



EFFECT OF FUEL SUBSIDY REMOVAL ON POULTRY PRODUCTION INPUT IN KWARA STATE, NIGERIA

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ABSTRACT

The study examined the effect of fuel subsidy removal on the cost of major inputs of poultry production and identified the coping strategies adopted by farmers to mitigate these challenges in Kwara State, Nigeria. A three-stage sampling procedure was used to select 201 registered poultry farmers across 11 Local Government Areas. Primary data were collected using well-structured questionnaires and analysed using descriptive statistics, and paired t-test. The results revealed that poultry farming was predominantly male-dominated (83.58%), with farmers relying primarily on personal savings (86.07%) as their source of capital. The mean flock size was 931.52 birds, with 67.66% having regular access to veterinary services. The paired t-test analysis indicated that fuel subsidy removal had statistically significant effects on all major input costs ($p < 0.05$), with feed costs recording the highest increase followed by labour wages, day-old chicks, vaccines, and transportation costs respectively. Furthermore, poultry farmers adopted proactive coping mechanisms, with increasing production scale ranking as the most important strategy, followed by seeking government support and membership of cooperative societies. The study concludes that while fuel subsidy removal imposed significant cost pressures on poultry enterprises, the sector demonstrated remarkable resilience through adaptive strategies. The study recommends targeted government interventions, including input subsidies, and capacity-building programs, to enhance the resilience of poultry farmers in the post-subsidy era.

Keywords: Fuel, Subsidy, Input, Costs, Poultry, Production

INTRODUCTION

Subsidy represents a form of government intervention designed to promote social welfare and economic stability by keeping essential goods and services affordable (Celestin, 2016). Specifically, a fuel subsidy is a government policy that keeps consumer prices for petroleum products below the market rate by bearing the differential cost. In Nigeria, the fuel subsidy has been in place since the 1970s, when the government began selling petrol to citizens at prices below the international market rate (Yahaya, 2026). This policy was initially implemented during the military era to cushion the economic burden on the masses, but over time, it became a significant fiscal drain, marked by corruption, smuggling, and unsustainable government expenditure (Siddig *et al.*, 2014).

On May 29, 2023, the Nigerian government announced the immediate removal of the fuel subsidy on Premium Motor Spirit (PMS), effectively ending decades of government-funded price support (KPMG, 2023). The removal was necessitated by the massive financial drain on government revenue, the need to eliminate corruption and smuggling associated with the subsidy regime, and the desire to foster long-term economic stability. Following this announcement, petrol prices surged from approximately ₦190 per litre to over ₦600 per litre, representing more than a 200% increase (National Bureau of Statistics [NBS], 2023). This sharp price adjustment triggered cascading effects throughout the economy, with particularly severe consequences for fuel-dependent sectors such as agriculture.

The agricultural sector, which was once the backbone of Nigeria's economy, has suffered neglect amid the dominance of the oil industry (Ugwukah, 2022). Agriculture is fundamentally an energy conversion process that requires significant fuel inputs at all stages of production. Direct energy use in agriculture powers farm vehicles and machinery for field preparation, transportation of inputs, planting, chemical application, water management, irrigation, cultivation, and harvesting. Post-harvest operations, including processing, storage, and transportation to markets, also depend heavily on fuel. The increase in fuel prices following subsidy removal has consequently raised the cost of agricultural



inputs, including fertilizers, insecticides, and other agrochemicals whose production and distribution depend on petroleum products.

The poultry sub-sector has been particularly affected by the removal of fuel subsidies, given its heavy reliance on fuel-intensive inputs and processes. Poultry production involves a complex value chain comprising input suppliers, farmers, processors, distributors, marketers, and retailers. The poultry value chain significantly contributes to the Nigerian economy by generating income and creating employment opportunities. The livestock sector, including poultry, contributed 30.57% to agricultural GDP in the first quarter of 2023 (Statista, 2023). The poultry sector is Nigeria's most commercialized agricultural sub-sector, with a net worth of ₦1.6 trillion in 2019 (Premium Times, 2023). Poultry production cost structure is characterized by high feed costs, which typically account for 60-70% of total production costs. Feed production depends on transportation for sourcing and distributing raw materials, making it highly sensitive to changes in fuel prices. Other major cost components include day-old chicks, medications, labour, and transportation, all of which have been affected by the removal of the fuel subsidy.

While numerous studies have examined the economics of poultry production in Nigeria (Sanou *et al.*, 2020; FAO, 2022; Ohonba & Ogbeide, 2023), none have specifically examined the effect of removing fuel subsidies on the cost of major inputs and the coping strategies adopted by poultry farmers in Kwara State, Nigeria. This research gap necessitates an empirical investigation into how the removal of fuel subsidy has affected input costs and what strategies farmers have employed to sustain their enterprises. Understanding these effects is crucial for developing targeted policy interventions to support the poultry sector in the post-subsidy era.

This study was therefore designed to fill this empirical gap by examining the effect of fuel subsidy removal on the cost of major inputs of poultry production and identifying the coping strategies adopted by farmers to mitigate these challenges in Kwara State, Nigeria. The specific objectives were to:

- (i) determine the effect of fuel subsidy removal on the cost of major inputs of poultry production; and
- (ii) identify the coping strategies adopted by the poultry farmers to mitigate the challenges of subsidy removal.

METHODOLOGY

This study was carried out in Kwara State, Nigeria. The state is located in the North Central geopolitical zone, commonly referred to as the Middle Belt. It is situated between Latitudes 7°45' and 9°30' North and Longitudes 2°30' and 6°35' East, with a population of 2.37 million (NBS, 2006) and a projected population of about 4.3 million based on a 3.05% annual growth rate (PopulationStat, 2025). The state comprises sixteen Local Government Areas, with agriculture dominating the economy. Livestock such as cattle, goats, sheep, and poultry are produced, along with crops including rice, maize, guinea corn, millet, soyabeans among others.

A three-stage sampling procedure was used for this study. In the first stage, all registered poultry farmers who are members of the Poultry Association of Nigeria (PAN), Kwara State Chapter, were purposively selected. In the second stage, a 48% proportionate sampling technique was adopted to ensure fair representation of poultry farmers across the eleven Local Government Areas where PAN operates. The sample size for each LGA was determined by selecting about 47% of the registered farmers, resulting in a total sample size of 201 farmers from the 425 registered poultry farmers in the sampling frame. In the third stage, simple random sampling was used to select the 201 poultry farmers, ensuring that every farmer had an equal and independent chance of being included in the study.

Primary data were collected using a structured questionnaire administered to the selected poultry farmers. The questionnaire captured information on farmers' socioeconomic characteristics, production costs of major inputs before and after the removal of fuel subsidies, and the coping strategies they adopted. Data on costs before subsidy removal were collected from farmers' farm records and their recall of production activities in the one year preceding the subsidy removal in May 2023. Data on costs after subsidy removal were collected based on current production activities at the time of the survey in



2025. A 5-point Likert-type scale was used to assess the coping strategies adopted by poultry farmers to mitigate the challenges posed by the removal of the fuel subsidy. The scale was presented as: Least Important (1), Slightly Important (2), Moderately Important (3), Very Important (4), and Most Important (5).

Analytical Techniques

Descriptive statistics

It was used to describe the socioeconomic and demographic characteristics of poultry farmers, including source of capital, access to veterinary services, number of birds, gender, farming experience, educational level, and type of poultry farming. Mean scores were computed and used to rank the coping strategies in order of importance.

Paired t-test

This was used to compare the means of input costs before and after fuel subsidy removal and assess the statistical significance of the differences. The test is expressed as:

$$t = \frac{X_1 - X_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

where;

\bar{X}_1 and \bar{X}_2 are the sample means, s_1^2 and s_2^2 are the sample variances, and n_1 and n_2 are the sample sizes for the pre- and post-subsidy periods, respectively.

RESULTS AND DISCUSSION

Socioeconomic Characteristics of Poultry Farmers

Understanding the socioeconomic characteristics of poultry farmers is essential for interpreting production outcomes, as demographic and operational characteristics significantly influence production decisions, cost management capacity, and resilience to economic shocks (Ogunyemi & Orowole, 2020). Table 1 presents the socioeconomic characteristics of the poultry farmers in Kwara State. The results shows that poultry farming in the study area was heavily male-dominated, with 83.58% of respondents being male and 16.42% female. This gender distribution has direct implications for production capacity, as male-headed enterprises in Nigeria often benefit from greater access to productive resources, larger operational scales, and stronger market linkages (Liverpool-Tasie *et al.*, 2020). The predominance of male farmers also reflects the labour-intensive nature of commercial poultry production, which may limit female participation. Access to veterinary services emerged as a notable factor, with 67.66% of farmers having regular access, 20.90% occasional access, and 11.44% rarely accessing such services. Regular veterinary care is positively associated with productivity through reduced mortality rates, improved feed conversion efficiency, and enhanced flock performance (Rocha *et al.*, 2022). Farmers without consistent veterinary access are more vulnerable to disease outbreaks that can erode profit margins, particularly in the post-subsidy era where production costs have risen.

Table 1: Socio-economic Characteristics of Poultry Farmers in Kwara State

Variable	Category	Frequency	Percentage	Mean
Type of Poultry Farming	Broiler	67	33.33	
	Layer	84	41.79	
	Both	50	24.88	
Access to Veterinary Services	Regularly	136	67.66	
	Occasionally	42	20.90	
	Rarely	23	11.44	
Number of Birds	1-500	70	34.83	931.52
	500-1000	75	37.31	
	1000+	56	27.86	
Gender	Male	168	83.58	
	Female	33	16.42	
Educational Level	Primary	3	1.49	
	Secondary	83	41.29	
	Tertiary	115	57.21	
Farming Experience	1-5 years	63	31.34	7.56
	6-10 years	85	42.29	
	11-15 years	32	15.92	
	16-20 years	9	4.48	
	21-25 years	12	5.97	
Source of Capital	Personal Savings	173	86.07	
	Bank Loan	13	6.47	
	Cooperative	15	7.46	

Field Work, 2025

The mean flock size of 931.52 birds, with 37.31% keeping 500-1000 birds and 27.86% keeping over 1000 birds, indicates a sector dominated by small- to medium-scale operations. Flock size is a critical determinant of production efficiency, as larger operations typically benefit from economies of scale in input procurement and marketing (MacDonald & Korb, 2011). The predominance of layer production (41.79%) over broilers (33.33%) reflects farmers' preference for the continuous cash flow from egg sales, which may have helped sustain revenue streams during the post-subsidy transition. The educational profile is particularly relevant as 57.21% of respondents had tertiary education, 41.29% had secondary education, and only 1.49% had primary education. Higher educational attainment is generally associated with better financial literacy, improved record-keeping, and greater capacity to adopt cost-management innovations (Liverpool-Tasie *et al.*, 2020). Similarly, the mean farming experience of 7.56 years, with 42.29% having 5-9 years, suggests a pool of moderately experienced farmers capable of adapting production practices to changing cost structures.

A critical finding is the source of capital, 86.07% relied on personal savings, 6.47% on bank loans, and 7.46% on cooperatives. The near-total dependence on self-financing reflects severe constraints in accessing formal credit, which limits farmers' ability to expand operations, invest in cost-saving technologies, or absorb input price shocks (Sanou *et al.*, 2020). This capital structure underscores the importance of the coping strategies examined in this study, as farmers with limited external financial support must rely primarily on internal adaptive mechanisms to sustain production.

Effect of Fuel Subsidy Removal on Major Inputs

Table 2 presents the results of the paired sample t-test analysis comparing the mean differences in major poultry production input costs before and after the removal of the petroleum subsidy.

The results indicate that all variables examined are statistically significant ($p < 0.05$), suggesting that the observed mean differences between the pre- and post-subsidy periods are not due to random variation but reflect systematic structural changes in production costs.



Poultry feed shows a negative and highly significant mean difference ($M = -\text{₦}4,797.94$; $t = -14.279$; $p < 0.01$), indicating that feed costs increased significantly after subsidy removal. Given the dominant share of feed in total variable cost, this finding suggests a substantial cost-push effect, leading to a contraction in gross margins and overall enterprise profitability. This result aligns with Oyetunde & Olagunju (2026), who documented that rising feed costs, driven by energy price hikes and currency devaluation, constitute the most severe input cost affecting the Nigerian poultry industry, accounting for 70-80% of total production expenses.

Table 2: Effect of Fuel Subsidy Removal on Poultry Production Inputs

Variables	Mean	Std. Deviation	Std. Mean	Error t	Sig. (2-tailed)
Poultry feed	-4797.935	4763.796	336.012	-14.279	<0.001
Day-old chick	-612.637	296.009	20.879	-29.342	<0.001
Vaccines	-3124.577	6129.498	432.341	-7.227	<0.001
Transportation	-7924.876	39278.555	2770.496	-2.860	0.005
Labor wages	-9287.065	11314.223	798.044	-11.637	<0.001

Mean Difference = Pre-subsidy removal cost – post-subsidy removal cost. Negative values indicate price increase after subsidy was removed

Field Work, 2025

Similarly, day-old chicks exhibit a negative and highly significant mean difference ($M = -\text{₦}612.64$; $t = -29.342$; $p < 0.01$), implying a significant rise in the cost of stocking birds in the post-subsidy period. The magnitude of the t-statistic reflects a highly consistent increase across farms, reinforcing its economic significance. This finding corroborates Esheya, (2025), who reported that input costs increased by an average of 45% with disproportionate impacts on small-scale producers following subsidy removal.

The result further reveals that vaccination costs increased significantly in the post-subsidy period ($M = -\text{₦}3,124.58$; $t = -7.227$; $p < 0.01$). This suggests that expenditures on disease prevention and control increased in response to changing production conditions. This represents an increase in operational and biosecurity costs, which further reduces net returns. In addition, transportation costs show a negative and statistically significant mean difference ($M = -\text{₦}7,924.88$; $t = -2.860$; $p < 0.05$), indicating that logistics costs increase following subsidy removal.

Labor wages recorded the highest mean difference ($M = -\text{₦}9,287.07$; $t = -11.637$; $p < 0.01$), indicating that labour costs increased substantially after subsidy removal. This finding reflects the broader inflationary pressures in the economy, where workers demand higher wages to cope with increased cost of living following fuel price hikes. These results collectively demonstrate that fuel subsidy removal created a cascading cost structure throughout the poultry production system, affecting both direct and indirect inputs.

Coping Strategies Adopted by Poultry Farmers

Table 3 presents the coping mechanisms adopted by poultry farmers to mitigate the negative effects of fuel subsidy removal on their production activities. The mean scores were used to rank the strategies in order of importance. The threshold used to classify the order of importance of the strategies are; 3.50 and above was considered for highly important, 2.6 - 3.49 for moderately important while scored below 2.5 were classified as less important. The most important coping strategy adopted by poultry farmers was increasing production scale, with a mean score of 3.68 and ranking 1st. This implies that many farmers responded to higher production costs by expanding their scale to maximize output and revenue, possibly to spread fixed costs and maintain profitability despite rising input prices. This finding reflects the economies of scale principle, where larger operations can absorb cost increases more efficiently Pelemo, (2025).

The second most important strategy was seeking government support ($M = 3.64$, ranked 2nd). This indicates that farmers recognized the critical role of government intervention through subsidies, grants, credit facilities, or input support to cushion the effect of higher operational costs resulting from



subsidy removal. The high ranking of this strategy suggests that farmers expect policy-level responses to address macroeconomic shocks that are beyond their individual control (Ozili & Obiora, 2023).

Table 3: Coping Strategies Adopted by Poultry Farmers to Mitigate the Challenges of Fuel Subsidy Removal

Coping Strategy	LI (1)	SI (2)	MI (3)	VI (4)	MIm (5)	Mean	Rank	Level of Importance
Increasing production scale	9 (4.48)	25(12.44)	29(14.43)	97(48.26)	41(20.40)	3.68	1st	High
Seeking government support	8 (3.98)	18 (8.96)	54(26.87)	79(39.30)	42(20.90)	3.64	2nd	High
Joining cooperative societies	18 (8.96)	23(11.44)	61(30.35)	44(21.89)	55(27.36)	3.47	3rd	Moderate
Switching to alternative feed	34(16.92)	43(21.39)	52(25.87)	46(22.89)	26(12.94)	2.94	4th	Moderate
Reducing farm size	48(23.88)	77(38.31)	31(15.42)	21(10.45)	24(11.94)	2.48	5th	Low

Field Work, 2025

Joining cooperative societies was ranked 3rd with a mean score of 3.47 and classified as moderately important. This suggests that collective action through cooperatives is a key coping mechanism, enabling farmers to pool resources, access credit, and buy inputs in bulk at reduced costs. Cooperative membership also facilitates knowledge sharing and collective bargaining power, which are essential for small- to medium-scale farmers facing rising input costs (Liverpool-Tasie *et al.*, 2020).

Switching to alternative feed or production inputs was also moderately important and ranked 4th (M = 2.94). This shows that some farmers explored cheaper feed formulations or substitutes to reduce production expenses. However, the relatively lower mean suggests that this strategy was less favoured, possibly due to concerns about feed quality and its implications for bird performance and product quality (Enario, 2025).

Finally, reducing farm size was the least important coping strategy, with a mean score of 2.48. This indicates that downsizing production was considered less favourable among farmers, as it could reduce revenue and threaten business sustainability despite being a potential cost-cutting measure. The overall ranking pattern demonstrates that farmers preferred proactive, expansion-oriented strategies over reactive, contractionary measures, reflecting the resilience and adaptive capacity of the poultry sector in Kwara State.

CONCLUSION AND RECOMMENDATIONS

The findings reveal that fuel subsidy removal had a statistically significant impact on all major input costs, with feed costs, labour wages, day-old chicks, vaccines, and transportation costs all increasing significantly in the post-subsidy period. The study further reveals that increasing production scale is the most important coping strategy used, followed by seeking government support and joining cooperative societies.

Based on these findings, the following policy recommendations are proposed. First, government intervention through targeted input subsidies or price stabilization mechanisms is needed to cushion the effects of rising feed, fuel, and transportation costs on poultry production. Second, policies should focus on capacity building and training for farmers to enhance cost management and operational efficiency. Third, strengthening cooperative societies and government support programs would enhance farmers' resilience and collective capacity in mitigating the adverse effects of fuel subsidy removal. Finally, improving access to veterinary services and formal credit facilities would enable farmers to maintain flock health and invest in cost-saving technologies.



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