Economic Returns and Smallholder Participation in Palm Oil Enterprise in Ado Local Government Area of Benue State, North-Central Nigeria

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Abstract:
This study examined the economic returns and smallholder involvement in oil palm production enterprise in Ado Local Government Area of Benue state, Nigeria. Using Gross Margin analytical tool, results showed approximately 52% earned on average, ₦300,000 in annual revenue from the enterprise and about 37% operated on a farm size of 2-3 hectares. Also, the majority (91.7%) are palm oil farm owners, with 53.3% of them having between 101-150 stands of oil palm trees on their farm plot. The most widely used variety is the Tenera species (40%), which is believed to yield a higher quantity of crude palm oil than other varieties. 45.0% of the respondents revealed that labour expenditure ranges between ₦9,000-₦11,000, but the current cost of labour is above ₦11,000 and this happens mostly during the off-season. With a gross margin of 0.27 and a gross percentage of 0.107, profitability level has little significance in the study location. The study found that the cost of labour, insufficient finance and transportation are the major constraints to oil palm enterprise in the study location. Government incentives in the form of financial support or loans, credit facilities, and provision of good access roads would be just ideal solutions to facilitate the ease of operation of oil palm enterprise in the study location.

Keywords: economic returns; smallholder; palm oil; enterprise; Nigeria

Introduction

The oil palm (Elaeis guineensis) ranks amongst the leading economic perennial tree crops that are mostly cultivated in the tropics. Its origin is from the tropical rain-forest region of West Africa (CTA, 2005; Agboola, 1993). Over the past several decades, a great deal of research efforts has been going on in Asian-Pacific as well as West African regions on oil palm. In the context of food security, health and nutrition, poverty reduction and environmental consideration and sustainability, research efforts are likely to continue increasing in decades to come (AVRDC 2006). The climatic and soil requirements constitute the physical factors that are responsible for the growth of oil palm. These include the availability of water supply, soil conditions in terms of fertility and topography that are suitable for the growth of oil palm in West Africa including Nigeria.

The high yielding characteristic of oil palm plant and its edible oil has resulted in its widespread cultivation as a plantation crop in most countries with high annual rainfall of about 1600mm to 5000mm (Keu, 2001). Oil palm flourishes mostly in deep, slightly acidic loam soil with pH of 5-6. There are two major species of oil palm namely: Elaeis guineensis and Elaeis oleifera which originated from West Africa and South America respectively (Corley and Tinker, 2003). The high yielding characteristic of the Africa oil palm (Elaeis guineensis) makes the species the most widely cultivated for economic purpose. There are three economically important varieties that are used in the study location; these are the Dura, the Pisifera and the Tenera. The Tenera is a cross between Dura and Pisifera (NIFOR 1995) and requires the application of fertilizer particularly nitrogenous fertilizers such as sulphate of ammonia, muriate of potash, etc. for the growth of young seedlings. Oil palm is a lowland crop although it can grow well up to an altitude of 900m. It has fibrous root system and benefits from deep soils which are fertile, free from iron deposits and well-drained.

The rising demand for palm oil to meet local consumption has led to the net importation of the product (USDA 2000). Currently, Nigeria has become a net importer of palm oil (USDA 2000). Malaysia
which sourced her seedlings from Nigeria in the 1960s is now second after Indonesia to lead Nigeria as a major producer of palm oil (USDA 2000; Akinjide 2005). The continued reliance on crude oil and gas as the sole source of government revenue may no longer be sustainable and healthy for Nigeria at this time given the dwindling fortunes of global fossil fuel prices. Although Nigeria’s oil export accounts for more than 80% of its income, it contributes just about 6% to its GDP according to National Bureau of Statistics (2011). The above statistics raise the question of resource utilization and management by the country as well as reveals the nature of the country’s vulnerability to the volatility and fluctuations in the prices of oil exports, thus necessitating the need to think outside the box urgently. This situation cannot continue if the country must move quickly in terms of its development index. The country has huge potentials for large scale agricultural production that can create market opportunities for agribusinesses, but the big question remains whether policymakers have the political will to give incentive to agricultural production, particularly in aspects where such great potentials for commercial benefits exist. The palm oil sub-sector presents huge potentials for Nigeria to be competitive in the global agricultural market economy. It remains one of the veritable means for Nigeria to cushion the uncertainties in the oil and gas subsector in today’s global economy. Thus the current study sought to analyse the economics of smallholder participation in oil palm enterprise as a profitable venture that can create jobs for the people and enhance their economic well-being as well as contribute to the country’s GDP.

Methodology

Study Site and Sampling Technique

The study was carried out in Ado Local Government Area of Benue State, North-Central, Nigeria; characterised by high production of palm oil due to its suitable climate. Its coordinate is 7°46′60″ N, 8°43′60″ E. The location has a modified equatorial climate with annual rainfall of between 1200mm – 1400mm and relatively high temperatures which range between 22°C-32°C, with a relative humidity of about 80%. A random sampling technique was used to select 60 palm oil farmers, 12 from each of the 5 districts in the study location. The study made use of primary data obtained by means of a well-structured questionnaire.

Data Analysis

Economic returns to palm oil enterprise were analysed using gross margin analytical technique, and simple descriptive statistics such as mean, frequency, and percentage. The gross margin is specified as follows:

\[ GM = TR - TC \] ........................................ (1)

\[ TR = Q \times P \] ........................................... (1.1)

\[ TC = TVC - TFC \] ........................................ (1.2)

Where;

- \( TR \) = Total revenue
- \( TC \) = Total cost
- \( TVC \) = Total variable costs
- \( TFC \) = Total fixed costs
- \( Q \) = Quantity of output in litre
- \( P \) = Price per litre in Nigerian Naira

Results and Discussion

Profitability of oil palm

The study revealed that the majority of respondents (71.1%) processed fresh fruit bunch with 53.3% using the traditional technique of extraction as summarized in table 1. Majority of respondents (65%) engaged
hired labour with the cost implications ranging between ₦9,000 - ₦11,000 and a mean score of 2.25. Furthermore, about 37% of respondents indicated that the current price of oil palm ranges between ₦11,000 - ₦14,000 with a mean score of 2.52. However, with a gross margin of 0.27 and a gross percentage of 0.107, the level of profitability of oil palm enterprise has little significance in the study location.

Table 1 Profitability level of oil palm enterprise in Ado Local Government Area

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh fruit bunch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>43</td>
<td>71.7</td>
</tr>
<tr>
<td>No</td>
<td>17</td>
<td>28.3</td>
</tr>
<tr>
<td>Method of processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional method</td>
<td>32</td>
<td>53.3</td>
</tr>
<tr>
<td>Mechanized method</td>
<td>28</td>
<td>46.7</td>
</tr>
<tr>
<td>Type of labour employ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family labour</td>
<td>21</td>
<td>35.0</td>
</tr>
<tr>
<td>Hired labour</td>
<td>39</td>
<td>65.0</td>
</tr>
<tr>
<td>Cost of labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,000 - ₦5,000</td>
<td>12</td>
<td>20.0</td>
</tr>
<tr>
<td>6,000 - ₦8,000</td>
<td>21</td>
<td>35.0</td>
</tr>
<tr>
<td>9,000 - ₦11,000</td>
<td>27</td>
<td>45.0</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>2.25</td>
</tr>
<tr>
<td>The current price of palm oil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6,000 - ₦10,000</td>
<td>8</td>
<td>13.3</td>
</tr>
<tr>
<td>11,000 - ₦14,000</td>
<td>22</td>
<td>36.7</td>
</tr>
<tr>
<td>15,000 - ₦18,000</td>
<td>21</td>
<td>35.0</td>
</tr>
<tr>
<td>19,000 - ₦22,000</td>
<td>9</td>
<td>15.0</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>2.52</td>
</tr>
<tr>
<td>Gross Margin</td>
<td></td>
<td>0.27</td>
</tr>
<tr>
<td>Gross %</td>
<td></td>
<td>0.107</td>
</tr>
</tbody>
</table>

Source: Field survey 2018

**Common oil palm variety used in the study location**

Table 2 summarizes the different types of oil palm tree varieties that are in commonly used in the study location. The results revealed that greater overwhelming percentage (91.7 %) oil palm plantation owners. On the other hand, 53.3 % revealed that the plantation consisted of 101-150 oil palm stands, whereas majority. The study further revealed that 40.0% of respondents used the Tenera species with a mean score of 2.08. The results also showed that majority (43.3 %) used hired labour to carry out farm operational activities and while about 32% of respondents indicated that labour expenditure ranges between ₦6, 000 – ₦8, 000 with a mean of 2.23. However, the most commonly used variety is the Tenera species which is believed to yield more crude palm oil compared to other varieties.
Table 2 Common variety of oil palm used by farmers in the study area and costs of labour

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own an oil palm farm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>55</td>
<td>91.7</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>8.3</td>
</tr>
<tr>
<td>Stands of oil palm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 – 100</td>
<td>19</td>
<td>31.7</td>
</tr>
<tr>
<td>101 – 150</td>
<td>32</td>
<td>53.3</td>
</tr>
<tr>
<td>151-200</td>
<td>9</td>
<td>15.0</td>
</tr>
<tr>
<td>Mean</td>
<td>1.83</td>
<td></td>
</tr>
<tr>
<td>Variety use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dura</td>
<td>19</td>
<td>31.7</td>
</tr>
<tr>
<td>Pisifera</td>
<td>17</td>
<td>28.3</td>
</tr>
<tr>
<td>Tenera</td>
<td>24</td>
<td>40.0</td>
</tr>
<tr>
<td>Mean</td>
<td>2.08</td>
<td></td>
</tr>
<tr>
<td>A form of labour use in the farm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family labour</td>
<td>25</td>
<td>41.7</td>
</tr>
<tr>
<td>Hired labour</td>
<td>26</td>
<td>43.3</td>
</tr>
<tr>
<td>Commercial labour</td>
<td>9</td>
<td>15.0</td>
</tr>
<tr>
<td>Mean</td>
<td>2.23</td>
<td></td>
</tr>
<tr>
<td>Cost of labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,000 - 5,000</td>
<td>17</td>
<td>28.3</td>
</tr>
<tr>
<td>6,000 - 8,000</td>
<td>19</td>
<td>31.7</td>
</tr>
<tr>
<td>9,000 - 11,000</td>
<td>17</td>
<td>28.3</td>
</tr>
<tr>
<td>12,000 - 15,000</td>
<td>7</td>
<td>11.7</td>
</tr>
<tr>
<td>Mean</td>
<td>2.10</td>
<td></td>
</tr>
</tbody>
</table>

Source: Field Survey 2018

Constraints to oil palm enterprise

No doubt farmers face a lot of challenges in their farm enterprise. Table 3 shows the constraints to palm oil production enterprise in the study location. The result indicates that price (\( \bar{x} = 3.683 \)), method of processing (\( \bar{x} = 3.483 \)), transportation (\( \bar{x} = 3.400 \)) insufficient finance (\( \bar{x} = 3.333 \)), cost of labour (\( \bar{x} = 3.216 \)) and pest and diseases (\( \bar{x} = 3.166 \)) are above the cut-off mean (\( \bar{x} = 2.50 \)) and are therefore considered significant and constitute constraints to oil palm production in the study area. This implies that the respondents strongly agreed (SA) that these factors affect palm oil enterprise in the study area.

Table 3 Constraints to palm oil enterprise in Ado Local Government Area

<table>
<thead>
<tr>
<th>Item</th>
<th>X</th>
<th>SD</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of labour</td>
<td>3.216</td>
<td>1.059</td>
<td>5th</td>
</tr>
<tr>
<td>Lack of finance</td>
<td>3.333</td>
<td>.601</td>
<td>4th</td>
</tr>
<tr>
<td>Method of processing</td>
<td>3.483</td>
<td>.567</td>
<td>2nd</td>
</tr>
<tr>
<td>Transportation</td>
<td>3.400</td>
<td>.717</td>
<td>3rd</td>
</tr>
<tr>
<td>Pest and diseases</td>
<td>3.166</td>
<td>.784</td>
<td>6th</td>
</tr>
<tr>
<td>Price</td>
<td>3.683</td>
<td>.469</td>
<td>1st</td>
</tr>
<tr>
<td>Mean</td>
<td>3.380</td>
<td>0.699</td>
<td></td>
</tr>
</tbody>
</table>

Source: Field Survey 2018; X = Mean, SD = Standard Deviation

Conclusion and Policy Implications

Despite the potential for higher income opportunities in oil palm enterprise, the level of participation by smallholders is still relatively low. Low gross margin and gross percentage, as well as some strenuous requirements in oil palm production, could be responsible. This study recommends policy interventions that seek to create adequate incentives through education and enlightenment about the profit potentials of oil pal given its increasing local and global relevance. On the other hand, accelerating infrastructural investments in
value addition technology would be critical in enhancing palm oil shelf-life, quality, and prices. Credit provisions in the form of loans and technical facilities for improving productivity would be good incentives.

References


