



## PROFITABILITY ANALYSIS OF FROZEN FOODS MARKETING IN IKORODU LOCAL GOVERNMENT AREA OF LAGOS STATE

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### ABSTRACT

This study examined the profitability analysis of frozen foods market in Ikorodu Local Government Area of Lagos State, Nigeria. The specific objectives were to describe the socio-economic characteristics of frozen foods consumers; know the various level of consumption of different frozen foods; determine the profitability of frozen food market; and identify the problems faced by frozen food marketers in the study area. One hundred and twenty (120) frozen food marketers were selected from villages/towns within the selected Local Government Area through the use of a random sampling technique. The frozen food marketers were interviewed using a well-structured questionnaire. Data collected from the frozen food marketers were analyzed using descriptive and inferential statistics. With respect to socio-economic characteristics of the frozen food marketers, findings showed that majority of the marketers (95.8%) were female, large proportions (61.7%) were in their active years (31-50years), 66.7% were Christians, 70.8% were married. About 87.5% have one form of formal education to the other with an average household size of 8 persons, having trading as their major occupation and having marketing experience ranging from 6-10 years. In line with level of consumption of different frozen foods, majority (73.3%) consumed frozen fish regularly, 74.2% regularly consumed frozen chicken, 71.7% consumed frozen vegetables on regular basis and 70.8% consumed frozen fruits on regularly basis. Therefore,

this study is concluded that frozen food marketing is a lucrative business despite the various bottlenecks being faced by the frozen food marketers in the study area. Based on these assertions, it is therefore recommended that improvements in market infrastructure such as storage facilities, cold storage, better road, good electricity etc. would also be helpful in improving the marketing profitability as well as providing solutions to problems associated with high cost of transportation, custom dues, lack of finance among others which were encountered by the frozen food marketers in the study area.

**Keywords:** Food, Cost, Market, Storage, Profit

## INTRODUCTION

Consumption of out-of-season agricultural produce is made possible due to frozen products and also greenhouse production. However, the drawbacks connected with intensive use of pesticides make some consumers wary of greenhouse products. Frozen foods are offered to the consumption using produce that was harvested seasonally. Therefore, there is lower risk from chemicals. Frozen foods are especially appropriate for preparing meals quickly and are an important source of food for people with limited time due to work or other commitments. Increasingly busy work schedules mean that consumers typically make use of frozen foods, which are pre-prepared, washed, practical and ready to use. In addition, the desire to consume some products out-of- season gradually increased the demand for frozen food. Consumers either purchase ready frozen food or prepare their own frozen products in various forms at home, in line with their needs and the tastes of family members (Islam, *et. al.* 2001, Kudi, *et. al.* 2008)

Frozen foods in Nigeria include frozen chicken, frozen vegetables; frozen fish, frozen fruit, e.t.c. frozen convenience food and frozen chicken are the leading product

groups in terms of import value (Agbebi, 2010, Bektas, *et al* 2011). In-take of animal protein in Nigeria is far below the required minimum level of 35g/day recommended by FAO. 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 (Udo, *et al.*, 2001, FAO 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. Frozen chicken has the highest import value in Nigeria. With a population of over 150 million, the annual per caput consumption of fish in Nigeria is 9.68kg. Reasons for the poor consumption of animal protein include high prices and income poverty (illiyasu *et. al*, 2011, Falodun 2011). Fish has been identified as a relatively cheaper source of protein especially in developing countries. Fish accounts for 20 percent of

animal-derived protein in low income, food-deficient countries, compared with 13 percent in the industrialized countries and it is estimated that fish contribute up to 180 kilo calories per person per day (White 2002, Sun 2006).

According to Federal Fisheries Department (FDF) (2008), the demand for fish protein in 2007 was 2.66 million tons while domestic production was 0.6354 million tons. This deficit was said to be partly augmented by massive importation of about 740,000 tons frozen fish valued at 594.4 million USA dollars which is certainly a big draw-down on scarce foreign exchange. Government policies have continued to emphasize self-sufficiency in the fishery sub sector. Estimated self-sufficiency in fish production was 32.48% in 1985. It peaked at 50.2% in 1987 and staggered thereafter between 18.64% and 29.38% from 1989 to 1999 until it came to an all-time low of 9.78% in 2000. As at 2004 it was 15.02%. Many inland business people have also taken this business as a means of livelihood. Imported frozen foods are usually shipped to Apapa-Lagos, Port-Harcourt, and Warri where they are inspected and passed through customs. After clearance, they are transported from these coastal cities to cold storage warehouses in urban centers across the country. They are then distributed to designated wholesalers who feed the retailers. About 96% Of frozen food sales occur at open stalls in market places and along streets and roadsides while the remainder goes to hotel and eateries (Nzeka, 2003, Amienheme 2005).

Frozen bakery products are another important product group that recently appeared in the frozen food sector. While the sector initially produced for export, it increasingly serves the domestic market, in response to the food preferences of

consumers and changes observed in consumption habits. The development of market strategies and promotion activities as well has increased the interest and demand for frozen food among consumers. It was found that frozen food products are widely consumed in countries with high income per capita. Frozen foods are sold for higher prices in the market, due to the costs associated with processes such as cleaning, removing the husks and freezing (Ayo-Olalusi 2010, Adeosun *et. al.*, 2012)

Today various products are sold in frozen form. It is important to know how much price difference should be applied to frozen foods when compared to fresh produce. If firms which produce frozen foods would know price premiums that the consumers can pay for frozen products compared to fresh ones, they can determine their own production and pricing policies more effectively. In recent years, along with the changes in living conditions, the demand for both frozen and fresh products has increased. As a result, the present study used a demand estimate model that included both fresh and frozen products.

### **Objectives of the study**

The main objective of the study is to examine the profitability analysis of frozen food market in Ikorodu Local Government Area of Lagos State. The specific objectives are to:

1. Describe the socioeconomic characteristics of frozen food Consumers in the study area.
2. know the various level of consumption of different frozen foods

3. Determine the profitability of frozen food market in the study area.
4. Identify the problems faced by frozen food marketers in the study area.

## **METHODOLOGY**

### **The Study Area**

The study area for this research work was Ikorodu Local Government Area of Lagos State. Ikorodu is a city and Local Government Area in Lagos State, Nigeria. It is located along the Lagos lagoon; it shares a boundary with Ogun State. As of the 2006 census, Ikorodu had an enumerated population of 535,619. Ikorodu was founded by Yorubas who settled in the area. The name Ikorodu is a form of Oku-Odu, which means "Odu (an edible herb) farm." Lagos State was created on May 27, 1967 by virtue of state creation and transitional provision decree No.14 of 1967 which restructured Nigeria federation into 12 States. It is located in the tropical zone lying between 7 and 9°N of the equator and longitude of 3 and 5°E of the Greenwich meridian with a land area of 3,743km<sup>2</sup>. Lagos State is a large city with a population of 9,013,534 according to 2006 population census.

Prior to this, Lagos municipality had been administered by the federal government through the then federal ministry of Lagos colony affairs as the regional authority, while Lagos City Council governed the city of Lagos. The State took off as an administrative entity on April 11, 1968 with Lagos Island serving the dual role of being the state and the Federal Capital. However, with the creation of the Federal Capital Territory in 1976, Lagos Island ceased to be the capital of the state and it was been moved to Ikeja. Nevertheless,



Lagos still remains the centre of commerce for the country. Lagos State has about 20 Local Government Council in which an additional 37 Local Council Development Area was been created.

### **Sampling Techniques and Sample size**

A random sampling technique was used in selecting 120 frozen food marketers in the study area. A list of marketers was collected from the Association's Secretariat in Lagos. Ikorodu Local Government Area of Lagos State was purposively selected to carry out this research work.

### **Methods of Data Collection**

Primary data and secondary data were used for this study. Primary data were collected through the use of sets of structured questionnaire which were personally administered to frozen foods marketers in the study area. The questionnaire was designed to collect information which include the socio-economic characteristics (such as age, sex, household size and years of experience) of the frozen food marketers and other information in order to fulfill the objectives of the study. Closed and open-ended questions were adopted. While Secondary data were collected from texts, literature from libraries, journals, articles and other literature were contracted to supplement information from primary source.

### **Analytical Techniques**

Descriptive statistics and inferential statistics were used to analyse the data collected for the study. Descriptive statistical tools were used to describe and compare the socio-economic characteristics of frozen food marketers in the

study area, various level of consumption of different frozen foods and to identify the problems faced by frozen food marketers in the study area. Tools used include means, frequency distribution and percentages. While, inferential statistics such as: Budgetary analysis was used to determine the profitability of frozen food marketers.

### **Level of Consumption of different Frozen Foods**

Descriptive statistical tools were used to assess the level of consumption of different frozen foods in the study area.

### **Cost and Return Analysis**

Budgetary Analysis was used to achieve to determine the profitability level of the enterprise. The mathematical relation that was used in capturing profitability level of frozen food marketers in the study area, are presented below:

Total cost (TC) = Total Fixed Cost (TFC) + Total Variable Cost (TVC)

Gross Revenue (GR) = Total Output (TO) x Unit price (UP).

Gross Margin (GM) = GR - TVC

Profit = TR - TE

Profitability Index =  $\frac{NI}{TC} \times 100$

Rate of Return on Investment (%) =  $\frac{NI}{TC} \times 100$

Rate of Return on Variable Cost (%) =  $\frac{TR - TFC}{TVC} \times 100$

Operating Ratio =  $\frac{TVC}{TR}$

Benefit cost ratio =  $\frac{TR}{TC}$

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.

### Problems Faced by Frozen Food Marketers

Descriptive statistical tools were used to assess the problems faced by frozen food marketers in the study area.

## RESULTS AND DISCUSSION

**Table 1: Socio-Economic Characteristics of Marketers**

Variables	Frequency	Percentage
<b>Sex</b>		
Male	5	4.2
Female	115	95.8
<b>Age (years)</b>		
20 - 30	41	34.2
31- 40	54	45.0
41- 50	20	16.7
51- 60	5	4.2
<b>Religion</b>		
Christianity	80	66.7
Islamic Worshiper	35	29.2
Traditional Worshiper	5	4.2
<b>Marital Status</b>		
Single	20	16.7
Married	85	70.8
Widowed	5	4.2
Separated	10	8.3
<b>Educational Level</b>		
No Formal Education	15	12.5
Primary Education	20	16.7
Secondary Education	49	40.8
Tertiary	36	30.0
<b>Household Size</b> (persons)		
Below 5	25	20.8
6 - 10	90	75.0
11 - 15	5	4.2

<b>Primary Occupation</b>		
Student	25	20.8
Civil servant	5	4.2
Trading	76	63.3
Farmers	4	3.3
Private business	10	8.3
<b>Marketing Experience (years)</b>		
1 - 5	51	42.5
6 - 10	59	49.2
11 - 16	10	8.3
<b>TOTAL</b>	<b>120</b>	<b>100.0</b>

Source: Field Survey, 2018

From Table 1, the results of the socio-economic characteristics of sampled frozen foods marketers were made known. These include age, sex, marital status religion, education, household size, main occupation, and occupational experience.

Sex determines the ability to perform some physical work. It is generally believed that men are more efficient in activities than woman. The perhaps is because they are more energetic and can handle more tedious work than their female counterpart. This is in fact, the basis for comparing the sex of the respondents. Majority of the marketers (95.8%), were females. This implies that frozen food marketing in the study area is gender sensitive. The age of the respondents is an important factor that affects their level of productivity, adoption of improved farming techniques among the poultry farmers and overall coping ability within the business. The result showed that large proportions (61.7%) of the marketers are in their active years (31-50 years). This suggests that they are still very agile. The percentage of the middle-aged adult (between 51-60 years) accounts for only

4.2% of the marketers suggesting that the middle-age adults have migrated away from rural area. The percentage of the youths (20-30 years) was about 34.2%. This suggests the middle age adults are less into marketing in the study area than the youth in the study area.

Religion of the respondents is expected to affect their household sizes which have implication on their consumption and saving pattern. Those that practiced Islam as religion have the tendency of having larger household size as Islam permits polygamy unlike their Christian counterparts. With respect to religion inclination, Most (66.7%) of the sampled marketing were Christians while a handful of them practiced both Islam and traditional religion. This result is most likely as a result of various churches that have been established in the area which were not there some years back. The marital status of respondents helps to reduce labour cost especially when the respondents are married in which they can supply labour from their households. This in turn increases their income considerably. In respect to marital status, large proportions (70.8%) of the marketers are married. This shows that larger populations of the marketers have responsibilities to perform within their household. The percentage of the single accounts for only 16.7% while the widowed and separated had 8.3% and 4.2% respectively.

Formal education is a widely known avenue for improving knowledge and rate of skill acquisition. Formal education is also important in business because it determine the degree of level of adoption of innovation and new technologies. It also determines the degree of excellences in any activity. About 87.5% of the respondents have one form of formal education

or the other. This shows that high level of formal education is an avenue for improving knowledge and rate of skill acquisition as well as determines the degree of level of adoption of innovation and new technologies.

The total household size of the respondents comprises of their wife/wives, children and dependants. The socio-economic characteristics of the sampled marketers indicate that many of the sampled marketing (75.0%) have relatively large household size that range between 6-10 members. This large size is most likely a reflection of the traditional believe among people in the South West Nigeria having preference for large house. Moreover, large household sizes often imply that marketers have more members providing support in the marketing activities. The result in Table 1 also indicated that trading is the main occupation of majority (63.3%) of the sampled marketers while 20.8% were students. This implies that marketing activities is well established among the individuals living in the study area.

Furthermore, majority of the marketers (49.2%) had marketing experience ranging from 6-10 years. The number of years in which the marketers have been involved in frozen foods marketing could be used to measure their efficiency. Experience is expected to have a significant positive impact on the managerial ability of the marketers. Also majority of the marketers (56.4 percent) inherited the land used for cultivation.

Frozen foods in Nigeria include frozen chicken, frozen vegetables, frozen fish, frozen fruit e.t.c. The result on the various level of consumption of different frozen foods in the

study area revealed that majority (73.3%) of the respondents consumed frozen fish regularly, 17.5% consumed frozen fish occasional while 9.2% did not consume frozen fish at all. Also, 74.2% of the marketers regularly consumed frozen chicken, 13.3% did not consume frozen chicken at all while 12.5% consumed frozen chicken occasionally. Majority (71.7%) of the respondents consumed frozen vegetables on regular basis, 19.2% consumed frozen vegetables occasionally while 9.2% did not consume frozen vegetables. Furthermore, 70.8% consumed frozen fruits on regular basis, 21.7% did not consumed frozen fruits at all while 7.5% consumed frozen fruits occasionally. From all indications, it was deduced that frozen chicken and frozen fish were consumed most. This is not surprising as frozen chickens and fish were the most available in the market for consumption. This finding is in support of the findings of (Aegean Exporters' Associations, 2008) who postulated that frozen chicken are the leading product groups in terms of import value, hence their consumption. The result of the findings on the various level of consumption of different frozen foods is presented in Table 2 below:

**Table 2: Distribution of Respondents Based on Consumption Level of Frozen Foods**

<b>Consumption of Frozen Fish</b>	<b>Frequency</b>	<b>Percentage</b>
None	11	9.2
Regularly	88	73.3
Occasional	21	17.5
<b><i>Consumption of Frozen Chicken</i></b>		
None	16	13.3
Regularly	89	74.2
Occasional	15	12.5
<b><i>Consumption of Frozen Vegetables</i></b>		

None	11	9.2
Regularly	86	71.7
Occasional	23	19.2
<b>Consumption of Frozen Fruits</b>		
None	26	21.7
Regularly	835	70.8
Occasional	9	7.5
<b>Total</b>	<b>120</b>	<b>100.0</b>

*Source: Field Survey, 2018.*

### **Budgetary Analysis of Frozen Foods Marketing**

The table below depicts the budgetary analysis of combined frozen foods marketing in the study area. This was considered necessary in order to determine probably if the business will still be profitable after all problems encountered in the study area. The distribution of the budgetary analysis of marketing in the study areas without processing the products is shown in Table 3. It shows that the mean of the total variable cost is positively signed (~~₦~~37,562.50), the mean of the gross margin is also positive (~~₦~~19,841.00), total cost is (~~₦~~42,883.16), total revenue is (~~₦~~27,748.75), the net income is also positively signed (~~₦~~16,784.00) while the mean of the total fixed cost is (~~₦~~5,320.66). This implies that the level of profitability of frozen foods marketing in the study area is positive, since the above table shows the net income to be positively signed. Furthermore, the net income is positively signed (~~₦~~16,784.00), profit index (~~₦~~43.26), rate of return on variable cost (~~₦~~276.96), operating ratio (3.3714), and benefit cost ratio (1.2267).



**Table 3: The Budgetary Analysis of Frozen Foods Marketing.**

Variables	Minimum	Maximum	Mean
Cost of rent of space	.00	15,000.00	1,237.50
Cost of tools	.00	1,200.00	91.67
Cost of association dues	.00	4,000.00	741.67
Cost on knives	.00	900.00	417.08
Cost on machetes	.00	1,500.00	482.92
Cost on weighing scale	.00	3,000.00	1,016.67
Cost on nylon bags	.00	3,840.00	1,333.17
<b>TFC</b>	<b>.00</b>	<b>24,430.00</b>	<b>5,320.67</b>
Cost of frozen foods	600.00	50,000.00	15,454.17
Cost of labour	1,200.00	15,000.00	6,429.17
Cost of electricity	500.0	15,000.0	5,770.83
Cost of transportation	.00	15,000.00	4,862.50
Cost of storage	500.00	15,000.00	5,045.83
<b>TVC</b>	<b>3,300.00</b>	<b>73,000.00</b>	<b>37,562.50</b>
<b>TC</b>	<b>5,810.00</b>	<b>97,430.00</b>	<b>42,883.16</b>
Revenue from frozen fish per week	.00	24,500.00	11,393.75
Revenue from frozen chicken per week	.00	24,000.00	10,639.58
Revenue from frozen fruits per week	.00	7,500.00	1,197.08
Revenue from frozen vegetables per week	.00	3,000.00	840.83
<b>TR</b>	<b>1,800.00</b>	<b>62,000.00</b>	<b>27,748.75</b>
<b>GM</b>	<b>990.00</b>	<b>41,080.00</b>	<b>19,841.00</b>
<b>NI</b>	<b>1,800.00</b>	<b>37,160.00</b>	<b>16,784.00</b>
<b>PI</b>	<b>1.46</b>	<b>777.80</b>	<b>43.27</b>
<b>RRVC</b>	<b>18.00</b>	<b>619.99</b>	<b>276.96</b>
<b>OPR</b>	<b>0.05</b>	<b>34.44</b>	<b>3.37</b>
<b>BCR</b>	<b>0.03</b>	<b>10.67</b>	<b>1.23</b>

Source: Field Survey, 2018.

### **Problems Faced by Frozen Food Marketers**

This section presents the various problems faced by frozen food marketers in the study area. This is necessary to know the necessary steps needed by respective individuals as well as the governments in assisting the frozen food marketers in the study area. The identified problems include: financial problem, electricity problems, customs, high storage problems, poor road network and delay in market supply. From the result of the findings, problems associated with financial issues were high among 59.2% of the marketers and low among 16.7% respectively. Problems associated with electricity issues were high among 28.3% of the marketers and low among 29.2%. Also, problems associated with customs were high among 71.7% of the marketers and low among 4.2%. Problems associated with high storage cost were high among 28.3% of the marketers and low among 30.0%.

Furthermore, problems associated with poor road network were high among 16.7% of the marketers and low among 54.2%. While problems associated with delay in market supply were high among 12.5% of the marketers and low among 40.8% respectively. From all indications, findings revealed that problems associated with customs and finances were the major constraints to frozen foods marketing in the study area. The results of the findings on the problems affecting frozen foods marketing in the study area are presented in Table 4:

**Table 4: Problems Faced by Frozen Foods Marketers**

Problems	Frequency	Percentage
<b>Financial issues</b>		
High	71	59.2
Mode rate	29	24.2
Low	20	16.7
<b>Electricity issues</b>		
High	34	28.3
Mode rate	51	42.5
Low	35	29.2
<b>Customs</b>		
High	86	71.7
Mode rate	29	24.2
Low	5	4.2
<b>High storage cost</b>		
High	34	28.3
Moderate	50	41.7
Low	36	30.0
<b>Poor road network</b>		
High	20	16.7
Mode rate	35	29.2
Low	65	54.2
<b>Delay in market supply</b>		
High	15	12.5
Mode rate	56	46.7
Low	49	40.8
<b>Total</b>	<b>120</b>	<b>100.00</b>

**Source: Field Survey, 2018.**

## CONCLUSION

In conclusion, the primary of objectives of this study is to examine the profitability analysis of frozen food market in Ikorodu Local Government Area of Lagos State. Budgetary analysis of frozen foods marketers shows that the business is profitable as the mean of total variable cost, total fixed cost, total cost, total revenue, gross margin and net income are positively signed despites the profitability of the business, the marketers were hindered mostly with the problems of

customs and finance. The distribution of the budgetary analysis of marketing showed that the profitability of frozen foods marketing in the study area is positive, since the net income, gross margin, profitability index, Rate of Return on Investment, Operating Ratio and Benefit cost ratio were positively signed despite the challenges faced which include: financial issues, electricity issues, customs, high storage cost, poor road network and delay in market supply.

## RECOMMENDATIONS

The following recommendations are made based on the findings in the study

- i. Improvements in market infrastructure such as storage facilities, cold storage, better road, good electricity etc. would also be helpful in improving the marketing profitability in the study area.
- ii. Efforts to improve the transparency in the market operations through better supervision by the market committee would be another important factor in improving the marketing efficiency.
- iii. Also, early supply of frozen foods to the market will be of great improvement to the marketing structure of the business.-+
- iv. There is substantial scope for improving the frozen foods marketing by improving the market information system by making available latest and extensive market information to all market participants through the use of internet facilities and other means of communication.
- v. Solution should be provided to the problems (such as high cost of transportation, custom dues, lack of finance among others) encountered by the frozen foods marketers in the study area.

- vi. Finally, men should be empowered and encouraged to fully participate in income generating activities as the frozen foods marketing is populated with women marketers in the study area.

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