



ECONOMIC CONTRIBUTIONS AND SELLERS PERCEPTION OF WILDLIFE TO BUSH MEAT MARKET IN ABEOKUTA, OGUN STATE, NIGERIA

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ABSTRACT: This paper studied economic contributions of wildlife to bushmeat markets, perception of sellers on utilization and livelihood related issues in some parts of Abeokuta, Ogun State, Nigeria. Primary data was collected for the study using semi-structured questionnaire and in-depth interview of targeted respondents. Bush meat sellers in all the five (5) major bush meat markets in Abeokuta were sampled. Data were analyzed using descriptive statistics, regression and budgetary analysis. The result showed that majority of the bushmeat traders were females (58%) with majority plying their trade at Alabata market (32%). Many of the bushmeat sellers strongly agreed ($X=4.14\pm 0.13$) to making more income from the business while an average of 4.20 ± 0.13 noted that seasonal availability of bushmeat dictates customers' preference in the markets. Also, an average of 4.40 ± 0.1 and 3.9 ± 0.15 respectively believed that bushmeat are more delicious and nutritious than conventional meat types and 3.7 ± 0.2 had cultural sentiments for the consumption of bushmeat. Step-wise regression analysis showed significant relationship ($p<0.05$) between perception of respondents and demographic characteristic except in their state of origin. Net profit per respondent yielded ₦14,985, ₦7,340 and ₦2,645 in Mammals, Reptile and Birds respectively; while the rate of return of investment was ₦1,374, ₦964 and ₦209 in same order. Sale of mammals has the highest contribution in the bushmeat markets and birds had the least.

Keywords: Wild Animals, Utilization, Nutrition, Harvesting and Exploitation

1. INTRODUCTION

Wildlife products are often major items of consumption and they have high nutritional and medicinal values in many human cultures (Scoones *et al.* 1992). The meat of wild animals has long been a part of the staple diet of forest dwelling peoples (Elliott *et al.* 2002). Dresden (2004), stated that bushmeat often represents both the primary source of animal protein and a main cash-earning commodity for the inhabitants of the humid forest regions of the tropics. Income alternatives to hunting are scarce in rural villages and where available, they can be short term and unpredictable (Solly 2001). In several developing countries, literatures revealed that bushmeat is still the cheapest source of protein and represents a crucial source of meat for the poorest urban households. For instance, in Kisangani, Democratic Republic of Congo (DRC) and Bangui, Central African Republic (CAR), bushmeat is cheaper than many other alternative sources of protein (Kümpel 2006). In many

Southern and East African rural areas, although livestock meat is available, preference for bushmeat is driven by its affordability (Lindsey *et al.* 2011). In North Myanmar (Rao *et al.*, 2010) the average cost of livestock meat was significantly higher than the average cost of fish and bushmeat with fish being slightly more expensive than bushmeat. Bushmeat consumption levels often vary according to variations in prices of alternative foods, such as fish (Wilkie *et al.* 2005). Akinyemi and Oduntan (2004) stressed that people collect, purchase and eat bushmeat for their animal protein supply either because they have no other source or cannot afford alternative sources. Bushmeat utilization constitutes a significant source of revenue (Milner-Gulland *et al.* 2003), particularly where the trade is driven by increased bushmeat consumption in urban areas. Nasi *et al.* (2010), explained that bushmeat trade is mostly driven by cultural proclivity which also could be a threat to biodiversity in forest areas of Central and West Africa (Noss 1998; Fa *et al.* 2003).

This paper studied economic contributions of wildlife to bushmeat markets in an urban area of a developing country and the perception of sellers on utilization and livelihood related issues.

2. METHODOLOGY

2.1 Study Areas

The study was carried out in Abeokuta, the capital city of Ogun State. The city has five (5) major bush meat markets; namely Osiele, Alabata, Brewery, Lafenwa, and Olomore (Figure 1). The first two were located in Odeda Local Government of the town which is partly a rural area while the latter are in Abeokuta North Local Government Area which is urban.

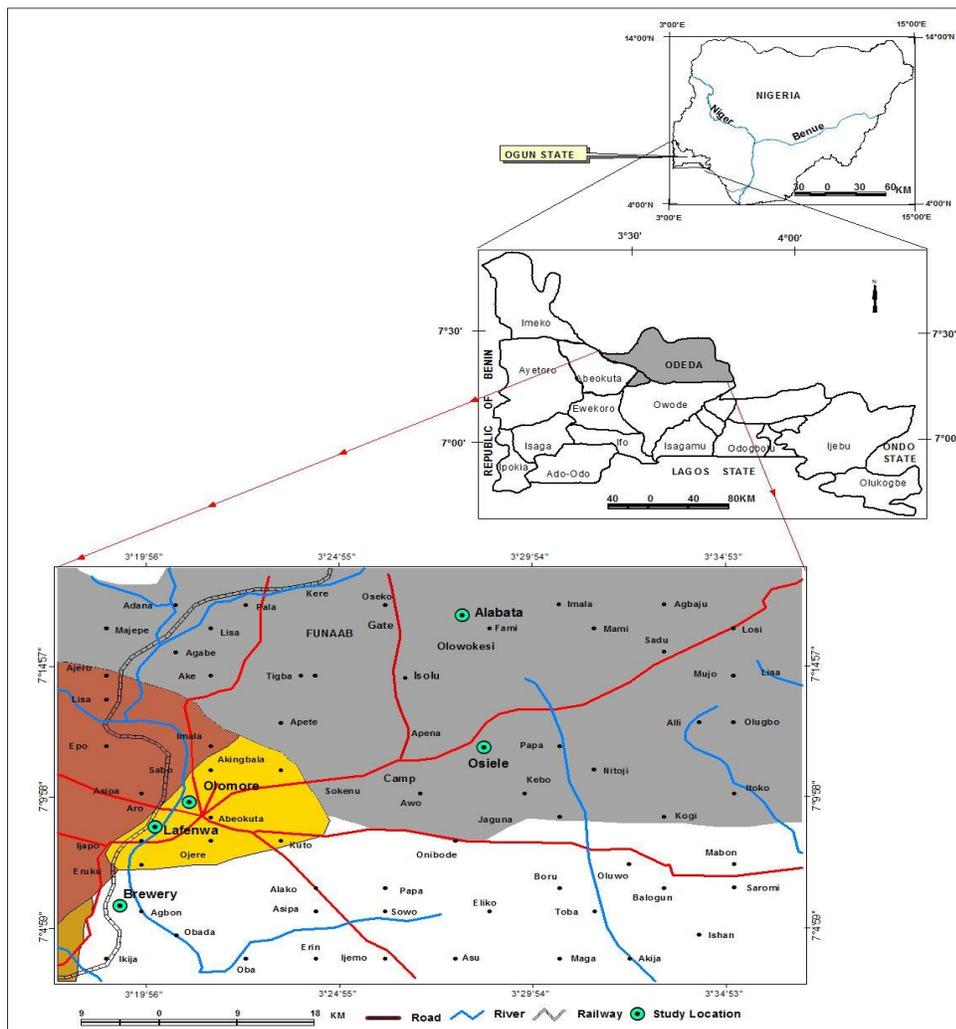


Figure 1: Map of the Abeokuta town showing locations of Bushmeat Markets

2.2 Data Collection

Primary data was collected and used for the study using semi-structured questionnaire and in-depth interview was used in the collection of data from targeted respondents. All bush meat sellers in all the five (5) major bush meat markets in Abeokuta were sampled except in Osiele market where there was no bushmeat seller seen until the third and fifth because the sellers were not resident but migratory. Hence, only three (3) bushmeat sellers located by snowballing techniques in

Osiele market made a total of 50 respondents sampled in the study areas (Table 1).

2.3 Data Analysis

Socio-economic characteristics of demographic variables of bushmeat sellers at the study areas were subjected to descriptive statistic and multiple response analysis for dichotomy questions. Perceptions of the respondents to their demographic characteristics were determined by subjecting the data to regression analysis.

Also, budgetary analysis was used to calculate costs and return of the bushmeat sellers.

Gross Revenue (GR) = Total output \times Price per unit product----- (1)

TC = Total Cost Incurred (comprising Total Variable Cost (TVC) and Total Fixed Cost (TFC)

Gross Profit (GP) = GR – TVC----- (2)

Net Profit (NP) = GP – FC----- (3)

Rate of return (ROR) = $\frac{TR}{TC} \times 100$ ----- (4)

Rate of Return on Investment (RORI) = $\frac{TC - TR}{TC} \times$ (5)

Capital Turn Over (CTO) = $\frac{GR}{TC}$ ----- (6)

Profitable Index (PI) = $\frac{GP}{GR}$ ----- (7)

3. RESULTS AND DISCUSSION

3.1 Demography and Livelihood Related Characteristics of the Bushmeat Sellers

The highest percentage of respondents which amount to 32% was from Alabata market while the least was from Osiele market at 6%. This might be because Alabata is a rural community of the town while the Osiele bushmeat market is only a small passage market fed and supplied by the former. This statement supports the findings of Solly (2001), that income alternatives to hunting are scarce in rural villages. Also, majority of the respondents were female at 58%.

Table 1: Demographic Characteristics of Bushmeat Sellers in the Study Areas

Market name	Frequency	Percent	State of origin of respondents	Frequency	Percent
Osiele	3	6.0	Ogun state	45	90.0
Brewery	11	22.0	Anambra state	1	2.0
Lafenwa	8	16.0	Non-Nigerian	1	2.0
Alabata	16	32.0	Oyo state	2	4.0
Olomore	12	24.0	Osun state	1	2.0
Total	50	100.0	Total	50	100.0
Local government area			Nationality		
Odeda	17	34.0	Nigeria	49	98.0
Okpe south	1	2.0	Cotonou	1	2.0
Abeokuta north	25	50.0	Total	50	100.0
Abeokuta south	6	12.0	Marital status		
Non-Nigerian	1	2.0	Single	12	24.0
Total	50	100.0	Married	38	76.0
Tribes			Total	50	100.0
Others	1	2.0	Education		
Igbo	1	2.0	None	17	34.0
Yoruba	48	96.0	Primary	17	34.0
Total	50	100.0	Secondary	14	28.0
Gender			Tertiary	2	4.0
Female	29	58.0	Total	50	100.0
Male	21	42.0	Primary occupation		
Total	50	100.0	Hunting	6	12.0
Preservation method			Trading Bushmeat	38	76.0
Smoking	48	96.0	Cabdriver	1	2.0
Drying	2	4.0	Farming	1	2.0
Total	50	100.0	Food seller	1	2.0
Sources of animals			Teacher	2	4.0
Forest	40	80.0	Fuelwood seller	1	2.0
Landing point	10	20.0	Total	50	100.0
Total	50	100.0			

3.2 Perception of Bushmeat Sellers on Wildlife Utilization Related Questions

Many of the bushmeat sellers strongly agreed ($X=4.14\pm 0.13$) to making more income from the business in comparison to other business they engaged

in (Table 2). This is in line with the submission made by Milner-Gulland *et al.* (2003), that bushmeat utilization constitutes a significant source of revenue, particularly where the trade is driven by increased bushmeat consumption in urban areas. An average of 4.20 ± 0.13 also equally noted that seasonal availability of bushmeat

dictates customers' preference in the markets. Also, 4.40 ± 0.1 and 3.9 ± 0.15 respectively believes bushmeat are more delicious and more nutritious when compared with conventional meat types. This further established the finding of Oduntan *et al.* (2012) that majority of bushmeats are characterized with low fat and high protein content. In addition, an average of 3.7 ± 0.2 had cultural sentiments for the consumption of bushmeat. This corroborates the finding of Okoje (2015) where religion was the only demographic factor that determined acceptance of edible Frog meal in a restaurant.

Step-wise regression analysis showed that there was significant relationship ($p < 0.05$) between perception of the respondents and demographic characteristic except in their state of origin $F(1, 48) 6.453 P = .014$ (Table 3).

4. CONCLUSION AND RECOMMENDATIONS

Bushmeat sales were described as profitable although females are more involved in sales than men. The sellers described it as more nutritious and delicious in addition to cultural sentiment attached to eaten of many species. Mammals contributed more to the economy of bushmeat markets in Abeokuta; hence its sales are far more profitable than the other two classes of wild animals found in the markets. Due to profitability and patronage for bushmeat sales, there is need to seriously encourage domestication of several species of mammals in particular in order to check possible over-exploitation as well as to make the animal readily available in backyards.

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3.3 Cost and Return Analysis

Highest net profit was from Mammals (₦736,696) followed by Reptiles (₦332,454) while Birds had the least at ₦42,999. Net profit per respondent respectively yielded ₦14,985, ₦7,340 and ₦2,645 in Mammals, Reptile and Birds; while the rate of return of investment was ₦1,374, ₦964 and ₦209 in their respective forms. Sale of mammals has the highest contribution in the bushmeat markets while wild birds had the least. Difference in net profit could be as a result of different respondents selling different wild animal types (Table 4). The high demand for mammals and its contribution to bushmeat markets are traceable to less spiritual attachment towards utilization of mammals compared to reptiles and birds.

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Table 2: Perception of Respondents on Wildlife Utilization and Related Issues

Perception	SD (1)	D (2)	UND (3)	A (4)	SA (5)	Mean	Mean Error
I make more income from this business	1 (2)	1(2)	9 (18)	18 (36)	21 (42)	4.14	0.13
My customer preferred to buy bushmeat than other animals	-	-	4 (8)	23 (46)	23 (46)	4.38	0.09
Seasonal change affects customers preference for bushmeat	-	3 (6)	7 (14)	18 (36)	22 (44)	4.20	0.13
Wild animals or bushmeat are more delicious than other animals			7 (14)	18 (36)	25 (50)	4.40	0.10
Wild animals or bushmeat have spiritual or cultural implication	6 (12)	5 (10)	8 (16)	9 (18)	22 (44)	3.70	0.20
Wild animals or bushmeat are more nutritious than conventional meat types	2 (4)	3 (6)	12 (24)	16 (32)	17 (34)	3.90	0.15

KEY: SD: Strongly Agreed; A: Agreed; UND: Undecided; A: Agreed; SA: Strongly Agreed

Table 3: Relationship of Respondents' Perception with Demographic Characteristic

	Sum of Squares	Df	Mean Square	F	Sig.	T	R Square
Regression	78.088	1	78.088	6.453	0.014	2.540	.118
Residual	580.892	48	12.102				
Total	658.980	49					

Table 4: Cost and Return Analysis

Animals	Birds	Reptiles	Mammals
No of respondents	21 (₦)	47 (₦)	50 (₦)
Gross Annual Return	69,545	368,334	791,244
(Quantity x Unit Price)	(35 x 1,987)	(114 x 3,231)	(186 x 4,254)
Variable Cost			
Fire wood	14,001	23,335	42,003
Total Variable Cost (TVC)	14,001	23,335	42,003
Gross Profit (GP)	55,544	344,999	749,241
Fixed Cost			
Shed	7,450	7,450	7,450
Knife	500	500	500
Wire Mesh	1,375	1,375	1,375
Bowl	640	640	640
Charcoal	825	825	825
Cutlass	913	913	913
Kerosene	842	842	842
Total Fixed Cost (TFC)	12,545	12,545	12,545
Depreciation	1,254.5	1,254.5	1,254.5
Total Cost (TC)=TVC+TFC	26,546	35,800	54,548
Net Profit (NP)=GP-FC	42,999	332,454	736,696
NP/Respondent	2,645	7,340	14,985
Benefit Cost Ratio	2.1:1	9.6:1	13.7:1
Profitability Index=GP/GR	0.80	0.93	0.95
RORI= $\frac{\text{Profit}}{\text{TC}} \times 100$	209	964	1,374