ANALYSIS OF THE POVERTY STATUS OF RURAL HOUSEHOLDS INVOLVED IN HONEY PRODUCTION ACTIVITIES IN ABIA STATE, NIGERIA

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ABSTRACT

The study assessed the poverty status of rural households involved in honey production activities in Abia state, Nigeria. Data were collected using structured questionnaire. Multistage sampling involving purposive and random sampling techniques was used in selecting one hundred and twenty (120) honeybee farmers for the study. Data collected were analyzed using descriptive statistical techniques and tobit regression model. The estimate of poverty profile showed that 54.17% of the respondents were non-poor using the 2/3 Per Capita Expenditure (PCE) which classified the households into Non-poor, moderately and extremely poor. The result further demonstrates that bee farmers were actively involved in baiting, marketing, harvesting, processing and bottling activities and rarely involved in labeling of their products. The study also shows that lack of credit (\( \bar{x} = 5.46 \)), lack of capital (\( \bar{x} = 4.88 \)), bee aggressiveness (\( \bar{x} = 4.45 \)), insufficient equipment (\( \bar{x} = 4.26 \)) and absconding of bees (\( \bar{x} = 4.03 \)) were the most important factors militating against honey production in the state and were ranked 1st, 2nd, 3rd, 4th and 5th respectively. The tobit regression showed a Chi\(^2\) value of 108.11 which was highly significant at 1% level of probability indicating goodness of fit of the tobit regression line of which four out of the eleven coefficients of the explanatory variables were highly significant at 1% and 5% levels of probability. The coefficient for level of technical expertise, and income from propolis, were significant and negatively related to the probability and intensity of poverty at 1% level, while the coefficient for income from beeswax and quantity of bee hives were also negative and significant at 5% level of probability. From the findings, it could be concluded that honey production is highly profitable and has a positive effect on the poverty profile of rural households involved in it. Therefore, the \( H_0 \) which states that honey production has no significant effect on the poverty status of the rural households in the study area was rejected at 5% level and the alternative accepted. The paper recommended that government should encourage bee farmers through the provision of incentives, such as credit.

Keywords: Rural, household, honey, production

INTRODUCTION

Honey as a product of forests and woodlands is formed when honey bees (Apis mellifera) suck nectar from different plant species available. The honey bees suck up the nectar into the honey stomach and fly back to the hive. While in flight, the honey bee mixes the nectar with special
enzymes and proteins that begin changing the nectar into honey (Paterson, 2006). Hence, the composition of honey varies according to source of the nectar. This may explain why it contains many different substances important in human nutrition such as proteins, carbohydrates, organic acids, hormones, antibiotic elements and small quantities of unknown substances (UNEP, 2002). It may also explain why there is dilemma of beekeepers concerning the effects of logging on nectar production in the forests (Law and Chidel, 2007).

Man has been collecting honey from wild nest for thousands of years, and it has been known that obtaining honey is made easier and more convenient if bees are encouraged to nest in a hive. This practice is known as Bee keeping. Bee keeping (Apiculture) is defined as the act of keeping bees for the purpose of providing or producing honey and other bye products (Obialor, 2003). According to (Ahmad et al., 2007), beekeeping requires minimal start up investment, and generally yields profit within the first year of operation. In addition to the direct income from bee products, beekeeping enterprise stimulates various sectors within a society, such as hive carpentry, honey trading, renting and hiring of bee colonies for pollination, and other bee value addition.

Moreover, beekeeping as an enterprise has a lot of potentials for the development of farm households, and it is profitable, providing self employment and employment for others (Anyaegbulamet et al., 2006). Bee honey is a good source of revenue because of its versatile use in food, cosmetic and pharmaceutical industries (Ajare, 1989). The adoption of improved beekeeping technology by bee farmers is an option available to meet culinary and industrial demands for honey bee and its products. Honey is a natural resource that has received priority attention from farmers in the agricultural areas of Abia State because of its economic importance to the people. Generally, honey enterprise currently attracts the attention of about 40% of the rural population because of its profitability, and it is a viable complementary activity for rural people as it requires very little investment, which produces quick returns (Onyekuru, 2004).

Despite Nigeria’s plentiful agricultural resources and oil wealth, poverty is widespread in the country, and has increased since the late 1990s. Poverty is a global phenomenon but the level of the problem in developing countries has reached alarming proportions, although the common understanding of the poverty line is significantly higher in developed countries than in developing countries (World Bank Report, 2011 cited in Ibeneme, 2016). At present, the
percentage of the global population living under extreme poverty is likely to fall below 10% according to the World Bank projection released in 2015 (World Bank, 2015). Poverty in Nigeria remains significant despite high economic growth. Nigeria has one of the world’s highest economic growth rates( averaging 7.4% over the last decade), reminiscent of a well developed economy coupled with plenty of natural resources such as oil (world Bank Report, 2011).

In view of the forgone, the study was conducted to assess the poverty status of the rural households involved in Honey production in Abia State, Nigeria. The objectives of the study were to estimate the poverty status of the respondents in the study area; determine the extent of rural households’ involvement in honey production activities in the area and examine the constraints militating against honey production in the area. The study, therefore, hypothesized that honey production has no significant effect on the poverty status of the rural households in the study area.

METHODOLOGY
The study was conducted in Abia State, Nigeria. Abia State lies between longitude 7° 23’ and 8° 02”E and Latitude 5° 47’ and 6° 12N(NPC, 2006). The major occupation of the rural people is farming. There are other sources of livelihood in the area, such as handicraft, processing, trading, hunting, civil service, teaching, transporting, fishing and small scale industrial activities. Multi stage sampling involving purposive and random sampling techniques were used to obtain sample for the study. In the first stage, three (3) agricultural zones namely Umuahia, Ohafia and Aba Agricultural Zones were purposively selected due to the intensity of bee farming in these areas. The second stage involved the purposive selection of two (2) blocks from each of the Agricultural Zones. The blocks selected were Ikwuano North and Ikwuano South for Umuahia Agricultural Zone, Bende and Umuneochi for Ohafia Agricultural Zone, Aba North and Aba South for Aba agricultural Zone. This gave a total of six (6) blocks. The third (3rd) stage was a random selection of two (2) circles from each of the blocks, giving a total of 12 circles. Finally,
ten(10) honeybee farmers were randomly selected from each circle, which gave a total of one hundred and twenty (120) respondents, which constituted the sample size.

Data for the study were collected with the use of structured questionnaire. Objective 1: was realized using 2/3 Per Capita Total Household Expenditure(PCTHE) used by World Bank (1996) as a measure of poverty, while objectives 2 and 3 were realized using descriptive statistics such as means, frequencies and percentages.

**Model Specifications**

i. To assess the extent of rural household involvement in honey production activities. A six point likert rating scale was used to measure the extent of farmers involvement in honey production activities using very high (≥5), high(4.5-4.99), moderately high (3.5-4.49), low(3-3.49), very low(2.5-2.99) and extremely low (<2.5). Respondents with mean score of 3.50 and above imply that they are involved in the production activities, while respondents with mean score of less than 3.5 are rarely involved. To determine the mean likert level = mean= ΣX/N. Mean of each item was computed by multiplying the frequency of each response pattern with its appropriate nominal value and dividing the sum with the number of respondents to the items. This can be summarized with the equation below.

\[
\text{Mean} = \frac{\sum f_n}{N}
\]

Where average mean score = Likert mean benchmark
\(\sum\) = summation
\(f\) = frequency
\(n\) = likert normal scale
\(N\) = number of the respondents
Mean =1+2+3+4+5+6/6 = 21/6 = 3.5

ii. The determination of the poverty status of the respondents was done using **Per Capita Total Household Expenditure (PCTHE)** used by World Bank (1996) as a measure of poverty.
Per Capita Household Food Expenditure (PCTHE) =

\[
\text{Total household monthly expenditure} \\
\text{Household Size} \ldots 
\]

(eqn 1)

The classification of household poverty status was based on mean per capita household expenditure (MPCHE)

\[
\text{(MPCHE)} = \frac{\text{Total per capita household expenditure}}{\text{Total number of Households}}
\]

(eqn 2)

The poverty line was drawn from the mean per capita household total expenditure, to get two mutually exclusive classes and the classification of the rural households engaged in honeybee production. This was done as follows;

1. Rural households involved in honeybee production, whose PCTHE was equal to or greater than 2/3 mean of PCTHE were considered as non-poor.
2. Respondents whose PCTHE was less than 2/3 mean were considered moderately poor.
3. A core poor (extreme poverty) was defined as 1/3 of the mean per capita total household expenditure. Respondents with per capita total household expenditure less than this were considered extremely poor.

Respondents whose expenditure fell between core poor and below 2/3 PCTHE were considered moderately poor. Both the core poor and poor respondents were generally regarded as poor.

iii. To model the determinants poverty status among the respondents in the study area, a Tobit model was used. This model (Chow, 1983 and Maddala, 1983) has found several empirical applications in literature (Ibeneme, 2016; Holloway et al., 2004 and Nkamleu, 2007). The dependent variable is poverty status, which was censored at zero. To avoid the censoring bias that Ordinary Least Squares could generate, a Tobit
censored at zero was used because level of poverty smaller than zero was not observed. Other estimation approaches, such as the Heckman’s Model, could also generate unbiased results (Nkamleu, 2007). The Tobit approach conserves degrees of freedom, and was relevant in this case where the independent variables had a continuous effect on the dependent variable. Since the level of poverty could not be negative (the threshold was zero). The dependent variable can be written using an index function approach as;

\[ I_{i}^{*} = \beta^{T}X_{i} + \varepsilon_{i} \ldots \quad (eqn \ 3) \]

\[ Y_{i} = 0 \text{ if } I_{i}^{*} \leq T \ldots \quad (eqn \ 4) \]

\[ Y_{i} = 1 \text{ if } I_{i}^{*} > T \ldots \quad (eqn \ 5) \]

Where \( Y_{i} \) represents a limited dependent variable, which simultaneously measures the probability and intensity of poverty; \( I_{i}^{*} \) is an underlying latent variable that indexes level of poverty. \( T \) is an observed threshold level, \( X \) is the vector of independent variables affecting probability and intensity of poverty, \( \beta^{T} \) is a vector of parameters to be estimated, and \( \varepsilon_{i} \) is the error term. If the non-observed value of \( I_{i}^{*} \) is greater than \( T \), the observed variable, \( T \) becomes a continuous function of the independent variables, and 0 otherwise. For the generalized case, the value of the Log likelihood function is given thus:

The model of the Tobit regression is specified in implicit form as follows:

\[ Y = f(X_{1}, X_{2}, X_{3}, X_{4}, X_{5}, X_{6}, X_{7}, X_{8}, X_{9}, X_{10}, \varepsilon) \ldots \quad (eqn \ 6) \]

Where;

\( Y \)=Level of poverty/poverty status

\( X_{1} \)= quantity of honey produced per annum (litres)

\( X_{2} \)=cost of labour (Naira)
\[X_3= \text{Scale of Production (Number of Hives Used)}\]
\[X_4= \text{cost of hives (Naira)}\]
\[X_5= \text{level of technical expertise (years of experience)}\]
\[X_6= \text{income from honey sold (Naira)}\]
\[X_7= \text{income from propolis (Naira)}\]
\[X_8= \text{income from beeswax (Naira)}\]
\[X_9= \text{income from honey consumed (Naira)}\]
\[X_{10}= \text{depreciated cost of capital inputs (Naira)}\]
\[X_{11}= \text{off farm income}\]

**RESULTS AND DISCUSSION**

**POVERTY STATUS OF RURAL HOUSEHOLDS INVOLVED IN HONEY PRODUCTION**

Table 1 shows the Poverty status of rural households involved in honey production in the study area. Results in the Table, reveals that majority (54.17%) of the honey producers were non-poor, while 40.83% were moderately poor and only 5.00% were extremely poor. The mean per capita expenditure (₦8,015.74) was used in estimating the poverty line that classified the households into Non-poor, moderately poor and extremely poor. The poverty line was drawn by finding two third (2/3) and one third (1/3) of the mean per capita expenditure (MPCE). 2/3 of the mean per capita expenditure estimated the moderate poverty line, while one third 1/3 of the mean per capita expenditure (MPCE) estimated the extreme poverty line.

Every household whose per capita expenditure was greater than or equals to ₦5, 370.55 (moderate poverty line) was grouped as non-poor, while households having per capita expenditure PCE of less than ₦5, 370.55 (moderate poverty line) but greater than ₦2, 645.19 (extreme poverty line) were grouped as moderately poor. Households with per capita expenditure of less than ₦2, 645.19 (extreme poverty line) were grouped as extremely poor.
Table: 1 Distribution of the respondents according to their poverty status in the study area

<table>
<thead>
<tr>
<th>Poverty Status</th>
<th>Frequency</th>
<th>Percentages%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Poor</td>
<td>65</td>
<td>54.17</td>
</tr>
<tr>
<td>Moderately Poor</td>
<td>49</td>
<td>40.83</td>
</tr>
<tr>
<td>Extremely Poor</td>
<td>06</td>
<td>5.00</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field survey data, 2015

EXTENT OF RURAL HOUSEHOLDS INVOLVEMENT IN HONEY PRODUCTION ACTIVITIES IN ABIA STATE

Table 2 shows the result of the extent of rural household involvement in honey production activities in Abia state. The result indicates that bee farmers who affirmed their involvement in baiting activities ranked 1st with a mean score of 5.28 on a six point rating scale of very high involvement to no involvement. The Table also reveals that bee farmers who confirmed their involvements in marketing, harvesting, processing and bottling ranked 2nd, 3rd, 4th and 5th respectively. Their mean responses were also greater than the average mean value (benchmark) of 3.5, indicating they were involved in those production activities to a high extent. The last mentioned had a mean response of 3.49 which was less than the benchmark of 3.5, indicating that bee farmers are not actively involved in labeling activities. From the findings, it could be seen that bee farmers are rarely involved in labeling activity but are highly involved in other honey production activities.

Table 2 Distribution of respondents according to their extent of involvement in honey value chain activities in the area.

<table>
<thead>
<tr>
<th>ACTIVITIES</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Total</th>
<th>Mean</th>
<th>Rating</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VH</td>
<td>H</td>
<td>Mod</td>
<td>Low</td>
<td>VL</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baiting</td>
<td>56</td>
<td>46</td>
<td>14</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>633</td>
<td>5.28</td>
<td>VH</td>
<td>1st</td>
</tr>
<tr>
<td></td>
<td>(336)</td>
<td>(230)</td>
<td>(56)</td>
<td>(9)</td>
<td>(2)</td>
<td>(0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harvesting</td>
<td>8</td>
<td>60</td>
<td>27</td>
<td>23</td>
<td>2</td>
<td>0</td>
<td>529</td>
<td>4.40</td>
<td>MH</td>
<td>3rd</td>
</tr>
<tr>
<td></td>
<td>(48)</td>
<td>(300)</td>
<td>(108)</td>
<td>(69)</td>
<td>(4)</td>
<td>(0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processing</td>
<td>17</td>
<td>40</td>
<td>38</td>
<td>23</td>
<td>2</td>
<td>0</td>
<td>527</td>
<td>4.39</td>
<td>MH</td>
<td>4th</td>
</tr>
<tr>
<td></td>
<td>(102)</td>
<td>(200)</td>
<td>(152)</td>
<td>(69)</td>
<td>(4)</td>
<td>(0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bottling</td>
<td>10</td>
<td>46</td>
<td>40</td>
<td>16</td>
<td>5</td>
<td>1</td>
<td>509</td>
<td>4.24</td>
<td>MH</td>
<td>5th</td>
</tr>
<tr>
<td></td>
<td>(60)</td>
<td>(230)</td>
<td>(160)</td>
<td>(48)</td>
<td>(10)</td>
<td>(1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The result in Table 3 shows the rating scale on constraints to honey production in Abia State. The result reveals that lack of credit ($\bar{x}=5.46$), lack of capital ($\bar{x}=4.88$), bees aggressiveness ($\bar{x}=4.45$), insufficient equipment ($\bar{x}=4.26$) and absconding of bees ($\bar{x}=4.03$) were the most severe factors militating against honey production in the state and ranked 1st, 2nd, 3rd, 4th and 5th respectively. The mean responses were also greater than the average mean value (benchmark) of 3.5. These factors were also identified by Workneh, Ranjitha and Ranjan, (2008) and Yirga and Ftwi, (2010) as the challenges confronting beekeepers.

Farmers’ poor access to credit according to Omoruyi et al., (1998), could be attributed to high collaterals, high interest rates, short loan repayment period as charged by lending agencies and location of these lending agencies in urban areas.

Onugu, (2005) contradicted the generally believed notion that lack of capital is the greatest problem facing businesses. The study found that access to finance or capital is not the greatest problem facing agricultural businesses in Nigeria. The greatest or worst problem confronting them is managerial capacity. Access to capital and finance is necessary but not a sufficient condition for successful business development. The following mean scores show the rating of the constraints; pests ($\bar{x}=3.92$), unavailability of land ($\bar{x}=3.83$) and indiscriminate bush burning ($\bar{x}=3.51$) were moderate constraints which ranked 6th, 7th and 8th respectively with mean values.
greater than 3.5. Constraints that ranked the least and were not severe include; predator ($\bar{x} = 3.39$), lack of technical knowledge ($\bar{x} = 3.38$), pilfering ($\bar{x} = 3.13$), hive destruction during harmattan ($\bar{x} = 3.10$) and hive destruction by wild animals (honey mongers) ($\bar{x} = 2.64$) and ranked 9th, 10th, 11th, 12th and 13th respectively.

Table 3: Farmers’ rating of the constraints to honey production

<table>
<thead>
<tr>
<th>Constraint</th>
<th>VH</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Total</th>
<th>Mean</th>
<th>Remark</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pest</td>
<td>4(24)</td>
<td>21(105)</td>
<td>58(232)</td>
<td>36(108)</td>
<td>0(0)</td>
<td>1(1)</td>
<td>470</td>
<td>3.92</td>
<td>Moderate</td>
<td>6th</td>
</tr>
<tr>
<td>Predator</td>
<td>0(0)</td>
<td>21(105)</td>
<td>31(124)</td>
<td>45(135)</td>
<td>20(40)</td>
<td>3(3)</td>
<td>407</td>
<td>3.39</td>
<td>LC</td>
<td>9th</td>
</tr>
<tr>
<td>Absconding of bees</td>
<td>1(6)</td>
<td>34(170)</td>
<td>62(248)</td>
<td>16(48)</td>
<td>5(10)</td>
<td>2(2)</td>
<td>484</td>
<td>4.03</td>
<td>Moderate</td>
<td>5th</td>
</tr>
<tr>
<td>Hive Destruction</td>
<td>1(6)</td>
<td>11(55)</td>
<td>34(136)</td>
<td>38(114)</td>
<td>26(52)</td>
<td>10(10)</td>
<td>373</td>
<td>3.10</td>
<td>LC</td>
<td>13th</td>
</tr>
<tr>
<td>Indiscriminate bush burning</td>
<td>3(18)</td>
<td>19(95)</td>
<td>38(152)</td>
<td>38(114)</td>
<td>20(40)</td>
<td>2(2)</td>
<td>421</td>
<td>3.51</td>
<td>Moderate</td>
<td>8th</td>
</tr>
<tr>
<td>Hive Destruction by wild animals (Honey mongers)</td>
<td>2(12)</td>
<td>3(15)</td>
<td>18(72)</td>
<td>33(99)</td>
<td>55(110)</td>
<td>9(9)</td>
<td>317</td>
<td>2.64</td>
<td>Minor constraint</td>
<td>12th</td>
</tr>
<tr>
<td>Pilfering by honey hunters stealing</td>
<td>2(12)</td>
<td>10(50)</td>
<td>24(96)</td>
<td>53(159)</td>
<td>28(56)</td>
<td>3(3)</td>
<td>376</td>
<td>3.13</td>
<td>Low constraint</td>
<td>11th</td>
</tr>
<tr>
<td>Lack Of Capital</td>
<td>28(168)</td>
<td>65(325)</td>
<td>19(76)</td>
<td>3(9)</td>
<td>2(4)</td>
<td>3(3)</td>
<td>585</td>
<td>4.88</td>
<td>Severe</td>
<td>2nd</td>
</tr>
<tr>
<td>Bees Aggressiveness</td>
<td>11(66)</td>
<td>44(220)</td>
<td>57(228)</td>
<td>4(12)</td>
<td>4(8)</td>
<td>0(0)</td>
<td>534</td>
<td>4.45</td>
<td>Severe</td>
<td>3rd</td>
</tr>
<tr>
<td>Unavailability of land</td>
<td>12(72)</td>
<td>33(165)</td>
<td>10(40)</td>
<td>52(156)</td>
<td>13(26)</td>
<td>0(0)</td>
<td>559</td>
<td>3.83</td>
<td>Moderate</td>
<td>7th</td>
</tr>
<tr>
<td>Lack of technical know-how</td>
<td>5(30)</td>
<td>23(115)</td>
<td>34(136)</td>
<td>23(69)</td>
<td>21(42)</td>
<td>14(14)</td>
<td>406</td>
<td>3.38</td>
<td>Low constraint</td>
<td>10th</td>
</tr>
<tr>
<td>Insufficient Equipment</td>
<td>9(54)</td>
<td>45(225)</td>
<td>40(160)</td>
<td>20(60)</td>
<td>6(12)</td>
<td>0(0)</td>
<td>511</td>
<td>4.26</td>
<td>Moderate constraint</td>
<td>4th</td>
</tr>
<tr>
<td>Lack Of Credit</td>
<td>78(468)</td>
<td>22(110)</td>
<td>18(72)</td>
<td>1(3)</td>
<td>1(2)</td>
<td>0(0)</td>
<td>655</td>
<td>5.46</td>
<td>VSC</td>
<td>1st</td>
</tr>
</tbody>
</table>

Source: Field survey data, 2015
Key: mean score = 3.50
VSC = very severe constraint ($\geq 5$), SC = severe constraint (4.5-4.99), MC = moderate constraint (3.5-4.49), LC = low constraint (3-3.49), MC = minor constraint (2.5-2.99) and NC = no constraint (< 2.5).
The figures outside the parenthesis are the frequencies.

The result in Table 4 shows the Tobit estimates of the determination of honey production on the poverty status of the bee farmers in Abia State. The Chi$^2$ value was highly significant at 1% level of probability, indicating goodness of fit of the model or regression line. Also, the likelihood ratio test indicated that the slope coefficient was significantly different from zero. The result
shows that two out of the eleven coefficients of the explanatory variables were highly significant at 1 % and 5% levels of probability respectively.

The coefficient for level of technical expertise was negative and significant at 1% level which implies that an increase in the level of technical expertise will lead to a corresponding decrease in the probability and intensity of poverty among the beekeepers in Abia State. This is consistent with *a prior* expectation that long farming experience and improved level of technology build confidence in farmers. The coefficient of income from propolis was also negative and highly significant at 1% level which implies that an increase in income from sale of propolis in honey production will lead to a corresponding decrease in the probability and intensity of poverty among rural households involved in honey production. The coefficient for scale of production (quantity of bee hives) was negative and also significant at 5% level of probability. This is in accordance with *a prior* expectation. This implies that an increase in the scale of production as a result of increase in the number of beehives, would lead to a decrease in the probability and intensity of poverty as a result of an increase in production output.

The coefficient of income from beeswax was also negative and significant at 5% level of probability. It implied that with increased income from beeswax, production would increase thus leading to a decrease in the probability and intensity of poverty among the bee keepers. This is also in agreement with *a prior* expectation.

Since the coefficients of the variables were significant at 1% and 5% significant levels and were negative, it therefore implies that the null hypothesis which stated that honey production has no significant relationship with the poverty status of the rural households in the study area is rejected. Thus, the study concluded that honey production is negatively related to poverty.
Table: 4 Tobit regression estimates of the factors influencing honey production and poverty status of the bee farmers in Abia State.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Parameters</th>
<th>Coefficients</th>
<th>Std Deviation</th>
<th>t-Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>b₀</td>
<td>-8728.872</td>
<td>5293.533</td>
<td>-1.65</td>
</tr>
<tr>
<td>Honey quantity</td>
<td>X₁</td>
<td>21.29562</td>
<td>16.2191</td>
<td>1.31</td>
</tr>
<tr>
<td>Cost of labour</td>
<td>X₂</td>
<td>-.37697</td>
<td>.25359</td>
<td>-1.49</td>
</tr>
<tr>
<td>Hive quantity</td>
<td>X₃</td>
<td>-403.223</td>
<td>128.068</td>
<td>-3.15**</td>
</tr>
<tr>
<td>Cost of hive</td>
<td>X₄</td>
<td>4.4586</td>
<td>.8356</td>
<td>5.34</td>
</tr>
<tr>
<td>Level of technical Expertise</td>
<td>X₅</td>
<td>-11313.74</td>
<td>2825.203</td>
<td>-4.00***</td>
</tr>
<tr>
<td>Income from Honey sold</td>
<td>X₆</td>
<td>0.60605</td>
<td>.009687</td>
<td>0.06</td>
</tr>
<tr>
<td>Income from Propolis</td>
<td>X₇</td>
<td>-.63958</td>
<td>.17753</td>
<td>-3.60***</td>
</tr>
<tr>
<td>Income from wax</td>
<td>X₈</td>
<td>-3.40426</td>
<td>.11539</td>
<td>-2.95**</td>
</tr>
<tr>
<td>Income from Honey consumed</td>
<td>X₉</td>
<td>.072135</td>
<td>.076198</td>
<td>0.95</td>
</tr>
<tr>
<td>Depreciated Cost of capital Inputs</td>
<td>X₁₀</td>
<td>1.58219</td>
<td>2.6316</td>
<td>0.60</td>
</tr>
<tr>
<td>Off farm Income</td>
<td>X₁₁</td>
<td>-.00034</td>
<td>.00823</td>
<td>-0.04</td>
</tr>
</tbody>
</table>

Chi² 108.11 ***
Prob Chi² 0.0856
Log Likelihood -577.703

Source: Field survey, 2015
** and *** = variables are statistically significant at 5% and 1% levels of probability respectively.
H0 rejected at 5% level

CONCLUSION AND RECOMMENDATIONS

Majority (54.17%) of the honey farmers were observed to be non-poor. The study demonstrates that honey production has made a positive effect on rural households’ income and can be said to have positive effect on poverty reduction. The study also showed that bee farmers were to a great extent involved in baiting, harvesting, processing, bottling and marketing activities but rarely involved in labeling of their products. The significant determinants of honey production on poverty status included income, level of technical expertise, scale of production as well as income from beeswax. Furthermore, these farmers were constrained with lack of credit; lack of capital, bees aggressiveness, bush burning, insufficient equipment and absconding of bees. The study concluded that honey production is very profitable and can be used as a poverty reduction strategy among rural households.
The study therefore recommends that;

i. Since the enterprise was found to be profitable, policies aimed at encouraging more rural households in honey production as a way of creating employment and reducing poverty should be made.

ii. Bee farmers should be encouraged by extension/government through the provision of incentives, such as credit to assist them in taking care of cost such as cost of labor and hive purchase as well as subsidizing farm equipment, to enable the farmers expand production and serve as a poverty alleviation outfit.

iii. Bee farmers should form cooperatives to enhance their capital base and solve the problem of inadequate funds.

iv. Finally, it is recommended that training should pay attention to constraints faced by the farmers, especially in handling bee aggressiveness while research on less aggressive bee species should be carried out.

REFERENCE


