**THE POLICY REMOVAL SUBSIDY OF FUEL AND IMPACT AT AMONG FISH FARMERS IN YENAGOA AGRICULTURAL ZONE, BAYELSA STATE, NIGERIA**

**Abstract**

This study analyzed the effect of the fuel subsidy removal policy on agricultural input utilization among fish farmers in Yenagoa Agricultural zone of Bayelsa state Nigeria. Fuel subsidy removal is intended to help reduce Nigeria’s dependence on imported fuel, increase the country’s economy and job creation, incentivize domestic refineries to produce more petroleum products, and free up resources for other sectors of the economy. Multi-staged sampling techniques were used for collecting data from eighty (80) respondents who were randomly selected from eight communities in Yenagoa Local Government Area. The data for this study were collected using primary and secondary data collection techniques. The effect of fuel subsidy removal on the profitability of fish farmers and the awareness level of fish farmers on federal government fuel subsidy removal in the study area was determined using a 3-point Likert-type rating scale.On the awareness level of fish farmers on federal government fuel subsidy removal, the result revealed that awareness of fuel subsidy removal and that fuel subsidy removal affected fish farming had mean scores of 2.30 and 2.29, respectively. On the effect of fuel subsidy removal on the profitability of fish farmers in the study area, the result revealed that fish farmers indicated removal of fuel subsidy has drastically increased the cost of inputs, and transportation costs, reduced household income, caused inflation, and reduced their purchasing power with mean scores of 2.45, 2.43, 2.28, 2.25 and 2.16, respectively. The simple regression result showed an inverse relationship existed between fuel subsidy removal policy and agricultural inputs utilization among fish farmers in the study area. Hence, fuel subsidy removal resulting in high production costs in fish production will reduce agricultural input utilization among fish farmers in the study area. Therefore, the null hypothesis (H01) that the fuel subsidy removal policy has no significant effect on fish farming utilization of inputs in the study area was rejected, and the alternative hypothesis (HA1) was upheld. The study, therefore, recommended that more extension agents should be employed to educate rural fish farmers on fuel subsidy removal and the effects it will have on their fish farming business. Also, Fisheries Research Institutes and higher Institutions that offer Fisheries and Aquaculture should develop strategies for integrated commercial fish farming to reduce fish production costs and increase profits of farmers in the face of fuel subsidy removal. Finally, the government should invest in alternative energy sources, and strengthen refineries and local production of petroleum products to reduce the cost of production inputs due to the rise in the inflation rate***.***

**Keywords:** Increased cost of inputs, effect of fuel subsidy removal, fish farmers, inflation, Bayelsa

**Introduction**

“The growth and expansion of the fisheries sector is vital for the economic development of small and developing economies. Trade in fish and fish products increases fish consumption and connects producers to distant markets for which local supply may be insufficient and hence supports the global food security. The sector also provides employment and generates income for millions of people” (Kumar et al., 2020; FAO, 2020). “Fuel subsidy is the government's effort to pay for the difference between the pump price of fuel at the petrol station and the actual cost of importation of fuel. The fuel subsidy removal policy has been a contentious issue for several years, with some calling for its removal and others advocating for its continuation. The government currently spends a significant portion of its budget on fuel subsidies, which could be better spent on education, healthcare, and infrastructure development.

In many other resource-rich countries, the Nigerian government introduced a fuel subsidy regime as part of strategies for cushioning the price of oil. Under this arrangement, the government regulates the domestic price of fuel and pays domestic marketers the difference between the regulated domestic price and the Expected Open Market Price (EOMP), which is determined by the Petroleum Products Pricing and Regulatory Agency (PPPRA). It is estimated that about 10 trillion was spent on fuel subsidy payments during the period 2006-2018” [1].

“Oil plays an important role in the Nigerian economy, contributing about a third of the country’s gross domestic product (GDP) in the 1980s and 1990s. Although its share of the economy has waned in the subsequent decades due to declining oil prices and the changing structure of the economy, the oil and gas sector still accounts for about 11.2% of the GDP in the current decade. Also, the contribution of oil to government revenue has remained quite high, increasing from 70.2% during the 1980s to about 80.0% in the last decade. In terms of trade, oil accounts for about 93.1% of exports and 24.4% of imports during the period 2010-2018” [2].

“Fuel subsidy removal is intended to help reduce Nigeria’s dependence on imported fuel, increase the country’s economy and job creation, incentivize domestic refineries to produce more petroleum products, and free up resources for other sectors of the economy. But because of lack of proper policy adjustment and reform, has led to an increase in the price of petroleum and petroleum products, inflation, and reduced purchasing power for consumers, impacted the cost of goods and services, social unrest, and protests, rise in fuel smuggling and other illegal activities. Therefore, if the subsidy reform becomes effective, the Nigerian government must protect the rights of citizens through agricultural investments, safety nets, and transport subsidies for its citizens” [3-6]. The government must carefully consider the impact of removing the subsidy and take steps to mitigate any negative effects. Increasing the salary of civil servants is a positive step towards mitigating the impact of removing the fuel subsidy. However, additional measures need to be implemented to ensure that society is adequately prepared for the potential effects of this policy change. The focus should be on finding a solution that balances the need for economic growth and development with the need to ensure that Nigerians have access to affordable fuel. In the absence of adequate counteractive measures, the fuel subsidy removal infringes on the fundamental economic, social and cultural rights of citizens. Therefore, given the current subsidy removal, Nigeria must aim to increase budgetary allocation to the agricultural sector. The investment should go into improving agricultural infrastructure and subsidizing agricultural inputs like fish feeds, seedlings, and fertilizers.

This study aims to ascertain the effect of the fuel subsidy removal policy on agricultural input utilization among fish farmers in Yenagoa agricultural zone of Bayelsa state Nigeria.

**Materials and Methods**

The study area is Yenagoa, located between Latitude 4o 45N and 5o 23S and Longitude 5o 15E and 6o 45E Yenegoa occupies an estimated area of 21,110 Km2, of which about three-quarters is below water. The area constitutes a population of 353,341 as per Natural Population Census, 2006 and lies within the rainforest zone, with a humid equatorial climate and mean annual rainfall ranging from 2,000 to 4,000mm and alternating rainy (March –November) and dry (December – February) seasons, featuring a short dry period between July and September (August break).

The maximum average temperature is 30 ° C with a relative humidity between 55 and 90 percent, depending on season and location. English is the official language, but Epie-Aissa language is the major local dialect spoken in Yenegoa. The Major occupations of the people are fishing, farming, and trading. Other means of livelihood include hunting, lumbering, distillation, palm oil milling, building, and weaving. There are twenty-one (21) communities within the study area, namely, Igbogene, Yenegwe, Akebfa, Edepie, Agudama, Akempie, Etegwe, Okutukutu, Opolo, Biogbolo, Yenizue-Gene, Kpansia, Yenizue-Epie, Okaka, Azikoro, Ekeki, Amarata, Onopa, Ovom, Swali, Yenagoa. There are 15 wards within the study area namely, Attissa(I), Attissa (II), Biseni (I) Biseni (II), Ekpetiama (I), Ekpetiama (II), Epie (I), Epie (II), Epie (III), Gbarain (I), Gbarain (II), Gbarain (III), Okordia, Zarama. (https://nigeriadecide.org). Yenagoa Agric zones is (3.3272).

**Sample Size and Procedures**

A multi-stage sampling technique was used for data collection in the study. The first stage, Yenagoa Local Government, was purposively selected because it has the majority of the fish farms in the state, which were mostly established by the state government and private entrepreneurs. The second stage involved a simple random selection of eight (8) communities present in Yenagoa Local Government Area of Bayelsa State. In the third stage, ten (10) fish farmers were randomly selected from each of the communities, resulting in a sample size of 80 fish farmers.

**Data Collection**

Data for this study were collected from primary sources with the use of structured questionnaires, which were administered to fish farmers. A comprehensive list of registered fish farmers was elicited from Bayelsa State Agricultural Development Programme for this study.

**Model specification.**

**HO1:** The Federal Government subsidy removal policy has no significant effect on fish farming input in the study area.

The ordinary least square simple regression model as reported by Agbarevo and Okringbo [7] was used as specified thus:

Y1= b0+ b1X1 + b2X2 + b3X3 + b4X4 + b5X5 + b6X6 + b7X7 + b8X8 + e

[[[

Where.

Yi = Federal government fuel subsidy removal

Xn= Agricultural inputs: measured on a 5-point rating scale.

X1 = Fish feed (beginner, grower, and finisher)

X2 = Labour/manpower

X3 = Water supply

X4 = Fingerlings

X5 = Hormones

X6 = Loans

X7 = Fertilizers

X8 = Medicines

e = error term.

**Data Analysis**

Data obtained were analyzed using descriptive statistics. A 5-point Likert-type rating scale of strongly disagree (1), somewhat disagree (2), neutral (3), somewhat agree (4) and strongly agree (5) was used for agricultural inputs utilized by fish farmers in Yenagoa LGA. A midpoint of 3.0 was established to make a decision.

A 3-point Likert-type rating scale of disagree (1), neutral (2), and agree (3) was used to determine the degree of relationship existing between key themes and Government subsidy removal. A midpoint of 2.0 was established to make a decision. Any mean response that is less than 2.0 implies no impact, while the mean response from 2.0 and above implies a negative impact.

**Results and Discussion**

The result of the various agricultural inputs utilized by fish farmers in Yenagoa LGA is presented in Table 1.

**Table 1: Agricultural inputs utilized by fish farmers in Yenagoa LGA**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/No. | Agricultural inputs utilized by fish farmers | Mean | SD | Remark | Rank |
| 1 | Availability of fish feed | 4.36 | 0.68 | Accept | 1st |
| 2 | Availability of manpower/labour | 4.21 | 0.65 | Accept | 2nd |
| 3 | Good water supply | 3.95 | 0.96 | Accept | 4th |
| 4 | Availability of fingerlings | 3.69 | 1.06 | Accept | 5th |
| 5 | Availability of fish hormone | 3.58 | 1.12 | Accept | 7th |
| 6 | Availability of loans/capital | 3.15 | 1.14 | Accept | 8th |
| 7 | Fertilizers | 3.64 | 1.10 | Accept | 6th |
| 8 | Medicines | 3.99 | 0.87 | Accept | 3rd |
|  | **Average mean score** | **3.82** |  |  |  |
|  | **Decision mean cut-off point** | **3.00** |  |  |  |

**Source:** Field survey data (2024). SD Standard deviation.

Result on agricultural inputs utilized by fish farmers in Yenagoa LGA as identified by fish farmers showed that all the agricultural inputs listed in this study were utilized by fish farmers as their mean scores were above the benchmark mean score. Removing the fuel subsidy could lead to an increase in the prices of these inputs of fish farming like fingerlings, pesticides, fertilizers, feeds, (beginner, grower, and finisher), labour and medicine as well as petroleum products used for manpower and labour which may lead to less utilization of some of these inputs. Fuel subsidy removal also led to inflation and reduced purchasing power for farmers. This could have a ripple effect across the economy, impacting the cost of goods and services.According to the report from the Food and Agriculture Organization [8], the major inputs needed by fish farmers in order of importance are seed (such as tilapia, Clarias, etc.), feed and fertilizer. Fish feed is another important input, and scarcity of fish feed and the high cost of feed ingredients are possible constraints likely to be encountered by fish farmers because of fuel subsidy removal. Another major input that is often assumed to be available without prior identification of the source of supply is fertilizer for pond fertilization. FAO [8] reports that farmers are often so preoccupied with farm construction work that they utterly neglect major sources of input supply to the extent that when the ponds are finally completed, they are left fallow for several months while the search for inputs continues. Therefore, engaging in socio-economic ventures like fish farming, which is technical and financially intensive, requires a circulating source of agricultural input such as credit, especially for a poor resource household. Agricultural credits provided by the government and other Non-Governmental Organizations can ease access and usage of these inputs in the scenario of fuel subsidy removal.

The result of the awareness level of fish farmers in Yenagoa LGA on federal government fuel subsidy removal is shown in Table 2.

**Table 2: Awareness level of fish farmers on federal government fuel subsidy removal**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/No. | Level of awareness of fish farmers | Mean | SD | Remark | Rank |
| 1. | I have not heard about fuel subsidy removal | 1.29 | 0.59 | Not aware | 4th |
| 2. | I am very much aware of fuel subsidy removal | 2.30 | 0.66 | Aware | 1st |
| 3. | Fuel subsidy removal has affected fish farming | 2.29 | 0.57 | Aware | 2nd |
| 4. | Is the effect of fuel subsidy positive? | 1.70 | 0.68 | Not aware | 3rd |
|  | **Total average mean score** | **2.00** |  |  |  |
|  | **Benchmark mean score** | **2.00** |  |  |  |

**Source:** Field survey data (2024).

The result on Table 2 revealed that fish farmers were very aware of fuel subsidy removal, and it affected their fish farming business. Table 4 shows that most fish farmers in Yenagoa LGA acquired formal education. Hence, since the fish farmers are enlightened, it will be easier for them to be aware and understand the issue of fuel subsidy removal. Siddig *et al*. [9]; Ocheni [10] have reported that fuel subsidy removal reduces household income, causes inflation, and reduces purchasing power for farmers. Removing the fuel subsidy could lead to an increase in the prices of inputs of fish farming like fingerlings, pesticides, fertilizers, feeds (beginner, grower, and finisher), labour and medicine, and petroleum products. This could have a ripple effect across the economy, impacting the cost of goods and services and the protein nutritional requirement of the farmers’ households.

The result of the effect of Nigerian federal government fuel subsidy removal policy on the profitability of fish farmers is presented in Table 3.

**Table 3: Effect of fuel subsidy removal on profitability of fish farmers in the study area.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/No. | Effect subsidy removal | Mean | SD | Remark | Rank |
| 1. | Reduce household income | 2.28 | 0.65 | Accept | 3rd |
| 2. | Cause inflation | 2.25 | 0.59 | Accept | 4th |
| 3. | Increase in cost of transportation | 2.43 | 0.55 | Accept | 2nd |
| 4. | Increase in cost of inputs | 2.45 | 0.53 | Accept | 1st |
| 5. | Reduction in profit margin | 1.91 | 0.66 | Reject | 6th |
| 6. | Reduction in purchasing power | 2.16 | 0.56 | Accept | 5th |
| 7. | Low level of sales | 1.68 | 0.67 | Reject | 7th |
|  | **Total average mean score** | **2.17** |  |  |  |
|  | **Benchmark mean score** | **2.00** |  |  |  |

**Source:** Field survey data (2024). SD Standard deviation.

In Table 3 revealed the effect of fuel subsidy removal on the profitability of fish farmers in the study area showed that the removal of fuel subsidy increased cost of inputs, and transportation cost, reduced household income, caused inflation, and reduced their purchasing power as all these listed items were above the benchmark mean score. This finding is in line with the result of Adetuyi *et al.* [11], whose study showed that “when fishing inputs are subsidized, it increases fishing activities, efforts, and output of the fishers. Therefore, in the case where the fuel subsidy is removed, the reverse will be the case. According to FAO” [8], “a subsidy is used to lower consumer prices by lowering production costs, to raise the income of producers relative to what might have been obtained under market conditions, to increase the output of commodities, etc. A report from the United States Agency for International Development” [12] outlined input costs such as fuel for power and transportation, feed, and fertilizer, as the major constraints, especially in the case of fuel subsidy removal faced by fish farmers. Therefore, the study advocates financial support in the form of both capital and recurrent expenditures and direct transfers of loans to fish farmers to boost production and cushion the effect of fuel subsidy removal.

**Hypothesis Testing**

**HO1: The** Federal Government subsidy removal policy has no significant effect on fish farming input in the study area.

**Table 4: Regression results on the relationship between fuel subsidy removal and agricultural input utilization among fish farmers**

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | Coefficient | t-value | p-value |
| Constant | 50.997\*\*\* | 13.178 | 0.000 |
| Fuel subsidy removal | -1.624\*\*\* | -6.923 | 0.000 |
| r2 | **0.381** |  |  |
| Adj r2 | **0.373** |  |  |
| F-statistic | **47.926\*\*\*** |  | 0.000 |

**Source:** Field survey data (2024). **Note:** \*\*\* indicates statistical significance at 1% level.

The result presented in Table 4 showed the relationship between fuel subsidy removal and agricultural input utilization among fish farmers. This is based on the magnitude of the coefficient of simple determinations (r2), the significance of the regression coefficient, and the sign of the significant variable conforming to *a priori* expectations as well as the significance of the entire model as shown by the F- statistic. The value of the coefficient of simple determinations (r2) was 0.381, implying that about 38.1% of the variations in agricultural inputs utilization among fish farmers in Yenagoa LGA were explained by the explanatory variable (fuel subsidy removal) included in the model.

The regression result showed that an inverse relationship existed between fuel subsidy removal and agricultural input utilization among fish farmers in the study area. Hence, fuel subsidy removal resulting in high production costs in fish production will reduce agricultural input utilization among fish farmers in the study area by a factor of 1.624. The negative effect is reflected in the increase in prices of input of fish farming like fingerlings, pesticides, fertilizers, feeds (beginner, grower and finisher), labour and medicine as well as petroleum products attributed to the high cost of transportation, which is a crucial component of the logistics. This result agrees with the study of Mukaramah *et al.* [13] whose study reported the increase in fuel prices led to an increase in production input costs in sectors whose production input costs are higher than the fuel subsidy removal policy namely fishing and aquaculture; transportation and storage; utilities; crops, animal production and hunting; and food products. This, in turn, could lead to inflation and reduced purchasing power for farmers. According to Oguoma *et al.* [14], high expenditures on fingerlings, fertilizer, labour, power generation for water supply, feed, etc., increase the production cost of fish production and reduce revenue generated from the business, which may affect the utilization of these inputs in the long run. Therefore, the study suggests the protect fish farmers through agricultural investments, safety nets, and transport subsidies for its citizens by the Nigerian government if the subsidy reform must become effective.

Therefore, the null hypothesis (H01) that the federal government subsidy removal policy has no significant effect on fish farming utilization of inputs in the study area was rejected, and the alternative hypothesis (HA1) was upheld.

**Conclusion**

Results of the study have shown that the removal of subsidies on petroleum products in Nigeria have a significant effect on fish production and the utilization of production inputs in fish farming, increase in transportation costs, feed, fuel for power supply, fertilizer and processing cost would lead to a decrease in production scale and profit of fish farmers. This decrease in profit would harm farmers’ ability to utilize more inputs to boost the scale of production in the study area.

**Recommendations**

Based on the findings of this study, the following recommendations are made.

1. More extension agents should be employed to educate rural fish farmers on fuel subsidy removal and the effects it will have in their fish farming business. Also, the extension workers should be well equipped to provide necessary training and other services needed by fish farmers to reduce the effect of fuel subsidy removal policy.
2. Fisheries Research Institutes and higher Institutions that offer Fisheries and Aquaculture should develop principles and practice of integrated commercial fish farming which comprises the use of organic and inorganic inputs for effective fish production that will increase profits of farmers.
3. The government should invest in alternative energy sources, strengthen refineries and local production of petroleum products to reduce the cost of production inputs due to rise in inflation rate.
4. The study recommends the protect fish farmers through agricultural investments, safety nets, and transport subsidies for its citizens by the Nigerian government if the subsidy reform must become effective.

Disclaimer (Artificial intelligence)

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

Option 2:

Author(s) hereby declare that generative AI technologies such as Large Language Models, etc. have been used during the writing or editing of manuscripts. This explanation will include the name, version, model, and source of the generative AI technology and as well as all input prompts provided to the generative AI technology

Details of the AI usage are given below:

1.

2.

3.

**References**

1. The Budgit Foundation. Annual Report 2019. Retrieved 10th December 2024, from <https://budgit.org>
2. Omotosho, B.S. Oil Price Shocks, Fuel Subsidies and Macroeconomic Instability in Nigeria. Retrieved 10th December 2024, from https://www.cbn.gov.ng/out/2020/std/1%20-%2038\_a416\_omotosho.pdf
3. McCulloch N, Moerenhout T, Yang J. Fuel subsidy reform and the social contract in Nigeria: A micro-economic analysis. Energy policy. 2024; 156:112-336.
4. Mohammed U. Impact of Subsidy Removal on Smallholder Livestock Farmers' Productivity in Nigeria. Journal of Livestock Policy. 2024;3:24-36. 10.47604/jlp.v3i1.2541.
5. Sennuga O. Impact of Fuel Subsidy Removal on Agricultural Production among Smallholder Farmers. 2024; 5. 7-17.
6. Ochimana GA, Adikwu O, Aernyi MT. Effects of fuel subsidy removal on rural farmers production in Kwande Local Government Area, Benue State, Nigeria. Advance Journal of Agriculture and Ecology Adv. J. Agric. & Eco. 2025; 10(2)-21-31.
7. Agbarevo MNB, Okringbo JI. Effect of Technologies of National Root Crops Research Institute, Umudike on poverty reduction among Farmers in Umuahia Agricultural Zone, Abia State. Journal of Community & Communication Research. 2020; 5(2): 83-90.
8. Food and Agriculture Organization –FAO. The role and effect of subsidies on fisheries development in West Africa (Nigeria, Cote d’Ivoire, The Gambia and Senegal). CECAF/ECAF SERIES 90/53. 1990.
9. Siddig K, Aguiar A, Grethe H, Minor P, Walmsley T. Impacts of removing fuel import subsidies in Nigeria on poverty. Energy Policy. 2014; 69: 165-178.
10. Ocheni IS. Impact of Fuel Price Increase on the Nigerian Economy. Mediterranean Journal of Social Sciences. 2015; 6 (1): 560-569.
11. Adetuyi OO, Oladapo AO, Ilemobayo OO. Effect of Subsidy on Fish Production in Ondo State, Southwest, Nigeria. IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS). 2013; 4 (3): 36-41.
12. United States Agency for International Development-USAID. Nigeria Aquaculture Value Chain Analysis. 2012.
13. Mukaramah, H, Siti, H. C. M, Wan, R. F, Shazida, J. M. K, and Mohd, S. Z. N. The Effects of Fuel Subsidy Removal on Input Costs of Productions: Leontief Input-Output Price Model. International Journal of Supply Chain Management. 2018; 7(5): 529-534.
14. Oguoma NNO, Ohajianya DO, Nwosu FO. Performance of small-scale fish farm operators in resource- use in Imo State, Nigeria. Researcher. 2010; 2(3): 56-65.
15. Kumar, R., Kumar, R. R., Stauvermann, P. J., & Arora, P. (2020). Effect of fisheries subsidies negotiations on fish production and interest rate. Journal of Risk and Financial Management, 13(12), 297.
16. FAO. 2020. The State of World Fisheries and Aquaculture 2020. Sustainability in Action. Rome. Available online: [**http://www.fao.org/3/ca9229en/ca9229en.pdf**](http://www.fao.org/3/ca9229en/ca9229en.pdf) (accessed on 3 October 2020).