

Economic Analysis of Frozen Chicken Marketing in Badagry Local Government Area of Lagos State, Nigeria

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Abstract: The study was designed to analyze the economics of frozen chicken marketing in Badagry local government area of Lagos state. Primary data were obtained from forty five frozen chicken marketers randomly selected from the study area. Analytical tools used include descriptive statistics which was used to describe the socio-economic characteristics of the chicken marketers. The study discovered that average age of respondents was 37.6 years. Majority of them (88.9%) were female while 77.8% were married. In addition, most (78.9%) of the respondents have a household size below 5. The average years of frozen chicken marketing experience for the respondents was 7.16. Budgetary analysis was employed to investigate the profitability of frozen chicken enterprise in the area. The result revealed that the enterprise is profitable with per week gross margin and benefit cost ratio of ₦8366.40 and 1.2, respectively. The regression analysis result shows that the marketing cost components that have significant effect on the marketers' revenue include cost of chicken, cost of fuel and years of schooling. Major problems facing the respondents include finance and erratic electricity supply. The study concluded that frozen chicken marketing is a profitable business. It was therefore, recommended that the marketers should form a cooperative group with the aim of provision of timely loans to its members in financing their frozen marketing activities.

Key words: Economic analysis, frozen chicken, marketing, electricity, business, Nigeria

INTRODUCTION

Livestock production is one of the most important agricultural activities carried out in most West African countries. Chicken is one of the commonest animal reared due to its economic importance to man. This importance consists mainly of the provision of meat, eggs, dropping and feathers. The meat and eggs are essential protein nutrients to man while droppings and feathers are by-products. The poultry species is generally taken to refer to chickens, ducks, geese and turkey. There are various breeds of chicken which consist of New Hampshire, White leghorn, Ply mouth rock, Rhode Island Red, to mention a few (Odunsi *et al.*, 2004).

Poultry meat is high in fat and cholesterol but an excellent source of protein. Chicken are versatile meat that can be prepared in countless ways in order to add to its nutritional benefit to human diet. Chicken has 48 g of protein but the amount of fat varies. The skinless chicken breast has about 3 g of fat while that of chicken with skin has 14 g of fat.

A whole chicken can be kept up to a year in the freezer. Chicken parts can last up to 9 months but it depends on how good the freezer is and how well the chicken is packaged for freezing. Cooked chicken is good

and can last up to 4 days while raw chicken is good within 1-2 days. Chicken should be stored in the coldest part of the refrigerator for best shelf-life.

In Nigeria, the poultry sector has developed such that large scale production is being practiced and a lot of people derive their means of livelihood from poultry and its associated industries. Processing can be defined as the sequence of operations to which a poultry bird is subjected to preparation for consumption (Shari, 2002). According to Alan (2001) and Aduku and Olukosi (1991), the following steps are followed during the processing of chicken.

Starvation: Keeping the bird off food for 24 h before killing but water should be supplied because this allow the crop to become empty and the intestinal contents would be reduced appreciably.

Receiving: This is the arrival of birds to the shackling area.

Killing: This is the act of severing the jugular vein in the ventrolateral base of the head.

Bleeding: Giving room for total drainage of blood.

Scalding: This is the immersion of chicken into hot water which will facilitate feather removal.

De-feathering: The removal of feathers from the chicken.

Singeing: This is the removal of hair like feathers called filoplumes and by a flame.

Washing: Spray washing is used to remove the feathers and singed feathers.

Evisceration: This is the removal of inedible guts or viscera e.g., intestine, liver, lungs, reproductive organ.

Washing: Spray washing with cold water to remove blood traces.

Chilling: This is done to complete the removal of body heat. Rapid cooling prevents rapid build up of microbial population thus allowing maximum shelf life of the carcass.

Weighing: The carcasses are weighed and dropped into the appropriate holding container.

Cutting: In some cases the carcass is cut into half or pieces at the processing plant while others are cut up at retail outlets depending on the type of market.

Packing: They are packed in thin poly bags and in the automatic processing programme, they are repacked into cartons either in dozens or by weights.

As a result of time constrain and busy schedule, most people claimed not to have the time for processing a live chicken. Such people prefer to purchase the already processed and frozen chicken. The challenge facing such group of people is where and how to get a good bargain for their purchase. This study therefore, looked into the structure, conduct and performance of frozen chicken marketing by seeking answers to the following research questions:

- What are the socio-economic characteristics of the frozen chicken marketers?
- What are the marketing practices and experience of the respondents?
- What are the cost and returns to the enterprise?
- What are the problems facing frozen chicken marketers?

The aim of this study was to analyze the economics of chicken marketing in Badagry local government area of Lagos state. The specific objectives are to:

- Identify the socio-economic characteristics of frozen chicken marketers in the study area
- Investigate the marketing practices and experience of respondents in the study area
- Analyze profitability of the enterprise
- Identify factors limiting chicken marketing in the study area

Hypothesis of the study stated in the null form is as follow: H_0 : There is no significant relationship between marketing costs and returns to the enterprise.

MATERIALS AND METHODS

Study area: The study was carried out in Lagos state of Nigeria. Lagos state is a large city with population of 5,828,202 and land area of 3,473 km². It is located in the tropical zone lying between 7 and 9°N of the equator and longitude 3 and 5°E of the Greenwich Meridian. Badagry local government area of the state was purposively chosen because of high concentration of frozen chicken marketers in the area. The population of this study comprised of all registered frozen chicken marketers in Badagry local government area of Lagos state.

Sampling technique and sample size: Random sampling technique was used in selecting 65% of the registered frozen chicken marketers. A list of the marketers was collected from their association secretariat. There were seventy marketers on the list; 45 of them were randomly selected.

Data collection and analysis: Primary data were collected through the use of interview schedule. Information were collected on socio-economic characteristics of respondents, marketing practices and experience, costs associated with frozen chicken marketing and returns to it as well as problems militating against the enterprise.

Data were analyzed using both descriptive and inferential statistics. The descriptive statistics entail the use of frequency counts, tables and percentages. This was used to analyze the socio-economic characteristics of respondents, marketing practices and experience as well as problems faced by marketers. Multiple regression established the statistical relationship that exists between cost and returns to the enterprise. Budgetary analysis was employed to investigate the profitability of the enterprise. The gross margin was computed as the total revenue minus total variable cost of production. Profit was calculated by subtracting the total cost from the total revenue. Mathematically:

$$\text{Total revenue} = \text{Output} \times \text{Unit price}$$

$$\text{Total cost} = \text{Total variable cost} + \text{Total fixed cost}$$

$$\text{Gross margin} = \text{Total revenue} - \text{Total variable cost}$$

$$\text{Profit} = \text{Gross margin} - \text{Total fixed cost (depreciated value)}$$

$$\text{Benefit cost ratio} = \text{Total revenue} / \text{Total cost}$$

Benefit cost ratio is a measure of profitability and investment criteria requires that Benefit Cost Ratio (BCR) should be greater than one (i.e., BCR>1) before a business can be termed profitable.

The regression model: The Regression model is specified as follows:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10}$$

Where:

- Y = Revenue (₦)
- X₁ = Cost of chicken (₦)
- X₂ = Transportation cost (₦)
- X₃ = Land rent (₦)
- X₄ = Association due (₦)
- X₅ = Depreciated fixed cost (₦)
- X₆ = Cost of fuel (₦)
- X₇ = Sales per week (kilo)
- X₈ = Age (years)
- X₉ = Years of schooling (years)
- X₁₀ = Household size (actual number)
- b₀ = Constant

RESULTS AND DISCUSSION

Socio-economic characteristics of frozen chicken marketers: Table 1 shows that most (88.9%) of the chicken marketers were female while 10.9% were male this implies that the enterprise is dominated by female gender. Findings revealed that most (42.22%) of the frozen chicken marketers were within 30-40 years while 33.33 and 24.44% of the respondents were above 40 years and below 30 years of age, respectively. This implies that most of the marketers were youths in their active stage of live. Average age for the respondents was 37.69 years. The Table 1 showed that 77.3% of the respondents were married while 15.6% were single. The remaining were widowed. This indicated that marital status is no barrier to frozen chicken marketing. The Table 1 further showed that 24.44% of the respondents obtained primary school living certificate, 64.44% of the frozen chicken marketers received secondary school education while 8.88% of them

Table 1: Distribution of respondents based on socio-economic characteristics

| Characteristic | Frequency | Percentage |
|--------------------------|-----------|------------|
| Sex | | |
| Female | 40 | 88.90 |
| Male | 5 | 11.10 |
| Age | | |
| Below 30 | 11 | 24.44 |
| 30-40 | 19 | 42.22 |
| Above 40 | 15 | 33.33 |
| Marital status | | |
| Single | 7 | 15.60 |
| Married | 35 | 77.80 |
| Widowed | 3 | 6.70 |
| Educational level | | |
| No formal education | 1 | 2.22 |
| Primary | 11 | 24.44 |
| Secondary | 29 | 64.44 |
| Tertiary | 4 | 8.88 |
| Household size | | |
| <5 | 30 | 78.90 |
| 3-5 | 8 | 21.10 |
| >5 | 7 | 15.60 |
| Total | 45 | 100.00 |

Field survey, 2010

claimed to receive tertiary education. The remaining 2.22% of the frozen chicken marketers received no formal education; this implies that most of the respondents received formal education. The average household size of the respondents was 4.61.

Marketing practices and experience of respondents:

Table 2 shows that 32.6% of the respondents were into other business aside frozen chicken marketing. Most (60%) of the respondents claimed <5 years of frozen chicken marketing experience while 20% have been in the business 6-10 years. On the average respondents claimed was 7.16 years of experience. The table further showed that most (75.6%) of the respondents received processed chicken supply from chicken processing firms on daily basis, 24.4% received supply on weekly basis. The marketers usually keep such supply inside the deep freezer pending sales to final consumers. None of the respondents carry out the primary processing of killing and dressing of chicken. Dressed chicken are packed by processors in cartons and each contains twelve units i.e., a dozen processed chicken are contained in a carton. The table showed that 55.6% of the frozen chicken marketers purchased 5-10 cartons of chicken per supply while 31.1% of the respondents purchased below 5 cartons per supply. The remaining 13.3% purchased above 10 cartons per supply. Average number of cartons purchased per supply as claimed by respondents was 5.38 cartons and a carton costs ₦5,580.00. After purchasing in cartons, the respondents re-package in kilograms and store in freezers. On the average, the respondents claimed to sell 75.04 kg of frozen chicken per week.

Table 2: Distribution of respondents by marketing practices and experience, n = 45

| Variables | Frequency | Percentage |
|--|-----------|------------|
| Engagement in other business | | |
| Yes | 15 | 33.3 |
| No | 30 | 66.7 |
| Frozen chicken marketing experience | | |
| 5 years and below | 27 | 60.0 |
| 6-10 years | 9 | 20.0 |
| Above 10 years | 9 | 20.0 |
| Frequency of obtaining supply | | |
| Daily | 34 | 75.6 |
| Weekly | 11 | 24.4 |
| Quantity purchased in cartons | | |
| Below 5 | 14 | 31.1 |
| 5-10 | 25 | 55.6 |
| Above 10 | 6 | 13.3 |
| How do you prevent spoilage? | | |
| Use of freezer | 45 | 100.0 |
| Main source of finance | | |
| Personal savings | 33 | 73.3 |
| Informal loans | 8 | 17.8 |
| Formal loans | 4 | 8.9 |
| Type of labour employed | | |
| Hired | 8 | 47.1 |
| Family | 9 | 52.9 |
| How do you sell to customer? | | |
| Kilograms | 45 | 100.0 |
| Do you use generator | | |
| Yes | 37 | 82.2 |
| No | 8 | 17.8 |

Field survey, 2010

Findings revealed that most 73.3% of the marketers financed their business from personal savings. Many (52.9%) of the respondents claimed to employ family labour while 47.1% employed hired labour. The findings also revealed the standard of measurement for selling frozen chicken to consumers is kilogram. On the average according to the respondents, frozen chicken are sold #600.00 per kilo. Most (82.2%) of the respondents depend on generators for electricity supply to keep frozen chicken from deteriorating in quality.

Per week cost and returns analysis of respondents: This aspect revealed the average cost and returns analysis of respondents per week:

$$\begin{aligned} \text{Total revenue} &= \text{Quantity sold} \times \text{Unit price} \\ &= 75.04 \text{ kg} \times 600 \\ &= \text{₦} 45021.76 \end{aligned}$$

Total cost = Total variable cost + Depreciated fixed cost

Variable cost items include cost of chicken, labour and fuel (electricity) = ₦ 36655.36/week

Depreciated fixed cost items include rent on market space, tools and equipments costs (weighing scale, machetes, knives, nylon bags) and association due = #517.06/week.

Table 3: Summary of regression analysis

| Variables | Parameters | Coefficient |
|-----------------------------|-----------------|-------------|
| Constant | B ₀ | -448816.2 |
| Cost of chicken | B ₁ | -4946.25*** |
| Labour cost | B ₂ | -7031.185 |
| Rent | B ₃ | -188.086 |
| Association due | B ₄ | -1960.439 |
| Cost of tools | B ₅ | 576.424 |
| Cost of fuel | B ₆ | -1177.476* |
| Demand per week | B ₇ | -3.58E-005 |
| Age | B ₈ | 9987.785 |
| Years of schooling | B ₉ | 6304.642* |
| Household size | B ₁₀ | 1692.096 |
| Adjusted R ² (%) | | 88.2 |
| F calculated | | 248.5 |

***Significant at 1% **Significant at 5% *Significant at 10%

$$\begin{aligned} \text{Total cost} &= \text{₦}36655.36 + \text{₦}517.06 \\ &= \text{₦}37172.42 \end{aligned}$$

$$\begin{aligned} \text{Gross margin} &= \text{Total revenue} - \text{Total variable cost} \\ &= \text{₦} 45021.76 - \text{₦} 36655.36 \\ &= \text{₦} 8366.40/\text{week} \end{aligned}$$

$$\begin{aligned} \text{Profit} &= \text{Gross margin} - \text{Depreciated fixed cost} \\ &= \text{₦} 8366.40 - \text{₦}517.06 \\ &= \text{₦} 7849.34/\text{week} \end{aligned}$$

$$\begin{aligned} \text{Benefit cost ratio} &= \text{Total revenue} / \text{Total cost} \\ &= 45021.761 / 37172.42 \\ &= 1.2 \end{aligned}$$

The benefit cost ratio of 1.2 which is >1 indicates that the business is profitable.

Regression analysis: This revealed the relationship between marketing costs and returns to respondents. Multiple regression model of linear functional form was employed to analyse the relationship between respondents' returns and cost of frozen chicken marketing. The analysis revealed that cost of purchasing chicken from processors has a significant negative relationship with the marketers' returns. The negative sign is an indication that as cost of chicken increases, returns to respondents decreases. The result further revealed a negatively significant relationship between cost of fuel and returns to respondents. This also indicated that as the amount spent on fueling generators increases, returns to respondents decreases. Numbers of years spent in school by respondents have a significant positive relationship with returns generated by respondents. The results are in line with a-priori expectation of the study (Table 3).

Table 4 shows that 55.6% of the respondents are faced with financial problem, 31.1% of them are bordered with electricity problem as they claimed to spend much on fueling generators. The remaining claimed to have problems with custom people in clearing their goods.

Table 4: Major problems faced by chicken marketers in the study area

| Variable | Frequency | Percentage |
|--------------------|-----------|------------|
| Finance | 25 | 55.6 |
| Electricity | 14 | 31.1 |
| Clearance (Custom) | 6 | 13.3 |

Field survey, 2010

CONCLUSION

The study concluded based on budgetary analysis result that chicken marketing enterprise is profitable. The regression analysis showed that cost of purchasing chicken from processors and cost of fueling generators have negative effect on frozen chicken marketers' returns while the number of years spent in formal schooling has a positive effect on returns.

RECOMMENDATIONS

Based on the finding that most of the respondents are faced with financial constraints this study recommends that frozen chicken marketers should form a cooperative group through which members could be helped financially by having access to timely loans at low interest rates to finance marketing activities. The

cooperative group could make provision for a ware house equipped with deep freezers and unlimited electricity supply (with the aid of generators) whereby members could store their wares pending sale to prevent deterioration in quality. As a registered body, the group could also aid its members in the aspect of good clearance.

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