



Impact of Agricultural Micro, Small, and Medium Enterprises Activities on Poverty Reduction in Jos Metropolis, Plateau State

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Abstract

The study analysed the impact of Agricultural Micro, Small and Medium Enterprises (AMSMEs) activities on poverty reduction in Jos metropolis of Plateau State, Nigeria. The study was driven by the fact that many MSMEs operate within the study area; however, poverty levels have been increasing despite rising number of businesses, which is why the investigation was carried out. The study employed survey research, using both descriptive and quantitative analytical techniques. Data was generated from 384 respondents who are owners of agricultural MSMEs, and logistic regression was employed, and the findings revealed that age and security were statistically significant in reducing poverty, with p-values of 0.0103 and 0.0416, respectively, while meals per day, Treatment when sick, educational level, gender, marital status and household size were all insignificant with p-values of 0.1719, 0.4192, 0.3839, 0.3243, 0.1069 and 0.407 respectively. The variables jointly revealed that AMSMEs significantly reduced poverty in the study area, with a probability value of 0.021651. The McFadden R-squared indicated that the explanatory variables accounted for 49% of the variation in poverty. The study concluded that in determining poverty, it sought to answer questions on basic necessities like clothing, feeding, shelter, and safety. The study achieved its objective because the overall p-value indicated that AMSMEs had an impact on poverty reduction. The study recommended simplifying the bureaucratic processes involved in loan processing and offering loans at a single-digit interest rate to make loan servicing less burdensome. Also, the government should forge synergy with the local vigilante group to curb the rising spate of insecurity affecting AMSMEs and safeguard the investments of entrepreneurs in agriculture.

Keywords: MSMEs, Poverty, Entrepreneurship, Agriculture

Jel classification: Q12, L26, I32, Q18.

1.0 Introduction

The globalisation trend has heightened awareness of the importance of Micro, Small, and Medium Enterprises (MSMEs) in both developed and developing nations, recognising their critical role in entrepreneurship and economic growth. MSMEs are engines of growth, contributing to innovation, job creation, resource utilisation, income generation, and poverty reduction. According to Akinyemi and Adejumo (2023), micro, small and medium enterprises are widely recognised as engines of economic growth and have been effective in developed economies worldwide. Countries such as the United States of America, China, Singapore, Malaysia, Japan, Indonesia, Thailand, and India are good evidence of these enterprises' roles in their development. The contribution of MSMEs to a country varies, for instance, MSMEs account for over 80% of employment in China, about 69–70% in Japan, around 70% in Singapore (United Nations Economic and Social Commission for Asia and the Pacific [UNESCAP], 2024). They also contribute on average 50 to 60% of the GDP of these countries (Ayandibu & Houghton, 2023; Asia-Pacific Economic Cooperation, 2024). This indicates that

MSMEs play a vital role in a nation's growth by providing goods, services, and employment opportunities that directly affect poverty levels.

In Africa, MSMEs account for more than 90% of businesses and contribute an average of 50% to the GDP (World Economic Forum, 2023). In Kenya, MSMEs contribute 40% of the GDP, over 50% of new jobs, and 80% of the workforce (Safari & Saleh, 2020). Similarly, MSMEs accounted for 70% of Nigerian industrial jobs and 95% of the manufacturing sector in 2003 and constituted 86.3% of the national workforce in 2017 (Small and Medium Enterprises Development Agency of Nigeria, 2021). This shows the extent to which MSMEs can drive growth, as evidenced by their contributions to the aforementioned countries, including Nigeria.

The Nigerian government has introduced several initiatives to improve the performance of MSMEs, including the Small and Medium Enterprises Development Agency of Nigeria National Policy on MSMEs (2021–2025), which provides a framework for improving access to finance, capacity building, and enterprise development (SMEDAN, 2021). Additional efforts include the Development Bank of Nigeria MSME Financing Programme, which supports small businesses through credit provision and financial inclusion initiatives, as well as the Central Bank of Nigeria Agribusiness/Small and Medium Enterprise Investment Scheme (AGSMEIS), designed to provide funding and training for entrepreneurs, particularly in agriculture (CBN, 2022). All these government programs and initiatives were geared towards boosting MSME performance. According to the SMEDAN and NBS (2017) report, Agricultural Micro, Small and Medium Enterprises (AMSMEs) are the second major economic sector in the economy, while wholesale/retail trade comes first. The agricultural sector contributed 16.3%, 8.9%, and 20.9% of total MSME output in 2010, 2013, and 2017, respectively. This further indicates that Agricultural MSMEs have increased in number, from 2,545,781 in 2010 to 3,300,778 in 2013, and to 8,687,580 in 2017 (SMEDAN & NBS, 2017). This suggests that Agricultural MSMEs can be a viable tool for job creation, with a direct impact on poverty levels.

According to Odion (2009), poverty is a living condition in which an individual is unable to meet his or her social, economic, and political needs. This poses a great challenge to the country. Nigeria, as noted by the World Bank (2023), is blessed with abundant natural and human resources, yet a large share of its population lives on less than \$2.15 per day. The World Bank (2023) further stated that, about 87 million of the country's population live below the poverty line of \$2.15. This implies that more than half of the population are poor, posing a serious threat to the nation's security, as citizens who cannot make ends meet will resort to social vices. Plateau state ranks among the sixth (6th) poorest states in Nigeria, according to the Plateau State Government (PLSG) (2019). The state has 817,004 MSMEs, including 815,430 micro, 1,533 small, and 41 medium enterprises (SMEDAN, 2017). It boasts favourable weather and fertile land, leading to abundant agricultural produce. However, despite a 95% comparative advantage in the production of Irish potatoes, tomatoes, and other agricultural products, poverty levels remain high. However, despite many attempts to improve the performance of agricultural MSMEs through various policies and schemes, their contribution has remained insignificant, which is the reason for this study.

Nations struggle to develop without micro, small, and medium enterprises, as they play a crucial role in generating employment, poverty reduction, and creating wealth. According to Naminse and Zhuang (2018), Farmer entrepreneurship in Agricultural MSMEs reduced poverty in China. This is attributed to government policies that have affected not only rural farmers but also their employees. Arendok (2015) stated that agriculture contributes 10% to

China's GDP and employs 35% of the population. In Indonesia, according to Tambunan (2011), agriculture is considered the most important sector. Most MSMEs are involved in agriculture, with 52% micro enterprises, 0.2% small enterprises, and 4.2% medium enterprises.

In Nigeria, several schemes and policies have been set up to boost the performance of Agricultural MSMEs performance such as the Bank of Agriculture (BOA), SMEDAN (2003), Plateau State Micro Finance Development Agency (PLASMIDA) (2017), have been initiated to help boost the performance of Agricultural MSMEs to enhance economic growth. PLASMIDA (2017): over 106,000 have benefited from various value chain activities; 1,600 agribusiness entrepreneurs have been trained, and the programmes were designed to enhance enterprise performance and facilitate access to finance. According to SMEDAN and NBS (2017), 41,543,028 MSMEs are operating in Nigeria, of which 815,430 are micro-enterprises in Plateau, 1,533 are small enterprises, and 41 are medium enterprises. Despite numerous policies and efforts aimed at improving MSMEs' performance, poverty rates continue to rise. The World Bank (2020) survey of Sub-Saharan African countries on poverty levels shows that extreme poverty was 53% in 2009 and 50% in 2018, using the international poverty line of \$2.15 per person per day. Also, the World Bank (2023) showed that poverty rates are estimated at 38.9%, with about 87 million Nigerians living below the poverty line. These numbers indicate that little improvement has been made in the incomes of the bottom level of the population over the past decade. However, despite many attempts to improve the performance of agricultural MSMEs, their contribution has not been substantial over the years. In this regard, this study investigated the impact of Agricultural Micro, Small, and Medium Enterprises (AMSMEs) on poverty reduction in Jos Metropolis, Plateau State, Nigeria.

2.0 Review of literature

2.1 Conceptual Review

The definition of the Small and Medium Enterprise Development Agency of Nigeria (SMEDAN) and the Nigerian Bureau of Statistics (NBS) (2017) were adopted for this paper. They defined micro, small, and medium enterprises based on a dual criterion of employment and assets, excluding land and buildings. They posited that Micro Enterprises are those enterprises whose total assets, excluding land and buildings, are less than Five Million Naira and have a workforce not exceeding ten employees; Small Enterprises are those enterprises whose total assets (excluding land and buildings) are above Five Million Naira but not exceeding Fifty Million Naira and have a total workforce of above ten but not exceeding forty-nine employees; Medium Enterprises are enterprises with total assets excluding land and building) are above Fifty Million Naira but not exceeding Five Hundred Million Naira with a total workforce of between 50 and 199 employees.

Poverty has more recently been conceptualized as a multidimensional deprivation that extends beyond income to include limited access to education, healthcare, and other basic necessities, as well as opportunities for a decent life. The World Bank (2022) defines poverty as the condition in which individuals lack the financial resources and essential capabilities to meet basic needs such as food, shelter, and social participation, emphasizing both monetary and non-monetary dimensions of well-being. Alkire and Foster (2021) further described poverty as the simultaneous deprivation individuals face across multiple dimensions such as education, health, and living standards, rather than merely a lack of income. The World Bank's (2022) definition of poverty is adopted in this study, as it captures the key indicators relevant to the investigation.

Agriculture is a multifunctional economic activity encompassing crop production, livestock rearing, forestry, and fisheries, while also contributing to food security, income generation, poverty reduction, and sustainable development. The Food and Agriculture Organization defined agriculture as the cultivation of crops and rearing of animals, including forestry and fisheries, for the provision of food, raw materials, and livelihoods, emphasizing its central role in sustaining human life and economic systems (FAO, 2022). This means that agriculture is a dynamic sector that integrates production, value chains, and market systems, contributing significantly to rural development and structural transformation. In the same vein, Barrett (2022) posits that agriculture extends beyond subsistence production to include commercial activities and agribusiness linkages that enhance productivity, income diversification, and economic resilience.

2.2 Theoretical Review

The theory of Traditional Agriculture developed by Schultz (1964) posits that the traditional agricultural sector cannot grow solely through traditional production factors, except at very high cost; new, entirely different production factors are necessary. Schultz's theory is thus a theory of 'modernisation' and poses three questions: i) Can low-income agricultural communities increase their output by a more efficient allocation of production factors? ii) Which production factors are mainly responsible for the differences in growth rates between agricultural sectors in different countries? iii) Under what circumstances does it pay to invest in agriculture? He argued that traditional agriculture efficiently allocates resources, with agricultural growth driven more by labour and decision-making than by capital or land quality. While modern practices are necessary, farmers will adopt them only if incentivized, highlighting their critical role in his theory.

The Basic Needs Theory of poverty, propounded by Maslow (1943), states that people's needs and desires to satisfy their unmet needs motivate them to engage in activities that will help them take care of their needs. The theory suggests that only unsatisfied needs motivate people, operating in a hierarchy where fulfilling lower needs leads to motivation from higher unmet needs. The needs are arranged in a hierarchical order, starting from basic needs to self-actualisation needs, as follows: (i) Basic needs include food, shelter, and clothing. (ii) Safety needs, that is, freedom from harm and deprivation. (iii) Social needs, that is, friendship and teamwork. (iv) Self-esteem needs, that is, acceptance of self as having value. (v) Self-actualization needs are the fulfillment of potentials and personal growth potentials. Anyanwu *et al* (1985) stated that physiological needs include basic needs such as food, water, shelter, sleep, clothing, and reproduction. It can be further stated that the human race or human society will go into extinction when these needs are not met. The study is hinged on the basic needs theory because of its emphasis on the basic needs of feeding, shelter, clothing, healthcare, and safety, which are determinants of poverty reduction.

2.3 Empirical Review

Given the importance of MSMEs to poverty reduction, several studies have investigated the role agricultural MSMEs play in reducing poverty in Nigeria. Considering studies conducted in various parts of the country, Ahmadu and Musa (2024) assessed the contribution of micro, small, and medium enterprises (MSMEs) to poverty reduction in the Minna metropolis of Niger State. They conducted a descriptive study and found that MSMEs are used as a strategy for reducing poverty in Nigeria. Also, Oyedokun and Bello (2022) examined the effect of micro, small, and medium enterprises (MSMEs) performance on the poverty level in Nigeria with a focus on North-central Nigeria. They found that MSMEs' turnover had a significant negative

effect on poverty in North-central Nigeria, and that MSMEs' profitability had a significant negative effect on poverty. Demonstrated how the activities of the SMEs reduced poverty in Nigeria. The autoregressive distributed lag model was used to examine whether SMEs impacted poverty reduction. The findings showed that SMEs had significant negative effects on both indicators of poverty headcount ratio and poverty incidence.

In a similar vein, Anga and Abimiku (2021) ascertained the effects of rice milling MSMEs on poverty reduction in Nasarawa State. Logistic regression was used in the study, and findings revealed that engaging in rice milling MSMEs reduced poverty in the state. Abeh (2017) evaluated the different challenges, prospects and government efforts towards small and medium enterprises (SMEs) in Delta State, Nigeria. Descriptive statistics and the T-test analysis were employed. The study revealed that the challenges SMEs faced significantly affected their growth and development. Also, government efforts were found to significantly affect the growth and development of SMEs in Nigeria. Enimu (2018) conducted an economic analysis of poverty among small-scale farmers in Bayelsa State, Nigeria. Logistic regression was used, and the results revealed that socio-economic factors such as educational level, farming experience, income, household expenditure, age, and membership in a cooperative significantly contributed to determining farmers' poverty status. Opachu (2018), assessed the role of women in small and medium scale agricultural enterprises and poverty reduction in Yobe state. Three local government areas of Potiskum, Nangere and Fika were selected. Data was collected and analysed using logistic regression, and the findings of the study revealed that women's participation in agricultural SMEs significantly reduced poverty in Yobe. Nwibo, Mbam, and Biam (2016) examined the determinants of agripreneurship among the rural households of Ishielu local government area of Ebonyi State Nigeria. Descriptive and inferential logit regression analysis was employed, and results showed that access to credits and loans, tax rates, agripreneurial training, income level of the agripreneur, fertility of the soil, quantity of agricultural output, availability of social amenities, and the system of farming practiced influenced agripreneurship in rural households.

Furthermore, Orji, Olaniyi, and Adeyemo (2022) assessed the role of Micro, Small, and Medium Enterprises as instruments for human capital development and poverty reduction in the Bwari Area Council of Nigeria. Survey research was used, and the data obtained were analysed using tabulation and percentages, and the formulated hypotheses were tested using the Kendall coefficient of concordance. The findings revealed that MSMEs contributed to human capital development, a strategy for eradicating poverty, by creating jobs and improving people's standard of living. John-Akamelu and Muogbo (2018), investigated the role of small and medium enterprises in poverty eradication in Nigeria. The Chi-Square (χ^2) statistical test was employed, and the results revealed that small and medium enterprises provide employment opportunities, serve as training grounds, and utilize local resources, thereby enhancing welfare. Ikon and Chukwu (2018) conducted a study on Small and Medium-Scale Enterprises (SMEs) and industrial growth in Nigeria. Regression analysis was conducted on secondary data, and the findings revealed that manufacturing SMEs' production had a statistically significant relationship with industrial growth in Nigeria.

Messiah (2018), appraised the effect of agriculture on poverty reduction in Nigeria in relation to the effectiveness of crop production, livestock farming, forestry and fishery. Time series data was used, and principal component analysis and vector error correction model were applied to generate the poverty index and the interaction among the variables, respectively. The result of

the variance decomposition established that a shock on crop production, livestock rearing, forestry and fishery respectively had a significant and lasting impact on poverty reduction.

Eneji et al. (2017) evaluated entrepreneurship's role in poverty reduction and sustainable development in Nigeria. The study used a representative sample survey of private enterprises in North-Central Nigeria to investigate the opportunities, constraints and overall impact of entrepreneurship on poverty reduction and sustainable development. The study revealed that small-scale entrepreneurs in Nigeria face many constraints, such as religious, ethnic, and political crises, infrastructural deficits, inadequate credit facilities, lack of value addition, and the absence of proper channels to market the products of those engaged in agriculture.

The findings in most studies indicated that MSMEs had a significant positive impact on poverty reduction directly, while studies such as John-Akamelu and Muogbo (2018) showed that MSMEs were a veritable tool for employment creation. Ikon and Chukwu (2018) revealed that manufacturing SMEs contribute to output growth. However, Gbadebo (2024) found that SMEs had negative effects on two poverty indicators: the poverty headcount ratio and poverty incidence. The reviewed studies focused on MSMEs and poverty reduction in different states and in Nigeria as a whole. However, this study is specifically carried out with a focus on Agricultural MSMEs in Jos Metropolis of Plateau State in order to assess their impact on poverty reduction.

3.0 Methodology

Owners of agricultural MSMEs involved in forestry, livestock, fishery, and crop cultivation within Jos metropolis constitute the target population. According to the SMEDAN and NBS (2017) MSME survey, Plateau State has 817,004 MSMEs, with micro enterprises constituting the overwhelming majority. However, the report does not provide disaggregated data at the local government level. The metropolis comprises Jos South, Jos North, and parts of Bassa, Jos East, Riyom, and Barkin Ladi LGAs. The study adopted a field survey research design using probability sampling, in which every unit has a nonzero chance of selection, thereby minimising bias. A multistage sampling technique was used and the first stage covers the six LGAs: Jos South, Jos North, Jos East, Bassa, Riyom, and Barkin Ladi. The sample size was determined using the Cochran (1971) formula because it is appropriate for estimating sample size when the population is large and unknown. Hence, with a 95% confidence level and a 5% margin of error. 384 samples were obtained using the formula, out of which 26% each were drawn from Jos North and Jos South, while 12% were drawn from each of the remaining four LGAs. The second stage employed stratified random sampling due to the different types of Agricultural MSMEs. The third stage used snowball sampling to identify respondents who meet the selection criteria and refer others.

3.1 Model Specification: Logistic Regression Model

The choice of logistic regression in this study is based on the fact that it predicts the probability of a household being poor or not. The logistic regression model for this study was adapted from Okpachu (2018). Hence, in this case:

$$\text{POV} = \begin{cases} 1 & \text{if a household is not poor} \\ 0 & \text{if a household is poor} \end{cases}$$

Where; POV = household poverty defined as 1 if the household is above the poverty line: and 0 if the household is below the poverty line.

Since the dependent variable is binary, the relationship between the dependent and independent variables is non-linear. The logistic function, which describes this relationship, is of the form:

$$\pi = \frac{\exp(\beta_0 + \beta_i X_i)}{1 + \exp(\beta_0 + \beta_i X_i)} = \frac{e^{(\beta_0 + \beta_i X_i)}}{1 + e^{(\beta_0 + \beta_i X_i)}} = \frac{e}{1 + e} \dots \dots \dots (1)$$

Where π is the probability that the dependent variable is equivalent to 1, denoting that a household is not poor due to their involvement in agricultural MSMEs. Regression coefficients $\beta_i, i = 1, 2, \dots, n$, are the unknown parameters. The logistic transformation for the estimation of the β 's is stated as:

$$\text{Logit}(P) = \ln\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 G + \beta_2 AGE + \beta_3 MST + \beta_4 EDU + \beta_5 HOS + \beta_6 FED + \beta_7 HLC + \beta_8 SEC + \varepsilon \dots \dots \dots (2)$$

Where; $\ln\left(\frac{P}{1-P}\right)$ = natural log of odds (probability that Agricultural MSMEs activity has reduced poverty)

- G = gender (1 if male and 0 if female)
- AGE = age of the respondents (actual age)
- MST = marital status (1 if married and 0 if otherwise)
- EDU = level of education (1 if received formal education and 0 if otherwise)
- HOS = household size (actual number of household)
- FED = number of times meals are eaten (1 if \geq two times and 0 if otherwise)
- HLC = Healthcare access when sick (1 if access to healthcare and 0 if otherwise)
- SEC = 1 if safe and 0 if not

β_0 is the intercept, $\beta_i, i = 1, 2, \dots, 8$ are the parameters/coefficients to be estimated and ε is the error term. The decision rule is to reject the null hypothesis if the probability value of the likelihood ratio statistic is less than 0.05 (5%) level of significance.

4.0 Results and Discussion

4.1 Descriptive Analysis

Table 1: Socio-Economic and Demographic Characteristics of Respondents

Demographic Variables	Frequency	Percentage
Gender		
Male	224	58.3
Female	160	41.7
Age		
≤ 20	27	7
21-30	147	38.3
31-40	123	32
41-50	48	12.5
51-60	32	8.3
≥ 61	7	1.8
Religion		
Christianity	30.2	78.6
Islam	74	19.3
Traditional	8	1.6
Others	2	0.5
Marital status		
Single	183	47.7

Married	171	44.5
Widowed/widower	14	3.6
Divorced	16	4.2
Family Size		
≤3	61	15.9
4 – 6	201	52.3
7 – 9	97	25.3
≥10	25	6.5
Educational Level		
No formal education	22	5.7
Primary	8	2.1
Secondary	70	18.2
ND/NCE	143	37.2
HND/First Degree	128	33.3
Masters/PhD	13	3.4

Source: Field survey, (2026).

Table 1 presents the socio-economic characteristics of respondents involved in Agricultural MSMEs. The findings show that 58.3% are males while 41.7% are females, indicating greater male participation in Agricultural MSMEs. The age distribution reveals that 7.0% are below 20 years, 38.3% fall within 21–30 years, and 32.0% within 31–40 years. Those within 41–50 years constitute 12.5%, 51–60 years 8.3%, and above 60 years 1.8%. Overall, 91.1% of respondents fall within the economically active age group of 21–60 years, suggesting that the sector is largely youth-driven and capable of contributing meaningfully to poverty reduction. With respect to marital status, 47.7% are single and 44.5% are married, while widowed and divorced account for 3.6% and 4.2% respectively. The high proportion of singles, who are mostly youths, reflects strong youth involvement in Agricultural MSMEs, while married respondents may engage in the sector to cater for family needs. Family size distribution shows that 15.9% have less than three members, 52.3% have 4–6 members, 25.3% have 7–9 members, and 6.5% have 10 or more members. The predominance of households with 4–6 members indicates moderate household sizes among respondents. In terms of educational qualification, the majority are literate. ND/NCE holders constitute 37.2% of respondents, followed by HND/First Degree holders at 33.3%. Secondary school holders account for 18.2%, while 3.4% possess Masters/PhD degrees. Only 5.7% have no formal education and 2.1% have primary education. This suggests that most respondents possess at least post-secondary qualifications, which may influence access to capital and effective enterprise management.

Table 2:
AMSMEs' Responses to Poverty Reduction Indicators in Jos Metropolis

Variables	Prior to Agricultural MSMEs		After joining Agricultural MSMEs	
	Frequency	Percentage	Frequency	Percentage
Type of Healthcare				
Traditional	20	5.2	6	1.6
Self-medication	78	20.3	34	8.9
Dispensary/Clinic/hospital	286	74.5	344	89.6
Feeding per day				
Once	12	3.1	2	0.5

Twice	93	24.2	42	10.9
Thrice	167	43.5	193	50.3
More than three times	112	29.2	147	38.3
Type of Housing				
Mud house	80	20.8	16	4.2
Zinc house with cemented walls	292	76	350	91.1
Others	12	3.1	18	4.7
Type of sleeping material				
Mat	43	11.2	0	0
Bamboo	26	6.8	8	2.1
Matrass	311	81	370	96.4
Others	4	1	6	1.6
Number of times dresses are purchased.				
None	16	4.2	10	2.6
Once	71	18.5	21	5.5
Twice	118	30.7	71	18.5
More than twice	179	46.6	282	73.4

Source: Field survey, (2026).

Table 2 presents respondents' welfare conditions before and after joining an Agricultural MSMEs. Concerning healthcare, prior to joining, 5.2% relied on traditional medicine and 20.3% on self-medication, while 74.5% accessed hospitals. After joining an Agricultural MSMEs, traditional and self-medication declined to 1.6% and 8.9% respectively, whereas hospital access increased to 89.6%. This suggests improved ability to afford quality healthcare, indicating better living standards. In terms of feeding per day, before joining an Agricultural MSMEs, 3.1% and 24.2% ate once and twice daily, while 43.5% and 29.2% ate thrice and more than thrice. After joining, those eating once and twice declined to 0.5% and 10.9%, respectively, while those eating thrice and more than thrice increased to 50.3% and 38.3%, respectively. This reflects improved access to adequate food. Housing conditions also improved. Before joining an Agricultural MSMEs, 20.8% lived in mud houses and 76.0% in zinc houses with cemented walls. After joining, mud houses declined to 4.2%, while cemented houses increased to 91.1%, showing better housing quality.

Regarding sleeping materials, 11.2% used mats and 6.8% used bamboo before joining, with 81.0% using mattresses. After joining an Agricultural MSMEs, no respondents used mats; bamboo declined to 2.1%; and mattress usage rose to 96.4%, indicating a clear improvement in comfort and welfare. Finally, clothing purchases increased after joining an Agricultural MSMEs. Those who made no purchase declined from 4.2% to 2.6%. Purchases more than twice rose significantly from 46.6% to 73.4%, while those buying once or twice declined. Overall, the changes across healthcare, feeding, housing, sleeping materials, and clothing demonstrate noticeable improvements in respondents' welfare after participating in Agricultural MSMEs.

Table 3:
Welfare improvement level of the Respondents and their families since joining AMSME

Responses	Frequency	Percentages
Yes	364	94.8
No	20	5.2

Source: Field survey, (2026).

Table 3 shows the welfare improvements respondents have experienced since joining Agricultural MSMEs. The responses revealed that 94.8% have improved their welfare since joining an Agricultural MSME, while 5.2% reported no improvement. This buttresses the point that a gain in welfare signifies an improvement in the respondents' living standards, which implies that the respondents' poverty levels will reduce.

Table 4:**Responses of Agricultural MSMEs that have been affected by insecurity**

Responses	Frequency	Percentages
Yes	233	60.7
No	151	39.3

Source: Field survey, (2026).

Table 4 indicated responses of Agricultural MSMEs that have been affected by insecurity where 60.7% alluded to the fact that their AMSME has witnessed series of insecurity at some points of production. Barkin Ladi, Riyom, Bassa, Jos South, and Jos North have witnessed cases of cattle rustling, which have greatly affected Agricultural MSMEs and their means of livelihood. Also, agricultural AMSMEs involved in crop cultivation have faced cases of theft on their farmlands, and also the destruction of farmlands by herdsmen and armed militias. This has resulted in the fear of being attacked by respondents on their farmland, which has affected respondents' welfare and has reduced the productivity of Agricultural MSMEs, which, by implication, worsens the level of poverty of the respondents.

4.2 Quantitative Analysis

The Analysis showed the impact of Agricultural Micro, Small, and Medium Enterprises (AMSMEs) on Poverty reduction in Plateau State.

Table 5:**Results of Logistic Regression Showing the Impact of AMSMEs on Poverty Reduction**

Variable	Coefficient	Std. Error	z-Statistic	Prob.	EXP (β) (Odds Ratio)	% Δ in (Odds Ratio)
C	-1.090775	2.581964	-0.422459	0.6727	0.33596	-0.66404
G	0.459608	0.466302	0.985643	0.3243	1.58345	0.58345
AGE	-0.810437	0.315693	-2.567166	0.0103	0.44466	-0.55533
MST	0.403918	0.250492	1.612499	0.1069	1.49768	0.49768
EDU	-0.187402	0.215239	-0.870671	0.3839	0.82911	-0.17088
HOS	-0.283325	0.344424	-0.822604	0.4107	0.75327	-0.24672
FED	-0.485071	0.355049	-1.366209	0.1719	0.61565	-0.38434
HLC	0.597928	0.740813	0.807124	0.4196	1.81834	0.81834
SEC	-0.217796	0.548718	-2.037103	0.0416	0.80428	-0.19571
McFadden R-squared	0.490724					
S.E. of regression	0.222933					
LR statistic	16.40658					
Prob. (LR statistic)	0.021651					

Source: Authors' computation using Eviews 10

Table 5 showed the results of the logistic regression analysis, and it indicates that gender (G) is statistically insignificant with a p-value of 0.3243, which is greater than the 5% significance level with a positive coefficient. This implies that being male had no significant impact on poverty in the area under study. The odds ratio implies that gender has a likelihood of increasing poverty by 0.58%. The result for *AGE* revealed that it was statistically significant with a value of 0.0103. This implied that an increase in the age of an entrepreneur in the study area reduced poverty by 0.81%. This is shown from the percentage change in the odds ratio that stood at -0.55%, which implies that an increase in age has a likelihood of reducing poverty. The result on marital status (MST) indicated that it was statistically insignificant, with a value of 0.1069, which is greater than the 5% significance level. However, the positive coefficient revealed that being married does not have a significant impact on poverty reduction. The odds ratio, on the other hand, indicated that MST has the likelihood of increasing poverty by 0.49%. In essence, it implied that being married increased the ratio of being poor in the area under study. On the level of education (*EDU*), the coefficient indicated a negative value of -0.187402 and a statistically insignificant probability value of 0.3839 which meant that the level of education (*EDU*) had a negative effect on poverty which implied that the more an AMSME owner is educated, the lesser the chances of he/she becoming poor. The odds ratio also indicated that the likelihood of being educated reduced poverty by 0.17%.

The coefficient of household size (*HOS*) is negatively signed with a value of (-0.283325) and had a p-value of 0.4107 which was statistically insignificant. This implied that a unit increase in household size (*HOS*) reduces poverty by 0.28%. The percentage change in the odds ratio indicated that the likelihood of being nonpoor reduces by 0.24% as the household size (*HOS*) increases. The number of meals taken per day (*FED*) indicated a negative coefficient of -0.485071 and also a statistically insignificant p-value of 0.1719 this implied that a unit increase in the number of meals taken per day reduces poverty by 0.48%. The odds ratio on the other had indicated that the number of meals (*FED*) reduced poverty by 0.38%. The type of treatment when sick (*HLC*) indicated a coefficient value of 0.597928 and a statistically insignificant p-value of 0.4196. This meant that a unit increase in *HLC* increased poverty by the value of the coefficient. The odds ratio indicated that the type of treatment when sick (*HLC*) increased poverty by 0.81%. Security (*SEC*) indicated a statistically significant result with a probability value of 0.0414, which is below the 5% significance level. This implied that as security is provided, the poverty level reduces by 0.2177. This means that Agricultural MSMEs will feel safe to carry out production without fear of threats to their businesses. Having shown the individual impact of each variable on poverty, the general significance of the model which is the probability value of the model denoted (0.021651) indicated that the combination of the explanatory variables as a whole has a significant impact on poverty reduction in the study area. The McFadden R-squared indicates that 49% of the variation in the poverty level of the Agricultural MSMEs is explained by the explanatory variables, while the remaining 51% is captured by other factors affecting the poverty level of the Agricultural MSMEs that are not captured in the model. The Likelihood Ratio statistic value is 16.40658, which is greater than the 5% significant level. This implies that we reject the null hypothesis and conclude that Agricultural MSMEs have significant impact on poverty reduction in Jos metropolis of Plateau state.

4.3 Discussion of Findings

The level of education was statistically insignificant; however, it indicated that higher education reduces poverty, consistent with the work done by Enimu (2018) and economic

theory that education increases the likelihood of establishing an Agricultural MSMEs and thus help the business owner to make better decision-making. The result on household size showed that it is statistically insignificant given the level of significance. The result implied that though statistically insignificant, household size had an impact on poverty reduction given its negative coefficient this means that the likelihood of being non-poor reduced as the family size increased. This could be attributed to the use of household members by owners of Agricultural MSMEs in their business this implies that instead of hiring an employee, household members are co-opted into the Agricultural MSMEs. Also, it can be likened to a large household with a breadwinner who, despite all odds, sets up his enterprise; this will go a long way toward improving the living standards of his family and hence reducing poverty.

This finding is also in tandem Enimu (2018), where household size was key to poverty reduction. The number of meals taken per day was statistically insignificant but negatively related to poverty, suggesting that increased feeding reduces poverty, in line with the Basic Needs Theory which emphasises feeding as a fundamental human necessity. Access to healthcare was statistically insignificant with a positive coefficient, indicating that increased healthcare expenditure may worsen poverty by diverting income from other essential needs. Security was statistically significant in reducing poverty, implying that a secure environment enhances Agricultural MSMEs productivity and reduces poverty. Overall, the model revealed that the explanatory variables jointly had a significant impact on poverty reduction, and these findings is consistent with John-Akamelu (2018) and Enimu (2018).

5.0 Conclusion and Recommendations

The study examined the impact of AMSMEs on poverty reduction in Nigeria by analysing the agricultural sector in Jos metropolis of Plateau State. In determining poverty, the study was anchored on the Basic Needs theory, which addresses necessities such as clothing, food, shelter, and safety. The study achieved its objective because the overall p-value indicated that AMSMEs have an impact on poverty reduction.

The study recommended that the government should expand the scope of subsidized farm inputs such as tractors, improved seedlings, fertilizers, insecticides, and herbicides. The bureaucratic processes involved in loan processing should be simplified and given at a single-digit interest rate by financial institutions, in particular microfinance institutions, in order to make the servicing of the loan less burdensome. Also, communities form synergies to address the rising spate of insecurity affecting their businesses. This can be done through community night watch and concerted efforts by security agencies to safeguard citizens' lives and property, using technology such as drones and CCTVs.

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APPENDIX

APPENDIX A

SURVEY INSTRUMENT/QUESTIONNAIRE

IMPACT OF AGRICULTURAL MICRO, SMALL, AND MEDIUM ENTERPRISES ON POVERTY REDUCTION IN JOS METROPOLIS OF PLATEAU STATE, NIGERIA.

Instructions: please tick or fill using Capital letters only where necessary.

SECTION A: PERSONAL DATA

1. Gender: Male () Female ()
2. Age: $i. \leq 20$ () 21 - 30 () 31 - 40 () 41 - 50 () 51 - 60 () ≥ 61 ()
3. Religion: Christianity [] Islam [] Traditional [] Other []
4. Marital status: Single [] Married [] Widowed [] Divorced [] Separated []
5. Family size: <3 [] 4 - 6 [] 7 - 9 [] >10 []
6. State of origin (please specify.....)
7. LGA of Operation.....
8. Educational Level: No formal Education [] Primary [] Secondary []
ND/NCE [] HND/FIRST DEGREE [] Masters [] Others please specify
9. Can you read and write Yes [] No []

SECTION B: BUSINESS INFORMATION

10. What type of an agricultural enterprise are you into? Fishery () livestock rearing ()
Forestry () Crop cultivation ()

11. How long have your business been in operation? Less than 5 years () 5 -10years ()
10- 15years () more than 15 years ()
12. Do you belong to any an agricultural enterprise association? Yes () No()
13. What are the benefits of being a member of the association?
14. Have you benefitted from any government financial aid in your business? Yes () No()
15. If Yes in 14 did it have any impact on your business? Yes () No ()

SECTION C: POVERTY REDUCTION

16. How many people are in your household?.....
17. Before you started an agricultural enterprise, what did you/your family depend on when sick? (a) Traditional care (b) Self-medication (c) Hospital
18. Now that you have joined an agricultural enterprise, what do you/your family depend on when sick? (a) Traditional care (b) Self-medication (c) Dispensary/clinic/hospital
19. How many times were you and your family feeding before joining an agricultural enterprise? (a) Once (b) Twice (c) Thrice (d)More than three times
20. Now that you joined an agricultural enterprise, how many times do you and your family feed per day? (a) Once (b) Twice (c) Thrice (d) More than Thrice
21. What type of house were you living in before joining an agricultural enterprise? (a) mud house (b) cemented block house (c) Others specify).....
22. What type of house are you living in after joining an agricultural enterprise? (a) Mud house (b) cemented block house (c) Others specify).....
23. Prior to joining an agricultural enterprise, what type of sleeping materials were you using? (a) Mat (b) Bamboo (c) Matrass (d) Others (specify).....
24. Now that you have joined an agricultural enterprise, what type of sleeping material do you use? (a) Mat (b) Bamboo (c) matrass (d) others (specify).....
25. Before joining the agricultural enterprise, how often were you buying pairs of clothes in a year? (a) None sometimes (b) Once (c) Twice (d) More than twice
26. Now that you have joined an agricultural enterprise, how often do you buy pairs of clothes in a year? (a) None (b) Once (c) Twice (d) More than twice
27. Have you ever sponsored any of your dependents through primary, secondary or tertiary education using income from your present job? (a) Yes (b) No
28. How many of your family members are hired as labourers in your agricultural enterprise?
29. Has this help improve the welfare of you and your family since joining an agricultural enterprise? Yes()No()
30. Does your business face security challenges? Yes () No ()

SECTION D: CHALLENGES

31. What amenities affect your business? Electricity [] water [] Good roads [] Others []
32. What other factors affect your business?.....

APPENDIX B1

Reliability Statistics

Cronbach's Alpha	N of Items
.830	33