

## Trend Analysis of Retail Prices of Selected Staple Food Items in Nigeria, Delta State

**Amadi, Rose Celestine**

*Department of Agricultural and  
Applied Economics  
Rivers State University, Nigeria.*

### Abstract

Against the back drop of rising prices of food items in Nigeria with income almost at a constant. The study is designed to analyse the trend retail prices of selected staple food items in Nigeria with a focus on Delta State between 2000 - 2020. The study adopted the survey approach in which 25 selected staple food items were analysed using mostly data collected from the ministry of budgeting and statistics in Asaba Delta State. Data were analysed using computation of averages, coefficient variability, analysis of variance to test for the equality of mean between the commodity prices of these selected food items and trend analysis was used to determine the percentage in price of the grains. Also the coefficient of correlation showed that all the commodities had a strong correlation except in grains, fish, fruits and vegetables, among other things. Base on the findings, the study recommended that there should be provision of goods storage and credit facilities which would at the long run help in stabilization of prices of agricultural product in Nigeria. Also the government should improve the means of transporting this staple food items from the rural areas to the urban areas as this will go a long way in ensuring price stability of staple food.

### Keywords:

Trend, Analysis,  
Retail, Staple, Price,  
Food

*Corresponding Author:*

Amadi, Rose Celestine

### **Background to the Study**

Market-oriented thinking is a necessity in today's competitive world. Almost all over the world, there are too many products chasing few consumers even where there exist global gluts of steel, agricultural produce, automobiles, petroleum, and many other products and services. Some nations in the world market are trying to expand the size of the market. As such some make profit why some lose out. The 1980s and 1990s represent the last decade of the last century before the next millennium while the 2000s represents the present millennium of this age to effectively and profitably manage the country's interest in the areas of agriculture/staple food items require the management and monitoring of agricultural/staple food retail market prices.

Marketing entirely is not limited to business alone. It ranges from giant manufacturers to the neighborhood convenience store. Production and marketing are the very essences of economic life in the subsistence agrarian economy; people were relatively self-sufficient because they grew their own food, made their own clothe and build their own houses with material from their own domain. Then there was no need for importation and exportation. Though there was only very little for the trade of any sort within the state, they had very little expectation. But with time, the society became very complex here the concept of the division of labour started evolving and people began to produce those products in which they had expertise in hence there surplus products which were exchanged by the process of barter. After this period came to the production era which was noticed around the 1200s when the state typically production oriented, producing single have low-cost goods. This period called for the era of sales around 1220-1950 when there was great depression in which the problem was not how to increase production but how to sell the products produced. This era led to the marketing stage during the 1950-1970s when the Nigerian economy, in particular, was paramount characterized by abundant goods and services and increased discretionary income.

From the 1970s Nigeria embraced the concept of integrated marketing towards the goals of international relations and profitable sales volume internationally which lasted to the present day which assumed a period of maturity and societal orientation in business. Though this period have not yet fully developed in Nigeria and not even in the United State of America wherein the peoples need are mostly psychological thereby giving rise to uncontrolled changes. These changes, however, needs conventional strategies of meeting with the demands of the changes meaning nations that their operational companies are forced to re-examine and sometimes reveres the very premises on which they built their business. In the end, the companies that best satisfy the premise for their existence become satisfied and those that could not lose out. Retailing includes all the activities involved in selling goods and services directly to final consumers for their personal, nonbusiness use. By this, an organization that does this selling be it a manufacturer, wholesaler, or retailer does retail. Retailing, therefore, is a very important aspect of business that interests every one given that a very good percentage of household or personal purchase is made from retail outlets. Manufacturers are also interested in how their products are sold by various retailers. Over time a long period of

time, a great number of Nigeria business owners engaged themselves in retailing of one form of a product or another...the reason being that it could be started with a small amount of financial resource, thereby suggesting that it is for this reason retailing institution occupy a large position in Nigeria business of the present time. This is supported by the report of Ezirim (2014) which states that retail stores in Nigeria comprise 46% of the non-farm business.

Recent research has shown that many retailers have failed in their business because such retail organization, which range from street retailers to hypermarket, supermarket, etc have rendered substandard products and services to the final consumers...From all indication, Nigeria seems to operate under as seller market- a situation where both manufacturers and retailers make no attempts to match their product and services to consumers need. Retailing activities have a profound impact on a country's growth and development as such it is important for countries to develop suitable retailing strategies that will enable them to satisfy consumers need/ wants profitably. To achieve this concept of marketing which precludes market pricing could be a healthy operation this is necessary because, in the past, retailers did not recognize the concept of marketing. Thus the concept of consumers' satisfaction was hitherto neglected.

### **Objectives of the Study**

The general objective of this study is to determine and analyse with available data the change in the structure and trend analysis of retail prices of selected staple food items in Nigeria from 2000 through 2020. In specific terms, the study seeks:

1. To describe and analyse the behaviour of staple food prices with respect to price differences occurring between different markets, margins and costs in relation to spatial price differential and seasonal price variation and their relationship to storage practice and cost
2. To compare the mean prices of this selected food items within each group in relation to the trend in prices from 2000-2020
3. To determine on the basis of obscured behaviour the pricing efficiency, rate of instability of the staple food marketing system in the area and most importantly the role played by middlemen, rural assemblers, wholesaler and retailers at the different exchange point in the distribution of foodstuff
4. To critically examine the implications of the effect of all these on the federal government policies on the reduction of the prices of stable food items in Nigeria and specifically Delta state.

### **Research Questions**

This research will be guided by the following questions

1. To what extent has retail market pricing of selected items improved the structure and performance of agricultural staple food marketing in Nigeria?
2. What is the relationship between the behaviour of staple food items with spatial price differentials, seasonal price variations, storage practices and cost?

- To what extent has Nigeria's agricultural policies been designed to increase farm income and create sustainable new farm-based business enterprises

### Hypotheses

Based on this study the following hypotheses were tested

- H0. There is no variation in the prices of the selected staple food items over time.
- H0 There is no significant difference among the mean prices of the selected staple foods within each group over time
- H0 The trend in prices of the selected staple foods has been increasing over time

### Materials and Methods

The study adopts a descriptive research design. The area covered in this research work includes retail and marketing agencies/outlets in Asaba and Warri metropolis in Delta State. These places were chosen because they have most of the retail and marketing agencies /outlet operating in Delta State to make up for full representation of the entire population. A stratified sampling method was used to select a representative sample for this study since the entire population of the retailers for this study was divided into four sections of the Delta State i.e. North, South, East and West of the state.

Test of Equality between means of prices of the selected staple food items in Asaba/Warri Delta State from 2000-2020

Method	Df	Value	
Probability			
T-test	166	9.67803	0.0000
Anova F-statistics	(166)	93.6643	0.0000

### Analysis of Variance

Source of variation	DF	Sum of sq	mean sq
Between	166	480073.7	480073.7
Within	1	850827.8	5125.469
TOTAL	167	1330901	7969.470

  

Category statistic				
Variables	count	mean	std. Dev.	Std. Err. of mean
Rice	84	192.1746	98.55459	10.75319
White Beans	84	85.26190	23.19333	2.530600
All	168	138.7183	89.27189	6.887476

**Source:** Researcher's Computation

From the above, the mean price of rice for the period under study was ₦192.1746/kg with a standard deviation ₦23.1933/kg. The f-test at 166 degree of freedom is significant at the 5% level. There is significant difference the two mean prices thus we reject the null hypotheses

### Test of Equality of Means between Garri, Starch, and Maize

Method	Df	value	probability	
ANOVA F-statistic	249	2.483840	0.0855	
Analysis of variance				
Sources of variation	2	1506.722	753.3611	
Between Sum of Sq, mean sq	249	75522.94	303.3050	
Total	251	77029.66	306.8911	
Category Statistics				
Variable	Count	Mean	Std.dev.	Std.err
Garri	84	65.30952	16.63497	1.815024
Starch	84	62.42857	18.54742	2.023690
Maize	84	68.41667	17.005456	1.855448
All	252	65.38492	17.51831	1.103550

**Source:** Researcher's Computation

From the table above the mean price of Garri for the period under study was ₦65.30952/kg with a standard deviation of ₦16.634977/kg. The mean price of starch was ₦62.42857/kg with a standard deviation of ₦18.54742/kg. The mean price of maize was ₦68.41667/kg with a standard deviation of ₦17.00546/kg. The f-test at 249 degrees of freedom is 2.483840 which is significant at 5% level. There is no significant difference between the mean prices, thus we fail to reject the null hypotheses

### Test of equality of mean between palm oil and vegetable oil

Method	Df	Value	Probability	
t-test Anova f-statistic	166	1.73554	0.0845	
	166	3.012098	0.0845	
Analysis of variation				
Source of variation	Df	sum of sq	mean sq	
Between	1	1039451	1039451	
Within	166	57285268	345092.0	
Total	3167	58324718	342498	
Category statistic				
Variable	Count	Mean	Std Dv	Std Err. of Mean
Palm oil	84	2427.64	600.0057	65.46599
All	164	2506.30	590.9736	45.59460

**Source:** Researcher's Computation

From the above table, the mean price of unripe plantain was ₦69.80952/kg the mean price of ripe plantain was ₦72.57143/kg with a standard deviation of ₦29.09531/kg the f-test at 166 degree of freedom is 0.403400 which is not significant. There is no significant difference between the mean prices, thus we fail to reject the null hypotheses. The prices of this commodity did not vary well.

### Test of equality of mean between unripe plantain and ripe plantain

Method	Df	Value	Probability	
t-test Anova F-statistics	166	0.635138 0.403400	0.5262 0.5262	
Analysis of variance				
Source of variation	Df	Sum of sq	Mean sq	
Between	166	320.3810	320.3810	
Within	1	131837.5	794.2020	
Total	167	132157.9	791.3647	
Category Statistics				
Variable	Count	Mean	Std Dev.	Std Err. 61
U Plantain	84	69.80952	27.23723	2.971826
R/Plantain	84	72.57143	29.09531	3.174558
All	168	71.19048	28.13121	2.170370

**Source:** Researcher's Computation

From the table above, the mean price of unripe plantain was ₦69.80952/kg (with a standard deviation of ₦27.23723/kg). The mean price of ripe plantain was ₦72.57143/kg (with a standard deviation of ₦29.09531/kg) the F-test at 166 degree of freedom is 0.403400 which is not significant. There is no significant difference between the mean prices, thus we fail to reject the null hypotheses. The prices of this commodity did not vary much

### Test of equality of mean between pork meat, beef meat and goat

Method	Df	Value	Probability	
Anova f-statistics	249	7.998712	0.0004	
Analysis of variance				
Source of variance	Df	Sum of sq	Mean sq	
Between	249	221898.2	110949.1	
Within	2	3453847	13870.87	
Total	251	3675746	14644.40	
Category statistics				
Variable	count	mean	std dev.	Std err. Of .mean
Pork meat	84	312.6190	88.52825	9.659224
Beef meat	84	376.3095	374.7976	12.59123
Goat meat	84	374.7976	374.7976	15.60605
All	252	354.5754	354.7974	7,623170

From the above, the mean price of pork meat for the period under study was ₦312.6190/kg (with a standard deviation of ₦88.52825/kg ) the mean price of beef meat was ₦376.3095/kg 9wuth standard deviation of ₦115.4005/kg).the mean price of goat meat was ₦374.7976/kg (with standard deviation of ₦143.0318/kg. the f-test at 249 degree of freedom is 7.998712 which is significant at 5% level. there is no significance difference in the mean prices thus we fail to reject the null hypotheses

Test of equality between fresh fish, smoked mackerel fish and crayfish

METHOD	DF	VALUE	PROBABILITY	
ANOVA F-statistic	249	66.87542	0.0000	
Analysis of variance				
Source of variation	Df	Sum of sq.	Mean sq	
Between	249	1334381	667190.3	
within	2	2484177	9976.615	
Total	251	3818558	15213.38	
Category statistics				
Variables	Count	Mean	Std. dev.	Std.err.of mean
F.Mack	84	215.1429	118.9704	12.98073
S.Mack	84	219.4762	122.0696	13.31889
C.Fish	84	62.99121	29.57854	3.227284
All	252	165.8701	123.3425	7.769848

From the table above, the mean price of fresh mackerel fish for the period under study was ₦215.1429/kg (with a standard deviation of ₦118.970/kg) the mean price of smoked mackerel fish was ₦219.472/kg (with a standard deviation of ₦122.0696/kg). The mean price of crayfish was ₦62.99121/kg (with a standard deviation of ₦229.57854/kg) the f-test at 249 degree of freedom is 66.87542 which is significant at 5% level. There is significant difference between the mean prices, thus we reject the null hypothesis.

Test of equality of mean between onion, fresh tomatoes, dried pepper, green leaf, melon, okro, banana and groundnut.

METHOD	DF	VALUE	PROBABILITY
ANALYSIS OF VARIANCE			
Sourcof variance	Df	Sum of sq	Mean
Sq	7	172385381	2462648
	664	15900247	23946.16
Total	671	33138785	49387.16

Category statistics

Variable	Count	Mean	Std.dev.	Std.err.of
Onion	84	73.11905	31.30819	3.416003
F.tomatoes	84	90.27318	29.17184	3.182909
D.pepper	84	529.5833	336.6341	36.72979
G.leaf	84	87.45238	67.99635	7.419010
Melon	84	373.000	249.0623	27.17493
Okro	84	130.4286	84.94382	9.268131
Banana	84	82.35714	32.55788	3.552356
G.nut	84	103.5595	38.52940	4.203902
	624	183.7217	222.2322	8.572794

Source: Researchers' computation

From the table above, the mean price of onion for the period under study was ₦73.11905/kg (with a standard deviation of ₦31.308 19/kg). the mean price of fresh tomatoes was 90.27381 (with a standard deviation of ₦29.17184/kg) the mean price of dried pepper was ₦529.5833/kg (with a standard deviation of ₦336.6341/kg) the mean price of green leaf was ₦87.45238/kg (with a standard deviation of ₦2249.0623/kg). the mean price of okro was ₦130.4286/kg (with a standard deviation of 64.94382/kg). The mean price of Banana was ₦103.5595/kg (with a standard deviation of ₦38.5240/kg). The F-test at 671 degree of freedom is 102.8411 which is significant at 5% level. There is significant difference between the mean prices, thus we reject the null hypothesis.

### **Conclusion**

The variability in the prices of the selected staple food items in the period were relatively high in one half of the period (January –July) and relatively low in the other half (July-December) also some of the staple food items paired did not give the expected results which may be due to the quality of secondary data used in the research work.

Therefore government efforts should continue to be directed towards improving agricultural productivity in the country in order to reduce the high cost of these selected staple food items and other items. Increase the storage of food over time will help to minimize inter and intraseasonal food price fluctuation. It is therefore important to analyse food price movement continuously in order to help policy makers to formulate relevant food prices. Storage and processing facilities should be provided to the farmers

### **Recommendations**

On the strength of our findings, the following recommendations are made

1. That the production and supply of staple items to Asaba/Delta State should be intensified to meet the high demand of the people and bring about a reduction in the prices of the selected food items
2. Availability of storage and processing facilities, credit facilities, infrastructure, and land tenure review should have a far-reaching influence on agricultural price stabilization.
3. Since none of the agricultural food items under study was sold by grade or by any unit weight, which gave risk to kick of uniform weights and measures that encouraged the undesirable market practice of sales volume for uniform prices
4. The market should be well organized to enable staple food items to be sold at a price determined by the producers and not by negotiation between the sellers and the buyers
5. Some of the retailers for lack of funds purchase their stock on credit and at a high price from the wholesalers to pay back within specified periods of time because of this the retailers have to sell their food items as much as possible at low prices to meet the date time. The government should as a matter of importance strategized to assist local retailers with soft loans to pay back at a long period o time.
6. In general, facilities are inadequate in all the markets. Good stalls should be constructed and laid outing view of available space to construct stalls. The new



- market should be sited with good planning having the retailers in mind. This will help reduce the rate of food items retailers depend on the wholesalers in terms of payment for suppliers of the foodstuffs to the market and inadvertently reduce the rate at which retail market prices rise over little changes in the environment.
7. Since farmers who produce the staple food items are usually exploited in the communities and poorly served by roads, it is suggested that the government should do well to ensure improved transportation as a means of correcting the ideas of farmers being exploited.
  8. Government at various levels should sponsor researchers into better methods of preservation of food items in the country. The result of these researches should be disseminated so that the improvements are rapidly put in practice
  9. Furthermore, the study will help to ascertain the current trend in the retail market prices of selected staple food in Warri, Delta State which will help the consumers in knowing the appropriate time of purchasing goods, plan their budget rightly e.gg buying of palm oil when in season storing and selling when out of season which will eventually lead to cost reduction.
  10. The study will help the Delta State government on agricultural policy formation in addressing the menace of hiked prices in staple food in our economy, plan and provide an appropriate framework for marketing research and the dissemination of useful market information concerning the selected food items.
  11. Finally, the study will be of benefit to farmers, sellers, consumer, and government especially agricultural policymakers as it embraces time series of price analysis of agricultural commodities

## References

- Abbot, J. C. (1995). *The development of marketing institution in agricultural development and economic growth*. (Eds) H.M Southworth and B. F. Johnson Corall
- Adejumobi, E. O. (2000). *An analysis of movement of 2000*
- Adekanye, J. O. (2004). Temporal and commodity price analysis. A case study for Western Nigeria in Adekanye J.O ED, *Reading in agricultural Marketing*. Nigeria: Longman Nigeria Ltd 1988, pp. 142-145
- Alviis V. O. & Temu, P. E. (2006). *Marketing status staple food stuffs*. Kenya: West Virginia University, Thorgan Town Iwva.
- Anthonio. Q. B. O. (1997). *Problem of marketing product with special reference to food stuff in Nigeria in I.M Otubo*
- Antonio. Q. B. O. (2007). The supply and distribution of yams in Ibadan City. *Nigeria Journal of economics and social studies* xxi, (1)
- Allen, G. R. (1995). *Agricultural marketing policies basic*, Oxford: Blackwell. Pp 111-175
- Allen, G. R. (2005). *Short-term variation in retailing margins of fruits in East Pakistan*. The Farm Economist ix, (6)
- Akirele I. A., Collins, A. S. Holgate, R. A. (2001). The manufacture of Garri from Cassava. Federal institute of Industrial Research, *Research Report 31 Oshodi*
- Brassier, R. G. 2000). *Agricultural marketing*, *Research Journal of Farm Economics* 36
- Brassier, R. G. (2001). Research marketing efficiency. *Journal of Farm Economics* 33
- Brownlee, O. H. (2004). Market Research and welfare Economics. *Journal of farm economics*. 30,
- Baver, P.T. & Yarney B. S. (2002). *A study of groundnut buying in Nigeria economics*. xix
- Baver, P.T. & Yarney, B. S (2002). *West Africa trade: A study of competition, Oligopoly and monopoly in a changing economy*, Cambrige England
- Bonnon, J. T. Eicher, C. K. & Schmid, A. A. (2002). *Marketing in economic development agricultural market analysis*(Ed).
- Central Bank of Nigeria (2005). Economic and Financial Review, 29, 1<sup>st</sup> March

- Etukmoh, E. A. (2007). *Trend analysis of retail market prices of selected food items in Akwa-Ibom state between 1988-1995*. Unpublished agric dissertation. Department of Agricultural Economics and extension, University of Calabar.
- Jones, W. O (2008). The structure of staple food marketing in Nigeria as revealed by price, *Analysis Food Research Institute Studies, Studies, 8 (2)* 96-123
- Moro. R. S (1999). Food marketing in Rivers and Bayelsa State Corporate impression Owerri: Nigeria
- Moro, R. S. (1999). Stabilization Policies and Food Marketing in Rivers and Bayelsa State. Port Harcourt: Paragraphics
- Onwunghai, R. L (2007). *Trend analysis of retail prices of selected food items in Delta State Between 1991-1996*, Unpublished B. Agric. Dissertation
- Osuagwu, N. C. (2002). *Analysis of retail market prices trend of selected food items in the former Imo State 1976-1991*. Unpublished B. Agric, Dissertation, department of economic and extension, university of Calabar: Calabar
- Thodey, A. R. (1993). Marketing staple foods in western Nigeria 3, 101, 36-60