



Marketing analysis of snails in selected snail markets in Ibadan, Nigeria

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Abstract

The study was carried out to investigate marketing of snails in selected snail markets in Ibadan, Nigeria. Information was collected with the use of structured questionnaires and oral interview. Descriptive statistics such as frequency and percentage and regression were applied to analyze the socio-economic variables. For the regression analysis, linear function had F-ratio that was significant and highest co-efficient of multiple determination (R^2) values of 0.971. The study revealed that more females (92.5%) than males (7.5%) were involved in snail marketing in the study area. Majority of the respondents (80.0%) were married while 46.2% were within age bracket of 50-59 years. The result further revealed that 82.5% sourced for capita through personal savings. Per annum profit of ₦ 340,200.00/marketer indicates the profitability of sales. Marketing constraints facing the snail marketers in the study area are price fluctuation, inadequate credit facilities, irregular supply and snail mortality. Enhancement of snail marketing can be through cooperative group formation to access credit facilities and good road network provision by government to convey product to market.

Key words: Economic Analysis, Snail, Marketing, Profitability

Introduction

Snails are invertebrates and hermaphrodites which belong to the Phylum Mollusca. Snails are the largest group of Molluscs constituting the largest animal group after arthropods (Yoloye, 1984). Numerous kinds of snail can be found in fresh-water, most snails have thousands of microscopic tooth-like structures which is located on a ribbon like tongue called a radula (Copper, 1992). Several species of the genus *Achachatina* are also related and known as giant African land snails with the ability to grow to 15 inches (38cm) from head to tail and weigh 1kg (Copper, 1992).

Many species of edible land snails exist but the popular species of economical importance are the West African giant snails *Archachatina marginata*, *Achatina fulica*

and *Achatina achatina*. Snail meat popularly known as 'congo meat' is consumed in Nigeria and many countries in the world. They are used as food and source of income in Nigeria. Edible land snails are abundant during the wet season in forest, when they are easily gathered at night and before dawn. These snails are now being domesticated (Ebenso and Okafor, 2002) and production is on commercial scale in Nigeria.

Snail is one of such micro-livestock that has recently attracted attention among farmers in Nigeria (Adesope, 2002). According to Aboua (1995), *Archachatina marginata* meat contains 1.4% calcium while the shell contains 0.5-3% calcium and is a good source of magnesium and potassium.

Heliciculture, the rearing of snail is a branch of agriculture known since Roman

times. In the ancient world snails were called cochlea, like the latin word for a kind of spoon, which is what their shells were used for. According to Murphy (2001), snails have been and are still a much sought after food and come to the table as a gastronomous delight.

Snail marketing is gradually becoming popular, especially since the advent of snail domestication in this part of the world. Several intervention efforts have been made to development, the snails sub-sector of the Nigerian economy, yet the sector is still lagging behind compared to other marketing. Marketing analysis of snail is the missing variable in the intervention programme. According to Achoja (2005), marketing stimulates production and consumption in an economic system. Factors that corroborate the performance of snail marketers have not been critically investigated such factors could serve useful purpose in packaging a development program through which snail are marketed.

Snail meat is in high demand both locally and intentionally (Ademosun, 1993) While its marketing could serve as a source of income to the marketers. Information on the returns to management in the marketing of snail could serve as business incentive to potential snail marketers in the study area. Economics of snail marketing could be combined with some variables. These variables could have separate assumptions with respect to benefit level in snail marketing.

Hence, there is the need to inquire factors that significantly influence return to management and profitability in snail marketing in the study area.

Objectives of the study are to:
determine the socio-economic characteristics of snail marketers in the study area;
evaluate the gross margin of snail marketing in the study area;
estimate the factors determining the selling price of snail;

identify the challenges militating against snail marketing in the study area.

Research Methodology

The study was carried out in Ibadan metropolis. Ibadan is the capital of Oyo State, the largest city in Nigeria and sub-Sahara in Africa. It has a population 2,550,593 (Nigeria population census, 2006). The city is located on the Southern Western part of Nigeria, Lying between latitude 7⁰N and 9⁰N of the equator and longitude 3⁰E and 5⁰W Greenwich meridian. It has an average rainfall of between 1250mm and 1800mm. The temperature range is between 27⁰C and 32⁰C with relative humidity of 75%-90% (NPC, 2006).

The indigenous language is Yoruba and major commercial activities are concentrated in the urban centre of the state. There are little farming activities in the city: hence most of the food consumed in the city, are produce outside the city especially in the surrounding villages (NPC, 2006).

Data Collection

The data were collected through the use of structured questionnaire and oral interview. Four snail markets, Oje, Apata, Eleyele and Bode markets were purposively selected after reconnaissance survey. Purposive sampling technique was adopted for each market; 12 respondents from Bode market, 25 from Apata market, 35 from Oje market and 8 from Eleyele market based on the number of snail marketers in the respective selected markets. Total of 80 respondents were sampled.

Analysis Techniques

Descriptive statistics was employed to analysed the socio-economic characteristics of the respondents. This technique has equally been used by a number of researchers and academics among whom are Igben (1997),

Orebiyi (2000), Usman (2003), Okerenta (2006) and Orebiyi *et al* (2012)

Gross Marginal Techniques

The following models as used by Okumadewa *et al.* (2000) and Usman (2003) were adopted for the analysis.

Gross Marginal=Total Revenue - Cost Price

Profit Margin=Gross Margin - Total Marketing Cost

Marketing Efficiency=Total Revenue/Total Marketing Cost

Total Marketing Cost=Producer Price + Cost of Marketing Functions

Econometric Technique

The determinants of total selling price were analyzed by using the multiple regression model. In this study the Original Least Square method was adopted because it is widely believed that OLS does well when prediction rather than estimation of precise structural parameters is required.

Specifically, the regression model adapted was, according to Orebiyi (2000), Igben (1997), and Usman (2012 who used multiple regression as their technique of estimation. Regression analysis was applied with the following implicit relationship.

$$Y=F(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, \mu_i)$$

Where,

Y =Selling Price

X₁ = Cost price

X₂ =Transportation cost

X₃ =Rent

X₄ = Cost of small bag

X₅ =Cost of basket

X₆ = Cost of big bag

X₇ = Cost of bowl

X₈ = Other cost

μ= Random error term

Linear, semi log, exponential, double log are different functional form used and were fitted to the data.

$$Y =\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mu \text{ (Linear).}$$

This model was presented explicitly in four functional forms-linear, semi-log, double log and exponential functions. The linear form of regression model was chosen as the lead equation. This is based on the number of significant F-statistics, the magnitude of the coefficient of multiple determination (R²), statistical significance of coefficient and a-priori theoretical consideration.

In determining the constraint facing the marketing of snails, five point Likert scale was used.

The response to an item for each variable was multiplied by the weight attached to obtain response scores. The mean response values are as follows:

Strongly agreed= 5, Agreed= 4, Undecided= 3, Disagree= 2, strongly disagree= 1

$$\bar{X} = \sum xf/n$$

Where X=mean

∑= Sum of mean

X= Normal value of response

F= frequency of response under each mode

n= number of respondent to an item

The cut-off point of a normal value assigned to the option using the following:

$$X = \sum xf/5$$

$$= 1+2+3+4+5/5$$

$$15/5 = 3.0$$

To make inferential statement, the mean score was compared with critical mean 3.00 if the calculated mean is greater than the critical standard value, the hypothesis is rejected; otherwise it is accepted (Mitchell and Agenmonmen, 1994).

Results and Discussion

Socio-Economic Characteristics of Snails

Marketers

In Table 1 below the result showed that out of the 80 respondent sampled, 92.5% were females, while 7.5% were males. This showed

that the female engaged in business of snails marketing more than male in study location. The majority of respondents sampled in the study area were married with (80.0%). From the result obtained in this study, it could be deduced that married people were more in snail marketing business compared to single, widowed and divorced. This is in agreement with earlier work by Raufu *et. al* (2012) on economic analysis of rural women income from non-timber forest products in Ife South Local Government Area of Osun State, Nigeria which found out that majority of the women are married (70%), this is to serve as financial support to their husbands and children. As

observed from the result, a total percentage of 46 respondents (57.5%) while 8 (10.0%) of respondents have no formal education.

Majority (46.2%) were within age bracket of 50-59 years. This is in line with Ehui *et al*, (2009) that age of household head is an indicator of experience in farming. It is expected that higher age, and therefore, more experience in farming will improve orientation to market participation.

Furthermore, the year of experience of the respondents on snail marketing business showed that 56 respondents have above 15years experience in the business (70.0%).

Table1: Socio-Economic Characteristics of Respondents (n=80)

Variables	Frequency	Percentage
GENDER		
Male	6	7.5
Female	74	92.5
MARITAL STATUS		
Married	64	80.0
Single	6	7.5
Divorced	2	2.5
Widowed	8	10.0
EDUCATION		
Primary	46	57.5
Secondary	23	28.8
NCE/ND/HND	3	37.0
No formal education	8	10.0
AGE		
20-29yrs	11	13.8
30-39yrs	2	2.5
40-49yrs	26	32.5
50-59	37	46.2
60 and above	4	5.0
EXPERIENCE		
1-5yrs	2	2.5
5-10yrs	6	7.5
11-15yrs	16	20.0
Above 15yrs	56	70.0

Source: Field survey, 2014

Sources of fund

Table 2 showed the sources of fund to the snail marketers which indicated that 10.0% of the respondents obtained their source of capital through family support and (82.5%)

personally, this showed that majority of the respondents source their fund for the snail marketing business through personal saving and plough back from their sales.

Table 2: Sources of fund

Variable	Frequency	Percentage
SOURCE OF FUND		
Family support	8	10.0
Co-operative	2	2.5
Bank loan	4	5.0
Personal	66	82.5

Source: Field survey: 2019

Market conduct of snail sellers

Table 3 showed the market conduct of snail marketing in the study area. Conduct is the mode of price determination in a market and promotional methods. The study showed that respondents operate daily throughout the week (100.0%). Sales were made both in

dozen of approximately same size by observation and by counting.

Table 3 further shows that all the respondents use open display and calling of the people as promotional strategies in advertising their products.

Table 3: Market conduct of snail sellers

Variable	Frequency	Percentage
Days in a week		
Everyday	80	100.0
Unit of sales		
Dozen*	80	100.00
Counting*	80	100.00
Sources of purchase		
Local farmers*	80	100.0
Promotion strategies		
Open displayed	80	100.0
Calling on the prospective buyers	80	100.0

*Multiple responses. **Source:** Field survey, 2019

Cost and returns analysis of snail marketing per seller per annum

Cost refers to the input used in production process. The input used in snail marketing and their cost price in the study area are shown in Table 4. The results as revealed in table above

showed the average cost was ₦ 3,927,068.71 while the total sales were ₦ 4,267,268.71 making a profit of ₦ 340,200.00 per annum per seller. The analysis revealed that marketing of snails is profitable in the study area.

Table 4: Cost and returns analysis of snail marketing per seller per annum

S/N	Items	Amount(₦)
1	Cost price	3,626,614.59
2	Cost of Transportation	277,736.47
3	Cost of rent	15,049.41
4	Cost of bags	493.53
5	Cost of small size basket	443.18
6	Cost of big size basket	381.53
7	Cost of bowls	350.00
8	Other costs	6,000.00
9	Total cost	3,927,068.71
	Total sales	4,267,268.71
	Profit	340,200

Source: Field survey, 2019

Table 5 showed the regression estimate of factors affecting marketing of snails in the study area and the result indicated that the linear functional form is the lead equation with co-efficient of multiple determination (R^2) value of 0.971, implied that 97.1% of the variables is allocated to cost snails, transportation cost, rent, cost of small bag, cost of basket, cost of big bag, cost of bowl affect the selling price of snails. The significance of

the F-statistic is an indicator of the goodness of fit of the linear regression function. Cost of snails, cost of transportation and of rent had positive significant influence on snail marketing. The positive significant effects of these variables on snail marketing were observed at many percentages other variable in the models exerted no significant influence on snail marketing.

Table 5: Regression estimates of determinants of selling price of snail

Variables	Parameters	Coefficient	Std. error	T-Value	P-Value
Constant	B ₀	438786.247	0.044	4.430	0.0000
Cost Price	b ₁	0.986***	0.009	3.030	0.0000
Transportation Cost	b ₂	0.946***	0.031	1.750	0.0001
Rent	b ₃	3.526***	0.005	2.040	0.0000
Cost of small bag	b ₄	189.905	0.003	0.075	0.4330
Cost of basket	b ₅	170.234	0.005	0.080	0.1200
Cost of big bag	b ₆	267.598	0.002	3.250	0.1071
Cost of bowl	b ₇	3103.115	0.007	0.080	0.4512
R ²		0.973			
Adjusted R ²		0.971			
F-ratio		348.528***			

***Significant at $P < 0.01$

Table 6 above showed the problem mitigating against snail marketing in the study area. The challenges such as low demand, price fluctuation, inadequate credit facilities,

irregular supply, mortality of snails and escape of snails have mean of 3.36%, 4.90%, 3.60%, 3.81% and 4.06% and 3.05 respectively.

Table 6: The problems mitigating against the marketing of snail.

Challenges	SA	A	UD	D	SD	Mean	Remark
Price fluctuation	72	8	0	0	0	4.90	Constraint
Low demand	3	50	0	27	0	3.36	Constraint
Inadequate credit facilities	27	30	5	0	18	3.60	Constraint
Transportation problem	4	20	0	30	26	2.33	Not a constraint
Irregular supply	27	32	0	21		3.81	Constraint
Storage problem	5	12	0	53	10	2.3	Not a Constraint
Mortality of snails	10	68	0	1	1	4.06	Constraint
Escape of snails	10	31	2	27	10	3.05	Constraint

Source: Field survey, 2019.

Conclusion and Recommendations

The study was carried out to analyze the economics of snail marketing in the study area. The major problem confronting the marketers was lack of finance, marketing information that can improve the profitability of snail marketing. It was also found out that most of marketers were women with more than 15 years of experience. The study revealed that more females (92.5%) than male (7.5%) were involved in snail marketing. Majority (80.0%) were married. Majority (46.2) of the respondents were within age bracket of 50-59 years. The result further revealed that 82.5% sourced for capital through personal saving.

With the profit of N 340,200.00 per person per annum the business is highly profitable. The factors affecting the sales include cost price of stock of snail, transportation cost and rent.

Among the constraints facing the marketers are price fluctuation, inadequate credit facilities irregular supply and mortality.

Based on the finding of this study, recommended that snail marketers should be encouraged to form co-operative bodies, banks and other micro-finance houses to finance their activities through the provision of credit facilities. High transport fares are products of rising fuel price and bad roads. The governments at various levels should address

these problems of rehabilitating and possibly constructing new roads. This will make road transport easier and will go a long way in reducing fares.

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