PROFITABILITY AND MARKETING EFFICIENCY OF MAIZE IN KWANDE LOCAL GOVERNMENT AREA OF BENUE STATE, NIGERIA

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Abstract. The paper presents profitability and marketing efficiency of maize in Kwande Local Government Area of Benue State, Nigeria. Stratified random sampling was used to select three hundred (300) maize marketers comprising producers (210), wholesalers (32) and retailers (58) in eight (8) major markets in the study area. Primary data were collected using structured questionnaires. Data were analyzed using descriptive statistics, marketing margin and marketing efficiency. It was found that maize marketing in the study area was dominated by males (64.7%) and young people (55.0%) who are energetic enough to withstand the stress involved in the business. The marketing margin of an average maize marketer in the study area was N2,012.00 per 100kg and the percentage marketing margin was 37.2%. This showed that maize marketing in the study area was profitable and 100% retail price paid by the final consumer resulted in farm-to-retail price spread or marketing margin of 37.2%. The marketing efficiency (0.28) of maize in the study area indicated that the marketers were inefficient in maize business. It was recommended that government, non-governmental organizations and the rural populace should strive hard to improve the transportation network and the marketers should belong to marketing associations so that they can collectively access loans from rural banking institutions.

Key words: profitability, marketing efficiency, marketing margin, maize

INTRODUCTION

Maize (*Zea mays*) is a member of the grass family (gramineae). It originated from South and Central America. It was introduced to West Africa in the 1500s and has since become one of the important grains in Nigeria, not only on the basis of the number of farmers that engage into its cultivation, but also on its economic value (IITA, 2001). Maize is a major important cereal crop being cultivated in the rain-forest and the savannah zones of Nigeria. It started as a subsistence crop and has gradually become very important crop. Maize has now risen to a commercial crop on which many agro-based industries depend on as raw material (Iken and Amusa, 2004). It is highly yielding, easy to process, readily digested and cost less than other cereals. It is also a versatile crop, allowing it to grow across a range of agro-ecological zones (IITA, 2001). It is an important source of carbohydrate and if eaten in the immature state, provides useful quantities of vitamins A, C and E (IITA, 2001). Its consumption accounts for about 64% of the total daily calorie intake of rural dwellers especially during the hunger time (Yinka, 2009). There is no class distinction in maize consumption and there is no apparent taboo or religious sentiment associated with its production, preservation and utilization (Ugwumba, 2009).

Maize being an agricultural product is bulky and perishable. It therefore exerts various pressures on

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handling, packaging, transport and sales with adverse antecedent effect on market prices. In addition, poor storage facilities coupled with improper handling and transportation stress lower quantity and quality and cause losses leading to reduced market margins and poor returns (Ugwumba, 2009).

Agricultural marketing is concerned with all stages of operations which include movement of commodities (e.g. maize) from the farms to the consumers. It involves the performance of all activities involved in the flow of goods and services from the point of initial production until they are in the hands of ultimate consumers (Adesiyan et al., 2007). Marketing is the sum total of all business activities involved in the movement of commodities from production to consumption. This definition is applicable to the marketing of industrial goods as well as that of agricultural commodities (Katherine et al., 2010).

The broad objective of this study was to analyze the profitability and marketing efficiency of maize in Kwande Local Government Area (LGA) of Benue State Nigeria. The specific objectives of the study were to:

- analyze the socio-economic characteristics of maize marketers in the study area,
- determine the market structure of maize in the study area,
- estimate the marketing efficiency of maize in the study area,
- estimate the marketing margin of maize in the study area,
- identify the problems of maize marketing in the study area.

METHODOLOGY

The study area

Kwande Local Government is one of the twenty three (23) Local Governments of Benue State. It covers a geographical land area of two thousand, eight hundred and ninety-one (2,891) square kilometers. It has a population of 248,697 (NPC, 2006). The Local Government is bounded by several other LGAs. On the West, it is bounded by Vandeikya LGA, Ushongo LGA on the North and Katsina-Ala LGA on the North West. On the South, it is bounded by Cross River State and in the East by the Republic of Cameroon. Kwande LGA also shares a common border with Takum LGA of Taraba State. It has fifteen (15) council wards. Its headquarters are in

the town of Adikpo located between longitudes 6°35'E and 10°E and between latitudes 6°30'N and 8°10'.N, the LGA has abundant land estimated to be 391 500 hectares. This represents 7.7 percent of the State land mass. Arable land in Kwande LGA is estimated to be 292 300 hectares (BNARDA, 1998). The LGA is predominantly rural with an estimated 80 percent of the population engaged in rain-fed subsistence agriculture.

The Local Government is made up of about 40,000 farm families (BNARDA, 1998). These farm families are mainly rural. Farming is the major occupation of Kwande indigenes. Popularly known as the "Ancestral Home of Tiv Nation", the LGA has a lot of land resources. For example, cereal crops like rice, sorghum and maize are produced in abundance. Roots and tubers produced include yam, cassava, sweet potato and cocoyam. Oil seed crops include pigeon pea, soybeans and groundnuts while tree crops include citrus, mango, oil palm, guava, cashew and pawpaw. Other crops commonly grown include pepper, tomato, ginger, okro, etc. The weather is marked by a single rainy season (April – October) and dry season (November – March). The mean temperature range is 31°C to 38°C. As a result of its mountainous nature and proximity to the Cameroonian range of mountains, Kwande Local Government usually has cold weather which makes it very conducive to traders and investors. The local government also has very big streams which could adequately take care of agricultural and industrial needs.

Sampling procedure, data collection and analysis

The study was carried out in some selected markets of the study area. Eight markets were purposively selected. This was based on the existence of many buyers and sellers and the intensity of maize production and marketing in these markets. The markets were: Achia, Ikyogen, Adagi, Adikpo, Ajio, Jato-Aka, Ichol and Anwase. With the aid of a sampling frame, stratified random sampling technique was used to select maize producers, wholesalers and retailers proportionate to the population. Thus, two hundred and ten (210) maize producers, thirty two (32) maize wholesalers, and fifty eight (58) maize retailers were selected, making a total of three hundred (300) respondents as the sample size. The data were collected through the use of structured questionnaire. Data analysis was done using descriptive statistics, marketing margin and marketing efficiency.

Marketing margin

Marketing margin refers to the difference between the value of a commodity when it is ready for sale from the farm and its value when it is finally bought by the consumer (Asogwa and Okwoche, 2012).

$$MM = Rp - Fp \qquad (1)$$

$$\%MM = \frac{(Rp - Fp) \times 100}{Rp} \qquad (2)$$

where:

MM = Marketing margin
Rp = Retail price
Fp = Farmgate price

Marketing efficiency

Marketing efficiency refers to the ratio of marketing cost to marketing margin. A higher value of this ratio shows improved marketing efficiency while a lower value indicates reduced efficiency (Asogwa and Okwoche, 2012).

$$ME = MC/MM \qquad (3)$$

$$\%ME = \frac{MC \times 100}{MM} \qquad (4)$$

where:

ME = marketing efficiency
MC = marketing cost
MM = marketing margin

If ME = 1, marketing is efficient;
If ME > 1, marketing is highly efficient;
If ME < 1, marketing is not efficient

RESULTS AND DISCUSSION

Socio-economic characteristics of maize marketers in the study area

Table 1 shows that the age of maize marketers ranging between 21-40 years are predominant with 55.0%. This implies that maize marketing in the study area enjoys higher patronage by young people who are energetic enough to withstand the stress involved in the business. This result suggests that majority of maize marketers in the study area are young marketers who are within the age bracket of people who are innovative and active at work (Asogwa and Okwoche, 2012). These categories of marketers therefore can make meaningful impact in maize marketing when adequately motivated with the needed marketing facilities.

Majority (64.7%) of the marketers involved in maize marketing in the study area are males. The dominance of maize marketing by males is a pointer to the belief in the study area that women are supposed to stay at home and in the farm while men struggle for survival through such businesses. Also, women lack exposure to the business since the business requires a lot of energy and is labour intensive, involving moving from one place to another assembling the products for marketing.

Majority (57.3%) of the marketers are married indicating that maize marketing in the study area is common among couples. This is because family labour force may be needed. Majority (81.3%) of the marketers are literate. This implies that greater proportions of the marketers are literate enough to give room for effective communication in doing the maize marketing business in the study area. This is in line with the general belief that education affects the way farm business is managed as well as overall production (Jongur and Ahmed, 2008). Table 1 further revealed that majority (55.0) of the maize marketers have marketing experience of above 10 years (average marketing experience is 11.1 years) which suggest their ability to manage risk and make quick decision resulting in better marketing performance.

Marketing structure

Table 2 shows the percentage distribution of maize marketers by membership of marketing association. Majority (65.7%) of the maize marketers in the study area belong to marketing associations while 34.3% are not members of marketing associations. Those who belong to marketing associations derive the benefits of easy access to extension services, market and credit facilities. The table also shows that majority (67.7%) of the maize marketers in the study area agreed that there is freedom to buy and sell maize anywhere. This implies that maize marketing in the area is structured in such a way that there is ease of entry and exist as well as freedom of buying and selling of maize in the study area. Majority of the marketers (59.7%) agreed that price fixing was by market forces (through bargaining). The table also shows that majority (58.0%) of the maize marketers obtained their marketing information mostly from middlemen. This implies that middlemen have much influence on marketing activities that take place in the study area.

Marketing efficiency

Table 3 shows that the marketing efficiency of maize marketing in the study area was 0.28 (less than 1). This

Table 1. Socio-economic characteristics of maize markets in the study area
Tabela 1. Charakterystyka socjoekonomiczna uczestników rynku kukurydzy w badanym obszarze

Variable – Zmienna	Frequency Częstotliwość	Percentage Procent
Age (Years) – Wiek (lata)		
21–30	78	26.0
31–40	87	29.0
41–50	69	23.0
Above 50 – Ponad 50	66	22.0
Total – Łącznie	300	100.0
Mean – Średnia		39.7
Sex – Płeć		
Male – Mężczyzna	194	64.7
Female – Kobieta	106	35.3
Total – Łącznie	300	100.0
Marital Status – Stan cywilny		
Married – W małżeństwie	172	57.3
Single – Osoba wolna	128	42.7
Total – Łącznie	300	100.0
Educational Background – Poziom wykształcenia		
No Education – Brak wykształcenia	56	18.7
Primary Education – Szkoła podstawowa	78	26.0
Secondary Education – Szkoła średnia	96	32.0
Tertiary Education – Wyższe wykształcenie	58	19.3
Total – Łącznie	300	100.0
Marketing Experience (Years) – Doświadczenie na rynku (lata)		
1–5	75	25.0
6–10	60	20.0
11–15	96	32.0
16–20	39	13.0
Above 20 – Ponad 20	30	10.0
Total – Łącznie	300	100.0
Mean – Średnia		11.1

Source: field survey data (2014).
Źródło: dane z badań ankietowych (2014).

implies that maize marketing in the study area is not efficient. The percentage marketing efficiency of maize was 28.0%. This implies that for every N1.00 spent, 28 kobo is gained.

Marketing margin
Table 4 shows the marketing margin of an average maize marketer in the study area. The result showed that the farm gate price is N3,390.00 per 100 kg of maize while

Table 2. Marketing structure of maize in the study area
Tabela 2. Struktura marketingu na rynku kukurydzy w badanym obszarze

Variable – Zmienna	Frequency Częstotliwość	Percentage Procent
Membership of Marketing Association Członkostwo w stowarzyszeniu branżowym		
Yes – Tak	197	65.7
No – Nie	103	34.3
Total – Łącznie	300	100.0
Freedom of entry and exit Możliwość przystąpienia i rezygnacji		
Yes – Tak	203	67.7
No – Nie	97	32.3
Total – Łącznie	300	100.0
Price Fixing – Ustalanie cen		
Individual – Indywidualnie	70	23.3
Market Forces – Według rynku	179	59.7
Marketing Association – Stowarzyszenie branżowe	51	17.0
Total – Łącznie	300	100.0
Source of Marketing Information Źródło informacji o rynku		
Middlemen – Pośrednicy	174	58.0
Marketing association – Stowarzyszenie branżowe	85	28.3
Media	41	13.7
Total – Łącznie	300	100.0

Source: field survey data (2014).
Źródło: dane z badań ankietowych (2014).

Table 3. Marketing efficiency of maize in the study area
Tabela 3. Efektywność na rynku kukurydzy w badanym obszarze

Variable – Zmienna	Value – Wartość
Marketing cost (N) Koszty rynkowe (N)	558.00
Marketing margin (N) Marża rynkowa (N)	2,012.00
Marketing efficiency (N) Efektywność rynkowa	0.28
% Marketing efficiency Efektywność rynkowa	28.0

Source: field survey data (2014).
Źródło: dane z badań ankietowych (2014).

Table 4. Marketing margin of maize marketers in the study area
Tabela 4. Marża rynkowa na kukurydzę w badanym obszarze

Variable – Zmienna	Value – Wartość
Farmgate price (N) Cena producenta (N)	3,390.00
Retail price (N) Cena detaliczna (N)	5,402.00
Marketing margin (N) Marża rynkowa (N)	2,012.00
% marketing margin % marży rynkowej	37.2

Source: field survey data (2014).
Źródło: dane z badań ankietowych (2014).

the retail price is N5,402.00 per 100 kg of maize. This implies that the marketing margin of an average maize marketer per 100 kg in the study area is N2,012.00 and the percentage marketing margin is 37.2%. This implies that maize marketing in the study area is profitable. Also, 100% retail price paid by the final consumer result in farm-to-retail price spread (marketing margin) of 37.2%. In other words, an average maize marketer in the study area earns a marketing margin of 0.37 Naira for every 1 Naira retail price paid by the final consumer in the marketing of maize. This represents payments for activities such as assembling, processing, transportation and retailing charges added to farm products.

The low level of the marketing margin of the marketers is largely attributed to the exploitative activities of the middlemen. This finding contradicts the observations of Jongur and Ahmed (2008) that farmer's margin was as high as 96.81% and the remaining 3.19% went to middlemen involved in grain marketing in Adamawa Central Zone. This finding is close to observations of Asogwa and Okwoche (2012) that 100% retail price paid by the final consumer result in farm-to-retail price spread (marketing margin) of 34.43% in grains marketing.

Grading, method of storage and means of transportation of maize in the study area

Table 5 shows that majority (59.7%) of the maize marketers' grade their maize based on colour. The results also shows that majority (68.7%) of the maize marketers store their maize in sacks. The table further revealed that 37.7% of maize marketers transport their maize using

Table 5. Grading, method of storage and means of transportation of maize
Tabela 5. Klasyfikacja, metoda przechowywania i sposób transportowania kukurydzy

Variable – Zmienna	Frequency Częstotliwość	Percentage Procent
Grading of maize Klasyfikacja kukurydzy		
Variety – Odmiana	72	24.0
Colour – Kolor	179	59.7
Both – Oba czynniki	49	16.3
Total – Łącznie	300	100.0
Storage of maize Metoda magazynowania		
Sacks – Worki	206	68.7
Rhombus – Silosy	51	17.0
Both – Obie metody	43	14.3
Total – Łącznie	300	100.0
Means of transportation Środki transport		
Wheel barrow – Taczka	88	29.3
Motorcycle – Motocykl	99	33.0
Car/Lorry – Samochód/ciężarówka	113	37.7
Total – Łącznie	300	100.0

Source: field survey data (2014).
Źródło: dane z badań ankietowych (2014).

Table 6. Problems of maize marketing in the study area
Tabela 6. Problemy rynku kukurydzy w badanym obszarze

Variable – Zmienna	Frequency Częstotliwość	Percentage Procent	Ranking Pozycja w rankingu
Poor transportation network Słaba sieć transportowa	240*	80.0	1st
Inadequate capital Niewystarczający kapitał	225*	75.0	2nd
Price fluctuation Wahania cen	162*	54.0	3rd
High taxes Wysokie podatki	135*	45.0	4th
Poor sales Słaba sprzedaż	72	24.0	5th
Accidents Wypadki	54	18.0	6th
Robbery Kradzieże	36	12.0	7th

* Multiple responses.
Source: field survey data (2014).
* Wiele odpowiedzi.
Źródło: dane z badań ankietowych (2014).

cars/lorries, 33.0% using motorcycles while 29.3% used wheel barrows. The combined percentage for wheel barrows and motor cycle is 62.3%. This implies that the transportation network in the study area is poor and requires tremendous improvement.

Problems of maize marketing in the study area

Table 6 shows that the most common problems faced by maize marketers in the study area were poor transportation network (80.0%) and inadequate capital (75.0%) and hence were ranked 1st and 2nd respectively. Others include price fluctuations (3rd), high taxes (4th), Poor sales (5th), accident (6th and robbery (7th). This implies that the high expenditures incurred by the marketers especially due to poor roads, high or multiple taxes increase the marketing costs which seriously reduce the marketing margin coupled with the exploitative activities of the middlemen. Fluctuations in market prices for agricultural products (e.g. maize) could adversely affect farmers' (and marketers) financial condition and results of operations.

CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study, it could be concluded that maize marketing in the study area is profitable with a marketing margin of 37.2% and marketing efficiency of 0.28 implying that maize marketing in the study area is inefficient. There is freedom of entry and exit in maize marketing in the study area and marketing forces determine the price of maize in the study area. Maize marketing in the study area is dominated by males, young people and married men who are energetic enough to withstand the stress involved in the business. Poor transportation network and inadequate capital are the major problems affecting maize marketing in the study area.

The study recommends that construction and rehabilitation of access and feeder roads within the study area should be given priority attention in order to ease transportation problems and its attendant cost. Maize marketers should belong to marketing associations so that they can collectively access loans from rural banking institutions such as Deposit banks, Bank of Agriculture

and Microfinance banks. Government should regulate the markets and monitor the activities of the middlemen in the markets.

REFERENCES

Adesiyan, O. I., Adeleke, O. A., Salako, B. A. (2007). Economic analysis of poultry marketing in Ido local government area of Oyo state, Nigeria. Res. J. Poul. Sci., 1(3–4), 23–25.

Asogwa, B. C., Okwoche, V. A. (2012). Marketing of agricultural produce among rural farm households in Nigeria: The case of sorghum marketing in Benue state. Int. J. Bus. Soc. Sci., 3(13), 269–277.

BNARDA (1998). Crops area and yield survey report Makurdi, Nigeria. Benue Agricultural and Rural Development Authority (BNARDA).

Iken, J. E., Amusa, N. A. (2004). Maize Research and Production in Nigeria. Afr. J. Biotech., 3(6), 1–16.

IITA (2001). Maize Crop (p. 1–3). Ibadan: International Institute of Tropical Agriculture (IITA).

Jongur, A. A. U., Ahmed, B. (2008). Distribution Efficiency of Sorghum Marketing in Selected Areas of Adamawa Central Zone of Nigeria. Bowen J. Agric., 5(1–2), 63–71.

Katherine, K., Mary Kay, G., Robert, P. (2010). Poultry Market in West Africa: Nigeria. Prepared for the Market Access Team of the Bill and Melinda Gates Foundation, 23–87.

National Population Commission (2006). Provisional Census Figure (p. 1–3). Abuja, Nigeria.

Ugwumba, C. O. A. (2009). Analysis of fresh Maize Marketing in Anambra State, Nigeria. J. Res. Natl. Dev., 7(2), 1–5.

Yinka, A. O. (2009). Agricultural Marketing System in Nigeria. A term paper presented at the Department of Agricultural Economics and Extension, Kogi State University, Anyigba, Nigeria (p. 23–28).

RENTOWNOŚĆ I EFEKTYWNOŚĆ MARKETINGU NA RYNKU KUKURYDZY W REJONIE KWANDE W STANIE BENUE (NIGERIA)

Streszczenie. W niniejszym artykule zaprezentowano problem rentowności i efektywności rynku kukurydzy w Nigerii, w rejonie Kwande. Zastosowano losowy dobór próby badawczej celem wyselekcjonowania 300 sprzedawców kukurydzy, włączając 210 producentów, 32 hurtowników i 58 detalistów z ośmiu głównych rynków na obszarze objętym badaniem. Wstępne dane zbierano za pomocą formularzy strukturalnych. Zebrane dane poddano analizie uwzględniającej metody statystyki opisowej i wskaźników efektywności działań rynkowych. Stwierdzono, że rynek kukurydzy na badanym terenie jest zdominowany przez mężczyzn (64,7%) i młodych ludzi (55,0%), którzy łatwiej znoszą stres związany z prowadzeniem działalności biznesowej. Marża rynkowa przeciętnego sprzedawcy wyniosła N2012,00 na 100 kg kukurydzy, a marża procentowa 37,2%. To potwierdza, że sprzedaż kukurydzy na omawianym terenie jest opłacalna i 100% ceny detalicznej dla końcowego odbiorcy wynika z rozpiętości cenowej na rynku detalicznym lub z marży marketingowej wynoszącej 37,2%. Efektywność działań marketingowych (0,28) na rynku kukurydzy na omawianym obszarze oznacza, że sprzedawcy nieefektywnie prowadzili swoją działalność. Warto, aby rząd, organizacje pozarządowe i mieszkańcy wsi dążyli do poprawy sieci dróg, a sprzedawcy powinni zrzeszać się w stowarzyszeniach branżowych i wspólnie pozyskiwać pożyczki z instytucji bankowych wspierających wsie.

Słowa kluczowe: rentowność, marża rynkowa, kukurydza