Economic Status of Mango Marketing in Ogbomoso Agricultural Zone Area of Oyo State, Nigeria

Ojedokun, I.K.* and Oladejo, J.A

Department of Agricultural Economics, Ladoke Akintola University of Technology, Ogbomoso, Nigeria.
**Corresponding Author*

Abstract:- **This study analyzes mango marketing in Ogbomoso Agricultural Zone area Oyo State, Nigeria. It specifically describe the socio-demographic properties of the respondents, examine the factors affecting mango marketing and its profitability in the study area. Multistage random sampling technique was used to select 250 mango marketers. The primary data used were collected with the use of well structured questionnaire and descriptive statistical tools, budgetary and regression analyses were carried out. The result of the analysis showed that majority of the respondents (100.0%) were female, 37.6% of the respondents were between the age ranges of 41-50 years with the mean age of 46 years, while 87.2% of the respondents were married. It also revealed that 56.4% of the respondents had secondary education, 49.2% of the respondents had between less or equal to 10 years of mango marketing experience. Also, majority of the respondents (70.8% and 75.6%) do not have access to credit and the extension service respectively during the last production year.**

The benefit cost ratio BCR was 1.74 which implies that for every ₦1 invested in mango marketing ₦0.74k is gained. Inadequate access to credit, seasonality in production, perishability, theft, long distance to the market and high cost of transportation (78.4%, 100%, 71.4%, 95.6%, 89.6% and 74.8%) were the problems encountered by the respondents respectively. The result of the regression analysis showed that, transportation cost, age of the marketers and credit access were negatively significant at 1% level. While, years spent in school and household size were positively significant at 1% level but, total cost of mango was negatively significant at 1% significance level. Therefore, the study thus recommend that better education, should be implemented so that farmers can be better trained in agricultural knowledge as well as technology application through extension visits. Providing all mango marketers with equal opportunity to access credit is essential because it can stimulate marketing output and or revenue generated among the marketers thereby encourage participation in the business and reduce level of unemployment in the area.

Keywords: **Mango, Economics analysis, Marketing.**

I. INTRODUCTION

In sub-Sahara Africa (SSA) growing both domesticated and wild fruit species on farms diversifies the crop production option of small scale farmers and can bring significant health, ecological and economic revenue. There is high potential of many wild fruit species from different Africa regions for undergoing domestication followed by successful on-farm production Akinnifesi, (2008). These wild fruits grow substantially due to economics and human population growth and increasing urbanization rates in the region.

In Nigeria, despite structural shift towards industrialization, agriculture still contributes 21.8 percent to the Gross Domestic Product (GDP). It is a source of livelihood of about 45 percent of total employed labor forces and contributes significantly in the export earnings. The potential of mango export has however not been fully achieved. Tropical and sub-tropical fruits can make a significant divert contribution to the subsistence of small scale farmers by providing locally generate nitrous food that is often available when other agricultural crops have not yet been harvested, **(**Vayssières *et al.,* 2012). A good instance to this is the prevalence of mango in the study area.

Mango (*Manigfera indical*) is one of the two most delicious and admired tropical fruits in the world. Mango is a king of fruits native to South Asia and Southeast Asia. It is highly nutritious and healthy fruit containing rich quantities of pre biotic fiber, vitamin A and C along with small quantity of vitamin B, protein and minerals. It thrives in sandy loam soil with hot and dry weather in well drained land but water-logging or frost are harmful for the mango tree and fruit. In the world, there are hundreds of varieties of mangoes with different colours, size, shapes and weight. In general it has an inedible skin covering juicy pulp underneath with which stone or seed is attached through fiber. The area under mango production has increased but the rise in production is comparatively slow. Besides, fruit crops are friendly to nature, sustain the environment, provide shade, and can easily be incorporated in any agro-forestry programs (Ministry of Agriculture and Rural Development MOARD, 2009). Mango trees are amongst the most cold sensitive fruit plants and grow best in subtropical and tropical climate. Marketing fresh and processed fruit products generates income which can acts as an economic buffer and seasonal safety net for poor farm households. Diversification into fruit production can generate employment and enable small scale farmer to embark on a range of production, processing and marketing activities to complement existing income generating activities Clarke *et al.,* (2011).

Mangoes contributed about 12-16% of all the area allocated for fruit production and took up 17.78% of fruit production in comparison to other fruits growing in the country and the annual consumption of mango by the

processing plant at full production capacity is 8.6 tones which is only 1.8% of the current production of mango (Elias, 2007). However, less than 2% of the produce is exported (Joosten, 2007). But according to (Community supported agriculture CSA, 2013) cropping season mangoes contributed about 14.21% of the area of land allocated for fruit production and holds 14.55% of fruit produced in the country.

Nigeria has comparative advantage in the production of mango and enormous potential exist for its export in the vast Middle East market. Marketing plays an important role not only in stimulating production but also in accelerating the pace of economic development. Efficient marketing system usually ensures higher level of producer's share, reducing the number of middlemen and restricting the marketing of farm produces. So far, very few mango researches have been done especially on marketing aspects of mango in this country. In recent research, it is indicated that fruit such as mango production have greater profit when well marketed and provides more income to the farmers. Food supply in Nigeria has not been able to keep pace with population growth. Shortages of horticultural produce especially fruits are often very acute because of harvesting and storage as well as increasingly high demand for fruits arising from rapidly improving standard of living (Ndubizu, 2008). Therefore the study examine the factors affecting mango marketing in Ogbomoso agricultural zone of Oyo state.

II. METHODOLOGY

The study was carried out in Ogbomoso Agricultural Zone of ADP in Oyo State. Ogbomoso zone consist five 5 Local Government Areas; Orire, Ogo-Oluwa, Surulere, Ogbomoso North and Ogbomoso South. Ogbomoso was located approximately on Longitude $4^0 15^1$ east of Greenwich meridian and on latitude $8^0 7$' north of the equator. The town was situated 104 kilometers north of Ibadan, Oyo State capital. It is 51 kilometers South-West of Ilorin Kwara State capital, 53 kilometers North-West of Oyo town and 98 Kilometers North-East Osogbo capital of Osun State. The dry season lasts from November to March while the wet season starts from April and ends in October. Average daily temperature ranges between 25^0c (77.0^0F) and 35^0c (95.0^0F), almost throughout the year.

Population of the study comprises of selected samples of the total population of the entire mango marketers households in Ogbomoso agricultural zone. A multistage random sampling technique was used in selecting the respondents for the study. In the first stage, 60 percent of the total number of villages in Ogbomoso North (3 villages because it is metropolitan) and Surulere Local Government Areas (10 villages) were randomly selected while, 10 percent of the villages in Ogo-Oluwa LGA (9 villages) were selected making a total of 22 villages. The third stage involved random selection of 20 percent of the number of households in Ogbomoso South Local Government Areas, as well as 10 percent of the number of households in Surulere and Ogo-Oluwa Local Government Area. Thus, make a total of 250 households as respondents for the study. The data for the study were collected with the aid of structured questionnaire. The data collected include socio-economic characteristics of the respondents, problems faced in marketing mango, risks encountered in product handling and products marketing channels. Descriptive statistics was used to analyze socio-economic characteristics, marketing channels, problems and risks encountered in mango marketing by the respondents while, budgetary analysis was used to analyze profitability, Benefit-Cost Ratio (BCR), Net-returns and Rate of returns of mango marketing in the study area.

BCR considers the benefits and costs of an investment to determine its worth and it is given mathematically as:

$$\text{BC R} = \frac{\text{TR}}{\text{TC}}$$

Where BCR = Benefit-Cost Ratio, TR = Total revenue accrued, TC = Total cost incurred.

The decision rule for BCR is that if it is equal to one, the business is worthwhile and profitable.

Net-returns = TR – TC.

Net return must be reasonable enough for any business to be worthwhile.

$$\text{Rate of return} = \frac{\text{Net return}}{\text{Total cost}} \times 100.00$$

Linear regressions was used to examine the relationship between the socio-economic characteristics of the respondents and their net returns. The general functional form that was used is as follows;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \text{----------} + \beta_i X_i + U_i$$

Where β_0 = Constant

Y = Dependent Variable (Revenue from mango sales)

X_1, X_2, X_3……..X_n = Independent Variable

Where X_1 = Transportation Cost (₦)
X_2 = Farm group (Yes-1, 0-Otherwise)

X_3 = Farm group (Yes-1, O-Otherwise)

X_4 = Years spent in School (Years)

X_5 = Years of marketing experience (Years)

X_6 = Age (Years)

X_7 = Household Size (Number)

X_8 = Sources of labour (Hired-1; 0-Otherwise)

X_9 = Cost of Mango (₦)

U_i = Error term.

III. RESULTS AND DISCUSSION

Socio-economic Characteristics of Respondents

The result of the analysis in table 1 revealed that majority of the respondents (100.0%) were female which indicated that male respondents do not participate in mango marketing in the study area. The age range of the respondents were 8.4%, 24.8%, 37.6% and 29.2% for the age ranges of less or equal to 30 years, 31-40 years, 41-50 years and greater than 50 years respectively. The mean age was 46 years. On their marital status, 8.0%, 87.2%, 2.05 and 2.8% of the respondents were single, married, divorced and widowed respectively While 40.%, 56.4%, 30.4% and 8.8% of the respondents had primary education, secondary education, tertiary education and adult education respectively. The year of mango marketing experience revealed that 49.2%, 34.8% and 16.0% of the respondents had between less or equal to 10 years, 11-20 years and greater than 20 years of respectively. Also, 15.6%, 50.8% and 90.4% of the respondents make used of family labour, hired labour and both (family and hired labour) for their mango marketing during the last production year respectively. In addition, 29.2% and 24.4% of the respondents had access to credit and extension service respectively, 70.8% and 75.6% of the respondents do not have access to credit and the extension service respectively during the last production year, 75.6% and 24.4% of the respondents make between 1-2 and 3 and above trips make per Month.

Furthermore, result in table 2 revealed that benefit cost ratio BCR was ₦1.74 which implies that for every ₦1 invested in mango marketing ₦0.74k is gained which make it to be acceptable and profitable. Finally, 78.4%, 100%, 71.4%, 95.6%, 89.6% and 74.8% of the respondents indicated that they encounter problem of lack/inadequate access to credit, seasonality in production, perishability, theft, long distance to the market and high cost of transportation respectively.

Table 1: Socio-Economic Characteristics of the Respondents

Socio-economic characteristics	Frequency	Percentages
Sex		
Male	0	0
Female	250	100.0
Age		
≤30	21	8.4
31-40	62	24.8
41-50	94	37.6
>50	73	29.2
Marital Status		
Single	20	8.0
Married	218	87.2
Divorced	5	2.0
Widowed	7	2.8
Educational Level		
Primary education	11	4.4
Secondary education	141	56.4
Tertiary education	76	30.4
Adult education	22	8.8
Marketing Experience		
≤10	123	49.2
11-20	87	34.8
>20	40	16.0
Household Size		
≤4	41	16.4
5-8	83	33.2
>8	126	50.4
Sources of Labour		
Family	39	15.6
Hired	127	50.8
Both (Family and Hired)	226	90.4
***Multiple Responses**		
Access to Credit		
Yes	73	29.2
No	177	70.8

Extension Visit		
Yes	61	24.4
No	189	75.6
Numbers of trip make per Month		
1-2	189	75.6
3 and above	61	24.4

Source: Field Survey, 2018.

Table 2: Cost And Return And Challenges Facing Mango Marketers

Variable		
Cost and Returns		
Gross Margin (₦)	98,453	
Profit (₦)	81,890	
BCR	1.74	
Rate of Return	0.68	
Operating Expenses Ratio	0.53	
Net Income Ratio	0.87	
Problems	**Frequency**	**Percentage**
Inadequate/Lack of credit	196	78.4
Seasonality in production	250	100
Perishability	250	100
Theft	178	71.2
Bad Road	239	95.6
Long distance to market	224	89.6
High cost of transportation	187	74.8
Poor market	132	52.8

Source: Field Survey, 2018

Multiple Regression Result

The result of multiple regression analysis showed that the adjusted R^2 value was 0.785. This revealed that 78.5 percent of the variations in the output of mango marketers in the study area were captured by all the independent variables specified in the model, while the rest 25.58 percent of the unexplained variation in the output of mango marketers may be due to certain variables of interest not specified in the model but resident in the error term. Transportation cost was negatively significant at 1% implies that, as transportation cost increases by 1 unit or naira, there was a decrease in the revenue or output of the mango marketers. Thus saying the transportation cost had an inverse relationship with output level.

Credit access was negatively significant at 1% level, which implies that as one unit chances to access credit decreases, there is a correspondent increase in the revenue of the mango markets. This is because provision of credit allows for expansion of business thereby increasing revenue. The negativity in the result of the regression analysis may be due to fact that relatively low marketers had access to credit in the study area. The result further revealed that years spent in school was positively significant at 1% level. The implication of this is that, as the years spent in school increases by 1 year, there was an increase in the output of the marketers. A prior expectation is upheld as, increase in years spent in school should increase knowledge and thereby increase revenue. The age of the marketers had a negative impact (i.e negatively significant) on the revenue generated by the mango marketers thus, as age increases by 1 year, the revenue generated by marketer is reduced. This may be as a result of quick tiredness and fatigue and not able to sell at the same pace as the younger marketers, because mango marketing requires a lot of traveling both in harvesting and marketing.

Further more, household size was positively significant at 1% level, which implies that as the household size increases by a member there was an increase in labour force to assist in marketing of the mango thereby resulting in increase in revenue or output. Though, total cost of mango was negatively significant at 1% significance level. It implies that an additional unit increase in the total cost of mango will result in a decrease in the revenue generated by the marketers as the law of diminishing returns begins to set in.

Table 3: Regression Analysis

Variable	Co-efficient	t-value	p>t
Transport cost	-2.57849	-4.93	0.000*
Farm group	48068.82	1.12	0.267
Credit access	-1.90861	-4.21	0.000*
Year in spent in school	0.78799	11.57	0.000*
Years of marketing exp.	6892.491	0.95	0.346
Age	-2.33339	-3.81	0.000*
Household size	0.77955	2.62	0.000*
Cost of Labour	-9268.359	-0.36	0.721
Cost of Mango	-4.8527	-5.15	0.000*
Constant	-127573.8	-0.54	0.590

Source: Field Survey, 2018. Adjusted R^2 = 0.785 *Significant at 1% level

IV. CONCLUSION AND RECOMMENDATION

This study examined the economics of mango marketing in Ogbomoso agricultural zone of Oyo state. The results of the analysis showed that transportation cost, credit access, years spent in school, age, household size, and total cost of input have significant impact on mango marketing revenue or output. Road infrastructure should be developed particularly in rural areas (where most of farming and marketing activities take place) to provide easy accessibility to market for mango farmers to readily dispose their farm products. This will not only increase the income of marketers but will raise their economic wellbeing. Providing all mango marketers with equal opportunity to access credit is essential because it can stimulate marketing output or revenue generated. Governments and NGO's should provide basics social amenities like good roads, storage facilities etc in order to reduce the cost of transportation thereby leads to increase in mango marketers income. The study conclude that mango marketing in Ogbomoso agricultural zone of Oyo State is worthwhile a profitable business.

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