

Full Length Research Paper

Determinants of Profitability Among Honey Marketers in Ondo State, Nigeria

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The study assessed the determinants of profitability among honey marketers in Ondo State, Nigeria. A multi-stage sampling technique was used to select 162 honey marketers from nine Local Government Areas of Ondo State. Data collected were analysed using descriptive statistics and seemingly unrelated regression equation (SURE). The results revealed that 51.85% of honey marketers were male and 48.15% being female; an indication that honey marketing is a unisex business in the area. Only few of the respondents (24.69%) added value by customizing their product before selling. Majority (75.31%) of the respondents sell their honey by the road side, market places or hawking in bottles, used table water and mineral plastics. The results of the seemingly unrelated regression showed that educational level, cost of purchase, labour cost, volume purchased, marketing experience and selling price were the statistically significant factors that affect the profit, gross margin and revenue on honey marketing in the study area. The main challenges faced by the marketers were inadequate funds (65.3%) and price disparity due to inability of buyers to differentiate pure honey from adulterated honey (75.31%). Therefore, this study recommends that honey marketers should be educated on the need to add value to their honey in order to gain the confidence of the buyers in terms of the originality of the product and attract better prices for their honey. It was also recommended that relevant policies to address adulteration at different levels and access to credit should be put in place for the honey marketers.

Keywords: Honey marketing, Adulteration, Seemingly Unrelated Regression.

INTRODUCTION

Honey is the natural sweet substance, produced by honeybees from the nectar of plants or from secretions of living parts of plants, or excretions of plant-sucking insects on the living parts of plants, which the bees collect, transform by combining with specific substances of their own, deposit, dehydrate, store and leave in honeycombs to ripen and mature (Codex, 2012). Many species of bees collect nectar which they convert into honey and store as a food source. However,

only bees which live together in large colonies store appreciable quantities of honey. These are bees of the genus *Apis* and some of the *Meliponinae* (stingless bees). Bees prepare honey mainly from the nectar of flowers, but other plant saps and honeydew are also used. As each bee sucks the liquid up through its proboscis and into the honey sac, a small amount of enzymes are added and water is evaporated. The enzymes convert sugars in the nectar into different types

of sugars. Honeys always contain a wide range of sugars, varying according to the nectar source. After the liquid has been placed in the cell of honeycomb, bees continue to process it. The temperature of the hive is usually around 35°C and this temperature together with ventilation produced by fanning bees, causes further evaporation of water from the honey. When the water content is less than 20% the bees seal the cell with a wax capping and the honey is now considered 'ripe' and will not ferment (Onyekuru, 2004).

Honey is the most popular natural sweetener in the world and the global trade in bee products is worth millions of dollars every year. Due to its diverse use, the worldwide consumption of honey is so huge that supply can barely cope with demand. Africa consumes more than three times the amount of honey it produces. Apart from Ethiopia, Kenya and Tanzania which produce most of the continent's honey, other large markets (like Nigeria and South Africa) have a lot of unmet demand for bee-products (Onwubuya, Ajani, Ugbajah and Nenna, 2013). Bee products are used in various foods and also enjoyed extensive use in several industries including medicine, food processing, industrial manufacturing and natural healing.

Bees are naturally attracted to flowers because of a sweet substance (called 'nectar') that they like to feed on, and as a result, produce honey and several other products from nectar. In addition to honey, bees are extremely important in the pollination of plants. This simply means that without bees, most plants would hardly be able to produce any fruits. For thousands of years, honey, beeswax and other bee products were harvested from bees living in the wild using very crude and unsustainable techniques. However, beekeeping (or apiculture) has become a popular modern practice for commercial farmers and hobbyists who manage bee colonies in order to harvest their honey and other products.

In medicine, honey is used as a sweetening agent for children's drugs and the treatment of sore throat, cough, hay fever and burns. It is also used to produce cleansers, lotions and creams in the cosmetic industry and used as a nutritional supplement for children, athletes and people suffering from diabetes. Other applications of honey are in animal production where it is an ingredient in animal feed and used to increase milk production in dairy cows. Honey is also used in chemical industries where it is used to produce mice and rat repellent compounds.

The local market for honey is significant and demand in urban areas outstrips supply. Trade opportunities for other bee products are also growing. However, inefficiencies in the supply chain and the low capacity of producers to negotiate markets, limits capacity to exploit the country's full potential (Mbah, 2012). Cooperatives, individuals and self helps groups

are involved in marketing of the honey which is sold both locally and internationally. It is sold locally in the supermarkets and shops. It is also hawked along the main roadsides (in the areas where it is produced), in towns and villages. Majority of small scale beekeepers usually consider honey as a product for home consumption instead of a cash crop, thus missing out on the income benefits. Honey has a high cash value relative to its weight and bulk. When properly stored, it is essentially a non-perishable product (Tarekegn, Hajiz, Tegegne, 2017)

Objective of the study

The main objective of this study is to investigate the determinants of profitability among honey marketers in Ondo State, Nigeria. While the specific objectives are to:

- i. describe the socio-economic characteristics of honey marketers in the study area;
- ii. determine costs and returns associated with honey marketing in the area;
- iii. ascertain the factors responsible for the profitability of honey among the marketers in the area; and
- iv. identify the main constraints to honey marketing in the area.

RESEARCH METHODOLOGY

Area of Study

The study was carried out in Ondo State, Southwest, Nigeria. The State was created out of the defunct Western region on February 3, 1976. It lies between Latitude 7° 10' 00' E and Longitude 5° 05' 00' E. The land area is about 13,595 square kilometers with varying physical features like hills, lowland, rivers, creeks and lagoons. The people are predominantly smallholder farmers cultivating both cash and food crops as well as engaging in livestock such as poultry, piggery and beekeeping for family consumption and commercial purpose.

Data and Sampling Techniques

The data were mainly primary. Multistage sampling technique was employed to select respondents for the study. The first stage involved purposive selection of 9 Local Government Areas (LGAs) which were Akure South, Akure North, Ifedore, Ondo West, Ile-Oluji/Oke, Odigbo, Owo, Akoko North West and Akoko North East LGAs based on the prominence of honey marketers. The second stage involved purposive selection of 2

towns/villages in each of these 9 selected local government areas based on the involvement of marketers in the enterprise, making eighteen towns/villages in all. In the third stage, 9 respondents were randomly selected per town/village making a total of 162 respondents in all.

Methods of Data Analysis

Data collected were subjected to descriptive statistics, gross margin analysis and seemingly unrelated regression equation (SURE). Descriptive statistics such as frequency distribution, means, charts and percentages were used to analyse the socio-economic characteristics of the respondents. Gross margin analysis was used to evaluate costs and returns on honey marketing by the respondents. Seemingly unrelated regression equation (SURE) was also used to assess the factor affecting performance to honey marketing among the respondents.

The implicit equation will be given as:

$$Y^* = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12}, \epsilon_i).$$

Alternatively,

$$y^* = f(X_1, X_2, X_3, X_4, X_5, \dots, X_{12}, \epsilon_i)$$

Therefore, using matrix notation, the system of equations will be explicitly expressed as:

$$\begin{bmatrix} Y_r \\ Y_g \\ Y_p \\ Y_t \end{bmatrix} = \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_3 \\ \alpha_4 \end{bmatrix} + \begin{bmatrix} X_{11} \dots X_{15} \\ X_{21} \dots X_{25} \\ X_{31} \dots X_{35} \\ X_{41} \dots X_{45} \\ X_{51} \dots X_{55} \end{bmatrix} + \begin{bmatrix} \beta_1 \\ \beta_2 \\ \beta_3 \\ \beta_4 \end{bmatrix} + \begin{bmatrix} \epsilon_1 \\ \epsilon_2 \\ \epsilon_3 \\ \epsilon_4 \end{bmatrix}$$

The equations can be written individually as:

$$Y_r = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \dots + \beta_{10} X_{10}$$

$$Y_g = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \dots + \beta_{10} X_{10}$$

$$Y_p = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \dots + \beta_{10} X_{10}$$

$$Y_t = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \dots + \beta_{10} X_{10}$$

Where:

Y^* is the dependent variables and they are Y_r , Y_g , Y_p , and Y_t for return on investment (value), gross margin (₦), profit (₦) and total revenue (₦) respectively.

X_1 = Level of education either secondary or tertiary

X_2 = Honey marketing experience in years

X_3 = Cost of purchase of honey in naira

X_4 = Selling price of honey per litre in naira

X_5 = Cost of labour in naira

X_6 = Cost of transportation in naira

X_7 = Access to credit (Dummy, Yes = 1, No = 0)

X_8 = Quality of honey purchased (Good = 2, Fair = 1, Bad = 0)

X_9 = Availability of market (Readily available = 1, Not readily available = 0)

X_{10} = Volume of honey purchased in litre

RESULTS AND DISCUSSION

Socio – economic characteristics

The results of the descriptive statistics as revealed in Table 1 shows that both married male and female were actively involved in honey marketing in the area. It also indicates that majority (93.03%) of the respondents are less than 51 years old. This implies that the business is practiced by people who are still in their active productive age. The result further indicates that 86.42% of the respondents possessed a minimum of secondary education. This however, implies that majority of the respondents will be ready to adopt innovations on their business when introduced to them. Majority of the respondents (80.24%) had between 1 and 10 years' experience in honey marketing though only 21.60% had access to credit. This indicates that majority of the respondents would not have enough funds to enlarge their business despite of their educational background. Only 37.04% of the respondents belong to one organization or the other. This could be the reason why majority of the respondents do not have access to credit in order to finance their business. The result also indicates that 44.45% obtained their honey from either own/personal or other established apiary while 55.55% got their honey from either unknown sellers or wholesalers who purchased from apiarists. This could also be the reason for the presence of adulterated honey in the market since majority of the sellers could not ascertain the source of their honey for sale.

Majority (75.31%) of the respondents sold directly in bottles/plastics in markets and road sides without adding any value. This could be responsible for the pricing problem since buyers find it difficult to believe the authenticity of the source of the honey with such packages. The only few (24.69%) who added value by customizing their honey in bottles/plastics before selling in supermarkets, offices or pharmaceutical stores are the ones enjoying better prices for their honey.

Table 1: Distribution by the Socio-economic characteristics of the respondents

Variables	Frequency	Percentage (%)
Gender		
Male	84	51.85
Female	78	48.15
Age (years)		
≤ 30	92	56.79
31 – 40	40	24.69
41 – 50	20	12.35
> 50	10	6.17
Marital status		
Single	80	49.38
Married	82	50.62
Educational qualification		
Tertiary education	40	24.69
Secondary education	100	61.73
Primary education	22	13.58
Honey marketing experience		
1 – 5years	70	43.21
6 – 10years	60	37.04
11 – 15years	21	12.96
Above 15years	11	6.79
Credit access		
Accessed	35	21.60
Not accessed	127	78.40
Membership of organization		
Yes	60	37.04
No	102	62.96
Source of honey		
From own (personal) apiary	20	12.35
Other established apiary	52	32.10
Unknown seller	35	21.60
Wholesaler who purchase from apiarist	55	33.95
Mode of selling (Value addition)		
Raw in bottles/plastics	122	75.31
Customized in bottles/plastics	40	24.69
Selling point		
Road side	70	43.21
Shops/pharmaceutical stores	14	8.64
Office and general hawking	30	18.52
Market places	48	29.63

Source: Computed from Field Survey, 2017

Cost and Returns Associated with Honey Marketing

Table 2 examined costs and returns on honey marketing in the area. The results revealed that the average total variable costs was 229,000.00 and it mainly comprises the cost of purchasing honey (200,000.00), transportation (4,000.00), customization (20,000.00) and miscellaneous (5,000.00); while the depreciation cost on fixed items was 25,000.00. The costs of total variable cost and fixed cost make up the total cost of marketing with a value of 254,000.00 on the average. The total revenue was estimated by multiplying average quantity of honey sold (200) by the selling price of 1,500.00 and therefore, making a total of 300,000.00. The results of the analysis showed that honey marketing

is profitable given the value of gross margin and profit to be 71,000.00 and 46,000.00 respectively. The value ROI (1.20) further reiterate the profitability of the enterprise and this implies that on every one naira expended on the market, one naira and twenty kobo is realized or twenty kobo is gained.

Gross Margin (GM) = Total Revenue (TR) – Total Variable Cost (TVC)

$$= 300,000.00 - 229,000.00 = \mathbf{N71,000.00}$$

Profit (π) = Total Revenue (TR) – Total Cost (TC)

$$= 300,000.00 - 254,000.00 = \mathbf{N46,000.00}$$

Return on Investment (ROI) = TR / TC

$$= 300,000 / 254,000$$

$$= \mathbf{1.20}$$

Table 2: Costs and Returns on Honey Marketing

Item	Mean Value (₦)
Variable costs (VC)	
Cost of Purchasing Honey	200,000.00
Transportation Cost	4000.00
Cost of Customization	20,000.00
Miscellaneous	5000.00
Total Variable Costs	229,000.00
Depreciation cost on Fixed Cost (FC)	25,000.00
Total Production Cost	254,000.00
Revenue	
Average Selling Price of 1litre of Honey	1500
Average Quantity of Honey Sold in Litres	200
Total Revenue (price x quantity)	300,000.00

Source: Computed from Field Survey, 2017

Seemingly Unrelated Regression Equation (SURE)

The results of the SURE in the Table 3 showed various factors affecting performance of honeybee marketing in the study area. It was revealed that a unit increase in the level of education significantly increase GM and profit by

20.21 and 422.11 units respectively. As the year of honey marketing experience increases, the values of ROI, GM, Profit and TR increase by 0.90, 85.01, 94.56 and 2391.20 units respectively

Table 3: Results of the Determinants of Marketing Performance using SURE

Explanatory variables	ROI	GM	PROFIT	TR
	Coefficient (P-value)	Coefficient (P-value)	Coefficient (P-value)	Coefficient (P-value)
Level of education	4.120 (0.112)	20.212** (0.010)	422.11** (0.039)	214.56 (0.122)
Honey marketing experience	0.902*** (0.001)	85.011** (0.010)	94.561** (0.021)	2391.20** (0.011)
Cost of purchase of honey	-0.113 (0.103)	-0.052** (0.027)	0.008 (0.103)	-2981.19 (0.203)
Selling price of honey	56.06*** (0.009)	0.721* (0.069)	349.03** (0.035)	899.081** (0.043)
Cost of labour	-7381.21** (0.032)	-987.31** (0.039)	-732.78*** (0.002)	-7122.113 (0.102)
Cost of transportation	-678.55*** (0.004)	-9765.12 (0.106)	-657.59 (0.305)	-540.62 (0.102)
Access to credit	0.102* (0.097)	0.443 (0.108)	0.202** (0.042)	520.23 (0.108)
Quality of honey purchased	2.050 (0.542)	1.190 (0.432)	11.20** (0.032)	145.82** (0.041)
Availability of market	0.177 (0.250)	0.929 (0.876)	0.894 (0.205)	762.13 (0.109)
Volume of honey purchased	1.210** (0.048)	0.339 (0.321)	43.42*** (0.006)	520.54** (0.021)
Constant	3.234 (0.012)	543.785 (0.112)	-238.99 (0.170)	876.34 (0.001)

Source: Computed from Field Survey, 2017

The cost of purchase of honey's coefficient decreases GM by 0.052 units. A unit increase in selling price of honey will increase the values of ROI, GM, Profit and TR by 56.06, 0.72, 349.03 and 899.08 units respectively. The coefficient of the cost of labour was negative with the performance of honey bee marketing business. This implies that a unit increase in the cost of labour decreases ROI, GM and Profit by 7381.21, 987.31 and 732.78 units. The coefficient of cost of transportation was statistically significant but negatively influences ROI by 678.55 units. Access to credit

statistically and positively affects ROI and profit by 0.102 and 0.202 unit respectively. In the same vein, it was determined that good quality of honey purchased positive and significant relationship with profit and total revenue by 11.20 and 145.82 units respectively. The volume of honey purchased by the marketers also had positive and significant association with ROI, profit and TR. This implies that a unit increase in the volume of quantity of honey purchased by the marketers will increase the gain from the business by 42 kobo, accrue profit and TR of ₦43.42 and ₦520.54 respectively.

Constraint to Honey Marketing in the Area

In table 4, the most critical constraint as attested by 87.65% of the respondents is buyers' confidence on the reliability or authenticity of the product. This indicated that majority of the buyers do doubt the originality of the product particularly when there is no value added to it. The problem of access to credit is considered a second major constraint as submitted by 78.40% of the

respondent. This problem they argued has limited the size of their business and consequently the profit. High transportation cost has been ranked as the third most critical problem while availability of source of good honey and price disparity were considered as the fourth ranked problem.

Table 4: Distribution of Respondents by Major Constraints Facing the Respondents

Major Constraints	Frequency	Percentage	Rank
No access to credit	127	78.40	2 nd
High transportation cost	112	69.14	3 rd
Buyers confidence on reliability of the product	142	87.65	1 st
Availability of source of good honey	102	62.96	4 th
Price disparity	102	62.96	4 th

Source: computed from field survey, 2017.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Honey marketing is practiced at small scale level in the area. It is a profitable venture with a gross margin of ₦71,000 and profit per trading cycle of ₦46,000.00. The value of return on investment (ROI) of 1.20 further confirmed the profitability of honey marketing in the area. The result of the SURE indicate the level of significance of level of education, marketing experience, cost of purchase, selling price, cost labour, cost of transportation, access to credit, quality and volume of honey purchased as factors affecting honey marketing in the study area. It however indicates that market availability is never a major factor influencing the business.

It could also be deduced from the study that buyers' confidence on reliability of the product (honey) is the greatest constraint facing honey marketers in the

area followed by access to credit and high transportation cost.

Recommendation

It is recommended from the study that honey marketers should be enlighten regularly on new innovations and approach to marketing since education has a positive correlation with their business performance. Honey marketers should form cooperative bodies that could assist in raising small loans to assist their members. Such cooperative could also assist in accessing loans from financial institutions to members. Government at all levels should make policies that will encourage good quality honey and consequently discourage adulterated honey which hitherto buyers find difficult to differentiate easily.

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