CONDUCT AND STRUCTURE OF SOYBEAN MARKETING IN NORTH CENTRAL STATES OF NIGERIA

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Introduction

Agricultural marketing is very critical aspect of national development. It serves as means of livelihood of million market practitioners, actors and policy makers. Haliru and Ibitoye (2014) described agricultural marketing as an important means for development, especially for the developing countries. This is because agriculture practice can be viewed as the cradle for the takeoff of industrial development. Girei *et al.* (2013) posited that efficient marketing ensures sustainability of the system through enhanced revenue generation to producers and marketers.

According to Thomas and Maurice (2011), market structure is a set of market characteristics that determine the economic environment in which a firm operates It deals essentially with the size and design of the market. On the other hand, Nzima and Dzanja (2015) described market conduct as patterns of behaviours that firms follow in adapting to the markets in which they sell or buy. Market conduct deals essentially with the behavours of the firms and market actors with regards to price determination, method of advertisement, exclusion tactics such as collusion, sex discrimination and monopoly practice.

Ruttoh *et al.* (2018) assert that before marketing system is said to be good or efficient its structure and conduct must be critically examined. Bukar *et al.* (2015) opined that market conduct is heavily influenced by the market structure. The behaviour of sellers in a market could adversely affect the efficiency of the entire system, government throughout the world watch closely the conduct of the market with a view to taking remedial actions when the conduct being pursued is viewed as inimical to efficient marketing.

Bukar *et al.* (2015) posited that the ideal market structure for optimal efficiency is pure competition. A market is said to be competitive when there are many buyers and sellers, free entry conditions, high degree of price competitions and perfect market knowledge. In analyzing market structure, market concentration and entry conditions are considered. Market concentration is defined as the number and size distribution of sellers and buyers in the market. Market concentrations play an important role in the determination of market behaviour within an industry because it affects the interdependence action among firms.

Giroh *et al.* (2010) analyzed the structure, conduct and performance of farm gate

marketing of natural rubber in Edo and Delta States of Nigeria. Gini-coefficient was used, the result revealed that the market was concentrated (0.256), showing the possibility of non-competitive behaviour and equality in earnings among marketers. Taru *et al.* (2010) analyzed paddy rice markets in southern part of Taraba State, Nigeria. The result of the study indicated that the seller's concentration was high with high income inequality in paddy rice retail than wholesale in the area with Gini-coefficient value of 0.74 and 0.53 respectively. The market therefore, exhibit features of imperfect markets of "monopolistic competition". Nzima and Dzanja (2015) discovered the absence of market association and group in soybean markets in Malawi thereby allowing setting of prices by individual through the force of demand. On the contrary, Omodona (2016) observed that majority (77%) of soybean farmers in Kogi State, Nigeria were members of cooperative societies. Alkali (2017) also found that 78.6% of soybean market participants among women in Hawul Local Government in Borno State, Nigeria belonged to active groups. The implication is that marketers have greater tendency of market collusion leading to price fixing and other market malpractices associated with imperfect market structure.

The objectives are to assess market structure and to analyze market conduct of soybean marketers in the study area.

Methodology

This study was conducted in North Central States (Benue and Nasarawa States), Nigeria. Benue State is located between latitudes 6.5º and 8.5º N of the Equator and longitudes 7.5º and 10º E of the Greenwich Meridian. Benue State has a total land area of about 30,955km^2 and divided three Agricultural Zones (A, B and C). It has an estimated population of 5,741,815 inhabitants in 2016 (National Bureau of Statistics, 2017). Nasarawa lies between latitudes 7.45° and 9.25° N of the equator and between longitudes 7° and 9.37° E of the Greenwich Meridian. It is also divided into three Agricultural Zones. Its land mass is 27,117km^2 and population of 2,523,395 inhabitants in 2016 (National Bureau of Statistics, 2017).

The two States share boundary, have similar soil type, vegetation and climatic condition, with vast arable land for commercial farming, fishery development, wildlife and forestry conservation. Agriculture is the mainstay of the economy of over 70% of the inhabitants. The States are major producer of food and cash crops like soybeans, cassava, yams, rice, maize and

cowpea, cashew and oil palm.

The sampling methods adopted include purposive, multi-stage and stratified sampling. In the first stage, the two states selected and stratified into three agricultural zones each. In the second stage, purposive selection of two Local Government Areas (LGAs) from zone A and zone B and three LGAs were selected from zone C in Benue. Furthermore, purposive selection of two LGAs from northern and western zones and one LGA from southern zone of Nasarawa state was also done. In the third stage, the marketers were divided into producer marketers, wholesalers, retailers and small scale processors and 25% of them were proportionately selected according to the population of soybean marketers in the LGAs, bringing the total sample size of 481 respondents.

Primary data was used for the study. It was collected by the use of structured questionnaire and analyzed with descriptive statistics such as frequency distribution table and Gini-coefficient. Gini-coefficient can be computed using the formula:

$G^0 = 1 - \Sigma XY$

Where,

G^0 = Gini coefficient

X = Percentage share of each class of seller.

Y = Cumulative percentage of the sales

Results and Discussion

Socioeconomic Characteristics of Soybean Marketers

The study revealed that most soybean small-scale processors (60.3%) and retailers (65.80%) were between the age of 21 and 40 years, while 66.0% of soybean wholesalers and 59.7% of producer-marketers were between 41 and 60 years. This implied that most respondents are within the active working and productive age which is good for soybean marketing due to the labour-intensive task involved such as assemblage of output, lifting and weighing of several bags for long duration of time.

It was also found that soybean wholesalers comparably are older with mean age of 44.06 years, followed by producer-marketers (42.77 years), small-scale processors (39.99 years) and

retailers (39.7 years). This is expected since wholesale business requires risk which can be well managed by mature mind. This result agreed with Ezihe *et al.* (2014) who found that majority

Table 1: Distribution of Respondents according to their Socioeconomics Characteristics

Variable	Small scale Processors		Wholesalers		Retailers		Producers	
	Frq.	**%**	**Frq.**	**%**	**Frq.**	**%**	**Frq.**	**%**
Age								
21-40	82	60.3	18	34.0	73	65.8	73	40.3
41-60	54	39.7	35	66.0	38	34.2	108	59.7
Total	**136**	**100**	**53**	**100**	**111**	**100**	**181**	**100**
Mean	**39.99**		**44.06**		**39.71**		**42.77**	
Sex								
Male	33	24.30	37	69.80	45	40.5	128	70.70
Female	103	75.70	16	30.20	66	59.5	53	29.30
Total	**136**	**100**	**53**	**100**	**111**	**100**	**181**	**100**
Years in school								
0	22	16.2	4	7.5	19	17.1	45	24.9
1-6	52	38.2	12	22.6	36	32.4	49	27.1
7-12	54	39.7	32	60.4	47	42.0	76	42.0
≥ 13	8	5.9	5	9.4	9	8.1	11	6.1
Total	**136**	**100**	**53**	**100**	**111**	**100**	**181**	**100**
Mean	**7.87**		**9.89**		**8.16**		**7.50**	
Market exp.								
1-5	23	16.9	3	5.7	15	13.5	18	9.9
6-10	81	59.5	36	67.9	63	56.8	97	53.6
11-15	16	11.8	10	18.9	19	17.1	41	22.7
≥ 16	16	11.8	4	7.5	14	12.6	25	13.8
Total	**136**	**100**	**53**	**100**	**111**	**100**	**181**	**100**
Mean	**9.44**		**9.96**		**9.95**		**10.50**	
Marital status								
Married	105	77.2	39	73.6	94	84.7	142	78.5
Singled	16	11.8	8	15.1	12	10.8	17	9.4
Divorced	3	2.2	2	3.8	4	3.8	5	2.8
Widowed	12	8.8	4	7.5	1	0.9	17	9.4
Total	**136**	**100**	**53**	**100**	**111**	**100**	**181**	**100**

Source: Field Survey, 2019

(97.3%) of soybean processors are within the active age of between 21 and 60 years with average age of 37 years and Uwaoma (2015) who found the average age of soybean processor in Anambra State, Nigeria to be 43 years.

75.7% of soybean small-scale processors and 59.5% of retailers were female. This could be as a result of women dominance in processing and marketing sectors of agricultural value-

chain. This finding tallied with Uwaoma (2015) who found that 69% of soybean processing was done by female. However, 69.8% of wholesalers and 70.7% of producer-marketers were male. This could be attributed to the large capital and labour required in soybean wholesale and direct production of soybeans. This corroborates Udeh *et al.* (2018) where 77.3% of soybeans marketers in Benue State, Nigeria were male.

The predominant years spent in school was between 7 and 12 years, which implied that the marketers can read, write and record sales. Soybeans marketing actually require lot of skills, calculation, record keeping and communication of feedback from marketers to producers, this make education a key requirement of a good marketer. Specifically, the secondary school-leavers were 39.7% of soybean small-scale processors, 60.4% of wholesalers, 42% of retailers and 42% of soybean producer-marketers. The next categories have spent 1-6 years in school (primary school leavers) as indicated by 38.2% of small-scale processors, 22.6% of wholesalers, 32.4% of retailers and 27.1% of producer-marketers.

The average years spent in school among soybean small-scale processors was 7.87 years, 9.89 years for wholesalers, 8.16 years for retailers and 7.50 years for producer-marketers. This implied that most soybeans marketers in the study area were quite literate and numerate. This result agreed with Asogwa and Okwoche (2012) where majority (54%) of sorghum marketers in Benue State had secondary education.

The study revealed that the marketing experience of most participants was between 6 and 10 years in soybeans marketing as indicated by 59.5% of small-scale processors, 67.9% of wholesalers, 56.8% of retailers and 53.6% of producer-marketers. Marketing experience is an advantage in line with the old saying state that ‘practice makes perfect’. This is because what the marketers have done from previous years will usually serves as guide for future practices. According to Abah (2011), experience enhances proficiency and increase productivity. The next categories of marketing experience were between 11 and 15 years as indicated by 22.7% of soybean producer-marketers, 17.6% of retailers and 18.9% of wholesalers. It also revealed that the mean years of soybean marketing were 9.44 years, 9.96 years, 9.95 years and 10.5 years for small-scale processors, wholesalers, retailers and producer-marketers, respectively. However Bakoji *et al.* (2013) found that 68% soybeans marketers in Bauchi State, Nigeria have marketing experience of between 10 and 19 years.

Most soybean marketers were married as indicated by 77.2 % of small-scale processors,

73.6% of wholesalers, 84.7% of retailers and 78.5% producer-marketers. This result implied that the marketers can get frequent productive advice, assistance and support from their spouse. This finding also corroborate Ezihe *et al.* (2014) who found that most (67.9%) of soybean marketers in Tarka LGA of Benue state, Nigeria were married and Uwaoma (2015) who also found that 91% of soybean processors in Anambra State, Nigeria were married.

Market Conduct of Soybean Marketers in the Study Area

The result of the market conduct revealed that in spite of existence of market association in the study area, most of the soybean marketers were not members of market association as represented by 65.4% of small scale processors, 64.2% of wholesalers, 72.97% of retailers and 64.1% of producer marketers. The consequence of not participating in market association is that the marketers are deprived of enjoying the benefits of price collusion and monopoly control. Comparably, the soybean wholesalers, producer marketers and small scale processors have more members belonging to market association as indicated by 35.8%, 35.9% and 34.6% respectively, than soybean retailers (27%). This is similar to Nzima and Dzanja (2015) who found that there were no trader based organizations or marketing groups among soybean marketers in Malawi. However, it contrast Asogwa and Okwoche (2012) who found 93% of sorghum marketers in Benue State, Nigeria were members of market associations. Abah *et al.* (2015) also noted that majority (69.04%) of paddy rice marketers in Benue State, Nigeria were members of marketing association or union.

The result revealed that most marketers can freely enter and exit the market as indicated by the following percentages: 90.4% of small scale processor, 100% of wholesalers, 91.9% of retailers and 97.8% of producer marketers. However, those soybean marketers who reponded there was no free entry and exit were very few. Form this finding, the soybean marketing can be referred to as competitive market since no single marketer can dominate other marketers due to freedom of entry and exit. This result corresponds to Abah *et al.* (2015) who noted that majority (92.39%) agreed there was freedom to buy and sell paddy rice in Benue State, Nigeria.

Furthermore, the study revealed that open display was the prevailing advertisement method used by 92.6% of soybean small scale processors, 94.3% of wholesalers, 92.8% of retailers and 97.2% of producer marketers. This is expected since soybean is not like

manufactured and branded products that must be advertised. Aside open display, any other form of advertisement will be generic advertisement which usually is not targeted at a particular soybean marketer.

Table 2: Distribution of Respondents according to their Market Conduct

Marketers	**Membership of asso.**	**Frequency**	**%**
Small-scale processors	Yes	47	34.60
	No	89	65.40
	Total	**136**	**100**
Wholesalers	Yes	19	35.80
	No	34	64.20
	Total	**53**	**100**
Retailers	Yes	30	27.00
	No	81	72.97
	Total	**111**	**100**
Producer-marketers	Yes	65	35.90
	No	116	64.10
	Total	**181**	**100**
	Free entry/exit		
Small-scale processors	Yes	123	90.40
	No	13	9.60
	Total	**136**	**100**
Wholesalers	Yes	53	100
Retailers	Yes	102	91.90
	No	9	8.10
	Total	**111**	**100**
Producer-marketers	Yes	177	97.80
	No	4	2.20
	Total	**181**	**100**
	Advertisement method		
Small-scale processors	Open display	126	92.60
	Persuasion	10	7.40
	Total	**136**	**100**
Wholesalers	Open display	50	94.30
	Persuasion	3	5.70
	Total	**53**	**100**
Retailers	Open display	103	92.80
	Persuasion	7	6.30
	Other mean	1	0.90
	Total	**111**	**100**
Producer-marketers	Open display	176	97.20
	Persuasion	5	2.80
	Total	**181**	**100**

Source: Field Survey, 2019

Table 2 Continue

Marketers	**How is price fixed**		
Small-scale processors	Purchase price	54	39.70
	Consumer bargain	81	59.60
	Quantity supplied	1	0.70
	Total	**136**	**100**
Wholesalers	Purchase price	18	34.00
	Consumer bargain	35	66.00
	Total	**53**	**100**
Retailers	Purchase price	58	52.30
	Consumer bargain	53	47.70
	Total	**111**	**100**
Producer-marketers	Purchase price	26	14.40
	Consumer bargain	155	85.60
	Total	**181**	**100**
	Information sources		
Small-scale processors	Middlemen	120	88.20
	Market associations	16	11.80
	Total	**136**	**100**
Wholesalers	Middlemen	49	92.50
	Market associations	4	7.50
	Total	**53**	**100**
Retailers	Middlemen	102	91.90
	Market associations	9	8.10
	Total	**111**	**100**
Producer-marketers	Middlemen	168	92.80
	Market associations	13	7.20
	Total	**181**	**100**

Source: Field Survey, 2019

However, the soybeans marketers need to do more in terms of sales promotion in order to encourage the utilization of soybean and its products which are very low presently. In most cases, the consumers are not aware of the vast nutritive value and numerous forms in which soybean can be process for easy utilization of its product. This result contrast Abah *et al.* (2015) who found that majority (96.95%) of paddy rice marketers did not advertise their paddy rice to prospective buyers in Benue State, Nigeria. Ruttoh *et al.* (2018) also confirmed there was no promotional strategy identified among tomatoes marketers in Kenya.

Soybean market price was determined mainly by consumer bargain as indicated by 59.6% for small scale processors, 66% for wholesalers and 85.6% for producer marketers. This implied that consumer supremacy prevails in soybeans marketing in the study area. This further

confirmed the competitive nature of soybean marketing. This finding also agreed with Asogwa and Okwoche (2012) who found that 70% of sorghum marketers in Benue State fixed price by bargain. However, majority of soybean retailers (52.3%) responded that price was determined by purchase price. That means that price was given to the buy. This result is expected since retailers cannot fix price but are guided by purchase price. Abah *et al.* (2015) also found that majority (71.57%) of paddy rice marketers indicated that price fixing was based on the current price as provided by the middlemen. Ruttoh *et al.* (2018) also confirmed price was fixed by tomatoes marketer (broker) in Kenya.

The study also revealed that middlemen were the source of market information to 88.2% of small scale processors, 92.5% of wholesalers, 91.9% of retailers and 92.8% of producer marketers. Market information is a very crucial factor affecting market conduct, structure and performance. The absence of proper market information dissemination always gives room for cheating and inefficiency in the market. It was found that only few marketers get their information from market association. This is probably due their non-membership of market association as earlier revealed by this study. Awareness of where marketers can buy cheaply or sell at fairly higher rate will affect market conduct. Asogwa and Okwoche (2012) also found that 80% of sorghum marketers obtained market information from middlemen. Abah *et al.* (2015) confirmed that the majority (94.42%) of paddy rice marketer in Benue State, Nigeria obtained marketing information from middlemen.

Soybean Market Structure and Concentration in the Study Area

The degree of market concentration was analyzed with Gini-coefficient and presented in table 3. The Gini-coefficient varies from 0 to 1, where 0 implies perfect equality in the distribution of sales income among the marketers. The closer the Gini-coefficient is to zero, the greater the degree of equality, the lower the level of concentration and the more competitive the market is. Similarly, the closer the Gini-coefficient to one, the greater the degree of inequality, the higher the concentration and the more imperfect are the markets.

Table 3: Analysis of Gini-Coefficient to Determine the Market Structure and Concentration

Income range	Freq. of sale	Proportion of seller(X)	Total sale (N)	Proportion of sale	Cumulative propt of sale (Y)	XY
Small-scale Processors						
≤100,000	49	0.36	7,102,045.59	0.36	0.36	0.1296
100,001-200,000	61	0.45	8,841,322.06	0.45	0.81	0.3645
200,001-300,000	18	0.13	2,608,914.71	0.13	0.94	0.1222
300,001-400,000	5	0.04	724,698.53	0.04	0.98	0.0392
≥400,000	3	0.02	434,819.12	0.02	1	0.0200
Total	**136**		**19,711,800.01**			**0.6755**
Mean value of sales =₦144,939.71, G^0=1 –ΣXY. **G^0=1 – 0.6755. G^0= 0.3245**						
Wholesaler						
≤100,000	1	0.02	362,324.53	0.02	0.02	0.0004
100,001-200,000	17	0.32	6,159,517.01	0.32	0.34	0.1088
200,001-300,000	9	0.17	3,260,920.77	0.17	0.51	0.0867
300,001-400,000	9	0.17	3,260,920.77	0.17	0.68	0.1156
≥400,000	17	0.32	6,159,517.01	0.32	1	0.3200
Total	**53**		**19,203,200.09**			**0.6315**
Mean value of sales =₦362,324.53, G^0=1 –ΣXY. **G^0=1 – 0.6315.G^0= 0.3685**						
Retailers						
≤100,000	40	0.36	5,522,104.40	0.36	0.36	0.1296
100,001-200,000	54	0.49	7,454,840.94	0.49	0.85	0.4165
200,001-300,000	16	0.14	2,208,841.76	0.14	0.99	0.1386
300,001-400,000	1	0.01	138,052.16	0.01	1	0.0100
≥400,000	0	0	0	0	0	0
Total	**111**		**15,323,839.71**			**0.6947**
Mean value of sales =N138,052.61 , G^0=1 –ΣXY. **G^0=1 – 0.6947G^0= 0.3053**						
Producer marketers						
≤100,000	36	0.20	7,160,797.80	0.20	0.20	0.0400
100,001-200,000	71	0.39	14,122,684.55	0.39	0.59	0.2301
200,001-300,000	50	0.28	9,945,552.50	0.28	0.87	0.2436
300,001-400,000	13	0.07	2,585,843.65	0.07	0.94	0.0658
≥400,000	11	0.06	2,188,021.55	0.06	1	0.0600
Total	**181**		**36,002,900.05**			**0.6395**
Mean value of sales =₦198,911.0, G^0=1 –ΣXY **G^0=1 – 0.6395 G^0= 0.3605**						

Source: Field Survey, 2019

The result of the analysis revealed that the Gini-coefficient of soybean small scale processors was 0.3245, which is low based on Dillon and Hardakar (1993) who asserted that Gini-coefficient greater than 0.35 benchmark are high. This result implied that small scale processors have lower level of market concentration and high degree of equality, hence the market is competitive in nature. This result contrast Abah *et al.* (2015) who found a high Gini-coefficient among rice marketers in Benue state, Nigeria.

The study also revealed that the Gini-coefficient of soybean wholesalers was 0.3685. This is slightly greater than the benchmark of 0.35. The result implied that there was higher degree of

concentration and inequality in distribution of sales income which is characteristics of imperfect market structure. The greater the degree of concentration, the greater is the possibility of non-competitive behaviour such as price collusion in the market. Hence the wholesalers can be described as monopolistic and have the tendency of making excess profit at the expense of farmers or consumers. This result agreed with Buhari *et al.* (2018) who realized a high Gini-coefficient of 0.59 among rice marketers in Kebbbi State, Nigeria.

The Gini-coefficient of retailers was found to be 0.3053. This result implied that there was low level of market concentration and equitable distribution of sales income among soybean retailers in the study area. This is characteristics of competitive market. It can be stateted that there is fair treatment and market efficiency among soybeans retailers. This result agreed with Kassali *et al.* (2018) where the Gini-coefficient of wholesalers and retailers was 0.3163 and 0.307 respectively among yam marketers in Ondo State, Nigeria.

The market concentration of producer marketers as revealed by the Gini-coefficient analysis was 0.3605. This means there was high market concentration and inequality in distribution of sales income among soybean producer marketers. It is characteristic of imperfect market. It also implied a high variation of returns to producer marketers. This result is similar to Ocholi *et al.* (2019) who recorded high (0.5287) Gini-coefficient among marketers of gari, in Benue State, Nigeria.

Conclusion and Recommendations

Based on these findings, we can conclude that soybean small scale processors and retailers enjoyed fair equality in distribution of sales income and are term competitive. However, imperfect competitive market tendency are more visible among soybean producers marketers and wholesalers in the study area. The study recommends that soybeans marketers should join market associations/group so that they can share in exchange of best practice and idea. Sales promotion of nutritive value and varieties of form which soybean can be consumed should be demonstrated to encourage soybean utilization. Information on soybean production and marketing should be disseminated freely and not be left to middlemen to avoid market malpractices.

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