

## ANALYSIS OF MAIZE MARKET INTEGRATION IN ALKALERI LOCAL GOVERNMENT AREA, BAUCHI STATE, NIGERIA

By

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**ABSTRACT**

*Price integration is a vital aspect in the analysis of the functioning of commodity market as it fits into a wider understanding of the relation between market structure, market conduct and performance. This study was conducted in Alkaleri Local Government Area Bauchi state, Nigeria to determine the level of maize market integration at retail level. Three markets (Alkaleri, Digare and Gaji) were purposively selected. Thirty marketers were randomly chosen making a total of ninety (90) respondents. Data were collected through the use of questionnaires. The data were analysed using descriptive statistics and t-test. The result depicts that most (88.7%) of the respondents obtained their finance from non-formal means. About 88.89% get their information on maize price from fellow traders and 36.67%, 48.3% and 50% sell their product to retailers, market agents and consumers respectively. The major constraints faced included high cost of transportation (68.3%) as a result of poor feeder roads, seasonality in production (66.7%) and lack of storage facilities (35%). The result also showed a high level of market integration. It is recommended that maize marketers in the study area be encourage to patronize the formal source of credit to increase their purchasing power. They should also form a cooperative body that will ensure that storage facilities are available. Lastly, government should provide good feeder roads linking production and consumption area.*

**Keywords:** maize, marketing, integration.

**INTRODUCTION**

Integration of prices deals with the way price information is transmitted from one market segment to another by arbitrage and it studies how price changes in spatially separated market, mutually affect one another (Minot and Goletti, 2000). Marketing efficiency provides good price for both producers and consumers of a particular product (Mohammed, 2012). Efficiency on marketing can be achieved through effective flow of information between channel members (Philip and Garry, 2013). Marketing integration indicates free flow of information between spatially separated markets. Rvallion (1986) mentioned that measurement of market integration can be viewed as basic data for an

understanding of how a specific market works. In analyzing market integration certain conditions have to be fulfilled. These conditions according to Lutz (1994) include; actors operating in the same institutional environment, absence of entry or exist barriers, equal standard and equal trade habits.

A significant difference in price between two markets means low level of integration and a negligible difference in price would mean high level of integration. Low level of integration shows the degree of imperfection in that market segment while high level of integration shows degree performance of that market segment. It also reveals in which market segment an improvement would be needed (Olukosi et al; 2010).

Price integration is one of the instruments that indicates the extent to which the market is imperfect. Therefore, studying the process of price integration is a vital aspect of the analysis of the functioning of the commodity market as it fits into a wider study including the relationship between market structure, market conduct and performance. For these reasons, the study was carried out to determine the level of market integration of retailers. Other specific objectives are to:

1. Describe the socio-economic characteristics of the respondents in the study area.
2. Determine the price integration between the three selected markets in the study area.
3. Identify the marketing constraints.

**METHODOLOGY**

The study was conducted in Alkaleri LGA of Bauchi state. The mean temperature ranges from 30<sup>o</sup> to 37<sup>o</sup>c and relative humidity of 17 to 80%. The average rainfall is 800 – 900mm per annum. The main occupation of the people is farming. This includes

production of cereals such as maize, millets, rice, vegetables to mention but few. A purposive sampling technique was used to select three markets (Alkaleri, Digare and Gaji) based on the fact that they are the major producing areas in the LGA. Simple Random Sampling technique was used to select 90 respondents. The data collected include information on socio-economic characteristics as well as information on prices. Data collected were analyse using descriptive statistics such as mean and standard deviation, while correlation coefficient and t-test were also used to determine the variability in prices between the three selected markets and the extend of price integration at retail level.

In order to compare price variability between a particular market and the base market, t-test was used. Alkaleri market was chosen to be the base market because it was the major maize market compared to the other two (Digare and Gaji). The formulae as given by Harry and Steven (1995) are expressed as:

$$\text{For market 'b' } t = \frac{Xa - Xb}{SEC} \dots\dots\dots(1)$$

$$\text{For market 'c' } t = \frac{Xa - Xc}{SEC} \dots\dots\dots(2)$$

Where:

- Xa = means of the base market (Alkaleri)
- Xb = mean of Digare market
- Xc = mean of Gaji market
- SEb = Standard error of Digare market
- Sec = Standard errors of Gaji market

When a value of one variable is related to the value of another they are said to be correlated. Thus, correlation means an inter-relationship or association (Lucey, 2002). According to Richard and David (1999), correlation analysis is the statistical tool used to describe the degree to which one variable is linearly

related to another. The 'r' values are between -1 and +1.0 values of 'r' means no relation.

While the further away from 0 towards -1 or +1 the stronger the correlation (France, 1998). There are several formulae for calculating 'r' but for this study, the following formulae were used.

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{ndx^2 - (\sum x)^2} \times \sqrt{ndy^2 - (\sum y)^2}} \dots\dots\dots(3)$$

Where:

$r$  = coefficient showing the strength of the relationship between the market

$n$  = number of observed

$x$  = observed prices in one market (independent variable – urban market)

$y$  = observed prices in another market (dependent variable – rural market)

$\Sigma$  = summation notation

### Decision rule

When  $t$ -cal. For market 'b'  $>$   $t$ -tab, we say is significant. But when  $t$ -cal. For market 'b' is  $<$   $t$ -tab, we say is not significant. And vise visa for market 'C'.

### RESULT AND DISCUSSION

The result shows that age, household size and years of experience range from 20 to 70 (means 39.42), 2.0 to 25.0 (mean = 9.03) and 4.0 to 40.0 (mean = 16.52) respectively. The result also indicated standard deviation of 9.12 for age, 4.84 for household size and 8.28 for years of experience. The calculated  $t$ -value was found not to be significant ( $P < 0.05$ ). This shows that there was no difference on maize prices among the three markets studied. The implication is that consumers may choose to buy maize in any of the markets. This is because the difference seeing is not enough to leave one market to another. The correlation coefficients indicated high level of integration for maize market at retails level. This

indicates the connection of maize markets at retail. However, the result contradicts the finding of Abdu (2006) where the level of soya beans market integration in Guinea Savanna zone of Nigeria was low.

### CONCLUSION AND RECOMMENDATION

Based on the result of this study, it was concluded that prices for maize at retail level between markets in Alkaleri Local Government Area are highly connected. Hence, indicating free flow of information about prices of maize in study area. It was also concluded that the main constraints observed were senility in production, lack of storage facilities and high cost of transportation. Consequently, it is recommended that government should provide good road linking production and consumption areas. Also, marketers under their cooperative society should create storage facilities so as to minimize the effect of seasonality in production.

**Table 1:** Distribution of respondents according to socio-economic characteristics

Characteristics	Minimum	Maximum	Mean	Standard deviation
Age	20	70.0	39.4	9.12
Household size	2.0	25.0	9.03	4.83
Years of experience	4.0	40.0	10.52	8.28

Sources: field survey, 2014

**Table 2:** Spatial price variability of maize marketing.

t	Digare	Gaji
t.value (cal.)	0.31 <sup>NS</sup>	1.25 <sup>NS</sup>
t-value (tab.)	2.262	

Source: field survey, 2014

Degree of freedom

NS = not significant (p&lt;0.05)

**Table 3:** Distribution of correlation coefficients for level of maize market integration of retail level

	X1	X2	X3
Alkaleri (x1)	1.00		
Digare (x2)	0.970 <sup>xxx</sup>	1.00	
Gaji (x3)	0.996 <sup>xxx</sup>	0.969 <sup>xxx</sup>	1.00

Source: Field survey, 2014

Key: <sup>xxx</sup>High integration**Table 4:** Distribution of respondents according to constraints hindering maize marketing

Constraints	Frequency	Percentage
Inadequate Storage facilities	21	35
High cost of transportation	41	68.3
Seasonality in production	40	66.7
Inadequate capital	18	30

Source: Field survey, 2014

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