PROFITABILITY ANALYSIS OF SMALL-SCALE MAIZE MARKETING IN KANO STATE, NIGERIA

M.A. Abdullahi, B.Y. Mamman, U. Makinta and M.K. Yahaya

Department of Agricultural Economics & Extension, Faculty of Agriculture,
Federal University Dutse, Jigawa State, Nigeria

ABSTRACT

This research attempts to analyse the profitability of small-scale maize marketing in Kano state. Despite governments' heavy investment in agriculture, slight improvements were recorded among the small-scale maize marketers in the state. The main objective of the study is to examine the profitability of small-scale maize marketing in the state. Primary data for this study were collected using a multistage random sampling technique, a total of two hundred and fifty respondents were selected and interviewed from two local government areas of Kano state using questionnaire. Farm budgeting, gross and market margin analysis and marketing efficiency analysis were used to analyse the profitability of the venture. The socio-economic characteristics of the respondents showed that the business is dominated by males with average age of 42 years and mean household size of 10 persons. Also, majority of the respondents had primary education, with more than five years of business experience. The study showed that small-scale maize marketing was profitable, with low gross margins of 14.06 and 16.56, and CTO of ₦1.50 and ₦1.65 capital turnover for retailers and wholesalers respectively. The study recommends that the government should come up with enhancing policies that will promote profitability in marketing of the crop. Lastly, it is recommended that the government should come up with policies that are targeted towards encouraging the small-scale maize marketers in the area to increase their volume of trade in order to reap scale economies and increased profitability to ensure sustainability.

Keywords: Maize; marketing; profitability; Kano state

INTRODUCTION

Maize (*Zea mays* L.) is a versatile crop with wide adaptations, large volumes of early maturing variety maize can be produced from small area, it is also easy to grow and harvest. Maize can be stored for seasons and has multiple uses (Abdullahi, 2011). Maize suitably intercrops with other crops and legumes (e.g., potatoes, grain legumes, and a variety of other vegetables) for effective land utilization. Maize has multiple uses, for instance, its green stover is a vital fodder for cattle during critical feed shortage months. The fodder produces an average of 6.89 t/ha of dry matter, which is good enough to feed up to 5 adult cows for about five months (Dupka & Rai, 2006). Also, its by-products from processing are important

source of feed for backyard poultry. Maize is a nutritious crop and a wholesome food. Abdullahi *et al*. (2011) also reported that on average maize kernel contains about 71.3% starch, 9.9% protein and 4.45% fat.

Maize is the third most important cereal in the world with highest production potential among the cereals next to rice and wheat (Prathyusha *et al*., 2013). It is ranked first as the most important cereal crop in sub-Saharan Africa. It provides food for more than 1.2 billion people in addition to other uses. Maize is the third most widely domesticated grown crop in Nigeria after sorghum and millet. It is highly productive, cheap, and less rigorous to produce and adapts to wide range of agro-ecological zones (FAO, 2014). Maize is an important source of carbohydrate, protein, iron, vitamin B, and minerals. In Africa, maize plays a vital role of filling the hunger gap after the dry season, it is consumed in different forms (*tuwon masara* and *akamu* in northern Nigeria, *koga* in Cameroon, *injera* in Ethiopia and *ugali* in Kenya) (IITA, 2007). It is also used as animal feed and as raw material for brewing beer and for producing starch (IITA, 2008).

In 2013 Nigeria produced close to 8 million metric tons making it the largest producer in Africa (Adams, 2018). Maize production in Kano State rose to 5 million tons in 2010, as against the only 1.9 million tons in 2003 and has an average maize grain yield of 4.6 ton/ha which shows remarkable increase in productivity as against the national average yield of 3.825 ton/ha in 2012 (KNARDA, 2014). Most of the processing of maize is done in small-scale at the household level. In 2007, Katwal *et al*., reported that only 6% of the maize produced goes to the market, thus, maize production is largely a subsistence activity. An increase in the maize going to the market could be achieved through the adoption of modern varieties, thus leading to higher surplus for marketing at the household level.

Today, despite the economic importance of maize to the teeming populace in Nigeria, its production is marred by poor farming techniques resulting to poor yields by the small-scale farmers (Gambo *et al*., 2017). The respondents were involved in small-scale farming of maize in the study area based on their land, resource availability, as well as marketing experience. The respondents' farm size ranged from a minimum of 1 bag and the maximum of 10 bags (Abdullahi, 2011). The implication is that having an average of 5 bags meant better cultural and management practice for a small-scale subsistent farmer in the study area. Also, the techniques employed in the production and processing of maize has been insufficient to meet food and industrial needs of the country. This could be attributed to low productivity from maize farms or that farmers have not adopted improved technologies for maize production. Projections estimate maize consumption growth rate at about 7 percent per annum which will represent high (about 80 percent) increase in total maize consumption by 2016 (FAO, 2014). However, domestic production could not meet up with the demand, thus the government resorted to maize importation to augment the shortfall.

Literature shows that farm-level income, profitability and income growth are intimately tied to marketing system (Abdullahi *et al*., 2018). Effective marketing entails the understanding of the market structure and performance as well as the institutions involved in the efficient operation of market system (Nyoro et. al., 1999). However, little is known pertaining maize processing as most of the processing of maize was done using local tools, so the full potential of maize marketing was not harnessed by the majority of the marketers in the study area. Approximately 8% of their total production is estimated to be surplus. Production in small volumes, high price demand by farmers and the need to collect from widely scattered areas are factors which hinders smooth marketing of maize. However, if the scope for processing and marketing are not improved there will be no conduit for the local

maize. This can possibly discourage farmers from harnessing the full production potential of maize in the country and undermine the policy objective of achieving self-sufficiency in food grains. With a stable surplus available for sale at a competitive price with foreign farmers and also appropriate improvement of the maize activities along its value chain, maize could serve as an import substitution (Abdullahi, 2011).

In view of this, profitability of small-scale maize farmers has important implications for developmental strategies in most developing countries due to the dominance of the primary sector. A better understanding of its profitability can greatly aid policy makers in creating favourable policies capable of improving the efficacy of present and past reforms. The Objective of this paper is to add to the already existing knowledge and enhance the understanding of small-scale farmers in Nigeria with emphasis on predicting the profitability of maize farmers in Kano State.

MATERIALS AND METHODS

Study Area

This study was carried out in Kano State, Nigeria. Kano has expanded over the years to become the third largest conurbation in Nigeria. The total land area of the state is 20,760 square kilometres and has a projected population of 13,076,892 (National Population Commission, 2018). The temperature of Kano usually ranges between a maximum of 33^0C and a minimum of 15.85^0C although sometimes during the harmattan it falls down to as low as 10^0C, and annual rainfall ranges between 787 and 960mm (KNARDA, 2015). The people are predominantly Hausa/Fulani and engaged in agricultural activities such as farming, animal husbandry and agricultural processing as their major source of livelihood. The state has numerous markets operating on daily, twice a week, and weekly basis, while the markets inside the city operates daily.

Sampling and Data Collection

The maize production environment in the state can be broadly categorized into three administrative zones. The highest proportion of maize area is estimated to fall under zone one and three (KNARDA, 2015). Three Local Government Areas were purposively selected (Garin Mallam, Gwarzo and Doguwa) due to the intensity of maize production in the areas. From each LGA 84 respondents were identified and selected, altogether a total of 252 respondents were purposively selected. However, only 220 questionnaires were appropriately filled and retrieved. The questionnaires were administered between January and February 2011 by the researcher and a team of well-trained enumerators because of the increased maize marketing activities in the state. The data collected include: the socio-economic characteristics, as well as the costs and returns of the actors.

Data Analysis

Data gathered for the study were analysed using gross margin analysis and marketing efficiency analysis models. These tools evaluate the profitability of maize production as well as the return to naira invested in the enterprise (Olukosi & Isitor, 2005).

Gross and Market Margin analysis is the difference between the price paid by consumers and that received by the producers. It is expressed as:

Gross/Market Margin = $\frac{SP-SuP}{SP}$ X $\frac{100}{1}$

Where,
SP = Selling price
SuP = Supply price

The existence of high marketing margin can be detrimental to producers (in the form of low prices) to the consumers (in the form of high retail price) or both. Such high margin results from imperfectly competitive market conditions. Marketing margins give a measure of market performance (Olukosi & Isitor, 2005).

The following profitability measures were also calculated.

Marketing Efficiency (%)

$$M.E = \frac{Value\ added\ by\ marketing}{Cost\ of\ marketing\ services}\ X\ 100\%$$

Where:

M.E. = Marketing efficiency
Value Added (VA) = Sp - Pp
Sp = Selling price of the commodity (in naira)
Pp = Purchase price of the commodity (in naira)

The equation shows the marketing efficiency computation, it explains the value added by marketing to be the level price (in naira) received by the market participants less than the price paid by the participant in the market. And the study defined the cost of marketing (in naira) as the payments for market services (for example, commission agents, local government revenue, cost of transportation and cost of loading and off-loading).

Capital Turnover (CTO): = TR/TC

Where:

TR= Total Revenue
TC = Total Cost

CTO is defined as the total revenue divided by total cost of marketing. It describes roughly how much naira in revenue the marketer can generate for each naira invested over a given period. That is, it analyses the relationship between the money used to fund marketing services and the sales generated. For the investment to be profitable, this ratio should be greater than 1.

RESULTS AND DISCUSSION

Socio-Economic Characteristics

The socio-economic characteristics of the respondents reveal that the retailers and wholesalers have an average age of 41 and 43 years respectively, meaning that majority of the marketers belonged to economically productive population (age 19-49) as defined by Food and Agriculture Organisation in 2008. This could be the reason why they were able to cover both the rural and urban markets to search for and buy the maize to make it available for sale to both the consumers and processors. Also, the wholesalers carry out bigger marketing operations like bulk purchase and transportation of maize from one location to another, and that also explains why they incur lesser costs in the marketing activities due to economies of scale enjoyed.

Table 1: Socio-economic characteristics of the respondents

Variable	Retailers (%)	Wholesalers (%)
Age (years)	n = 120	n = 100
21-30	16.70	6.70
31-40	26.70	30.00
41-50	50.00	43.30
>50	6.70	20.00
Total	100.00	100.00
Mean	40.63	43.43
Std. Deviation	7.97	7.40
Household size		
1-10	50.00	20.00
11-20	30.00	40.00
21-30	10.00	20.00
>30	10.00	20.00
Total	100.00	100.00
Mean	7.83	10.20
Std. Deviation	7.10	9.24
Education		
Non-formal	16.70	23.30
Primary	53.30	40.00
Secondary	10.00	20.00
Tertiary	6.70	0.00
Total	86.70	83.30
Business Experience (years)		
1-2	0.00	3.30
3-4	20.00	33.40
>5	80.00	63.30
Total	100.00	100.00

Source: Field survey, 2011

All the marketers (retailers and wholesalers) were male. The main reason being the culture, norms and religion of the people in the study area, men are allowed to go out and perform all activities while the female stay and take care of the home including the men. Majority of the marketers have a mean household size of 8-10 persons (for the retailers and wholesalers respectively). They have a perception that large household size is a source of

cheap labour. The modal class of educational level of the marketers (retailers and wholesalers) was primary education; 53.30% and 40% respectively. By implication, they chose to spend more time in the market over school, because they believe spending more time in school leads to insufficient business experience. The result also shows that majority of the marketers (80% and 63.30% retailers and wholesalers respectively) have more than five years business experience. Their business experience has a positive relationship with technical know-how, this becomes obvious because most of the respondents were identified with their different occupations at different areas of the study. This finding lends support to the findings of Mukhtar *et al,* 2014 in profitability analysis of poultry egg production in Bauchi local government area of Bauchi state, Nigeria.

Measures of Profitability of Small-scale Maize marketing in the Study Area

Cost of maize marketing involved all the expenditure incurred from the purchase of the maize grain to be marketed and other variable costs down to the disposal of the maize grain. Table 2 shows the per kilogram cost of maize marketing for both retailers and wholesalers in the study area. The information on cost components as reflected in the table showed the total cost of marketing to be ₦28.25 per kilogram for retailer and ₦25.64 per kilogram for wholesaler. The total cost consisted of variable costs; the variable costs included maize cost price (87.29%) for retailers and (86.58%) for wholesalers, which constituted the highest percentage of the total variable cost. Cost of transporting the maize accounted for (6.27%) for retailers and (6.47%) for wholesalers, storage cost accounted for (1.56%) for retailers and (2.03%) for wholesalers, cost of empty bag accounted for (1.52%) for retailers and (1.56%) for wholesalers, loading/offloading accounted for (1.24%) for retailers and (1.17%) for wholesalers, grading fees accounted for (1.35%) for retailers and (1.09%) for wholesalers. However, produce tax accounted for (0.57%) for retailers and (0.55%) for wholesalers. Furthermore, it can be deduced from this result that all the variable cost accounts for 100.00% of the total cost. This result is line with the findings of Yusuf *et al*. (2010), Mukhtar *et al*. (2014), and Abdullahi *et al*. (2018) in their studies on improved maize variety production in Sabon Gari LGA, Kaduna state, profitability of poultry egg production in Bauchi state, and profitability analysis of maize production in some selected cooperative societies in 3 L.G.As of Kano State, Nigeria respectively.

The total revenue was obtained by the prevailing market forces however the total cost spent is being given priority when deciding the price to sell the maize. The gross and marketing margins of the maize marketers were calculated as a proxy for measuring the profitability of small-scale maize marketing in the study area (refer to Table 2).

The result shows that the average gross margin for wholesalers of maize was ₦16.56 per kilogram, with marketing margin of 47.40% and marketing efficiency of 64.59%, while the gross margin for retailers of maize was ₦14.06 per kilogram, with marketing margin of 41.72% and marketing efficiency of 49.77%. High market margin as indicated by Jones (1996) can be adduced to the ability of the marketers to finance risk. This explains why wholesalers of maize attracted higher gross margin than retailers. These ratios showed that maize marketing in the study area was profitable and viable. The capital turnover values imply that for every naira invested in small-scale maize marketing, ₦1.50 and ₦1.65 was returned to the retailer and wholesaler as revenue respectively. This implied that small-scale maize marketing in the study area was profitable although the full potential of the business was yet captured.

Table 2: Gross margin of small-scale maize marketing

Items	Retailer	Percentage (%)	Wholesaler	Percentage (%)
Gross revenue (₦/kg)	42.31		42.20	
Variable cost (₦/kg):				
Maize cost price	24.66	87.29	22.20	86.58
Storage	0.44	1.56	0.52	2.03
Transportation	1.77	6.27	1.66	6.47
Grading fees	0.38	1.35	0.28	1.09
Produce tax	0.16	0.56	0.14	0.55
Loading/offloading	0.35	1.24	0.30	1.17
Commission agent	0.06	0.21	0.06	0.23
Empty bag	0.43	1.52	0.40	1.56
Total variable cost	28.25	100.00	25.64	100.00
Gross margin (₦/kg)	14.06		16.56	
Marketing margin (%)	41.72		47.40	
Marketing efficiency (%)	49.77		64.59	
CTO	1.50		1.65	

Source: Field survey, 2011

CONCLUSION

Based on the findings from the study, the small-scale maize marketing business is dominated by males with average age of 42 years, with mean household size of 10 persons. Majority of the respondents had primary education, with more than five years of business experience. The study showed that small-scale maize marketing was profitable; characterized by low gross margins and CTO greater than 1. Based on the findings of this study, it was therefore recommended that the government should come up with policies that are targeted towards encouraging the small-scale maize marketers in the area to increase their volume of trade in order to reap scale economies and increased profitability. This could be achieved if the small-scale marketers can come together and pool their resources together into cooperatives. Also, the government should enforce policies designed to promote adequate supply and efficient distribution channels for maize and its products via improved infrastructure and improved extension services, thus ensuring sustainability of the business.

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