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Analysis of the Impact of Community Based Poverty Reduction Project on Farming Communities in Kogi State, Nigeria

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Abstract
The study analyzed the impacts of community based poverty reduction project on farming communities in Kogi State, Nigeria. A multistage random sampling technique was used to select 180 farmers, consisting of 90 farmers for each project intervention and non-project intervention communities. Descriptive statistics, FGT model and multiple regression models were used to analyze the data collected. Results showed that most of the farmers were males and married. The average Per Capita Expenditure (PCE) was ₦85.21($0.54) and ₦62.28 ($0.4). The poverty line of the farmers was ₦ 56.81 and ₦ 41.52 for farmers in the communities with and without project intervention respectively. The multiple regression result showed that age, gender, secondary occupation storage system, electricity, household income, farming experience and educational level were the factors affecting the poverty level of farmers. FGT index of poverty incidence showed that majority of the farmers fell below the poverty line. It was recommended that farmers and non-governmental organizations should initiate poverty alleviation programmes to reduce poverty trend in the rural areas.
Keywords: Poverty, community, project, rural farmers, infrastructure.

1. Introduction

Africa harbours most of the poorest countries in the world because of so many factors such as poor leadership, low technology, war and ethnic strife, natural disasters. Presently, majority of citizens of sub-saharan Africa are rural residents and depend on agriculture for a large share of their income. About 46.4% of her population lives below $1 per day (Elumilade *et al.*, 2006 and Howard, 2005). Poverty is a complex human phenomenon associated with unacceptably low standard of living. It has multiple dimensions, manifestations and causes (World Bank, 2000). Poverty analysts from a variety of disciplines have been constantly asking questions about this phenomenon, sometimes out of curiosity, but often with the aim of providing information that can be used to overcome it. According to Organization for Economic Corporation and Development (OECD, 2001), poverty is multidimensional in that encompasses deprivations that relate to human capabilities including consumption and food security, health, education, rights, voice, security, dignity and decent work.

Persistent poverty has plagued Africa for many generations and, by some accounts, is becoming more widespread and entrenched. As a consequence, government and donors have renewed and intensified their commitment to poverty reduction. The prevalence of poverty is highly visible in Nigeria, especially in the rural areas where majority of the people subsist on income from agricultural activities that are too meager to sustain them (World Bank, 1996). The same report indicates that rural areas account for 66percent of the incidence of poverty, 72% of the depth and 69% of the extreme poor. This portion of the population depends on agriculture for a living. Poverty in Nigeria is increasing in hyper geometrical rate since 1980 (Okuneye, 2002). Available statistics from the National Bureau of Statistics (NBS, 2012) indicates that poverty incidence in Nigeria rose from 28.1 percent in 1980 to 54.7percent in 2004 and 60.9percent in 2010 with estimated projection of 71.9percent in 2012. Although Nigeria's economy is projected to continue growing, poverty is likely to get worse as the gap between the rich and poor continues to widen. "It remains a paradox…. That despite the fact that the Nigerian economy is growing, the proportion of Nigerians living in poverty is increasing every year" (Kale, 2012). Variations in the level of income obtained and accessibility to social infrastructure by people in the rural areas is on the increase which could be linked to the growing dimension of poverty even among the rural households as a high level of income and infrastructural inequality produces an unfavourable environment for economic growth and development. Poverty which is substantially a rural phenomenon as is the case in most low income countries like Nigeria is more easily recognized or acknowledges than explained or defined. Essentially, poverty can in every sense be linked to the income level of individuals and other socio-economic indicators of households since their standard of living is a measure of the income obtained or accessibility of the infrastructure to them.

The Community Based Poverty Reduction Project (CPRP) is a poverty-focused project that was approved by the World Bank Board of Directors in December 2000 and became effective on September 28, 2001. The CPRP ensure project ownership in the beneficiary communities by employing the Community Driven Development (CDD) approach through the beneficiary create, implement and maintain projects. The project supports the financing of social infrastructure and environmental management practices by engaging

communities and local government in tackling poverty which is one of the key aspects of the Millennium Development Goal (MDG). The overall goal of the project is to substantially improve access of the poor to social and economic infrastructure and to increase the availability and management of development resources at the community level in Nigeria.

The broad objective of this study is to analyse the impact of community based poverty reduction project on farming communities in Kogi State, Nigeria. The specific objectives are to: describe the socioeconomic characteristics of the respondents; determine the poverty level of farmers in the state; describe access to infrastructural facilities by the farmers in the study area; and determine factors that affect the poverty level of farmers in the study area.

3. Methodology

The study was carried out in Kogi State which has twenty-one (21) Local Government areas (LGAs). It is located in the North central geo political zone of Nigeria. It extends from latitudes 6˚33′N to 8˚44′N and Longitudes 5˚40′E to 7˚49′E. The state has a current population of about 3,278,487 people (NPS, 2006). It is estimated that about 70% of the population live in rural areas (Ibitoye, 2006). A multi-staged random sampling technique was used. Although, all the fifteen (15) Local Government Areas that are actively involved in the community and social development projects were purposively selected. Six (6) communities comprising three (3) benefiting communities and three (3) non-benefiting communities were randomly selected per Local Government Area making a total of 90 communities involved in the survey. Two household's respondents were randomly selected per community, making a total of 180 respondents which comprised of 90 each from benefiting and non-benefiting communities. Data were collected by means of household survey with a structures questionnaire.

3.1 Model specification

(i) In the analysis of data collected, Foster-Greer-Thorbecke (FGT) model was employed. It combines information on the extent of poverty, the intensity of poverty and inequality among the poor. The formula for the FGT is given by:

$$FGT\ \propto = \frac{1}{N}\sum_{i=1}^{H}\left(\frac{z-y_i}{z}\right)\propto$$

Where:
Z= is an agreed upon poverty line ($1 per day)
N= is the number of poor (those with low incomes below Z)
y_i= are averaged income of the community and α is a "sensitivity" parameter.

(ii) Multiple regression analysis was used to determine the factors that affect poverty level of farmers in the study area. The multiple regression model is implicitly specified as follows:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, e)$$

It is expected *a priori* that the coefficients of $X_1, X_2, X_3, X_5, X_6, X_7, X_8, X_9, X_{10} > 0$; $X_4, X_{11} < 0$

The Cobb-Douglas functional Model adopted in this study is specified below:

$$\text{Log } Y = b_0 + b_1\log X_1 + b_2\log X_2 + b_3\log X_3 + b_4\log X_4 + \text{----------} + b_{11}\log X_{11} + e$$

Where:
b_0 = constant,
$b_1 - b_{11}$ = Coefficients to be estimated
Y= dependent variable
X_1 - X_{11} = independent variables, and
e= error term
For this model;
Y = Poverty level {measured as 2/3 of the average per capita Expenditure (PCE) of a household (₦)}
X_1 = Sex of the respondent (Dummy variable, male =1, female =0)
X_2 = Age (years)
X_3 = Household size (number of persons)
X_4 = Educational level of farmer (number of years spent in school)
X_5 = Secondary occupation of the respondent (measured as dummy: 1= yes, 0 = no)
X_6 = marital status (measured as dummy: 1 = married, 0 = single
X_7= Income (Average yearly income accrued from farming and non-farm activities (₦)
X_8=Electricity (Dummy variable, available=1, not available=0)
X_9= Road (Dummy variable, available=1, not available =0)
X_{10}=Storage (Dummy variable, available=1, not available=0)
X_{11}=Farming experience (Years)

ε=error term

4. Results and Discussion

The distribution of respondents according to their socio-economic characteristics are presented in Table 1.

Table 1: Socio- economic characteristics of the respondents

Variables	Frequency	Percentage	Mean
Gender			
Male	125	69.4	
Female	55	30.6	
Total	180	100	
Marital status			
Single	10	5.6	
Married	170	94.4	
Total	180	100	
Age			
21-40	37	20.6	
41-60	129	71.7	45years
61 and above	14	7.7	
Total	180	100	
Level of education (no of years spent in school)			
0 (No formal education)	11	6.1	
1-6	45	25	
7-12	120	66.7	8years
13 and above	4	2.2	
Total	180	100	
Farming Experience (years)			
1-10	25	13.9	
11-20	62	34.4	12 years
21 and above	93	51.7	
Total	180	100	
Primary occupation			
Crop farming	132	73.3	
Livestock farming	30	6.7	
Crop/livestock farming	18	10	
Total	180		
Secondary occupation			
Food processing	31	17.2	
Civil service	12	6.7	
Artisan	29	16.1	
No secondary occupation	108	60	
Total	180	100	

Source: Field Survey, 2012

Results from the descriptive statistical analysis of socio-economic characteristics of the respondents in the study area in table 1 shows that 69.4 percent of the respondents were males while 30.6 percent were females which may be attributed to the intensive labour requirement in the farm. Majority (94.4%) of the respondents were married as there was a high level of homogeneity in the distribution of farmers' marital status in the study area because of similarities in cultural and religious practices. However, the mean age of the sampled farmers were 45years indicating an active farming population. This result agrees with the findings of Abu et al., (2010) in their study on the impact of HIV/AIDS on Agricultural productivity in Benue State that age range between 45-49 is regarded as economic active age. Findings of the study show that most (93.3%) of the rural farming household head have formal education while 6.1% have no formal education. This finding disagrees with the findings of Lichter (1993) which reported low level of education in rural areas. This high level of education implies an added advantage in terms of ease of adopting a new technology as supported by Onyenucheya and Ukoha (2007). The mean farming experience of the respondents is 12years implying that farmers with reasonable years of experience dominate the study area and are expected to be more efficient and productive with a high chance of overcoming poverty than those with little years of farming experience. Nwaru *et al.,* (2006) opined that the number of years a farmer has spent in the farming business may give an indication of the practical knowledge he has acquired on how to cope with the challenges associated with farm production. The result of the study shows

that majority (73.3%) of those surveyed are fully engaged in crop farming as their primary occupation. This generally reveals the relative importance of crop farming as the main occupation and largest employer of labour in the study area. The result further revealed that most of the respondents (59%) do not have secondary occupation. Secondary occupation is very essential for farmers, it serves as extra source of income and it also help farmers to have steady income especially during the off season period.

Table 2 shows the distribution of the calculated per capita expenditure of the households.

Table 2: Per capita expenditure (PCE)

Income level (₦)	**Farmers in communities with project intervention**		**Farmers in communities without project intervention**	
	Frequency	Percentage	Frequency	Percentage
< 100	77	85.6	84	93.4
100-200	4	4.5	3	3.3
201-300	3	3.3	1	1.1
301-400	3	3.3	2	2.2
401-500	2	12.2	0	0
>500	11	1.0	0	0
Total	90	100	90	100
Mean (PCE)	₦85.21		₦62.25	
Poverty line	₦56.81		₦41.52	

Source: Field Survey, 2012

The result of the calculated per capita expenditure of the households as shown in table 2 shows that majority (85.6%) of the respondents in communities with project intervention have PCE that falls below ₦100 ($0.67). The average PCE is ₦85.21 ($0.54) from which the poverty line of the farmers were drawn by getting the 2/3 of the average PCE which is #56.81 ($0.38). On the other hand, majority (93.4%) of the farmers in communities without project intervention have PCE that falls below ₦100 (0.67), with an average PCE of ₦62.28 ($0.42). The poverty line for farmers in communities without project intervention was ₦41.52 ($0.28). This result implies that the PCE of most of the respondents in communities with or without project intervention falls below the poverty line. On comparative basis, the communities with project intervention were better off than communities without project intervention in terms of income generation and poverty status.

Table 3 shows the Poverty status of the farmers with respect to Poverty line.

Table 3: Distribution of farmers according to Poverty status

Poverty Status	**Frequency**	**Percentage**
Poor	163	90
Non-poor	17	10
Total	180	100

Source: Field Survey, 2012.

Table 3 shows that 90% of the sampled population accounted for the number of poor in the area, while 10% accounted for the number of the non-poor people in the study area implying that the percentage of the non-poor is too low compared to the percentage of poor people. According to World Bank review (2001), anyone earning below $1.00 per day is living in poverty. Since the average income per day falls below the $1.00 per day threshold, this index has been generalized to mean that an average farmer in the study area is living below the poverty line. This is in line with the findings of Elumilade et al., (2006) which concluded that about 70% of Nigerian population was vegetating below the bread line. FGT index of poverty incidence (Po) showed that 60% of the farmers fall below the poverty line. This poverty depth (P1) was 81.1% which means that the income of the poor was 81.1% below the poverty line. Poverty severity was 0.0710 and this described the distribution of those below the poverty line.

Table 4 shows the distribution of respondent by access to infrastructural facilities for both communities.

Table 4: Distribution of Respondents Access to Infrastructural facilities for communities with and without project intervention with respect to Poverty Status.

Infrastructure	Communities with Project intervention (N=90)		Communities without Project intervention (N=90)	
	Frequency*	Percentage	Frequency*	Percentage
Good road	23	25.5	84	93.3
Electricity	18	20	36	40
Pipe borne water	68	75.5	45	50
Market stalls	45	50	5	5.5
Health centres	53	58.9	59	97.8
Agro processing facilities	3	3	2	2

*Multiple responses were recorded

Source: Field Survey, 2012.

Result shows in Table 4 that 93.3% of respondents in communities without project intervention had no access to good road and this increased their poverty level. It is obvious that low quality roads impose costs on people living far from market centres. Bad roads are clearly an obstacle to attaining the potential benefits from market-based economic reforms. This implies that condition of road in the rural area plays an impeccable role in the status of the dwellers. The result further shows that 50% of the respondents had access to market stalls in communities with project intervention and this can improve their income and thus indicates the importance of market infrastructure in the localities. As most of the farmers produce not sold in time due to the poor storage facilities got destroyed especially the perishable goods coupled with the effect of bad road with high transportation cost. Although majority (97.8%) of respondents in communities without project intervention had no access to these facilities and this reduces additional income they should have made due to value addition to their agricultural production, thereby increasing their poverty status.

Table 5 presents the regression result for factors affecting the poverty level of farmers in the study area as measured by 2/3 of the average Per Capita Expenditure (PCE) of a household in naira (₦). From the table, an F-value of 48.739 which was significant at 1 percent shows that all the independent variables jointly determine the poverty level of farmers. The R^2 of 0.7613 implies that about 76% of the variation in the poverty level of farming households in the study area is caused by the independent variables. The remaining 24% can be attributed to error term and other variables not considered in this study.

The result reveals that age, as measured in years was positively related to the poverty level of farmers. This relationship was significant at 1 percent. The positive relationship of age to poverty level could be attributed to the fact that as farmers advance in age, their productivity reduces which leads to decreased level of income and more chances of being poor.

Household size was also found to be positively related to farmers' poverty level. This relationship was however not statistically significant. The positive relationship implies that the higher the number of persons per household, the higher the poverty status. In essence, household with many members have higher chances of being poor.

Table 5: Multiple Regression Results of the Double Log functional form

Variable	Coefficient	t-ratio
Constant	10.475398	4.127219**
Sex (X_1)	-2.709120	-2.374584*
Age (X_2)	0.449197	3.860664**
Household size (X_3)	0.222073	1.098237
Education (X_4)	-0.369581	-2.490129*
Secondary occupation (X_5)	-0.543802	-2.968947**
Marital status (X_6)	-0.052413	-1.366542
Household income (X_7)	-0.602250	-2.715176**
Electricity (X_8)	-0.431502	-2.885631**
Road (X_9)	-0.692522	-1.988342*
Storage facilities (X_{10})	-0.394180	-2.815362**
Farming experience (X_{11})	-0.248238	-2.521760*
R^2	0.7613	
F –value	48.739**	
Sample size (n)	180	

Source: Summarized from computer output, 2012.
** **and * = coefficient significant at 1 percent and 5 percent level respectively**

Education, as measured by the number of years spent in school was found to be negatively related to farmer' poverty level. This relationship was significant at 5 percent. This implies that the higher the level of education attained, the lower the poverty status of farmers. This corroborates the finding of Onyenucheya and Ukoha (2007) that high level of education implies an added advantage in terms of ease of adopting new technology which leads to increased output and higher income.

Secondary occupation was also found to be negatively related to farmers' poverty level and significant at 1 percent. This implies that, households engaged in secondary occupation aside farming have low level of poverty. Secondary occupation serves as extra source of income and it also help farmers to have steady income especially during the off season period.

Marital status was found to be negatively signed. The relationship was however not statistically significant. The negative relationship implies that the household heads that were married had low poverty level. Farmers who are married have the opportunity to increase their production with its multiplier effect on increased yield and income. Income of farming households as measured in naira (₦) also had a negative relationship with poverty level of farmers and significant at 1 percent implying that farmers with higher income have low poverty status.

Access to electricity and road were found to be negatively related to farmers' poverty level. The relationships were significant at 1 percent and 5 percent respectively. This implies that farmers' access to these infrastructural facilities reduces farmers' chances of been poor as most agricultural activities access to electricity and good road for maximum production. Processing and other post harvest activities require constant power supply for its efficiency. Agricultural output requires access to good road for transportation to market sites and urban centres.

Availability of storage facilities in farming households was found to be negatively related to farmers' poverty level and significant at 1 percent. By implication, availability of storage facilities reduces the level of poverty of farming households in the study area. This could be explained by the perishability nature of most agricultural produce if not properly stored.

Farming experience as measured by the number of years spent farming was also found to be negatively related to poverty level and significant at 5 percent. This implies that an increase in this variable decreases the poverty level of farmers in the study area. Farmers become more skilled and ready to accept innovation as their farming experience increases. Increased yield and income is believed to be the reward of innovation.

5. Conclusion and Recommendations

Poverty is especially severe in rural areas where social services and infrastructure are limited or non-existent as results in this study showed that variables such as age, gender, storage system, secondary occupation, electricity, household income, educational level and farming experience significantly affect the level of poverty of farmers. It is therefore evident in this study that CPRD has made significant impact on the income and standard of living of the people of Kogi State. In view of the findings of this study, the following recommendations were made:

i. The study showed that 90 percent of the people were still poor, in order to reduce poverty in the area, both private sector and philanthropist organization should initiate poverty alleviation programmes to reduce the aggravating poverty trend in the rural areas.

ii. Community driven approach always remain an engine of rural development. The study showed that the project reduced poverty level of farmers but not enough to eradicate poverty. Government at state and local levels should therefore step up sensitization awareness and as well provided the enabling environment for communal community development initiative by providing cash contributions to augment community projects.

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