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CHEESE MARKETING AMONG WOMEN MARKETERS IN KWARA STATE, NIGERIA: AN ECONOMIC ANALYSIS APPROACH

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Abstract
Cheese is a momentous source of protein and contributes to the dietary protein intake of millions of the populaces. Cheese marketing is a vital source of income for marketers and nomadic households in Nigeria. This study therefore examined cheese marketing among marketers in Kwara State. Specifically, the study examined the costs and returns to cheese marketing, assessed the market efficiency of cheese marketing, determined the marketing margins, described structure of cheese market and determined the factors influencing net returns of cheese marketing among marketers in the study area. A three stage sampling techniques was employed in selection of 120 cheese marketer. Data were collected using structured interview schedule. Descriptive statistics, marketing efficiency model, marketing margin, Herfindahl Index, and multiple regression analysis were employed in achieving the research objectives. The average age of the women marketers was 38years. The study revealed a monthly gross margin of ₦107,778 with a marketing efficiency of 184.9% which implied that the marketing activities were efficiently implemented. Herfindahl index value of 0.012 revealed a modest and sparsely populated cheese market. Estimated average marketing margin was ₦58.3 per kg of cheese. ₦102, 038 was revealed as the net income on cheese marketing on monthly basis with an RORI of 0.59. The estimated value of the RORI implied that for every ₦1 invested in cheese marketing industry, a return of ₦0.59k is definite. Therefore, cheese marketing is feasible, lucrative and investment worthy. The purchase cost ($p<0.05$), spoilage cost ($p<0.01$), storage cost ($p<0.01$) and marketing margin ($p<0.01$) were the statistically significant variables determining the net returns to cheese marketing among marketers in the study area. The study recommended improvement of storage facilities so as to reduce spoilage and increase efficiency which could attract more able bodied youth to work and invest in the industry.

Keywords: *Cheese, Herfindahl index, marketing efficiency, marketing and market margin, RORI*

Introduction

The Nigeria economy, in terms of revenue and foreign exchange is indisputably dominated by the oil sector but agriculture is still one of the critical sectors of the country with respect to provision of employment opportunities, the provision of raw materials for agro-industries, as a source of income for rural families and perhaps most importantly, provision of food for the populace (Salau *et al.*, 2017). Food is momentous to life. The right to an adequate and quality food is recognize in the universal declaration of human right as such adequate intake of quality food is a key requirement for health and productive life

(FAO, 2012).

According to FAOSTAT (2017), Nigeria has a population of 20,113,358 cattle, 78,037,077 goats and 42,500,000 sheep. Less than 11.5%, 3.2% and 1.8% of Nigeria's cattle, goats and sheep populations are utilized for dairy production respectively. The minimum protein requirement for daily consumption in Nigeria is 35gramms as recommended by Food and Agriculture Organization, FAO (2017) for daily health maintenance. Dairy development in Nigeria involves various activities such as milk production, processing, marketing, consumption and exporting. This sector represents important component and the agricultural sectors of the economy with great institutional and social implications despite unorganized (FAO, 2017).

Dairy products appears in the market in different form such as sour milk (Nono), cheese (warankasi or wara), sour yoghurt (kindirmo), while the some are imported in form of sweetened concentrated milk, butter and cheese. Cheese is a concentrated dairy commodity produced by acid or rennet coagulation or curdling of milk, stirring and heating the curd, draining off the whey, collecting and pressing the curd. The cheese is ripened, cured, or aged to develop the flavour and texture (Raheem *et al*., 2009).
Marketing is one of the significant aspects of Nigerian agriculture. Agricultural marketing is the performance of all the activities involved in the flow of agricultural products and services from the initial points of production until they reach the hands of the ultimate consumers.

Cheese is an important source of protein and contributes to the dietary protein intake of millions of the populaces but sadly its marketing is poorly developed in Nigeria. Thus, this study estimated cost and returns to cheese marketing, determined the marketing efficiency and market margin, described the market structure and determined the factors influencing net returns of cheese marketing.

Materials and Methods

Study Area

The study were conducted in Kwara State ($8^{o}30^{o}$N and $5^{o}00^{o}$E), Nigeria. Kwara State is bounded in the north by Niger state, in the south by Oyo state, Osun state and Ekiti state, in the east by Kogi state and in the west by Benin Republic. It has 16 local governments, with headquarters located at Ilorin. Kwara State is divided into four Agricultural Development Project zones (Zone A, B, C and D). Zone A comprises of Baruten and Kaiama LGA, Zone B comprises of Patigi and Edu LGA, Zone C comprises of Ilorin West, Ilorin South, Ilorin East, Moro and Asa LGA and the Zone D comprises of Ifelodun, Irepodun, Isin, Offa, Oyun, Ekiti, Oke –Ero LGA. The topography is mainly plain to slightly gentle rolling lands. The annual rainfall ranges between 1000mm and 1500mm. Average temperature ranges between 300C and 350C. It also has an estimated figure of 203,833 farm families with the majority living in the rural area. The vegetation which is namely the wooded Savannah is well suited for the cultivation of a wide variety of food crops. These crops include yam, cassava, maize, cowpea, rice, sugar cane, fruit and vegetables. Livestock are also reared in different parts of Kwara State. The main ethnic groups are Yoruba, Fulani, Nupe with an inclusion of Hausa. (NPC, 2006). Marketing of cheese is done all year round.

Data collection and sampling methods

Primary data was used for this study. The data were obtained from the field through structured interview schedule, information on socio-economic variables,

information on socio-economic variables, cost and returns, marketing structure and factors influencing net returns of cheese marketing in the study area were collected.

The cheese marketers in Kwara State constitute the population for this study. A three stage sampling techniques was employed in selection of 120 cheese marketers. In the first, three (3) LGAs (Ilorin east, Ifelodun and Moro) were purposively selected because Fakayode *et al.*, (2012) revealed that these LGAs are known for huge dairy processing activities in the State. In second stage, four (4) villages were randomly selected. Lastly, ten (10) cheese women marketers were randomly selected from each of the four villages to make up a sample size of 120 women marketers.

Analytical techniques

Descriptive statistics tools such as frequency, percentage and mean were used to describe the socioeconomic characteristics of the respondents.

Gross Margin Analysis was used to calculate the cost incurred and revenue obtained from cheese marketing among marketers in the study area. The model is specified as:

$$GM = TR - TVC \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where GM=Gross Margin
TR= Total Revenue (₦)
TVC= Total Variable Cost (₦)

Rate of Returns on Investment (RORI) was used to determine the rate of return on investment from the cheese marketing industry. The equation is given as:

$$RORI = \frac{TR - TC}{TC} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where TR= Total Revenue(₦)
TC = Total Cost(₦)

Benefit Cost Ratio (BC ratio) was used to establish the solvency state of the industry. The model is assumed as:

$$BC\ ratio = \frac{TR}{TC} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

The attractiveness of marketing was determined using marketing margin (MM). The model is given as:

$$MM = SP - FG \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Where:
SP =Consumer or selling price (₦)
FG= Farm-gate or supply price (₦)

Marketing efficiency (ME) was used to determine the productivity of the market. The equation is specified as:

$$ME = \frac{ROFM}{COMS} * 100 \quad \ldots\ldots\ldots\ldots\ldots\ldots (5)$$

Where:
ROFM = Revenue obtained from marketing,
COMS= Costs of marketing services

Herfindahl Index (HI) was used to describe the structure of cheese market.

$$HI = \sum Si^2 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

Where Si = Market share for respondent i, calculated as:

$$Si = \frac{Q_i}{Q} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

Where Qi = kg of cheese sold per month by respondent i, and
Q = kg of cheese sold per month by all respondents.

Multiple Regression was used to determine factors influencing the net returns of cheese marketing in the study area. The implicit form of the model stated as:

$$Y = b_0 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 +$$

Where; Y= net returns by each respondent
X_1= Storage cost (₦)

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X_2= Transport cost (₦)
X_3= Spoilage cost (₦)
X_4= Marketing experience (years)
X_5= Purchase cost (₦)
X_6 =Cost of labour (₦)
X_7 = Marketing margin (₦)
ei = error term
b_0 = constant
b_1, b_2 … b_9 = ith coefficient corresponding to X_1, X_2 … X_7

Results and Discussion

Socio-economic characteristics of the Respondents

About 42% of the respondents were between the ages of 31-40 years with an average age of 38years. Majority (78.3%) of the respondents spent between 1-6 years in school with an average schooling year of 5. The illiteracy level might hinder the adoption of advance technology. A larger portion (90%) of the respondents was married with an average household size is 8 persons. This large household size might increase productivity. The average marketing experience was revealed as 16 years, this implies that marketers are very familiar with the business and would channel all efforts and energy towards profit maximization. Majority (95.5%) of the cheese marketers were members of one cooperative or another. About 79% of the respondents belonged to one association or the other. Membership of an association is likely to enhance information diffusion and efficient marketing of cheese.

Table 1: Socio-economic Characteristics of the Cheese Marketers in Kwara State

Variables	Frequency	%	Mean	Std.
Gender				
Male	0	0		
Female	120	100.0		
Age				
21-30	23	19.2	38	9.56
31-40	51	42.5		
41-50	40	33.3		
51-60	06	5.0		
Maximum	49			
Minimum	22			
Marital Status				
Single	8	6.7		
Married	108	90.0		
Divorced	1	0.8		
Widow	3	2.5		
Years of Schooling				
1-6	94	78.3	5	1.43
7-12	24	20.0		
13-18	2	1.7		
Household Size				
1-3	13	10.8	8	1.11
4-6	24	20.0		
7-9	52	43.3		
Above 9	31	25.8		
Years of Experience				
Less than 5	18	15.0	16	4.76
6-10	25	20.8		
11-15	22	18.3		
16-20	34	28.3		
Greater than 20	21	17.5		
Membership of Cooperative				
Yes	7	4.5		
No	113	95.5		
Membership of Association				
Yes	23	20.2		
No	97	79.8		

Source: Field Survey, 2020

Cost and Returns to cheese marketing

The gross revenue and total variable cost obtained from cheese marketing per month were ₦274, 196 and ₦166, 418 respectively, leaving a gross margin of ₦107,778 (as shown in Table 2). The rate of returns on investment was 0.59. This implies that an average return of ₦0.59k was realized on every 1 naira invested in cheese marketing in the study area. The benefit-cost ratio was revealed as 1.6 which implied that the cheese marketing industry in the study area is very solvent and capable of offsetting the cost involved in its production.

Table 2: Cost and returns to cheese marketing in Kwara State

Returns	**Value (₦)**
Cheese output (Total Revenue)	**274,196**
Variable Costs	
Cheese purchased	138, 876
Transport	4,550
Storage	13, 212
Labour	9,780
Total Variable Cost (TVC)	**166,418**
Gross Margin (TR-TVC)	**107,778**

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Fixed costs	
Plastic buckets	1,120
Shed/space occupied	1500
Nylons	970
Hat	150
Total Fixed Cost (TFC)	**3,740**
Total Cost (TVC + TFC)	**172,158**
Net Income	**102,038**
Rate of Returns on Investment (RORI)	**0.59**
Benefit cost ratio (Total revenue/Total costs)	**1.59**

Source: Field Survey, 2020

Marketing Margin (MM) of cheese marketing in Kwara State

According to Fakayode *et al.*,(2010), marketing margin for any product marketing shows the level of profit for product. The average marketing margin computed using equation (4).

Where SP =127; CP = 68.1

The prices used in the calculation were those provided by the cheese marketers

$$MM = 127 - 68.1$$

MM= 58.6.

The average marketing margin revealed as ₦58.6. This implies cheese marketing is highly profitable and it is therefore worth investing. This result in line with the finding of Fakayode, *et al.*, (2012) who observed that local cow milk marketing is a profitable venture in Kwara State.

Marketing Efficiency (ME)

The marketing efficiency (ME) was computed using the equation (5). A marketing efficiency of 186.5% was reported on cheese marketing in the study area. It is evident from that the marketing efficiency for the cheese is very high, even over 100% for markets in the state.

Structure of cheese marketing

Herfindahl Index (HI) of 0.012 revealed that cheese marketing is sparsely populated and highly modest. This also shows that, there are many buyers and sellers of cheese in the study area, there is free entry and exit into cheese market, there is no intrusion from the government into the marketing of cheese. Finally, there is erstwhile knowledge of the price of cheese by the buyers

Factors influencing net returns of cheese marketing

The regression analysis from equation (8) revealed a coefficient of multiple determinations (R^2) value of 0.608, indicating that about 60% of the total variation in the net returns of cheese marketing was explained by the estimated explanatory variables. Five variables were found to be momentous in determining the net returns of respondents. These variables are storage cost (X_1), spoilage cost (X_3), purchase cost (X_5), cost of labour (X_6) and marketing margin(X_7). Table 4 revealed that cheese purchase cost (X_5) was significant at 5%. This infers that the purchase cost of cheese has an unswerving effect on revenue and might due to the fact that it brings about increase in revenue and in turn increases net returns. Spoilage Cost (X_3) was negative and statistically significant at 1%. This implies that as spoilage of cheese increases among the marketers, there'd be a decrease in the net returns of marketers. Marketing margin (X_7) was positive and statistically significant at 1% level of probability, indicating that an increase in marketing margin would increase marketers' net returns. Storage cost (X_1) was positive and significant at 1% level of probability. This implied that there is direct relationship between storage cost and net returns. More cost of storage incurred by the marketers give a resultant increase in the availability of the produce for sale. Consequently, storage cost paid was rewarded for by high returns margin

Table 3: Factors Influencing Net Returns of Cheese Marketing

Net returns	Coefficient	Std. Error	p-Value
Storage cost	0.97781	0.13046	0.00001*
Transport cost	0.04299	0.13985	0.75933
Spoilage cost	-4.01728	1.47068	0.00775*
Marketing Experience	-23.8730	45.4658	0.60098
Purchase cost	0.08573	0.03945	0.03273**
Cost of labour	-1.66783	1.00164	0.09980
Marketing margin	0.43619	0.07814	<0.00001*
Constant	-159.795	270.229	0.55597
R^2 =0.608319			

**, * Significant at 5% and 1% respectively
Source: Field survey, 2020

Conclusion and Recommendations

This study examined the marketing of cheese in Kwara State, Nigeria. Herfindahl index value of 0.012 revealed a modest and sparsely populated cheese market. Estimated average marketing margin was ₦58.3 per kg of cheese. ₦102, 038 was revealed as the net income on cheese marketing on monthly basis with an RORI of 0.59. The estimated value of the RORI implied that for every ₦1 invested in cheese marketing industry, a return of ₦0.59k is definite. Furthermore, the regression analysis revealed. The purchase cost, spoilage cost, storage cost and marketing margin were the statistically significant variables determining the net returns to cheese marketing among marketers. Members of cooperative should bring their resources together so as to tackle the high cost of storage which would enhance marketing margin. Storage facilities should also be provided by the government to reduce cost of storage to maximize cost. This could attract more able-bodied youths work and invest in the industry and in-turn reduce unemployment.

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