Moor Journal of Agricultural Research 17, 170 - 180, 2016

Economic Analysis of Grain Marketing in Ogun State, Nigeria.

Oyedepo, E.O and Afolami, C.A.
Department of Agricultural Economics and Farm Management
Federal University of Agriculture, P.M.B 2240, Abeokuta, Nigeria
lolaoyedepo1@gmail.com corresponding author
(phone no:+2348038648941)

Abstract
The persistent food insecurity problem in Nigeria demands a multi – prong approach to seek solution to it. Considerable efforts have been put into increasing production through many policies, projects and programmes adopted by past governments in Nigeria. However, to ensure that this increase in output is beneficial to the populace, there is the need for effective marketing and good value chain development. This study is on economic analysis of grain marketing in some major grain markets in Ogun State and the study aims at determining the efficiency of grain marketing in the study area and estimating the gross margin to the marketers. Survey method was used in selecting entrepreneurs engaged in marketing maize, rice and cowpea in 6 selected grain markets of 3 towns of the State namely; Abeokuta, Shagamu and Ijebu Ode. Two major grain markets were selected from each town and thereafter 20 respondents were randomly selected from each market. Primary data were then collected from a total of 120 respondents and were used for the study. The data collected were analyzed using descriptive statistics and budgetary technique. The study revealed that the three different investments analyzed were profitable at different levels. However, investment in cowpea was the most profitable of all the enterprises with a mean gross margin of ₦ 8,915.00 per month. The marketing margin was also highest for cowpea marketers with a mean marketing margin of ₦1,300.00 per 100kg of cowpea. The mean marketing margin for maize which stood at ₦ 850.00 for an 100kg bag of maize was higher than the least value of margin recorded for polished rice marketers at ₦500.00 per 50kg bag of rice. However, polished rice was most efficiently marketed of all the three grain types with a mean marketing efficiency level of 1.08. For cowpea and maize, the mean marketing efficiency levels were 0.81 and 0.42 respectively. Procurement cost of grains made up the lion share of the mean total marketing cost for all the three grain types. Transportation cost was also relatively high This is as a result of the series of bottlenecks encountererd by marketers in transporting their grains to the market. To improve grain marketing in the study area it is recommended that credit facilities should be made available to grain marketers. Adequate transportation facilities in terms of good roads and functional vehicles should be provided by government, private individuals and cooperative groups.

Keywords: Grains; Grain marketing; Marketing efficiency; Marketing margin

Introduction
Agriculture plays very important roles in the development of the nation's economy. The Nigerian agriculture is a major source of food supply to the populace; it generates income for farmers while ensuring that appreciable number of people engage in productive activities related to farming (Adamu *et al.,* 2013). Before the early 70s, agriculture contributed over 60 per cent to the nation's Gross Domestic Product (GDP) and provided about 90 per cent of the economy's food requirement, raw materials for industries and the country's export earnings (Abu *et al.,* 2001). However, when crude oil became a major export earner for the country, agriculture's contribution to GDP began to decline from over 60% in the early 1970s to less than 26% in 2007 (Aigbokhan, 2001; CBN,

2008). The nation has also witnessed an alarming increase in population at a rate considerably higher than the rate of increase in food production and this has continued to widen the gap between domestic food supply and domestic food demand. This disparity has led to rising food prices in many Nigerian cities, a decline in the foreign exchange earnings from agricultural exports and has placed a serious stress on the Nigerian marketing system (Helleiner, 1996; Ojo and Imoudu, 2000; Modu *et al.,* 2010). The interaction of these factors has also led to a situation of food insecurity and the idea of food self sufficiency is becoming more and more difficult to achieve due to declining agricultural production and an inefficient food marketing system (Helleiner, 1996).

Food security has to do with having at all times an adequate level of food and food products to meet increasing consumption demand to mitigate fluctuation in output and price (Idrisa *et al*., 2008). It is a situation when all people at all times have physical and economic access to sufficient, safe and nutritious food for a healthy and active life (FAO, 1996). According to Von Braun *et al*., (1992), food security is jointly determined by availability of food and accessibility to the food and availability of food is a function of food production, stock holding and food marketing. Oladejo and Ladipo (2012), noted that by raising agricultural productivity, food availability could be increased, however, availability of food is not enough to eradicate food insecurity, the food produced must be distributed efficiently at minimum costs in order to guarantee continuous availability of food throughout the year. This reveals the importance of food marketing in the economic development of our nation. Olayemi (1982), observed that food marketing is a very important but rather neglected aspect of agricultural development. More emphasis is usually placed by government on policies to increase food production with little or no consideration on how to distribute the food produced efficiently and in a manner that will enhance increased productivity. Food marketing by farmers in the immediate post harvest period usually involves a lot of costs and in Nigeria these costs are so high that lowering cost through efficient marketing system may be as important as increasing agricultural production (Ahmed and Rustagi, 1987).

Food grain marketing warrants special attention for several reasons. First, food grains play an especially important role in Nigeria as staples in many homes and secondly, the structure and conduct of food grain market can affect the economy of the people involved in grain production and marketing and also the nation's economy in significant ways (Onu and Iliyasu, 2008). Grains are among the most important staple food crops in the country. They constitute the bulk of plant protein nutrient and energy for human consumption as well as in the production of livestock rations. Among the world crops, grains are the most high yielding in terms of dry matter output per unit area of land and are very important as nutritionally superior food for man and livestock. The protein content of these grains varying from as high as 22.75 percent for cowpea to 15.03 percent for guinea corn (Ajakaye, 1989). Major food grains such as maize, rice and polished rice also constitute 80 to 90 per cent of the calorie consumption of Nigerians (Fafchamps *et al.*,(2003). However, low

level of domestic production, poor storage facilities and inconsistent trade policies have been found to be largely responsible for insufficient market supply of these commodities (Onu and Iliyasu, 2008). Idachaba, (2004) also stated the fact that the dwindling agricultural production in Nigeria is a confirmation of the unattractiveness of agriculture as a result of low returns and compensation being paid to farmers, which tend to discourage production. Akanni and Okeowo, (2011) then revealed that one of the major disturbing phenomena in Nigeria is the shortage of food grains with the attendant result of soaring prices and rising importation of these commodities.

The development of the value chain of grains cannot be over emphasized, thus the persistent food insecurity problem in Nigeria demands a multi – prong approach to seek solution to it. Efficient marketing of agricultural produce will go a long way in providing a solution to the problem of world hunger, reduce post harvest loses while ensuring better economic returns to farmers and market middlemen. All these among other factors will bring about a situation of food security in the country. Hence, this study examined grain marketing in the study area with reference to cost incurred, returns obtained and the efficiency of the marketing system.

Methodology

Sampling Technique, Sources and Type of Data.

The study was carried out in Ogun State. Ogun State is located within latitude 3^{o} 30 N – 4^{0} 30^{1} N and longitude 6^{0} 30^{1}E – 7^{0} 30^{1}E of the south western area of Nigeria (Ogun State annual report, 1998). Major grain markets are located in three major towns of the state and these are; Abeokuta, Shagamu and Ijebu–Ode. Two major predominant grain markets were purposively selected from each town making a total of six markets in all. Thereafter, 20 marketers (wholesalers) were randomly selected from each market and this makes a total of 120 respondents in all. Structured questionnaire was administered on those who store grains in the market, specifically maize, cowpea and rice. These grains are considered for the study because they are widely accepted in all parts of the state and are strategic to food security. Primary data were collected on the socio- economic characteristics of respondents, volume of trade and the selling and cost prices of grains such as warehouse or storage cost, labour cost for offloading, transportation cost and market commission.

Analytical Technique

Gross margin analysis/ budgetary technique

The budgetary technique was employed to analyse costs and returns and gross margin of grain marketing enterprises. Gross margin was calculated for each grain type per month. The gross margin analysis was used because more than one enterprise was considered namely maize, cowpea and rice. The budgetary estimates are given by:

$GM = TR - TVC$

While Total Revenue is given by :

$TR = P_y . Y$

Where TR = Total Revenue

P_y = Unit price of grains

Y = Total quantity of grains sold

GM = Gross Margin

TVC = Total Variable Cost

According to Scaborough and Kydd, (1992), cost components involved in grain

marketing are all variable and operating costs. Costs which vary with volume of stocks include labour costs of temporary employees (for off- loading into the store), handling cost (transportation cost), storage cost, and market commission or tax.

Marketing Margin and Marketing Efficiency.

According to Kohls (1985), marketing margin represents the difference between the price paid by the final buyer (consumer) and the price paid to the first seller (producer). It is a measure of the total value added in the marketing process.

Marketing margin = Buyer's price - Seller's price.

On the other hand, Marketing efficiency is the measure of the market performance expressed as

Marketing efficiency (ME) = Net margin / Marketing cost.

The net margin accruing to the wholesaler or the retailer is the difference between the marketing margin and marketing cost. The marketing cost is the sum of transport cost, storage cost, cost of labour, market commission and other operating costs. If the marketing efficiency is = 1 (highly efficient), it implies that the market is said to be efficient. But when ME > 1 (over efficient), It implies that abnormal profit is being made in the trade and some elements are unduly reaping from the efforts of others. But when ME < 1 (under efficient) it implies that a sizeable loss has been recorded in the trade and a moderate level of efficiency is achieved (Akanni, 2011).

Results

Socio Economic Characteristics of Grain Marketers.

The distribution of the respondents by the socio- economic characteristics (Table 1) shows that a higher percentage (51.6%) of all the respondents were female while 48.3% were male. This result shows that both men and women were involved in grain marketing in the study area. However, more women were involved in the business than their men counterpart. This could be because men in the study area prefer other types of business than marketing agricultural produce. This result is similar to what was obtained by Usman, (2009) where about 77% of the respondents involved in grain marketing were females. The study also revealed that majority of the respondents (75.0%) were married while only 25.0% were single. The involvement of married people in marketing agricultural produce as opined by Kwaghe *et al*.,(2008) could mean that the trade is remunerative to cater for family responsibilities. In terms of education, about 38.3% had secondary education, 31.6% had primary education while only 12.5 % had no formal education. Education affects the manner and way in which farm businesss is managed. It also provides some knowledge and skill which could enhance marketing activities and bring about effective market performance (Nkang *et al.,* 2009).

The study also showed that marketers between ages 31-- 40 years were about 40.8%. About 27.5% were between 41 – 50 years while only 9.1% were in the age range of 51 - 60 years. This implies that most of the marketers were in their economically active years and are able to cope with any stress that might be involved in the business. Marketers with experience of at least 6 – 10 years and 11 – 15 years constituted a majority of about 32.5% and 19.2 % of the respondents respectively.

Table 1: Socio – Economic Characteristics of Grain Marketers

Item	No of respondent	% Distribution	Cumulative %
(1)Sex: Female	62	51.6	51.6
Male	58	48.4	100.0
(2) Marital status			
Married	90	75.0	75.0
Single	30	25.0	100.0
(3)Educational Status			
No education	15	12.5	12.5
Primary education	38	31.6	44.1
Secondary education	46	38.3	82.5
Post secondary	21	17.5	100.0
(4)Age (years)			
21 – 30	33	18.3	27.5
31 -40	49	40.8	68.3
41 -50	22	27.5	86.6
51 – 60	11	9.1	95.8
Above 60	5	4.1	100.0
(5) Experience in business (years)			
< 6	39	32.5	32.5
6-10	39	32.5	65.0
11-15	23	19.1	84.1
16 – 20	9	7.5	91.6
Above 20	10	8.3	100.0

Source: Computed from field survey data.

This is substantiated by the findings of Ali *et al.,*(2008) who observed that marketing experience is important in determining the profit level of marketers. The more the experience, the more marketers understand the marketing system, condition, trends and prices.

The distribution of respondents by the types of grain enterprise in Table 2 showed that 94.17 percent of the respondents sold rice while 84.17 percent sold cowpea. However, only 42.50 percent of the respondents sold maize . In addition , 5.95% of the total grains sold per month was maize. About 68.45 % and 25.6% of rice and cowpea were sold respectively. About 91.09% sourced their cowpea from merchants in Ibadan, Maiduguri and Kaduna while the remaining 8.91% sourced their cowpea from farmers. All the respondents in the study area sourced their rice from merchants in Cotonou, Benin Republic while about 23.5% of the respondents sourced their maize from farmers.

Table 2: Distribution of Respondents by Types of Grains Sold per month and the Source of Produce.

(a) Type of grains marketed

Grain type	No of respondents	% Distribution	Total Quantity sold (kg)	% Quantity sold
Maize	51	42.5	89,856	5.95
Rice	113	94.1	1,033,300	68.45
Cowpea	101	84.2	386,400	25.60
Total			1,509,556	100.00

(a) Source of Produce

Produce	Source	Place of purchase	Frequency	% of traders relative to each produce
Maize	Farmers	Ibadan	12	23.5
	Merchants	Ibadan	39	76.4
Rice	Farmers	-	-	-
	Merchants	Cotonou	113	100.0
Cowpea	Farmers	Ibadan	9	8.9
	Merchants	Ibadan	50	49.5
		Maiduguri and Kaduna	42	41.5

Source: Computed from field survey data.

Costs and Returns Analysis.

Tables 3, 4 and 5 show the average costs and returns analyses for maize, rice and cowpea per month. Table 3 shows that the mean revenue from maize was ₦65,574.00 while the mean marketing cost was ₦3,211.54. The average gross margin obtained was ₦4,737.5. The cost structure for marketing maize in the study area revealed that about 95 percent of the total marketing cost was spent on procuring maize, 2.6% was spent on transportation while storage cost and labour cost was 0.98 % and 0.88 % respectively.

Table 4 also reveals that rice marketers obtained a mean gross margin of ₦ 6,030.3 per month and the mean total marketing costs were incurred at ₦4,721.37 per month. Procurement cost for rice (98.59%) made up the lion share of the costs involved in marketing rice in the study area. Transportation cost was also relatively high at 0.72%

Table 5 shows that the mean gross margin obtained for marketing cowpea per month in the study area was ₦8,915.0. The mean gross margin for cowpea was higher

Table 3: Average Costs and Returns from Maize Marketing per Month.

Marketing items	Average value (₦/month)	% Cost
Mean revenue	65,574.0	
Procurement cost	57,625.0	94.72
Transportation cost	1,576.4	2.6
Storage cost	598.0	0.98
Labour cost	537.0	0.88
Cost of tax	500.0	0.82
Total marketing cost	3,211.5	5.28
Total variable cost	60,836.5	100.0
Gross margin	4,737.5	7.79

Source: Computed from field survey.

Table 4: Average Costs and Returns from Rice Marketing per Month.

Marketing items	Average value (₦/month)	% Cost
Mean revenue	341,798.4	
Procurement cost	331,036.7	98.59
Transportation cost	2,422.9	0.72
Storage cost	816.7	0.24
Labour cost	981.8	0.29
Cost of tax	500.0	0.15
Total marketing cost	4,721.4	1.41
Total variable cost	335,758.1	100.0
Gross margin	6,030.3	1.80

Source; Computed from field survey data.

Table 5: Average Cost and Returns from Cowpea Marketing per Month.

Marketing items	Average value (₦/month)	% Cost
Mean revenue	134,125.00	
Procurement cost	119,000.00	95.04
Transportation cost	4250.00	3.39
Storage cost	450.00	0.36
Labour cost	1,010.00	0.81
cost of tax	500.00	0.40
Total marketing cost	6,210.0	4.96
Total variable cost	125,210.0	100.00
Gross margin	8,915.0	7.12

Source; Computed from field survey data.

than what was obtained for maize and rice. This implies that cowpea marketers were making more profit than marketers of rice and maize. The mean total marketing cost was incurred at ₦6,210.0 and procurement cost, transportation cost, cost of labour and storage cost were 95.04%, 3.39%, 0.81% and 0.36% respectively. In this study, the percentage share of procurement cost of grains has been found to be higher than all other marketing costs. This is in line with the study carried out by Ojumu and Adeyelu, (2014) who noted that procurement cost of grains form a lion share of the total cost of marketing milled rice. It was also noted that transportation cost was also relatively higher than other marketing costs among marketers in the study area. Economists have long noted the bottlenecks and importance of transport cost in marketing agricultural produce in the sub Saharan region.

Table 6 shows the marketing margin, which represents the difference between the buyer's price and the seller's price. The marketing margin is used to estimate the value added by marketers in food grain marketing. A mean marketing margin was highest for cowpea at ₦1,300.00 per 100kg bag while for an 100kg bag of maize a mean marketing margin of ₦850.00 was obtained. Rice Marketers in the study area recorded the least mean marketing margin of ₦500.00 per 50kg bag. The implication of this is that among the three grain types, rice is most efficiently marketed. This is in line with what was obtained by Akanni, (2011) who recorded a mean marketing margin of ₦300.00 for a 50kg bag of polished rice in Ogun State. He noted that this might have been occasioned by the geographical boundary location of the state with the republic of Benin, which is

Table 6: Marketing Margin and Marketing Efficiency Analysis for Maize, Rice and Cowpea per bag.

Grain Type	Unit of measure (kg per bag)	Farm gate price or Seller's price (₦)	Buyer's price (₦)	Market margin (₦)	Marketing cost(₦)	Net Margin (₦)	Marketing Efficiency
Maize	100	7,100.00	7,950.00	850.00	600.00	250.00	0.42
Rice	50	9,100.00	9,600.00	500.00	240.00	260.00	1.08
Cowpea	100	12,000.00	13,300.00	1,300.00	720.00	580.00	0.81

Source: Computed from field survey data.

noted for her popularity in polished rice trade in the west African sub-region. Adeyokunnu, (1980) and Akanni, (2011) noted that lower values of marketing margin are desirable as they imply high levels of marketing efficiency among marketers although there are variations between markets on the basis of marketing services performed. The estimated mean marketing efficiency were 1.08 for polished rice and 0.81 and 0.42 for cowpea and maize respectively. This implies that rice and cowpea are more efficiently marketed than maize in the study area.

Conclusion and policy recommendation

The study reveals that grain marketing is profitable in the study area. Cowpea marketers obtained more profit with a mean gross margin of ₦8,915.0 per month than the other enterprises. However polished rice was most efficiently marketed of all the three grains. Procurement cost of grains made up the lion share of the mean total marketing cost for all the three grain types. This is as a result of the current soaring prices of grains in the market. Transportation cost was also relatively high when compared to other marketing costs. This is due to the series of bottlenecks encountered by marketers in transporting their grains to the market. Many of the roads are already dilapidated and need to be repaired to ease transportation. To improve grain marketing in the study area it is recommended that adequate transportation facilities in terms of good roads and functional vehicles should be provided by government, private individuals and cooperative groups. Credit facilities should also be made available to grain marketers to establish and break even in the marketing business.

References

Abu, G.A., Odoemenem, I.U. and Ocholi, A. (2001). "Determining Optimum farm Credit Need of Small Scale farmers in Benue State. *Journal of Economics and International Finance.* 3 (10) : 564 – 570.

Adamu, M.T., Biwe, E.R., and Suleh, Y.G. (2013). "Socio Economic Characteristics of Farmers under

National Fadama development project in Billiri Local Government Area of Gombe State, Nigeria. *Projournal of Agricultural Science Research.* 1 (2) : 7 – 21.

Adeyokunnu, T.O. (1980). "Agricultural marketing and Small Farmers in Nigeria: Problems and prospects in Integrated Rural Development, Nigeria." Published by University of Ibadan Center for Rural Agricultural Development. (CARD), pp 88 – 99.

Ahmed, R. and Rustagi, N. (1987). 'Marketing and Price Incentives in African and Asian Countries: in Elz, D. (ed) , Agricultural Marketing Strategy and Pricing Policy, International Bank for Reconstruction and Development, Washington, USA.

Aigbokhan, B.E. (2001). "Resuscitating Agricultural Production for Export". Proceedings of the 10th Annual Conference of the Central bank of Nigeria's Zonal Research Units. (CBN) , 4 – 8th June, 2001, Pp 34 – 43.

Ajakaye, M.B. (1989). "Investment Opportunities and Problems in Grain storage". Proceedings of the National Seminar on Grain Storage at Abuja. December 11-13, 1989. Pp 33-61.

Akanni, K.A. (2011). "Economics of Marketing of food Grains In South Western Nigeria. *Economia Mexicana* 21 (1) : 373 – 390.

Akanni, K.A. and Okeowo, T.A. (2011). "Analysis of Aggregate Output Supply Response of Selected Food Grains in Nigeria". *Journal of Stored Products and Postharvest Research* 2 (14): 266 – 278.

Ali, E.A., Gaya, H.I.M. and Jampada, T.N. (2008). Economic Analysis of Fresh Fish Marketing in Maiduguri, Gamboru market and kachallari Alau Dam landing site of North Eastern Nigeria. *Journal of Agriculture and Social Science* 4 (1) : 23 -26.

Central Bank of Nigeria. (2008). Central Bank of Nigeria Statistical Bulletin and Annual Report, 2008.

Fafchamps, M., Gabre – Madhin, E., and Minten, B. (2003). 'Increasing Returns and Efficiency in Agricultural Trade', A research review submitted to the Markets, Trade and Institutions Division, International Food Policy Research Institute, Washington, D.C. in 2003.

FAO (1996). "Declaration on World Food Security" World Food Summit. November 13 – 17 (1996) (FAO) Rome.

Helleiner, G.K. (1996). "Present Agricultural and Economic Growth in Nigeria, Homewood Publisher, United Kingdom.

Kohls, R. L . (1985), "Marketing of Agricultural Products". New York, Macmillan Company, pp 35 – 38.

Kwaghe, P.V., Gaya, H.I. M and Patrick, T. (2008). The Economics of Bushmeat Marketing in Maiduguri Metropolis of Borno State, Nigeria. *Sahel Analyst* 1 (1) : 21 – 28.

Idachaba, F (2004). "Food Security in Nigeria ; Challenges Under Democratic Dispensation". Paper Presented at the 9th Annual ARMTI Lecture, Ilorin, on the 24th of march 2004. Pp 1-23.

Idrisa, Y.L., Gwary, M.M and Shehu, H. (2008). "Analysis of Food Security Status among Farming Households in Jere Local Government of Borno State, Nigeria " *Journal of Tropical Agriculture, Food , Environment and*

Extension 7 (3): 199 – 205.

Modu, Y., Putai, A.J and Petu – Ibikunle, A.M. (2010). "An Economic Analysis of Cowpea Production Among Women Farmers in Askira / Uba Local Government Area of Borno State, Nigeria". *African Journal of General Agriculture* 6 (1) : 7 -17.

Nkang, N.M., Ajah, E.A., Abang, S.O.,and Edet, E.O. (2009) "Investment in Cocoa Production In Nigeria. A Cost and Returns analysis of three Cocoa production management systems in the Cross River State Cocoa Belt, *African Journal of Food, Agriculture, Nutrition and Development* 9 (1) : 713 – 727.

Ogun State Annual Report (1998) Ogun state Government Annual Report of the Local Government Service Commission for the period January 1998 – December 1998 pp 6.

Ojo, S.O and Imoudu, P.B. (2000). "Efficiency Measurement of Palm Oil Marketing in Ekiti State of Nigeria ". *African Journal of Business and Economic Research* 1 (2): 7 – 12.

Ojumu, S and Adeyelu, A (2014). "Economic Analysis of marketing Locally Milled Rice at Micro Scale in Ogoja Local Government Area of Cross River State, *Journal of Agriculture and Veterinary Sciences 6 (1): 31 – 41.*

Oladejo, J.A. and Ladipo, O.O. (2012). "Supply Analysis for Maize in Oyo and Osun States of Nigeria". *International Journal of Life Science and Pharma Research* 2 (2): 9 – 18.

Olayemi, J.K. (1982). "Improved marketing as a strategy for Generating Increased Food Production, A Nigeria Experience. *West African Journal of Agricultural Economics* 1 (1): 21 – 26.

Onu, J.I and Iliyasu, H.A (2008). "An Economic Analysis of Food Grain Market in Adamawa State, Nigeria". *World Journal of Agricultural Sciences* 4 (5): 617 – 622.

Scarborough, V and Kydd, J (1992). "Economic Analysis of Agricultural Markets: A Manual" Chatam, U.K: Natural Resources Institute Marketing Series 5:86 – 87.

Usman, R.K. (2009). Problems Associated with marketing of some selected Grains in Bosso Local Government Area of Niger State. *Journal of Agricultural Extension* 13 (2): 1 – 9

Von Braun, J., Bouis, H., Kumar, S and pandya – Lorch, R (1992). "Improving Food Security of the Poor; Concept, policy and Programs. International Food Policy Research Institute, Washington, USA.