Costs and Returns Analysis of Maize Wholesaling in Gombe Metropolis, Nigeria

Suleiman Mohammeda[1*], R. M. Sani[1], S. Idi[1] and Nasiru Abubakar[1]

[1]*Department of Agricultural Economics and Extension, Faculty of Agriculture and Agricultural Technology, Abtubakar Tafawa Balewa University, Bauchi, Nigeria.*

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

The study examined the costs and returns of maize wholesaling in Gombe metropolis, Nigeria. Using questionnaire, a time series data were collected from 120 randomly sampled traders and the data were analyzed using descriptive statistics, correlation and net farm income analyses. Results showed that 99.1%, 98.2% and 65.4% of sampled traders were male, married and farmers respectively. Similarly, their average age, marketing experience, household size and capital level were 39.5 years, 12.6 years, 9 persons and ₦ 422, 500.00 respectively. Further, it was found that respondents' socioeconomic characteristics were significantly correlated with one another except between education and capital level. Furthermore, the marketing margin, net income and return per each Naira invested were found to be ₦503.84, ₦227.00 per 100 Kg and 0.06 respectively, while the efficiency value was 181.99%. Finally, while maize marketing in the study area was found to be profitable and efficient, there is need for further improvement, such as in the area of female involvement.

Corresponding author: Email: suleiman_mhd@yahoo.com;

1. INTRODUCTION

Maize is a staple food of great importance in the sub-Saharan Africa. It is one of the most important crops in Nigeria and its dual role of feeding a fast growing population and supporting a potentially buoyant agricultural industrialization is well recognized [1,2]. In Nigeria, it is not only a major cereal crop but is regarded as one of the major staples [3,4]. Maize which is being cultivated in both the forest and savannah zones of Nigeria has been in the diet of Nigerians for centuries. It started as a subsistence crop and has gradually become a commercial crop on which many agro-based industries depend for raw materials [5]. Owing to the suitability of the northern guinea savannah of Nigeria, there has been expansion in the production of maize and its uses are equally increasing [IP Odojoma, Ahmadu Bello University, Nigeria, Unpublished results of M. Sc. thesis]; [1], where it is consumed in one form or the other throughout the country [6]. Nwanna, [7] discovered that though maize contribution to Nigeria's Gross Domestic Product (GDP) was still low, its average annual production was 7.1 million tons. Globally, maize is the third most important cereal grain after wheat and rice, providing nutrients for humans and animals and serving as a basic raw material for the production of starch, alcoholic beverages, food sweeteners and more recently bio-fuel [8,9,10].

The main thrust of Nigeria's agricultural trade policy is to, among other things; stimulate growth through remunerative prices to farmers and at the same time protecting consumers' interest. Verily, this can be achieved through, among other things, investigating the operation of farm produce marketing [11]. This is because if prices of commodity are too low, farmers would be discouraged from production, and a consumer from consumption if reverse is the case.

The objectives of the study were to identify the socioeconomic characteristics of maize traders in the study area, examine the profitability and efficiency of maize wholesaling in the area. The study would add a reference material to the few existing literature in the field for producers, marketers, researchers and policy makers. The findings of the study would in addition be helpful in providing new challenges and / or prospects in the field of food grains marketing and distribution in Nigeria.

2. METHODOLOGY

2.1 The Study Area

Gombe is located in the Northern Guinea Savannah agro-ecological zone of Nigeria within Latitude 9°30' and 12°30' North of the Equator and Longitude 8°45' and 11°45' East of Greenwich meridian [12]. It occupies a total land area of 20,265 square kilometers [13] and has a population of 261,536 people [14]. Like other parts of the country, the area experiences distinct wet and dry seasons. Gombe metropolis has a rainfall distribution which ranges from 970.7 mm to 1,142 mm annually, and a mean of 1,009.4 mm. The rain falls from the month of April to October. It has mean maximum and minimum temperature of 32.8°C and 18.3°C respectively. The coldest months are from November to January while March – May are the hottest [12].

The popular Gombe grains market is where thousands of tons of assorted cereals are marketed and transported to different parts of the country in their raw forms [13]. The Gombe grains market receives its grains supply from the far and the nearby smaller and weekly village markets. Other cereals found in the market apart from maize include millet, sorghum, rice, cowpea, ground nut etc.

2.2 Method of Data Collection

A pre-tested interview schedule was used for collecting relevant data from the respondents. Interview or recording schedule, as it is sometimes called, refers to a situation in which an interviewer asks questions and records the answers [15]. Data were collected once in each month for a period of twelve calendar months and during each visit, 10 traders were randomly sampled for an interview. The data included information on traders' socio-economic characteristics such as age, gender, other occupations, highest educational attainment and household size. According to Nasiru et al. [16], socio-economic characteristics of respondents play a vital role in shaping the level of their activities. For example, Sani [17] reported that age is an invaluable consideration in decision-making as it affects risk bearing and availability of family labour. Further, Haruna et al. [18] and Abdu [19] opined that old age is aversive to risk bearing and limits availability of human labor. Similarly, Murtala et al. [20] stressed that household size is an important factor that affects the entire life of an individual especially his

decision-making. In their contribution, Asumugha et al. [21] observed that the larger the family size the lesser the expenditure on hired labour. Other forms of collected data were information relating to marketing costs and prices of maize in the study area.

2.3 Sampling Procedure

Random sampling technique was employed to select maize traders on the ground that the researcher wanted to give traders an equal chance and opportunity of being selected as reported by Ladele [22]. This, in turn, gives an opportunity for broad generalization of the outcome of the research. "A sample is a subset of a population that shares the same characteristics as the population," opined [23]; while a sample size refers to the number of units selected out of the population that an investigator determines to use in a study [22]. To this end, ten traders each engaged in maize marketing were selected each month. Thus, this makes 12 field-visits leading to a total of 120 interviews for the study.

2.4 Analytical Techniques

2.4.1 Descriptive statistics

Descriptive statistics such as percentage, mean, standard error of the mean and frequency distribution were employed. According to Salvatore [24], descriptive summarizes a body of data with one or two pieces of information that characterize the whole data. It deals with describing a sample without making any generalization [25]. Frequency distribution breaks up a data into groups or classes and shows the number of observations in each class. In their contributions, Adamu and Johnson [26] stated that, frequency distribution is the tabulation of a given collection of data in an order with frequency attached to each value or group of values. Another descriptive tool employed was standard error of the mean.

2.4.2 Correlation analysis

Correlation co-efficient has been defined as the degree of relationship or association existing between two or more variables [27,26,28]. Correlation analysis was used in the study to determine the relationships existing among selected socio-economic characteristics of the respondents such as age, household size and length of marketing experience. Others were capital level and years of formal educational level. The model as used in the study is given by the formula:

$$r_{xy} = \frac{\sum x_i y_i}{\sqrt{\sum x_i^2}\sqrt{\sum y_i^2}}$$

$$where:$$
$$r_{xy} = correlation\, coefficient \qquad (1)$$

$$x_i = X_i - \overline{X}_i$$
$$y_i = Y_i - \overline{Y}$$

The correlation co-efficient is a measure of the degree of co-variability of the variables X and Y. The values that correlation coefficient may assume vary from -1 to +1. Thus:

- When r is positive, X and Y increase or decrease together i.e. positive correlation.

- When r = +1, it implies perfect positive correlation between X and Y.

- When r is negative, X and Y move in opposite directions i.e. inverse correlation.

- When r = -1, there exists a perfect inverse correlation between X and Y (Koutsoyiannis, 2006) [29].

2.4.3 Marketing margin

Marketing margin, according to Kohls [30], Musa, [11], Olukosi et al. [31], and Murtala, [32], is the difference in price paid for a commodity at different stages of time, form, place and possession as the commodity moves from the primary producer to the ultimate consumer. The marketing margin model, as used in this study is expressed as:

Mm = Sp – Pp (2)

Where:

Mm = Marketing margin of 100 Kg of maize
Sp = Average selling price of 100 Kg maize
Pp = Average purchase price of 100 Kg maize

Based on the model, as was also applied by Ekunwe et al. [33], it follows that traders' margin equals traders' selling price per unit minus trades' purchase price per unit. This also represents the opinion of [1].

2.4.4 Net income

This refers to the average net returns in Naira accruing to a trader for a 100 Kg bag of maize grains traded. The net income model as used in this study is expressed as:

$$NI = Sp – (Pp + Mc) \qquad (3)$$

Where:

NI = Average net income for 100 Kg bag of maize grains traded.
Sp = Average selling price for 100 Kg bag of maize grains traded.
Pp = Average purchase price for 100 Kg bag of maize grains traded.
Mc = Average marketing cost for 100 Kg bag of maize grains traded.

Similarly, the net income or profit accruing to the trader is the difference between the marketing margin and the marketing cost [1].

The economic decision rule is that if:

NI > 0,

Then the enterprise was profitable and worth undertaking, otherwise not. Contrastingly, if:

NI < 0,

Then the enterprise yielded loss or negative profit otherwise not.

2.4.5 Return on investments

This was captured as return per Naira invested and it measured the net return accruing to a trader for each ₦1 expended in the business. The model is expressed as:

$$RNI = NI / TC \qquad (4)$$

Where:

RNI = Average net return per Naira invested in maize grains marketing.
NI = Average net income or net returns from sales of 100 Kg of maize grains.

TC = Average total costs due to marketing 100 Kg of maize grains.

The economic decision rule is that if:

RNI > 0,

Then the business yielded positive rewards and hence worth undertaking; and if on the other hand,

RNI < 0

Reverse was the case, ie the venture yielded negative rewards (loss) and not worth undertaking. On the other hand, if

RNI = 0

The business breaks even, meaning that no profit and no loss recorded. Thus, the model specifies that the higher the value of RNI the better the business.

2.4.6 Marketing efficiency

The marketing efficiency formula used was stated by Olukosi and Isitor, [34] as:

Marketing efficiency = (Value added by marketing/Marketing cost) X 100 = (Marketing margin/ Marketing cost) X 100

A value >100 is desirable otherwise not. The higher the value, the better the business.

3. RESULTS AND DISCUSSION

3.1 Respondents Gender, Marital Status, Educational Level and Secondary Occupation

Table 1 shows that 99.1, 98.2 and 65.4 percent of the respondents were male, married and farmers respectively. The dominance of male and married traders was not unexpected since the socio-cultural living of the people of the area encourages early marriage of both sexes and women to remain in-door in their houses to take care of children. Further, respondents with secondary, primary and adult education were represented by 32.5, 37.5 and 22.5 percent respectively while only 6.7 percent had never attended school. This implies that majority of the respondents were literate and hence would be

able to coop with some challenges of their marketing businesses.

3.2 Respondents Age, Marketing Experience, Household Size and Capital Level

Table 2 shows that the minimum values of respondents age, marketing experience, household size and level of capital were 24 years, one year, one person and ₦10,000 respectively. The respective maximum values of these variables, on the other hand, were found to be 65 years, 40 years, 27 persons and ₦6, 000,000. Similarly, the average age, marketing experience, household size and level of capital for the respondents were 39.5 years, 12.6 years, 9 persons and ₦ 422, 500.00 respectively. Thus, it can be concluded that traders in the market were not only experienced and in their active ages but also possessed a very reasonable level of capital fund, the characteristics that can dispose them to high level of success in their businesses.

Age, according to Adesina and Kehinde [35], is a vital determinant of an individual capacity in most endeavors such as marketing, farming and so on. This is because very old traders / businessmen are less likely to physically perform field operations and hence more likely to rely on hired labour or depend on family labour.

3.3 Correlation between Selected Socio-Economic Characteristics of Respondents

Further, Table 3 depicts how the socio-economic variables of respondents correlated with one another. To this end, while respondents' age was found to be positively correlated with years of marketing experience (P<.001), capital level (P=.01) and household size (P<.001), its relationships with educational attainment was negative (P<.001). Respondents' years of marketing experience was also found to have significant positive correlation with household size (P<.001) and capital level (P=.01) but negative with education (P<.001). Finally, other important significant correlations included those of household size with capital level and education. However, there was no significant correlation found between education and capital level and this did not support the a prior expectation that respondents educational level would be highly correlated with capital level.

3.4 Costs and Returns Analysis of Maize Marketing in Gombe Metropolis

The results in Table 4 shows that the average purchase cost and the marketing cost of each 100 Kg bag of maize is ₦3, 464.00 and ₦276.84 respectively. This resulted to a total cost of ₦3, 740.84. However, with an average gross income of ₦3, 967.84 per 100 Kg, the marketing margin and the net income were found to be ₦503.84 and ₦227.00 respectively. The marketing margin and the net income constituted 12.70 and 5.72 percent of the selling price. According to Kirimi et al. [36], marketing margins should reflect the cost of moving a good from surplus to deficit areas as well as the costs of storage and processing from one stage to the next in the value chain. Hence, when a reduction in margin is observed, this could naturally follow from a reduction in the cost of transportation or transformation. Since the net income was more than zero, then maize wholesale enterprise in the area was profitable and hence worth undertaking. Similar finding was reported by Obasi et al. [37] where he discovered that maize marketing in Aba Local Government Area of Nigeria was profitable.

Table 1. Socio-economic characteristics of maize traders in gombe grains market

Variables	Frequency	Percentage
Gender		
Male	114	99.1
Female	1	0.9
Marital status		
Married	112	98.2
Single	2	1.8
Educational level		
Never attend school	8	6.7
Adult education	27	22.5
Primary school	45	37.5
Secondary school	39	32.5
Tertiary institution	1	0.8
Secondary occupation		
Farming	68	65.4
Civil service	4	3.8
Others	32	30.8

Source: Field survey, 2010

According to Obasi et al. [37], one of the food problems is the inefficiency of the marketing system from production to consumption for agricultural commodities in most developing economies. Analysis of maize wholesaling efficiency in the study area was thus investigated and the result showed 181.99 percent efficiency

Table 2. Distribution of respondents according to age, marketing experience, household size and capital level in Gombe Grains market (n = 120)

Variable	Minimum	Maximum	Mean	Standard error	Dev.
Age (Years)	24.0	65.0	39.5	0.95	10.22
Marketing exp. (Years)	1.0	40.0	12.6	0.85	9.14
Household size (No.)	1.0	27.0	8.8	0.53	5.75
Capital level ('000 ₦)	10.0	6,000.0	422.5	73.00	799.60

Source: Field survey, 2010

Table 3. Correlation among selected socio-economic variables of respondents (n=120)

	Age	Marketing experience	Capital level	Educ. level	Household size
Age	1				
Marketing Exper.	693***	1			
Capital Level	.244**	308**	1		
Education Level	-.454***	-.346***	-.023 NS	1	
Household Size	.771***	.702***	.192*	-.477***	1

*= significant @ 0.05; ** = Significant @ 0.01; **** = Significant @ 0.001; Source: Field Survey, 2010

which implies that value addition through marketing was 81.99 percent more than the cost incurred in the process of the marketing. This contradicts the finding of Obasi et al. [37] who discovered that maize marketing efficiency was only 117.31 percent in Aba. The low efficiency value in Aba could be interpreted to mean an inefficient marketing system. Scarborough et al. [38] noted that marketing efficiency value ranges from zero (0) to infinity. If marketing efficiency is less than 100 percent it indicates inefficient market whereas if the marketing efficiency is greater than 100 percent there is excess profit. Finally, return per Naira invested (RNI) in the marketing process was found as 0.06 implying that for each one Naira spent, six kobo was realized as net profit. Since RNI value is greater than zero, it can be deduced that the business yielded positive rewards and hence worth undertaking.

Table 4. Marketing margin and income of maize marketing in Gombe (₦ / 100Kg)

Variable	Value (N)	Percentage
Purchase cost	3,464.00	92.60
Marketing cost	276.84	7.40
Total cost	3,740.84	100.00
Gross income	3,967.84	100.00
Marketing margin	503.84	12.70
Net income	227.00	5.72
Efficiency (%)	181.99	-
RNI	0.06	-

Source: Field survey, 2010

4. CONCLUSION

Results of the study disclosed that majority of the respondents were male, married and farmers. Similarly, the average age, marketing experience, household size and capital level of the respondents were 39.5 years, 12.6 years, 9 persons and ₦ 422, 500.00 respectively. Further, it was found that most of the respondents' socioeconomic characteristics were significantly correlated with one another. Furthermore, with respective margin, net income and return per each Naira invested of ₦503.84, ₦227.00 per 100 Kg and 0.06, maize grains wholesaling in Gombe metropolis was profitable in addition to being efficient. Finally, despite this, there is need for further improvement, such as in the area of female involvement.

DISCLAIMER

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Awotide DO, Ajala SO. Performance and determinants of maize grains marketing in

northern Nigeria. In: Haruna U, Jibril SA, Mancha YP, Nasiru M, editors. Consolidation of growth and development of agricultural sector. Proceeding of the 9th Annual National Conference of the Nigerian Association of Agricultural Economists, 5th – 8th November, held at Abubakar Tafawa Balewa University Bauchi, Nigeria. 2007;329-335.

2. Awotide DO, Fashina OM, Ologbon OAC, Agbola PO. Relationship between credit access and technical efficiency of maize farmers in Abeokuta north local government area of Ogun state, Nigeria. In: Aiyedun EA, Idisi PO, Nmadu JN, editors. Agricultural technology and Nigeria's economic development. Proceeding of the 10th annual national conference of the Nigerian Association of Agricultural Economists, 7th – 10th October held at University of Abuja, Nigeria. 2008; 259-266.

3. Ojo SO. Improving labour productivity and technical efficiency in food crop production: A Panacea for poverty reduction in Nigeria. A Journal for Food, Agriculture and Environment. 2000;2(2):227–231.

4. Ojo SO. Factor productivity in maize production in Ondo state. Nigeria Applied Tropical Agriculture. 2000;(7):57–63.

5. Iken JE, Amusa NA. Maize research and production in Nigeria. African Journal of Biotechnology. 2004;3(6):302–307.

6. Yusuf SR, Ahmed BI, Galadima B. Control of Sitophilus zamais mots adults population on grain maize (*Zea mays* L.) by two plant products compared with primiphos- methly. In: Adepoju SO, Okuneye PB, Editors. Technology and agricultural development in Nigeria. Proceedings of the 20th annual national conference of Farm Management Association of Nigeria (FAMAN), held at Federal College of Forestry, Jos, Plateau State, Nigeria. 2006;621-624.

7. Nwanna V. Nigerian corn study shows production could more than double. Bloomberg Innovation Publication. 2009;4-5.

8. Maize in human nutrition. Food and Agricultural Organization, Rome, Italy; 1992.

9. Okoruwa AE. Utilization and processing of maize. IITA Research Guide No. 35 Training Programme. International Institute of Tropical Agriculture (IITA) Ibadan, Nigeria. 1992;27.

10. Alabi OO, Adebayo CO. Price analysis of maize, sorghum and millet in beverage, livestock feed, food and confectionary industries in Kaduna and Kano States of Nigeria. In: Umeh JC; Obinne P; Lawal W. (Eds). Prospects and Challenges of Adding Value to Agricultural Products, Proceedings of the 22nd Annual National Conference of Farm Management Association of Nigeria (FAMAN), held at University of Agriculture Makurdi, Benue State, Nigeria. 2008;67-71.

11. Musa SA. Marketing of cowpea in Nigeria: econometric studies of quantity factors and market integration. An unpublished Ph. D Thesis, Agricultural Economics and Extension Programme, Abubakar Tafawa Balewa University Bauchi; 2003.

12. Gombe State Government. Jewel in the Savannah Diary Book; 2009.

13. Mohammed S, Idi S, Malumfashi AI, Musa SA. Commercial Banks and Agricultural Funding in Gombe State, Nigeria. Management Network Journal. 2005;4(7): 56-63.

14. National Population Commission. Enumerators Manual. National Population Commission, Abuja, Nigeria. 2006;12-13.

15. Awolola MD. Questionnaire design in Agricultural Extension Research. 2004; 150-160.

16. Nasiru M, Jibril SA, Haruna U, Abdur Rahman S, Dabo I. Economic analysis of irrigated tomato in Jos- East Local Government Area, Plateau State. In: Ogisi OD, Okuneye PB, Oyaide WJ. (Eds). Economic reforms and the management of Nigerian Agriculture. Proceeding of the 19th Annual National Conference of Farm Management Association of Nigeria (FAMAN), 18th – 20th October 2005, held at Delta State University, Asaba Campus. 2006;90-94.

17. Sani RM. Economic analysis of crop residues storage for cattle fattening in Northern Guinea Savannah Ecological Zone of Nigeria. An Unpublished Ph. D Thesis, Agricultural Economics and Extension Programme, Abubakar Tafawa Balewa University, Bauchi; 2000.

18. Haruna U, Sani RM, Idi S, Daneji MI. Economics of wheat production as a strategy for poverty alleviation in Bauchi State, Nigeria. IN: Akande SO, Okuneye PA, Adegeye PA. (Eds). Agricultural Development for Poverty Alleviation and Economic Empowerment in Nigeria.

Proceeding of the 17th Annual National Conference of Farm Management Association of Nigeria (FAMAN), held at Sheraton Hotels and Towers, Abuja. 2002; 32-38.

19. Abdu Z. Economics of soybean marketing in Guinea Savannah Nigeria. An Unpublished Ph. D Thesis, Agricultural Economics and Extension Programme, Abubakar Tafawa Balewa University, Bauchi; 2006.

20. Murtala N, Haruna U. Abdur Rahman S, Dauda, M. Economic analysis of fish marketing and distribution in Bauchi Metropolis. In: Okuneye B, Evbuomwan GO. (Eds). Agri-business in the African Century. Proceedings of the African Farm Management Association (AFMA).7th Biennial Congress held at Central Bank of Nigeria, Abuja; 2004.

21. Asumugha GN, Njoku JE, Nweke FI. Socio-economic determinants of producer supply of traded ginger in Southern Kaduna Area of Nigeria. In: Busani LD; Wada AC; Imoleluin ED; Idowa AA; Asumugha GN. (Eds). Agricultural Production and Strategies for Meeting Nigerians' Food Demand in the New Millennium. Proceedings of the 33rd Annual National Conference of Agricultural Society of Nigeria (ASN), held at Badeggi, Niger State. 2000;22–25.

22. Ladele AA. Sampling Techniques in Agricultural Extension Research. 2004; 83–100.

23. Runyon RP, Andrey H, Pintenger DJ, Coleman KA. Fundamentals Behavioural Statistics. Eight Edition, Mc-Graw-Hill, NY. 1996;721.

24. Salvatore D. Theory and problems of statistics and economics. McCraw-Hill Book Company, New York. 1982;46.

25. Olowu TA, Oladeji JO. Descriptive statistics for Agricultural Extension Research. 2004;161-191.

26. Adamu SO, Johnson TL. Statistics for Beginners, SAAI Publications, Ibadan. 1997;314.

27. Pagano RR. Understanding Statistics in Behavioral Sciences, (4th Edition), West Publishing Company, New York, USA. 1994;111-165.

28. Olayemi JK. Elements of econometrics. Department of Agricultural Economics, University of Ibadan, Ibadan, Nigeria. 1998;250.

29. Koutsoyiannis A. Theory of Econometrics: An Introductory Exposition of Econometric ethods. 2nd Edition, Palgrave Publishers Ltd. New York. 2006;681.

30. Kohls RI. Marketing of Agricultural Products. Macmillan publishing company, New York, USA. 1985;Chapter 2:83.

31. Olukosi JO, Isitor SU, Ode MO. Introduction to Agricultural Marketing and Prices: Principles and Applications, 3rd Edition, G. U. Publishers, Abuja, Nigeria. 2005;53–112.

32. Murtala N. Economic analysis of cattle marketing in two ADP Zones of Kano State, Nigeria. An Unpublished PhD Thesis, Agricultural Economics and Extension Programme, Abubakar Tafawa Balewa University, Bauchi; 2009.

33. Ekunwe PA, Emokaro CO, Ihenyen OI, Oyedeji JO, Alufohai GO. Marketing aspects of utilities: An Analysis of Eggs Marketing in Benin City, Edo State, Nigeria. In: Umeh JC, Obinne P, Lawal W. (Eds). Prospects and Challenges of Adding Value to Agricultural Products, Proceedings of the 22nd Annual National Conference of Farm Management Association of Nigeria (FAMAN), held at University of Agriculture Makurdi, Benue State, Nigeria. 2008;331–337.

34. Olukosi JO, Isitor SU. Introduction to Agricultural Marketing and Prices: Principles and Applications, Agitab Publishers, Zaria, Nigeria, 1990;34.

35. Adesina AC, Kehinde AI. Economics of wholesales marketing of fruits in Ibadan Metropolis of Oyo State, Nigeria. In: Umeh JC, Obinne P, Lawal W. (Eds). Prospects and Challenges of Adding Value to Agricultural Products, Proceedings of the 22nd Annual National Conference of Farm Management Association of Nigeria (FAMAN), held at University of Agriculture Makurdi, Benue State, Nigeria. 2008;51–59.

36. Kirimi L, Nicholas S, Jayne TS, Karin F, Muyanga M, Sheahan M, Flock J, Boar G. A Farmgate –to- consumer value chain analysis of Kenya's maize marketing system. Department of Agricultural, Food and Resource Economics, Michigan State University, MSU International Development Working Paper. 2011;111.

37. Obasi IO, Majeha RO, Okocha MS. Dried maize marketing in Aba Local Government Area of Abia State, Nigeria: Implication for

Employment. A International Conference on Trade, Tourism and Management, Bangkok, Thailand. 2012;153-155.

38. Scarborough V, Kydd J. Economics analysis of agricultural markets. A manual Chatham UK. 1992;5.