Marketing of tropical vegetable in Aba area of Abia State, Nigeria

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This study was carried out with three purposes. The first purpose included a description of socio-economic features of vegetable marketers in the study area; the second described the marketing channel; and the third determined their marketing margin. Multi-stage sampling method was adopted for the study. In the first stage, three Local Government Areas (LGAs) were randomly selected from the five LGAs. In the second stage, two communities were selected from each of the LGAs. In the third stage, three markets were randomly selected from a list of major markets which are situated in the communities previously selected. In the fourth stage, twenty tropical vegetable marketers (made up of 40 Ugu marketers and 40 Okra marketers) were randomly selected from each of the markets. This gave a total sample size of 80 respondents for the study.

Most of the vegetable wholesalers and retailers interviewed were females indicating that these were doing active marketing of vegetables in Abia State. According to the first purpose of this study, which included a description of socio-economic features of vegetable marketers, eight marketing channels were identified, and the marketing margin analyses showed a higher percentage (93%) for the marketers.

Key words: Tropical vegetables, ugu, okra, marketing, market.

INTRODUCTION

Tropical Vegetables (TVs) play a pivotal role in the success within Nigeria, other sub-Saharan African countries, and the World Health Organization’s (WHO) global initiative. The joint FAO/WHO 2003 Consultation on Diet, Nutrition and the Prevention of Chronic Diseases recommended a minimum daily intake of 400 g of fruits and vegetables (WHO, 2003). Over a hundred species of plants are cultivated as vegetables in different parts of the tropics and about fifty are gathered in the wild and find their ways to markets and cooking pots (Agbugba and Nwagbo, 2006).

Tropical vegetables have been part of the food systems in Nigeria and other sub-Saharan African (SSA) countries for generations (Lyatuum et al., 2009). They are referred to as plants which are consumed in addition to starchy basic foods in order to make it more palatable. More so, the increased awareness of the health protecting properties of vegetables has directed immense attention for its consumption in daily diets (Smith and Eyzaguirre, 2006).

Tropical vegetables add to the bulk of the diet and help the body to achieve smooth digestion of food. In Nigeria, vegetables are not consumed in the right proportion and this is a pity, because they are cheap sources of important nutrients. Most farmers in Aba and its hinterlands grow, in addition to the major tuber crops and grains, vegetables such as Telfairia (ugu), Talinum (water leaf), Amaranthus (green), Vernonia (bitter leaf), Gnetum (ukazi) and Abelmoschus (okra) to mention a few. However, this study focused on some selected Tropical Indigenous Vegetables (TIVs), with special interest on

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leafy and fruit vegetable classes, which are *Telfairia occidentalis* (ugu or fluted pumpkin) and *Abelmoschus esculentus* (okra).

Tropical vegetables form an important part of our daily diet: the market is crammed with varieties of vegetable. They help in protecting our body against cancers, diabetes and heart diseases. Almost all the vegetables are low in fat and calories, none has cholesterol, and many of them are great sources of fiber. The high levels of fiber in vegetables keep the digestive system healthier; allowing you to avoid issues with constipation. The presence of many vitamins, minerals and other substances in vegetables provide nutrients to the body. Vegetables provide essential amino acids which the body needs to survive (Agbugba et al., 2011).

According to Okunlola (2009), vegetables are among the most important and widely cultivated food and income generating crop in many parts of Africa. They are cultivated extensively by both small scale farmers and large scale enterprises. They can give high yield per unit area of land and hence generate high income for the vegetable farmers. Worldwide production of vegetable such as *Okra* is estimated at six million tonnes per year. In West Africa, it is estimated at 500,000 to 600,000 tonnes per year (Burkill, 1997; Farinde et al., 2007).

In Nigeria, enormous quantities of vegetables are produced, and staggering figures are sometimes given as estimated annual production. For example, Idah et al. (2007) quoted figures like 3.8 million tonnes of onions and 6 million tonnes of tomatoes as annual production levels for some vegetables, which are really large quantities of food crops. The amount of vegetable produce available to the consumer by the marketer is more important, rather than the level of vegetable production, given the costs incurred in their marketing, items of transportation from producing areas and the quantities that perish during transportation (Erinle, 1989; Egbuna, 2009; Muhanj et al., 2011).

Tropical vegetables have long been regarded as minor crops and thus, have attracted little marketing attention, in favor of major crops and cash crops (Agbugba et al., 2011). Consequently, its marketing is complex and challenging because of their special characteristics which include: perishability, seasonality, high economic value and standardization requirement (Adebisi-Adelani et al., 2011).

The effect of poor infrastructure, technology and manpower development gives rise to a lot of distributional problem. Transportation to rural areas can pose a problem, especially where most production activities of vegetable takes place. Adugna (2009) noted that losses are recorded as high as 50% in vegetables between rural production and urban consumption as a result of poor infrastructure and other structural constraints characterizing the marketing system (Agbugba et al., 2011).

As it has been previously noted, tropical vegetable marketing is beset with a lot of challenges and constitute a bottleneck to the fresh flow of the vegetables in the market due to poor flow or movement of market information amongst vegetable marketers. It therefore hinders the traders from making better decisions. In other words, efficient market information will provide accurate market data when analyzed. It will also give positive benefits to farmers, marketing intermediaries and policy makers (Andrew, 1997).

**Purpose of the study**

The purpose of this study is to socio-economically analyse the marketing of tropical vegetables in Aba Area of Abia State, Nigeria. Specifically, the objectives are to:

(i) Describe the socio-economic features of vegetable marketers in Aba Area of Abia State, Nigeria.
(ii) Describe the channel of marketing of vegetable in the study area.
(iii) Determine the margins of vegetable marketers in the study area.

**METHODOLOGY**

For a good data collection and representation of the sample population, three LGAs namely Aba North, Aba South and Osisioma Ngwa were randomly selected. From each of these three LGAs, three village communities were randomly selected.

Due to the sustainability of tropical vegetable trade in the region, this study covered the entire five LGAs (Aba North, Aba South, Obiomi Ngwa, Osisioma Ngwa and Ugunna). The data was then analyzed and interpreted.

The data was collected through various means of data collection, which included structured questionnaires administered to the respondents and interviews. The questionnaires were used to get information from the respondents. The interview was used to get information from the farmers, marketers and traders in the area. The data was then analyzed and interpreted. The data was analyzed using the statistical package for social scientist (SPSS). The data was then analyzed using the statistical package for social scientist (SPSS).

**ANALYTICAL TECHNIQUES**

Descriptive statistics such as frequencies and percentages were used to analyze the socio-economic characteristics as well as describe the marketing
channels of the respondents.

Marketing margin analysis

Marketing margin was used to determine the efficiency of vegetable marketing enterprise in the study area. Marketing margin of vegetable is the difference between the price paid by the ultimate consumer and the price received by the vegetable farmer, or the difference between the producer price (farm gate price) and the retail price. It is expressed as follows:

For Wholesalers:
\[
\text{Wholesale selling price} - \text{Wholesale buying price} \times 100 \quad \text{Wholesale buying price}
\]

For Retailers:
\[
\text{Retail selling price} - \text{Retail buying price} \times 100 \quad \text{Retail buying price}
\]

RESULTS AND DISCUSSION

Socio-economic features of the respondents

The sex of vegetable marketers could determine to a great extent the business they would engage in. This is because there are some businesses that are gender specific. Table 1 shows that 10% of total vegetable marketers who were interviewed were males, while 87.9% were predominantly females and were involved in marketing of vegetable in the study area. From the result, the greater proportion of the marketers was females, of which 94.8% was for wholesalers and 5% was for retailers. Also, for the marketing of okra, females were the key players, 94.6% of which was for wholesalers and 100% was for retailers. This implies that in the marketing of dry season vegetables, any improvement in infrastructure and marketing operations, processing as well as production, females will benefit solely since the exceptional role they perform in making vegetable available to the final consumer are crucial and often times interwoven.

Majority of Ugu wholesalers (30%) and retailers (35%), as well as Okra wholesalers (50%) and retailers (50%) fell within the age bracket of 31-50 years. Schippers' (2000) study on tropical vegetable in a sub Saharan African country established that the ages of key market players in vegetable marketing fell between 25 and 45 years of age. The marketers of vegetable were in their active productive age group, which is a good indication for sustainable and active vegetable marketing in the study area.

Majority of the marketers of vegetable were married (50%), 30% were widowed and 20% were single. Table 1 shows that the greater percentages of marketers that are married were 75% for Ugu retailers, 75% for Okra retailers, 50% for Okra wholesalers and 50% for Ugu wholesalers.

Households comprised parents, children, grandchildren and other relatives as the case may be. Majority (95%) of vegetable marketers were between 4 and 6 people in their families, followed by 45% of the marketers with household sizes of between 7 and 9 people all in their respective families.

The household sizes were generally larger among the Okra wholesalers and retailers, where 65% and 95% have between 4 and 9 people in their families. Furthermore, Ugu retailers and wholesalers also had larger household sizes of 45% and 35% respectively. It can therefore be reported specifically that Okra retailers and Ugu wholesalers as well as Okra wholesalers had larger household sizes of 45% and 35% as well as 35% respectively between 7 and 9 people, while Okra wholesalers and Ugu retailers had larger household sizes of 35% and 45% in the category of 7 and 9 people as well as 4 and 6 people respectively. However, vegetable marketers with larger household sizes of 45% comprising 4 and 6 people imply that most of the marketers were of child-bearing age which is between 31 and 40 years old.

Table 1 shows that majority (46%) of the respondents had formal education till secondary school level, 34% had primary education, 11% had formal education till tertiary level, while 8.7% had no formal education. In the table, 67.5% of the respondents (Ugu wholesalers and retailers accounted for 45 and 75%, while Okra wholesalers and retailers accounted for 75 and 75% respectively) were primarily engaged in vegetable marketing, while 32.5% of the entire respondents were part-time marketers as 11% were engaged in teaching/civil service, 7% were involved in trading of other commodities, 3% were involved in farming activities as producers, while 3% were involved in artisanal works.

The rest indicated that 2% and 1% were involved in politics or contract jobs respectively. This implies that marketing of vegetables is a major occupation, and of course a lucrative one, hence, it draws many women into its marketing processes and operations.

Channel of distribution in vegetable marketing

Marketing channel is a set of individuals, participants, players or organisations which facilitate the transfer of title of vegetables (Ugu and Okra) as they pass from the producer or farmer to the final consumer. They are often employed for analysing the performance of a market.

The analysis of Ugu and Okra marketing channels was intended to provide a systematic knowledge of how each of the vegetable in question flows from its place of production to the final consumers.
**Table 1.** Distribution of socio-economic characteristics of tropical vegetables marketers.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th><em>Ugu</em> wholesalers (n = 20)</th>
<th><em>Ugu</em> retailers (n = 20)</th>
<th><em>Okra</em> wholesalers (n = 20)</th>
<th><em>Okra</em> retailers (n = 20)</th>
<th>Total (n = 80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>18 (87.9)</td>
<td>19 (94.8)</td>
<td>19 (94.6)</td>
<td>20 (100)</td>
<td>76 (95.0)</td>
</tr>
<tr>
<td>Male</td>
<td>2 (10)</td>
<td>1 (5)</td>
<td>1 (5)</td>
<td>-</td>
<td>4 (5)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 21 yrs</td>
<td>-</td>
<td>1 (5)</td>
<td>-</td>
<td>1 (5)</td>
<td>2 (2.5)</td>
</tr>
<tr>
<td>21-30</td>
<td>5 (25)</td>
<td>2 (10)</td>
<td>2 (10)</td>
<td>2 (10)</td>
<td>11 (13.75)</td>
</tr>
<tr>
<td>31-40</td>
<td>4 (20)</td>
<td>7 (35)</td>
<td>3 (15)</td>
<td>4 (20)</td>
<td>18 (22.5)</td>
</tr>
<tr>
<td>41-50</td>
<td>6 (30)</td>
<td>4 (20)</td>
<td>10 (50)</td>
<td>10 (50)</td>
<td>30 (37.5)</td>
</tr>
<tr>
<td>51-60</td>
<td>4 (20)</td>
<td>6 (30)</td>
<td>3 (15)</td>
<td>3 (15)</td>
<td>16 (20)</td>
</tr>
<tr>
<td>&gt;60yrs</td>
<td>1 (5)</td>
<td>-</td>
<td>2 (10)</td>
<td>-</td>
<td>3 (3.75)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>4 (20)</td>
<td>2 (10)</td>
<td>3 (15)</td>
<td>3 (15)</td>
<td>12 (15)</td>
</tr>
<tr>
<td>Married</td>
<td>10 (50)</td>
<td>15 (75)</td>
<td>10 (50)</td>
<td>15 (75)</td>
<td>50 (62.5)</td>
</tr>
<tr>
<td>Widow(ed)</td>
<td>6 (30)</td>
<td>3 (15)</td>
<td>7 (35)</td>
<td>2 (10)</td>
<td>18 (22.5)</td>
</tr>
<tr>
<td>Household size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-3</td>
<td>3 (13.8)</td>
<td>4 (20)</td>
<td>3 (15)</td>
<td>3 (15)</td>
<td>13 (16.25)</td>
</tr>
<tr>
<td>4-6</td>
<td>7 (35)</td>
<td>9 (45)</td>
<td>6 (30)</td>
<td>8 (40)</td>
<td>30 (37.5)</td>
</tr>
<tr>
<td>7-9</td>
<td>7 (35)</td>
<td>6 (30)</td>
<td>7 (35)</td>
<td>9 (45)</td>
<td>29 (36.25)</td>
</tr>
<tr>
<td>&gt;9</td>
<td>3 (15)</td>
<td>1 (5)</td>
<td>6 (30)</td>
<td>-</td>
<td>10 (12.5)</td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No formal education</td>
<td>-</td>
<td>1 (5)</td>
<td>3 (15)</td>
<td>3 (15)</td>
<td>7 (8.75)</td>
</tr>
<tr>
<td>Primary education</td>
<td>5 (25)</td>
<td>8 (40)</td>
<td>8 (40)</td>
<td>6 (30)</td>
<td>27 (33.75)</td>
</tr>
<tr>
<td>Secondary education</td>
<td>11 (55)</td>
<td>10 (50)</td>
<td>7 (35)</td>
<td>9 (45)</td>
<td>37 (46.25)</td>
</tr>
<tr>
<td>Tertiary education</td>
<td>4 (20)</td>
<td>1 (5)</td>
<td>2 (10)</td>
<td>2 (10)</td>
<td>9 (11.25)</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetable marketing</td>
<td>9 (45)</td>
<td>15 (75)</td>
<td>15 (75)</td>
<td>15 (75)</td>
<td>54 (67.5)</td>
</tr>
<tr>
<td>Farming</td>
<td>3 (15)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3 (3.75)</td>
</tr>
<tr>
<td>Trading</td>
<td>2 (10)</td>
<td>3 (15)</td>
<td>2 (10)</td>
<td>-</td>
<td>7 (8.75)</td>
</tr>
<tr>
<td>Teaching/civil servant</td>
<td>5 (35)</td>
<td>1 (5)</td>
<td>2 (10)</td>
<td>3 (15)</td>
<td>11 (13.75)</td>
</tr>
<tr>
<td>Contractor</td>
<td>1 (5)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 (1.25)</td>
</tr>
<tr>
<td>Artisanal</td>
<td>-</td>
<td>1 (5)</td>
<td>-</td>
<td>2 (10)</td>
<td>3 (3.75)</td>
</tr>
<tr>
<td>Politics</td>
<td>-</td>
<td>-</td>
<td>1 (5)</td>
<td>-</td>
<td>2 (2.5)</td>
</tr>
</tbody>
</table>

*Figures in parenthesis are percentages. Source: Field Survey (2011).*

**Ugu marketing channels**

Eight marketing channels were identified for *Ugu*. Some of the channels went out of the marketing region due to the farming environment of the producer which was outside the market environment in the study area. In the same vein, the marketing channels were rightfully identified though some channels were negligibly compared to others.

Channel comparison was made based on the volume of the vegetable product that passed through each channel. Each of the percentages show the amount of *Ugu* (in %) marketed as they flow through each of the channels from the producers to consumers (Figure 1).
For *Ugu*, the channel of Producers → Wholesalers → Retailers → Consumers measured 95% as the highest, followed by Producers → Rural Assemblers → Wholesalers → Retailers → Consumers, which measured 74% in that order.

**Okra marketing channels**

Eight marketing channels were also identified for *Okra*. Some of the channels went outside the marketing region due to the producers’ farming environment (in the northern region of the country). The marketing channels were rightfully identified, though some channels were negligibly compared to others.

Channel 1: Producers → Consumers = 25%
Channel 2: Producers → Retailers → Consumers = 55%
Channel 3: Producers → Wholesaler → Retailer → Consumers = 95%
Channel 4: Producers → Rural Assemblers → Wholesalers → Retailers → Consumers = 74%
Channel 5: Producers → Rural Assemblers → Retailers → Consumer = 65%
Channel 6: Producers → Wholesalers → Consumers = 60%
Channel 7: Producers → Rural Assemblers → Wholesalers → Consumer = 34%
Channel 8: Producers → Rural Assemblers → Consumers = 52%

**Marketing margins**

Marketing margin is the difference between producer and consumer prices of an equivalent quantity and quality of a commodity. However, it may also describe price differences between other points in the marketing chain, for example between producer and wholesaler, and wholesale and retail prices of vegetable product.
Table 2 shows that the percentage marketing margin for *Ugu* wholesalers was 38%, while that of *Ugu* retailers were 41%. The higher margins made by *Ugu* retailers may be attributed to the reason why they remain in the business. From the study, a good number of services rendered by retailers such as transportation of the product from local markets to where they are marketed (urban market) could also be attributed to their high margins compared to that of the retailers. Some retailers interviewed indicate that they buy directly from *Ugu* producers and end up wielding more profit than the wholesalers, who are majorly producers in the study area. Comparatively, this also implies that *Ugu* retailers have more influence in the market than the wholesalers in the marketing channel. In other words, this implies that 1% increase in the purchase of *Ugu* from wholesalers and retailers will lead to an increase in the selling price of *Ugu* both at their wholesale and retail ends by 38.2 and 40.7% respectively. As such, wide margins connote high prices to consumers and low prices to producers.

On the other hand, *Okra* wholesalers recorded 58% margin than the retailers who recorded 35% margin. This was contrary to the findings of Afolabi (2007) on marketing of a food commodity in Southwestern State of Nigeria, and showed that their retailers’ marketing margin was much higher than the wholesalers’ margin. However, this could be as a result of drudgery roles and services performed by the wholesalers in the marketing process. From the results computed, it suggests that vegetable marketing is a profitable business venture in the study area. It was also discovered that most of the commission agents in the marketing of *Okra* were also involved in the wholesale business; and hence, contributing to their high margins. The percentage margin of *Okra* marketers...
(93%) shows a higher percentage than that of Okra marketers (79%). This could imply that marketing of Okra is more profitable than marketing of Ugu. From the result computed, it implied that a 1% increment in the purchase price of Okra at the wholesale and retail levels will lead to an increase in the selling price of Okra by 57.9% and 35.2% respectively.

For Ugu wholesalers, sex, household size and primary occupation were positive factors that influenced the margins of Ugu wholesalers at 5% level of significance. For Ugu retailers, sex, age and number of years spent in formal education, all had a positive influence on Ugu retailers’ margin at 5% significance. Sex, age and number of years spent in education were positive variables to the margins of Ugu retailers. However, the other factors such as marital status, household size, primary occupation and number of years they spent in vegetable marketing were all negative factors, because they had no influence on their margins.

For Okra wholesalers, age of the marketers had a positive influence on the wholesalers’ margins at 5% significance. This implied that age is a factor to reckon with and that it affects the margins of the wholesalers. This hypothesis is therefore rejected for the age factor. Other factors such as sex, marital status, household size, years spent in formal education, their primary occupation as well as the number of years spent in vegetable marketing had a negative influence on their margins.

For Okra retailers, only the sex had a positive or significant influence on their margins. The implication is that sex is a positive factor to the retailers’ margins. Other factors had a negative influence on the margins of Okra retailers.

**Conclusion**

Tropical vegetable features prominently as a major food crop traded in Aba area of Abia State, Nigeria. The market players involved in its marketing include: producers, wholesalers, retailers, commission agents and final consumers. Vegetable marketing is a profitable business venture in the study area. It was also discovered that most of the commission agents in the marketing of Ugu and Okra were also involved in the wholesale business; and hence, contributing to their high margins.

**RECOMMENDATIONS**

Government’s indispensable role is that they should build and repair worn out roads, and also construct new ones, which will in turn bring about reduction in the cost of transportation and minimization of vegetable loss. Due to the huge supplies of tropical vegetable from the farm areas, government should also embark on construction and consolidation of linking roads between and within the study area. There is need as well as room for market intermediaries to improve their technical knowledge and skill in marketing of vegetables through training by Abia ADP, so that the marketing system will become more responsive to consumers’ demand. Hence, this becomes a reality when extension education programmes are introduced to encourage vegetable marketing and also bring about improvement in their living standards.

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