

# PRICE TREND AND ANALYSIS OF SELECTED FOOD ITEMS IN RURAL AND URBAN MARKETS IN OYO STATE

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## ABSTRACT

*This study aims at analysing the trends in selected food prices in rural and urban markets; as well as the level of market integration among both the rural and urban markets of the selected food items in Oyo State. The selected food items are maize (yellow), yam, cassava and fresh tomatoes. The choice of selection is based on their economic importance and the fact that they are cultivated locally in the State. Secondary data on retail price of food items per kg, spanning 2003–2011 were sourced from Oyo State Agricultural Development Programme (OYSADEP). The data were analyzed using inferential statistics and index of market connection (IMC) analysis to show the level of integration between the rural and urban markets. A graph was also used to show the trends in prices of the selected staple foods in both markets. The IMC values obtained were; Yellow Maize: 1.3401, Yam: -0.1429, Cassava: -0.5237, Fresh Tomatoes: -0.1475. IMC values less than 1 implies high short-run market integration, which was observed for yam, cassava and fresh tomatoes; while IMC values greater than 1 indicates low short-run market integration which was observed for yellow maize. Increased food prices have adverse effects on household food security. The policy implication is that positive price policy measures should be put in place to stabilize food prices. Production should be encouraged and improved locally. Improved infrastructural facilities are also required to reduce the cost of production. This will help curb the negative effect of food price increase thereby making the household food secure.*

**Keywords:** Rural and Urban Market, Price Trend, Market Integration, Food Security

## INTRODUCTION

Food intake is a necessity for human survival, we must eat well in order to have a strong and healthy body; and even more important are staple food items, which are needed to supply a high proportion of energy and nutrient needs. The selected food items are majorly cultivated in large quantities in the State, and serve as a means of living especially for rural dwellers in the State. The importance of staple foods cannot be underestimated, as they contribute 50-75% of the caloric intake of the population, and also represent a large share of food spending, which is itself 40-70% of the budgets of households in sub-Saharan Africa, therefore the impact of changes in staple food prices is very essential and this varies across types of households within countries (Maputo, 2008).

Staple food items produced in the country are far from adequate and the status quo of them being cheap or readily available has not being the case for some years now in Nigeria. The country is unarguably experiencing increase in prices of staple food items. This is evident in the number of people suffering from hunger, starvation and malnutrition among the populace. Statistics shows that about 44million people have fallen into extreme poverty and hunger in developing countries as a result of food price increase (World Bank, 2011). Malnutrition level is on the increase, which is due to poverty and increasing food prices. Over 65% of Nigerians have unsatisfactory access to the amount and variety of food they need for a healthy and productive life. (Food and Agriculture Organization, 2011).

Fluctuating trends of food prices, to a large extent, is a reflection of a lack of market



integration across space i.e. spatial market integration. Market locations across space (rural and urban) often lack integration due to inadequate infrastructure, inefficient flow of information, imperfect competition, and so on. When markets are properly integrated, food flows among regions and prices fluctuate less. With less fluctuation in prices, people have more access to the food they need; therefore analysis of integration among markets is important in achieving household food security.

The country is experiencing rising prices of basic food items. Compared to 2004, prices of maize, sorghum, rice, gari (cassava) and cowpea have more than doubled (Food and Agriculture Organization, 2005). These have raised a lot of concerns to policy makers, the media, the public and all stakeholders on what line of action to take. This concern stems from the fact that over 63 percent of Nigerians live below poverty level (Wikipedia). These people are vulnerable and have to adjust to the consequences of their ever decreasing purchasing power, which affects their ability to buy enough and adequate food to feed their families. Such adjustment includes skipping meals, eating non-balanced diet, reduction in quantity of food intake; thereby causing malnutrition.

This emerging scenario of high food prices in Nigeria has led to an increase in the percentage of food insecure households, especially those residents in the rural areas where the effect of government policies are rarely felt. The negative effect of food price increase on the welfare of the urban and rural poor (net food buyers) can be averted if policy makers have better information about the food price situation. Understanding its dynamics overtime has great importance for policy makers as well as for the public at large (Worako, 2012). The major aim of this paper therefore is to examine the dynamic trends of prices of the selected food items, cultivated in spatially located areas in Oyo State and to suggest possible policy option required to be adopted to solve current situation.

The general objective of the study is to show or analyze the prices of selected food crops in rural and urban markets in Oyo State for the period (2003-2011) and seek to determine whether or not they are linked. The specific objectives of the study include:

- To show the trends in prices of the selected food items in both rural and urban market in Oyo State
- To show the level of integration among rural and urban markets of the selected food items in Oyo State
- To determine the implications of increasing food prices for household food security in Oyo State
- To recommend measures on how to reduce the increasing food prices in Nigeria

### Methodology

*Area and scope of study:* This study was conducted in Oyo State, Nigeria. Oyo State is bounded in the south by Ogun State and in the north by Kwara State. Oyo State is an inland state in south-western Nigeria, with its capital at Ibadan. Agriculture is a major occupation of the people of the State. The prevalent climate is tropical with distinct wet and dry seasons. The annual rainfall ranges from 1,000-1,500, while maximum average temperatures range from 21-27°C with mean annual temperature of 21°C.

The study covers prices of selected food items in rural and urban markets in Oyo State. The Selected food items are yellow maize, yam, cassava, fresh tomatoes. This choice of selection is based on their economic importance and because they are cultivated in large quantities in the State. The time frame of the study spans over 9 years (2003-2011) based on available data.

*Type and source of data:* Secondary time series data on rural and urban market prices of the selected food items were obtained from Oyo State Agricultural Development Programme (OYSADEP) office for 9 years (2003-2011) on a monthly basis. This contains monthly retail price per kilogram of the selected food items.

*Method of analysis:* The data were analyzed using inferential statistics and index of market connection (IMC) analysis to show the level of integration between the rural and urban markets. Index of Market connection (IMC) is used to measure price relationship and movements between integrated markets and following formula can be used to calculate IMC:

$$P_t = \beta_0 + \beta_1 (P_{t-1}) + \beta_2 (R_t - R_{t-1}) + \beta_3 (R_{t-1}) + e_t$$

Where:

$R_t$  = Urban or reference price

$P_t$  = Rural price or local price  
 $R_{t-1}$  = Lagged price for urban markets.  
 $R_t - R_{t-1}$  = Difference between urban price and its lag  
 $e_t$  = error term or unexplained term.  
 $B_0$  = constant price  
 $B_1$  = coefficient of rural lagged price  
 $B_2$  = coefficient of  $R_t - R_{t-1}$   
 $B_3$  = coefficient of urban lagged price  
 $IMC = \beta_1 / \beta_3$  where  $0 \leq IMC \leq \infty$   
 Where;  
 $IMC < 1$  implies high short run market integration

$IMC > 1$  implies low short run market integration  
 $IMC = \infty$  implies no market integration  
 $IMC = 1$  implies high or low short run market integration.

The closer the value of IMC is to zero, the higher the degree of market integration. If markets are well integrated, it can be assumed that market forces are working properly, meaning that price changes in one location are consistently related to price changes in other locations and market agents are able to interact between different markets.

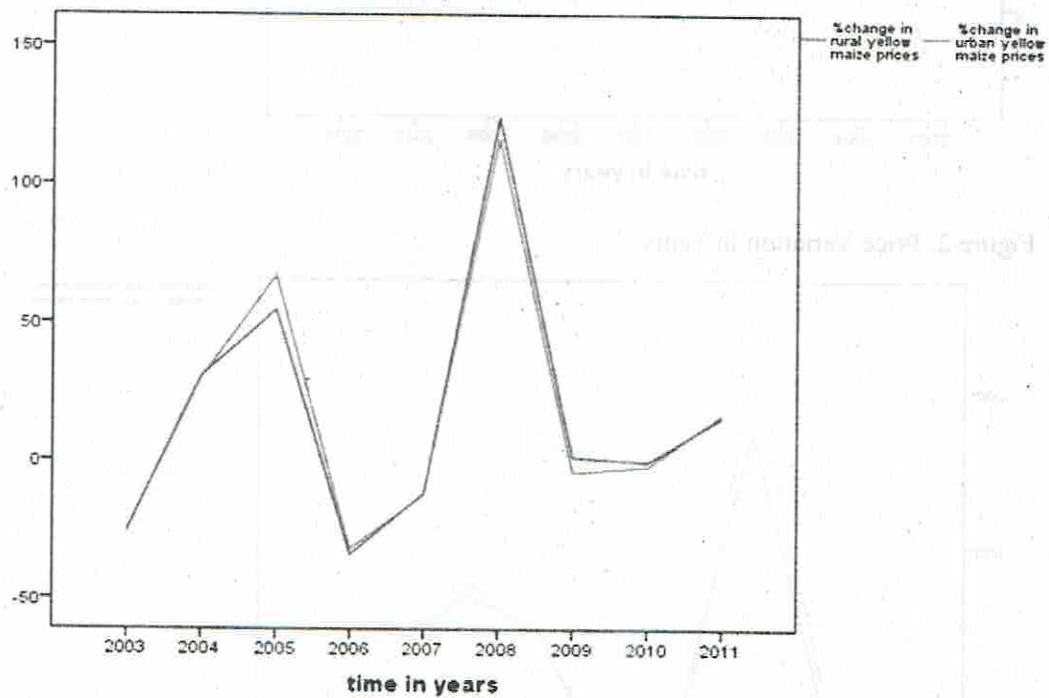


Figure 1: Price Variation in Maize

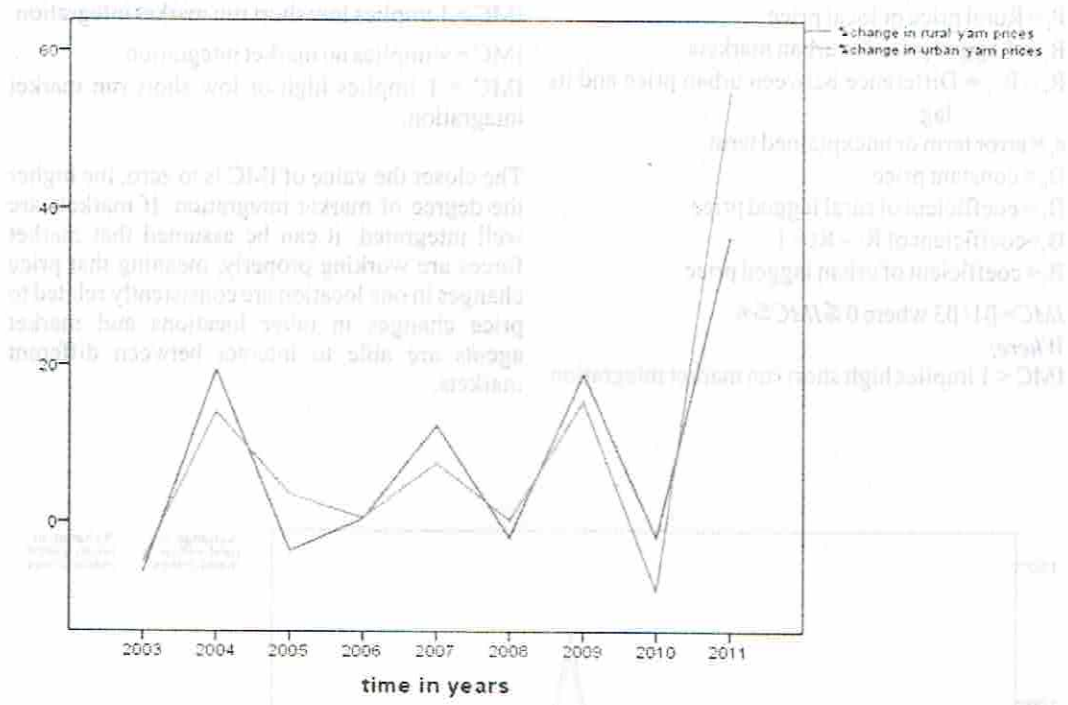


Figure 2: Price Variation in Yams

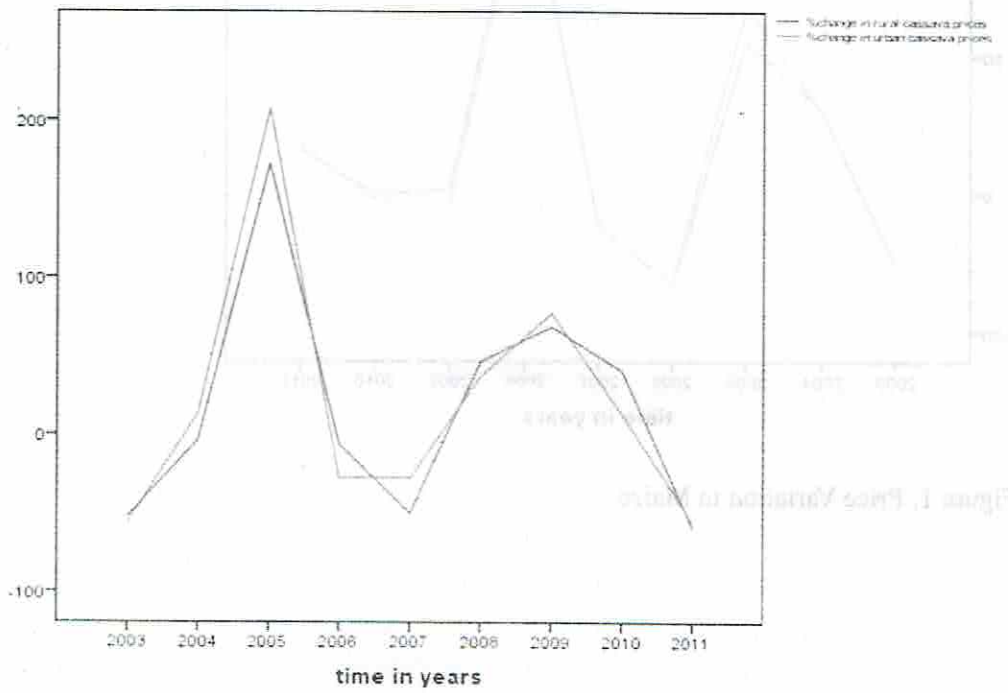


Figure 3: Price Variation in Cassava



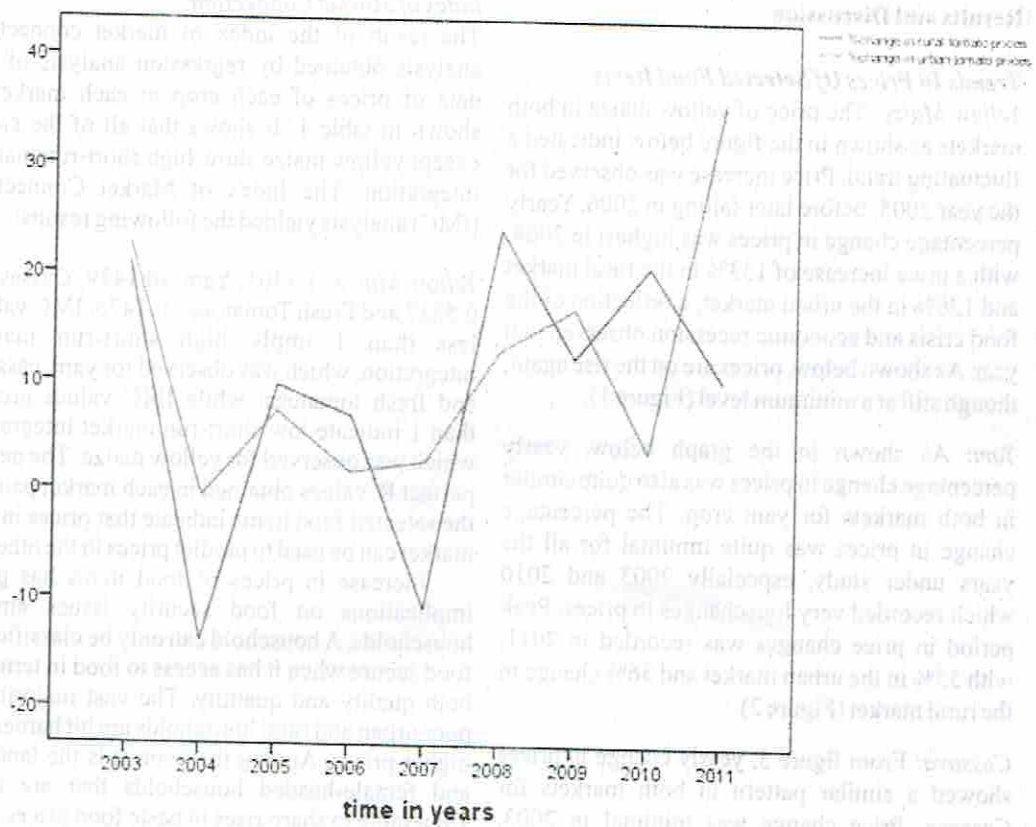


Figure 4: Price Variation in Tomatoes

Table 1: Index of Market Connection Analysis

Market Pairs	Crops	R <sup>2</sup>	Adjusted R <sup>2</sup>	F Statistic	IMC Classification
Rural and Urban Market	Yellow Maize	0.995	0.991	249.35	1.3401:low short -run market integration
Rural and Urban Market	Yam	0.974	0.954	49.48	-0.1429:high short-run market integration
Rural and Urban Market	Cassava	0.958	0.926	30.18	-0.5237:high short-run market integration
Rural and Urban Market	Fresh Tomatoes	0.983	0.948	75.74	-0.1475:high short-run market integration

Source: Computed From Secondary Data 2000-2011 (ADP)

## Results and Discussion

### Trends In Prices Of Selected Food Items

**Yellow Maize:** The price of yellow maize in both markets as shown in the figure below indicated a fluctuating trend. Price increase was observed for the year 2005, before later falling in 2006. Yearly percentage change in prices was highest in 2008, with a price increase of 133% in the rural market and 126% in the urban market, a reflection of the food crisis and economic recession observed that year. As shown below, prices are on the rise again, though still at a minimum level (Figure 1).

**Yam:** As shown in the graph below, yearly percentage change in prices was also quite similar in both markets for yam crop. The percentage change in prices was quite minimal for all the years under study, especially 2003 and 2010 which recorded very low changes in prices. Peak period in price changes was recorded in 2011, with 55% in the urban market and 36% change in the rural market (Figure 2).

**Cassava:** From figure 3, yearly change in prices showed a similar pattern in both markets for Cassava. Price change was minimal in 2003, rising to a peak of 207% change in prices in urban markets and 172% change in prices in 2005, before falling to a low in 2007. The year 2011, recorded a minimal change in percentage price when compared to other years, indicating that prices are falling and price change was minimal in both markets for that year.

**Fresh Tomatoes:** From the graph below, yearly percentage change in prices did not show similar trend in the rural and urban markets for tomato crop. In the rural market, the price change was high in most years under study reaching a peak of 23% in 2008, with a minimum percentage change in prices observed only in 2004 and 2007; although the price change was moderate in 2005 and 2006, averaging about 10%. Meanwhile, in the urban market, percentage change in price reached a peak of 35% in 2011, indicating increasing prices, though still at a minimal level. Price change was also high in 2003, 2008 and 2009 in the urban markets.

### Index of Market Connection

The result of the index of market connection analysis obtained by regression analysis of the data of prices of each crop in each market is shown in table 1. It shows that all of the crops except yellow maize show high short-run market integration. The Index of Market Connection (IMC) analysis yielded the following results:

**Yellow Maize:** 1.3401, **Yam:** -0.1429, **Cassava:** -0.5237 and **Fresh Tomatoes:** -0.1475. IMC values less than 1 imply high short-run market integration, which was observed for yam, cassava and fresh tomatoes; while IMC values greater than 1 indicate low short-run market integration which was observed for yellow maize. The nearly perfect  $R^2$  values obtained in each market pairs of the selected food items indicate that prices in one market can be used to predict prices in the other.

Increase in prices of food items has great implications on food security issues among households. A household can only be classified as food secure when it has access to food in terms of both quality and quantity. The vast majority of poor urban and rural households are hit hardest by higher prices. Among the poor, it is the landless and female-headed households that are most vulnerable to sharp rises in basic food prices. The relative impact is not uniform, even among poor households, and depends on a number of factors. (FAO, 2012). At household level, non-access to food due to high prices can lead to hunger and in most cases they can't access adequate and nutritious food, thereby leading to malnutrition, especially among children, while losses in purchasing power can increase poverty and inequality. IFPRI (2004), in one of its studies on food prices, indicated that higher food prices led poor people to limit their food consumption and shift to even fewer balanced diets, with harmful effects on human health in the short and long run. This is the case of most people living in rural areas of most developing countries such as Nigeria, whereby people engage in alternative feeding patterns, as a result of high prices of staple food items, which makes them non-affordable. Alternative feeding patterns may include substituting to less nutritious foods, which, though cheap and readily available, do not supply the necessary supplements to stay healthy; other patterns may also include skipping meals.



Also, Monty et al (2008) reported that people in Africa are now eating less frequently and in lesser quantities, as well as cheaper and less nutritious food with the current soaring food prices. As income of consumer decreases with increase in the prices of food items, the ability of the individual consumer to purchase other goods and services will be increasingly threatened. This will result in a widened gap between the economic status of the poor and poverty line resulting in adverse effect on human welfare. The overall effect of these includes increased levels of malnutrition, hunger issues, increased poverty levels and thereby threats to societal peace and stability on the long run. Recent figures show that about 44 million people have fallen into extreme poverty and hunger in developing countries as a result of food price increase (World Bank, 2011).

### Conclusion

The study revealed that there is a moderate level of market integration in both rural and urban markets of the selected food crops, since most of the crops under study exhibited high short run market integration. The high short run market integration indicates that price changes in the rural market cause immediate changes in prices in the urban market. So, as prices in the rural market increases, prices in the urban market also increase. Concerted efforts must be made by all concerned groups to reduce the variation in prices as much as possible to the barest minimum, so as to reduce or avoid the negative issues arising from price increase, which include hunger, malnutrition, poverty etc. Infrastructural facilities are required to reduce the cost of production. Market information centres should be established to facilitate adequate communication and flow of information between markets. Also, there should be improvement in the transportation system; this will prevent product spoilage during transportation from the food surplus market to the food deficit/shortage market. Positive price policy measures could be focused on a particular market, preferably the point of production; which is the rural market, since prices move together. Therefore, the effect of the policy implementation on price changes in the rural areas would cause immediate price changes in the urban areas.

### REFERENCES

- Adenegan K.O and Adeoye I.B (2011): Price Analysis of Tomato in rural and urban markets in Oyo State. *International Journal of Agricultural Economics & Rural Development*, Volume 4(2), pg 90-96
- Adeoye I. B, Dontsop Nguezet P. M., Badmus M. A. and Amao I. O (2011): Price transmission and market integration of Banana and Plantain in Oyo State, Nigeria. *Asian Research Publishing Network (ARPN) Journal of Agricultural and Biological Science*, Volume 6, No. 5, pg 18-24
- African Agricultural Market Project (AAMP), 2010, paper on spatial price variation in sub-sahara Africa, pg 1-5
- Akinola P.J (2009): Price Analysis of Selected Staples in rural and urban markets of Oyo State, Nigeria (2002-2008). Unpublished B.Sc Project, Department of Agricultural Economics, University of Ibadan, Ibadan, Nigeria.
- Akintunde O.K and Akinremi T.B (2012): Food Grain Marketing in Osun State, Nigeria
- Amusa, A.M (1997): Trend Analysis of Agricultural Food Prices in Nigeria (1985-1995)(A Case Study of Ibadan). Unpublished M.Sc Project, Department of Agricultural Economics, University of Ibadan, Ibadan, Nigeria.
- Food and Agriculture Organization (FAO), reports (2008): Food Crops and Shortages report in Nigeria.
- Food and Agriculture Organization (FAO), reports (2012): The State of Food and Agriculture; published by Food and Agriculture Organization of the United Nations.
- International Food Policy Research Institute (IFPRI) Reports on Food price increase, 2004.

Minot N and Rashid S (2008): African Agricultural Market Project (AAMP) paper on Spatial Price Variation in Sub-Saharan Africa, prepared for the COMESA policy Seminar on 'Variation in staple food prices: Causes, consequence and policy options', Maputo, 2008.

Okoh, R.N and Egbon, P.C (2005): The Integration of Nigeria's Rural and Urban Foodstuffs. African Economic Research

Consortium (AERC), Nairobi, Research Paper, No 151

Orewa S.I and Egware R.A (2012): Comparative analysis of rural and urban market prices for garri in Edo State, Nigeria: Implications for food security. Journal of Development and Agricultural Economics, Vol. 4(9), pg 252-257

Worako, T.K. (2012): Dynamics of Food Price Trends and Policy options in Ethiopia; A draft report.

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