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A STRUCTURAL ANALYSIS OF YAM TRADE FLOWS INTO ABIA STATE OF NIGERIA

F. O. ANUEBUNWA

NATIONAL ROOT CROPS RESEARCH INSTITUTE

UMUDIKE, P.M.B 7267

ABIA STATE, NIGERIA

ABSTRACT

A structural analysis of yam trade flow into Abia State using total value of purchases as index of measurement of the market share was conducted in Abia State in 2000/2001. A total of 309 yam distributors categorized into wholesalers (82) and retailers (227) were randomly selected using a multi-stage sampling method. Structured interview schedule was used in the collection of marketing information from the distributors. Descriptive statistics and Gini coefficient were used in data analysis. The northern states of Nigeria contributed 67.97% of total yams supplied to Abia State while the Southern States 32.03% of which Abia accounted for 2.7%. There was insufficiency, inadequacy and uneven distribution of physical marketing facilities. The seller concentration was higher in the wholesale than in the retail yam markets with Gini coefficient of 0.6354 and 0.5959 respectively. The difference may have resulted from differences in capital base, entrepreneurial talents, business acumen and collusive behaviour in market conduct. The yam market is monopolistically competitive.

Keywords: Trade flow, yams, Structural analysis

INTRODUCTION

Nigeria is the largest world producer of yams, with 24.13 million tonnes in 1997 (CBN, 1999). The importance of yams in Nigeria revolves on its high calories (5.7 million Kcal/ha and protein (107kg/ha) (Coursey and Booth, 1977) and its socio-cultural values. Despite the national production level, the commodity needs to meet the consumers' time, form and place utilities.

Improvement of the food crop marketing system is a panacea for increased production, productivity, income and for satisfying consumers' utilities. The need for market structure analysis in agricultural marketing has been emphasized (Cloidius and Mueller 1967). Studies on yam marketing tend to ignore the structural analysis of the market (Eluagu, 1988;Jones 1968. Anthonio 1967). Similar studies concentrated on the retail side of the market (Okereke and Anthonio, 1988. Adekanye 1975; Morgan, 1965). A north-south trade flow had been identified in the yam marketing of southeastern Nigeria (Eluagu, 1988). A number of factors have been documented as influencing or stimulating trade. These include population, migration and urbanization.

natural resource endowments, disposable income, ecological differences and demand level (Ekanem, 1979, Onyemelukwe *et al*, 1997, Onakomaiya, 1977). There is dearth of knowledge and information on the structural analysis of yam marketing in Abia State. This Study extends the analysis of the market structure to the retail and wholesale sectors.

Objective of the Study:

The broad objective of this study is to undertake a structural analysis of yam trade flows into Abia State of Nigeria. The specific objectives are to

1. Determine the structural characteristics of the market for yam in Abia State.
2. Determine the size distribution of yam traders
3. Make policy recommendations for improving the yam market structure.

METHODOLOGY

The study area, Abia State, lies between longitude 07°20^{1} and 08°00^{1}E and latitude 04°50^{1}N and 05°50^{1}N. A multi-stage sampling method was used in random selection of 34 rural markets, 17 urban markets, 82 yam wholesalers and 227 yam retailers in year 2000. Structured interview schedule was used in the collection of marketing information from the 309 yam traders across the three agricultural zones of Abia State in year 2000/2001. In addition to descriptive analysis in data analysis, Gini coefficient was used to measure sellers' concentration ratios through the use of total value of purchases as an index of measurement of market share.

The Gini Coefficient was estimated from the formula:

$$G = \frac{d}{2\bar{y}}$$ (Kendal and Stuart, 1977)

Where G = Gini coefficient of purchases

$\bar{y}$ = Coefficient of mean purchase difference among traders, expressed as:

$$2\sum_{i=1}^{k} N^{1}(X^{1})[1 - N^{1}(X^{1})]\,[\bar{x}_{i+1} - \bar{x}]$$

where X_i = mean purchase of the i^{th} purchase class of traders

$N^{1}(X_i)$ = Cumulative relative frequency of purchases up to the i^{th} class of purchasers.

K = Number of purchase classes.

$\bar{y}$ = Grand mean purchases of traders expressed as $\frac{\Sigma y}{N}$

Where, Y = Grand total value of monthly purchases

N = number of traders.

RESULTS

The personal characteristics of the yam traders are show in table 1. The values of the personal characteristics of the wholesalers are higher than that of the retailers. The average number of years of trading experience of the wholesaler was 16.67% higher relative to that of the yam retailers. Their household size was also more by 23.08%. They control 85% of the physical marketing facilities (lock-up shops, and open market spaces).

The distribution of the yam wholesalers and retailers by average size of monthly purchases (Tables 2 and 3) show that 42% of the wholesalers had an average of more than ₦200, 001 monthly purchases while 36% of the retailers made not more than N16, 001 monthly purchases.

Table 1: Personal characteristics of yam traders in Abia State. 2000/2001

Category	Mean Age (years)	Mean years of formal education	Mean Trading Experience (years)	Mean Household size (Number)	Control of marketing facilities (%)
Wholesalers	50.53	13	18	13	85
Retailers	40.53	9	15	10	15

Table 2: Distribution of yam wholesalers by average size of monthly purchases in Abia State. 2000/2001

Purchase Class	Frequency	Relative Frequency	Relative Cumulative frequency (N^1 (Xi)	1 – N1 (Xi)
0 –100,000	18	0.22	0.22	0.78
100,001 – 300,002	16	0.20	0.42	0.58
200,002 – 300,002	13	0.16	0.58	0.42
300,003 – 400,003	13	0.16	0.74	0.26
400,004 – 500,004	10	0.12	0.86	0.14
500,005 – 600,005	4	0.05	0.91	0.09
600,006 – 700,006	4	0.05	0.96	0.04
700,007 – 800,007	2	0.02	0.98	0.02
800,008 – 900,008	1	0.01	0.99	0.01
900,009 – 1,000,009	1	0.01	1.00	0.00
Total	82	1.00		

Table 3: Distribution of yam wholesalers by total value of monthly purchases in Abia State

Total value of monthly Purchases (Xi) ₦	Mean values of monthly Purchases (Xi)	$\bar{X}_{i-1} - \bar{X}$	% of Total monthly Purchases	Coefficient of mean Purchase difference [d]
98,680	5,482.22	6,324.66	1.90	1085.31
188,910	11,806.88	9,396.20	3.64	2288.91
275,640	21,203.08	8,846.92	5.32	2155.11
390,650	30,050.00	18,524.00	7.54	3564.02
485,740	48,574.00	91,076.00	9.37	10965.55
558,600	139,650.00	10,350.75	10.78	84773
600,003	150,000.75	242,409.25	11.58	9308.52
784,820	392,410.00	507,590.00	15.14	9948.76
900,000	900,000.00	2.00	17.36	0.02
900,002	900,002.00		17.37	
Total=5. 183.045				40,163.03
Mean=63207.87				
Gini Coefficient=0.6354				

Table 4: Distribution of yam retailers by average size of monthly purchases in Abia State, 2000/2001

Purchase Class N	Frequency	Relative Frequency	Relative Cumulative frequency (N^1 (Xi)	$1 - N^1$ (Xi)
0 –8,000	42	0.19	0.19	081
8001 – 16,001	38	0.17	0.36	0.64
16002-24,002	33	0.15	0.51	049
24,003 – 32,003	28	0.12	0.63	0.37
32,004 – 40,004	21	0.09	0.72	0.28
40,005 – 48,005	19	0.08	0.80	0.20
48,006 – 56,006	17	0.07	0.87	0.13
56,007 – 64,007	14	0.06	0.93	0.07
64,008 – 72,008	9	0.04	0.97	0.03
72,009 – 80,009	6	0.03	1.00	0.00
Total	227	1.00		

About 2% of the wholesalers made average monthly purchases of between ₦800, 008 and ₦1, 000,009 just as only 7% of the retailers made between N64, 008-N80, 009. The mean values of the monthly purchases of the wholesalers and retailers were N63, 207.87 and N1, 898.55 respectively (Tables 4 and 5). The tables further show that at the wholesale and retail sectors, the Gini coefficient values were 0.6354 and 0.5959respectively.

DISCUSSION

The volume of yams (97.23%) flowing into the markets from outside Abia State, suggest that the State is a major yam consuming area. The Northern States of Nigeria contributed 67.97% of the total yams supplied to Abia State. This comprises, Lafia 46.34%, Ayaragu 10.93%, Zaki-Biam 4.8%, others 6%. The southern State contributed 32.03%, that is, Ogoja 10.92%, Ozigolu 14.16%, Abia State 2.77% and others 4.18%. The movement of the yams from the producer to the ultimate consumer has 6-10 distribution channels with an average of the three exchanges before getting to the ultimate consumers. The distribution channels include the producer, farm-gate middlemen, rural and urban consumers. The existence of several market intermediaries in the rural urban link, which are not mutually exclusive, suggest the ease of entry and low degree of specialization in yam trade. However, at the wholesale market, membership in yam traders association is required for ease of participation. The practice of admixture of yams by size, variety and wholesomeness, displayed in heaps for sale is done both at the wholesale and retail markets. At the wholesale market 22% of the wholesalers in the purchase range of not more than ₦1, 00, 000 handled just 1.9% of the total value of monthly purchases compared with 1% in the purchase range of N900, 009 – N900, 009 accounting for the highest volume of purchases (17.37%) (see Table 2 and 3). Similar trend was evident at the retail market. Nineteen percent of the retailers within the purchase class of ₦0-₦8, 000 handled 1.83% of the total value of monthly purchases compared with 3% in the purchase class of ₦72, 009-₦80, 009 that controlled the highest percentage (17.59%) of total volume of monthly purchases (see Tables 4 and 5). These results reveal the existence of some degree of seller concentration in the yam market. The Gini coefficient values tend towards unity than zero suggesting that in the yam market there is greater degree of inequality and hence higher level of seller concentration The difference in the Gini concentration ratios between the wholesale and retail yam markets may have stemmed from differences in their access to ownership and control of physical

marketing facilities, trading experience, capital base and collusive behaivour in the market conduct. It is therefore recommended that the degree of seller concentration be reduced by providing both the wholesalers and retailers with sufficient market lock up shops and stalls, liberalizing access to credit and physical marketing facilities, and by removal of any barrier to the trade.

CONCLUSION

Abia State is a yam consuming state with trade flows mainly from the northern states. There is insufficiency; inadequacy and unevenness in he distribution of the physical marketing facilities. Although there is relative freedom of entry into the market, membership in yam traders association enhances uninterrupted participation. The display of admixture of yams with different degree of wholesomeness, sizes and varieties in the same heaps for sale indicate the lack of adequate grading and standardization. This encourages collusive behaviour. Some degrees of seller concentration exist in the yam market with greater concentration in the wholesale market. These features imply that the yam market is monopolistically competitive and tends to expose the market towards higher profit and higher scope for middlemen exploitation.

Table 5: Distribution of yam retailers by total value of monthly purchases in Abia State 2000/2001

Total value of monthly Purchase N	Mean values of monthly Purchases (Xi)	$\bar{X}_i - \bar{X}$	% of Total monthly purchases	Coefficient of mean purchase difference
7.890	187.86	207.93	1.83	32.00
15.040	395.79	329.06	3.49	75.82
23.920	724.85	406.50	5.55	101.60
31.680	1.131.43	767.62	7.35	178.93
39.880	1.899.05	563.58	9.25	113.62
46.760	2.462.63	770.31	1086	123.25
54.960	3.232.94	1.267.06	12.75	143.30
63.000	4.500.00	3.498.89	14.62	227.78
71.990	7.998.89	4.637.78	16.71	134.96
75.820	12.636.67	-	17.59	-
Total 430.970			100.00	1131.26
Mean = 1898.55				
Gini Coefficient =	05959			

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