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Original Article

Assessment of agricultural produce price differentials in Anambra State, Nigeria before and during demonetization

OPEN ACCESS

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ABSTRACT

Agricultural sector that is one of the cash-intensive sectors was adversely impacted by cash crunch created by the 2022 demonetization in Nigeria. The agricultural value chain was disrupted with resultant effect of distress sales, wastage of perishable products, labour constraint and reduction in time allotted to farming. Thus, this study examined agricultural produce price differentials before and during demonetization in Anambra State, Nigeria**.** A three-stage sampling procedure was adopted for the study. Five rural Local Government Areas (LGAs) were purposively selected; Ogbaru, Anambra West, Ihiala, Idemili North and Anaocha followed by a random selection of four villages from each LGA and ten farmers from each village making 200 farmers sampled using structured questionnaires before and during demonetization. The data was then analyzed using mean, frequency, percentages, graph, and inferential statistics-t-test$\alpha_{0.05}$**.** The result showed farmers financial inclusion (48%), out of which only (45.83%) who were majorly youth (mean age=34 years) operated digital banking. Before demonetization (94%) farmers used cash for transactions which only reduced to 70.00% during demonetization. Physical bank transaction also dropped from 4.20% to 9.00%, but there was an increase in digital transactions from 2.10% to 24.30%. A significant price differential $\alpha_{0.05}$ was obtained for all farm produce considered. Market price reduction (75%), Cash constraint (60.50%) and loss of time/ divided attention (58%) were the most severe challenges of the farmers during demonetization. The study recommends that financial institutions should make provision for rural populace especially farmers to easily change their money during demonetization.

K E Y W O R D S : *Cash Constraint, Central Bank, Digital transaction, Naira Design, Rural Populace*

INTRODUCTION

Central Bank of Nigeria by law (decree No.24 of 1991) has the power to print new currency notes, scrap the old ones, pulled them out of circulation and replace them with new notes or coins Central Bank of Nigeria (1991). In short, the old currency notes are retired as legal tender and cease to act as store of value and this is referred to as demonetization (Roy, 2022). In April 1984, four months after the Buhari- Idiagbon military government came to power, the Nigerian government ordered the redesigning of naira and mandated everyone to deposit their old naira notes in banks. They came to power with the aim of finding solution to the economic crisis and stamping out corruption. Today, about forty years after, the same president surfaced and we are yet to resolve these same issues of corruption and economic crisis (Ibrahim, 2023). Individuals and corporations were giving naira notes exchange limit and in the case of excesses, the sources

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needed to be explained and government clearance must be obtained before it can be changed. Businesses and individuals lost a huge amount of money. Borders were closed and Decree 2 was enacted which empowered the government to arrest and detain citizens without query.

On the 26th October, 2022, the demonetization of ₦200, ₦500 and ₦1000 notes which were the three widely circulated denominations in Nigeria was announced, prior to the implementation and release of the new currency notes for public use on 15th December, 2022 (Ibrahim, 2023). In Nigeria, it is the usual habit of the Government to impose unrealistic deadlines and the six weeks given to completely swap these currencies was unrealistic. Banks were directed to return old notes to the CBN immediately while the citizens were also directed to pay in their cash into their bank accounts so that they can get the new notes in mid-December, (Ibrahim, 2023). The Nigerian government implemented demonetization in an effort to curtail the shadow economy and black money, reduce the use of counterfeit cash; reduce insecurity (reducing extortion through terrorism, kidnapping and other criminal activities), remove worn out cash from circulation and transform Nigeria into a digital economy, even though it was presumed to have political undertones.

The preceding events after announcement of demonetization were prolonged cash shortage which significantly disrupted the economy taking the economy backward to the trade by barter age (Kakumanu, Srikanth, Gavali, Kalloor, and Mukate, 2022). The goal of eradicating black wealth and corruption by demonetizing currency was problematic from the start, given the widespread acknowledgement of the fact that undeclared income is seldom held for long periods in terms of cash (*Lahiri*, 2020). In the wake of this, there have been hot debates on whether the radical and bold step by the Central Bank Governor was judicious, rightly thought and rightly implemented.

Consequently, about 80% of cash in circulation was suddenly withdrawn which resulted to financial panic and hardship that almost shattered public trust in the banking sector of Nigerian economy. As a result, there were long queues of people before Automated Teller Machines (ATMs)/banks in a bid to change their money and therefore faced untold hardships (Kakumanu, Srikanth, Gavali, Kalloor, and Mukate, 2022). Demonetization caused the food inflation rate to decrease from 24.13% in November to 23.75% in December (National Bureau of Statistics, (2023). Because the mode of transaction in agricultural sector is cash, it was the most affected sector. In addition, demonetization was announced at the harvesting season, farmers were cash constrained to manage harvesting and marketing their produce. The unexpected cash crunch led to low demand for agricultural produce and consequently, crash in the prices of food crops (National Bureau of Statistics, (2023). Within this period, the agricultural value chain was disrupted leading to distress sales and wastage of perishable products such as fruits and vegetables. Farmers were labour constrained and the time allotted to farming reduced while more time was given to seeking cash for farm operations (Singh and Prajapati, 2020). Ordinarily, demonetization should not create cash crunch in an economy if the old currency notes are replaced instantly, but the governor of CBN and the Nigeria president on the contrary implemented demonetization by instantly banning the old naira notes without immediate supply of the new notes. As Nigeria navigates its financial landscape, reconsideringmicrofinance or community bank models may offer viable solutions, particularly in addressing thefailures stemming from flawed business strategies and self-serving interests (Fasua, 2023).

This study was justified on the basis that studies on impact of demonetization on agriculture were done in other countries (Sumathi and Savitha, 2017) but none has been done in the study area. Findings of this study would help both existing and prospective rural dwellers in planning for the future by seeking financial inclusion, the government and CBN in addressing the needs of rural people and proper implementation of similar policies in future. The study achieved the following objectives; identified respondents' frequency of bank transaction and adoption of cashless/digital policy before demonetization; identified respondents' mode of payment before and during demonetization; ascertained price differential before and during demonetization; and identified the challenges faced by the farmers.

MATERIALS AND METHODS

Study Area

The study was carried in Anambra State, one of the five states in South-Eastern Nigeria and has 21 Local Government Areas. Multistage sampling technique was adopted for the study. In the first stage, the study purposively selected five rural Local Government Area (LGA) Ogbaru, Anambra west, Ihiala, Idemili North and Anaocha. In the second stage, three (4) villages were randomly selected from each LGA, then, in the third stage, ten farmers were selected from each village. This brought the sample size to thirty (40) per LGA. A total of two hundred farmers were sampled using structured questionnaires and data were collected before and during demonetization. The data were then analyzed using descriptive statistics: mean, frequency, percentages graph and inferential statistics: t test.

Analytical Framework

Independent t-Test for testing the difference of two means was used to test if there was significant differences in mean prices of farm produce before demonetization and during demonetization.

$$T= \frac{\bar{x}_i - \bar{x}_j}{\sqrt{\frac{s_i^2}{n_i}+\frac{s_j^2}{n_j}}} \quad \text{.....(1)}$$

Where i X = mean prices of farm produce
j X = = mean prices of farm produce before demonetization
i S = mean prices of farm produce during demonetization

j S = sample variance for prices of farm produce
n_i= number of farmers before demonetization.
n_j = number of farmers during demonetization

RESULTS AND DISCUSSION

Frequency of Bank Transaction and Adoption of Cashless/Digital Policy by Respondents

Table 1 showed the bank transaction and adoption of cashless/digital policy by respondents. Forty-eight % of the farmers with mean age of 42 years had bank accounts. This implied less than average financial inclusion in the study area. The finding corroborates with the work of Singh and Prajapati (2020) who also reported that about 15-34 percent of farmers and 75 percent of landless labourers opened bank accounts in the central region of Gujarat, India because the farmers were paid for the milk supply via electronic mode only.

The holders of bank accounts comprised majorly of those that operated savings accounts only (47%) and those that operated both savings as well as current accounts (1%). Out of all these bank accounts operators, only 45.83% with mean age of 39 years had Automated Teller Machine (ATM) cards. This implied less than average of those that were financially included operated digital banking which is also an indication that Nigerians are not ready for digital banking. Out of 48% of the farmers that had a bank account, only 16.67% with mean age of 36 years used their bank account at least once in a week with (SD ±3.4) while 51.04% with mean age of 49 used their bank account at least once in a month with (SD ±3.1) and 32.29% with mean age of 55years had no bank transactions in the past 6 months. This implied only few of those that were financially included operated their bank accounts and that for now enlightenment and emphasis should be on financial inclusion rather than total digitalization of banking sector. Out of 45.83% that had ATM, 43.18% used their ATM at least once in a week with (SD ±2.2) while 50.00% with mean age of 48 years used their ATM at least once a month with (SD ±2.1) and 6.82% with mean age of 57 years had no ATM transaction in the past 6months. About sixty-one percent with mean age of 46 years of the respondents had mobile phones that can enable them to carry out digital transaction. This implies that a lot is required to be done in alleviating poverty among rural farming household to enable the vision of digitalization to materialize. About eighty-six percent with mean age of 41 years of the total respondents had mobile phones and also operated a bank account. Out of these eighty-six percent that had mobile phones and also operated a bank account 45.65% with mean age of 34 years carried out digital transactions at least once a week with (SD ±0.1) while 10.87% with mean age of 43 years carried out digital transactions at least once a month with (SD ±0.1) and 43.48% with mean age of 54 years had no digital transactions in the past 6months. This implies that the people that engaged in digital banking were majorly youths. This can be attributed to the fact that numerous local government areas in Nigeria lack any banking presence as reported by Onibudo (2024) and hence, the youths were able to withstand the difficulty of accessing banks.

Mode of Payment Before and During Demonetization

Figure 1. below showed the mode of payment of the respondents before and during demonetization. About ninety-four percent of the farmers' transactions was by cash before demonetization while only 70.00% of their transactions during demonetization was done by cash there was about 24% decrease in cash transactions during this period. Physical bank transaction also dropped from 4.20% to 9.00%, but there was an increase in digital transactions from 2.10% to 24.30% likewise there was a marginal increase in other methods of payment (barter, labour etc), from 0.2 to 5.10. With these observations, it will be very difficult for Nigerian to suddenly move from cash transaction to digital transaction. Low adoption of digital transactions for agricultural activities could perhaps be due to few electronic/digital bank accounts, lack of digital financial literacy and fear of insecurity. This result is not in tandem with that of Kakumanu, Srikanth, Gavali, Kalloor, and Mukate (2022) who found out that about 94 per cent of the India farmers did not adopt digital transactions for agricultural activities/payments during demonetization rather cash remained the mode of payment in rural areas.

Price Differentials Before and During Demonetization

Table 2. compared the farm gate prices of some food crops before and during demonetization and tested for statistical significance using t test. The food crops were Paddy, maize, fluted Pumpkin, okra, yam and cassava. All the food crops prices were statistical different at 1% for the two periods compared. This implied a tremendously loss of money meant for smooth running of agribusinesses by farmers during the period of demonetization. This finding is in line with Lahiri (2020) who reported that demonetization in India did have appreciable costs in terms of lost jobs and output. Also, Mehjabeen and Saravanadurai (2020) observed that the announcement of demonetization disrupted the normal economic life as farmers were not able to buy seeds, fertilizers, agriculture equipment by cash as their cash was locked in the banks and the cash in hand was of no use unless it is exchanged with the new currency.

Table 1. Frequency of bank transaction and adoption of Cashless/Digital policy by respondents

Variables	Frequency	Percentage	Mean age (years)
Holders of bank account	96	48.00	42
Non-holders of bank account	104	52.00	
Type of account			
Savings account only	94	47.00	43
Current account only	-		
Savings/ Current account	2	1	41
Possession of ATM cards	44	45.83	39
Frequency of bank transaction			
Frequent transaction	16	16.67	36
Not frequent transaction	49	51.04	49
No transaction in the past 6months	31	32.29	55
Total	96	100	
Frequency of digital, Automated Teller Machine (ATM) Transactions			
Frequent transaction	19	43.18	34
Not frequent transaction	22	50.00	48
No transaction in the past 6months	3	6.82	57
Total	**44**	**100**	
Mobile phone owner	121	60.5	46
Those that do not own phones	79	39.5	
Mobile phone/bank account owner	82	85.42	41
Digital transactions by (phone)			
Frequent transaction	21	45.65	34
Not frequent transaction	5	10.87	43
No transaction in the past 6months	20	43.48	54
Total digital transactions by (phone)	**46**	**100**	

Source: Field Survey Data, 2023.

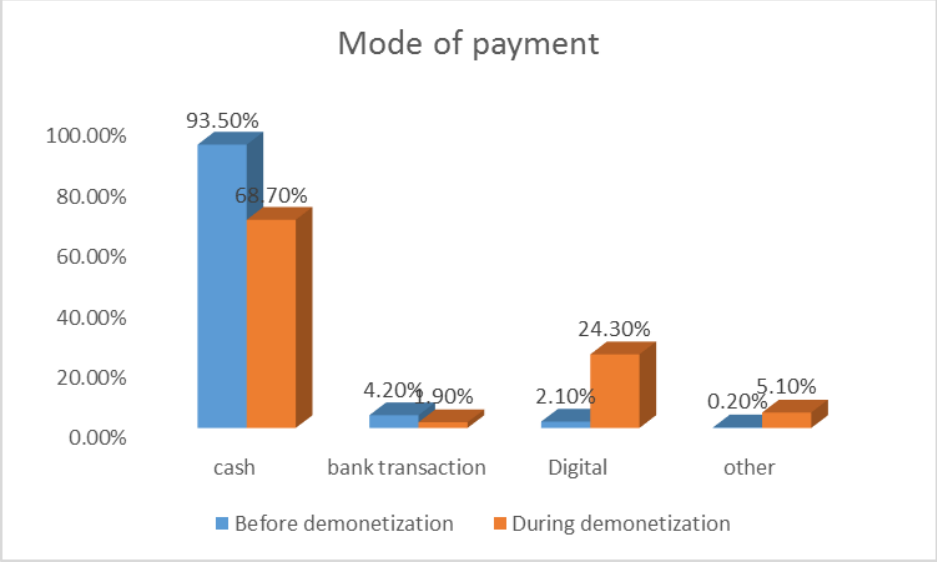


Figure 1: Mode of payment before and during demonetization
Source: Field Survey Data, 2023.

Table 2. Price differentials before and during demonetization

Food crop	Mean price per kg (₦) before demonetization	Mean price per kg (₦) during demonetization	Mean price differential	T value
Paddy	1000	800	200	32.88***
Maize	700	600	100	16.44***
Fluted Pumpkin	600	550	250	12.13***
Okra	500	300	200	48.51***
Yam	900	700	200	22.09***
Cassava	400	250	150	30.00***

Note: * Significant at 1% leve. lSource: Field Survey Data, 2023.**

Challenges faced by farmers during demonetization

Table 3 presented the challenges faced by farmers during demonetization. Reduction in market price (75%) was the most severe of all the challenges identified. This made the farmers to run their farming business at a loss and consequently, forced some of them out of business since they were bankrupt and did not have insurance policies to cover this loss. Cash constraint (60.50%) was the next in severity to price reduction. Farmers were cash crunched and unable to carry on their farming activities leading to future food insecurity and poverty of farming households. The third most severe was loss of time/ divided attention. Precious time meant for farming operations were expended on seeking for cash and farmers' attention were shifted from managing their farms to sourcing cash for survival. Dharanipriya and Karthikeyan (2019) observed similar result in India rural economy where demonetisation resulted in the strengthening of informal credit market in the India rural economy. The fourth challenge was mobile phone network challenges (37.50%). Mobile phone networks in the rural areas were poor and this made it difficult for digital financial transactions. Therefore, most rural dwellers failed to adopt digital financial transactions. Credit sales (42.50%) was adopted by farmers to mitigate total loss in the case of perishable items. Farmers were not even sure of recovering their money from customers who bought their goods on credit. Inadequate transportation (40.00%) facility was next. Consequently, lot of produce were lost at farm gate where they finally got rotten. Due to the fact that farmers were cash crunched, they were incapacitated and could not hire labour for their farm operations. The implication is future food insecurity and poverty of farming households. Hike in the prices of inputs (30.00%) coupled with cash crunch challenge made the situations more complex for the farmers and least severe of all the challenges was spoilage of harvested crops (11.00%).

Table 3. Challenges faced by farmers during demonetization

Challenges	Frequency	Percentage
Reduction in market price	150	75.00
Credit sales	85	42.50
Spoilage of unsold produce	22	11.00
Cash constraint	121	60.50
Inputs cost hike	60	30.00
Inadequate transportation facility	80	40.00
Mobile network transaction challenges	75	37.50
Labour constraints	70	35.00
Loss of time/ divided attention	116	58.00

Notes: Multiple Responses. Source: Field Survey Data, 2023.

CONCLUSION AND RECOMMENDATION

The 2022 Naira Redesign Program, initiated by the Central Bank of Nigeria (CBN) aimed at addressing the nation's financial and economic challenges but its implementation posed a serious problem to farmers because it was sudden and unplanned. Due to the fact that most of the farmers had no bank account prior to the period, it was extremely difficultly for them to access the new currency and managed their farming activities. Consequently, the farmers were faced with cash crunch/constraint and loss of time/ divided attention which invariably affected the market prices of food crops during the demonetization period.

Policy Implications and Recommendations:

i. Farmers should be encouraged by the CBN through commercial banks to open, operate a bank account, have valid ATM cards and phones as it will help them to easily save, change their money when the need arises and promote financial inclusion.
ii. Demonetization in future must be properly planned by the CBN and provision should be

made for rural populace especially farmers to easily change their money by bringing this service to their door step.

iii. To realize the digitalization of financial transaction, network providers need to improve on their services as this is one of the challenges of digital transactions especial in rural areas.

iv. Training and capacity building on financial/digital literacy should be diligently pursued by the CBN.

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Authors' contributions:

Author TNN designed the study, wrote the first draft of the manuscript, managed the literature searches, developed the methodology while Author OJK performed the statistical analysis and interpretation of data. All authors read and approved the final manuscript.

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