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Access to credit and financial services on marketing of farm produce in Benue State, Nigeria

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The central bank of Nigeria recently introduced a cashless policy which impacted various facets of life in the country. This however motivated this study to examine the extent to which access to credit and financial services policies have impacted the marketing of agricultural products in an agro-based economy of Benue State, -a sub-national state with limited access to credits and financial services among farmers. The limiting factors against smallholder farmers' financial inclusion were also examined in relation to smallholder farmers' agricultural productivity in the state. The study adopted the World Bank micro data on financial Inclusion 2021 known as the Global Findex database and three major analytical methodologies, namely: descriptive statistics, correlation coefficients index, principal component analysis, and Logit estimation techniques were used. Findings showed how financial inclusion of smallholder farmers' agricultural productivity in Benue State was constrained through access to financial products and services, marital status, gender, own business, and trade, the use of mobile phone or tablets to manage financial activities, and households use of mobile money operators' services among others were socioeconomic factors affecting smallholder farmers. The strategic policy of the financial inclusion plan needs to be more inclusive across rural areas as the cash crunch exposed the failure of deposit money banks in Nigeria. There is a need to create more mobile agents across rural areas so as to encourage employment generation, crime reduction, and better living standards in the state.

Key words: Financial inclusion, farmers, access to credit, financial products.

INTRODUCTION

Evidence has shown how Nigeria's agricultural sector contributes significantly to the country's GDP unfortunately; the contribution of agriculture would have been more if the agricultural value chain and financial inclusiveness were largely built. Interestingly, harmonizing the outcome from the agricultural sector to appreciate

more and yield better economic growth has been poorly approached. More is also; the level of credit and financial outlets that should have impacted the sector over the years has been stunted. The entire drive on financial inclusion designed to reduce financial exclusion mainly affecting small businesses in rural areas demonstrated how weak the Nigerian financial system especially the deposit money bank has been despite all the central banks' efforts in reviewing financial inclusion data.

According to the World Bank micro data on financial inclusion as in the EFInA Report (2020) that while 6 million adults (32.5% adult population) were banked over, 36.8% were financially excluded. In addition, 63.2% of the adult population was captured with 39.7% having formal financial services, while 14.6% operated under informal financial services. The report further demonstrated how rural farmers are among the most financially excluded even when study evidence by Peprah et al. (2020) argued that access to a transaction account allows people to save money, and send and receive payments thereby creating linkages for convenient financial products and services (account ownership, savings, ownership of insurance products any other financial product) including mobile money services that meet the varying needs of all including farm household members.

Most families in Benue are largely rural agrarian and among the financially excluded persons in Nigeria. Despite this problem, policymakers at the state and national levels are yet to draw up adequate and comprehensive rural savings schemes that would enable farmers to save and draw back from such accumulated capital for productive investment purposes. Excluding large populations of rural dwellers from the financial system amounts to significant market failure even when the level of loss is unquantifiable and at the time when poverty is on the rise across Nigeria, Benue State is ranked among the poorest states in the country.

As a result of these concerns, the federal government of Nigeria has over the years made several efforts towards enhancing the financial inclusion of all facets of the population. These include the Agricultural Credit Guarantee Scheme, Commercial Agricultural Credit Scheme, and Nigeria Incentive-Based Risk Sharing System for Agricultural Lending. The further effort of the government includes the launching of its National Financial Inclusion Strategy by the Central Bank of Nigeria-CBN which mapped the county's landscape of financial inclusion by category of financial service (distinguishing payments, credit, savings, and insurance) with the core objective of reducing financial exclusion to 20% by 2020. Yet, in spite of these efforts, the response of commercial banks has been slow. They are apprehensive of the cost of rural operations which they consider to be too high which, when combined with the low returns and high risks results in the low supply of financial services to rural areas.

Farmer's exclusion from the banking sector limits their ability to perform in their business considering the 2023 Nigeria currency swap and cash crunch which have left many households poorer as a result of the inclusive financial inclusion system across urban and rural areas. This study, however, examined the extent credit and financial services impact the marketing of agricultural products and further identified those identified socioeconomic factors influencing smallholder farmers in participating in financial inclusion in Benue State.

MATERIALS AND METHODS

The theoretical framework for this study is anchored on the Schultz Theory of Traditional Agriculture of 1964. The theory envisioned a crucial role in transforming a traditional agricultural sector into a productive source of economic growth for society. This new perspective on traditional agriculture interrogates the kinds of factors of production that have been used by farmers for generations, yet have been inconsistent with output over the years. Interestingly, the studies by Clamara et al. (2014), Mohan (2006), Arsyianti and kassim (2016) and Fadeyi (2018) have all deepened the insight into the application of financial inclusion on relevant variables which has impacted the traditional agricultural sector to yield better productive input across countries.

Nevertheless, this has been a challenge especially in less developed economies due to information about the use of banking services by unbanked people, the issue of democratization of credit, the decentralization of services, financial penetration, greater range of financial services on offer and access to finance among different farmers when it comes to agricultural productivity in rural areas.

Study perspectives across authors have supported the critical role of financial inclusion tools in deepening financial services for smallholder farmers. The argument provided by studies argued that financial inclusion has provided access to those excluded from the broad range of financial service providers. This designed tool no doubt fosters opportunities for trade, mobilize fund, and payment option, mitigate risk, as well as assist many households to attain a high level of economic and social well-being. The conceptualization of financial inclusion connects with those captured in the financial services and access system and those excluded yet considered unbanked but are captured under the traditional approach to adopting financial services and access.

For example, Ocholi and Amodu (2013) revealed that the performances of Deposit Money Banks, Bank of Agriculture, and Microfinance Banks in rural communities of Benue State Nigeria from 2010 to 2012 showed a significant level of outreach in terms of savings deposit mobilized and loan disbursed. The authors further showed that Deposit Money Banks were more successful in terms of savings mobilization. With regards to support for agriculture, Deposit Money Bank according to the study gave more support (54.24%) compared to Bank of Agriculture (45.18%) and Micro Finance Banks (0.58%) when it comes to marketing farm produces.

Asogwa et al. (2014) studied the dimension of peasant farmers' access to agricultural credit among 130 randomly sampled peasant farmers in Benue State, Nigeria found that the majority of the farmers (69.23%) had access to agricultural credit. In terms of size of capital available (42.22%) the farmers accessed credits ranging between 5,000 and less than 50,000 Naira. They also argued that the need for rural farmers to join cooperative associations to enhance access to sizeable loans that would make more impact on their business was a matter of urgent attention.

Dhrifi (2015) argued on the extent financial system in African countries contribute to the improvement of agricultural productivity, however, adopting panel data of 44 African countries over the

period of 1990-2012 using the GMM-System estimator revealed that financial system by itself cannot favor agriculture sector in African countries, but with good quality institutions so as to have significant effects on agriculture productivity and marketing. It was further revealed that African countries could profit from financial development once institutional quality threshold conditions were satisfied.

Providing supportive evidence, Mohsin (2015) argued that agric-business in Australia was primarily financed by family sources, commercial banks, and the government through its finance programs such as capital markets which over time have impacted mechanized agriculture of the West as against the peasant agriculture in countries in Africa with a less financial inclusive plan that should accommodate rural farmers considering its implication on income generation and employment. Similarly, evidence from Awotide et al. (2015) has also revealed that access to credit had a significant positive impact on cassava productivity and that credit institutions should consider boosting their credit services to rural farming households.

For Asom and Ijirshar (2017), the extent to which rural farmers in Benue accessed credit from the Bank of Agriculture (BOA) was a major concern due to differences in gender, age, main occupation of the respondents, the status of off-farm activity, membership of farmers' group, years of farming experience, crop yield, the land area cultivated, years of education and lending interest rate for farmers in Benue State who wishes to access the Bank of Agriculture loan in most areas.

Onoja (2017) argument is that financial sector development is a catalyst to agricultural productivity and by offering new insights into the effects of financial inclusion on the economic activities among households in Nigeria, Fowowe (2020) who adopted the Living Standards Measurement Study Integrated Surveys on Agriculture (LSMS-ISA) approach revealed that financial inclusion maintained that financial inclusion on agricultural value chain in Nigeria.

Interestingly, Peprah et al. (2020) that adopted the pooled data of the 6 and 7th rounds of the Ghana Living Standard Survey complemented the impact of financial inclusion on rural agricultural productivity further demonstrated that access to credit, ownership of savings account and insurance product revealed a significant impact on farmers' productivity at various degrees which have a high degree of income sustainability among rural farmers in Ghana.

From a different angle, Odo et al. (2020) argued that the level of access to credit, diversification of income sources, types of investment, and risks inherent in the business are the major determinants of the income level of the small-scale farmers' produce in Benue State. They further argued that financial inclusion channels have established a significant link with the marketing of farm products from crop production, hunting, fishing, the gathering of forest products, marketing of agricultural products, and livestock production trading among non-farm activities among households in the state.

However, this study had to step into investigating some of these variables using some cross-sectional indicators considering the outcome of other studies in these areas (Table 1). Hence, the descriptive statistics, chats, correlation index, principal component analysis, and Logistic regression analysis were adopted to investigate the extent to which access to credit and financial services policies have impacted the marketing of agricultural products in an agro-based economy of Benue State, a sub-national state with limited access to credits and financial services among farmers. The limiting factors against smallholder farmers' financial inclusion were also examined in relation to smallholder farmers' agricultural productivity in the state. The study adopted the World Bank micro data on financial Inclusion 2021 known as the Global Findex database.

Hence, the functional logit model is given as:

$$Logit(PW) = In\frac{p}{1-p} = \beta_0\delta + \beta_1\chi + ... + \mu \qquad (1)$$

The assumption with the logit mode is that there is a continuous latent variable p* is positive indicating an impact on the marketing of agricultural products and 1-p indicating no impact on the marketing of agricultural products as represented in the model. While, to identify the socioeconomic factors influencing small holder farmers in participating in financial inclusion in Benue State, the correlation coefficient index, the principal component analysis and descriptive statistics was employed.

To, examine the extent credit and financial services impact on marketing of agricultural products in Benue State, logit estimation technique was adopted as shown in model two:

$$ln\frac{p}{1-p} = \alpha_0 + \beta F4a\_1_1 + \beta F4a\_2_2 + \beta F4a\_3_3 + \beta F4a\_4_4 + \beta F4a\_5_5 + \beta f4a\_6_6 + \beta F4a\_17_7 + \beta FI4_8 + \beta F2I_9 + ... + \beta QFI\_8_{10} + \beta i.id\_11_{11} + \mu_{it}, or$$

$$(2)$$

The z-statistic is also employed to determine the reliability/statistical significance of each variable coefficient. Here, the absolute z-value of each coefficient was compared with 1.96 and if greater than 1.96, such variable possessing the coefficient was accepted as statistically significant and fit used for inferences.

In most theoretical studies, cross sectional variables are seldom continuous and fully observed. For example, they can be discrete (e.g., death), censored (e.g., households' expenditure), integer counts (e.g., visits to doctor), or durational (e.g., time to death). Multivariate analysis of such dependent variables requires nonlinear estimation.

The study employed secondary data sourced from the World Bank Financial Inclusion Survey (2021). The Global Findex database provides in-depth data on how individuals save, borrow, make payments, and manage risks. The 2021 Global Findex consists of over 100 indicators, also shown by gender, income, and age. Collected in partnership with the Gallup World Poll and funded by the Bill & Melinda Gates Foundation, the Global Findex is based on interviews with about 150,000 nationally representative and randomly selected adults (age 15+) in over 140 countries.

RESULTS AND DISCUSSION

Figure 1 depicts the distribution of households investigated in Benue State in Nigeria, with rural households showing 94% while urban households were 7%. Interestingly, the study investigated more rural households because of the more financial excluded households in rural areas.

Figure 2 depicts the demographic distribution of households' access to financial services and products were disaggregated on the basis of sex in Benue State in Nigeria. Interestingly, the distribution showed that while, about 57% male had access to financial inclusion, 43% had no access to financial inclusion whereas for female, 52% had access to financial inclusion while 48% had no access to financial inclusion in Benue State as at 2021.

Figure 3 depicts the distribution of farm households by

Table 1. Definition of Variables in the Study

| Variable Description	Meaning
F14	access to financial products and services
E13b1_1	agriculture sector output/ productivity
F21	use of mobile phone or tablets to manage financial activities
F5a	households' ability to save
F4a_17	households' ability to buy on credit
QF5_5	households use of mobile money operator's services
QF4_1	households' ability to have account with commercial bank
QF1_3	households use of services of non-interest banking institutions
QF1_2	households' use of microfinance bank services
QF6_5_4	households use of activities of mobile money operator for payment of goods and services
E4	households' marital status
E6	Gender
E9_7	own business and trade
E7	household Age
E8	educational level
QF9_1	households ease of access to financial product and services
QF9_3	households' convenience towards financial product and services
Q6037_	average knowledge of financial products and services
QF1_1	households' use of commercial hanks services
QF1_5	used services of mobile money operators
QF1_8	Use payment service of bank
F4a_2	Borrowings from online lenders
F4a_3	Borrowing from money lenders
F4a_4	Borrowings from savings group
F4a_5	Borrowing from family and groups, friends
F4a_6	Loan or advance from employer
Identity of Location_	Ador, Agatu, Apa, Buruku, Gboko, Guma, Gwer, Gwer West, Konshisha, Kwande, Logo, Makurdi, Obi, Ogbadibo, Ohimini, Oju, Otukpo, Tarka, Ukum, Ushongo, Vandeikya.

Source: Authors.
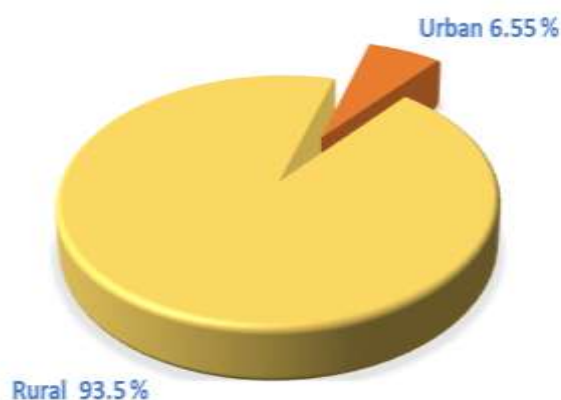
Figure 1. Demographic distribution of households in Benue State.
Source: Author's computation (2022).

use of mobile phone number/tablet in managing financial activities in Benue State. The proportion of farm households using mobile phones and/or tablets in managing financial activities in Benue State is very low. In terms of gender, the proportion of males using the items is almost three times higher than the proportion of women who use same.

Figure 4 depicts the use of financial activities for payment of goods and services especially the activities of savings groups and commercial banks activities which comprises all financial services offered by saving groups and commercial banks. Survey result show that an insignificant proportion of farming households were able to use savings groups activities for payment for goods and services in Benue State as at 2021. The inability to use these services while high for both commercial banks and informal saving groups was more acute with the informal saving groups.

Figure 5 depicts the association between location, and access to financial products, and services in Benue State.
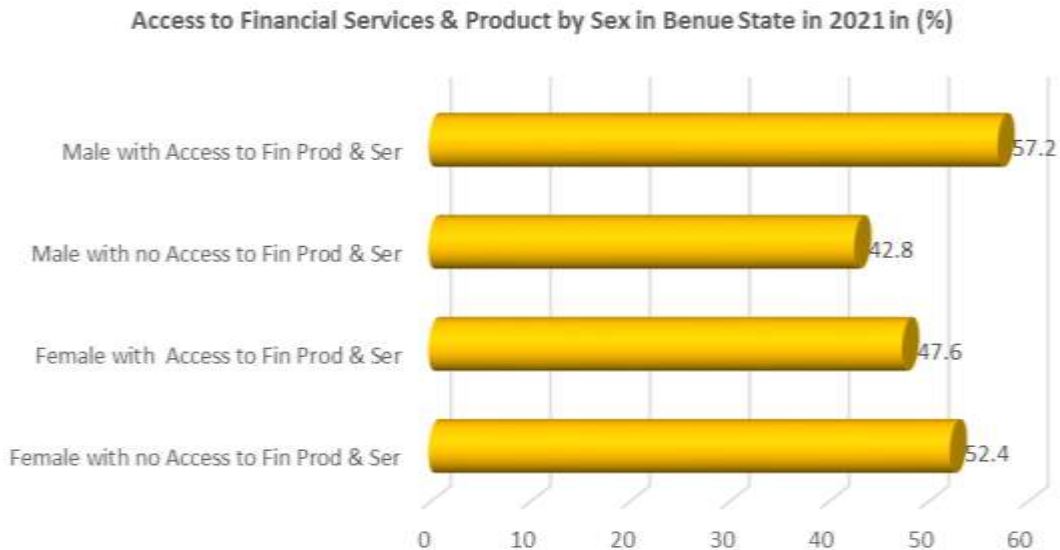
Access to Financial Services & Product by Sex in Benue State in 2021 in (%)

Figure 2. Demographic Distribution of Households with Access to Financial Services by sex.
Source: Author's computation (2022).

Distribution of use of Mobile Phone or Tablet to manage Financial Activities in Benue State in (%) 2021
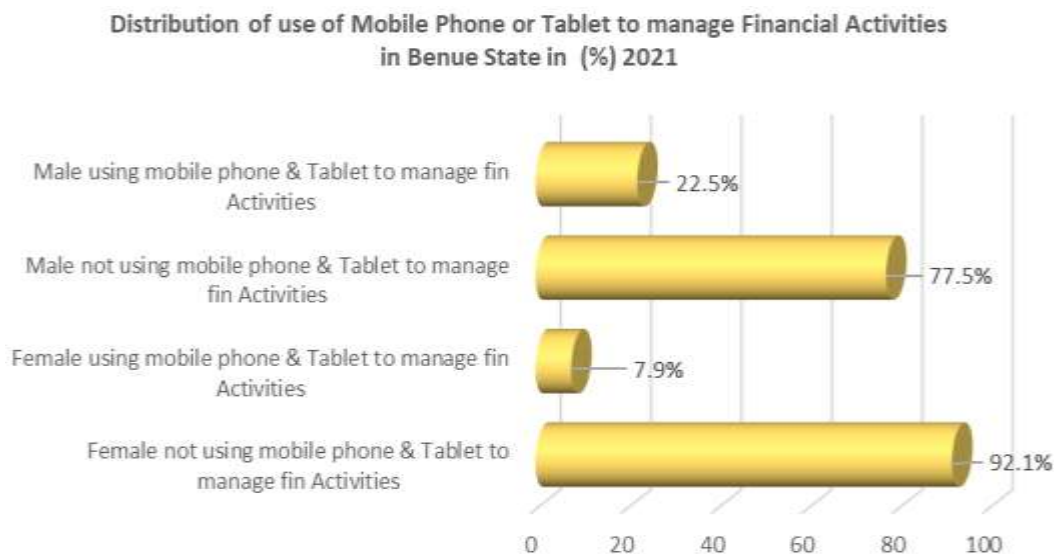

Figure 3. Households' use of mobile phones/tablets by farm households in Benue State
Source: Author's computation (2022).

The result indicates that households in urban areas with access to financial products and services were nearly two times more than urban households with no access in urban areas. On the other hand, in rural areas, the proportion of households with access to financial services and products was slightly higher by (6%) than those with no access to financial services and product in Benue State as at 2021.

Table 2 encapsulates the coefficients which indicate that access to financial products and services (F14), has a positive correlation with agriculture sector output (E13b1_1) in Benue State; however, at a very poor level. This implies that access to financial products and services (F14) move in the same direction with agriculture sector output (E13b1_1). In other word, the coefficient value 0.0996 indicates the strength of the relationship between access to financial products and services (F14), and agriculture sector output (E13b1_1). So, when access to financial products and services (F14) increases, agriculture sector output (E13b1_1) increases
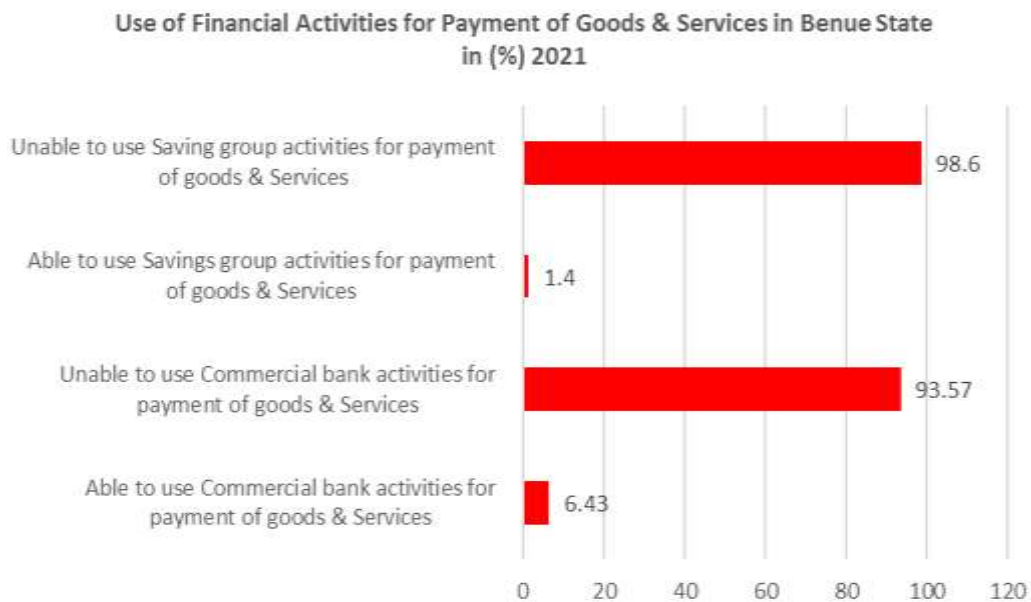
Use of Financial Activities for Payment of Goods & Services in Benue State in (%) 2021

Figure 4. Respondents' reliance or use of financial activities in payment for goods and services
Source: Author's computation (2022).

Rural-Urban Disparity in Access to Financial Products & Serices in Benue State in (%) 2021
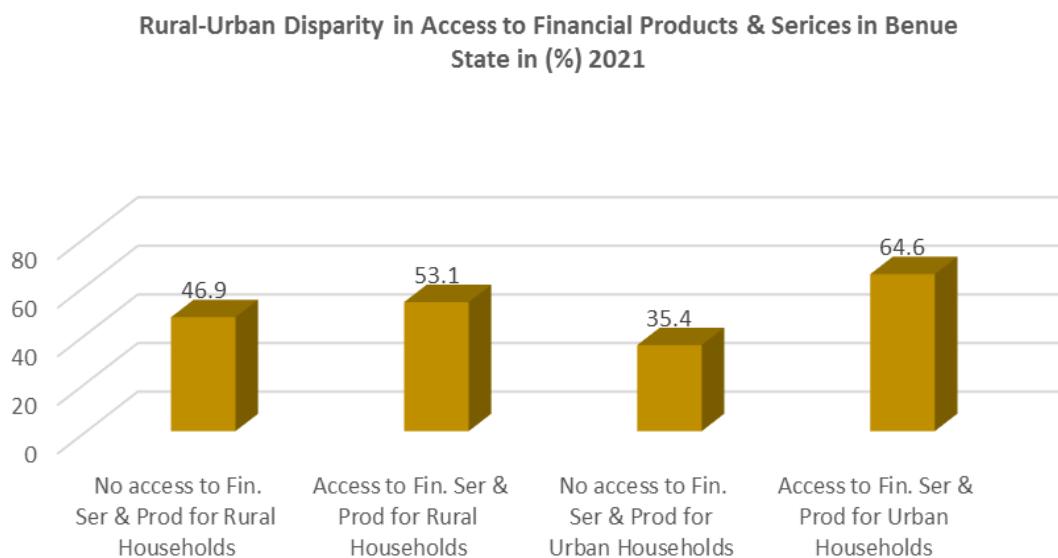

Figure 5. Rural-urban disparity on the basis of access to financial services.
Source: Author's computation (2022).

by 9.96% which is extremely poor.

Also, the use of mobile phone or tablets to manage financial activities (F21) has a positive correlation with agriculture sector output (E13b1_1) in Benue State. Therefore, the use of mobile phone or tablets to manage financial activities (F21) increases and agriculture sector output (E13b1_1) also increases by 0.0869 which is at 8.7% and still poor. Whereas, households ability to save (F5a) have a negative correlation with agriculture sector output (E13b1_1). The result implies that as household's ability to save (F5a) increases, agriculture sector output (E13b1_1) rather decreases by 0.0733 which is at 7.3%. Similarly, household's ability to buy on credit (F4a_17) indicates a negative correlation with agriculture sector output (E13b1_1). The result showed that household's ability to buy on credit (F4a_17) increases agriculture sector output (E13b1_1) decreases by 0.0283 which is at 2.8%. This seems to have worsened under the central

Table 2. Relationship between Financial Inclusion & Agricultural Sector Output in Benue

	E13b1_1	F14	F21	F5a	F4a_17	QF5_5	QF5_1	QF4_1	QF1_3	QF1_2	QF6_5_4
E13b1_1	1.0000										
F14	0.0996	1.0000									
F21	0.0869	0.1326	1.0000								
F5a	-0.0733	0.1058	0.1226	1.0000							
F4a_17	-0.0283	-0.0339	-0.0489	-0.0723	1.0000						
QF5_5	0.0858	-0.0004	0.0407	0.0144	-0.0219	1.0000					
QF5_1	-0.1041	0.1521	0.0624	0.1283	-0.0132	0.1299	1.0000				
QF4_1	-0.0254	0.1028	0.0788	0.0230	-0.0103	0.1368	0.5735	1.0000			
QF1_3	0.0699	-0.0480	-0.0693	-0.1025	-0.0051	-0.0310	-0.0187	-0.0145	1.0000		
QF1_2	-0.0602	-0.0062	-0.0762	-0.0539	-0.0132	-0.0280	0.0320	0.0640	0.3844	1.0000	
QF6_5_4	0.0350	-0.0742	-0.1465	-0.2001	-0.0152	-0.0929	-0.0561	0.0462	0.1560	0.0150	1.0

Source: Author's computation (2022).

bank of Nigeria currency swap and crunch as many rural fathers are far cut off from deposit money banks or mobile agent. Those who could access mobile money agent had to pay at extreme high charges.

Furthermore, the result also showed that households use of mobile money operators services (QF5_5) have a positive correlation with agriculture sector output (E13b1_1) at 0.0858 which is at 8.6% but only accessed by very few who were willing to pay for those services at high charges. While, households use of commercial bank services (QF5_1) have a negative correlation with Agriculture sector output (E13b1_1). That is, as households use of commercial bank services (QF5_1) increases, agriculture sector output (E13b1_1) decreases by 0.1041 which is 10.4%. Also, households' ability to have account with commercial bank (QF4_1) has a negative correlation with agriculture sector output (E13b1_1) by 0.0254 which is at 2.5%.

Household's use of services of non-interest banking institutions (QF1_3) has a positive correlation with agriculture sector output (E13b1_1). The result indicates that as households use of services of non-interest banking institutions (QF1_3) increases, agriculture sector output (E13b1_1) increases by 0.0699 which is at 6.9%. Unlike households' use of microfinance bank services (QF1_2) that have a negative correlation with agriculture sector output (E13b1_1). Such that as households' use of microfinance bank services (QF1_2) increases, agriculture sector output (E13b1_1) decreases by 0.0602 which is at 6.0%. While, households use of activities of mobile money operator for payment of goods and services (QF6_5_4) indicates a positive correlation with agriculture sector output (E13b1_1). This implies that as households use of activities of mobile money operator for payment of goods and services (QF6_5_4) increases, agriculture sector output (E13b1_1) increases by 0.0350 which is at 3.5%. These results clearly showed those financial inclusion indicators that have significant impact on agriculture sector output (E13b1_1) in Benue State but

at high level of deprivation and cost because of access. The findings in this study however shared likely similarity in the evidence provided by Peprah et al. (2020), Odo et al. (2020), Fadeyi (2018), Omar and Inaba (2020), and Fowowe (2020) that financial inclusion significantly enhances productivity which have been poorly adopted in Nigeria. Moreover, credit, savings and insurance products influence productivity at various degrees. Thus, expanding the scope of financial services (access to credit, savings and insurance) among smallholder farmers is crucial for inclusive finance and sustainable agricultural production.

Table 3 depicts the socio-economic factors influencing small farmers holders to participate in financial inclusion in Benue State. Interestingly, access to financial products and services (F14), households 'marital status (E4), gender (E6), own business and trade (E9_7), the use of mobile phone or tablets to manage financial activities (F21), and households use of mobile money operators' services (QF5_5) indicates to be influencing small farmers holders to participate in financial inclusion.

While for household age (E7), educational level (E8), households ease of access to financial product and services (QF9_1), households' convenience towards financial product and services (QF9_3), and average knowledge of financial products and services (Q6037_) are factors not influencing small farmers holders to participate in financial inclusion in Benue State.

From the result, the average proportion of access to financial products and services (F14) influences small famers' holders' participation in financial inclusion by 0.4494 which is about 45%. Also, that marital status (E4) at 0.0518 (5.2%), gender (E6) at 0.2743 (27.3%), own business and trade (E9_7) at 0.1359 (13.6%), the use of mobile phone or tablets to manage financial activities (F21) at 0.5362 (53.6%), and households use of mobile money operators' services (QF5_5) at 0.1425 (14.3%).

However, household age (E7) demonstrated a negative influence on small farmer's holders to participate in

Table 3. Socio-economic Factors Influencing Small Farmers Holders

Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6	Comp7	Comp8	Comp9	Comp10	Comp11
F14	0.4494	-0.0116	0.3863	0.0527	0.1609	0.2320	-0.1474	-0.1452	0.6286	0.1777	0.3108
E4	0.0518	-0.4019	0.3399	-0.2011	0.4637	-0.2910	0.3177	0.4986	-0.1266	0.0456	0.1123
E6	0.2743	0.1380	-0.1596	-0.5159	-0.4285	0.3314	0.2383	0.3063	-0.1243	-0.0277	0.3922
E7	-0.0027	0.3754	-0.2477	0.5736	0.3523	0.1683	0.0606	0.3019	-0.1558	-0.0601	0.4399
E8	-0.3242	-0.1880	0.0878	0.0423	0.1618	0.7721	0.3778	-0.0388	0.0348	0.0865	-0.2735
E9_7	0.1359	0.4461	-0.2466	-0.2957	0.3759	-0.1762	0.3934	-0.3116	0.0223	0.4359	-0.1397
F21	0.5362	0.1416	-0.0861	0.1840	-0.0441	0.0107	0.1746	0.3383	0.1747	-0.3144	-0.6122
QF5_5	0.1425	-0.3020	-0.0205	0.4585	-0.4136	-0.2125	0.5875	-0.2276	0.0003	0.1945	0.1637
QF9_1	-0.1972	0.4040	0.4660	0.1366	-0.3217	-0.0488	-0.0605	0.3738	-0.0398	0.5295	-0.1755
QF9_3	-0.1797	0.4109	0.5068	-0.0615	-0.0214	-0.0982	0.3382	-0.2437	0.0048	-0.5848	0.1111
Q6037_	-0.4663	0.0252	-0.3130	-0.0763	-0.0832	-0.1971	0.1606	0.2853	0.7178	-0.0734	0.0670

Source: Author's computation (2022).

financial inclusion at an average proportion of 0.0027 which is at 0.027%, followed by households' ease of access to financial product and services (QF9_1) at an average proportion of 0.1972 (19.7%), then households' convenience towards financial product and services (QF9_3) at an average proportion of 0.1797 which is at 18.0% and average knowledge of financial products and services (Q6037_) at an average proportion of 0.4663 which is at 46.6%. This agrees with the study by Quddus and Kropp (2020) that analyzes the constraints affecting agricultural production in the lagging regions of Bangladesh as well as study evidences provided by Odo et al. (2020), Fadeyi (2018), Omar and Inaba (2020) and Fowowe (2020).

Table 4 shows the extent to which credit and financial services impact on marketing of agricultural product in Benue State. The result also shows that though not all the observations were significant, however, households' borrowings from banks or other institutions (F4a_1) impact on agricultural product in Benue State. The result shows that a unit increase in households' borrowings from banks or other institutions (F4a_1) increases the odds ratio of agricultural product in Benue State by 1.450786 (that is at 14.5%) at 5% level of significance given a p-value of 0.017 that is less than 0.05.

Similarly, a unit increase in households' borrowings from savings group (F4a_4) also increases the odds ratio of agricultural product in Benue State by 1.36292 (which is at 13. 65%) at 5% level of significance given a p-value of 0.014 that is less than 0.05. The result further showed that a unit increase in households' access to financial products and services (F14) increases the odds ratio of agricultural product in Benue State by 1.120727 (which is at 11.2%) at 5% level of significance given a p-value of 0.018 that is less than 0.05. Also, a unit increase in the use of mobile phone or tablets to manage financial activities (F21) increases the odds ratio of agricultural product in Benue State by 1.354713 (which is 13.5%) at 5% level of significance given a p-value of 0.000 that is

less than 0.05.

In contrast, a unit increase in households' use of commercial hanks services (QF1_1) decreases the odds ratio of agricultural product in Benue State by 0.5530788 (which is 55. 3%) at 5% level of significance given a p-value of 0.000 that is less than 0.05. Similarly, a unit increase in use of services of mobile money operators decreases the odds ratio of agricultural productivity in Benue State by 0.7333137 (which is 73. 3%) at 5% level of significance given a p-value of 0.037 that is less than 0.05.

However, treating Ador LGA as base category, Buruku, Gboko, Makurdi, and Otukpo LGAs increase the odds ratio of credit and financial services impact on marketing of agricultural product with respect to Ador LGA by 7.316438 for Buruku LGA, 0.294295 for Gboko LGA, 0.3262719 for Makurdi LGA, 6.326688 for Otukpo LGA, while for Ushongo LGA, the result showed a negative impact. The result showed a decrease in the odds ratio of credit and financial services impact on marketing of agricultural product by 3.602334 with respect to Ador LGA in Benue State.

The results also showed a relatively low Pseudo R^2, of 0.0289 but a significant model at 1% level of significance given the Chi square probability of 0.0000. This further shared similarity with the evidence provided by Moghalu (2011), Peprah et al. (2020), Odo et al. (2020), as well as Fowowe (2020) who specifically noted that a major challenge in the financial inclusion process is how to ensure that the poor rural dwellers are carried along considering the lack of financial sophistication among this segment of the Nigerian society due to the general low level of financial literacy.

Conclusion

Generally, majority of small farm householders in Benue State Nigeria lack access to basic financial services. On

Table 4. Credit and financial services impact on marketing of agricultural in Benue State.

E13b1_1	Odds Ratio	z	P>|z|
F4a_1	1.450786	2.39	0.017
F4a_2	0.2861227	-1.18	0.239
F4a_3	1.280169	0.99	0.323
F4a_4	1.36292	2.45	0.014
F4a_5	1.115752	0.83	0.409
F4a_6	1.280286	0.71	0.48
F4a_17	1.101078	0.47	0.641
F14	1.120727	2.37	0.018
F21	1.354713	5.05	0
QF1_1	0.5530788	-11.58	0
QF1_2	0.784885	-1.42	0.155
QF1_3	1.324797	0.79	0.429
QF1_5	0.7333137	-2.09	0.037
QF1_8	0.5406187	-1.11	0.268
Id_b_ (Ador as Base category)			
Agatu	-1.308856	-0.81	0.417
Apa	728.0535	1.74	0.096
Buruku	7.316438	4.83	0.001
Gboko	0.294295	4.8	0.001
Guma	-0.3042372	-0.13	0.895
Gwer	0.5873472	0.28	0.78
Gwer West	0.6394734	0.3	0.762
Konshisha	-1.439174	-0.67	0.503
kwande	-0.6527116	-0.41	0.679
Logo	0.9252343	0.47	0.64
Markurdi	0.3262719	5.86	0.002
Obi	-0.5689466	-0.3	0.765
Ogbadibo	-0.6459584	-0.38	0.703
Ohimini	-1.135853	-0.59	0.557
Oju	-1.945661	-1.04	0.299
Okpokwu	-1.137112	-0.69	0.491
Otukpo	6.326688	2.36	0.065
Tarka	-0.6382534	-0.41	0.685
Ukum	-2.172604	-1.07	0.28
Ushongo	-3.602334	-1.97	0.049
vandeikya	-0.8904183	-0.47	0.64
_cons	0.2936443	-9.22	0

Source: authors' computation 2022

the basis of gender, females had less access than males. Similarly, rural small holder farm households lacked access to financial services than urban fringe farm households in Benue State. Given the poor access to finance among small holder farm households in the state, the farmers cannot optimize their agricultural potential as they are limited by low productivity. This no doubt, by implication connects with the recent cash crunch of the central bank of Nigeria policy which had very insignificant effect because of the unmatched financial agent available across local communities meeting daily financial needs and products of households in many rural communities as well in handling the gap between many small holders' farmers and buyers which were unable to transact their businesses due to the cash crunch in Nigeria between February and April, 2023. This crisis further created the naira parallel markets in Nigeria thereby making credit access difficult for rural small holders' farmers. The

implication of high number of financially excluded numbers revealed how many rural farmers could be vulnerable to chronic poverty at every slight of government cashless policy. The fact that many rural farmers still struggle with technology knowledge and use of android phones indicates that many rural households are disconnected from access to credit option and other financial products available, hence, it was difficult to trade on farm products in Benue State which by implication have significant effect on poverty spreads in Benue State.

There is urgent need for strategic policy and interventions targeted at providing equitable and practical education, technology knowledge and alternative learning abilities for many rural households as this will enhance their chances of accessing credit and financial services. The need for more deposit money banks in rural areas should be encouraged with communities complementing security strength to mitigate the challenges of financial products and exclusions, considering the fact that many rural farmers are excluded from the deposit money banks as a result of access.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES

Asom ST, Ijirshar VU (2017). An Assessment of Credit Accessibility of Rural Farmers in Benue State: A case study of Bank of Agriculture (BOA). International Journal of Management Studies, Business & Entrepreneurship Research 2(3):117-145.

Arsyianti LD, Kassim S (2016). Financial Prudence through Financial Education: A Conceptual Framework for Financial Inclusion. Journal of Islamic Econ 31(1):151-166.

Awotide BA, Abdoulaye T, Alene A, Manyong VM (2015). Impact of Access to Credit on Agricultural Productivity: Evidence from Smallholder Cassava Farmers in Nigeria. Conference Paper at the International Conference of Agricultural Economists (ICAE) Milan, Italy August 9-14.

Clamara N, Peña X, Tuesta D (2014). Factors that Matter for Financial Inclusion: Evidence from Peru. BBVA Research Working Paper No. 9.

Dhrifi A (2015). Financial Development and Agriculture Productivity: Evidence from African Countries. International Center for Business Research 3(1):2-9.

EFInA (2020). Access to Financial Services in Nigeria 2020 Survey Report. Available at: https://a2f.ng/wp-content/uploads/2021/06/A2F-2020-Final-Report.pdf

Fadeyi OA (2018). Smallholder Agricultural Finance in Nigeria: The Research Gap. Journal of Development Agricultural Economics 10(11):367-376.

Fowowe B (2020). The effects of Financial inclusion on Agricultural Productivity in Nigeria. Journal of Economics and Development 22(1):61-79.

Mohan R (2006). Economic growth, Financial Deepening and Financial Inclusion. Address at the Annual Bankers' Conference 2006, at Hyderabad on Nov 3, 2006.

Mohsin M (2015). Agribusiness Financing in Australia: Issues and Research Agenda. International Journal of Economics and Finance 7(7):1-18.

Moghalu KC (2012). The challenge of financial inclusion: The Nigerian perspective. Being Text of Remarks at the 2011 global policy forum of the Alliance for Financial Inclusion (AFI) at Riviera Maya, Mexico on September 28, 2011.

Ocholi A, Amodu MY (2013). A Comparative Analysis of the Performance of selected Rural Banks in Enhancing Agricultural Development in Benue State, Nigeria. Journal of Agriculture and Veterinary Science 4(5):15-23.

Odo NE, Uguru SU, Eze AV, Igwe EO (2020). Farmers Income and Savings Pattern in Benue State, Nigeria. Journal of Agricultural Extension 2491:128-137.

Omar MA, Inaba K (2020). Does financial inclusion reduce Poverty and Income Inequality in Developing Countries? A Panel Data Analysis. Economic structures 9:37.

Onoja JJ (2017). Financial Sector Development and Agricultural Productivity. Spring 5(19):2-28.

Peprah JA, Koomson I, Sebu J, Chei B (2020). Improving Productivity among Smallholder Farmers in Ghana: Does Financial Inclusion matter? Agricultural Finance Review 4(2):87-92.

Quddus A, Kropp JD (2020). Constraints to Agricultural Production and Marketing in the Lagging Regions of Bangladesh. Sustainability 12(10):3956.

Schultz TW (1964). Transforming Traditional Agriculture. Yale University Press, New Haven, CT. Available at https://scirp.org/reference/referencespapers.aspx?referenceid=2373117

World Bank Financial Inclusion Survey (2021). On the Global Findex Database Report. Available at https://www.worldbank.org/en/publication/globalfindex/Report