

Effect of Fuel Subsidy Removal on the Distribution of Farm Produce in South East, Nigeria

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Abstract

The oil industry in Nigeria is very essential to the nation, as it impacts significantly on every sector of the economy, including the distribution of goods and services. Fuel subsidy removal, therefore, has direct effects on every individual and organization in various ways. However, the interest of this study is to examine the extent to which fuel subsidy removal affects the distribution of farm produce in South East, Nigeria. Primary sources of data, such as questionnaires, were adopted to gather information for the research, and the study is rooted in inexhaustible resource theory to justify this concern. The study revealed as follows: that fuel subsidy removal negatively affects transport services in the distribution of farm produce in South East, Nigeria; that due to the increase in the pump price of petroleum products as a result of subsidy removal, the prices of farm produce have gone up; that fuel subsidy removal has caused an astronomical increase in the price of transport fares in the distribution of farm produce in South East, Nigeria; and that fuel subsidy removal has negatively affected the supply of farm produce in South East, Nigeria. It was recommended as follows: that government should introduce public transport services to cushion the effect of the shortage of transport services being offered by private transport investors; that it has become imperative to establish a price control board to checkmate the arbitrary hike in the price of farm produce in the market; that government should subsidize the prices of acquiring other means of transportation, such as electric trains, donkeys, wheelbarrows, motorcycles, keke napep, and bicycles, to evacuate farm produce; and that government should use various government marketing companies to buy these farm produce and store them at silos for future use.

Keywords: Fuel Subsidy Removal, Distribution of Farm Produce, Transportation Services, Transport Fares, Farm Produce Availability.

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Introduction

The promulgation of the Nigerian Enterprises Promotion Decree of 1972 and the Indigenization Decree of 1973 enhanced the development of public businesses in Nigeria, which brought about regulation policy in the downstream sector of petroleum products marketing (Ngwoke, 2018). Fuel subsidies began in the 1970s and became institutionalized in 1977, following the promulgation of the Price Control Act, which made it illegal for some products, including petrol, to be sold above the regulated price (Oyedele, Akinduyite, Chime, & Olajudu, 2023). Oil plays important roles in the Nigerian economy, contributing about one-third of the country's gross domestic product (GDP) in the 1980s and 1990s (Omotosho, 2019).

The various Nigerian governments subsidized the pump prices of petroleum (fuel) products until May 2023, when the government announced the removal of fuel subsidy (Iwayemi, 1993). Fuel, also known as petroleum or oil, is an inflammable oil product derived from crude oil, which includes Premium Motor Spirit (PMS), also called petrol; Auto Gasoline Oil (AGO), referred to as diesel; and Dual Purpose Kerosene (DPK), among others (Dharam, 1991). Premium Motor Spirit and Auto Gasoline Oil are used to power engines for both industrial and transportation purposes. These products are bought from petroleum retail outlets.

According to Hornby (2005), subsidy means money that is paid by a government to business organizations to reduce the cost of production of goods and services so that their prices can be kept low. To Lawal (2014), it is a device employed by the government to assist either consumers or producers to consume or produce certain commodities at prices below the prevailing market prices. Subsidy, in an economic sense, exists when consumers of a given commodity are assisted by the government to pay less than the prevailing market price of the same commodity.

According to Oseni in Ngwoke (2018), fuel subsidy means that consumers would pay less than the expected pump price per liter of petroleum products produced or imported into the country. Fuel subsidy could be seen as the differential between the actual market price or landing cost with an added markup and what the final consumer is paying for the same product (Oladipo, 2012).

Fuel subsidy removal means that consumers buy petroleum products based on the prevailing pump price per liter (Ngwoke, 2018). According to Ajumogobia (2008), the effects of fuel subsidy removal can be seen in the area of no more protection of consumers and the poor in society by allowing marketers to fix or determine the pump prices of petroleum products. He further states that there is no more uniform pricing of fuel. To Pride and Ferrell (2007), distribution consists of all the activities that make products available to consumers when and where they want to purchase them. Farming activities take place in remote places and require a good transportation system to evacuate farm produce to the marketplaces.

Statement of the problem

Small businesses in Nigeria over the years have emerged as significant contributors to the growth of the Nigerian economy through their various productive activities (Iheagwara et al., 2014). The removal of fuel subsidy has led to an increase in the price of fuel, which has also increased the operational costs of firms in Nigeria, hence a negative impact on the financial performance of small businesses in Nigeria, since power generation constitutes a significant component of their operational costs.

Due to the removal of fuel subsidy in Nigeria, the pump prices of petroleum products have skyrocketed above 100%. Most of the agricultural farms in the South East of Nigeria are located in the hinterland and demand that vehicles must transport the harvested farm produce to the markets in the cities where they would be sold. According to Ehikwe and Ngwoke (2013), the high cost of procurement of petroleum products has greatly influenced the

availability and pump price of petroleum products, especially in South East Nigeria. Arguably, this somewhat radical decision of fuel subsidy removal is increasingly redefining the patterns of operation within the Nigerian economy. This reasoning appears imperative as the country entered a difficult situation where the cost of living is on the high side (Ngwoke, 2018).

In the extant literature, several studies have probed into the impacts of fuel subsidy removal (e.g., Makaramah et al., 2018; Nwafor et al., 2006; Evans et al., 2023; Okongwu et al., 2022; Ariyanti & Sebhatu, 2016; Babalola et al., 2020; Iheagwara et al., 2023; Osunmuyiwa & Kalfagianni, 2017; Greve & Lay, 2023; and Harring et al., 2023), but none studied the effect of fuel subsidy removal on the distribution of farm produce in South East Nigeria. On the basis of these pertinent observations, it is obvious that there is a gap in knowledge of the effect of fuel subsidy removal on the distribution of farm produce in South East, Nigeria, which requires to be closed.

Objectives of the Study

This paper aims to examine four research objectives:

- i. Identify the effect of subsidy removal on the availability of transportation services in South East Nigeria;
- ii. Determine the effect of subsidy removal on the price of farm produce in South East Nigeria;
- iii. Evaluate the effects of fuel subsidy removal on the transport fares in South East Nigeria;
- iv. Ascertain the effects of fuel subsidy removal on the availability of farm produce in South East Nigeria.

Research Questions

Some pertinent questions that this paper seeks to examine are:

- i. What are the effects of fuel subsidy removal on the availability of transport services in the study area?
- ii. What are the effects of fuel subsidy removal on the price of food items in the area?
- iii. Does fuel subsidy removal have any effect on the cost of transportation in the study area?
- iv. How is fuel subsidy removal affecting the availability of farm produce in the markets of the study area?

Research Hypothesis

- i. Ho₁: Fuel subsidy removal has no effect on the availability of transport services in the study area.
- ii. Ho₂: Fuel subsidy removal has no effect on the price of farm produce in the study area.
- iii. Ho₃: Fuel subsidy removal has no effect on the transport fare in the study area.
- iv. Ho₄: Fuel subsidy removal has no effect on the availability of farm produce in the markets of the study area.

Significance of the Study

The study, when completed will not only add to the body of knowledge and the foundation for further researches and policy formulation strategy in South East Nigeria, but would have formed the solution to the issues arising from fuel subsidy removal. The outcome of this study would be of immense benefits to farmers, marketers, scholars, policy makers among others stakeholders in food industry.

Scope of the Study

The scope of this work is defined at three levels: geographical, content, and unit of analysis scope. The geographical scope is restricted to the selected Local Governments in the selected states of South East, Nigeria, made up of Ayamelum Local Government Area in Anambra State, Uzo Uwani Local Government Area in Enugu State, and Ikwo Local Government Area in Ebonyi State. The choice of the selected Local Government Areas was largely because the inhabitants are predominantly farmers. The content scope borders on fuel subsidy removal on the distribution of farm produce in South East, Nigeria. The units of analysis are the farmers and consumers of the farm produce in South East, Nigeria.

Review of Related Literature

Conceptual Framework

This section looks at the explanation of various concepts that have significant relationship with the dependent and independent variables of the study to understand their meanings and applications in the study. The researchers tried to anchor this work on the exhaustible resource theory and others.

Obeteru (2004), maintains that in any scientific research, there are always research variables: the independent and dependent variables. The dependent variables in this research are distribution of farm produce, and the independent variables is fuel subsidy removal. A look at these variables showed that a relationship exists (positive or negative) if there is a manipulation of the independent variables.

Concept of Distribution

Distribution (also known as 'Place') is one of the marketing mix variables. According to Ifediora, Achi and Ezuka (2019), in today's economy, most producers do not sell their products directly to the final users instead they use intermediaries to bring their product to the market. Distribution involves the physical movement of products to ultimate consumers. Distribution consists of all the activities that make products available to customers when and where they want to purchase them (Pride and Farrell 2007). Distribution is the positioning of resource at the right time, in the right place, at the right cost, at the right quality (Chartered Institute of Logistics and Transport (UK), 2005). It is the management of all activities which facilitate movement and the co-ordination of supply and demand in the creation of time and place utility (Hesket, Glaskowsky and Ivie, 1973). Farm produce must be physically transported from the farm where they are produced to where they are needed.

Pride and Farrell (2007), averred that distribution channel is a group of individuals or organizations that directs the flow of products from producers to customers. A channel of distribution always includes both the producer and the final consumer for the products in its present form as well as any middlemen such as retailers and wholesalers. Perishable goods like farm produce are normally selected for shorter channels, because they are likely to deteriorate quickly, like fruits and vegetables (Abugu 2014).

Concept of Farm Produce

Farm produce are raw agricultural-based products from the farming activity like vegetables, fruits, flowers and livestock for human consumption. Livestock and poultry production in South East of Nigeria is a significant component of the region's agricultural sector (Udemgba et al, 2016). Livestock production encompasses the rearing of various animals such as cattle, goats, pigs and poultry, contributing to both subsistence and commercial farming (Anosike et al., 2018)

The production and availability of food crops like cereals play a pivotal role in ensuring food security in Nigeria (Udemgba et al, 2016). Cereals are fundamental staples, contributing to diets globally (Erenstein et al, 2022). Their production is influenced by factors such as climate, technological advancements, and agricultural policies. Ensuring availability requires efficient distribution networks, market accessibility, and responsive policies (Udemgba et al, 2016). Adequate farm produce is essential to meeting the nutritional needs of growing populations and maintaining stable food system in Nigeria.

Concept of Transportation

According to Anyanwu et al (2016), transportation refers to the process of conveying or moving of goods and people from place to place. Transportation infrastructure and costs also play a pivotal role in facilitating or constraining trade activities in Nigeria (Adeniran & Yusuf, 2016). Pride and Farrell (2007), state that transportation involves the movement of products from where they are made to where they are used, is the most expensive physical distribution function. It requires transportation function to evacuate farm produce from the farm usually located in the hinterland. The farm produce availability and timely deliveries depend on transportation services available to the farmers or the middlemen. Companies may build their own transport fleets (private carriers) or outsource the transportation function to a common or contract carrier (Pride and Farrell, 2007). Transport costs are monetary measure of what the transport provider must pay to produce transportation services and transport rate is the price or fare for transport services paid by their users to the transport service provider (Adeniran, 2016).

According to Pride & Farrell (2007); and Adeniran et al (2016) there are five basic transportation modes for moving physical goods: railroads, trucks, waterways, airways, and pipelines. The four of these transportation modes – truck, airplane, train and ship require petroleum products to power their engines. Railroads carry heavy, bulky freight that must be shipped long distances over land. Railroads commonly haul minerals, sand, lumber, chemicals, and farm products, as well as low-value manufactured goods. Many organizations locate their farms or warehouses near rail lines for convenient loading and unloading (Pride and Farrell, 2007). Thus, the need to understand the relative merits of, say, sea freight as against air freight is crucial although, for many localized final delivery operations, it is road freight transport that offers the only real option (Rushton, Croucher and Baker, 2009). Trucks provide the most flexible schedules and routes of all major transportation modes because they can go almost anywhere. Trucks have the unique ability to move farm produce directly from the farm or warehouse to customer, they are often used in conjunction with other form of transport that cannot provide door to door deliveries.

Waterways are the cheapest method of shipping heavy, low-value, nonperishable goods such as Ore, coal, grain, and petroleum products. Powered by tugboats and towboats, barges that travel along intercostal canals, inland rivers, and navigation systems can haul at least ten times the weight of one rail car, and ocean-going vessels can haul thousands of containers (Pride and Farrell, 2007). However, many markets are inaccessible by water transportation unless supplemented by rail or truck. Air transportation is the fastest but most expensive form of shipping. It is used most often for perishable goods, for high-value, low-bulk items, and for products requiring quick deliveries over long distances, such as emergency shipments (Pride and Farrell, 2007). Pipelines, the most automated transportation mode, usually belong to the shipper and carry the shipper's products. Most pipelines carry petroleum products or chemicals. The choice of transportation mode is based on the combination of cost, speed dependability, load flexibility, accessibility, and frequency that is most appropriate for products and generates the desired level of customer service.

There are a large number of associated operational factors that need to be considered as a part of the modal selection process. These have been categorized as those that are external to the direct distribution operation, customer characteristics that need to be taken into account, physical product characteristics and other logistics

components. The different transport mode characteristics also need to be understood and assessed. Clearly, some transport modes are more suitable to certain types of operational requirements than are others. A series of consignment factors also need to be addressed to ensure that the particular choice of mode is appropriate. For example, an urgent order or consignment should be moved via fast transport mode. Finally, there is the ever-present and important logistics trade-off between cost and service that needs to be included in the selection process (Rushton et al, 2009).

Concept of Petroleum Products (Fuel)

Petroleum products are inflammable oil products from crude oil which include Premium Motor Spirit (PMS) known as petrol or fossil fuel, Auto Gasoline Oil (AGO) known as Diesel, and Dual Purpose Kerosene (DPK) among others (Dharam, 1991). Diesel is used to power the engines of heavy-duty trucks, trains, ships and other industrial equipments. Petrol or fossil fuel is used to power the low-capacity engines like cars, small buses, generating sets, among others. Kerosene is used to power the air plane engines, cooking stoves etc (Ngwoke, 2018).

Concept of Fuel Subsidy Removal

Subsidy means money that is paid by a government or an organization to reduce the cost of producing goods and services so that their prices can be kept low (Hornby, 2005). According to Agu (2009) and Lawal (2014), it is a policy employed by the government to assist either the consumers or producers to consume or produce certain commodities at prices below the prevailing market prices. Fuel subsidy can take the form of direct price control, tax exemptions, or grants; in essence, this means putting money back into the hands of the producer or the consumer (Idisi et al 2024).

To Ovaga (2012), subsidy in an economic sense exists when consumers of a given commodity are assisted by the government to pay less than the prevailing market price of same. According to Oseni (2013), and Oladipo (2012), fuel subsidy means the amount of money being paid by government to petroleum marketers to enable the consumers buy petroleum products at the regulated pump price. According to Okongwu and Imoisi (2022), the first petrol subsidy removal in Nigeria was in 1986. President Bola Ahmd Tinubu, during his inauguration speech on 29th may, 2023 announced to Nigeria and the world that, the fuel subsidy is gone, signaling the end of fuel subsidy on premium motor spirit (PMS). This was immediately followed by increases in PMS prices nationwide, with the Nigeria National Petroleum Company (NNPC) limited, on 31st may, 2023 adjusted retail prices for PMS to prices ranging between NGN 488/litre in Lagos to NGN 555/litre in Maiduguri, Borno State (KPMG, 2023). As it may, 2025, the pump price of PMS is sold at N1000 per litre.

Over the years, the subsidy policy has been a controversial issue in Nigeria, an oil producing country that paradoxically relies on imported PMS (KPMG, 2023). Nigeria has a long history of fuel subsidies dating back to the 1970s' oil boom, when the federal government introduced subsidies on key commodities such as petrol, kerosene, and diesel to cushion the impact of price fluctuations on its citizens and residents (Ngwoke, 2018). While many stakeholders in this debate argue that the PMS subsidies are the last hope for the common man to benefit from the 'national cake' the reality is that the subsidies have been a tremendous drain on the country's resources and a source of corruption and government inefficiency. The stark truth is that the PMS subsidies have really benefitted neighboring countries, rent-seekers and the rich, as opposed to the poor (KPMG, 2023). Furthermore, if Nigerians – rich, middle-class, or poor alike – wish to see accelerated levels of socio-economic development, the expensive and unaffordable PMS subsidy must go. Already, within days of the subsidy removal announcement and the adjustment of PMS price in Nigeria, data from Global petrol prices, which tracks the retail prices of refined petroleum products reveals sharp increases in the petrol prices of neighboring countries.

Ngwoke (2018), fuel subsidy removal is one of the parameters of deregulation of the downstream oil sector which makes the pump prices of petroleum products to be determined by the forces of demand and supply. The high level of uncertainty over future global oil prices, which are more influenced by international market conditions than domestic factors, places a domestic economy in a very precarious position (Noorasiah, Mukaramah and Arief, 2022).

With this development, consumers are buying petroleum products based on the prevailing market prices, meaning that there is no more uniform pump price of these essential commodities (Ngwoke, 2018). The overriding fear is that the removal of fuel subsidy would further impoverish the Nigerian masses more particularly as it appears very probable that the savings to be realized from the removal would not be judiciously used to achieve the development objective of the policy and to provide the promised palliatives. The policy will worsen the economic situation in the market, as it will lead to hikes in transport fare, prices of goods and services, closure of local industries and job losses, deepen the poverty level and poor standard of living of most Nigerians (Eme, 2011).

Petroleum product price policy reform has some important connotation to economic indicators with variant effect at different magnitudes in countries (Gupta et al, 2002; Chitiga et al, 2010; and Ayele, 2014). Importantly, it has been deduced that a strong positive correlation exists between fuel subsidy removal and price changes in several sectors of countries such as Nigeria, Indonesia, Mali, South Africa (Nwafor, et al 2024).

According to Todaro et al, (2009), a subsidy is an assistance paid to a business or economic sector mainly by the government to prevent the decline of that industry. In addition, Bakare (2012), points out that to subsidize is to sell a product below the cost of production.

As the opposition to the PMS subsidy removal grows, the President Bola Tinubu administration is discovering how politically unpalatable the removal is in the short run, as it is risking immense unpopularity in its honey-moon period. Labour unions and other civil society groups arguing for the partial/gradual deregulation option contend that Nigerians would more readily adjust to higher PMS fuel prices, if the removal was more gradual, allowing the populace to slowly adjust to post-PMS subsidy realities. With inflation rising to 22.22% in 2023, there are concerns regarding the sudden impact that full and immediate deregulation as well the removal of PMS fuel subsidy would have on already elevated prices of food, transport services and fuel sources, nationwide (KPMG, 2023).

Benefits from Fuel Subsidy Removal:

According to Iheagwara et al (2014), if well implemented, there are several benefits from fuel subsidy removal. These benefits include:

- Fuel subsidy removal will allow government access to more funds to developing infrastructure.
- Reduction in the pressures on foreign reserves.
- It will reduce borrowing.
- Allows free market operation.
- Helps address the great imbalance between the recurrent and capital expenditure in Nigeria.
- Encourages local and foreign direct investment in the oil sector.
- Frees more funds for local investment in the oil sector.
- Increases local refinery production.

- Reduces importation of refined products in the medium to long term.

Negative Consequences of Fuel Subsidy Removal:

In the view of Abang (2012), the removal of fuel subsidy is associated with certain negative consequences which affect businesses and the Nigerian citizens. These consequences as advanced by Abang (2012) include:

- Increase in cost of production: Removing fuel subsidy would result in an increase in the cost of production for the few companies that still exist. This would lead to more job losses in addition to the unavoidable increase in the cost of the company's products.
- Increase in the cost of providing services: Removal of fuel subsidy would increase the costs of service provision because the astronomical inflation arising from subsidy removal would not have been factored into the budget; this would have negative effects on the standard of living of Nigerian households and businesses.
- Increase in cost of living: In addition to school fees, house rent, etc, the cost of every item of food will astronomically increase with removal of fuel subsidy and, for all sane people, this is where the trouble is. When poor people are unable to eat because they cannot buy roasted corn or yam, this would result into crisis in the country.
- Increase in the cost of transportation: It is a known fact that when motorists pay more for fuel, the transport fare increases. This has been the case even when the increase is only marginal. In the particular case where the cost of fuel is expected to double, the increase in transport fare will be astronomical. This will in turn affect everything else – school fees, house rent, food, just name it.

Theoretical Review

This study is rooted in exhaustible resource theory (Hotelling, 1931). This theory was propounded by Hotelling in 1931. He advocated the need to price oil and other fossil resources in a way that recognizes the temporariness of their availability. According to this theory, the price becomes a user cost of depletion charges which compensate for the fact that future generations are denied access to the commodity. This price or may not be consistent with the equilibrium outcome of demand and supply. Similarly, according to the Derived demand theory proposed by Marshal, the demand schedule for any factor of production of a final product can be driven from the final product, assuring an unchanged demand schedule for a final product and given supply prices for other factors of production. The supply increase of any factor, other factors held constant and increase in the demand of the final goods would lead to an increase in the demand of a given factors of production. Blomberg and Harris (1995), agree that supply shock (or distribution problem) will lead to higher price impacts when the derived demand is inelastic.

Empirical Literature Review

This section took to consider some review on works done by other researchers and their findings in the related topics which can serve as a measure to determine what are the correlations with current study and what are the gaps or things lacking in the previous study that can be added this time around to ensure a more reliable and better result as knowledge progresses.

Fuel Subsidy Removal and Pump Price of Petroleum Products:

Raji et al., (2018), did a study titled, “Fuel subsidy removal and the lives of the rural dwellers in Nigeria”. The study employed Karl Marx’s social conflict theory. The study adopted secondary sources of data. The study then concluded that fuel subsidy removal has negative effects on the lives of rural dwellers.

Idisi et al (2024), carried out a study titled, “Effect of fuel subsidy removal on the livelihood of households in Bwari Area Council, Federal Capital Territory (FCT), Nigeria”. The study used descriptive statistics, multiple regression, and Garrett ranking for data analysis. The study also adopted multi-stage and random sampling techniques to get the sample size. The study revealed that fuel subsidy removal adversely affected businesses, highly increased cost of transportation, cost of food items, cost of health care services etc.

Rimamsitse (2023), carried out a study titled, “Comparative analysis of fuel subsidy removal and the diversification policies for agricultural development in Nigeria.” The study made use of secondary data, adopted Johansen co-integration model and t-test analytical tool. The study concludes that increased petrol price had negative effects on GDP in the short run and adverse effects on the prices of crop produce. Aminu and Ramatu (2022), in their study, examined the political economy of fuel subsidy removal in Nigeria, and found out the insensitivity of the government to the social concerns of the citizenry and attempt by the oil cabal to privatize Nigeria. The study utilized political economy and public choice theories, an eclectic approach. Inegbedion et al (2020), assessed the petroleum subsidy withdrawal, fuel price hikes and the Nigerian economy. The study employed input-output model to determine the value added per sector from the computed table of flow of goods. The result of the study shows that the withdrawal of petroleum subsidy stimulates increases in prices of petroleum products and such increases trigger increases in transport fares, subsequently lead to increase in prices of other products owing to the degree of interdependency among the various sectors.

Saleh and Olasunkanmi (2017), carried out a study on the, “Currency devaluation and fuel subsidy removal for Nigeria’s economic development”. The paper adopted survey research design. The paper found out that currency devaluation and fuel subsidy removal is a resultant effect of the mono-productive characteristics of the Nigerian economy which has continually led to balance of payment deficit. Mukaramah et al (2018), in a study titled, “Effects of fuel subsidy removal on input costs of production; Leontief input-output price model,” revealed that the elimination of fuel subsidies has a major impact on the country’s inflation, and drastic global oil price changes can challenge the Malaysian economic sustainability. The study adopted input-output price model for analyzing the impact of fuel subsidy removal on sectoral input costs.

Iheagwara et al (2014), carried out a study titled, “Non-parametric analysis on the effects of fuel subsidy removal on small business performance in South East, Nigeria. The study used non-parametric Kruskal Wallis test to analyze the questionnaire. The outcome of the study shows the following: fuel subsidy removal has a significant impact on the financial performance of small business in Nigeria, and also has a significant impact on the market performance of small businesses in Nigeria.

According to Babolola and Salau, (2020), petroleum pump price plays a critical role in economic growth of any economy, whether developed or developing. Changes in petroleum pump price arise from changes in the price of crude oil in the international markets and these are passed on to customers in form of change in prices of the final petroleum products. Adagunodo (2013), examined welfare effects of energy reform particularly petroleum products pricing reform in Nigeria. Omotosho (2019), discovered in his findings that oil price shocks generate significant and persistent impacts on output. Udemgba et al, (2023), stated that increase in fuel pump price, has undermined the availability of food products in South-East Nigeria.

Fuel Subsidy Removal and Transportation Cost

Many have made researches on the issue of fuel subsidy removal and transport cost. Ariyanti and Sebhatu (2016), studied the “Response of fuel subsidy removal as sustainable transport policy” (a case study: workers in Jakarta Metropolitan Area). The result showed that due to increase in the cost of transportation, there is a tendency of commuters changing their travel mode choices into more fuel-efficient private vehicle. Udemgba et al; (2023), in their study, “Road transport fuel price and food security in the South-East Nigeria”, observed that the price of road transport fuel in Nigeria has very significant impact on transportation systems, business operations, and even production processes, including agricultural production. Nwachukwu and Tumba (2023), in their study, “Price unleashed: Examining the ripple effects of petroleum subsidy removal on customer buying behavior in Nigeria (Systematic Literature Review)”, discovered that, fuel subsidy removal resulted in an abrupt increase in fuel prices, which cascaded into higher costs of transportation and essential goods and services.

Gap in Literature

This study intends to examine the effect of fuel subsidy removal on the distribution of farm produce in South-East Nigeria. Although there are studies on non-parametric analysis on the effects of fuel subsidy removal on small business performance in South-East Nigeria; Road transport fuel price and food security in South East Nigeria, among others, to our knowledge, none of the studies focuses on the effect of fuel subsidy removal on the distribution of farm produce in South East Nigeria.

Methodology

Research Design

According to Ogolo (2007); Onodugo et al (2010); and Asika (2012), see research design as the plan or blueprint on how to go about data collection and analysis, all aimed at providing solutions to the problem under investigation. This study adopted the survey research design. This method of research is normally applied in management or social sciences research, because of the complex relationships that exist between variables.

Source of Data Collection

Data for the study was generated from primary source only. The data was generated through a structured questionnaire which was distributed to the selected farmers, transporters and consumers of farm produce.

Area of the Study

The study area is South East geopolitical zone of Nigeria. There are five States (Anambra, Abia, Ebonyi, Enugu and Imo) that make up the South East of Nigeria. The States selected for this study are; Anambra Enugu and Ebonyi states. These states were chosen due to easy accessibility of information to the researchers. The choice of the three states is borne out of the fact that they are regarded as the food basket of the Southeast Nigeria. Furthermore, the following local governments are chosen: Uzo-Uwani local government area in Enugu State, Ayamelum local government area in Anambra State, and Ikwo local government area of Ebonyi State. These local government areas are known for the cultivation of farm produce such as, cassava, yam, rice, maize etc. These local government areas are located in the remotest part of their respective States.

Population of the Study

The population of the study is made up of farmers, transporters, and consumers of farm produce in south east Nigeria.

Table 3.1 Population Distribution

S/N	States	Farmers, Transporters & Consumers of farm produce	Number	Total
1	Anambra	Farmers	44	128
		Transporters	42	
		Consumers of Farm Produce	42	
2	Enugu	Farmers	44	128
		Transporters	42	
		Consumers of Farm Produce	42	
3	Ebonyi	Farmers	44	128
		Transporters	42	
		Consumers of Farm Produce	42	
		Total	384	384

Sample Size Determination

The sample size of this study was determined using Zigmund formula (1979), which is suitable for an unknown population (Infinite). A key factor in determining the size of sampling error is the sample size relative to the entire population (Onodugo et al, 2010). This was determined by the estimated prevalence of the variable of interest, the desired level of confidence and the acceptable margin of error.

The Mathematical formula was giving as follows:

$$n = Z^2Pq / e^2$$

Where,

Z = Statistics to be used at 5% level of significance at two tail test = 1.96

e = Allowable sampling error taken at 5% = 0.05

p = Proportion of success in the population from pilot survey = 0.5

q = Proportion of failure in the population from pilot survey = 0.5

n = Sample size required.

$$n = (1.96 \times 1.96 \times 0.50 \times 0.50) / (0.05 \times 0.05) = 384.16 = 384$$

Sampling Procedure

To have proper representation of the sample, a multi-stage probability sampling method was used to select the farmers, transporters, and consumers of farm produce in South East Nigeria.

Method of Data Analysis

Data from the respondents was analyzed using SPSS VERSION 20 of multiple regression model. However, objective (i) and (iv) were analyzed using simple regressions; while objectives (ii) and (iii) were analyzed using correlation.

Model Specification

$$Y = (X_1 + X_2 + X_3 + X_4 + e_i)$$

Where:

Y = Distribution of Farm Produce

X₁ = Availability of Transport Services

X₂ = Price of Farm Produce

X₃ = Transport fares

X₄ = Availability of Farm Produce

Presentation and Analysis of Data

Test of Hypotheses

The variables were measured with a 5-point Likert scale. Thus, they were captured with the degree of agreement or disagreement on the question items in the questionnaire.

Hence: SA = Strongly Agree (5), A = Agreed (4), D = Disagree (3), SD = Strongly Disagree (2), and Undecided (1).

Fuel subsidy removal and distribution of farm produce in South East Nigeria.

Variables	Linear Function	Exponential Function	Semi-log Function	Double-log function
Constant	8.491 (4.031)***	2.323 (3.898)***	2.092 (5.125)	6.101 (1.592)***
X ₁ = Availability of Transport Services	323.720 (4.358)	188.290 (5.736)	2.047 (2.038)	2.315 (3.119)
X ₂ = Price of Farm Produce	0.011 (2.750)***	4.976 (2.882)***	2.352 (4.030)***	2.418 (5.420)***
X ₃ = Transport fares	0.025 (1.827)***	0.007 (2.33)***	0.558 (0.954)	0.252 (1.869)***
X ₄ = Availability of Farm Produce	0.001 (2.523)***	0.000 (2.939)***	-0.579 (1.178)	0.317 (2.805)***
R ²	0.700	0.536	0.646	0.781

F-Ratio	42.208	2.742***	11.054***	32.554***
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Source: Computed from field survey data, 2024

Discussion of Findings

Availability of transport services was significant at 1.10 level of probability and negatively affects farmers who do not find the services to convey farm produce to the market and also negatively affect transporters who do not go to work always. This implies that increase in price of fuel as a result of subsidy removal has made vehicles to be few on the road thereby denying the Farmers access to transport services as and when needed. Also, transporters find it hard to move their vehicles without assurance of loading passengers and goods to recoup the exorbitant price of fuel.

The price of farm was significant as 5% level of probability and negatively affects the demand for farm produce. This implies that an increase in transport fare which negatively affects the price of farm produce in the market.

Transport fare was significant at 5% and negatively affects profitability of farm produce in the study area. This implies that increasing the price of fuel also increases the transport fare which diminishes the profit that would have accrued to the Farmers.

Availability of farm produce was significant in 1% a negatively affect the supply of farm produce to the market. this implies that due to increase in the price of fuel which raise the cost of transportation which reduce the supply of farm produce to the market in the south east Nigeria.

Summary of Findings, Conclusion and Recommendations

Findings

In line with the objectives of this study, the following findings were made.

- i. That fuel subsidy removal negatively affects the availability of transport services in South East Nigeria.
- ii. That fuel subsidy removal negatively affects the price of farm produce in South East Nigeria.
- iii. That fuel subsidy removal negatively affects transport fares in South East Nigeria.
- iv. That fuel subsidy removal negatively affects the availability of farm produce in South East Nigeria.

Conclusion

In line with defining of this study, the following conclusion is drawn:

Fuel subsidy removal has reduced the number of commercial vehicles on the road. Farmers are now finding it difficult to get transport services as and when needed.

Equally, fuel subsidy removal has also astronomically increased the price of farm produce in the south east Nigeria. Both the Farmers and consumers are groaning in pains as a result of the increment.

Again, fuel subsidy removal has caused the transport fare to go high. Because of this increasing fair farmers really evacuate the approaches to the market and the consumers as well do not find easy to travel to the hinterland to procure this from produce. Transport as the Lord get enough passengers to run the required number of trips per day in the study area.

Furthermore, fuel subsidy removal has negatively affected the supply of farm produce in the market full stop as a result of short supply of farm produce from the farm, the price of the available ones has gone up. This shortage in farm produce supply has put the consumers in a stage of hunger.

Recommendations

Taking cognizance of the result of the analysis, disturb the recommends as follows:

- i. Government should provide public transport services to cushion the effect of shortage of commercial vehicles in the hinterland to help ever create from produce.
- ii. There is need to establish price control board to reduce the price hike or farm produce occasioned by greedy intermediaries.
- iii. Government and private investors should invest in order alternative means of transportation such as electric train, donkeys, bicycles etc.
- iv. Government should make farm produce available by going to various markets through marketing boards to procure this farm produce and sell to the consumer at the Urban cities.

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