means and percentages was used to analyze the data obtained to address the objectives of the study. Also inferential statistics, such as one sample f-test and regression was employed to address the research questions and to test the promulgated hypotheses. The findings reveal that fuel subsidy removal has significantly affected both cooperative farm input supply and member's income. The results support the notion that removing fuel subsidies all at once leads to short-term price increases, impacting cooperative businesses.
Keyword: *Fuel subsidy, agricultural cooperatives, performance, Imo State, Nigeria.*

Introduction

Understanding all the circumstances and elements that influence and shape agriculture's functioning is important since it is essential to Africans' daily lives and the continent's development. This ideological approach to dealing with this vitally important subject results from the fact that, like all other human endeavors, agriculture operates in situated social contexts that have an impact on it both individually and collectively in a variety of ways. Cooperatives, according to Fernando, Garnevska, Ramilan, and Shadbolt (2021), assist farmers in utilizing economies of scale by lowering their costs for purchasing inputs or procuring services like storage and transportation. They also enable farmers to minimize risks and improve the quality of their goods and services. Farmers are given the freedom by cooperatives to own and democratically control the businesses they use to sell and acquire their wares. By purchasing and selling in bulk and raising prices, cooperatives help to increase members' returns (Getnet, Kefyalew & Berhanu, 2018). Cooperatives significantly contribute to social integration, job prospects, and a decline in poverty cases because of their democratic culture and advantageous economic placement. As a result, cooperatives help to sustain local economic cycles and create jobs in the area.

Energy is a crucial input and plays a significant part in the production of every output in an economy. Its effectiveness is essential for the expansion of any sector of the economy and for economic growth. This is so that all economic agents, including cooperative businesses and all sectors, can operate and meaningfully contribute to global progress. In order to diversify the economy and lessen overdependence on crude oil exports in Nigeria, a low-income nation with a

high dependence on foreign trade, successive governments have taken a number of steps to reform the energy sector, including removing subsidies. The government's efforts to make the petroleum business more competitive are exemplified by the Petroleum business Bill (PIB). Nigeria still fails to gain meaningful profits from oil exploration and exports despite being blessed with an abundance of natural resources, including massive oil and gas reserves. The gasoline subsidy reform program was the outcome of these and other issues, particularly those in the downstream industry. The goal of these reforms and policy changes, though not without difficulties, is to quicken the pace of the economy's expansion. Redirecting the subsidy fund to high-priority industries including agriculture, health, infrastructure, and education achieves this. (Umar and Umar, 2013; Akinyemi, Alege, Ajayi, Amaghionyediwe and Ogundipe, 2015).

Ovaga and Okechukwu (2022) opined that fuel subsidy is a government discount applied to the market price of fossil fuels in order to force consumers to pay less than the current market price. In the presence of subsidies, consumers would pay less per litre of petroleum product than the market price. Due to the significant amount, impact on citizen welfare, and financial stability of a country, fuel subsidies are a topic of discussion on a global scale.

Statement of the Problem

Despite being the largest country in Africa and the sixth-largest oil producer in the world, Nigeria has had difficulty using its oil wealth to significantly reduce poverty and offer the fundamental social and economic services that its people require (Ering & Akpan 2012). Prior to the election of Goodluck Jonathan, the Federal Government's fuel subsidy policy aimed to help the Nigerian people withstand the effects of economic hardship. The abolition of fuel subsidies has long been a goal of the federal government, which lobbied for it under Goodluck's administration, Buharia's administration, and is now implementing it under Tinubu's administration. The withdrawal of fuel subsidies, which has been a major source of contention for Nigerians, is an intriguing economic problem.

The removal of fuel subsidies has been a contentious issue in Nigeria for some time, with multiple governments attempting the reform but failing due to fierce public opposition, which frequently resulted in large-scale protests from the public and civil society who view such policy as a means of furthering the subjugation and impoverishment of the masses. Nevertheless, it seems that the longer the subsidies have existed, the more entrenched the opposition to their removal has become. Due to insufficient energy supply, Nigeria's population relies heavily on gasoline, which increases the impact of shifting fuel prices on cost of living and commercial operations. The sudden surge in fuel costs brought on by the elimination of the subsidy has made things much worse for the already struggling Nigerian masses, who are already dealing with high unemployment rates and prevalent economic issues. Many authors have written on fuel subsidy removal but to the best of my knowledge there is no known work on fuel subsidy removal and cooperative business performance in Imo state hence the need for this research to cover the gap.

Objective of the Study

The broad objective of this study is to examine fuel subsidy removal and cooperative business performance in Imo state and the specific objectives are:

1. To examine the effect of fuel subsidy removal on Cooperative farm input supply to their members in the study area.
2. To determine the effect of fuel subsidy removal on Cooperative members income in the study area.

Hypothesis:
Ho_1: Fuel subsidy removal does not have any significant effect on cooperative farm input supply to their members.

Ho_2: Fuel subsidy removal does not have any significant effect on cooperative member's income in the study area.

Review of Related Literature

Conceptual Review

Concept of Fuel Subsidy

Soile, Tsaku, and Yar Adua (2014), observed that subsidies are stated to occur when the government assists customers in paying a portion of the product's current market price. Thus, the difference between the actual market price of gasoline and the price that final customers pay for the good can be defined as a fuel subsidy. Bazilian and Onyegi (2012) claim that developing nations have primarily used consumer subsidies for fossil fuels as a means of achieving specific economic, social, and environmental goals, such as resource wealth redistribution, externality correction, poverty reduction, and inflation control. Numerous authors have written about and defined the idea of subsidy in the literature. To help particular businesses, sectors, or people, the government or other organizations may offer financial or non-financial incentives known as subsidies (Scott & Kvilhaug, 2022). They are designed to lessen financial strains, foster economic growth, and address market imperfections. IMF et al. (2020) state that subsidies can come in a variety of shapes, including direct government spending, equity infusions, tax incentives, lenient loans, government provision of products and services and preferential conditions in procurement, and pricing supports like price reduction.

It is essential for citizens to take advantage of the resource endowment because crude oil exports account for around 90% of the nation's foreign exchange profits. Government subsidies for petroleum products like gasoline, kerosene, and diesel have resulted as a result of this. The well-known goals of this fuel subsidy include promoting industrial development, wealth redistribution, and increasing domestic product consumption by households.

Despite being the largest country in Africa and the sixth-largest oil producer in the world, Nigeria has failed to significantly alleviate poverty or deliver the essential social and economic services to its people (Ering & Akpan 2012). Prior to the election of Goodluck Jonathan, the Federal Government's fuel subsidy policy aimed to help the Nigerian people withstand the effects of economic hardship. In Nigeria, gasoline subsidies were originally implemented in the 1970s as a reaction to the 1973 shock in the price of oil. In 1986, fuel subsidies were in part eliminated. The fuel subsidies have remained in effect ever since. The government abruptly ended the fuel subsidy in 2012. Massive demonstrations against the withdrawal were held in order to pressure the administration to bring back the fuel subsidy that had been cut. Due to the significant protests, the

government subsequently resumed fuel subsidies in 2012. Nigeria's fuel subsidy payment has increased significantly since that time. Fuel subsidies amounted to 4 trillion (US$6.088 billion) in 2022, or 23% of the country's total budget of 17.126 trillion (US$25.87 billion). Because Nigeria could no longer afford fuel subsidies in 2023, the government declared that they would be eliminated in June of that year, which is exactly what happened. Recent research in Nigerian literature reveals conflicting results of fuel subsidies. While some research highlight the positive effects of fuel subsidies and ask for their administration to be transparent, other studies draw attention to their drawbacks and call for their abolition.

Adekunle and Oseni (2021), for instance, contend that eliminating fuel subsidies could lower the growth in carbon emissions through low energy consumption channels, even though it might result in higher energy costs. One negative macroeconomic implication of the removal of fuel subsidy is that the rate of economic growth could decrease (Houeland, 2020). The fuel subsidy removal would lead to increase in price of essential goods and services. As a result, there would be fewer disposable income in the hands of individuals and small businesses due to rising prices, stagnant wages, and a fixed national minimum wage. This will lead to a reduction in consumption expenditure and would act as a drag on aggregate demand. The reduction in consumption would translate to weak consumer demand for the goods and services produced by firms. This, in turn, could decrease economic output and gross domestic product, and slow the rate of economic growth. Another negative macroeconomic implication of the removal of fuel subsidy is that the inflation rate would increase (Mohammed, Ahmed and Adedeji, 2020). The removal of fuel subsidy led to a rise in the price of petrol from a subsidized price of ₦190 in May 2023 to an unsubsidized price of ₦537 in June 2023 and ₦617 in July 2023 in Abuja. Meanwhile, the price of petrol could rise above ₦600 in the far North such as in Borno State due to high transportation cost. The implication is that the price of most consumer and industrial goods, which are produced or transported with petrol, will increase sharply. The cost of bread will increase, and the cost of local transportation will also increase, making it expensive to afford for poor individuals and lowincome earners. The effect will also be felt by both the rich and the poor, but as always, the poor will suffer the most, through a significant reduction in their purchasing power. The inflation effect could be further worsened by the late rollout of palliatives by the Federal Government to support the poor and households who are affected by the rise in the price of essential goods and services immediately after fuel subsidy removal. Umeji and Eleanya (2021) contend that despite the introduction of fuel subsidies, Nigeria's oil wealth has not resulted in an improvement in the standard of living, and that the removal of fuel subsidies could have negative effects that can be lessened by the Theoretically, it is expected that the removal of fuel subsidy will influence the agricultural sector either positively or negatively. The negative effect is reflected in the increase in the cost of agricultural produce attributed to the high cost of transportation which is a crucial component of the logistics. government being transparent about how it plans to use the money saved from the removal of fuel subsidies for infrastructure improvement. Additionally, Ovaga and Okechukwu (2022) contend that fuel subsidies contribute to corruption in Nigeria because a group of corrupt individuals have been working to undermine efforts to build new refineries in Nigeria and to thwart the operation of existing ones in order to maintain fuel importation and fuel subsidies for the satisfaction of their own selfish interests. For example, Ansari, Salami and Veeman (2014) examined the distributional consequences of subsidy removal from the agricultural and food sectors using a price-based Social Accounting Matrix (SAM) analysis. They found that the low-income rural households will be most affected when these categories of subsidies are removed due to high prices of food and agricultural produce which is capable of affecting welfare negatively.

In spite of this data, there is little to no discussion on the effects of the recent removal of fuel in Nigeria in 2023. Concerns about how the loss of the fuel subsidy might impact the Nigerian economy, Nigerians, and cooperatives were raised because the subsidy was eliminated without first offering some palliatives.

Cooperative Input Supply

The provision of seeds and fertilizer to farmers is a component of input supply. Cooperatives engaged in collaborative agricultural production operate on collectively owned farmland, according to Imobighein (2018). Cooperative societies act as channels for the distribution of input, according to Taiwo, Katagum, and Bilkisu (2017). They have created a solid and dependable system through their national organization for the distribution of food crops, fertilizers, agrochemicals, credits, seeds, and seedlings. The backbone of any agricultural revolution is access of farmers to modern agricultural inputs. Farm inputs are very important to farmers to boost their productivity and as such should be made available to them by cooperatives.

Cooperative Members Income and Fuel Subsidy Removal

Fuel subsidy removal can have significant impact on the income and livelihood of cooperative members in Nigeria. By removing of fuel subsidies, the cost of petroleum products such as gasoline, diesel, tends to increase. This leads to higher transportation costs for cooperative members who rely on these fuel for commuting, whether for work or other daily activities. The increased cost of transportation can strain household budgets, reducing disposable income. (Nwachukwu & Ijewere, 2020). Higher fuel prices can also affect the income levels of cooperative members who operate businesses that rely on transportation for the distribution of their goods and services. Increased operational costs can lead to reduced profit margins, potentially resulting in lower income for business owners within cooperative communities. (Ijewere, 2012).

Fuel Subsidy Removal and Cooperative Business Performance

Cooperatives helps farmers take advantage of economies of scale by decreasing their expenses of obtaining inputs or acquiring services like storage and logistics. They also allow farmers to enhance product or services quality and lower risks (Fernando, Garnevska, Ramilan and Shadbolt (2021).

In empirical literature, there is limited number of studies on the impact of fuel subsidy removal on the performance or output of the agricultural sector, even for Nigeria, with the exception of the study of Atoyebi et al. (2012) which used questionnaires to analyse how output in the agricultural sector will change with the removal of subsidy in Nigeria.

Ansari, Salami and Veeman (2014) examined the distributional consequences of subsidy removal from the agricultural and food sectors using a price-based Social Accounting Matrix (SAM) analysis. They found that the low-income rural households will be most affected when these categories of subsidies are removed due to high prices of food and agricultural produce which is capable of affecting welfare negatively. IMF et al. (2020) state that subsidies can come in a variety of shapes, including direct government spending, equity infusions, tax incentives, lenient loans, government provision of products and services and preferential conditions in procurement, and pricing supports like price reduction. The well-known goals of this fuel subsidy include promoting

industrial development, wealth redistribution, and increasing domestic product consumption by households.

Theoretical Framework – System Theory

Systems theory was first introduced in the 1940s by biologist Ludwig Von Bertalanffy. Systems theory is the trans-disciplinary study of systems, i.e. cohesive groups of interrelated, interdependent components that can be natural or human-made. Every system has causal boundaries, is influenced by its context, defined by its structure, function and role, and expressed through its relations with other systems. A system is "more than the sum of its parts" by expressing synergy or emergent behavior. Systems theory is an interdisciplinary theory about the nature of complex systems in nature, society, and science. It is a framework by which one can use to study, investigate and describe any group of objects that work in collaboration towards a common purpose/goal.

Changing one component of a system may affect other components or the whole system. It may be possible to predict these changes in patterns of behavior. For systems that learn and adapt, the growth and the degree of adaptation depend upon how well the system is engaged with its environment and other contexts influencing its organization. Some systems support other systems, maintaining the other system to prevent failure. The goals of systems theory are to model a system's dynamics, constraints, conditions, and relations; and to elucidate principles (such as purpose, measure, methods, tools) that can be discerned and applied to other systems at every level of nesting, and in a wide range of fields for achieving optimized equifinality.

Additionally, an essential assumption of systems theory is that it needs to be understood as a whole system, rather than only the mechanical portions mentioned above, as someone should reflect on how the system connects itself to its' environment.

Relevance of the Theory

System theory says that a change in one component of a system may affect other components or the whole system. It may be possible to predict these changes in patterns of behavior. This is relevant to the work because a removal in fuel subsidy will automatically affect the performance of cooperative business whether positively or negatively.

Empirical Studies

Alege, Ajayi, Adediran, and Urhie (2017). Using a dynamic computing general equilibrium approach, simulate the removal of fuel subsidies and the agricultural sector's performance in Nigeria. Given its strategic importance as a crucial industry, this study examined the reaction of Nigeria's agriculture sector to the elimination of the subsidy on refined petroleum. The study shows the outcomes of how the agriculture sector responded to three different simulation scenarios using a dynamic energy-environment CGE model based on the 2006 Nigerian Social Accounting Matrix (SAM). These include the withdrawal of the subsidy on imported refined oil in Nigeria in three stages: partially (by 50%), gradually, and all at once (100 percent). As many of the important macroeconomic variables increased under the total removal simulation scenario, the results showed that a complete or one-shot elimination of fuel subsidies is more advantageous in terms of better agricultural sector performance. It is advised that, despite short-term price increases, removing fuel subsidies all at once will improve the output and performance of the agricultural

sector. When resources are devoted to technological and infrastructural advancement, the industry will reap long-term rewards that will boost overall growth and improve food security in Nigeria.

Egbezien, Inegbedion, Inegbedion, Obadiaru & Asaleye, (2020). Fuel price increases, the elimination of petroleum subsidies, and the Nigerian economy. The goal of the study was to evaluate how much the elimination of petroleum subsidies contributed to rises in gasoline costs and product prices across other economic sectors in Nigeria. The computed table showing the flow of commodities was used to determine the value added per sector using an input-output model. The effects of decreasing petroleum subsidies by 10%, 20%, 30%, 40%, and 50% were then calculated on the costs of goods from the other sectors. The findings indicated that cutting back on petroleum subsidies causes an increase in the cost of petroleum products, which in turn causes an increase in the cost of transportation. Because of the degree of interdependence between the various sectors, an increase in transportation costs then causes an increase in the cost of other goods. Among other things, it was urged that policymakers should take the economic effects of subsidy elimination into consideration.

Methodology

The research design adopted for this study is the survey research design. Data for this study was collected from the conventional sources; primary and secondary data. Data were gathered from the primary source through questionnaire that was self-administered while secondary source of information were journals, textbooks and other records that are relevant to the study. The area of the study is Ehime Mbano local government area of Imo state. Ehime Mbano is a Local Government Area of Imo State, Nigeria. Its headquarters are in the town of Umuezeala Owerre. It has an area of 169 square km and a population of 130,931 at the 2006 census.
Among the active and functional Farmers' cooperative in the area, 15 cooperative societies were purposively selected having a total membership strength of 2,180.
The sample size was determined using Taro- Yamani (1964:250) formula as this;

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

Where n = Signifies sample size
N = Signifies the population under study
1 = Constant
e = The degree of error expected
N = 2180
e = 0.05
Therefore,

$$n = \frac{2180}{1 + 2180(0.05)^2}$$

$$n = \frac{2180}{1 + 2180x0.0025}$$

$$n = \frac{2180}{6.45}$$

n = 337.9
n = 338 (approximately)

Method and Tools for Data Analysis

Descriptive statistics such as frequency distribution, means and percentages was used to analyze the data obtained to address the objectives of the study. Also inferential statistics, such as one sample f-test and regression was employed to address the research questions and to test the promulgated hypotheses.

The response from the respondent were organized into frequency distribution and the collected data was tabulated and converted into mean rating using 5-point Likert scale as shown below.
Formula for mean: $\sum$ N FX Where $\sum$ - Sum of F - Frequency X - Normal Value N - Total number of respondent The nominal values assigned to the different scaling items used are as follows, Strongly Agree = 5, Agree = 4, Undecided = 3, Disagree = 2 Strongly Disagree = 1. X = 5+ 4 + 3 + 2 +1/5= 3, the cut-off point is 3.
Decision Rule: The cut-off point mean is 3. Any response that has a mean score of 3 and above is accepted while any response with a mean score below 3 is rejected. Using SPSS package, regression analysis was run at significance level of 0.05 with the degree of freedom (df) = (n-1).

Further analysis and tests of hypotheses one and two were done through the application of multiple regression models. The regression models were implicitly specified as in equations 1 and 2.

FAP = f(X 1 , X 2 , X 3 , X 4 , X 5) 1
FAP = f(X 6 , X 7 , X 8 , X 9 , X 10 , X 11 , X 12 , X 13 , X 14 , X 15) 2
And further explicitly specified as in equations 3 and 4:
FAP = α + β 1 X 1 + β 2 X 2 + β 3 X 3 + β 4 X 4 + β 5 X 5 + e 3
FAP = α + β 6 X 6 + β 7 X 7 + β 8 X 8 + β 9 X 9 + β 5 X 5 + β 6 X 6 + β 7 X 7 + β 8 X 8 + β 9 X 9 + β 10 X 10 + β 11 X 11 +
β 12 X 12 + β 13 X 13 + β 14 X 14 + β 15 X 15 + e

Where:
FAP = Farm gross profit of cooperative members in Naira
X 2 to X 5 = Vectors of indicators of credit obtained from cooperatives (mean Likert scale responses).
X 6 to X 15 = Vectors of indicators of farm inputs from cooperatives (mean Likert scale responses)
The α is the constant and the β s are the parameters to be estimated, while the e is the error term. All calculations and estimate were obtained through the use of version 21 of the SPSS package.

Table 1: Reported gross profit of farm operations of cooperative members in 2022 and 2023

Range in N'000 2022	**Frequency**	**Percentage**	**Range in N'000 2023**	**Frequency**	**Percentage**
Less than 100	52	16.56	Less than 100	67	21.34
100 - 199	60	19.11	100 – 199	81	25.80
200 – 299	63	20.06	200 – 299	54	17.20
300 – 399	65	20.7	300 – 399	57	18.15
400 and above	74	23.57	400 and above	55	17.52
Total	**314**	**100**	**Total**	**314**	**100**

Survey data, 2023.

Table 1, shows the reported gross profit made by the responding cooperative members in 2022 and 2023. It could be seen that majority of the members in 2022 (23.57%) reported gross profit of between N400,000 and above. They were closely followed by a group of 20.70% of the members who reported a higher gross profit of over N300,000 – N399,000. Other reported gross profit ranges included N200,000 to N299,000 by 63 members (20.06%), N100,000 to N199,000 by 60 members and less than N100,000 by 52 farmers (16.56%). In 2023, majority of the members (25.80%) reported gross profit betweenN100,000 and N199,000. They were closely followed by a group of (21.34%) of the members with a gross profit of less than N100,000. Other ranges included (18.15%) N300,000 to N399,000 and (17.52%) which is N400,000 and above. Certainly, the farm gross profit as reported shows a fluctuation in 2023. Without doubt fuel subsidy removal has in one way or the other negatively affected the performance of the members.

Data Presentation and Analysis

Of 338 questionnaires distributed 314 were returned, representing 92.96% responses. This implies that 92.96% of respondents returned their questionnaires.

Table 2: Effect of fuel subsidy removal on the cooperative members' income

S/N	Items	(5) SA	(4) A	(3) UD	(2) D	(1) SD	Mean	Decision
1	Fuel subsidy removal led to increase in essential goods and services which affects the income of members.	73	192	0	10	39	3.80	Accepted
2	Fuel subsidy removal caused high cost of living for members.	73	166	6	13	56	3.60	Accepted
3	The impact of fuel subsidy removal increased domestic price of fuel which adversely affects the income of cooperative members.	74	166	6	17	51	3.62	Accepted
4	Fuel subsidy removal brought about high cost of transportation which adversely affect income.	65	150	11	20	68	3.74	Accepted
5	Fuel subsidy removal brought about fewer disposable income in the hands of members.	77	180	1	11	45	3.77	Accepted
Grand Mean							**3.71**	

Source: Field survey 2023

Table 2 above analyzed the effect of fuel subsidy removal on the cooperative members' income. Out of the five (5) variables used for the effect of fuel subsidy removal, 5 were accepted because the mean score was above 3.00 which is the threshold for acceptance. Meaning that respondents

are of the opinion that the fuel subsidy removal has generally affected the cooperative members' income. The grand mean is 3.71 which shows acceptance by the respondents.

Table 3: Effect of fuel subsidy removal on the cooperative input supply to their members in the study area.

S/N	Items	(5) SA	(4) A	(3) UD	(2) D	(1) SD	Mean	Decision
1	The effect of petrol subsidy removal is low supply of agricultural inputs such as fertilizer, improved seed to cooperative members.	86	167	8	9	44	3.77	Accepted
2	Cost of inputs increased as a result of fuel subsidy removal.	73	172	8	19	42	3.68	Accepted
3	Petrol subsidy removal has negative impact on the overall productivity of your cooperative.	72	152	6	23	61	3.48	Accepted
4	Land made available for cultivation are not properly utilized as a result of high cost of cultivation	49	118	49	32	66	3.17	Accepted
Grand Mean							**3.53**	

Source: Field survey 2023

Table 3 above analyzed the fuel subsidy removal on the cooperative input supply to their members in the study area. Out of the four (4) variables used for the effect of fuel subsidy removal, 4 were accepted because the mean score was above 3.00 which is the threshold for acceptance. Meaning that respondents are of the opinion that the fuel subsidy removal has generally affected the cooperative input supply to their members in the study area. The grand mean is 3.53 which shows acceptance by the respondents.

Test of Hypothesis Using SPSS Version 23

Ho_1: Fuel subsidy removal does not have any significant effect on cooperative farm input supply to their members.

Ho_2: Fuel subsidy removal does not have any significant effect on cooperative member's income in the study area.

Note: Alpha value (α) = 0.05
Decision Rule: Where the Sig. value is less than the alpha value (α), H_0 is rejected and H_1 accepted.

Table 4: Regression Output: Fuel subsidy removal on Cooperative Business Performance

Variables	coefficients	std. error	t. stat	Sig (Prob)
Farm input supply	.141	.024	5.929	.000

Member's income	.595	.023	26.007	.000
R	.922			
R^2	.861			
Adj. R^2	.857			
F. ratio	485.214 Sig @ 0.000			

Source: Computed from field survey, 2023.

The test reveals the correlation coefficient (R) of 0.922 signifying a strong positive relation between the dependent and the independent variables. This means that 92.2% strength of relationship exists between them.

The overall regression fit as measured by the coefficient of multiple determinations (R^2) was 86.1% and measures the goodness of fit at a very high percentage. It means that 86.1% variation in the dependent variable was accounted for the variations in the independent variables.

Discussion of Test hypothesis: At various levels of probability, farm input supply and member's income are statistically significant as indicated by their low probability values of 0.000 and 0.000, respectively.

To the general prediction of the F-test, $P<0.05$; this therefore rejects the null hypothesis and accepts the alternate that: "Fuel subsidy removal has significant effect on cooperative farm input supply to their members" and "Fuel subsidy removal has significant effect on cooperative member's income in the study area."

This outcome is consistent with the findings of Alege, Ajayi, Adediran, and Urhie (2017) and Egbezien, Inegbedion, Inegbedion, Obadiaru & Asaleye, (2020) whose observation is that a complete or one-shot elimination of fuel subsidies is more advantageous in terms of better agricultural sector performance in the long-run, yet causes an increase in the cost of petroleum products, which in turn causes an increase in the cost of transportation. Therefore, a short-term price increases will happen, which will invariably significantly affect cooperative farm input supply and member's income.

Conclusion

The study concludes that fuel subsidy removal in Nigeria has substantial implications for cooperative business performance. It has led to increased costs of essential goods and services, higher transportation costs, and reduced disposable income for cooperative members. Additionally, the removal of fuel subsidies has negatively affected the supply of agricultural inputs to cooperative members, impacting overall productivity. While the long-term benefits of subsidy removal may include improved agricultural sector performance, the short-term consequences are significant.

Recommendations

Based on the findings, the following recommendations are made:

Instead of abrupt removal, policymakers should consider gradual or phased approaches to minimize the immediate impact on cooperative businesses and households. The government and relevant agencies should provide support to cooperative businesses, especially in terms of access to affordable inputs, financing, and capacity building, to help mitigate the negative effects of

subsidy removal. Also, there should be continuous monitoring and evaluation of the impact of fuel subsidy removal on cooperative businesses should be carried out to inform policy adjustments and interventions.

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