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Analysis of Palm Oil Prices in Ini Local Government Area of Akwa Ibom State, Nigeria

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Abstract: The aim of this study was to analyze palm oil prices in Ini local government area of Akwa Ibom state, Nigeria. In consideration of palm oil price stability, trend analysis, seasonality, cyclical and irregular elements of price volatility was determined. Data were obtained through structured questionnaires administered to 160 randomly selected palm oil marketers. The Time Series Model, measurement of instability factor and index of dynamic price analysis was used. The result revealed that the instability factor was 0.097% and index dynamic price was 58.49% which shows that palm oil prices were relatively stable during the time of study. The study concluded that there was no incentive to store palm oil as prices are relatively constant over time. Therefore, the study recommended that the marketers should not store palm oil for future sales rather marketers should speculate palm oil trading through prices differential by geographical market locations and not by time difference.

Key words: Palm oil price trend, seasonality, cyclical and irregular analysis, seasonality, questionnaires

INTRODUCTION

Oil palm is a perennial crop that originated in the tropical rain forest of West Africa. It spread to South America in the 16th century and to Asia in the 19th century. During the 1970's, Asia overtook Africa as the principal oil palm producing region in the world. In recent decades, the domestic consumption of palm oil in West Africa has increased more rapidly than its production. After centuries as the leading producing and exporting region West Africa has now become a net importer of palm oil.

Between 1961 and 1965 world oil palm production was 1.5 million ton with Nigeria accounting for 43%. However, since then oil palm production in Nigeria has virtually been stagnated. But today, world oil palm production amounts to 14.4 million ton with Nigeria which is one of the largest producers in West Africa, accounting for only 7%. Kajisa (1997) compared the characteristics of the oil palm sectors in Malaysia and Nigeria and found out that Malaysia's success is built on plantation management together with processing in large modern bills. The plantation mode of production is characterized by large scale monoculture under unified management. In Nigeria by contrast, 80% of production comes from dispersed small holders who harvest semi-wild plants and use manual processing techniques.

Because of the increased demand for palm oil resulting from an increase in population and income growth, relative to the low productivity of the oil palm sector, Nigeria has become a net importer of palm oil. At the same time, rapid devaluation of the Naira combined with high transportation costs from ports to internal markets put imported palm oil in a competitively disadvantaged position. Thus, Nigeria's first goal is to meet the domestic demand and then if possible sell to international markets.

Palm oil processing is a major source of income and employment to a large proportion of the resource poor rural population in Nigeria especially in the South-Western part of the country. In recent times, its production has drastically nosedived. Evidence in CBN/NISER (1992) cited by Olagunju (2008) revealed that this situation has been brought about by a number of socio-economic and political factors along with the technological know-how in the industry. Principally, among the factors responsible for this decline is the inefficiency that exists in the production system for palm oil processing. Such inefficiencies arise from high cost of labour, lack of linking roads for transportation, electricity, water, inadequate credit facility, etc. (Ukpabi, 2004). Also, there is inefficiency in the marketing of the product such as price volatility, poor storage, poor market intelligent, etc.

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Agricultural commodities have historically exhibited seasonal price movements that are tied to the annual nature of the crop cycle. Crop prices in the cash and futures markets are usually lowest near harvest due to supply pressure. Conversely, the price is usually highest near the end of the marketing year when supplies are less abundant (Olukosi *et al*., 2007). Seasonal price movements will vary, however depending on supply and demand fundamentals. In particular, deviations of actual from expected supplies can have a pronounced impact on seasonal price patterns. During a small crop year, the new crop supply falls significantly below what the market expected at the time of planting. During a large crop year, the new crop exceeds earlier market expectations. Different seasonal indexes are relevant in these different situations (Thomsen and Foote, 1952). The seasonal variation in the production of some farm products and the corresponding changes in prices have been studied by Taylor.

Research objectives: The broad objective of this study is to analyse palm oil prices in Ini local government area of Akwa Ibom state, Nigeria. The specific objectives are to:

- Describe the nature of the changes in prices of palm oil (trend, seasonal, cyclical and irregular) in the study area
- Determine the price stability index of palm oil in the study area

Research hypotheses

H_{01}: There is no significant relationship between seasonal variation and palm oil prices in the study area.

H_{02}: There is no significant relationship between cyclical variation and price changes in palm oil in the study area.

MATERIALS AND METHODS

The research was carried out in Ini local government area of Akwa, Ibom state. The government area was carved out of the former Ikono local government area of Akwa Ibom state in 1991, it has a land mass of 320, 451 km^2. The study area lies between latitude 4°32' and 5°33' North and longitude 7°25' and 8°25' East with a mean annual temperature of between 26 and 29°C, a mean annual rainfall ranges from 2000-3000 mm, an average sunshine cumulates to 1,450 h per year and a high annual evaporation ranges from 1500-1800 mm.

The people of Ini are predominantly cash crop farmers. The major crops produced in the area are rubber, cocoa, rice and oil palm and small scales of cassava, maize, yam and cocoyam, plantain and banana are grown in small quantities, etc. The study area has a total of four clans with a total of 94 villages. The clans are Itu Mbonuso clan, Iwere clan, Nkari clan and Uquok clan.

Sampling technique: A multi stage random sampling technique was used, choosing clans, villages and respondents. The 1st stage was grouping of the clans into cluster areas then randomly selection of 8 villages from the 4 clans, this was followed by the random selection of 20 respondents per village to give a total of 160 palm oil marketers. Market price of palm oil obtained was from 2001-2010 that used for the analysis. Data were collected through questionnaires where applicable personal interviews of the respondents were used.

Analytical tools

Time series analysis: Objective was analysed using time Series Models that made use of Ordinary Least Square (OLS) method of estimation (Omotosho, 1990). The Time Series Model was specified using the additive approach which is written as:

$$Y = T + S + C + I \quad (1)$$

Where:
Y = Observed data
T = Trend values
S = Seasonal variation
C = Cyclical variation
I = Irregular variation

Measurement of instability: Objective 2 was analyzed using measurement of instability. The measurement approach adopted in the study was the quantitative approach (Reddy *et al*., 2004). Typically, the method used involved the Coefficient of Variation (CV) which was specified as:

$$CV = \frac{SD}{\text{Mean of price variable}} \times 100 \quad (2)$$

Where:
SD = Standard Deviation
CV = Coefficient of Variation

Also, the long-run instability index measurement (Reddy *et al*., 2004) was used specified as:

$$I = (I\text{-}R^2)\,100 \quad (3)$$

Where:
I = Index of dynamic instability in price
R^2 = Coefficient of multiple determination

RESULTS AND DISCUSSION

Trend analysis: The trend is the path which time series graph appears to follow over a long period of time. It forms one of the four components of a time series data. The trend values of a time series can be obtained by any of the following methods:

- Free Hand Method
- Semi Average Method
- Least Square Method
- Moving Average Method (Omotosho, 1990)

However in this research, the Least Squares Method was used. The regression coefficient b was given as:

$$b = \frac{n\Sigma xy - (\Sigma x)(\Sigma y)}{n\Sigma x^2 - (\Sigma x^2)} \quad (4)$$

Where:
b = Coefficient of the slope
n = Total number of observations
x = Time period (month)
y = The average prices of palm oil for each quarters of the year
Σ = Summation sign

The regression coefficient obtained was 2.59 after substituting values for x, y and n in Eq. 4. The regression Constant (C) was obtained by the use of the expression:

$$C = 1/n\ (\Sigma y - b\Sigma x) \quad (5)$$

Where C is constant while all other parameters remain as defined earlier. The regression constant was calculated to be 1.75. The trend was obtained using Eq. 6:

$$T = bx + C \quad (6)$$

Where:
T = Trend
b = Slope (intercept at y-axis)
x = Time period (month)
C = Constant

Therefore, the estimated trend equation took the form of this:

$$T = 2.59x + 1.75$$

The trend values were obtained by substituting different values of x into the equation. This is shown in Table 1. Eq. 6 was used to determine the corresponding trend values for each of the monthly average prices of palm oil for the period covered (2001-2012). The resultant palm oil price trend is shown in Fig. 1. From Fig. 1, prices are seen to be higher during the months of July to September while the period of January to March having lower prices. These periods of July to September

Table 1: Intermediate calculate of trend values

Trend (T)	Slope x Time period + constant (bx + C)
4.34	2.59 (1) + 1.750
6.93	2.59 (2) + 1.750
9.52	2.59 (3) + 1.750
12.11	2.59 (4) + 1.750
14.7	2.59 (5) + 1.750
17.29	2.59 (6) + 1.750
19.88	2.59 (7) + 1.750
22. 47	2.59 (8) + 1.750
25.06	2.59 (9) + 1.750
27.65	2.59 (10) + 1.75
30.24	2.59 (11) + 1.75
32.83	2.59 (12) + 1.75
35.42	2.59 (13) + 1.75
38.01	2.59 (14) + 1.75
40.6	2.59 (15) + 1.75
43.19	2.59 (16) + 1.75
45.78	2.59 (17) + 1.75
48.37	2.59 (18) + 1.75
50.96	2.59 (19) + 1.75
53.55	2.59 (20) + 1.75
56.14	2.59 (21) + 1.75
58.73	2.59 (22) + 1.75
61.32	2.59 (23) + 1.75
63.91	2.59 (24) + 1.75
66.5	2.59 (25) + 1.75
69.09	2.59 (26) + 1.75
71.68	2.59 (27) + 1.75
74.27	2.59 (28) + 1.75
76.86	2.59 (29) + 1.75
79.45	2.59 (30) + 1.75
82.04	2.59 (31) + 1.75
84.63	2.59 (32) + 1.75
87.22	2.59 (33) + 1.75
89.81	2.59 (34) + 1.75
92.4	2.59 (35) + 1.75
94.99	2.59 (36) + 1.75
97.58	2.59 (37) + 1.75
100.17	2.59 (38) + 1.75
102.76	2.59 (39) + 1.75
105.35	2.59 (40) + 1.75

Field survey, 2011

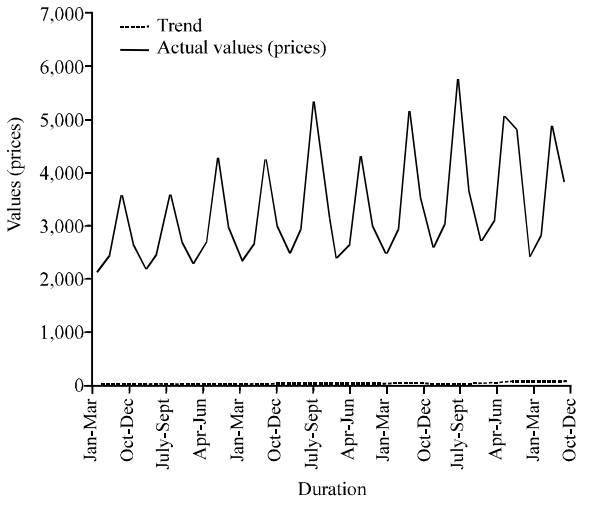

Fig. 1: Palm oil price trend in the study area

and January to March coincidentally represent the scare and peak periods of palm oil output, respectively.

This result is in line with the findings by Agbogo *et al*. (2007). The results from their study of price trend in pineapple revealed that prices of pineapple are higher during the months of July to September while the periods of January to March having lower prices. This showed a seasonal response of pineapple prices to lean and peak periods. So, palm oil prices as any other agricultural product is responding to seasonal variations. This price behaviour within the periods is in consonance with a prior economic theory that prices keeps increasing as demand for agricultural products increases. This shows an inverse relationship between palm oil prices and the demand for palm oil in the area under study. However, the trend analysis as Fig. 1 show that it has a constant average price over the study period (2001-2010). It is shown graphically that the average prices in terms of unit change per season stood at zero. It is equally clear that no significant change in price of palm oil in the study area. The implication therefore is that business speculators who buys and store to take advantage of time are most unlikely to make any substantial profit. It is advisable for producers to sell immediately as they produce palm oil.

Seasonal analysis: In the seasonal analysis, time series data were used which were recorded monthly. The years were divided into 4 quarters with 1st quarter (January-March) 2nd quarter (April-June), 3rd quarter (July-September), 4th quarter (October-December). In estimating the seasonal variation of the time series two models are often used namely; Additive and Multiplicative Model. The study adopted the Additive Model to operationalized the objectives Table 2. The following steps for obtaining the seasonal variation were observed:

- A table for calculating the seasonal variation was formed consisting of values for the T (trend), (average prices of palm oil/quarter of the year) and x (time period), respectively
- The trend values were subtracted from the corresponding Y values in the original data to get values for Y-T
- The values for Y-T were rearranged by grouping them into their respective quarters beginning from 2001-2010
- The total of the respective groups or quarters was calculated by summing all the values in each quarter. By so doing, the values for Quarterly Total (QT) were obtained

Table 2: Intermediate calculate of seasonal analysis

Average prices of palm oil/quarter (Y) ₦	Trend (T)	Quarterly Mean of palm oil prices (QM)	Grand Mean of palm oil prices (GM)	SeasonalVariation of palm oil prices (SV)
2,166	4.34	5914.850	7837.48	-1922.630
2,500	6.93	6882.375	7837.48	-955.105
3,666	9.52	11672.400	7837.48	3834.920
2,666	12.11	8319.175	7837.48	481.695
2,200	14.70	5914.850	7837.48	-1922.630
2,500	17.29	6882.375	7837.48	-955.110
3,666	19.88	11672.400	7837.48	3834.920
2,700	22.47	8319.175	7837.48	481.695
2,333	25.06	5914.850	7837.48	-1922.630
2,700	27.65	6882.375	7837.48	-955.110
4,400	30.24	-	-	-
3,000	32.83	-	-	-
2,400	35.42	-	-	-
2,700	38.01	-	-	-
4,400	40.60	-	-	-
3,000	43.19	-	-	-
2,500	45.78	-	-	-
2,966	48.37	-	-	-
5,488	50.96	-	-	-
3,600	53.55	-	-	-
2,400	56.14	-	-	-
2,700	58.73	-	-	-
4,400	61.32	-	-	-
3,000	63.91	-	-	-
2,500	66.50	-	-	-
2,966	69.09	-	-	-
5,288	71.68	-	-	-
3,566	74.27	-	-	-
2,600	76.86	-	-	-
3,100	79.45	-	-	-
5,866	82.04	-	-	-
3,666	84.63	-	-	-
2,700	87.22	-	-	-
3,100	89.81	-	-	-
5,133	92.40	-	-	-
4,833	94.99	-	-	-
2,370	97.58	-	-	-
2,833	100.17	-	-	-
4,944	102.76	-	-	-
3,833	105.35	-	-	-

Field survey, 2011

- The values for QT was divided by 4 to get the Quarterly Mean (QM)
- The values for QM were summed up to get the Grand Mean (GM)
- The values for Seasonal Variation (SV) were obtained by subtracting QM from GM (Omotosho, 1990)

Therefore, the Seasonal Variation (SV) equation can be written as:

$$SV = QM-GM \quad (7)$$

Where:
SV = Seasonal Variation
QM = Quarter Mean of palm oil prices
GM = Grand mean of palm oil prices

The predicted demand for palm oil is highest in 1st quarter (January-March) followed by second quarter

(April-June) then the 4th quarter (October-December) and least period of supply by July to September. This implies that palm oil producers should supply palm oil to the markets, keeping in view the demand in different quarters. The difference between the period's calls for proper understanding of the activity within each period as this would enhance marketing efficiency. The significant variations, within these periods may be attributed to seasonal variations in the supply of palm oil (Mbanasor and Nwankwo, 2001).

The seasonal variations in prices of palm oil in the different quarters is in accordance with an a prior expectation of an economic theory which states that the higher the quantity supplied the lower the price of palm oil (Fig. 2). For the retailers and producers, there were significant differences between the 3rd and 4th quarters. The 1st and 2nd quarters was the period of low prices which was identified as the main season for palm oil production and consequently many local supplies were prominent within these quarters. It is also evidently clear that producers suffers price variabilities which affects their farm budget, expected income and create uncertainty in future planning. There is need for government intervention to introduce the buffer stock systems to deal with surpluses during gluts (Table 2 and 3).

Cyclical analysis: Generally, cyclical price variation can be explained by the tendency of the producers to base future production plans on prices and profits of current and recent past operations. Cyclic movement in the prices of certain farm products is an evidence of imperfection in the functioning of the marketing system over a period of time. They cause alternative periods of shortage and glut. They partly result from imperfect forecasting of prices on the part of producers (Olukosi *et al*., 2007). The knowledge of cyclical variation of a time series is very important in business cycle because it will enable a business organisation to make adequate preparations and adjustments for periods of boom, stale mate, recession and recovery of the business Fig. 3. The study adopted the Multiplication Model (Table 4 and 5). The following steps for estimating the cyclic variation were observed:

- A table for computing the cyclic variation was formed consisting of values for T (trend), Y (average prices of palm oil/ quarter of the year) and S (seasonal variation), respectively
- The trend values were divided by the corresponding Y values in the original data to get values for Y/T
- The trend values were also multiplied with the corresponding S values in the original data to get values for TS

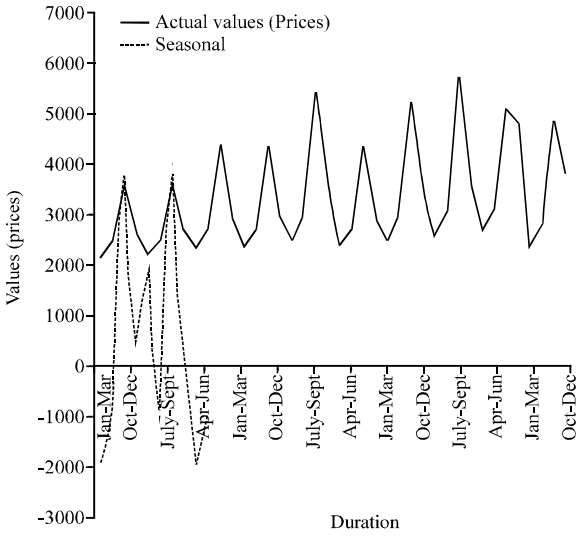

Fig. 2: The seasonal variation in prices of palm oil in the study area

Table 3: Final calculate of seasonal analysis

Average prices of palm oil/quarter (Y)	Trend (T)	Seasonal Variation of palm oil prices (SV)
2,166	4.34	-1922.630
2,500	6.93	-955.105
3,666	9.52	3834.920
2,666	12.11	481.695
2,200	14.70	-1922.630
2,500	17.29	-955.110
3,666	19.88	3834.920
2,700	22.47	481.695
2,333	25.06	-1922.630
2,700	27.65	-955.110
4,400	30.24	-
3,000	32.83	-
2,400	35.42	-
2,700	38.01	-
4,400	40.60	-
3,000	43.19	-
2,500	45.78	-
2,966	48.37	-
5,488	50.96	-
3,600	53.55	-
2,400	56.14	-
2,700	58.73	-
4,400	61.32	-
3,000	63.91	-
2,500	66.50	-
2,966	69.09	-
5,288	71.68	-
3,566	74.27	-
2,600	76.86	-
3,100	79.45	-
5,866	82.04	-
3,666	84.63	-
2,700	87.22	-
3,100	89.81	-
5,133	92.40	-
4,833	94.99	-
2,370	97.58	-
2,833	100.17	-
4,944	102.76	-
3,833	105.35	-

Field survey, 2011

Table 4: Intermediate calculate of cyclical analysis

Average prices of palm oil/quarter (Y)	Trend (T)	Average prices of palm oil/quarter/ trend (Y/T)	Seasonal variation (S)	Trend x Seasonal variation (TS)	Average prices of palm oil/quarter/ Trend x Seasonal variation = Cyclical and Irregular variation (Y/TS = CI)	3 point Moving Total (MT)	Moving Ave = Cyclical variation (MA = C)
2,166	4.34	499.08	-1922.630	8344.21	0.260	-	-
2,500	6.93	306.75	-955.105	6618.88	0.380	0.74	0.25
3,666	9.52	385.08	3834.920	36508.44	0.100	0.94	0.30
2,666	12.11	220.15	481.695	5833.33	0.046	0.64	0.21
2,200	14.70	149.66	-1922.630	28262.66	0.080	0.69	0.23
2,500	17.29	144.59	-955.105	16513.85	0.150	0.28	0.09
3,666	19.88	184.41	3834.920	76238.21	0.050	0.45	0.15
2,700	22.47	120.16	481.695	10823.69	0.250	0.35	0.12
2,333	25.06	93.10	-1922.630	48181.11	0.050	0.39	0.13
2,700	27.65	97.65	-955.105	26408.65	0.090	0.18	0.06
4,400	30.24	145.50	3834.920	115967.98	0.040	0.32	0.11
3,000	32.83	91.38	481.695	15814.05	0.190	0.27	0.09
2,400	35.42	67.76	-1922.630	68099.55	0.040	0.30	0.10
2,700	38.01	71.03	-955.105	36303.54	0.070	0.14	0.05
4,400	40.60	108.37	3834.920	155697.75	0.030	0.24	0.08
3,000	43.19	69.46	481.695	20804.41	0.140	0.20	0.07
2,500	45.78	54.61	-1922.630	88018.00	0.030	0.23	0.08
2,966	48.37	61.32	-955.105	46198.43	0.060	0.12	0.04
5,488	50.96	107.69	3834.920	195427.52	0.030	0.23	0.08
3,600	53.55	67.23	481.695	2574.77	0.140	0.19	0.06
2,400	56.14	42.75	-1922.630	107936.45	0.020	0.21	0.07
2,700	58.73	45.97	-955.105	56093.32	0.050	0.09	0.03
4,400	61.32	71.75	3834.920	235157.29	0.020	0.17	0.06
3,000	63.91	46.94	481.695	30785.13	0.100	0.14	0.05
2,500	66.50	37.59	-1922.630	127854.89	0.020	0.17	0.06
2,966	69.09	42.93	-955.105	65988.20	0.050	0.09	0.03
5,288	71.68	73.77	3834.920	274887.07	0.020	0.17	0.06
3,566	74.27	48.01	481.695	35775.49	0.100	0.14	0.05
2,600	76.86	33.83	-1922.630	147773.34	0.020	0.16	0.05
3,100	79.45	39.01	-955.105	75883.09	0.040	0.08	0.03
5,866	82.04	71.50	3834.920	314616.84	0.020	0.15	0.05
3,666	84.63	43.32	481.695	40765.85	0.090	0.13	0.04
2,700	87.22	30.96	-1922.630	167691.79	0.020	0.15	0.05
3,100	89.81	34.52	-955.105	85777.98	0.040	0.08	0.03
5,133	92.40	55.55	3834.920	354346.61	0.020	0.17	0.06
4,833	94.99	50.88	481.695	45756.21	0.110	0.14	0.05
2,370	97.58	24.29	-1922.630	187610.24	0.010	0.15	0.05
2,833	100.17	28.28	-955.105	95672.87	0.030	0.05	0.02
4,944	102.76	48.11	3834.920	394076.38	0.010	0.12	0.04
3,833	105.35	36.38	481.695	59746.04	0.080	-	-

Field survey, 2011

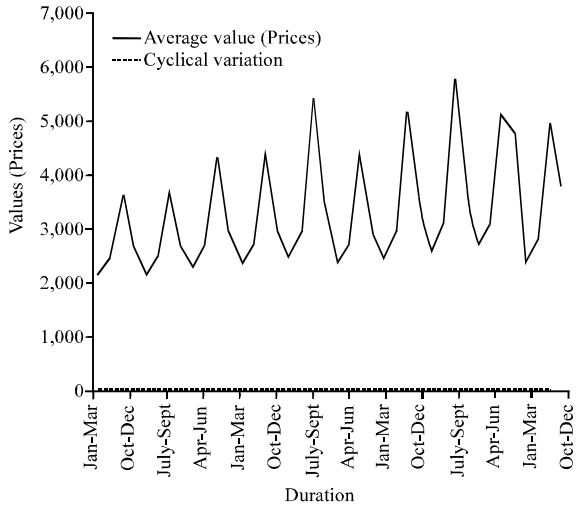

Fig. 3: Graph showing the cyclical variation in prices of palm oil in the study area

Table 5: Intermediate calculate of quarterly total and quarterly mean

	Quarters				
Years	1	2	3	4	Total
2001	499.08	360.75	385.08	220.15	-
2002	149.66	144.59	184.41	120.16	-
2003	93.10	97.65	145.50	91.38	-
2004	67.76	71.03	108.37	69.46	-
2005	54.61	61.32	107.69	67.23	-
2006	42.75	45.97	71.75	46.94	-
2007	37.59	42.93	73.77	48.01	-
2008	33.83	39.01	71.50	43.32	-
2009	30.96	34.52	55.55	50.88	-
2010	24.29	28.28	48.11	36.38	-
Quarterly total	1033.63/4	926.05/4	1251.73/4	793.91/4	-
Quarterly mean 1001.33	258.41	231.51	312.93	198.48	
Q.M×4/1001.33	1.03	0.92	1.25	0.79	3.99
SV 1438.88	-1922.63	-955.105	3834.92	481.695	

Field survey, 2011

- The ratio Y/TS was computed to obtain values for (cyclical and irregular variations)

- A moving average of order 3 was applied on the values for CI to obtain the 3 point Moving Total (MT) values
- The values for MT were divided by 3 to obtain the values for Moving Average (MA)
- The result from 6 above is the cyclical variation (C) (Omotosho, 1990)

Irregular analysis: Irregular variation is attributable to accidental factors such as war, flood, drought, strikes, fire disaster and elections. Due to its unpredictable and sporadic nature, irregular variation is not regarded as being very important in business as other variations though its occurrence may be disastrous. However, its knowledge is very important to make adequate preparation for its occurrence (Omotosho, 1990) (Table 6). The following steps for obtaining irregular variation were observed:

- A table for computing the cyclical variation was formed consisting of values for x (time period), the ratio CI = Y/TS and C (cyclical variation), respectively Table 5
- The ratio CI/C was computed to get values for I (Irregular variation)
- The results from 2 above is the values for I (Irregular variation)

Therefore, the Irregular variation (I) equation can be written as:

$$I = CI/C \quad (8)$$

Where:

I = Irregular variation
CI = Cyclical variation
C = Cyclical variation

Table 6: Intermediate calculate of irregular analysis

Years	Time period (x)	Cyclical x Irregular variations = Ave. prices of palm oil/quarter/Trend x Seasonal variation (CI = Y/TS)	Cyclical variation (C)	Irregular variation = Cyclical x Irregular variations/Cyclical variation (I = CI/C)
2001	1	0.26	-	-
	2	0.38	0.25	1.52
	3	0.10	0.30	0.32
	4	0.46	0.21	2.19
2002	5	0.08	0.23	0.35
	6	0.15	0.09	1.67
	7	0.05	0.15	0.33
	8	0.25	0.12	2.08
2003	9	0.05	0.13	0.38
	10	0.09	0.06	1.50
	11	0.04	0.11	0.36
	12	0.19	0.09	2.11
2004	13	0.04	0.10	0.40
	14	0.07	0.05	1.40
	15	0.03	0.08	0.38
	16	0.14	0.07	2.00
2005	17	0.03	0.08	0.38
	18	0.06	0.04	1.50
	19	0.03	0.08	0.38
	20	0.14	0.06	2.33
2006	21	0.02	0.07	0.29
	22	0.05	0.03	1.67
	23	0.02	0.06	0.33
	24	0.10	0.05	2.00
2007	25	0.02	0.06	0.33
	26	0.05	0.03	1.67
	27	0.02	0.06	0.33
	28	0.10	0.05	2.00
2008	29	0.02	0.05	0.40
	30	0.04	0.03	1.33
	31	0.02	0.05	0.40
	32	0.09	0.04	2.25
2009	33	0.02	0.05	0.40
	34	0.04	0.03	1.33
	35	0.02	0.06	0.33
	36	0.11	0.05	2.20
2010	37	0.01	0.05	0.20
	38	0.03	0.02	1.50
	39	0.01	0.04	0.25
	40	0.08	-	-

Field survey, 2011

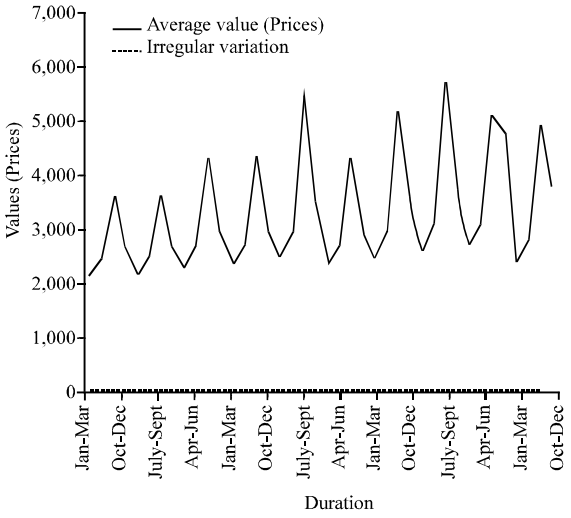

Fig. 4: The irregular variation of palm oil prices in the study area

Figure 4 shows the irregular variations of palm oil in the study area. It is evidently clear that no major irregular palm oil price movement has occurred during the period under review.

Measurement of instability of palm oil prices in Ini lGA Akwi Ibom state: Instability is measured through two approaches viz., graphical and quantitative approach. The study adopted the quantitative approach. Typically among the approach used is the Coefficient of Variation (CV). This was specified in Eq. 2.

Greater, the CV, more would be the price instability, the CV of price instability beyond 5% indicates instability and calls for price stabilization measures (Reddy *et al*., 2004). The coefficient of palm oil in the LGA is 0.197%. The value means that no price instability of palm oil in the study area as it reflected in the trend graph. The policy implication is that producers should sell their product immediately after production as there is no much incentive to speculate through time.

Long run instability index of palm oil: This index measures the proportion of variation in the price of the commodity not explained by the price trend line over long term period. The index was given in Eq. 3. Here, R^2 is from the estimated trend equation. The result (58.49%) is called dynamic instability which implies that the index of dynamic instability in prices in Ini LGA of Akwa Ibom state is 58.49%. the implication is that in the short run period market prices of palm oil is relatively stable but at the long run period prices of palm oil in the area will change to the magnitude of 58.49%. This is graphically shown in the trend analysis chart in Fig. 1 as the trend line is moving a little above zero.

CONCLUSION

The trend analysis revealed that it has a constant average price over the study period (2001-2010). The instability of palm oil prices was also measured which revealed that the instability factor was 0.097% and index dynamic price instability was 58.49%, this shows that palm oil prices were relatively stable during the time of study. Therefore, there is no incentive to store palm oil, as prices are constant over time in the study area.

RECOMMENDATIONS

Based on the findings of this study, it is recommended that, producers should sell palm oil immediately as they produce since there is no incentive to store palm oil, as prices are constant over time. Producers can form cooperative societies to pool their products together and have stronger bargaining power and obtain increase prices.

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