

Market Structure-Conduct and Performance of Millet Marketing in Bade Local Government Area, Yobe State, Nigeria

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Abstract- The study investigated the structure, conduct and performance of millet marketing in Bade Local Government Area (L.G.A) of Yobe State. It also described the socioeconomics characteristics of millet marketers, and determined the structure conduct and performance of millet marketing in the study area. Simple random sampling technique was adopted in selecting one hundred and fifty (150) respondents whom the questionnaire were administered to. Descriptive statistics was used to describe their socioeconomic characteristics; Gini coefficient was used to determine the market concentration and classify the structure of millet market in the study area. Results showed that there were more males involved in millet marketing than females and most of where in their active ages between 25-36 years of age. Most of the respondents were married with family size between 6-10 individuals, most of them were educated and could read and write, which made the answering of the questionnaire faster. The Gini coefficient result showed that there were moderated income inequality among wholesalers and a severe income inequality among retailers.

Keywords: Millet, Structure, Conduct, Performance, Marketing, Yobe State

I. INTRODUCTION

The various species called millet were initially domesticated in different parts of the world, most notably in East Asia, South Asia, West Africa, and East Africa. However, the domesticated varieties have often spread well beyond their initial area. Specialized archaeologists called palaeoethno botanists, relying on data such as the relative abundance of charred grains found in archaeological sites, hypothesize that the cultivation of millets was of greater prevalence in prehistory than rice, especially in northern China and Korea. Millets also formed important parts of the prehistoric diet in Indian, Chinese Neolithic and Korean Mumun societies, (Manjul, Taranumm, 2006)

Pearl millet (*Pennisetum glaucum*) was definitely domesticated in Africa by 3500, early evidence includes findings at Birimi in West Africa with the earliest at Dhar Tichitt in Mauritania. (D'Andrea, Casey, 2002). Pearl millet was domesticated in the Sahel region of West Africa, where its wild ancestors are found. Evidence for the cultivation of pearl millet in Mali dates back to 2500 BCE, (Ruth, Tom, Schwenniger 2011).

Millets are major food sources in arid and semi-arid regions of the world, and features in the traditional cuisine of many others. Another cereal grain popularly used in rural areas and by poor people to consume as a staple in the form of roti. Millet porridge is a traditional food in Russian, German, and Chinese cuisines. In Russia, it is eaten sweet (with milk and sugar added at the end of the cooking process) or savory with meat or vegetable stews. In China, it is eaten without milk or sugar, frequently with beans, sweet potato, and/or various types of squash. In Germany, it is also eaten sweet, boiled in water with apples added during the boiling process and honey added during the cooling process. In Nigeria it is used for Tuwo, Porridge and Fura.

Per capita consumption of millets as food varies in different parts of the world, with consumption being the highest in Western Africa. In the Sahel region, millet is estimated to account for about 35 percent of total cereal food consumption in Burkina Faso, Chad and the Gambia. In Mali and Senegal, millets constitute roughly 40 percent of total cereal food consumption per capita, while in Niger and arid Namibia it is over 65 percent. Other countries in Africa where millets are a significant food source include Ethiopia, Nigeria and Uganda. Millet is also an important food item for the population living in the

drier parts of many other countries, especially in eastern and central Africa, and in the northern coastal countries of western Africa. In developing countries outside Africa, millet has local significance as a food in parts of some countries, such as China, India, Burma and North Korea. (FAO, 2012).

The use of millets as food fell between the 1970s and the 2000s, both in urban and rural areas, as developing countries such as India have experienced rapid economic growth and witnessed a significant increase in per capita consumption of other cereals.

In addition to being used for seed, millet is also used as a grazing forage crop. Instead of letting the plant reach maturity, it can be grazed by stock and is commonly used for sheep and cattle. Millets are highly varied group of small-seeded grasses, widely grown around the world as cereal crop or grain for fodder and human food. Millet is an important cereal that makes up about two-third of the total cereal production in Africa (FAO, 2008). It is a major staple diet to millions of households in Nigeria and a crucial resource to the small-scale farmers as well as those making it available in the markets. Millet is a cereal crop belonging to the grass family Gramineae. It is the seventh most important cereal crop globally, and an important coarse grain food crop in Africa and South Asia (ICRISAT, 2005). Thus, it is a staple grain for about 90 million people living in the Semi-Arid Tropical Regions of Africa and the Indian sub-continent (Gulia *et al.*, 2007). The market for food staples remains central to many agricultural-based economies because staple foods constitute such a major share of household food expenditures (IFPRI, 2008). This study is driven by the quest to

- i. analyse the socio-economic characteristics of millet marketers in the study area;
- ii. determine the degree of the market concentration among the market participant in order to classify the structure of millet market in Bade L.G.A.;
- iii. analyze the conduct of millet market in Bade L.G.A.; and
- iv. determine the market performance of millet grain marketers in the study area;

II. MATERIALS AND METHODOLOGY

Simple random sampling procedure was used to select the respondents in the study area, this technique was incorporated to ensure that the respondents selected are representative of the population. Bade Local Government Area (L.G.A.) headquarter is located in the town of Gashua, among other communities of Bade L.G.A. are Dogona, Katuzu, Lawan Fanami, Lawan Musa, Sarkin Hausawa, Tagali, Sugum, Dawayo, Zangon Musa, Zango Umaru and Gwio-kura, Millet is produced in commercial quantity basically in almost all the district in the L.G.As., but for the purpose of this study Dawayo and Gwio-Kura were selected..

In each of the two (2) communities of (Dawayo, and Gwio-Kura), seventy five (75) questionnaire were randomly distributed across available millet marketers and associations. A total of one hundred and fifty (150) questionnaire was administered.

2.1 Analytical Tools

2.1.1 GINI COEFFICIENT

This is a measure of statistical dispersion most prominently used as a measure of inequality of wealth or product distribution. It has values between 0 and 1 (Enibe *et al.*, 2008). When the value is low it indicates more equal incomes, wealth or product distribution and when high it indicates more unequal distribution. Zero corresponds to perfect equality and 1 (one) corresponds to perfect inequality (Enibe *et al.*, 2008).

$$G.C. = 1 - \Sigma XY$$

Where,

G.C = Gini coefficient

X = percentage share of cowpea market participants

Y = cumulative percentage of millet purchase

Σ = Summation sign

III. RESULTS AND DISCUSSIONS

Table 1: Socio-economic profiles of Millet Marketers in the Study Area

Socio-economic characteristics	Frequency	Percentage
Gender		

Male	148	98.7
Female	2	1.3
Total	150	100
Age Range		
25-30	46	30.7
31-36	35	23.3
37-42	21	13.9
43-48	26	17.3
49-54	11	7.4
55-60	10	6.7
61 and above	1	0.7
Marital Status		
1(Married)	120	80.0
2(Single)	30	20.0
House Hold Size		
1-5	50	33.3
6-10	64	42.7
11-15	28	18.7
16-20	7	5.0
20 and above	1	0.7
Educational Level		
Non-formal	22	14.7
Primary	47	31.3
Secondary	38	25.0
Tertiary	16	10.7
Qur'anic	27	18.0
Membership of Association		
1	52	34.7
2	92	65.3
Major Occupation		
1(Farmer)	68	45.3
2(Trader)	72	48.0
3(Civil Servant)	8	5.3
4(Tailoring)	2	1.3
Minor Occupation		
1(Farmer)	68	45.3
2(Trader)	42	28.0
3(Civil Servant)	17	11.3
4(Tailoring)	18	12.0
5(Others)	5	3.3
Marketing Experience		
1(1-5 years)	36	24.0
2(6-10 years)	21	14.0
3(11-15 years)	47	31.3
4(15 years and above)	46	30.7
Total	150	100

Source: Field Survey, 2023

3.1 Gender Distribution of the Respondents

Gender is either of the two main categories (male and female) into which human and most other living things are divided into on the basis of their reproductive functions. It is a biological categorization based primarily on reproductive potential.

The result from Table 1 shows that 98.7% of the respondents were male marketers, and only 1.3% were female, showing that male marketers dominated the market and this could be as a result of the traditional and religious beliefs of the people about women staying at home to take care of the children.

3.2 Age Distribution of the Respondents

Beneficiary marketers cuts across different ages in the study area. The result revealed that 85.2% of the marketers were between the ages of 25-48 years. This was followed by those within ages 49-54 (7.4%) and 55-60 (6.7%). The findings revealed that majority of the marketers were within the active age bracket of (25-28 years).

3.3 Marital Status of Marketers

About 80% of the marketers were married and 20% single were single as shown in Table 1. This signified that the marketers have responsibilities to take care of at home.

3.4 House Hold Size of the Marketers

Family size is explained in this study as the number of individuals in a family or a household eating from the same pot. In the study area about 94% households has more than three persons per household. Thereby, indicating that there is high dependency ratio on the marketer.

3.5 Educational Status of Marketers

In Table 1 the study showed that majority of the marketers in the study area had formal education (67.3%) with 18% that had Qur'anic education, and 14.7% that had non-formal education. This explains the ability of the marketers filling the questionnaire with ease, and communicate easily with others.

3.6 Membership of Market Association

Association is said to be a group of persons who share a common interest or a common purpose and who are organised with varying degree of formalities.

The study shows that 65.3% of millet marketers in the study area are not members or part of an association while 34.53% are registered members of their various association. This shows that the majority of the marketers take individual decisions in the market.

3.7 Major Occupation of Respondent

Major occupation signifies the occupation that brings major income to the marketer or the occupation he or she is more dedicated to.

The table shows that the major occupation of 48% of the respondents are Traders, 45.3% are farmers, 5.3% are civil servants and 1.3% of the respondents are into Tailoring. This indicates that the respondents were involved in other activities irrespective their business.

3.8 Minor Occupation of Respondent

Minor occupation can also referred to side business such that the income gotten is used to support daily needs aside from the major occupation.

The table above shows that the main occupation of 45% of the respondents is trading, 28% is farming, 12% is tailoring, 11% is civil servants and 3.3% is other source.

3.9 Marketing Experience of the Respondents

This signifies the time spent or the number of years spent in a particular business in question.

Table 1 showed that 76% of the marketers had spent between 6 -15 years in the business, followed by 30% that had spent 15 years and above and then 24% that had only spent 1-5 years in millet marketing. The years spent in marketing had helped them to understand the trend of the business and enabled them to know when to invest huge amount of money in storage of millet.

4.4 GINI COEFFICIENT

As seen in Table 2, the Gini coefficient result of wholesalers in the study area is 0.478824 which signifies that there is a moderate income inequality among millet wholesalers. On the other hand, the value for retailers in the study area is 0.671085 signifying that there is severe income inequality among retailers unlike the wholesalers in the study area.

Table 4.13: Comparative Analysis for wholesalers and Retailers

Income range	Number of Retail marketers	Number of Wholesale Marketers	Total Income for Retail Marketers (₦)	Total Income for Wholesale Marketers (₦)	Gini Coefficient for Retail Marketers	Gini Coefficient for Wholesale Marketers
100,000 – 1,100,000	26	06	16,470,000	3,920,000	0.025625	0.000582
1,101,000 – 2,100,000	17	12	24,870,000	17,910,000	0.042056	0.006483
2,101,000 – 3,100,000	09	08	24,470,000	19,850,000	0.035444	0.008252
3,101,000 – 4,100,000	08	07	30,100,000	25,500,000	0.045915	0.011638
4,101,000 – 5,100,000	03	06	14,800,000	28,600,000	0.019875	0.014222
5,101,000 – Above	12	36	112,100,000	443,000,000	0.160000	0.480000
Total	75	75	222,810,000	538,780,000	0.328915	0.521176
Gini coefficient					0.671085	0.478824

Source: Field Survey, 2023

IV. CONDUCT OF MILLET MARKET IN THE STUDY AREA

The conduct of the market participants, which reflects the behaviour of the marketers, or the decision that marketers make relating to their pricing, output policy and other competitive tactics, revealed that market price for millet are mostly decided and determined by market associations. Other factors that influence price of commodity includes; where or from whom the marketers buy millet, the quality of the produce, duration and length of storage and time of sale from harvest period to scarcity period. Market participants do not engage in any other technique to influence market prices. They do not run advertisement, no innovations neither is there research and development among marketers to create differentiated products to improve profitability of millet marketing. All the marketers adopted the same market pattern of buying and selling homogenous product and facing the same industrial curve determined by the invisible forces of demand and supply making millet marketing very elastic in the study area.

V. CONCLUSION

Marketing of millet in Bade L.G.A revealed that the price of millet is not fixed due certain factors which include; where or from whom the marketers buy millet, the quality of the produce, duration and length of storage and time of sale from harvest period. It examined the examined the socioeconomic characteristics of millet marketers in the study area. It also determined the market concentration (structure), analysed the conduct and performance of the participants in the market.

Simple random sampling technique was used to obtain the data through the use of a well-structured questionnaire. Data generated were analysed using descriptive statistics, Gini coefficient.

The study revealed that millet is sold in a male dominated market (98.7%), with (80%) of them married. About (85.2%) of them are in their active ages, (67.3%) had formal education and (94%) have a house hold size above 3. The Gini coefficient values showed sufficient evidence that millet market structure in the study area is pure market competition

as the income inequality index ranges from 47% to 67% for all marketers. The overall performance of the market is 36.16%, this signifies that the marketers need to device more tactics in other to reduce cost incurred, influence price and increase profit.

VI. RECOMMENDATIONS

Based on the findings revealing that the marketing system is not very efficient, there is need for more research on how to improve individual performance in the market. There is need for providing adequate transportation for easy transfer of goods as well as reduce cost of marketing. Strong stakeholder partnership between the government and marketers should be introduced for security purposes within and around the markets the study area.

REFERENCES

- [1] Amaechina, E. C., & Eboh, E. C. (2017). Resource use efficiency in rice production in the lower Anambra irrigation project, Nigeria. *Journal of Development and Agricultural Economics*, 9(8), 234-242.
- [2] Bánh đà kê - món quà vặt của người Hà Nội"(2018) (in Vietnamese). Retrieved 7 December 2018.
- [3] Brink, M. and Belay, G. (2006) Plant Resources of Tropical Africa 1. Cereals and Pulses. Fondation PROTA. Backhuys Publishers, Leiden, Netherlands
- [4] Christopher Barrett and Jau Rong Li. (2002) American Journal of Agricultural Economics, , vol. 84, issue 2, 292-307
- [5] Collett, Ian J. (2008) "Forage Sorghum and Millet" (PDF). District Agronomist, Tamworth. NSW Department of Primary Industries. Archived (PDF) from the original on 22 August 2008. Retrieved 7 November 2013
- [6] D'Andrea, A. C.; Casey, J. (2002). "Pearl Millet and Kintampo Subsistence". *The African Archaeological Review*. 19 (3): 147–173.
- [7] Definition of millet". Oxford Dictionaries. Oxford University. Retrieved 21 July 2017.
- [8] Fackler, P.L. and B.K. Goodwin (2001). Spatial Price Analysis. In: Gardner, B. and G. Rausser

(eds.): *Handbook of Agricultural Economics*, Vol. 1B. Elsevier: 971-1024.

[9] FAO. (2008). FAOSTAT. Food and Agriculture Organization of the United Nations. www.fao.org

[10] FAO/ICRISAT (1996) *The World Sorghum and Millet Economies: Facts, Trends and Outlook*. FAO, Rome, Italy and ICRISAT, Patancheru, Andhra Pradesh, India, 68.

[11] Food and Agriculture Organization of the United Nations. (1995). "Sorghum and millet in human nutrition" Archived from the original on 1 October 2018. Retrieved 7 January 2012.

[12] George J. Stigler. (Jun., 1961) *Journal of Political Economy* Vol. 69, No. 3 , pp. 213-225 (13 pages) Published By: The University of Chicago Press

[13] Gulia, S.K., C.T. Hash, R.P. Thakur, W.A. Breese, and R.S. Sangwan. (2007). Mapping new QTLs for downy mildew [*Sclerospora graminicola* (Sacc.) J. Schroet.] resistance in pearl millet [*Pennisetum glaucum* (L.) R. Br.]. p. 373–386. In: D.P. Singh, V.S. Tomar, R.K. Behl, S.D. Upadhyaya, N.S. Bhale, and D. Khare(eds.), *Crop production in stress environments: Genetic and management options*. Agrobios Publ., Jodhpur, India.

[14] ICRISAT (International Crops Research Institute for Semi-Arid Tropics). (2005). Pioneering market-assisted breeding results in pearl millet hybrid resistant to downy mildew. www.icrisat.org/media/2005/Media19.htm (posted 28 Jan. 2005; verified 19 Dec. 2006).

[15] ICRISAT. (2005). International Crops Research Institute for Semi-Arid Tropics, 2005 annual report.

[16] K. Kris Hirst (November 19, 2019)"pearl Millet – Domestication and History" M.A., Anthropology, University of Iowa B.Ed., Illinois State University

[17] Koerner, T. B.; Cleroux, C; Poirier, C; Cantin, I; La Vieille, S; Hayward, S; Dubois, S (2013). "Gluten contamination of naturally gluten-free flours and starches used by Canadians with celiac disease". *Food Additives & Contaminants: Part A*. 30 (12): 2017–21

[18] Koerner, T. B.; Cleroux, C; Poirier, C; Cantin, I; La Vieille, S; Hayward, S; Dubois, S (2013). "Gluten contamination of naturally gluten-free flours and starches used by Canadians with celiac disease". *Food Additives & Contaminants: Part A*. 30 (12): 2017–21. doi:10.1080/19440049.2013.840744. PMID 24124879. S2CID 24336942.

[19] Ludvigsson JF, Leffler DA, Bai JC, Biagi F, Fasano A, Green PH, Hadjivassiliou M, Kaukinen K, Kelly CP, Leonard JN, Lundin KE, Murray JA, Sanders DS, Walker MM, Zingone F, Ciacci C (January 2013). "The Oslo definitions for coeliac disease and related terms". *Gut*. 62 (1): 43–52

[20] Manjul, Tarannum (21 January 2006). "Millets older than wheat, rice: Archaeologists". Lucknow Newsline. Archived from the original on 9 May 2008. Retrieved 14 April 2008.

[21] Manning, Katie; Pelling, Ruth; Higham, Tom; Schwenniger, Jean-Luc; Fuller, Dorian Q. (2011). "4500-Year old domesticated pearl millet (*Pennisetum glaucum*) from the Tilemsi Valley, Mali: new insights into an alternatives are cereal domestication pathway". *Journal of Archaeological Science*. 38 (2): 312–322.

[22] Mulder CJ, van Wanrooij RL, Bakker SF, Wierdsma N, Bouma G (2013). "Gluten-free diet in gluten-related disorders". *Dig. Dis. (Review)*. 31 (1): 57–62.

[23] Obilana, A. B. and E. Manyasa. (2002). Millets. In: P. S. Belton and J. R. N. Taylor (Eds.). pp. 177-217. *Pseudo cereals and less common cereals: Grain properties and utilization potential*. Springer-Verlag: New York.

[24] Onwueme, I.C. and Sinha, T.D. (1991) *Field Crop Production in Tropical Africa (Principles and Practice)*. Technical Centre for Agricultural and Rural Co-Operation CTA, Ede, Wageningen.

[25] Philip Kotler, (2011) Review of Marketing Research 8:87-120. Available at: https://www.researchgate.net/publication/235271266_Philip_Kotler%27s_Contributions_to_Marketing_Theory_and_Practice (Accessed: 12.12.2021)

- [26] Rahman, S. A. (2013). Farm Production Efficiency: The scale of success in agriculture, Nasarawa State University, Keffi
- [27] Rai S, Kaur A, Singh B (April 2014). "Quality characteristics of gluten free cookies prepared from different flour combinations". *J Food Sci Technol.* 51 (4): 785–9.
- [28] Rohrbach, D.D. (2004) Improving the Commercial Viability of Sorghum and Pearl Millet in Africa. Series Report.
- [29] Saturni L, Ferretti G, Bacchetti T (January 2010). "The gluten-free diet: safety and nutritional quality". *Nutrients (Review).* 2 (1): 16–34.
- [30] Volta U, Caio G, De Giorgio R, Henriksen C, Skodje G, Lundin KE (June 2015). "Non-celiac gluten sensitivity: a work-in-progress entity in the spectrum of wheat-related disorders". *Best Pract Res Clin Gastroenterol.* 29 (3): 477–91

