

Examining the Effect of 2023 Cash Crunch on the Poultry Egg Industry in Ogun State, Nigeria

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Abstract

The poultry egg industry is volatile, and this study investigates the impact of the 2023 cash crunch on the poultry egg industry in Ogun State, Nigeria. Data from sixty-four poultry egg farmers were collected using structured e-questionnaires and analyzed using descriptive statistics and a paired sample t-test. Results show that 83% of respondents were small-medium scale farmers and 73% used commercial feeds. Total egg production before (12,210 crates) and during the cash crunch (12,391 crates) did not differ significantly. The average feed cost per bag before and during the crunch was ₦7 097 and ₦7 151, respectively. However, the average sales of 2,213,867 crates before the crunch and 199,437 crates during the cash crunch significantly differed. A 36% cumulative decrease in egg price from ₦2472 (December 2022) to ₦1587 (March 2023) resulted in an 83% fall in daily farm revenue. The fall in price did not increase demand for eggs, as demand was not price-dependent but driven by cash scarcity. Coping strategies adopted by farmers to mitigate egg glut included increased delivery to customers (18%), gifting of eggs (56%), and sales of poultry birds (25%). The study recommends that the government provide grants and review loan tenure for farmers while encouraging poultry farmers to collaboratively explore egg processing options. Moreover, the study emphasizes the importance of supporting animal science research to investigate possible ways of halting laying of eggs for a while during periods of economic challenges.

Keywords: Poultry egg industry, cash crunch, egg glut, Nigeria

Introduction

Poultry production has become an important sector of the livestock industry in agriculture because of the increasing demand for poultry meat and eggs as a healthy protein source (Hamidu, 2022). According to the Food and Agriculture Organization (FAO, 2019), the Nigerian poultry industry produces about 180 million birds, provides a direct or indirect source of income to more than 70% of Nigerians, and contributes about 25% to the agricultural Gross Domestic Product (GDP). The industry has the largest annual egg production and second-largest chicken population in Africa and an estimated annual production of chicken meat and eggs at 300 and 650 thousand tons, respectively (FAO, 2019; Makasi et al., 2020). Despite its significant

growth in recent years, only 30% of the demand for chicken meat and eggs is met locally, leaving enormous room for industrial growth. Based on the production scale, poultry farmers are mainly small to medium-scale farmers, while layer farms (egg production) constitute 60% of the industry (Agriculture and Food, 2020).

An important product of the poultry industry is the egg, which is an excellent source of nutrients required by man and animals for the regeneration of worn-out tissues, growth, and development (Agbede, 2019; Chen et al., 2018). Eggs like most agricultural products, are highly perishable with a shelf life of about 28 days. As such, egg producers strive to sell eggs within seven days of production to accommodate 14-21 days of the shelf-life outside the

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farm gate. The inability of egg producers to sell off their eggs within this period may lead to egg glut, a situation where production is greater than demand or sales. Egg glut can be caused by different factors such as seasonality in egg production patterns, outbreaks of diseases, variability in eating patterns, holidays and rites, and variables that may interfere with the egg markets (Alabi, 2020; Nonye, 2022).

Government policies play a crucial role in economic activities and can constitute external shocks to business activities. An important policy in a country is the currency redesign statutorily carried out by the apex bank. In 2007, 2009, 2010, and 2014, the Nigerian government redesigned all the denominations of the currency, excluding ₦200, ₦500, and ₦1,000 from paper to polymer banknotes. However, the 2022 redesign involved only the ₦200, ₦500 and ₦1000 notes. The purpose of the currency design was to improve the Central Bank Nigeria's (CBN) visibility of the money supply, control inflation, check counterfeit notes, reduce the expenditure on cash management, strengthen the economy, and promote financial inclusion (CBN, 2022).

Although the previous currency redesign in Nigeria never resulted in a cash crunch (Tarurhor & Aruoren, 2023), which may be because the redesign was done mainly for ceremonial purposes with an extended timeline for the exchange of old notes for new ones, the currency redesign introduced in 2022 resulted into a cash crunch by March 2023 which led to a reduction in the volume of transactions within the economy as evident in a fall in real Gross Domestic Products (RGDP) and Purchasing Manger Index (PMI), (Oyadeyi, 2023). The situation was exacerbated by its concurrence with the 2023 general elections.

Cash is the most liquid asset required for day-to-day transactions (Olowe, 2018), and as such, businesses reliant on cash may struggle to carry out business transactions during a cash crunch. Thijssen and Agbara (2023) noted that farmers who majorly transacted on cash basis were forced to sell their produce at a significant

loss due to the difficulty for customers to access cash. Also, it's been argued that the decision for currency design was ill-timed and poorly planned considering the responsiveness of businesses to adopt new technology within a short period. In addition, as a result of the hasty switch to the use of online banking services for cash transfers, the banking system experienced a major breakdown, which dampened the trust of citizens in its reliability as a fulcrum on which business transactions rest.

The poultry egg industry, being pre-dominated by small and medium-scale farmers, was not immune to the downside of the cash crunch. There were no structures to quickly adjust to the need to go cashless. The National President of the Poultry Association of Nigeria explained that during the period of currency swap, people had no access to money to buy basic food items, and eggs, considered a luxury, ranked low in people's food baskets. The association advocated that the government should provide a mechanism for mopping up eggs and financial assistance to farmers who have incurred a huge loss (Nnodim, 2023). In Ogun State, the state government mopped up ten thousand crates (10,000) in response to the outcry of the farmers (Egbebe, 2023).

However, the difficulty in accessing physical cash, epileptic network services, hoarding of new notes by banks and individuals and some opportunistic Point-of-Sales (POS) agents who charged a premium fee for cash collection heightened the devastating effects of the policy.

While the effects the cash crunch may be far-fetched, providing an empirical finding has become pertinent. Many studies (Oyadeyi, 2023; Tarurhor & Aruoren, 2023; Otitoju et. al., 2023) have been carried out regarding the effect of the cash crunch on the Nigeria economy at large and Small and Medium scale enterprises (SMEs).

Oyadeyi (2023) adopted an ex-post facto approach to examine the naira redesign and its implications on the Nigerian economy in the first quarter of 2023. Using trend analysis on other economic variables, with reference to the real

GDP, Purchasing Managers Index (PMI), and inflation, the results showed that the cash-crunch policy negatively affected economic growth and productive activities as evident by the contraction in real GDP and the PMI.

This study therefore seeks to examine the effect of the cash crunch on poultry egg production in Ogun State, Nigeria.

Methods

The Study Area

The study was conducted in Ogun State, Southwest Nigeria, owing to its high level of poultry production, particularly layer production. Ogun State, created in 1976, has a land mass of 1.7 million hectares and a population of 3.7 million. It is characterized by tropical rainforest and Guinea-savannah vegetation. It is divided into 20 local government areas and shares borders with the Benin, Oyo, Lagos, and Ondo States.

Sampling and Data Collection

The target population for this study was poultry egg farmers in Ogun State. Purposive sampling was used to collect the data. Primary data were obtained through an online questionnaire using Google Forms. The questionnaire link was shared with members of the Poultry Association of Nigeria, Ogun State Chapter (PANOG), through their representatives in WhatsApp groups. The data collected included socio-economic characteristics, production data (such as daily production, cost of feed, and

mode of feeding), sales data (including mode of payment, daily sales, and average egg price), and farmers' marketing activities (such as mode of delivery). A total of sixty-four (64) responses were received, and all responses were complete as the online forms marked all questions as compulsory.

Method of Data Analysis

The collected data were subjected to descriptive and inferential statistical analyses. Descriptive statistics such as frequency, percentages, mean, and standard deviation were used to describe parameters like farm size, production, sales, cost of feed, and price of eggs.

Paired sample t-tests were used for inferential statistics to compare the means of production and sales data collected from the same farmers before and during the cash crunch. The specific parameters studied were daily production and sales, total production and sales, and the average price of eggs per crate before and during the cash crunch. All analyses were carried out using the Statistical Package for Social Sciences (SPSS) version 23.

Results

This study covered the 20 local government areas in Ogun State. The distribution of respondents by local government area is shown in Figure 1. The most represented local governments are Obafemi-Owode, Ado-Odo/Ota, Ikenne and Sagamu constituting 23%, 13%, 9% and 8% respectively. Other socio-economic characteristics of the farmers are presented in

Table 1

Socio-economic Characteristics of Respondents

	Frequency	Percentage
Size of Farm		
Less than 2000 birds	26	40.6
2000-10, 000 birds	27	42.2
10,001- 50, 000 birds	10	15.6
50, 001 – 200, 000 birds	0	0
More than 200, 000 birds	1	1.6
Types of Bird Raised		
Layers only	45	70.3
Layers and others	18	28.2
Others	1	1.6
Mode of Feed Production		
Self-milling	13	20.3
Commercial feeds	47	73.4
Both	4	6.3

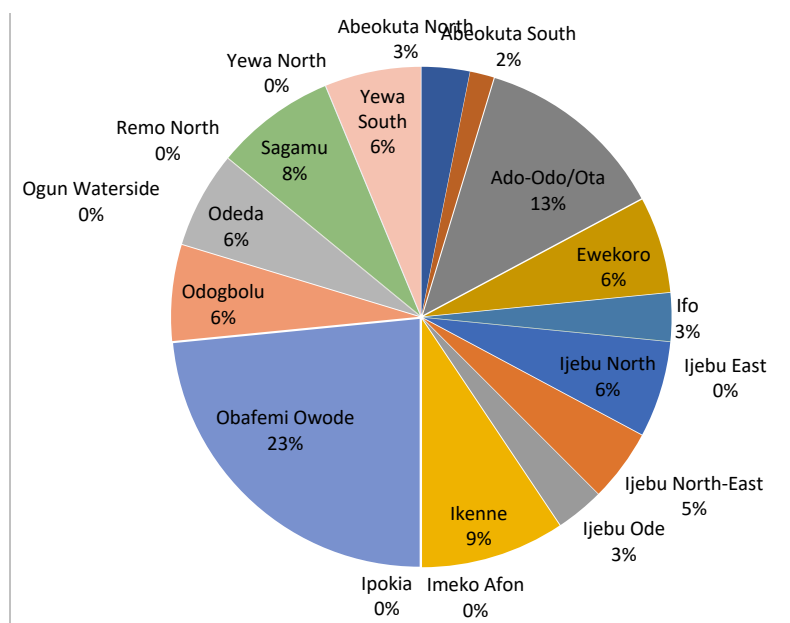
Authors' Compilation, 2023

About 41% of the farmers had less than 2, 000 birds while 42% had 2, 000 – 10, 000 birds. About 82.8 % of the respondents are small-medium scale farmers with less than 10,000 birds. This supports previous reports that poultry production is practiced on a small-medium scale

in Nigeria (Food and Agriculture, 2019). Based on the types of birds raised, about 98.5% were poultry egg producers (Table 1). Commercial feed was used mostly for production (73%).

Figure 1

Distribution of Respondents by Local Government Area



The result of the farm production is presented in Table 2. The average daily production in crates before the cash crunch was 193 crates while 357 crates were produced during the cash crunch.

Table 2*Farm Production Before and During the Cash Crunch*

	Before Cash Crunch (Dec, 2022- Jan, 2023)	During Cash Crunch (Feb, 2023 - Mar, 2023)
Average Daily production (crates)	194	357
Average Total Production (crates)	12, 210	12, 391
Average cost of feed (Naira/bag)	7097	7151

Authors' Compilation, 2023

The average crate production before the cash crunch was 12,210 crates with a standard deviation 34, 794. The high standard deviation was due to the difference in the maximum daily production (4,240 crates) and minimum (five crates). This divergence reflects the structure of the poultry egg industry in the State, which has very large and small-scale farmers.

During the cash crunch, the average crate production was 12,391, with a standard deviation of 33,132. The result of the paired sample t-test

revealed that daily production of eggs before the cash crunch ($M= 196$ crates, $SD = 553$ crates) did not differ significantly from daily egg production during the cash crunch ($M = 361$ crates, $SD = 971$ crates) at a significance level of 0.05, $t(62) = -1.571$, $p \leq 0.05$. Similarly, as shown in Table

3, the total production of eggs before the cash crunch ($M= 12, 210$ crates, $SD = 34, 794$ crates) also did not differ significantly from the total egg production during the cash crunch ($M = 12, 391$ crates, $SD = 33,132$ crates) at a significance level of 0.05, $t(62) = -0.216$, $p \leq 0.05$. The average cost of feed per bag was ₦7097 before the cash crunch and ₦7151 during the cash crunch, with a 0.76% increase in the feeding cost.

Table 3*Paired Sample t-test for Comparing the Means Production, Sales and Average Price of Eggs before and During the Cash Crunch*

Variable Pair	Mean	Standard Deviation	t-statistics (df=62)	p-value (One-tailed)
Pair 1	Daily production before cash crunch	196.01	-1.571	0.060
	Daily production during cash crunch	361.40		
Pair 2	Total production before cash crunch	12210.57	-0.216	0.415
	Total production during cash crunch	12391.22		

Pair 3	Daily sales before cash crunch	848.27	3611.57	1.454	0.078
	Daily sales before cash crunch	212.98	610.95		
Pair 4	Total sales before cash crunch	2213867.25	8365223.97	1.913	0.030**
	Total sales during cash crunch	199459.13	709049.95		
Pair 5	Average price per crate of egg before cash crunch	2471.52	2751.01	2.541	0.007**
	Average price per crate of egg during cash crunch	1593.02	257.33		

Authors' Compilation, 2023

The farm sales before and during the cash crunch are listed in Table 4. On average, 848 crates of eggs were sold daily before the cash crunch, while 213 crates were sold during the cash crunch. Unlike the production rate, which was relatively stable, there was a 74.88% decline in the volume of daily sales between these periods (Table 2). However, the paired sample t-test revealed that the daily sales of eggs before

the cash crunch ($M= 848$ crates, $SD = 3,612$ crates) do not differ significantly from the daily sales of eggs during the cash crunch ($M = 212$ crates, $SD = 610$ crates) at a significance level of 0.05, $t(62) = 1.454$, $p \leq 0.05$.

Table 4

Farm Sales Before and During the Cash Crunch

	Before Cash Crunch	During Cash Crunch
	(Dec, 2022- Jan, 2023)	(Feb, 2023 - Mar, 2023)
Average daily sales (crates)	848	213
Average price per crate (Naira)	2,472	1,593
Average daily farm revenue	2,096,256	339,309
Average total sales (crates)	2,213,867	199,459
Mode of payment		
Bank transfer	15 (23.5%)	42 (65.6%)
Cash	10 (15.6%)	7 (10.9%)
Both	39 (60.9%)	15 (24.4%)
Did cash unavailability affect your sales?		
Yes	-	64 (100%)
No	-	

Authors' Compilation, 2023

= 257) at the significance level of 0.05, $t(62) =$

Marketing Activities Before and During the Cash Crunch

	Before Cash Crunch (Dec, 2022- Jan, 2023)	During Cash Crunch (Feb, 2023 - Mar, 2023)
Mode of Delivery		
Deliver to customers	14 (21.9%)	25 (39.1%)
Pick up by customers	19 (29.7%)	9 (14.1%)
Both	31 (48.4%)	30 (46.9%)

Authors' Compilation, 2023

Contrary to the daily sales mean difference, the result revealed that the total sales before the cash crunch ($M = 2, 213, 867$ crates, $SD = 8,365,223$ crates) were significantly higher than the total sales during the cash crunch ($M = 199,459$, $SD = 709, 050$) at a significance level of 0.05, $t(62) = 1.913$, $p \leq 0.05$.

The average price for a crate of eggs was ₦2472 before the cash crunch, with a 29.85% decrease to ₦1734 in February 2023 and a further plunge by 8.47% to ₦1587, which sums up to a 36% decrease by March 2023. As shown in Table 3, the average price of eggs per crate before the cash crunch ($M = 2471$, $SD = 2751$) was significantly higher than the average price of eggs during the cash crunch ($M = 1593$, SD

2.541, $p \leq 0.05$.

There was a 42.1% increase in the use of bank transfers for transactions from the pre-cash crunch to the cash crunch. There was also a reduction in cash transfers from the pre-cash crunch to the cash crunch. The reduction in the mode of payment for farmers who use both methods could result from the reduction in available cash. All farmers confirmed this and agreed that cash unavailability affects sales.

This section presents the mode of delivery of eggs produced to customers. As presented in Table 5, the eggs can be picked up by customers or delivered by the farm.

Table 5

Coping Mechanisms Before and During the Cash Crunch

	Before Cash Crunch (Dec, 2022- Jan, 2023)	During Cash Crunch (Feb, 2023 - Mar, 2023)
Did you lose eggs to spoilage during this period?		
Yes	16 (25%)	51 (79.7%)
No	48 (75%)	13 (20.3%)

Did you have to unusually gift eggs to prevent spoilage during this period?

Yes	13 (20.3%)	49 (76.6%)
No	51 (79.7%)	15 (23.4%)

Did you have to sell off birds to control egg production during this period?

Yes	13 (20.3%)	29 (45.3%)
No	51 (79.7%)	35 (54.7%)

Authors' Compilation, 2023

About 48% of the farmers used both delivery modes before the cash crunch with a 1% decrease during the cash crunch. Furthermore, there was a 16% decrease in pick up by the customers at the farm gate from 30% before the cash crunch to 14% during the cash crunch. Conversely, delivery to customers increased from 22% to 39% during the cash crunch.

Table 6

The coping mechanism of farmers before and during the cash crunch is presented in Table 6. About 25% of the farmers experienced egg loss due to spoilage before the cash crunch while 80% lost eggs to spoilage during the cash crunch which was an indication that despite a fall in price, demand for eggs was lower. Thus, the demand for egg during the cash crunch was not price-dependent but more driven by the availability of cash.

Similarly, 77% of the farmers had to unusually give eggs out to prevent spoilage during the cash crunch as opposed to 20% before the cash crunch. Furthermore, in order to cut egg production, there was an increase from 20% to 45% in the number of farmers who had to sell off their laying birds.

Discussion

The study examined the effect of the 2023 cash crunch on the poultry egg industry in Ogun State. The findings showed that majority of the

farmers (83%) predominantly operate on a small-medium scale. This is tandem with the findings of Food and Agriculture (2020).

About 70% of farmers raise only layers and commercial feeds dominated the mode of feeding used by the farmers (73%). The mode of feeding choice can be associated with huge capital outlays required to run a self-milling plant which may be inaccessible or less efficient for small-medium scale farmers. Hence, the type of feed may be linked to the size of the farm; small- and medium-scale farmers prefer finished feeds while large-scale farmers prefer buying concentrate and self-milling (Ohagwu et al., 2021).

With respect to production, no statistically significant difference was found between the overall egg production before and during the cash crunch. This may be as result of the inelastic nature of the production process because at the point-of-lay, the laying of eggs cannot be stopped mid-way once production has commenced. Hence, farmers may not be able to halt production process in the presence of an external shock such as the cash crunch. Also, there may not have been a considerable expansion by farms or entry of new ones within the period of observation.

During the cash crunch, findings showed that there was a significant fall in overall sales leading to an egg glut which lends credence to the outcry of the Poultry Association of Nigeria

(PAN) about a looming collapse of the industry as a result of an estimated loss of about N30 billion from accumulation of unsold eggs as a result of naira notes scarcity (Amuge, 2023). The fall in sales resulted from the scarcity of cash which forced consumers to prioritize spending on necessities. This is because eggs are still considered a luxury in Nigeria and will rank lower in the consumer basket in times of financial crisis. The average price of eggs significantly dropped as well by 36% progressively from ₦2472 in December 2022 per crate to ₦1587 per crate in March 2023.

The poultry egg industry operates in a perfectly competitive market where excess supply over demand forces demand to fall. The fall in demand then pushes demand up because the market is self-equilibrating and producers do not have power over prices. However, contrary to this basic law of demand and market system expectations, the progressive fall in price did not increase the demand for eggs. This connotes that the demand for eggs during this period was not price-dependent but as a result of inability to access cash. In addition, given that customers preferred to use cash as opposed to online payments (Sakarombe & Marabada, 2017), and the shortcomings of the banking system in facilitating bank transfers, the resultant effect was an accumulation of unsold eggs.

This finding corroborates the submission of Rewane (2023) who found a 30% reduction in flour sales in Lagos State, 70% reduction in ram meat in Kano State and a 40% reduction in cement sales in Kogi State as a result of the cumbersome and exploitative means of accessing cash during this period. On the contrary, Muhammed and Abdulmajeed (2022) found the Naira redesign as a monetary tool, a positive and significant contributor to the Nigerian economy.

During the cash crunch, there was an increase in the use of delivery to customers, suggesting a need for the farmers to proactively seek means of getting eggs to the customers as an incentive for patronage, thereby incurring additional costs. The resultant effect of the fall

in sales was a decline in revenue by about 83%. Adeoye (2017), cited in Aladejebi et al. (2019), observed a similar situation post-2016 economic recession leading to a progressive decline in returns to poultry egg farmers. Also Nmorsi et al. (2024) found that the cash crunch had a negative impact on the Nigerian economy.

Furthermore, in order to cope with the challenging economic conditions, farmers resorted to gifting eggs and depopulating their bird populations through sales. The proportion of farmers experiencing egg spoilage increased during the cash crunch, prompting more farmers to give eggs as gifts to prevent further losses. This is similar to the disposal of eggs by large layer farms in Nigeria at highly discounted prices following the COVID-19 pandemic (FAO, 2020). Additionally, a higher percentage of farmers sold off birds during the cash crunch to control egg production. An implication of this is a looming shortage in the supply of eggs and loss of jobs of farm workers as a result of down-scaling or closure of poultry farms in the State. Ekot (2022) reported a similar incidence where poultry farms had to shut down as a result of the rising cost of feed associated with security challenges in some maize producing state in Nigeria.

Conclusion and Recommendation

This study examined the effect of the 2023 cash crunch of poultry egg industry in Ogun State, Nigeria. Overall, the Naira redesign policy and the associated cash crunch adversely affected the poultry egg industry in Ogun State. The reduction in sales and average egg prices resulted in a decline in overall revenue for farmers. The egg glut experienced during this period was attributed to stable production levels and decreased demand, which was not solely influenced by price fluctuations but by customers' inability to access cash. These findings heighten the importance of targeted support and adaptive strategies to sustain the poultry egg industry during economic downturns. Based on the findings of this study, the following recommendations were made:

- i. Given that the cash crunch was the aftermath of macroeconomic policy, the government should provide agricultural grants to support farmers.
- ii. To compensate for the loss of farm revenues, the government should consider revising agricultural loans by adjusting interest rates or repayment terms for farmers with outstanding bank loans.
- iii. Poultry egg farmers should devise means of collaborating to pool resources together and establish a processing plant for converting eggs to non-perishable products.
- iv. The poultry industry should explore ways to adopt global best practices to penetrate international export markets.
- v. Also, animal science research should be encouraged to identify strategies for temporarily curtailing egg production, similar to the process in humans.

Limitations and Suggestions for Further Study

This study was significantly limited by the low response rate from farmers and the apparent lack of proper record-keeping among those who did respond. Hence, it is crucial to approach the interpretation of findings and conclusions cautiously. This study covered the period before and during the 2023 cash crunch in Nigeria. Further research can be carried out to examine the post-cash crunch period. Additionally, a profit and loss analysis can be carried out to gain a deeper understanding of the revenue loss experienced by farmers in the State.

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