

## EFFECTS OF PETROLEUM SUBSIDY REMOVAL ON SUSTAINABLE POULTRY VALUE CHAIN IN SOUTHWEST NIGERIA

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### ABSTRACT

The paper provides an overview of the structure of sustainable poultry value chains after fuel subsidy removal in Nigeria. Specifically, the study ascertained the various aspects of the poultry value chain engaged in by the actors (producers, processors and marketers). It determined the price differential in the costs of Input supply (drugs, vaccines and feeds), brooding, rearing, processing and marketing of poultry products before and after fuel subsidy removal. The study used mixed research methods to collect quantitative and qualitative data. Research results showed that the potential short-term impact of removing oil subsidies hard-hit the producers more than the processors and marketers. The cost of inputs skyrocketed, as the average price of brooding charcoal increased from N2,3300 to N5,5500 per bag while feeds increased from an average of N7,302 to N21,900 per bag. The cost of vaccines, drugs, poultry feeds and management sky-rocketed by a 200% rise while the price of a crate of eggs had a 100 per cent increase. Low demand enhances undulating prices of day-old chicks from an average of N500 to N150 and N350 respectively. Likewise, the demands for eggs, broilers, and their prices. The t-test shows statistically significant differences between the average cost of inputs – brooding (0.022), vaccines (0.001), drugs (0.001), poultry feeds (0.000), and the cost of processing birds (0.0234) at 1% and 5% levels of significance. Also, there is a significant difference between the sales of broilers (0.019) and crates of eggs (0.001) at a 1% level of significance before and after petroleum subsidy removal. The sudden reduction in the average number of birds reared from 4, 850 to 2, 670 is a signal of unsustainability in the sector. Over the long term, research suggests a decline in innovation and adaptive capacity and a narrowing of the scope of market opportunities. The study concludes that the long-term impact of removing fuel subsidies on sustainable poultry value chains in Southwest Nigeria will be enormous and more prevalent than the short-term impact. The study recommends that policymakers take proactive measures to minimize the impact of removing oil subsidies on sustainable poultry value chains.

**Keywords:** Fuel- subsidy, poultry production, price instability, sustainability, value chains

### INTRODUCTION

The poultry value chain is of great importance to the economy of Nigeria. It involves various stakeholders, from input suppliers to consumers, each playing a vital role in ensuring the efficient functioning of the poultry industry. The poultry value chain significantly contributes to the Nigerian economy by providing income and employment opportunities to several stakeholders. This includes input suppliers, farmers, processors, distributors, marketers, and retailers. The revenue generated from poultry-related activities helps boost the Gross Domestic Product (GDP) of the country. For instance, Statista (2023) remarked that the livestock sector (poultry inclusive) contributed 30.57% to the GDP in the first quarter of 2023. The governor of the Central Bank of Nigeria emphasized that the poultry sector is Nigeria's most commercialized agriculture sector, with a net worth of N1.6 trillion in 2019 (Awojulgbe, 2019). Poultry products, such as chicken and eggs, are essential sources of protein and vital nutrients. They play a crucial role in improving food security by providing affordable and accessible sources of animal protein (Chatterjee et.al., 2022; FAO, 2023); Adeyonu et.al., 2021; Elliot et al., 2022). Poultry products are rich in essential

nutrients, including high-quality protein, vitamins, and minerals. Their inclusion in diets contributes to improved nutrition and overall health, particularly among vulnerable populations such as children and pregnant women (Adeyonu et.al., 2021; Marangoni, et. al., (2015). The poultry value chain creates employment opportunities at various levels, from farm workers to processing plant employees, truck drivers, and marketers. The poultry value chain provides a source of livelihood for several stakeholders along the chain, thus, contributing to poverty alleviation, boosting local economy and influencing national economic development. Poultry value chain complements other agricultural activities and contributes to diversifying the agricultural sector. The poultry value chain adds value to raw products through processing and packaging. This adds to the overall economic value of poultry and creates opportunities for businesses and entrepreneurs (Kumar et.al., 2022). The poultry value chain drives research and innovation in areas such as poultry genetics, disease management, feed formulation, and production techniques. These innovations lead to increased productivity and sustainability. The poultry value chain has the potential to attract investment in the form of

improved technology, infrastructure, and research, leading to increased productivity and efficiency. This could enhance foreign exchange earnings for the country, help balance trade deficits and bolster foreign reserves.

Despite the significance of the poultry value chain to the Nigerian economy, it is encumbered with several challenges. Some of the glitches include disease outbreaks, inadequate infrastructure, high cost of feed cost and availability, inefficient supply chain, limited access to technology, inadequate training and extension services, policy and regulatory challenges, security issues, poor market access, and environmental issues (Odemero et al., 2013; Effiong & Umoh, 2016; Awa, et al., 2017; Adeyonu et al., 2021). Recently, these problems have been compounded by the removal of petroleum subsidies by the Federal Government of Nigeria on May 29, 2023.

Government subsidies could have both positive and negative effects on the economy. On the positive side, according to Mao (2015), subsidies can stimulate firms' new product innovation, especially when they are of moderate intensity, it can help increase the duration of innovation for firms as a whole, particularly when they are at a moderate level, (KaiChao and Wang (2023) On the negative side, (KaiChao and Wang (2023) affirmed that high-degree subsidies can suppress firms' new product innovation. Furthermore, individual country-specific factors play a significant role in determining government subsidies, suggesting that characteristics such as a small government, a small external current account deficit, and a productive structure geared towards services and agriculture can help keep subsidy expenditures down (KaiChao and Wang (2023; Ping et al. 2020).

The rationale for fuel subsidy removal in Nigeria is based on several factors. According to Oxford Analytica (2023), the enormous cost of fuel subsidies, which amount to around USD 3.9 billion, poses significant opportunity costs for other development objectives. Also, the distribution of resources to state governments is reduced due to these subsidies (Oxford Analytica, 2022). Umeji and Eberechukwu (2021) affirmed that the majority of the subsidy benefits better-off Nigerians, leading to an unequal distribution of resources. From the micro-economist point of view, cheaper petrol encourages pollution, congestion, and climate change (ICTD, 2024). Despite these reasons, there is opposition to petrol subsidy removal because the people believe that the government is corrupt or lacks of capacity to implement compensation programs. Aside from these, many enterprises were affected by the shock of the fuel subsidy removal. The removal of fuel subsidies in Nigeria has had a significant impact on the agricultural sector, with the poultry sector being particularly affected. For

instance, a major consequence is the rise in transportation costs for agricultural products, including poultry feed, day-old chicks, and the final product itself. This makes it more expensive to get these goods from producers to markets, raising overall production costs. The price of fuel is a major factor in the cost of fertilizers, pesticides, and other agricultural inputs. With the removal of subsidies, these inputs become more expensive, squeezing profit margins for poultry farmers (Hemming, et al., 2017). The combined effect of higher transportation and input costs can lead to a decrease in poultry production and a decline in profitability for farmers. Some smaller poultry farms may struggle to stay afloat. To maintain profit margins, some farmers may raise the price of their poultry products (Faster Capital, 2024). This can make chicken less affordable for consumers, potentially leading to decreased demand. Hence, the study investigated the effects of fuel subsidy removal on the sustainability of the poultry value chain in Nigeria. Specifically, the study ascertained the various aspects of the poultry value chain engaged in by the actors. It determined the price differential in the costs of input supply (drugs, vaccines and feeds), brooding, rearing, processing and marketing of poultry products before and after fuel subsidy removal.

## METHODOLOGY

The study was carried out in the South Western, Nigeria. There are different agroecological zones in southwest Nigeria. The area lies between longitudes  $2^{\circ} 31'$  and  $6^{\circ} 00'$  E and latitudes  $6^{\circ} 21'$  and  $8^{\circ} 37'$  N, with a total land area of 79,665 square kilometres representing approximately 12% of the country's total land area and an estimated population of 32,483,140 representing approximately 20% of the country's population (National Bureau of Statistics, 2012). The zone includes Ogun, Osun, Ekiti, Ondo, Oyo and Lagos States. A multi-stage sampling procedure was used in the study. Three out of six states in southwest Nigeria were randomly selected. The states were Ekiti, Ogun and Oyo states. The poultry farmers in the three states constitute the population for the study. The study used mixed research methods to collect quantitative and qualitative data from the different stakeholders in the poultry value chain. An online instrument was developed and circulated through three opinion leaders to 140 poultry farmers (input suppliers, producers, processors, marketers) from each state, thus a total of 420 poultry farmers were utilised for the study. The respondents were selected on a 1:4 ratio. (One input supplier, processor, and marketer to four farmers). The proportional sampling was based on the fact that the farmers outnumbered the other actors in the value chain. The value chain analysis framework focuses on the interconnected stages of production, processing, and distribution

within an industry. Including representatives from each stage (weighted towards farmers) aligns with this approach. An on-site visitation to veterinary shops where inputs such as drugs, vaccines and poultry feeds are sold was carried out to obtain the past and current costs of the inputs used. Data

collected were analysed using frequency counts, and percentages. A t-test was used to determine the mean differences and cost variations before and after fuel subsidy removal of the various segments along the poultry value chain.

**Table 1: Distribution of the respondents across the value chain**

States	Ekiti	Ogun	Oyo	Total
Input supply	20	20	20	60
Producers-	80	80	80	240
Processors	20	20	20	60
Marketers	20	20	20	60
Total				420

**Results and discussions**

The result in Figure 1 shows the different aspects of the farmers involved. They are layers production (86.1%), and broilers production (72.2%), brooding (69.4%), processing of birds (41.7%), marketing of eggs (44.4%), sales of drugs and vaccines (14.0%) and processing of birds (12.0%). The actors combined one or two activities within the value chain, hence we recorded multiple responses. Figure 2 shows that 33.3% of the respondents had less than 500 birds before fuel subsidy removal, 36.7 % of the respondents had between 501 and 5,000 birds, and 16.7% had between 5,001 and 10,000 birds. However, 45.3% and 54.7% of the respondents had less than 500 birds and between 501 and 5,000 birds respectively after the removal of fuel subsidy. None of the respondents

have above 5,000 birds after the fuel subsidy removal. The average number of birds owned by the farmers dropped from 4, 850 to 2, 670 birds after fuel subsidy removal. According to the respondents, the drastic reduction in the number of birds was necessitated by the high cost of feeds (N6,000 to N8,750 per bag), the doubled cost of drugs, and brooding materials. The findings are in line with the (Sanchi et.al., 2023) assertion that the sudden exit of fuel subsidies adversely affects agricultural output resulting from skyrocketed prices of agro inputs USAID (2023) affirmed that barely one month after the announcement of fuel subsidies removal, the average cost of food items in Northeast Nigeria has increased by an average of 53%, farm inputs by 71%, farm labourers’ wages by 149%, and transportation costs by 137%.

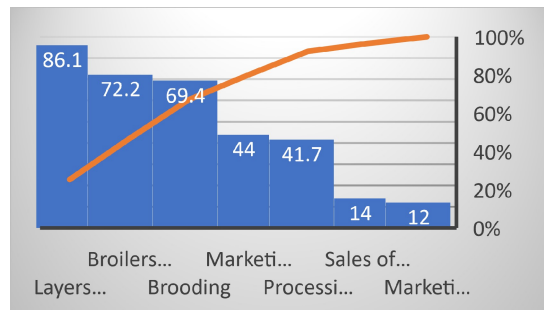


Figure 1: Activities involved in the poultry value chain

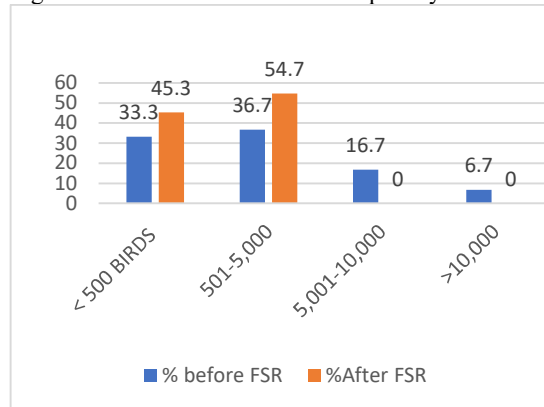


Figure 2: population of birds before and after Subsidy removal

**T-test result of the mean difference in input price variation before and after fuel subsidy removal**

The result in Table 2 shows the statistical difference between the average cost of inputs before and after the fuel subsidy removal in Nigeria. It was revealed that the removal of the subsidy (i.e. increase in the price of fossil fuel) resulted in a substantial increase in the cost of production in the poultry industry. Most of these variations were significant except the unit price of Day-Old chicks (DOC) like broilers, day-old layers, noilers and cockerels. This could result from the low demand for day-old chick from existing farms and low entrants into the poultry business that made hatcheries marginally increase the cost of day-old chicks to

ensure continuity in business. A substantial increase in the cost of brooding, table-sized broilers, spent layers and cost of processing was significant at a 5 per cent level, while the cost of vaccines, drugs, poultry feeds and management sky-rocketed by a 200% rise and significant at 1 per cent level. The price of a crate of eggs had a 100 per cent increase and was significant at a 1 per cent level. USAID, (2023) focus group discussion showed that “The fuel subsidy removal and high transportation costs have had a serious effect on smallholder farmers. Many of them can no longer farm. Some cannot even rear livestock again. Their priority is to acquire food to eat.”

**Table 2: T-test result of the mean input price variation before and after fuel subsidy removal**

Products/ Input	Price before fuel subsidy removal N	Price after fuel subsidy removal N	T	Df	p-value	Mean difference
Day old chicks	355.80	535.55	-1.023	419	0.231	-179.75
Brooding	2330.05	5550.45	-2.381	419	0.022	-3220.4
Vaccines	10034.33	33109.12	-7.213	419	0.001	-23074.79
Drugs	6350.22	18003.50	-7.456	419	0.001	-11653.28
Poultry Feeds	7302.20	21900.34	-9.021	419	0.000	-14598.14
Poultry operations	3320.20	9992.90	-7.342	419	0.001	-6672.7
Broilers	5525.05	9459.20	-2.430	419	0.019	-3934.15
A crate of egg	1550.50	3001.05	-6.201	419	0.001	-1450.55
Total Cost of processing broilers	550.12	1450.35	-2.559	419	0.024	-900.23
Total Cost of processing layers	550.12	1450.35	-2.559	419	0.024	-900.23

**CONCLUSION AND RECOMMENDATIONS**

The study examined the effects of fuel subsidy removal on the poultry value chain in Southwest Nigeria. Specifically, the study investigated the price differential in the value chain before and after the fuel subsidy removal as well as the size of the farms before and after the removal of the fuel subsidy. It utilised a mixed method of data gathering from all the actors along the poultry value chain. The findings of the study show a downward trend in poultry sizes from an average of 4, 850 to 2, 670 birds after fuel subsidy removal. The t-test also shows statistical differences between the average cost of inputs - brooding, vaccines, drugs, poultry feeds, broilers, crates of eggs, and the cost of processing birds at 1% and 5% levels of significance. It shows that removing fuel subsidies negatively impacts the poultry value chain, leading to higher prices, unprecedented price spikes, and reduced profits. Over the long term, research suggests a decline in innovation and adaptive capacity and a narrowing of the scope of market opportunities. The study concludes that the long-term impact of removing fuel subsidies on sustainable poultry value chains in Southwest

Nigeria will be greater and more widespread than the short-term impact. The study recommends that policymakers take proactive measures to minimize the impact of removing oil subsidies on sustainable poultry value chains.

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