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DYNAMICS IN CROP FARMERS USE OF E-BANKING TECHNOLOGIES TO ENHANCE FINANCIAL TRANSACTIONS UNDER THE CASHLESS POLICY ENVIRONMENT IN ENUGU STATE, NIGERIA

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Abstract:

The study investigated the dynamics in crop farmers use of e-banking technologies to enhance financial transactions under the cashless policy environment in Enugu State, Nigeria. Multistage sample procedure was used to select one hundred and twenty (120) crop farmers for the study. Collection of data was done using structured interview schedule. Data analysis was done using frequency, percentage, mean scores and standard deviation. Findings show that the Information and Communication Technology channels (ICT) used by the farmers for e-banking were debit cards for e-banking (80%), Point of Sale (POS) machines (77.5%) and Automated Teller Machine (ATM) (74.2%). The positive effects of the cashless policy on crop production include: creates time for farmers to focus on their production activities ($\bar{x}$ = 2.08; SD = 1.11), aids farmers in tracking cash inflow and outflow of the farm ($\bar{x}$ = 1.92; SD = 1.16), and reduction in the rate of kidnapping of farmers and members of their family ($\bar{x}$ = 1.92; SD = 1.07), while the negative effects include: limited access to cash for daily transaction ($\bar{x}$ = 2.48; SD = 0.66), and reduction in the demand of farm products ($\bar{x}$ = 2.21; SD = 0.85). The benefits of e-banking revealed by the crop farmers were enhances sending and receiving of money (93.3%), and prevention of the danger of carrying large money around (88.3%). Data show that the crop farmers are satisfied with the cashless policy because: it enhances security and protection of funds ($\bar{x}$ = 1.92; SD = 1.12), and ease of online banking usage ($\bar{x}$ = 1.73; SD = 1.22). Financial institutions in collaboration with the government should improve farmers access to e-banking tools through provision of provision of accessible facilities and targeted trainings in order to maximize the benefits of ICT channels, while also addressing the challenges related to cash access and demand.

Keywords:

Crop Farmers Financial Transaction; E-banking; Cashless Policy.

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Introduction

Agriculture remains a cornerstone of Nigeria's economy, serving as a major source of employment, income generation, and food supply for the nation's rapidly growing population (Ezomo, 2024; Udoeye et al., 2025). It contributes substantially to the country's Gross Domestic Product (GDP) and plays a vital role in rural development and poverty alleviation (Chukwu, Agbaeze & Efanga, 2023). Among the different subsectors within agriculture, crop production holds particular importance due to its direct impact on food security, raw material provision for agro-industries, and export earnings. Consequently, enhancing crop production is indispensable for the overall growth and sustainability of Nigeria's agricultural sector.

Crop farmers are central to this agricultural advancement, as they are the primary producers whose decisions and actions determine the quantity and quality of crop yields (Chiaka et al., 2022). Their role in improving production practices, adopting innovative technologies, and efficiently managing farm resources is critical to achieving sustainable agricultural development. However, the operational success of crop farmers is largely dependent on their ability to effectively manage financial transactions, which traditionally have been conducted predominantly using cash (Ambler et al., 2025). The reliance on cash transactions extends from purchasing farm inputs such as seeds, fertilizers, and pesticides, to paying laborers and transporting produce to markets.

Despite its prevalence, cash-based transactions present several significant challenges. The handling of large sums of cash exposes farmers to security risks such as theft and loss, which can undermine their economic stability. Moreover, cash transactions limit financial record accuracy and reduce transparency, thereby hindering farmers' capacity to access formal financial services like credit and insurance. On a broader scale, the excessive circulation of cash in the economy can fuel inflationary trends, increase the costs of money management for banks, and impede the effectiveness of monetary policies critical to economic stability.

In recognition of these adverse effects and the need for a more streamlined financial system, the Central Bank of Nigeria (CBN) instituted the cashless policy (Chidebe, 2025). This policy aims to limit the volume of physical cash circulating in the economy by promoting electronic payment systems as the preferred means of financial transactions. The cashless policy seeks to enhance the ease, security, and efficiency of payments, reduce operational costs for financial institutions, and foster financial inclusion. Within agricultural production, this policy has significant implications as it encourages all actors, particularly crop farmers, to shift from cash reliance toward digital financial platforms.

E-banking, defined as the use of electronic means such as mobile banking apps, internet banking, point-of-sale terminals, and automated teller machines (ATMs) to undertake financial transactions, stands at the forefront of this transformation (Samuel-Ogbu, 2023). For crop farmers, e-banking offers numerous advantages including expedited payments, improved financial tracking, reduced exposure to cash-related risks, and easier access to banking services, which are vital for enhancing farm efficiency and profitability. Importantly, digital financial inclusion supports timely procurement of farming inputs, quick sale of produce, and access to credit facilities elements that drive agricultural productivity (Adeagbo, Emiola, & Aderinto, 2025).

However, the extent to which rural crop farmers can leverage e-banking technologies hinges on their technological capacity and their perception of its benefits (Ogunleye, & Adeyemi, 2024). Skills gaps,

low digital literacy rates, limited internet connectivity, and resistance to change often constrain e-banking adoption among rural farmers. These gaps underscore the necessity for structured training programs aimed at building farmers' competencies in using digital financial services. Equally, the perceived advantages of e-banking such as convenience, safety, cost reduction, and better financial management are critical motivators influencing acceptance and utilization.

Given this background, there is an urgent need to investigate the dynamics in crop farmers use of e-banking technologies to enhance financial transactions under the cashless policy environment in Enugu State, Nigeria. Specifically, the study sought to identify the ICT channels used by the farmers for e-banking; ascertain farmers perceived effect of the cashless policy on crop production; ascertain farmers perceived benefits of e-banking; and ascertain crop farmers level of satisfaction with the cashless policy. Exploring this theme will ultimately contribute to policy design and intervention strategies that support agricultural sustainability in the region. Such investigation is essential to bridge the digital divide and ensure that crop farmers fully benefit from the opportunities presented by Nigeria's evolving cashless economy.

Methodology

The study was carried out in Enugu State, Nigeria. The State lies between latitude: 9° 04' 39.90" N and longitude: 8° 40' 38.84" E. It occupies a total land area of 7,616.0km². The State has seventeen local government areas and is divided into six agricultural zones namely Awgu, Agbani, Enugu, Nsukka, Enugu Ezike and Udi. The population for the study constituted all crop farmers in Enugu State. Multistage sampling procedure was used in the selection of the respondents for the study.

In the first stage, four (4) Local Government Areas (LGAs) (Isi-uzo, Enugu south, Aninri and Awgu) were purposively selected from the seventeen (17) LGAs in Enugu State. The purposive selection of the LGAs was because of the dominance of crop farmers in the LGAs. In the second stage, two communities were purposively selected from each of the LGAs (Neke and Eha-amufu in Isi-uzo LGA; Ugwuaji and Amechi in Enugu south LGA; Nenwe and Oduma in Aninri LGA; Mgbowo and Ogbaku in Awgu LGA) giving a total of eight communities for the study. These communities were selected because of the availability of crop farmers in the communities. In the third stage, three villages were randomly selected from each of the communities to give a total number of 24 villages for the study. In stage four, Snowball sampling technique was used to select (5) respondents from each of the selected villages giving a total of 120 respondents for the study.

Data was collected using structured interview schedule, in line with the specific objectives of the study.

The ICT channels used by the farmers for e-banking was ascertained by asking the farmers to indicate from a list of ICT technologies by ticking yes or no where applicable. The ICT channels include: point-of-sale (POS), smart phones, personal computers, ATM card etc.

The farmer's perceived effects of the cashless policy on crop production were ascertained by asking the respondents to indicate on a four-point Likert type scale of very great extent (VGE), great extent (GE), little extent (LE) and No extent (NE) with responses options of 3, 2, 1 and 0 respectively. These values were summed to get 6 which was divided by 4 to give a mean value of 1.5. Therefore, variables with mean value equal to or above 1.5 were regarded as major effects while responses below the mean value 1.5 were regarded as minor effects of cashless policy.

Crop farmers perceived benefits of e-banking was ascertained by asking the respondents to indicate their perceived benefits of e-banking by ticking yes or no from a list of benefits of electronic banking. The farmer's level of satisfaction with the cashless policy was achieved by asking the respondents to indicated on a four-point Likert type scale of very satisfied (3) satisfied (2), less satisfied (1), not satisfied (0). These values were added up to get 6 which was divided by 4 to get 1.5 as the mean value. Therefore, variables with mean value equal to or above 1.5 were regarded as more satisfactory to the crop farmers while variables with mean score less than 1.5 were regarded as less satisfactory to the crop farmers. Data was analyzed using frequency, percentage, mean and standard deviation. The Statistical Product Service Solution (SPSS) software package version 22 was used for data analysis.

Results and Discussion

Information and Communication Technologies channels used by crop farmers for e-banking

Table 1 shows that the majority (80%) of the crop farmers use debit cards for e-banking, 77.5% use Point of Sale (POS) machines, while 74.2% indicated that they use of Automated Teller Machine (ATM). This suggests that the implementation of the cashless policy has brought about a significant shift from the formal banking to e-banking thereby helping crop farmers in the area to perform simple transactions from their comfort zone without visiting the bank.

Similarly, 50.0% of the crop farmers indicated that they engage in online banking, another 50.0% indicated that they engage in mobile banking, while 40.8% indicated that they use credit cards for transaction and 30.8% use their personal computers for e-banking. This suggests that crop farmers who are aware of electronic banking and some of its related features has embraced and started using some of the digital technologies. According to Chiejina & Ike (2025), raising awareness of e-banking in rural areas can help to increase usage and thus bring more of the rural community into the formal banking system. In recent times, it is hard to find someone without a mobile phone and even though, only 50 percent of the total farmer respondents are using mobile banking services.

Table 1: Information and Communication Technologies used by crop farmers for e-banking

I C T tools	Frequency	Percentage
Debit cards	92	80.0
Point of sale (POS)	93	77.5
Automated teller machine (ATM)	89	74.2
Online banking	60	50.0
Mobile banking	60	50.0
Credit cards	49	40.8
Personal computers	37	30.8

***Multiple responses**

Crop farmers perceived effect of the cashless policy on crop production

Table 2 shows the effects of the cashless policy on crop farmers. From the Table, the positive effects of the cashless policy on crop farmers include: creates time for farmers to focus on their production activities ($\bar{x}$ = 2.08; SD = 1.11), aids farmers in tracking cash inflow and outflow of the farm ($\bar{x}$ = 1.92; SD = 1.16), reduction in the rate of kidnapping of farmers and members of their family ($\bar{x}$ = 1.92; SD = 1.07), promotes accountability in the farm ($\bar{x}$ = 1.72; SD = 1.06) and eradicates financial losses due to fire outbreak in the farm ($\bar{x}$ = 1.56; SD = 1.13). This suggests that the implementation of the cashless policy by the Nigeria government has made remarkable impact on the life of her citizens especially rural farmers who often encounter complexities in their financial transactions. According to

Mbon (2023), the implementation of the cashless policy created platforms for business facilitators to work as agents to various banks, through POS and other e-banking platform operations in the rural communities and so farmers don't need to move to the cities to perform their financial transactions and pay other necessary bills, thus creating ample time for farmers.

The Table further revealed that the negative effects of the cashless policy on crop farmers include: limited access to cash for daily transaction ($\bar{x}$ = 2.48; SD = 0.66), reduction in the demand of farm products ($\bar{x}$ = 2.21; SD = 0.85), enforcing online banking which is expensive to maintain ($\bar{x}$ = 2.21; SD = 0.97), farmers are prone to cybercrime ($\bar{x}$ = 1.70; SD = 0.92) and scarcity of agricultural produce ($\bar{x}$ = 1.68; SD = 1.05). This result suggests that despite the positive effects of the implementation of the cashless policy on the crop farmers, they still encounter difficulties in carrying out their day-to-day farm transactions specifically due to inadequate access of cash. This could be because cash transactions have long been the standard form of payment especially for rural farmers who are exposed to little or no e-banking platforms that support the cashless policy, thus some farmers could be more accustomed to and at ease with cash exchange for their produce and services (Prodhan et al., 2024).

In addition, the crop farmers in the area fear the risk of security for large amounts of financial transactions through e-banking platforms and therefore they seem to prefer the tangible nature of cash to avoid that risk. This corroborates with the findings of Sharma, Bharad, & Korake, (2019) which revealed that 87% of farmers in Maharashtra, India believe in using counter banking (cash transactions) because it is safer than internet or digital banking because of its potential cyber risks.

Table 2: Crop farmers perceived effect of the cashless policy on crop production

Positive effects	Mean	Std. Deviation
It creates time for farmers to focus on their production activities	2.08	1.109
It aids farmers in tracking cash inflow and outflow of the farm	1.92	1.164
Reduction in the rate of kidnapping of farmers and members of their family	1.92	1.074
Promotes accountability in the farm	1.72	1.063
Eradicates financial losses due to fire outbreak in the farm	1.56	1.129
Ease in making payment for farm inputs	1.28	1.303
Ease of paying bills such as farm electricity bill	1.18	1.179
Negative effects		
Limited access to cash for daily transaction	2.48	0.661
Reduction in the demand of farm products	2.21	0.849
It enforces online banking which is expensive to maintain	2.21	0.969
Farmers are prone to cybercrime	1.70	0.922
Scarcity of agricultural produce	1.68	1.053

Crop farmers perceived benefits of e-banking

Data in Table 3 show that the majority (93.3%) of the respondents indicated that e-banking enhances sending and receiving of money, 88.3% indicated that it prevents danger of carrying large money around, 79.2% each indicated that e-banking offers security and protection of funds and saves farmers' time. It could be inferred that the emergence and use of electronic banking with the aid of digital technologies by crop farmers in the State has significantly contributed to their productivity and

wellbeing particularly in the area of agricultural farm transactions for both input procurement and output sales. This corroborates with Ogunleye & Adeyemi (2024) who stated that the farmers' use of e-banking services and products offers unparalleled opportunities for the financial inclusion of farmers by surmounting obstacles such as cost, distance, and transparency, while delivering tailored financial services to meet their specific needs.

The Table also show that, the farmers indicated that e-banking aids management of finances (72.5%), ensures fast validation of incoming payments for farm produce (71.7%), enhances ease of purchasing farm inputs (62.5%) and also gives farmers quick access to customer services (60.8%) (Table 3). This suggests that e-banking digital technologies rely basically on the internet for operations such as access to online customer services and income validation through online bank statement and thus implies that farmers in the area who have limited financial resources and operate majorly on a small scale maybe financially constrained to frequently use e-banking services since the majority may not be able to afford the money to purchase data to access the services. According to Adebayo & Okafor (2024), low-income levels and financial constraints make it challenging for farmers to invest in and use e-banking services frequently, which often requires initial investments in technology and maintenance cost such as data subscription.

Table 3: Crop farmers perceived benefits of e-banking

Perceived benefits of e-banking	Frequency	Percentage
Enhances sending and receiving of money	112	93.3
Prevents danger of carrying large money around	106	88.3
Security and protection of funds	95	79.2
Electronic banking saves time	95	79.2
Management of finances	87	72.5
Fast validation of incoming payments for farm produce	86	71.7
Easy record tracking	85	70.8
E-banking enhances ease of purchasing farm inputs	75	62.5
It ensures quick access to customer services	73	60.8
Helps to avert financial losses due to fire outbreak	69	57.5
Easy access to loans from online banks like opay	68	56.7
It enables prompt payment for goods and services	68	56.7
Enhances ease of payment of utility bills	61	50.8
High transaction fees are not associated with e-banking	56	46.7
There are no restrictions on withdrawals	53	44.2

Crop farmers' satisfaction with the cashless policy

Table 4 shows how satisfied the crop farmers are with the cashless policy. From the Table, the crop farmers are satisfied with cashless policy because: it enhances security and protection of funds ($\bar{x}$ = 1.92; SD = 1.12), ease of online banking usage ($\bar{x}$ = 1.73; SD = 1.22), reduces insecurity and creates a more secure work environment for farmers ($\bar{x}$ = 1.57; SD = 1.10), reduction in the cost of accessing funds ($\bar{x}$ = 1.56; SD = 1.00) and time saving ($\bar{x}$ = 1.52; SD = 1.31). This could suggest that crop farmers in the area are gradually embracing e-banking transactions associated with the cashless policy. Suffice it to say that financial institutions have intensified awareness creation on the need for a cashless economy and thus educating farmers and individual agents on how to operate and use e-banking devices and platforms. Consequently, crop farmers in the area could easily use e-banking platforms like the POS and financial institutions online banking applications.

The result could also imply that the issue of kidnapping of farmers and members of their families and other related crimes possibly reduced to the barest minimum with the enforcement of the cashless policy in the area which ensured the circulation of little or cash; consequently, there was no access to cash for payment of ransom usually demanded by kidnappers.

Table 4: Crop farmers' satisfaction with the cashless policy

Satisfaction variables	Mean	Std. Deviation
Security and protection of funds	1.92	1.120
Ease of online banking usage	1.73	1.216
It reduces insecurity and creates a more secure work environment for farmers	1.57	1.098
Reduction in the cost of accessing funds	1.56	1.002
Time saving	1.52	1.307
Quick access to finances	1.51	1.167
Mobile Network availability	1.40	1.226
It enhances transactions details by use of electronic platforms.	1.37	1.004
Mobile banking reliability	1.27	1.128
Availability of basic cash at POS and ATM for maximum daily withdrawals	1.18	1.010

Conclusion and Recommendations

The cashless policy has shifted the attention of crop farmers from the conventional use of cash for their daily transactions to the use of e-banking tools like debit cards, POS, and ATMs to enhance their financial transactions and the security of funds. E-banking enable crop farmers to create more time for production activities, tracking of cash flows, and reduction of risks associated with kidnapping. However, challenges such as high maintenance cost of online banking, and cybercrime fears persist. Financial institutions and government should enhance farmers access to e-banking facilities through provision of such technologies within the farmers immediate environment. They should also assist low-income farmers through incentives in the form of subsidies for digital tools such as mobile phones in order to increase financial inclusion.

References

- Adeagbo, M. O., Emiola, T. O., & Aderinto, E. R. (2025). *Financial inclusion and agricultural productivity in Nigeria. International Journal of Economics, Business and Management*, 11(2), 33–44. <https://iiardjournals.org/get/IJEBM/VOL.%2011%20NO.%202%202025/FINANCIAL%20INCLUSION%2033-44.pdf>
- Adebayo, O. S., & Okafor, C. A. (2024). *Barriers to digital financial services adoption among smallholder farmers in Nigeria. Journal of Rural Development and Finance*, 9(1), 45–59. <https://journals.unilag.edu.ng/jrdf/article/view/2459>
- Ambler, K., Balana, B., Bloem, J. R., Maruyama, E., & Olanrewaju, O. (2025). *Credit access, demand, and repayment among smallholder farmers in Nigeria: A follow-up analysis. International Food Policy Research Institute (IFPRI)*. <https://ideas.repec.org/p/fpr/prnote/175654.html>

- Chiaka, J. C., Zhen, L., Yunfeng, H., Xiao, Y., Muhirwa, F., & Lang, T. (2022). *Smallholder farmers contribution to food production in Nigeria*. *Frontiers in Nutrition*, 9. <https://doi.org/10.3389/fnut.2022.916678>
- Chidebe, C. S. (2025). *The Central Bank of Nigeria's cashless policy and the implementation of new naira redesign swap in a troubled polity*. *ISA Journal of Arts, Humanities and Social Sciences*, 2(5), 1–15. <https://isapublisher.com/wp-content/uploads/2025/09/The-Central-Bank-of-Nigerias-Cashless-Policy-and-the-Implementation-of-New-Naira-Redesign-Swap-in-a-Troubled-Polity.pdf>
- Chiejina, O. J., & Ike, R. C. (2025). *Impact of Mobile Payments on Financial Inclusion in Nigeria*. *Journal of Agricultural Finance and Management*, 11(2), 227–247. <https://iardjournals.org/get/JAFM/VOL.%2011%20NO.%202%202025/IMPACT%20OF%20MOBILE%20PAYMENTS%20227-247.pdf>
- Chukwu, P. D. E., Agbaeze, C. C., & Efanga, U. O. (2023). *Agricultural financing and poverty alleviation in Nigeria*. *Global Journal of Accounting and Economy Research*, 4(1), 47–65. https://www.arfjournals.com/image/catalog/Journals%20Papers/GJAER/2023/No%201%20%282023%29/4_Chukwu.pdf
- Ezomo, G. (2024). *The role of agriculture in Nigeria's economic development*. *Applied Worldwide Nigeria*. <https://nigeria.appliedworldwide.com/the-role-of-agriculture-in-nigerias-economic-development/>
- Mbon, N. E. (2023) Technology of Electronic Banking on Financial Inclusion Policy: The Nexus on Entrepreneurial Growth in Rural Communities, Akwa Ibom State, Nigeria. *AKSU Journal of Administration and Corporate Governance*, 3 (3) 48-59 <https://doi.org/10.61090/aksujacog.2023.019>
- Ogunleye, E. K., & Adeyemi, S. L. (2024). *Adoption of e-banking technologies among rural farmers in Nigeria: The role of digital literacy and perceived usefulness*. *Journal of Agricultural Extension and Rural Development*, 16(1), 22–34. <https://academicjournals.org/journal/JAERD/article-full-text/9A3D2E41789>
- Prodhan, M. H., Jalal, J. E., Alam, H., Mostofa, S., Khondker, B. H. and Khan, A. (2024) State and potential of digital financial services among farmers in Bangladesh: An in-depth study. *Journal of Agriculture and Food Research* 16 101209 <https://doi.org/10.1016/j.jafr.2024.101209>
- Samuel-Ogbu, I. (2023). *Digital technology and the transformation of the Nigerian banking system: The operators' perspective*. *CBN Economic and Financial Review*, 60(4), 133–150. <https://dc.cbn.gov.ng/efr/vol60/iss4/11/>
- Sharma, S., Bharad, R. and Korake, R. (2019). Farmers' behavior towards digital banking of Ambajogai Tehsil of Maharashtra. *Journal of Pharmacognosy and Phytochemistry* 8(5) 178-181
- Udoye, C. E., Okwor, J. N., Egbo, A. N., Okoronkwo, C. D., and Ugwoke, C. O. (2025). Waste management practices among poultry farmers in Enugu State, Nigeria. *GSAR Journal of Agriculture and Veterinary Sciences*. 2 (9) 87-93