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308 Lasani Town, Sargodha Road, Faisalabad - Pakistan
Mob: +92 300 3008585, Fax: +92 41 8815544
E-mail: editorijps@gmail.com

Economics of Poultry Egg Marketing in Benin City, Edo State, Nigeria

P.A. Ekunwe¹ and G.O. Alufohai²

¹Department of Agriculture, Benson Idahosa University, Benin City, Edo State, Nigeria

²Department of Agricultural Economics and Extension Services,
Faculty of Agriculture, University of Benin, Benin City, Edo State, Nigeria

Abstract: This study examined the profitability of egg marketing as well as the market structure and marketing margin of poultry egg in Benin City, Edo state, Nigeria. Six markets (Uselu, Oliha, Ogida, Oba, Osa and New Benin markets) in Benin City were purposively selected for the study, after which ten egg sellers were randomly selected from each of the six markets giving a sample size of 60. Primary data were obtained through the use of a well-structured questionnaire and personal interview. The data obtained were analyzed using descriptive statistics, Gini coefficient and Gross margin. The results of the analysis showed that majority (96.7%) of the respondents were females. The mean age of the respondents was 45 years while the household size was 6 persons. A Gini coefficient of 0.81296 obtained in the study indicates a high level of inequality in income distribution among the respondents. The profitability analysis showed a gross margin per seller of 12,029.50 Naira (\$104.61) and a net return per seller of 10,779.50 Naira (\$93.74). Finally, a marketing margin of 60.67 Naira (\$0.53) was obtained in the study area

Key words: Egg marketing, profitability, market structure, marketing margin Nigeria

INTRODUCTION

Poultry is one of the world's major and fastest growing sources of meat, representing over 22% of the meat production in 1989. Because of their high nutrient content and relatively low caloric value, egg and poultry products are natural commodities to meet emerging consumer demands (Stenholm and Waggoner, 1991). Survey showed that, the production of the poultry industry in 1977/78 experienced a remarkable increase. The industry has developed from few thousand exotic birds in 1975 to a remarkable total of 133, 504, 190 exotic and local fowls, 825, 640 turkeys, 1, 210, 494 ducks and 45, 777, 019 guinea fowls (Akinwumi and Ikpi, 1989). This figure has tripled over the last three decades (FAO, 2007).

However, an important factor responsible for the phenomenal increases in poultry production in the country has been commercial banks which provide the needed funds more readily for poultry than for other agricultural enterprises, Ikeme (1990). Estimates from the consumption and demand survey in Nigeria indicate that consumption of poultry product is increasing despite its high cost.

Branckaert and Guèye (2000), observed that poultry products in most developing countries, especially in Africa, are still expensive and that the marketing system is generally informal and poorly developed. Unlike eggs and poultry meat from commercial birds derived from imported stocks, consumers generally prefer those from indigenous stocks. The existence of a local market offering good sales opportunities and adequate transport facilities are obvious prerequisites for family

poultry development. As most consumers with good purchasing power live in cities, intensification of poultry production should be initiated in peri-urban areas or, at least, in areas having a good road network.

It is important to stress that when dealing with poultry as a means of addressing poverty, the risks involved in starting up or improving the production have to be minimal from a producer's point of view. Introducing new high-yielding breeds should be done in a careful step-wise manner, ensuring that producers know how to handle disease and management problems first. It is also necessary to recognize that the sale of a few eggs per day or a few live birds per month should have a remarkable effect on the income at household levels, otherwise, it makes more sense to focus on indigenous birds. Learning how to rear 5-50 local chickens is therefore a basic step out of poverty, not a goal in itself (Dolberg, 2003).

This study examined the socioeconomic characteristics of poultry egg marketers, determined the marketing margin and profitability of egg marketing and also examined the market structure for eggs as well as the market concentration in the marketing system for eggs in Benin City Edo State, Nigeria.

Theoretical framework: Marketing margin is the difference between the price paid by the consumer for one unit of a certain product of a specific quality and the price received by the producer for the farm equivalent of the unit. It measures the per unit charges made by the marketing agencies and it includes, as far as possible, all charges that take place from the farm gate to the retail

purchase. It is a payment for the value added for processing (where applicable), storage, transportation and distribution (Abalu and Kalu, 1988). Vanessa and Jonathan (1992) depict marketing margin as the difference between producer and consumer prices of an equivalent quantity and quality of a given commodity. Adekanye (1988) regarded small margins as proof that distribution or marketing is efficient but Vanessa and Jonathan (1992) shared the view that gross marketing margin cannot be treated as an indicator of economic performance as such low margin may coexist with inefficient use of resources, poor coordination and poor consumer satisfaction as well as disproportionate profit level. According to Harris (1993), the marketing margin, characterized as some function of the difference between retail and gate farm price of a given farm product, is intended to measure the cost of providing marketing services. The margin is influenced primarily by shifts in retail demand, farm supply and marketing input prices.

According to Olukosi *et al.* (2007), market structure tends to consider whether the number of firms producing a product is large or whether the firms are of equal sizes or dominated by a small group. It is also concerned with whether entry for new firms is easy or difficult and whether the purchases for the products are in a competitive state or not. It equally relates to the degree of market knowledge that is available to the participants. Market structure analysis emphasizes the nature of market competition and attempts to relate the variables of market performance to types of market structure and conduct. It is a description of the number and nature of participants in a market. Market conduct deals with the behaviour of firms. Firms that are price makers are expected to act differently from those in a price taker type of industry. Harris (1993) said that a market structure consists of the characteristics of the organization of a market, which seems to influence strategically the nature of competition and pricing within the market. The setup of the market consists of the degree of concentration of buyers and sellers, integration, product differentiation and the degree of competition between buyers and sellers. Imoudu and Afolabi (2002) posited that the market structure for agricultural products in Nigeria is not perfectly competitive due to the collusive tendencies of sellers by forming associations for particular products.

The market structure can be examined by using the Lorenz curve and Gini coefficient (Dillon and Hardaker, 1993). According to them, the Lorenz curve is obtained by plotting the cumulative proportion of sellers from the smallest number to the largest against the cumulative proportion of their sales earnings. If the distribution is totally equitable, the curve will fall on the 45° line. The greater the inequality, the greater the departure from the 45° line. Gini coefficient on the other hand is the rate of

the area between the curve and the 45° line to the area under the 45° line. It is also a measure of inequality. Gini coefficient >0.35 is high indicating inequitable distribution. In other words, higher Gini coefficient means higher level of concentration and consequently, high inefficiency in the market structure (Afolabi, 2007).

MATERIALS AND METHODS

Study area: The study was conducted in Benin City, Edo State between February and May 2008. Benin City is the State capital of Edo State and the city is characterized by two climatic seasons; the rainy season between April and October and the dry season between November and March. The favourable climate of the area encourages agriculture. Both arable and permanent crops thrive in the area, as well as varieties of livestock, including poultry. Apart from farming, the inhabitants of Benin City also engage in other occupations like trading, manufacturing and commerce with agricultural marketing being prominent.

Sampling technique and data collection: A 2-stage sampling technique was used in selecting the respondents. The first stage was a purposive sampling of 6 markets in Benin City (Uselu, Oliha, Ogida, Oba, Osa and New Benin markets). The 2nd stage was the selection of 10 egg marketers in each of the 6 markets using the simple random sampling technique. Primary data were obtained using a well structured questionnaire and personal interviews with the respondents.

Data analysis technique: The following data analysis techniques were used to analyze the data collected. Descriptive statistics such as frequency distribution tables, percentages and mean were used to analyze the socio-economic characteristics of the marketers. Gini coefficient (G.C) was used to examine market concentration for egg in the study area. It is represented as:

$$G.C = 1 - \sum YX \quad (1)$$

where:

- Y = The percentage of poultry egg sellers
- X = The cumulative percentage of their sales

The Gross margin analysis was used to determine the profitability of the egg marketing and it is given as:

$$GM = GS - TVC \quad (2)$$

where:

- GM = Gross Margin
- GS = Gross Sales
- TVC = Total Variable Cost

The marketing margin formula was used to analyze the marketing margin of eggs in the study area. The

marketing margin given as Retail Price-Farm gate Price was also used to examine the egg marketing system while the viability of the business was assessed using the Benefit-Cost Ratio (BCR) calculated from:

$$BCR = \frac{PV \text{ of total revenue}}{PV \text{ of total cost}}$$

RESULTS AND DISCUSSION

Socioeconomics characteristics: The result presented in Table 1 below shows that 58 (96.7%) of the egg marketers were females. Which may imply that egg marketing is a feminine business? This result is in agreement with the study carried out by Afolabi (2007) on poultry egg marketing in South-Western Nigeria, which showed a dominating female population of egg marketers in the study area (80.5%). This result also shows that the average age of the respondent was 45 years. This may mean that most egg marketers in Benin were in their active age of productivity as it agrees with Afolabi (2007), that majority (89%) of the poultry egg marketers in South-Western Nigeria, were between 26 and 55 years.

The result presented in Table 1 also shows that 53 (88.3%) of the respondents were married with an average household size of 6 persons, having an average of 8 years of education. This implies that most of the egg marketers in Benin did not have large household sizes and were not complete illiterate. This is in accordance with the findings of Afolabi (2007), which also showed that a large percentage (70.5%) of egg marketers in South-Western Nigeria were literates. The table also shows that the egg marketers were quite experience in the business having been in it for an average of 11 years.

Market structure of respondents: The result as presented in Table 2 shows that the estimated Gini Coefficient was 0.81296. This implies that there is high level of inequality in the sales revenue of respondents and consequently high level of concentration. This is a

reflection of the inefficiency in the market structure for the egg in the study area. Also, the result shows that 41 (68.3%) of the respondents bought eggs from producers, while 19 (31.7%) of them bought from wholesalers. This implies that most of the egg marketers in Benin normally prefer to buy eggs from producers and perhaps those who usually bought eggs from wholesalers would also have preferred to buy from producers if there are any suppliers. Also, 43 (71.7%) of the respondents sold their eggs to both consumers and middlemen, while 17 (28.3%) sold to only consumers. This indicates a high level of decentralization in the marketing channel for eggs in Benin City.

Profitability of egg marketing: The result of the gross margin analysis is presented in Table 3. The result shows that the cost of purchase of 227 crates per of retailer was ₦105, 257 which was 98.4% of the total variable cost. The cost of transportation, storage, packaging and labour accounted for 0.49, 0.47, 0.52 and 0.12 percentages, respectively. The total variable cost per retailer/seller was ₦106, 968/227 crates of eggs while the total revenue per seller was ₦118, 997.50. The gross margin per seller was ₦12, 029.50 for 227 crates of eggs. However the net return per seller was ₦10, 779.50. The result revealed that marketing of egg in the study area is profitable.

Table 1: Summary statistics of socioeconomic characteristics of respondents

Items	Mean value	Respondents	Percentage
Gender:			
Males		2	3.3
Females		58	96.7
Marital status:			
Married		53	88.3
Single		6	10.0
Widowed		1	1.7
Average age	45 years		
Household Size (Persons)	6 persons		
Education (Years)	8 years		
Years of experience	11 years		

Source: From Field Data, 2008

Table 2: Estimate of Gini Coefficient for poultry egg retailers in Benin City

Range of income (₦)	Frequency of sellers	Percentage of sellers (Y)	Cumulative frequency of sellers	Percentage cumulative frequency	Total sales (₦)	Percentage of total sales (X)	YX
≤10,000	1	1.6	1	1.6	60,000	0.95	0.00015
10,001-20,000	3	5	4	6.6	324,400	5.14	0.00257
20,001-30,000	3	5	7	11.6	380,000	6.02	0.00301
30,001-40,000	4	6.7	11	18.3	425,000	6.73	0.00451
40,001-50,000	4	6.7	15	25	400,000	6.33	0.00424
50,001-60,000	5	8.3	20	33.3	445,000	7.05	0.00585
60,001-70,000	3	5	23	38.3	355,000	5.62	0.00281
70,000-80,000	3	5	26	63.3	325,000	5.15	0.00258
80,001-90,000	4	6.7	30	50	500,000	7.91	0.00530
90,001-100,00	6	10	36	60	850,000	13.46	0.01346
>100,000	24	40	60	100	2,251,000	35.64	0.14256

Mean value of sale = ₦ 73, 333.93, Gini Coefficient = 1 - (₦) YX = 1 - (₦) 0.18704 = 0.81296, Derived from Field Data, 2008

Table 3: Gross margin analysis per seller of egg per month in Benin City

Items	Amount (₦)	Percentage
Cost of purchase of eggs	105,257.00	98.40
Transportation cost	503.33	0.49
Storage cost	525.25	0.47
Packaging cost	555.10	0.52
Labour cost	127.50	0.12
Market tax	1,250.00	
Total variable cost per seller	106,968.00	
Total cost per seller	108,218.18	
Total revenue per seller	118,997.50	
Gross margin per seller	12,029.50	
Net revenue per sellers	10,779.50	

Derived from Field Data, 2008. \$1 = ₦ 115.00

Table 4: Marketing margin for eggs

Items	Amount (₦)
Average farm gate price/crate of eggs	464.58
Average packaging cost/crate of eggs	3.96
Average transportation cost/crate of eggs	3.60
Market charges/tax/crate of eggs	2.38
Average labour cost/crate of eggs	0.92
Average retail price/crate of eggs	525.25
Marketers profit/crate of eggs	49.81
Marketing margin/crate of eggs	60.67

From Field Survey Data, 2008. \$1 = ₦ 115.00

Marketing margin of respondents: The result as presented in Table 4 shows that the average farm gate price was about ₦465 per crate of eggs. Average cost of packaging per crate of eggs was ₦3.96, while average transportation cost per crate of eggs was ₦3.60. The average cost for charges/tax per crate of eggs was ₦2.38. The average labour cost per crate of eggs was ₦0.92 (92 kobo) while the average retail price was ₦525.25 yielding a total margin of ₦60.67 which imply that there was a price difference of ₦60.67 per crate of egg. Iheanacho (2005), on the structure and performance of retail egg marketing in Borno State observed that the egg marketers realized a marketing margin of 14.44 per crate of eggs.

Viability test: The analysis shows that the business had a Benefit Cost Ratio (BCR) of 1.10. The BCR indicates that egg marketing is viable in the study area.

Conclusion: The study revealed that egg marketing is profitable in Benin City. The business is highly recommended for youth in the State as a means of gainful employment as only 10% of the respondents were single. The study also showed the inequality in the market structure by the high level of concentration in the market as seen in the estimate of the Gini coefficient. The mean age of 45 years also revealed that majority of the respondent are in their active productive age.

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