ASSESSMENT OF THE SWEETPOTATO MARKET STRUCTURE IN NASARAWA STATE AND FEDERAL CAPITAL TERRITORY (FCT), NIGERIA

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ABSTRACT
The study was carried out to assess sweetpotato market structure in Nasarawa state and Federal capital territory. A multistage random sampling method was used in selecting markets and respondents. Forty wholesalers and eighty retailers were randomly selected from the eight markets of Nasarawa State and FCT. Data were collected by the help of structured questionnaire and interview schedule. Descriptive statistics and Gini Coefficient were used in analyzing the data.. Product differentiation existed and there were little or no barriers to entry into the sweetpotato market. The Gini Coefficient values of 0.5457 (wholesalers) and 0.6001 (retailers) were recorded, indicating an existence of some degree of sellers' concentration. This implies that sweetpotato market is an imperfect competitive market. Government policies should be directed towards reducing transportation costs, rent charged by the Local Government Authority and provision of micro credit for the traders to expand their purchases.

Key Words: Assessment, sweetpotato, market structure and gini coefficient

INTRODUCTION
Marketing is the sum total of all business activities performed in the movement of commodities from the point of initial production until the commodities are in the hands of the ultimate consumer (Adekanye, 1988).Market structure refers to the number and size distribution of buyers and sellers, product differentiation and presence or absence of barriers to entry into the market (Anuebunwa, 2002; Okererke *et. al* 1988).

Sweetpotato (*Ipomea batatas* L) is an important tropical root crop. It ranks second after cassava among the tropical root crops. It is a rich source of carbohydrate, protein, lipid, calcium and carotene. it becomes an ideal crop for popularization in areas with poor soils and poor agricultural infrastructural facilities (Anyaegbunam and Nwosu,2012). Sweetpotato is a major crop that suffered serious neglect in the past but now occupies global position as a source of food and industrial raw material (Njoku,2007).It is a widely grown crop in Nigeria. The high nutritive value and performance under resource-poor condition make it attractive to farmers and households (Njoku, 2006).

China is the highest producer of sweetpotato in the world (75.80mt/per annum). Presently, Nigeria is the number one producer of sweet potato in Africa with annual output of 3.46 million metric tons and globally the second largest producer after China. The crop is grown for both human and animal consumption. It is the only crop among the root and tuber crops that has a

positive per capita annual rate of increase in production in sub-Saharan Africa (Olagunju et al.,2013). It is interesting to note that unlike cereal crops (rice, wheat and maize) sweetpotato is not a globally traded commodity and its prices are usually determined by local supply and demand.

Despite its growing importance and known potential as food, animal feed and raw material source, records of sweetpotato production, processing and marketing in Nigeria's food system are scanty. Sweet potato has the potential for food security as well as serving as a cash crop. There is a need to document sweetpotato production, processing and marketing activities and factors militating against them, particularly at a time when a variety of approaches to poverty alleviation are being considered by the Nigerian government and their development partners
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Sweetpotato is seasonal and does not store for a long time. Poor storability of sweetpotato is mainly due to sprouting, dehydration and attack by pathogenic organisms (Ukpabi, 2004). These storage problems and others have led to losses by marketers in the course of performing their marketing functions. In most cases, poor storability and seasonality lead to market variations in quantity and quality of roots and its associated price swings *(*Low et al., 2009). Sweetpotato roots are bulky and perishable. This limits the distance over which sweet potato can be economically transported. Sweetpotato market was monopolistic in nature and tends to expose market for higher profit and high scope for middlemen exploitation (Anyaegbunam, 2012).

In Nasarawa state and FCT of Nigeria, Marketing of sweetpotato is confronted with lots of problems which constitute impediments to the flow of goods and services. Such problems include seasonal variations, transportation of harvested produce, storage, processing, grading and communication (Ikechi *et al*., 2006). The bulkiness of agricultural commodities, high risks and uncertainty, price fluctuations, perishability, transportation cost, inadequate market information and facilities had been identified as responsible for the high marketing cost in food marketing (Anuebunwa 2007, Anumihe and Eze, 2002) These problems notwithstanding, sweetpotato production has been found to be profitable (Ogbonna *et al*., 2007). This study therefore was designed to assess the market structure of sweetpotato in Nasarawa state and FCT.

METHODOLOGY

The study was purposively carried out in Federal Capital Territory and Nasarawa State, which are noted for marketing of sweetpotato roots and its products. A multistage random sampling method was used in selecting markets and respondents. In the first stage, two states namely Nasarawa state and Federal capital Territory were selected randomly out of the six states of north central Nigeria. In the second stage, two local government areas were chosen from each state namely Karu and Keffi for Nasarawa state, Abuja Municipal Area Council and Bwari Area Council for Federal Capital Territory making a total of four LGAs. Four community markets were drawn in each of the selected states namely orange, Masaka, Keffi, and Sabon gida (Nasarawa State) while Karimo, Karshi, Dei-Dei and Dutse for Federal Capital Territory (FCT). Fifteen marketers (Five wholesalers and ten retailers were randomly chosen from each of the eight markets drawn, making a total of 120 respondents (marketers).Data were collected by the help of structured questionnaire and interview schedule. Analyses of data were done using descriptive statistics such as percentages, frequencies, means and tables and Gini Coefficient
The Gini coefficient (G) was used to determine the structure of the sweetpotato market.

The model is stated in line with Anuebunwa (2008) as:

$$G = 1 - \sum_{i=1}^{k} X_i Y_i$$

Where,

X_i= percentage of sweetpotato traders in the ith class of traders
Y_i= cumulative percentage of sweetpotato traders in the ith class of traders
k = number of class

The Gini coefficient varies from 0 to 1, where 0 implies perfect equality in the distribution (perfect market) and 1 implies perfect inequality (imperfect market, high level of seller concentration) (Okereke and Anthonio, 1988).

RESULT AND DISCUSSION

Socio-economic characteristics of the Respondents

Table 1 shows the socio-economic characteristics of the marketers in the study area. The table shows that gender wise female sweetpotato marketers constituted 35% while males are 65 percent. This implies that there are more male sweetpotato marketers than females in the study area. The Table further revealed that majority (78.33%) of the marketers fall within the age range of 31-50 years while (2.5%) of the marketers are above 51 years. This implies that the marketers are still at their productive age. It is expected that respondents in these age brackets can take risks and initiatives which are expected factors marketing activities as they have the strength to move from one location to the other. Moreover, majority (91.67%) of the marketers are married and most (30.83%) of the marketers are not educated while others have one form of education or the other.

The table shows that about 50% of the marketers have less than 10 years of experience in sweetpotato marketing while those that had between 31-40 years of experience accounted for (4.2%). A similar study by Okereke and Anthonio (1988) established a significant relationship between marketing experience and volume of sales in the wholesale and retail trades.

The table also revealed that 37.5% belong to sweetpotato traders association, while 62.5% do not. This implies that prices for the crop most times are not determined by any association. According to Anuebunwa (2008), membership in traders association offers opportunity for the creation of implicit barriers to entry and exit into the trade. This influences the nature of the market. Nevertheless, the traders have information on the marketing of the crop as sweetpotatoes are uniformly heaped for sale in the market.

Table 2 shows the distribution of sweetpotato wholesalers by monetary value of monthly sales. The table reveals that the wholesaler's average monthly sales were 487,355. Some of the wholesalers (22.5%) sold sweetpotato worth of N5, 173, 200. This implies 58.43% of the total

value of monthly sales whereas only 5% of the wholesalers sold sweetpotato worth N600, 000 representing 3.08% of the total value of monthly sales. The distribution gave a gini coefficient of 0.5457**.** A Gini coefficient of 0.5457 implies inequality in the distribution showing the market to be an imperfect market. Similarly, at the retailers' level,

Table 3 shows shows the distribution of sweetpotato Retailers by monetary value of monthly sales, the average monthly sales was N126, 612.9. About (18.75%) of the retailer made total sales valued N2, 906, 000 representing 28.69% of the total value of monthly sales compared with only 1.25% that handled 2.84% of the total monthly sales. The distribution gave a gini coefficient of 0.6001 which implies inequality in the distribution. The result is in consonance with previous works by Anyaegbumam (2012); Okereke and Anthonio (1988); Anuebunwa *et al*., (2006), and Anuebunwa (2002; 2007) respectively who reported an imperfect competitive markets for staple food.

Many varieties of sweetpotato were displayed for sale but they differ in terms of colour and weight. There were little or no barriers to entry into the sweetpotato marketing business. At the wholesale level, prospective marketers have to register with the cooperatives for quicker sales of their products while most of the retailers do not necessarily need to register with marketers association. Results of the study indicated that there existed some degree of market concentration in sweetpotato market but greater degree of concentration was recorded in the retail than in wholesale sub sectors of the market. The gini coefficient of 0.60 (Retailers) and 0.54 (Wholesalers) confirmed the finding.

CONCLUSION

The study assessed the sweetpotato market structure in Nasarawa state and FCT. The gini coefficient analysis showed that sweetpotato marketing system is an imperfect competitive market as shown by the results of the Gini coefficient. Government policies should be directed towards reducing transportation costs, rent charged by the Local Government authority and provision of micro credit for the traders to expand their purchases.

Table 1: Distribution of respondents on socio-economic characteristics of sweetpotato marketers

Variable	Frequency	Percentage
Gender		
Female	42	35
Male	78	65
Total	120	100
Age		
11-20	3	2.5
21-30	20	16.7
31- 40	64	53.3
41- 50	30	25
>51	3	2.5
Total	120	100
Marital status		
Married	110	91.7
Single	10	8.3
Total	120	100
Level of Education		
No education	37	30.8
Adult education	4	3.3
Primary education	42	35.0
Quaranic education	10	8.3
Secondary education	24	20
Tetiary education	3	2.5
Total	120	100
Trading Experience		
< 10	60	50
11-20	40	33.3
21-30	15	12.5
31-40	5	4.2
Total	120	100
Traders Association		
No	75	62.5
Yes	45	37.5
Total	120	100

Source: Field Survey, 2013

Table 2: Distribution of Sweetpotato Wholesalers by average size and total value of Monthly Sales in Nasarawa State and FCT

Sales Class (N)	Frequency	% of wholesalers (X_i)	Cummulative %	Total value of monthly sales (N)	% of total value of monthly sales	Cummulative % (y_i)	$X_i y_i$
104,000-204,000	5	12.5	12.5	634,400	3.25	3.25	0.0041
204,001-304,000	2	5	17.5	600,000	3.08	6.33	0.0031
304,001-404,000	9	22.5	40.0	3,101,000	15.9	22.23	0.0500
404,001-504,000	4	10	50.0	1,892,000	9.7	31.93	0.0319
504,001-604,000	9	22.5	72.5	5,173,200	26.5	58.43	0.1314
604,001-704,000	5	12.5	85.0	3,281,200	16.8	75.23	0.0940
704,001-804,000	3	7.5	92.5	2,186,400	11.2	86.43	0.0648
804,001-904,000	3	7.5	100	2,626,000	13.5	100	0.075
Total	40	100		19,494,200	100		0.4543
Mean				487,355			
Gini Coefficient 0.5457							

Source: Survey data, 2013

Table 3: Distribution of Sweetpotato Retailers by average size and total value of Monthly Sales in Nasarawa State and FCT

Sales Class (N)	**Frequency**	**% of Retailers (X_i)**	**Cummulative %**	**Total value of monthly sales (N)**	**% of total value of monthly sales**	**Cummulative % (Y_i)**	**$X_i y_i$**
13600-63,000	24	30	30	914,800	9.03	9.03	0.0271
63,601-113,600	18	22.5	52.5	1,584,200	15.64	24.67	0.0555
113,601-163,600	12	15	67.5	1,666,000	16.45	41.12	0.0617
163.601-213,600	15	18.75	86.25	2,906,000	28.69	69.81	0.1309
213,601-263,600	8	10	96.25	1.920,000	18.96	88.77	0.0888
263,601-313,600	1	1.25	97.5	288,000	2.84	91.61	0.0115
313,601-363,600	1	1.25	98.75	360.000	3.55	95.16	0.0119
363,601-413,600	-	-	-	-	-	-	-
413,601-163,600	-	-	-	-	-	-	-
463,600-513,600	1	1.25	100	490,000	4.84	100	0.0125
Total	80	100		10,129,000			0.3999
Mean				126,612.9			
Gini Coefficient 0.6001							

Source: Survey data, 2013

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