Benefit Cost Analysis of Ugu (*Telfaria occidentalis* Hook.F.) Marketing in Bauchi, Nigeria

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Authors' contributions

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ABSTRACT

The study examined the economic analysis of "Ugu'' marketing in Bauchi metropolis. The study was done by purposively selected four markets based on their popularity and availability of ''Ugu''. A simple random technique was used in selecting the respondents and data was collected through the use of structured questionnaires and were analyzed using descriptive statistics and gross margin analysis. The result revealed that the purchasing cost for "ugu" was 22,000 per head (bunch) and after incurring other cost components the BCR was 1.14 kobo indicating that the business was a profitable venture with a return per naira invested as 0.14 kobo. The result also revealed that most of the marketers were women (64.28%) with majority of them within the active age of 31-39 with a mean age 41.2 years. The majority (66.10%) of the marketers are married with (55.40%) having household size 1-5 persons. The marketers had one form of education or the

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other with majority (69.64%) having secondary education and 60.71% having marketing experience of 6-10 years. The major constraints encountered by the marketers were perishability and insufficient capital which accounted for 57.14% and 32.16% respectively. Therefore our technology incubation centers should work on a better means of preserving our vegetable. The government and financial institutions should devise means of extending soft loans to the marketers so as to improve their marketing activities.

1. INTRODUCTION

In Nigeria, like most parts of the world, Agriculture is the major source of revenue. It plays an important role in the socio-economic life of virtually all nations regardless of their level of development [1]. Agricultural marketing can be defined from both the micro and macro view points. The micro view point is concerned with the individual participants in marketing be it the farmer or the business firm. From this perspective, agricultural marketing can be defined as the performance of all business activities, which direct the forward flow of goods and services to consumers in order to accomplish the producers objectives. While the macro view point of marketing on the other hand is a "big picture". It examines the total system of economic activities concerned with the flow of agricultural products from producer to final consumers.

Vegetable occupy a prominent place in daily diet of individuals. Several parts of vegetables are utilized for different purposes, this study focuses on the edible leafy part of *Telfaria occidentalis* "Ugu" which is grown mainly for the leaf and constitute an important component of the diet in many west African countries. Seed of Ugu recalcitrant or tolerant of desiccation, consequently, nuclear stock for the next planting season is maintained locally by strong fully matured fruits [2]. It has different traditional names. Among the Yoruba "Iroko" or "aporoko", "ubong" in Efik, umee in Urhobo and umeke in Edo [3,4]. Vegetables are the fourth largest group of food consumption after meat, dairy and grain product. They are sold to the consumers mainly without processing so any intermediary cost is not present. Fresh vegetables are not branded as many other food products which affect the price formation [5]. The plant produces luxuriant edible green leaves which are rich in Iron and Vitamins. Recent studies have shown that *Telfaria occidentalis* leaf is rich in mineral (such as iron, potassium, sodium, phosphorus, calcium and magnesium), antioxidants, vitamins (such as thiamine, riboflavin, nicotinamide and ascorbic acid, phyto-chemicals such as phenols) [6]. It can be inferred that the ability of the plant to combat certain diseases may be due to its antioxidant and antimicrobial properties and its minerals (especially Iron), vitamins (specially vitamin A and C) and high protein contents [6].

In some parts of Nigeria, green leafy vegetables have gained a widespread acceptance as a dietary constituent, generally forming a substantial portion of the diet in the preparation of soups and stews. Some of the vegetables may be eaten raw or as a vegetable salad when shredded and cooked with water extracts of oil palm fruits [7]. It contains many vitamins and minerals essential for normal growth and maintenance of body vigor [8]. Efficient resource use in production depends upon an efficient marketing system which determines the price for the product. The price performs the function of resource allocation, inter-sectoral income distribution, and capital formation. Unless the market structure is conducive for efficient pricing, the above function of price will be poorly performed. Considering the enormous importance of leafy vegetable, it is no doubt that Nigeria's economic development will be directly affected by any progress made to enhance the marketing of vegetable to meet the need increasing demands of the nation.

The traditional system of marketing of agricultural products in Nigeria as much as Tropical Africa has been under considerable stress [9]. The marketing system has virtually been charged with being inefficient, disorganized and the private wholesalers have been charged with hoarding and exploiting of innocent farmers and powerless consumers, also high profits enjoyed by these dealers at the expense of both producers and consumers [10]. Despite the significant role, leafy vegetable plays in the economy of Nigeria, it's marketing in Bauchi metropolis has been faced with several challenges, such as transportation system, transportation cost, poor pricing, perishability of

the product and seasonality. The problems facing the marketing of Ugu have also been attributed to poor marketing information about the nature of the product. It is in the context that this study attempt to provide answers to the following questions:

1. What are the socio-economic characteristics of the marketers?
2. What is the profitability of ''Ugu'' marketing in the study area?
3. What are the constraints to Ugu marketing in the study area?

Therefore the study was done with the following objectives:

1. To study the socio-economic characteristics of the marketers.
2. To analyze the profitability of Ugu marketing in the study area.
3. To identify the constraints of Ugu marketing in the study area.

2. MATERIALS AND METHODS

2.1 Study Area

Bauchi Metropolis is the capital city of Bauchi State and the Head quaters of the Bauchi Local Government Area with a population of about 6,537,314 people based on 2016 estimate (NPC, 2016). The Metropolis is bounded on the south and west by Zungur district and on the north and east by Galambi district. It falls within the southern Senatorial district of Bauchi State.

The vegetation is open savannah woodland with trees up to six meters or more [11]. It covers an estimated land area of 65,216 km square (BSADP, 2004). It has two distinct season (wet and dry). The wet season spans from April to October, while the dry season commence in November and terminates in March.

2.2 Sampling Procedure

From the list of major Ugu markets obtained from their market union, three markets were selected based on where the marketers are (muda lawal, wunti, yelwa and gwalameji market). The number of respondent sample was proportionate to the size of the Ugu traders in the market. Therefore, 50% of each market was sampled resulting to a total of 56 respondents from the markets.

2.3 Data Analysis

Descriptive statistics; frequency distribution, percentages and averages were used to analyze the data. The gross margin analysis and marketing margin were used to analyze using following models.

2.4 Specification of Models

$$GM = TR - (TVC-TFC) \qquad (1)$$

$$\text{Operating Ratio (OR)} = TVC / TR \qquad (2)$$

$$\text{Benefit Cost Ratio (BCR)} = TR / TC \qquad (3)$$

2.5 Decision Rules

If BCR >1, then the business is profitable.

If BCR < 1, then the business is not profitable.

If BCR =1, then the business just break even.

3. RESULTS AND DISCUSSION

3.1 Age of the Respondent

Age refers to the stage of development of an individual, either young or old. Age is measured in years. Age is one of the most important determinants of human reasoning, decision-making and responsibilities. The study reveals that majority of the marketers of Ugu were within the ages of 30-39 years which constituted 44.64%, this was followed by those within the age range of 40-49 years, 50-59 years, 60-69 years and less than 30 years, representing 32.14, 8.93, 8.93 and 5.36 percent respectively (Table 1). However, the mean age of the respondents was 41.2 years. The implication of this is that the respondents were in their active age. This is important because as youths, they may be willing to assume greater risk in anticipation of profit than the older ones. This agrees with the findings of Obeta and Nwagbo (1991) who found out that traders' age may influence him in the area of resources that would make it more likely for him to try new technologies. On the otherhand, it may be that middle aged people are loaded with societal responsibilities with high expectations of life. Therefore, they are forced to engage in economic activities to live up to expectation.

3.2 Gender

Gender describes the position of an individual in terms of feminine and masculine. These are

obviously put as male and female. Gender influences to a large extent the type of occupation an individual performs or do. Depending on the gravity of labour and certain beliefs which vary from culture to culture, place to place, religion to religion, occupation are to extent sensitive to gender. The study shows that 64.28% were female and only 35.72% were male (Table 1). This is in line with the findings of Alabi et al. [12] who found out that women especially married ones were into marketing of agricultural products in Kaduna North L.G.A of Kaduna State (Table 1).

3.3 Marital Status

Marital status means living singly or a matrimonial relationship which include past and present position such as divorced, widowed and so on. This information with respect to Ugu marketers shows that marketing of Ugu were dominated by married (66.10%) while single was (16.10%), followed by widowed and divorced which are 12.5 and 5.3 percent respectively (Table 1).

3.4 Educational Status

Education connotes the formal training an individual has obtained. This represented by the number of years a person spent in formal school. The higher the number of years in formal education therefore would have greater implication in participation in policy matters and generally in developmental responsibilities. The result shows that 69.64% had secondary education while 28.57% had primary education and the 1.79% had never been to school (Table 1). This implies that majority of the marketers had one form of education or the other. This is a healthy situation which means that these people could acquire skills and knowledge which are important in analyzing information about market situations, thereby increasing the economic and social wellbeing. This finding is in line with Njoku (1999) who observed that formal education has positive influence on adoption of innovation.

3.5 Household Size

Household size refers to the number of individual who lives under the same roof and eat from the same source. The result shows that majority of the respondents (55.40%) had a household size of 1-5 persons, while 41.07% had a household size of 6- 10 persons, followed by 3.53% had 11-15 person in a household with the mean household size of 5 persons. It is

therefore logical to say that Ugu marketers in the metropolitan markets of Bauchi had a family size of 5 persons (Table 1).

Table 1. Details of the participants of the study

Age category (years)	Frequency	Percentages
Below 30	3	5. 36
30 - 39	25	44 .64
40 - 49	18	32.14
50 - 59	5	8.93
60 - 69	5	8.93
Mean	41.2 years	
SE	1.29	
Min	18years	
Max	65years	
Sex		
Male	20	35.72
Female	36	64.28
Marital status		
Single	9	16.10
Married	37	66.10
Widow	7	12.50
Divorced	3	5.30
Educational status		
Never been to school	1	1.79
Primary	16	28.57
Secondary	39	69.64
Household Size		
(Small) 1-5	31	55.40
(medium) 6 - 10	23	41.07
(large) 11 - 15	2	3.53
Mean	5.0 persons	
Min	1	
Max	11	
Marketing Exp.		
1-5	11	19.64
6 - 10	34	60.71
11 - 15	7	12.50
16 - 20	2	3.57
Above 20	2	3.57
Mean	8.67	
SE	0.73	
Min	2	
Max	35	

Source: Field Survey, 2017

3.6 Marketing Experience

Marketing experience refers to number of years one has been in a particular business. The study shows that majority of the respoendents (60.71%) has a marketing experience of 6-10 years and 19.64% of the respondents had 1-5 years with the mean marketing experience of 5.48 years (Table 1). The higher the years of marketing experience the better the performance of the marketers.

Table 2 shows that ''ugu'' marketers made a profit of 14 kobo for every one naira invested in the business per week. The cost of Ugu constitute 97.02% of the total variable cost, while the other variable union due, polythene bag, cost of jute bag for covering/ storage constitute 2.98% of the total cost. This means the bulk of the total variable cost goes into purchasing cost. An average of one head (bunch) is sold per week by a marketer which cost (22,000) at the time of the study.

Table 2. Cost and returns of Ugu marketing

Cost items	Cost (₦)	Cost percentage (%)
Ugu	22,000	97.02
Union due	125.00	0.55
Polythene bag	200.00	0.88
Cost of hired labour	150.00	0.66
Cost of jute bag for covering	200.00	0.88
Total variable Cost	22,675.00	
Total Revenue	25811.62	
BCR	1.14	100

Source: Field Survey, 2017

Table 3. Constraints to ''Ugu'' marketing

Constraints	Frequency	Percentage
Perishability	56	57.14
Insufficient capital	32	32.66
High cost of produce	6	6.12
Weather	3	3.06
Shortage in supply during dry season.	1	1.02
Total	98	100

Source: Field Survey, 2017
*Multiple responses was recorded

Table 3 shows that majority of the respondents (57.14%) had perishability as challenge to marketing *T. occidentalis* Ugu followed by insufficient capital (32.66%), high cost of produce (6.12%), weather (3.06%) and shortage in supply during dry season (1.02%). If the above constraints are solved it will increase the profitability of Ugu both to producers and the marketers in the study area.

4. CONCLUSIONS

The study observed that majority of the marketers in the locality is in their active age and do posses formal education having secondary education. It was observed that the majority of the respondents involved in marketing of Ugu were women. The study also revealed that the majority of the respondents

had a marketing experience of 6-10 years. But the Ugu marketing is being challenged by different problems of which perishability (57.14%) was the major challenges followed by the insufficient capital for the investment. Even though, the marketing of Ugu was still a profitable venture, with a 14 kobo return to everyone naira invested. Adequate storage facilities should be made available by our technology incubation centers, like the jute bag used in preserving the produce. System which is more conducive for marketers to access loans from the Banks. Again farmers in the study area should be encouraged to go into the production of Ugu to reduce the burden of travelling to far States to buy from.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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