

Analysis of Poverty Among Farmer Entrepreneurs in Jos, Nigeria

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Abstract — The study seeks to examine the relationship between Entrepreneurship practices and the level of poverty among farmers in Jos, Nigeria. The study covered small and medium scale farmer entrepreneurs within Jos North, Jos South and Jos East. A sample size of 518 was obtained from the population of 834 at 5% error tolerance and 95% level of confidence, using Simple Random Sampling. 505(97.5%) of the questionnaire distributed were returned while 13(2.5%) of the questionnaire distributed were not returned. self-structured questionnaire was used to collect data. The study conducted a pre-test on the questionnaire to ensure the validity of the instrument. Data collected were presented in frequency tables. The study used Foster, Greer and Thorbecke (FGT) index and Multi-Dimensional Poverty Index (MPI) to measure the level of poverty. The study revealed that the level of poverty among farmers in the study area is high, result analysis also indicates that majority of the male respondents 215(85.7%) are poor using FGT, compared to MPI with 248(78.5%) non-poor males. The study recommends among other things that there is the urgent need to increase entrepreneurship education and awareness among the farmers so as to improve their living condition by increasing their income.

Keywords— Farmer Entrepreneur, Poverty, FGT, MPI and Nigeria.

I. INTRODUCTION

Since the turn of the century, poverty has been a major worry for most developing and emerging nations, including Nigeria. According to evidence, many of the world's poorest people live in rural areas and live on less than US\$1.25 a day, with agriculture and forest activities serving as their primary sources of income (Eric and Jincai, 2018). 2018 (Eric and Jincai). Rural poverty is still the most frequent kind of human deprivation, affecting millions of individuals in both developed and developing countries. In the literature, there are various definitions and dimensions of poverty, which can be classified as either rural or urban poverty (Alkire and Santos, 2014; Venot, 2016).

According to polls, the poor in Nigeria are largely concentrated in rural areas, and ethnic minority groups are particularly affected by poverty. The

underprivileged are characterized by extreme social marginalization and a lack of human capacities, which prevents them from pursuing local employment opportunities. Poverty in Nigeria's rural areas may persist due to a lack of infrastructure development in sectors such as education, healthcare, road access, potable water, and power in impoverished communities (Diwakar & Shepherd, 2018; Tortajada, 2016; Wan, Wang, Yin & Zhang, 2018). According to (Diwakar & Shepherd, 2018), the lack of appropriate infrastructural development in rural Nigeria has had a significant impact on economic performance throughout time.

If a person makes significantly less money and has significantly less material wealth than the average person in his community, he is termed poor. Poverty is described as a circumstance in which a person's or a family's resources are insufficient to meet a reasonable standard of living.

Nigeria is now the world's capital of people living in extreme poverty, according to research from the Brookings Institute (Kharas et al., 2018). According to estimates, nearly 87 million people in Nigeria live in extreme poverty, with six people slipping into poverty every minute (Kharas et al., 2018). The bulk of Nigeria's population lives in appalling conditions in impoverished sections of the country. Poverty is extremely real in Nigeria, and the quality of life for average Nigerians has gradually deteriorated over the previous ten years. Statistics demonstrate how precarious life has become for the average Nigerian citizen in the face of crushing poverty levels throughout time. Nigeria's status appears even more dismal when compared to other less developed emerging countries in Africa and other parts of the third world. "Nigeria's per capita income of \$240 in 1990 was significantly below the average of nearly \$500 for Sub-Saharan Africa," according to (Obadan and Odusola, 2001).

II. LITERATURE REVIEW

To widen the definition of poverty, non-income factors that are necessary to maintain a minimum standard of living have been included in studies. As a result, the concept of poverty's multidimensionality (Aaberge and Brandolini, 2015) is no longer controversial, but rather a concept that encompasses economic, social, cultural,

and human capabilities theories. According to May (1999), poverty is defined as a person's, family's, or community's inability to obtain sufficient resources to satisfy a socially acceptable minimum standard of living. Sen's (1981) definition of poverty was chosen for this study because it is strongly linked to the human development activities advocated by UNDP annual reports. Poverty can also refer to a lack of human traits or rights that prevents people from attaining freedom and justice (Sen, 1981). In this study, poverty is defined as a farmer's inability to turn opportunities into successful business operations and improve their living situations due to a lack of economic, sociocultural, and educational competence.

There are four main ways to describe poverty: Exclusion mechanisms cause a lack of or hindered access to productive resources, as well as a poor use of common resources (Olayemi, 2015). Poverty is defined as a lack of income or assets, as well as a lack of competence, confidence, and empowerment; it also refers to a lack of access to national currency; and it is also used to describe a lack of understanding, culture, or spirit (Singer, 2010). Inadequate household output, financial constraints, and a lack of other entrepreneurial incentives can all contribute to poverty (Adenutsi 2009). Poverty is characterized as both absolute and relative poverty by the World Bank (Misango and Ongiti 2013). When we talk of absolute poverty, we're referring to a lack of resources to meet basic survival needs, a lack of basic security, and the absence of one or more factors that enable individuals and families to carry out basic responsibilities and exercise fundamental rights (Ali and Ali 2013). Relative poverty, on the other hand, is defined as a lack of resources to achieve a standard of living that allows people to play roles, participate in relationships, and live a life that is deemed normative of the society to which they belong. It can be classified in terms of specific groups or areas in comparison to other members of society's economic status, and is defined as a lack of resources to achieve a standard of living that allows people to play roles, participate in relationships, and live a life that is (Misango and Ongiti 2013).

Poverty reduction thus tries to protect the natural resource base by adjusting to the natural environment and enhancing people's social values (Paul, 2007). According to (Ilemona, Akoji, & Matthew (2013), poverty reduction refers to long-term changes in a group's living conditions (Onwuka, Ugwu, Itayo, & Okeke, 2015). They argue that poverty alleviation is inextricably linked to development, which they define as a random process marked by increased productivity, equalization in social goods distribution, and the

emergence of indigenous institutions marked by equity rather than dependence or subordination in their interactions with the outside world.

Poverty is difficult to define since it is complex and multi-dimensional in nature. Economic, social, political, and civilizational challenges are all included in its definition. Poverty, on the other hand, is typically measured in both absolute and relative terms. The inability of an economic unit to meet its most basic needs is referred to as absolute poverty. It is characterized by a severe shortage of food, safe drinking water, sanitation facilities, health, shelter, education, and information, and it is determined not only by income but also by access to social services (Ifeoma, Purity & Yusuf, 2018). Absolute poverty, according to (Yusuf, 2000), is defined as the inability to meet one's physical necessities to the point of losing one's human dignity. A person is considered poor if his or her income is insufficient to cover basic needs such as food, clothing, shelter, potable water, health care, basic education, public transportation, and employment. People who are unable to get these basic necessities of life are classified as poor. Relative poverty, on the other hand, defines a situation in which some needs are supplied but the economic unit is not large enough to meet all perceived needs and desires (Burkey, 1993).

Poverty in Nigeria

Nigeria is now the world's capital of people living in extreme poverty, according to research from the Brookings Institute (Kharas et al., 2018). According to estimates, nearly 87 million people in Nigeria live in extreme poverty, with six people slipping into poverty every minute (Kharas et al., 2018). The bulk of Nigeria's population lives in appalling conditions in impoverished sections of the country. Poverty is extremely real in Nigeria, and the quality of life for average Nigerians has gradually deteriorated over the previous ten years. Statistics demonstrate how precarious life has become for the average Nigerian citizen in the face of crushing poverty levels throughout time. Nigeria's status appears even more dismal when compared to other less developed emerging countries in Africa and other parts of the third world. According to the World Bank, Nigeria's per capita income of \$240 in 1990 was much lower than the Sub-Saharan African average of roughly \$500. (Obadan and Odusola, 2001). Botswana (\$3,210), Cote d'Ivoire (\$6,600), Egypt (\$1,080), South Africa (\$3,500), and Mauritius (\$3,710) scored much lower than Nigeria. When other indices of services and development are considered, the severity of poverty in Nigeria becomes clear. The country's dismal position is revealed by a comparison of Nigerians' life expectancy,

population per doctor, population per hospital bed, and newborn mortality rate. According to studies and polls, Nigerians have insufficient access to electricity, safe drinking water, enough housing, and adequate calorie consumption (World Bank, 1996 UNDP 1997 Ogwumike 1997, and Vision 2010).

According to most scholars, the causes of poverty in Nigeria, like the phenomenon itself, are numerous. Economists have identified macro and micro variables as root causes, for example. The latter comprises, among other things, issues such as the country's economy's slowing productivity growth, inflation, and low utilization of industrial capacity (Edoh, 2003). On the other hand, focusing or highlighting economic aspects alone overlooks the dynamics of the issue. Economic variables must be evaluated alongside a host of other social, political, and cultural factors in Nigeria.

III. METHODOLOGY

This study employed the use of primary data and secondary data. The primary data were obtained from questionnaire while the secondary were collected from the Central Bank of Nigeria Statistical Bulletin, National Bureau of Statistics, Bank of Industry, Small and Medium Enterprise Development Agency of Nigeria, Journals and Text books, internet etc.

Model Specification

The Foster-Greer-Thorbecke (FGT) Poverty Indices Equation

The composite measure of poverty proposed by Foster, Greer and Thorbecke (FGT) proposed by Foster *et al* (1984) construct a family of poverty indices, based on a single formula, capable of incorporating any degree of concern about poverty through the α poverty aversion coefficient.

$$p_{\alpha}(y, z) = \frac{1}{2} \sum_{i=1}^q \left(\frac{z - y_i}{z} \right) \quad (1)$$

Where;

q = the number of poor farmers in the study area

z = the poverty line for the sampled farmers

y_i = PCI of the sampled farmers

α = Poverty parameter that describe level of poverty and it takes on value 0.1 and 2

$q = z - y_i$ = proportion of income below the poverty line

When $\alpha = 0$,

$$p_0 = \left(\frac{1}{n} \right) q = \left(\frac{1}{n} \right) \quad (2)$$

Equation (19) measures the poverty incidence and it is also referred to as headcount index

$$\alpha = 1,$$

$$p_1 = \frac{1}{2} \sum_{i=1}^q \left(\frac{z - y_i}{z} \right) \quad (3)$$

$$p_2 = \frac{1}{2} \sum_{i=1}^q \left(\frac{z - y_i}{z} \right)^2 \quad (4)$$

The Determination of Poverty Line (PVL)

To obtain the poverty line, the following steps are followed;

$$PCI = \frac{y}{hhs} \quad (5)$$

Where;

PCI = Per capital income of the respondents

y = income

hhs = Household size

$$TPCI = \sum_{i=1}^N PCI \quad (6)$$

TPCI = Total PCI

$$MTPCI = \frac{TPCI}{TRs} \quad (7)$$

MTPCI = mean TPCI

$$PVL = \frac{2}{3} \times MTPCI \quad (8)$$

Where;

TPCI= total per capital income

TRs= total Number of Respondents

MTPCI= mean total of per capital income.

PVL = Poverty line which is the two-third of the mean total per capital income.

B. Multi-Dimensional Poverty Index (MPI)

The MPI It tracks deprivation across three dimensions, rather than only income as a single indication of poverty: Health (child mortality and nutrition) will be proxied by health status, BMI, and standard of living, while education (years of schooling and school attendance) will be proxied by health status and BMI (Electricity, flooring, drinking water, sanitation, cooking fuel and assets).

Each person's deprivation score is computed by adding the weighted sum of their deprivations, resulting in a deprivation score that ranges from 0 to 1. The score rises as the person's number of deprivations rises, reaching a

maximum of 1 when the person is deficient in all component indicators. A individual with no deficiency in any indicator obtains a score of 0.

Computing the MPI

The MPI combines two important pieces of data: (1) the proportion or occurrence of people who suffer from various deprivations (within a particular population). This is the multidimensional headcount ratio (H), as well as (2) the intensity of their deprivation (A), which is the average proportion of (weighted) deprivations they face.

$$H = \frac{q}{n} \quad (9)$$

Where q is the number of people who are multidimensionally poor and n is the total population. The intensity of poverty (A) is expressed as

$$A = \frac{\sum_{i=1}^n c_i(k)}{q} \quad (10)$$

Where

$c_i(k)$ is the censored deprivation score of individual i and q is the number of people who are multidimensionally poor. The MPI is the product of both:

$$MPI = HXA \quad (11)$$

IV. RESULTS INTERPRETATION

Table 1: The distribution of selected features of farmers in relation to poverty measures

Variables	FGT		MPI	
	Poor	Non-Poor	Poor	Non-Poor
Gender				
Male	215(85.7%)	156(61.4%)	123(65.1%)	248(78.5%)
Female	36(14.3%)	98(38.6%)	66(34.9%)	68(21.5%)
Total	251(49.7%)	254(50.3%)	189(37.4%)	316(62.6%)
Type of Farming Activities				
Vegetable	105(41.8%)	121(47.6%)	72(38.1%)	154(48.7%)
Livestock	114(45.4%)	26(10.2%)	56(29.6%)	84(26.6%)
Cash crop	32(12.7%)	33(12.9%)	29(15.3%)	36(11.4%)
Fisheries	0(0.0%)	74(29.1%)	32(16.9%)	42(13.3%)
Total	251(49.7%)	254(50.3%)	189(37.4%)	316(62.6%)
Level of Education				
None	3(1.2%)	3(1.2%)	63.2%()	0(0.0%)
Primary	67(26.7%)	19(7.5%)	77(40.7%)	9(2.8%)
Secondary	122(48.6%)	60(23.6%)	41(21.7%)	141(44.6%)
Post-secondary	59(23.5%)	172(67.7%)	65(34.4%)	166(52.5%)
Total	251(49.7%)	254(50.3%)	189(37.4%)	316(62.6%)
Number of Observations	505			

Source: Field Survey, (2021)

In Table 1, the total number of respondents are 505 out which 189(37.4%) are poor using MPI, while the FGT report 251(49.7%) respondents as poor. Using the FGT measure of poverty, out of the 251 respondents that are poor, 215(85.7%) are males, while the remaining 36(14.3%) are females. Similarly, 156(61.4%) respondents that are non-poor are males, while 98(38.6%) are non-poor females.

The MPI measure of poverty shows that only 123(65.1%) male respondents are poor and 66(34.9%) female respondents are also poor compare to 248(78.5%) and 68(21.5%) respondents that are male and female respectively. This indicates that majority of

the male respondents 215(85.7%) are poor using FGT, compared to MPI with 248(78.5%) non-poor males. However, the two measures clearly indicate that many male respondents are poor.

The poverty measures by types of farming activities also show that many livestock farmers 114(45.4%) are poor using FGT measure, while for MPI, many poor vegetable farmers are reported.

Focusing on the level of education, farmers with secondary and post-secondary education have the highest number of poor by FGT (48.6%) and MPI (52.5%) respectively.

Table 2. Results of FGT Measure of Poverty Level in Relation to Level of Education

	PVL in Dollar (\$)	PVL in Naira (N)	Headcount $\alpha = 0$	Poverty $\alpha = 1$	Gap	Poverty $\alpha = 2$	Severity
None	1.65779	629.9603	0.005941	0.0012		0.000246	
Primary	2.855805	1085.206	0.132673	0.06746		0.037032	
Secondary	0.833662	316.7915	0.241584	0.032947		0.01248	
Post-Secondary	1.412735	536.8393	0.116832	0.035403		0.013529	
Total	1.519404	577.3735	0.49703	0.13701		0.063286	

*Using Exchange rate @ 380N CBN, 2021

Understanding the dynamics of poverty based on the level of education to, the results show that the value of α_0 farmer without education, primary, secondary and post-secondary education is 0.005, 0.132, 0.241, and 0.116 respectively. This indicates that 0.5% of the farmer without education are poor, 13.2% of farmers with primary education is poor, 24.1% of farmers with secondary education is poor, while 11.6% of the farmer with post-secondary education are poor correspondingly. Similarly, the α_1 for farmer with none, primary, secondary and post-secondary education is 0.001, 0.067, 0.032 and 0.035 respectively. The values show that an average farmer with none, primary,

secondary and post-secondary education would require 0.1%, 6.7%, 3.2% and 3.5% of the poverty line (₦ 629.96), (₦ 1,085.20), (₦ 316.79) and (₦ 536.83) correspondingly to get out of poverty. The α_2 values for farmer with none, primary, secondary and post-secondary education is 0.0002, 0.037, 0.012 and 0.013, indicating that the poverty severity of farmer with none, primary, secondary and post-secondary education is 0.02%, 3.7%, 1.2% and 1.3% individually. From the findings, it could be inferred that there is existence of poverty among the farmers. It is more pronounced among the farmers with primary and secondary education compared with others.

Table 3. Results of FGT Measure of Poverty Level in Relation to Farming Activities

	PVL in Dollar (\$)	PVL in Naira (N)	Headcount $\alpha = 0$	Poverty $\alpha = 1$	Gap	Poverty $\alpha = 2$	Severity
Vegetables	1.412024	536.569	0.241584	0.066135		0.029573	
Livestock	1.62792	618.6095	0.225743	0.056769		0.028922	
Cash crop	1.485158	564.3601	0.063366	0.014106		0.004792	
Total	1.519404	577.3735	0.49703	0.13701		0.063286	

*Using Exchange rate @ 380N CBN, 2021

Analyzing poverty based on different farming activities to, the results show that the value of α_0 for those who are into vegetable, livestock and cash crop farming is 0.241, 0.225 and 0.063 respectively. This indicates that 24.1% of the farmers, who engage in vegetable farming are poor, 22.5% of farmers who are into livestock farming are poor, while 6.3% of cash crop farmers are poor. Likewise, the α_1 for vegetable, livestock and cash crop farmers is 0.066, 0.056 and 0.014 respectively. The values show that an average farmer into vegetable, livestock and cash crop farming would require 6.6%, 5.6% and 1.4% of the poverty line (₦ 536.56), (₦

618.60) and (₦ 564.36) correspondingly to get out of poverty. The α_2 values for farmer with none, primary, secondary and post-secondary education is 0.029, 0.028 and 0.004, indicating that the poverty severity among vegetable, livestock and cash crop farmers is 2.9%, 3.7%, 2.8% and 0.4% exclusively. From the findings, poverty level is very high among the poor vegetable farmers. Even though, larger percentage of those who are into vegetable farming are poorer than others, it would take poor livestock farmers more to get out of extreme poverty than others.

Table 4. Poverty Analysis using Multi-Dimensional Poverty Index

Poverty Analysis	Frequency	Percentage
Deprivation from Education	91	18.02%
Deprivation based on Health Status	92	18.22%
Deprivation based on health (BMI)	371	73.47%
Deprivation based of standard of living	189	37.43%

Poverty Headcount	189	37.43%
Poverty severity	0.812316	81.23%
Multi-Dimensional Poverty Index	0.303684	30.37%

Source: Field Survey, (2021)

The MPI measures those experiencing multiple deprivations, this measure goes beyond income as the sole indicator for poverty. It tracks deprivation across three dimensions, which are: Education (Years of schooling and school attendance); Health (child mortality and nutrition), which is proxied by health status and BMI; and Standard of living (as measured by access to Electricity, flooring, drinking water, sanitation, cooking fuel and assets). From the results, about 91 farmers, which represent 18% of the total sample are found to be deprived educationally. This indicates that 91 farmers do not have adequate access to higher level of education as they dropped out of school early or do not meet up with the expected years of schooling.

Looking at the health status, 18.2% of the total farmers are deprived and do not have access to good nutrition and recorded below good and excellent health status. Also using BMI, an indicator of weight loss and overweight, show that 371(73.4%) of the farmers were seriously underperformed in this dimension. This indicates that many farmers are not nutritionally balanced, as they either under weigh or overweigh due to poverty. The standard of living dimension show that 189 (37.43%) farmers do not meet up with the standard of living criteria, meaning that they do not have access to clean drinking water, adequate sanitation or clean fuel and electricity. From the poverty headcount result, 189(37.4%) of farmers are MPI poor, this means that they are in acute poverty. They are deprived in all the indicators of a single dimension or b) a combination across dimensions such as being in a household with a malnourished person, no clean water, a dirt floor and un-improved sanitation. Also, on average, the poor here are deprived in 81.2 per cent of the weighted indicators. The average poor person is deprived in 80.2 per cent of the weighted indicators, so the intensity is 80.2 per cent.

V. DISCUSSION OF FINDINGS

The study revealed that the level of poverty among farmers in the study area is high and this is due to lack of entrepreneurship education as the analysis of the result indicates that majority of the male respondents 215(85.7%) are poor using FGT, compared to MPI with 248(78.5%) non-poor males. However, the two poverty measurement used clearly indicate that many male respondents are poor. The poverty measures by types of farming activities also show that many livestock farmers

114(45.4%) are poor using FGT measure, while for MPI, many poor vegetable farmers are reported. Focusing on the level of education, farmers with secondary and post-secondary education have the highest number of poor by FGT (48.6%) and MPI (52.5%) respectively. In sum, the findings show that many farmers are poor with large number of poor male farmers, poor livestock farmers, many poor farmers with secondary education and good health as compare to other categories using FGT measures. For the MPI results, poverty is higher among male farmers, vegetable farmers, farmers with post-secondary education. Empirical literature shows that the education contributes to reducing poverty significantly.

Conclusion/Policy Recommendation

The study also concludes that the level of poverty among farmers in the study area is high and this is due to lack of entrepreneurship education. Therefore, there is the urgent need to increase entrepreneurship education and awareness among the farmers so as to improve their living condition. The negative connection between poverty and entrepreneurship practice calls on the individual farmers in small and medium scaled business to increase their level of entrepreneurship practices so as to alleviate poverty.

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