Analysis of poverty level among timber millers in Osogbo Agricultural Zone of Osun State, Nigeria

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ABSTRACT

Poverty continues to mull over from one generation to another and currently worsen among the rural dwellers than expected. Although, past government has adopted different programme to tackle poverty, but its intensity keeps increasing day-by-day. This study was therefore conducted to analyzed poverty status among timber millers (sawnwood producers) in Osogbo Agricultural Zone of Osun State. A multistage sampling procedure was used to select 90 respondents. Primary data (on socioeconomic characteristics, the annual income and expenditure faced by timber millers, source of credits and raw timbers as well as the mode/condition of living of the respondents) were collected with the aid of structured questionnaire supplemented with oral interview. Data were analyzed using descriptive statistics, Logistic regression model and Foster Greer Thorbecke (FGT) poverty index. Results reveal hat 62.2% of the respondents were male household heads with the mean age of 48 years, 88.9% of the respondents were married and had a household size of 5 persons on average. Most of the timber millers in the area were largely literate, 72.2% were primarily into sawn-wood or timber milling enterprise and they depend mostly on cooperative loans for finance. The poverty aversion parameter values for poverty incidence (P_0) , poverty depth (P_1) and poverty severity (P₂) were 44.5%, 28.3% and 21.6%, respectively. This indicates that the poverty incidence was about 45%, the depth of poverty was 28.3% while the poverty severity was 21.6% among the respondents in the area. The study shows that meal skipping (35.4%), having low cost meal (24.3%), reducing meal size (15.4%), fasting (13.2%), borrowing from neighbours (8.1%), hunting and harvesting of fresh fruits from bush (3.7%) were the main coping strategies employed by the respondents in the study area to lessen the impact of poverty syndrome. The marginal effect from Logit estimate reveals that age of the respondents (P=0.046), access to credit (P=0.011) and revenue generated from timber milling business (P=0.000) significantly determined poverty level among the respondents in the study area. However, significant numbers of timber millers (45%) are poor and if credit facilities should be made available and accessible to them and they were able to utilise them credibly, it will give an avenue to boost the production of timber and therefore reduce poverty among the timber producers in the study area.

Keywords: Poverty, Timber millers, Sawmill, Sawn-wood, FGT poverty index.

INTRODUCTION

The rural households combine many coping strategies to get out of poverty trap, but despite these efforts, the problem of poverty continues to revolve from generation to generation and currently worsen among the rural dwellers than expected. Poverty is a vicious cycle that keeps the poor in a state of destitution and deprivation. According to Garba, (2006), all the poverty alleviation initiatives in Nigeria since independence did not actually meet their goals as many households are still wallowing in extreme poverty. Nigerians and many other people in less developed countries are suffering from poverty which is obviously caused by poor economic conditions such as economic recession, unemployment, high inflation rate, poor infrastructure, lack of good governance and corruption both at the local and national levels. For instance, presently in this country and nearly all the states people are facing serious hunger and malnutrition because of lack of money and high rate of unemployment. It is truly believed that poverty is severe in rural areas of Nigeria, where up to 80% of the population lives below the poverty line, and social services and infrastructure are limited (IFAD, 2011 and Awotide *et al.*, 2011).

One of the crucial coping measures that individuals or households use to combat poverty in the society among others is their means of livelihoods; that is, the various business activities that serve as source of income for the people to sustain their living. Sekumade and Osundare (2014) reported that livelihood is generally diversified (with majority doing more than two jobs) for more income and better standard of living. However, a person is regarded as being poor, if such a person cannot obtain the basic needs of life like food, shelter, clothes and good health or relatively a person living on less than \$1.25 per day. Eurostat (2010) defined the poor as persons, families and groups where resources (material, cultural, and social) are so limited as to exclude them from the minimum acceptable way of life of the member of state to which they belong. The poor are those who are unable to obtain an adequate income, find a stable job, own property or maintain healthy condition. According to Sancho (1996), poor people are deprived of essential level of education and they cannot meet up with their basic health needs. They have no or limited access to basic necessities of life such as food, clothing, decent shelter, and are unable to meet social and economic obligations, they lack skills and gainful employment, have few if any, economic assets and sometimes lack of self esteem (Olayemi, 1995).

World Bank (2002) described comprehensively that "poverty is hunger, poverty is lack of shelter; poverty is being sick and not able to see a doctor; poverty is not being able to go to school and not knowing how to read; poverty is not having a job; poverty is not having a job; poverty is fear for the future, living one day at a time; poverty is losing a child on illness brought by unclean water; poverty is powerlessness; lack of representation and freedom". Poverty creates slum and changes the pattern of houses which cause the appearance of informal activities, which in turn change the land use pattern of the community. These changes in land use have impact on physical structures, infrastructural facilities and services, socioeconomic values and even the psyche of the residents of the area (Jean-Claude, 2006). Poverty assessment survey has shown that over 70% of the population is living on less than a dollar per day and over 50% living below the national poverty line (FAO, 2006). The survey also revealed that poverty is especially higher in rural areas where majority of the people are resident and deriving livelihood from agriculture and forest resources (NBS, 2006).

In addition, Maghori (2008) observed that in the traditional setting, poverty was understood as material deprivations, as living with low income and low consumption which manifest by way of poor nutrition and poor living conditions. However, income poverty does not exist alone rather it is often times associated with so-called human poverty-low health and education levels. Gore (2002) explained the concept of all-pervasive poverty. According to him, poverty is all pervasive, where the majority of the population lives at or below income levels sufficient to meet their basic needs, and the available resources, even when equally distributed, are barely sufficient to meet the basic needs of the population.

He reiterates further that pervasive poverty leads to environmental degradation. This is because poor people eat into the environmental capital stock to survive. This, in turn, undermines the productivity of key assets on which the livelihood depends. It should also be noted that where extreme poverty is allpervasive, state capacities are necessarily weak.

Nonetheless, the endowment value of forests and woodlands in Africa is enormous, and can be used to promote a wide range of livelihood opportunities, including increased income and enhanced livelihood security. As a result, the relevance of forestry in poverty reduction seems imperative to some extent because, a large number of rural poor people depend on forest resources to some degree, though the definitions used for 'dependence' and the resulting estimates are highly variable and their accuracy is questionable (Calibre Consultants and the Statistical Services Centre, 2000). The summary report of World Commission on Forest and Sustainable Development (WCFSD, 1999) estimated that 350 million depend almost entirely for their sustenance and survival needs on forests and that another 1 billion depend on forests and trees for fuel-wood, food and fodder. The World Bank (2001) estimated that 1.6 billion depend to varying degrees on forests for their livelihoods, with 350 million living in or near dense forests depending on them to a high degree.

Aiyeloja *et al.* (2013) who investigate the contributions of timber/sawn wood marketing to livelihood sustenance in Port Harcourt city, Nigeria reported that sawn wood marketing is a viable enterprise in the area. The study thus, recognized the needs for sawn wood marketers to organise themselves into cooperative groups in order to secure loan and credit facilities from funding agencies for improved marketing efficiency and livelihood.

All these put together motivate this research work (the analysis of poverty level among the timber millers in Osun State, Nigeria). The following specific objectives were analyzed to achieve the focus of the study: describe the socioeconomic characteristics of the timber millers, analyze the poverty status among timber millers in the study area, examine the determinants of poverty and identify the coping strategies employed to alleviate poverty among the timber millers in the study area.

METHODOLOGY

Study area, population, sampling procedure and sample size

The study was conducted in Osogbo Agricultural zone of Osun State, Nigeria. The State which is made up of 30 Local Government Areas (LGAs) is located in the South-western Nigeria. It covers an area of approximately 14,875sqkm, and is bounded by Ogun, Kwara, Oyo and Ondo States in the South, North, West and East respectively. The population of the study consists of all timber millers in selected Local Governments under Osogbo ADP Zone, Osun State.

A multi-stage sampling procedure was used in the selection of the respondents. The first stage involved a purposive selection of six (6) LGAs out of thirteen (13) LGAs in Osogbo zone (about 46 percent of the LGAs in the zone) based on the high concentration of sawmills. The second stage involved a random selection of 3 sawmills from each of the selected LGAs totaling 18 sawmills. Lastly five (5) timber millers each from all the chosen sawmills were randomly picked this forms the third stage. In all a total number of ninety (90) respondents was used for the study.

Source of data and data analytical techniques

The study used structured questionnaire combined with one on one interview schedule to obtain data from primary source. Descriptive statistics, Foster-Greer-Thorbecke (FGT) poverty index and Logistic regression model were used to analyze the data. FGT poverty index is a poverty measure which consists of the headcount index, poverty gap index, and the squared poverty gap index (FGT, 1984). These are referred to as decomposable poverty measures which show that the poverty measure is a weighted average of the poverty measures of the individual in a group.

(a) Foster-Greer-Thorbecke (FGT) poverty index: the general formula for the FGT poverty measure is as specified below;

Where y_i = the income of the ith person/ household, α = non-negative poverty aversion parameter, which has the value of "0" for headcount ratio, "1" for poverty gap or incidence and "2" for poverty severity, n = total number of farm households sampled for the study, q = the number of person with income below the poverty line (Z) and Z = total poverty line.

(b) Logistic regression is a non-linear regression model that forces the output (predicted values) to be either 0 or 1. Therefore, it computes the maximum likelihood estimator. The relationship between the poverty status variable Yi and its determinants X_i was given as;

$$Y_i = \beta xi + \mu i \dots$$

Where $Y_i = 1$ if poor, $Y_i = 0$ if otherwise and $i = 1, 2, 3, \dots, n$ (i.e. poverty status)

 X_i is a vector of explanatory variables and β is the vector of parameters.

 $\begin{array}{l} Yi = \beta_0 + \ \beta_1 x_1 + \ \beta_2 x_2 + \ \beta_3 x_3 + \ \beta_4 x_4 + \ \beta_5 x_5 + \ \beta_6 x_6 + \ \beta_7 x_7 \\ + \ \mu_1 \dots \dots \dots \dots \ (3) \end{array}$

 $Y_i = poverty level (poor/non-poor)$

 X_1 = age of the respondents (years)

 $X_2 = sex (male = 1 and otherwise = 0)$

 X_3 = household size (actual numbers)

 X_4 = years spent in school (years)

 X_5 = source of credit (formal = 1, Otherwise = 0)

 X_6 = years of experience (years)

 X_7 = revenue from timber milling (\mathbb{N})

 μ_1 = error term

RESULTS AND DISCUSSION

Socioeconomic characteristics of the timber/saw millers in the study area

Table 1a presents the socioeconomic characteristics of the saw millers. Results revealed that 62.2% of the respondents were male and 37.8% were female which implies that male timber millers dominated the milling occupation in the study area. More than one third (35.6%) of the respondents were between ages of 51and 60years, 28.9% were between age ranges of 41-50, 18.9% of the respondents were between the age ranges of 31-40; 10% of the respondents were above 60 years of age and 6.67% of the respondents fell below 30 years of age. The mean age was 48 years and it implies that the timber millers were in the

middle age and they are still active as found also by Yusuf and Adewumi (2016). More than two-third (88.9%) were married, 6.7% were widowed and the remaining 4.4% of the respondents were single. The findings also revealed that 60% of the timber millers had household size of 5 members; and 40.0% of the timber millers had household size of 6 to 10 members. The mean household size was 5.0 which imply that an average timber miller had a family size of 5 members that were subsisting from the income generated from the timber milling activities. Forty percent of the respondents had tertiary education and 26.7% had their secondary education, while 21.11% of the respondents had no formal education. This result shows that majority of the respondents were educated and literate and this implies that those households who have higher educational qualifications were not likely to be trapped by poverty because of the human capital they possessed. From Table 1b, the findings also showed that 72.2% of the respondents chose timber milling as their main occupation while 27.8% did not choose timber milling occupation as their main occupation. It indicated that those who did not choose it as their major occupation were having it as their secondary occupation in order to beat up the financial challenge used to face at home, though a large number of the respondents had timber milling as their main occupation. In addition, 52.2% of the respondents belonged to a timber miller association and 47.8% of the respondents did not belong to a timber miller association. About 41.1% of timber millers had 6 to 15 years of experience in milling activities, 28.89% of the respondents had between 16 to 25 years of experience, 16.7% had between 26 to 35 years of experience and only 12.2% of the respondents had 5years of experience and below in the timber milling activities. The mean year of experience of the respondents was 17.3 years and this implies that most of the timber millers had at least 17 years of experience in the timber milling occupation. Above average (64.44%) of the respondents sourced finance through cooperative society, 20% got finance through self-finance credit source, 7.8% source for financial support from bank loans, 5.6% of the respondents had other means of finance like contribution and donation while the rest (2.2%) of the respondents had their financial support from their relatives. The result therefore showed that most of the timber millers belonged to cooperative societies where they are provided with financial support.

Socioeconomic variables	Frequency	Percentage	Mean
Gender			
Male	56	62.2	
Female	34	37.8	
Age group			
< 30	6	6.7	
31-40	17	18.9	48.2
41-50	26	28.9	
51-60	32	35.6	
Above 60	9	10.0	
Marital Status			
Single	4	4.4	
Married	80	88.9	
Widow/widower	6	6.7	
Household Size			
≤ 5	54	60.0	
6-10	36	40.0	5.0
Educational Level			
Non formal	19	21.1	
Vocational	2	2.2	
Primary	9	10.0	
Secondary	24	26.7	
Tertiary	36	40.0	
Total	90	100.0	

Table 1a: Distribution of timber/saw-millers based on socioeconomic characteristics

Source: Field Survey, 2015

Socioeconomic variables	Frequency	Percentage (%)	Mean
Main occupation			
Timber milling	65	72.2	
Not timber milling	25	27.8	
Working experience			
≤5	11	12.2	
6-15	37	41.1	
16-25	26	28.9	17.3
26-35	15	16.7	
Above 35	1	1.1	
Membership of association			
Belonging	47	52.2	
Not belonging	43	47.8	
Source of credit			
Self-finance	18	20.0	
Cooperative society	58	64.4	
Relatives/friends	2	2.2	
Banks	7	7.8	
Others	5	5.6	
Total	90	100.0	

Table 1b: Distribution of saw-miller based on socioeconomic characteristics continued

Source: Field Survey, 2015

Living pattern (Mode of Living) of the timber millers

The respondents' mode of living is presented in Table 2. Findings reveal that 63.3% of the respondents owned their residential apartment and 36.7% rented their residential apartment. This implies that majority of the respondents owned their residential building apartment. Also, 57.8% of the respondents lived in a flat, while only 10.0% of the respondents lived in a room and parlour apartment. Again majority (80.0%) of the respondents had water closet type of toilet, 14.4% used modern pit type toilet, 4.4% used local pit latrine form of toilet and 1.1% had their defecation in the bush, this indicated that majority of the respondents used water closet type of toilet in their houses. It was also revealed that 45.6% of the respondents had borehole as their source of drinking water, 32.2% of them had their water from the well; 18.9% of the respondents had tap water as their source of drinking water; and the remaining 3.3% of the respondents had river/stream water as their source of drinking water. The result implies that most of the respondents had their drinking water from boreholes in the study area. 70% of the respondents patronized public health centre when sick, 18.89% of the respondents patronized private health centre when sick and11.1% of the respondents patronized localmedical centre for treatment when sick. This implies that majority of the respondents visited public hospitals for treatment when sick than any other health care centre in the study area.

 Table 2: Distribution of timber millers based on their living pattern/Mode of Living

Living pattern	Frequency	Percentage (%)
Source of housing		
Owned	57	63.3
Not owned	33	36.7
Type of house		
Flat	52	57.8
Face to face	20	22.2
Bungalow	9	10.0
Room and parlour	9	10.0
Type of toilet		
Water closet	72	80.0
Modern pit	13	14.4
Pit latrine	4	4.4
Bush	1	1.1
Source of water		
Tap water	17	18.9
Borehole	41	45.6
River/stream	3	3.3
Well	29	32.2
Health centre		
Public health centre	63	70.0
Private clinic	17	18.9
Local-medical centre	10	11.1
Total	90	100.0

Source: Field survey, 2015

Poverty status of the saw/timber millers

Table 3 presents the poverty status of the timber millers in the study area. Foster Greer Thobecke

poverty index was used to show the extent of poverty among the timber millers in the study area. The total annual income for all timber millers was N28,757,000 and the *per capita* income was also N6,339,674 while the mean *per capita* income was N70440.82. The poverty line is the equivalents of 2/3 mean *per capita* income and it was estimated to be N46960.54 per annum. The poverty aversion parameters employed were P₀, P₁ and P₂ which means poverty incidence (headcount), gap (depth), and severity, respectively.

The incidence of poverty in this study was 0.444 which indicated that 44.4% of the sampled timber millers were poor based on the poverty line of $\mathbf{N}46,960.54$ for the timber millers. The value P₁ (poverty depth) among the timber millers was 0.283, indicating that an average poor timber miller would require 28.3% of the poverty line to get out of poverty. The value P_2 (poverty severity) among the sampled timber millers was 0.216, indicating that the poverty severity of poor timber millers was 21.6%. This finding is in agreement with available national statistics that put the poverty incidence in the Southwest in 2004 at 43% (National Bureau of Statistics, 2008), but contrary to findings by Amao et al., (2013) where the poverty incidence (Po), the poverty depth/gap (P_1) and the poverty severity (P_2) were reported with high values. This implies that poverty exists among the timber millers in the study area and adequate measures to alleviate poverty in the area need to be adopted.

Table	3:	Poverty	Status	estimates	using	FGT
Povert	ty In	dex for t	he timbe	er millers		

Poverty Aversions	Poverty	Percentage
	Indices	(%)
Poverty incidence, P ₀	0.445	44.5
Poverty depth, P ₁	0.283	28.3
Poverty severity, P ₂	0.216	21.6
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Source: Field survey, 2015

Coping strategies adopted by the timber millers

Identified and ranking of the coping strategies adopted by the respondents is presented in Table 4. Meal skipping, low cost meal, meal size reduction, fasting, borrowing from neighbor, wild fruit consumption were identified to be the major measures used in the study area to cushion the effect of poverty among timber milling households. The ranking of poverty coping strategies was done using the frequency counts. The study indicated that 35.4% respondents adopted meal skipping as their coping strategy, 24.3% resulted to meal size reduction, 15.4% of the respondents involved in the consumption of low cost meal, 13.2% resulted to fasting, 8.1% borrowed from neighbor, and 3.7% resulted to consumption of fresh fruits. It was observed that most of the respondents were no longer eating three square meals per day instead they eat in the morning (breakfast), and night (dinner) or in the night alone and not even their favorite food.

Frequency	Percentage (%)	Rank
48	35.4	1^{st}
21	15.4	3 rd
33	24.2	2^{nd}
18	13.2	4^{th}
11	8.1	5^{th}
5	3.7	6 th
	48 21 33 18	48 35.4 21 15.4 33 24.2 18 13.2 11 8.1

 Table 4: Ranking of respondents based on coping strategies adopted

Source: Field Survey, 2015

*Multiple Responses

Determinants of Poverty among Timber Millers in the Study Area

Table 5 shows the result of the determinants of poverty among the respondents in the study area. Age of the respondents was directly related to poverty status and statistically significant at 5% level of significance. This indicates that as age of the household head increases, the likelihood of the household being poor increases as well. This might be probably due to the fact that as the household head

gets older, the energy begins to depreciate and output and income also decline, which increases the likelihood of the household falling into poverty. This is supported the findings by Sikander and Ahmed (2008) that age of the household head is also a significant factor in determining the poverty status of the households. The result was not consistent with the findings of Ogwumike and Akinnibosun (2013) who found that the probability of the household being poor has a negative correlation with age of the household head.

Access of the household head to source of credit was directly related to poverty status and statistically significant at 1% level of significance. This means that the likelihood of the timber miller being poor increases as they have more access to credit and this does not follow a priori expectation. Household access to credit supposed to remove them out of poverty but it was not. This might be caused by high interest charge on loan disbursement or due to the misuse of credit or loan obtained. Revenue generated by the household head from timber milling occupation was directly related to poverty status and statistically significant at 1% level of significant, which implies that as the revenue generated by the

respondents from timber milling increases, the likelihood of the household being poor increases. This does not satisfy the a priori expectation and it might be seen as a result of mismanagement of revenue by the respondents. The result is contrary to findings by Asogwo et al., (2012) and Amao et al., (2013). Both household size and number of years spent in school by the timber millers were not statistically significant and do not have expected sign of being inversely related to the probability of the household being poor. This result disagreed with findings by Amao et al., (2013). Also, the household size and years of working experience were not significant but have the expected sign of being negatively related to the likelihood of the household being poor.

Table 5: Parameter estimates of Logistics Regression Model

Explanatory variables	Coefficients	Std error	z-statistics	p [Z/>Z]
Constant	-7.1222	2.295	-3.10	0.002
Age	0.0157	0.0079	1.99	0.046**
Sex	0.0042	0.1257	0.03	0.973
Household size	-0.0074	0.0416	-0.18	0.859
Years spent in school	0.0194	0.0165	1.17	0.241
Access to credit	0.2090	0.0821	2.55	0.011***
Working experience	-0.0099	0.0081	-1.23	0.219
Revenue from timber milling	1.13e-06	0.0000	4.14	0.000**

Source: Computed from Field Survey data, 2015

Notes: *** significant at 1%; ** significant at 5%; * significant at 10%

CONCLUSION AND RECOMMENDATIONS

Based on the findings of this work, it can be deduced that majority of the respondents in the study area were male, married and relied on cooperative source of credit. The age of the respondents was averagely 48years. Most of the respondents in the study area have tertiary education and are natives of the study area. Majority of the respondents have moderate household size of about 5, their major occupation is Timber milling. The study further showed that incidence of poverty (P₀) was 0.445, poverty depth (P_1) was 0.283 and poverty severity index (P_2) was 0.216. The significant factors in determining poverty in the study area as revealed by this study were age, household income and access to credit. Poverty alleviation strategies had little or no effect on the standard of living of the respondents in the study area.

Based on the findings of this study, the following recommendations are suggested in order to reduce poverty in the study area.

- There should be provision of infrastructural facilities that can enhance suitable business environment such that diversification of means of livelihood would be more profitable to alleviate poverty among the timber milling households. This is essential due to the fact that involvement of the timber millers in secondary occupations aside milling activities did alleviate poverty because of their ability to earn good income from these activities.
- Large family size should be discouraged through education and measures like birth control of family planning. Awareness on birth control should be done.
- Credit facilities should be made available and accessible to the timber milling households and proper utilisation of credit should be ensured. By doing this, it will give an avenue to boost the production of timber and therefore reduce poverty among the timber producers in the study area.

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