



## Structure and Efficiency of Trade in Wild Snail in Selected Markets in Ibadan Metropolis, Oyo state, Nigeria

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**ABSTRACT:** The study examined the structure and efficiency of trade in wild snail in Selected Markets in five purposively selected popular markets in Ibadan metropolis, Oyo state Nigeria. Primary data were obtained from a hundred and twenty (120) snail marketers with the use of structured questionnaire and analyzed using Descriptive statistics, Gini coefficient and budgetary analysis. According to the study, 80% of the respondents sourced their goods (snails) from the wild and the selling price is largely determined by the socio economic status of the buyer (40%). Also the enterprise is dominated by females (83.3%), more profitable in Apata market with a profit margin of ₦167,000 and generally efficient. Furthermore there is high inequality in the structure of the market as the gini coefficient (0.59) tends towards one while the major constraints to marketing include transportation (from the wild to the market) competition among marketers and storage. The study therefore recommends that snail farming (heliculture) should be encouraged so that there will be massive production and availability of snails all year round. This would mitigate the identified problems and increase the benefits accruing to players in the snail value chain.

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Marketing has been defined in several ways by different authors. It enables producers such as farmers as well as middlemen to earn income with which they purchase other useful goods and services (Ebe, 2007); it involves all activities engaged for the movement of goods that consumers need from points of production to points of purchase by the consumers (Nnabuike *et al.*, 2012); it is the act that link production and consumption point (Adenegan and Bolaji-Olutunji, 2012). Generally, it refers to activities undertaken by a company or individual to promote the buying or selling of a product or service. Marketing includes advertising, selling, and delivering products to consumers or other businesses.

The marketing of non-timber forest products (NTFPs) is becoming popular due to the need to diversify the economy, and Snail is one of such products that have recently attracted attention amongst farmers in Nigeria. Snails are bilaterally symmetrical invertebrates with soft segmented exoskeleton in the form of calcareous shells (Ugwumba, 2016). It has various species, but the popular species of economic interest are the West African giant snails - *Achatina achatina* and *Archachatina marginata*, although usually gathered from the forest (NTFPs); they are also produced

through snail farming (Heli-culture). Snails are the largest group of mollusks constituting the largest animal group after arthropods (Yoloye, 2002). They are highly adaptable to a variety of conditions and are rich in calcium (1.41%), protein (37-51%) magnesium and potassium to mention but a few.

The average animal protein intake in Nigeria according to FAO is low as the regular sources (pork, goat meat, fish, poultry, etc) are getting out of the reach of common populace due to the high price as a result of the economic down-turn (Olajide, 2004). Several efforts are being made to ensure that animal protein supply to Nigerians does not get lower than it already is irrespective of the fact that population size is increasing without a commensurate increase in food production especially meat. One of the ways to ensure adequate meat supply to Nigerians is to divert attention to the production of micro livestock such as grass cutter, rabbit, snail and others which have long been neglected. These micro livestock sources will complement the conventional animal protein sources (cattle, sheep, goats, etc.) and ensure increased protein intake by the citizenry. (Ugwumba *et al.*, 2016). Therefore this study seeks to investigate structure and

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efficiency of trade in wild in five popular markets in Ibadan metropolis, Oyo State Nigeria.

## MATERIALS AND METHODS

*Description of study area:* The study was carried out in Ibadan metropolis. Ibadan is located in south-western Nigeria in Oyo State at about 119 kilometers northeast of Lagos and 120 kilometers east of the Nigerian international border with the Republic of Benin. It lies completely within the tropical forest zone but close to the boundary between the forest and the derived savanna. The city ranges in elevation from 150 m in the valley area, to 275 m above sea level on the major north-south ridge which crosses the central part of the city. Ibadan covers a total area of 3,080 square kilometers (1,190 sq mi), the largest in Nigeria and with a population of over 3 million, it is the third most populous city in Nigeria after Lagos and Kano (Wikipedia). The mean total rainfall for Ibadan is 1420.06 mm, falling in approximately 109 days. There are two peaks for rainfall, June and September. The mean maximum temperature is 26.46 C, minimum 21.42 C and the relative humidity is 74.55% (Christiana et al., 2013). The city has a lot of markets, but for the purpose of this study, five of all the markets were selected and they include; Aleshinloye, Apata, Oje, Orita merin and Bodija market.

*Method of data collection and analysis:* Primary data for the study was collected through structured questionnaire, which was used to elicit information on the market structure, conduct, performance and problems militating against the business from the snail marketers. Snow ball sampling technique was used to identify the numbers of snail marketers in the study area and 24 respondents were randomly selected from each of the markets to make a total of 120 questionnaires. The data collected on the field were subjected to descriptive statistics (frequency distribution and percentages), Gini coefficient and budgetary analysis. The computation of Gini coefficient has the following relationship;

$$GC = 1 - \sum XY$$

Where GC = Gini Coefficient; X = Percentage of snail sellers; Y = Cumulative frequency of income from the sellers;  $\sum$  = Summation

The model for the budgetary analysis was adopted from Okumadewa *et al.*, (2005);

Gross margin = Total revenue - Total variable cost  
Market efficiency = Total revenue / Total cost.

## RESULT AND DISCUSSION

The table showed the socio-economic characteristics of the respondent in the study are, it was revealed that 83.3% of the respondents were female while 16.7% of the respondents were a male which implies the business is dominated by females. The result also revealed that; a lot of the respondents (31.7%) fall within the economically productive age group (31-40years), 50% of the respondents went through secondary education and 75% of the snail marketers are mainly traders.

**Table 1:** Socio Economic characteristics of the respondents

Variable	Frequency	Percentage
<b>Gender</b>		
Male	20	16.7
Female	100	83.3
Total	120	100
<b>Age (years)</b>		
21-30	24	20
31-40	38	31.7
41-50	26	21.7
51-60	32	26
Total	120	100
<b>Family status</b>		
Head	72	60
Non-head	48	40
Total	120	100
<b>Marital status</b>		
Single	18	15
Married	80	66.7
Divorced	6	5
Widowed	16	13.3
Total	120	100
<b>Educational status</b>		
Primary	8	6.7
Secondary	60	50
Tertiary	48	40
Others	4	3.3
<b>Major occupation</b>		
Farming	8	6.7
Fishing	8	6.7
Trading	90	75.0
Other	14	11.7
Total	120	100

*Source: Fields survey, 2015*

As shown in the table, majority (80%) of the snails sold in the market are gotten from the wild (forest) and the price is majorly dependent on the socio economic status of the buyer( 40%), the species of the snail (21.7%) and the size of the snail (18.3%). The major problem faced by the snail marketers, according to the table is transportation of the merchandise from the wild to the market, competition amongst other sellers and storage. The table shows that the business is profitable in all the markets but more profitable in Apata market as the gross marginal revenue is ₦167000; snail marketing in all the markets, according to the table also is efficient since the values are greater than 1.m This is in line with the view of

Ozogwu (2002), he opined that if the value of the market efficiency of a particular market is less than 100%, then the market is inefficient.

Gini coefficient  $GC = 1 - XY = 1 - 0.414 = 0.586$

The Gini coefficient has values ranging between zero and one. A perfect equality in concentration of sellers is expected if G.C. tends towards zero, while perfect inequality in concentration of sellers is expected if G.C. tends towards one. If G.C. = 1, market is imperfect and if G.C. = 0, market is perfect and competitive (Taru and Lawal, 2011). The gini coefficient for snail marketers in the study area is 0.59, indicating high level of inequality in the market structure. This value compares favorably with Usman et al., (2011) on a study of trader perception of structure and performance of the *Ocimum gratissimum* market in Ibadan which shows Gini coefficient of 0.562

**Table 2:** Activities of snail marketers in the study area

Variable	Frequency	Percentage
<b>Source of snail</b>		
Purchasing	14	11.7
Bush	96	80
Rearing	4	3.3
Purchased and rearing	6	5
Total	60	100
<b>Price determination</b>		
Size	22	18.3
Weight	16	13.3
Color	8	6.7
Specie	26	21.7
Socio-economic status of Buyer	48	40
Total	120	100
<b>Constraints</b>		
Transportation	8	6.7
Storage	6	5
Transportation and storage	44	36.7
Competition and transportation	44	36.7
Competition and storage	14	11.7
Inadequate credit facilities	2	1.7
Seasonal problems	2	1.7
Total	120	100

Source: field survey 2015

**Table 3:** Budgetary analysis of snail marketing in the study area

Location	Number of seller	Total revenue	Total cost	Gross margin	Market efficiency
Bodija	24	296000	162600	133400	1.82
Orita Merin	24	263000	212000	51000	1.24
Apata	24	234000	67000	167000	3.49
Oje	24	240000	111800	129800	2.14
Aleshinloye	24	384000	258400	143600	1.59

Source: Field study 2015

**Table 4:** Gini coefficient

Class interval of sales revenue	No. of sellers	Number of sellers (%)	X	Total yearly sales	Total yearly sales (%)	Y	XY
<10000	50	41.7	0.417	250000	29.76	0.298	0.124
10001-20000	62	51.7	0.517	465000	55.36	0.554	0.286
20001-30000	4	3.3	0.033	50000	5.95	0.06	0.002
30001-40000	2	1.7	0.017	35000.5	4.17	0.042	0.001
>40000	2	1.7	0.017	40000	4.76	0.048	0.001
Total	120	100		840001.5	100		0.414

**Conclusion:** This study concludes that; Snail marketing is highly efficient in Ibadan metropolis. The business is dominated by females, the merchandise (snails) is largely sourced from the wild due to the fact that there are little or no commercial snail farmers in Ibadan and the major constraint faced by the snail marketers is transportation from the wild to the market. It is therefore recommended that males should be encouraged to venture into snail marketing since there are more females in the enterprise, it is a profitable business, and more people should venture into large scale snail production since it sourced from the wild in the study area.

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