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Economic Analysis of the Effects of Increase in Fuel Pump Price on Cassava Production in Nsukka Local Government Area, Enugu State, Nigeria.

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ABSTRACT

The study evaluated the economic analysis of the effects of increase in fuel pump price on cassava production in Nsukka local government area of Enugu State, Nigeria. Data were collected by the use of simple random sampling procedure with the help of structured questionnaire and interview schedule administered to 100 cassava farmers. Descriptive statistics were employed to analyse the data. Result reveals that farmers in the area were within the age range of (40-49), 60% of the farmers married, 75% female, 40% of the farmers had a family size of (7-9), 60% of the farmers Christians, 40% of the farmers had farming experience of 6-10years. Also 60% of the farmers' levels of education are primary education. 35% of the farmers are both full time farmers, and or farmers/civil servants, 56% of the farmers hire labour for farming activities, 40% of the farmers had a farm size either their land from family inheritance, 60% of the farmers also fund the farming activities through personal savings. 50% of the farmer got their cassava cuttings from family and friends with 30% of government support. A total 65% of the farmers not belong to any cooperative or group. Variable inputs required in cassava production in the area excluded tractor hiring service. Gross margin analysis was used to analyse the cost and return data of fuel pump prices ₦ 65 and ₦ 97 of the region. The result reveals that for a hectare of sole cassava farm, the gross margin was ₦ 467,800 and ₦ 698,900 respectively. It shows that farmers were making profit in the regimes that is at the period of fuel pump price of ₦ 65 and ₦ 97 and from the hypothesis result of 100 farmers shows that increase in fuel pump has a significant effect on cassava production. The challenges of farmers were inadequate capital, lack of technical know-how, lack of government support, among others. Therefore, government should take decision either to regulate or deregulate the down stream sector of the oil industries so that there shall be stability and sustainable price of fuel or price of fuel should be determined by market forces.

Keywords: Fuel pump, Price, Cassava production, Nsukka L.G.A., Enugu State and Nigeria.

INTRODUCTION

Cassava has its origin from South America. Portuguese explorers introduced cassava to Africa during the 16th and 17th centuries through their trade with the African coasts and nearby islands. Africans then spread cassava further, and it is now found in almost all parts of tropical Africa [1]. Today Nigeria and Congo-Kinshasa are the biggest producers of cassava after Brazil and Thailand. Cassava is the basis of many products, including food. In Africa and Latin America, it is mostly used for human consumption, while in Asia and parts of Latin America it is also used commercially for the production of animal feed and starch-based products. In Africa, cassava provides a basic daily source of dietary energy. Roots are processed into a wide variety of granules, pastes, flours, etc., or consumed freshly boiled or raw. In most of the cassava-growing countries in Africa, the leaves are also consumed as a green vegetable, which provides protein and vitamins A and B. In Southeast Asia and Latin America, cassava has taken on an economic role [2].

Cassava starch is used as a binding agent, in the production of paper and textiles, and as monosodium glutamate, an important flavoring agent in Asian cooking. In Africa, cassava is beginning to be used in partial substitution for wheat flour [1]. According to FAO estimates, 172 million tonnes of cassava was produced worldwide in 2000. Africa accounted for 54%, Asia for 28%, and Latin America and the Caribbean for 19% of the total world production. In terms of area harvested, a total of 16.8 million hectares was planted with cassava throughout the world in 2000; about 64% of this was in sub-Saharan Africa but this varied from 1.8 tonnes per hectare in Sudan to 27.3 tonnes per hectare in Barbados. In 1999, Nigeria produced 33 million tonnes making it the world's largest producer. The average yield in 2000 was 10.2 tonnes per hectare [2].

In Nigeria, Cassava (*Manihot esculenta*) production is vital to the economy of Nigeria as the country is the world's largest producer of the commodity [3, 4]. The crop is produced in 24 of the country's 36 states. In 2009, Nigeria produced approximately 45 million tonnes, which is almost 19% of production in the world. Cassava is grown throughout the year, making it preferable to the seasonal crops of yam, beans or peas. It displays an exceptional ability to adapt to climate change, with a tolerance to low soil fertility, resistance to drought conditions, pests and diseases, and suitability to store its roots for long periods underground even after they mature. Use of fertilizers is limited, and it is also grown on

fallow land. Harvesting of the roots after planting varies from 6 months to 3 years. The land holding for farming in Nigeria is between 0.5–2.5 hectares (1.2–6.2 acres), with about 90% of producers being small-scale farms. In order to increase production, several varieties of cassava have been developed which are pest resistant; production in the country is hampered with problems with green mite, the cassava mealybug, and the variegated grasshopper [5, 6, 7].

Diseases affecting cassava crop are mosaic disease, bacterial blight, anthracnose, and root rot. The industrial processing of cassava in Nigeria holds much potential for successful investment. The crop is increasingly attracting attention and processing businesses are slowly starting to spring-up all over the country. Cassava is the chief source of dietary food energy for the majority of the people living in the lowland tropics, and much of the sub-humid tropics of West and Central Africa [1]. Therefore, its production and utilization must be given prime attention in food policy. Even though farmers have not yet attained the desired technical efficiency in cassava production as a result of weak access to external inputs such as fertilizers and herbicides [2], the wide scale adoption of high yielding varieties and the resulting increase in yield have shifted the problem of the cassava sector from supply (production) to demand issues, such as finding new uses and markets for cassava [8, 9].

The government of Nigeria considers a transition from the present status of usage to the level of industrial raw material and livestock feed as a development goal that can spur growth with increase in employment. This consideration underscores the various research and policy initiatives in cassava improvement, production, and processing. Estimates of industrial cassava use in Nigeria suggest that approximately 16 percent of cassava root production was utilized as chips in animal feed, 5 percent was processed into a syrup concentrate for soft drinks and less than 1 percent was processed into high quality cassava flour used in biscuits and confectionery, dextrin, adhesives, starch, and hydrolysates for pharmaceuticals and seasonings [3]. At present, a wide range of traditional cassava forms (such as *garri, fufu,* starch, *lafun, abacha,* etc) are produced for human consumption [4]. This suggests that different varieties have different uses. For good cassava production, the following varieties are recommended for their high yield and processing quality. They includes: TMS 30572, NR 8082, NR8083, TMS 4(2) 1425, TMS 81/00110, TMS 92/0326. An

additional 10 varieties are in the process of being released. The cultivars are "Bitter" and "sweet" and are the two general types of cassava. The sweet type is more commonly grown because of its greater yields. The colour and texture of the root peel are often the only factors used in separating clones in the market. Cassava production involves both private sector and the government. Government intervention and the efforts of non-governmental organizations in the cassava subsector have led to a number of measures that support the production, processing and marketing of cassava, dating back to the 1970s. These include government programmes such as the National Accelerated Food Production Programme (NAFPP), Operation Feed the Nation (OFN), the Agricultural Development Projects (ADPs), the development of the National Agricultural Research Systems and their close collaboration with the International Institute of Tropical Agriculture (IITA) and other international agricultural research centres and large-scale planting material multiplication and distribution facilitated by the IFAD-assisted Cassava Multiplication Programme (CMP) and activities of oil companies and church organizations. Through these efforts, appreciable progress has been made in genetic improvement, agronomic practices, root storage and in the development of processing technology and rural infrastructure. Concerted efforts have also been made to introduce improved practices to farmers. Thus, improved varieties now occupy approximately 0.75 percent of cassava land area and several labour-intensive operations in processing, notably grating, dewatering and milling, have been mechanized. This has had a great effect on cassava land area expansion and production growth.

Despite the rapid growth in cassava production, the cassava subsector in Nigeria is still constrained by a number of factors, namely pests and diseases, agronomic problems, shortage of planting materials, inconsistent policy measures, poor market access, limited diversification of processing options, inefficient extension delivery system and inadequate access to improved processing technology. Consequently, future intervention strategies should include the following:

- Development, rapid multiplication and dissemination of improved varieties to enhance the availability and diversity of improved planting materials;
- Development and extension of improved agronomic practices for cassava production;

- Deliberate efforts to support the development of cassava processing prototypes and identification of applicable and useful technologies and incentives for local entrepreneurs to fabricate them. This will save labour and improve the efficiency of processing, raise the quality and enhance marketability of products. The design of such machines should be gender-sensitive, bearing in mind the cardinal role of women in processing;
- Strengthening of extension-farmer linkage with research to facilitate the ongoing spread of cultivars, management practice and processing techniques. This should lead to the mobilization of farmers through emphasis on a participatory development approach, family- or group-based extension and seed multiplication activities involving due recognition of the role of women in production, processing and marketing and assistance that would enable all farmers to take advantage of development programmes as far as possible; adequate and sustained research funding which must be timely released;
- Development of new cassava products and packaging techniques for existing and new products;
- Promotion of industrial uses of cassava and diversification of processing options to encourage increased cassava production and enhance rural household income;
- Establishment of a sound macroeconomic policy that would promote sustained cassava development;
- Investment in rural infrastructure (especially feeder roads and water supply) to promote cassava production, processing and marketing; and greater involvement of the private sector and non-governmental organizations in the use of research and technology in cassava production, processing and marketing and in the development of infrastructural facilities. Cassava production has suffered a great deal and setbacks as well as influences of the oil sector vis-à-vis fuel pump price and Nigerian political economy. Nigerian economy cannot be divorced from oil. Nigeria practice mono-cultural economy, our National and personal dreams, hope and aspiration are built around oil. It remains the benchmark of Nigeria's socio-economic development, education, foreign and defense policies. No doubt the intensity with which the local elites struggle for power is, in part, evidence of our

failure to divorce politics from oil and oil from politics. In other words, it should be easy to understand the politics of fuel subsidy/ increase in fuel pump price in Nigeria. Oil (fuel) drives the economy. The implication is that oil politics or the politics of oil is a very delicate matter. Available evidence in extant literature shows that Nigeria is the largest producer of oil in Africa and the sixth largest oil producing country in the world. The country's economic strength is derived largely from its oil and gas wealth, which contribute 99 percent of government revenues and 38.8 per of GDP [5]. Despite these positive developments, successive Nigerian governments have been unable to use the oil wealth to significantly reduce poverty, provide basic social and economic services her citizens need. Agricultural sector is not left behind, the sector is at mercy of the oil sector. The future of Agricultural sector (crop production) and economic growth of the cassava sub-sector is dependent on the competitive position of Nigerian cassava on the global market place.

The history of fuel subsidy removal in Nigeria is rather a long one particularly with the negative effects it has on the polity. Specifically, the story of subsidy removal dates back to 1978 when the then military government of Gen. Olusegun Obasanjo reviewed upward the pump price of fuel which was at 8.4 kobo to 15.37 kobo. The concern was for government to generate enough money to run the administration particularly when it was preparing for the 1979 democratic elections and also to carter for the social needs of Nigerians. In January 1982, the civilian regime of Alhaji Shehu Shagari also raised the pump price to 20 kobo from 15.37 kobo. Money realized from the fuel increase was used by members of the regime to buy properties in major capitals of European nations (USA, UK, Spain, France and others), as against using same to put in place social services that Nigerians badly needed then. The inept leadership of the then NPN national government and the corruption that bedeviled the administration led to its overthrow. Then came the military junta of General Babangida who also increased the pump price of fuel to 39.50 kobo in March 31st, 1986. This regime was notorious for numerous pump price increases. On April 10th, 1988, the regime increased it to 42 kobo from 39.50 kobo per litre and then again to 60 kobo for private cars on January 1st, 1989.

These increases came at the time the regime chose to adopt a home grown Structural Adjustment Programme (SAP) as against external borrowing. His decision was greeted with massive protests by Nigerian. The economic down turn coupled with the increases made life really unbearable and Nigerians reacted angrily. Again, on the 6th of March, 1991, the Babangida administration raised the pump price from 60 kobo to 70 kobo. Not too long the Nigerian nation was subjected to another round of fuel increase, when in November 8,1993, the pump price was raised to N5.00 and confronted with mass protests across the length and breath of Nigeria, the price was reduced to N3.25 on November 22, 1993. A year later, on October 2nd, 1994, it was again raised to N15.00 only to be reduced two days later to N11.00 by the Gen. Abacha's regime. The reduction was as a result of mass protests and coupled with the need to win the support of Nigerians. On December 20, 1998, the pump price was also increased to N25 but again reduced to N20 on January 6th, 1999 just a month later. This was during Gen. Abdulsalam Abubakar brief transitional reign as a military ruler. He like others before him did not spare Nigerians the pains of fuel price increase. The decision witnessed sustained protests by Nigerians, the organized labour and the Civil Society Organizations (CSOs). It is necessary at this point to place on record that it was only the military junta of Buhari/Idiagbon and Umaru Shehu Yardua that Nigerians were spared the ordeal of price increase. Others before and after them inflicted enormous pains on Nigerians as a result of the increases in fuel prices. This however may be because of the brief tenure of the regime and ill health of Buhari and Yardua respectively, and its focus on fighting corruption and indiscipline in the Nigerian society. Gen. Olusegun Obasenjo second coming as a civilian president did not helped matters as he unleashed a rain of terror on Nigerians. In his eight years reign, the nation witnessed several rounds of fuel price increases. The first started on June 1st, 2000, where the petrol price per litre was raised to N30.00 but only to be reduced to N25 one week after due to massive protests by organized labour, civil society organizations and the ordinary Nigerians. Five days later, on June 13, 2000, the pump price was further adjusted to N22.00 per litre. On January 1st, 2002, Obasanjo regime increased the price from N22.00 to N26.00 and to N40.00 on June 23, 2003 just one year after. In June, 2007, also the same regime raised the price of fuel per litre to N70, but the Yaradua's regime later reviewed it downward to N65 on assumption of office in May 2007. This was how it remained until President Goodluck

Jonathan regimes decision at an outright removal of fuel subsidy. Interestingly the then Nigeria Labour Congress, President, Comrade Adams Oshiomole who had led several fights against fuel subsidy removal including fighting Olusegun Obasanjo, and as a sitting governor of Edo State, joined his fellow governors and the Federal Government to argue strongly for the complete removal of fuel subsidy. The issue was that, while the nationwide consultations and discussion on fuel subsidy removal was still going on, the Petroleum Product Pricing Regulatory Agency (PPPRA) on January 1st, 2012, announced the outright removal of fuel subsidy. This decision by the Goodluck Jonathan administration did not go down well with the masses of Nigerians. It resulted in massive strike actions and protests by the Nigerian Labour Congress (NLC), Trade Union Congress of Nigeria, PENGASAN, Civil Society Organisations, Academic Staff Union of Universities (ASUU) and the generality of Nigerians. The mass protests almost transformed into the "Nigerian spring" which would have brought down the regime. The regime quickly entered into a negotiation with the organized labour and rescinded its decision of an outright removal to a partial removal and reduced the pump price to N97. Table 1 provided a clearer picture of the different pump prices by the different administrations from 1978 to Jan. 2012.

Table 1.0: Data on petroleum price increases/adjustments in Nigeria (1978-2012)

S/N	Date	Administration	Price	Percentage Change
1	1978	Gen. Olusegun Obasanjo (as military ruler)	15.37k	
2	1982	Alh. Shehu Shagari	20k	
3	1990	Gen. Ibrahim Babangida	60k	300%
4	1992	Gen. Ibrahim Babangida	70k	17%
5	1992	Gen. Ibrahim Babangida	N3.25k	364%
6	1993	Gen. Ibrahim Babangida	N5.00	54%
7	1994	Chief Ernest Shonekan	N11.00	120%
8	1994/98	Gen. Sani Abacha	N11.00	-
9	2000	Olusegun Obasanjo (as civilian ruler)	N20.00	82%
10	2000	Olusegun Obasanjo (as civilian ruler)	N22.00	10%
11	2001	Olusegun Obasanjo (as civilian ruler)	N26.00	18%
12	2003	Olusegun Obasanjo (as civilian ruler)	N40.00	54%
13	2004	Olusegun Obasanjo (as civilian ruler)	N45.00	13%
14	2007	Olusegun Obasanjo (as civilian ruler)	N70.00	56%
15	2007-	Alh. Umaru Shehu Yardua	N65.00	0.07%
16	2012	Dr. Goodluck Jonathan	N141.00	117%

Source : Communique by South-South Elders and leaders, 2012.

Data in table 1 show that the Nigerian public have been subjected to a number of fuel increases since 1978, when the General Olusegun Obasanjo regime effected a change

upward in the pump price of gasoline from 8.4 kobo to 15.37 kobo. However, Generals Babangida and Obasanjo are reputed to have made the most increases within each of their eight years in office. These fuel pump prices have left the society with vicissitude of life which permeates into various facet of the economy especially in agricultural sector (cassava production).

Statement of Problem

Cassava is a tuberous root that contains 60 to 70 percent moisture and has a shelf life of 2 to 3 days. Once harvested, it has to be either consumed immediately or processed into more stable product forms. Cassava farmers are often unable to process harvested roots and have to sell their crop at a very low price to middlemen who are willing and able to reach them. Moreover, supply of cassava greatly influences the market price; as a result, when cassava is scarce and the prices are high farmers increase production, the subsequent oversupply lowers the market price and farmers plant less cassava which results in fluctuating price cycles of approximately two to three years [6]. The energy required to power agro-allied industries as well as chains of agricultural production processes are also important especially in oil sector economy. It still require fossil fuel products- premium motor spirit (PMS), Automobile gasoline oil (AGO) and kerosene to operate the processes. Therefore, cost of fuel with respect to time is very important. Cassava farmers are relatively subsistent to semi-commercial in nature compounded with lack of fund or credit facility. The resultant effect of these situations necessitates a variation in the ability of farmers to assess input variables required for cassava production. These inputs variables determine the level of production capacity and capability of the farmers largely with regards to funds and other economic stimuli geared towards cassava production. Some of the economic constraint/ stimuli such as fuel pump price as observed before 2011 and after 2011 had a role to play in the output of the farmers. These greatly affect the cost and return of cassava production all things being equal. Government policy of increasing fuel pump price over the years as seen in era above have constituted a veritable change in economic growth of cassava farmers. Some of them have abandon farming for other lucrative ventures as a result of non-break-even on investment. Therefore, it is imperative to investigate all factors that lead to low production of cassava, low profit margin and the relationship between low productivity and increase

in fuel pump price in a mono-cultural economic environment of Nigeria. These issues provide the platform to investigate the economic analysis of cassava production in era of variance in a particular area. Because of the rate at which increase in fuel pump price affected the day to day activities as well as in farm production, this research shall answer these questions:

- How the increase in fuel pump price affects the socio-economic characteristic of the cassava farmers.
- How the increase in fuel pump price reduce the rate of the use of input variables on farmer.
- How the increase in fuel pump price affect the cost and return of cassava farmers before and after 2011.
- And also identify the problems of farmers during the increase in fuel pump price.

Objectives of the Study: The main objective of the project is to evaluate the economic effect of increase in fuel pump price on cassava production in Nsukka local Government Area, Enugu State. The specific objectives includes are to:

- Examine socioeconomic characteristic of the cassava farmers within.
- Determine input variables required in cassava production and how increase in fuel pump price affect it.
- Compare the cost and return of cassava production before and after 2011.
- Identify the problem of the increase in fuel pump price on the cassava farmers.

Hypothesis of Study

H_o: Increase in fuel pump price has no significant effect on cassava production.

H_A: Increase in fuel pump price has significant effect on cassava production.

Significance of the Study

The politics of fuel subsidy removal/increase fuel pump price has showed that Nigeria is a country of paradox. A country regarded as oil producing that her citizens pay more for fuel which is found in abundance in the country. These have culminated to high standard of living, corruption, poverty and food scarcity and high cost of production. Crop (cassava) production like every other production outfit suffers the same fate. Therefore, the need to study the consequences of increasing fuel price at any time in the economy has a ripple effect. In other words, it is necessary to understand the socioeconomic effect of increasing

fuel pump price especially as it affects cassava production. Since cassava which is rich in starch in the form of carbohydrate, have multiple uses. It is consumed in many processed forms, in the industry and also as livestock feed. Roots or leaves are made into flours. Its other products are as dry extraction of starch, glue or adhesives, modified starch in pharmaceutical as dextrines as processing inputs, as industrial starch for drilling, and processed foods and in the production of biofuel (bioethanol) as a energy source.

Limitation of Study

Farmers in the study were less enthusiastic in responding to interviews with skeptic feeling that government may in disguise use this medium to evaluate their businesses for subsequent assessment and taxation. Also it took several visitations to meet the farmers in their various farms due to their tight schedules and variations in communal market days across the study. Some communities in the study area had bad/ poor road network and these made the area difficult to study.

METHODOLOGY

Study Area

The study area, Nsukka is one of the 17(seventh) local government area in Enugu state. Nsukka is bounded geographically in the North by Igbo-Eze north local government area, in the East by Isi-uzo local government area, in the west by Uzo-uwani and in the south by Igbo-Eze south [7]. Nsukka is made up of sixteen (16) autonomous communities, they include Alor uno, Edem, Ede-Oballa, Eha-Alumona, Eha-Ndiagu, Ibagwa ani, Lejja, Nsukka, Opi-Uno, Okwutu, Obukpa, Okpaligbo, Obimo, Anuka, Opi- agu ,and Okpuje. The area has a land mass of 309,633m^2 [8]. The area lies at latitude of 6.52^{0}N and longitude of 7^{0}25^{1}E. It also lies within the derived savannah vegetation zone which is characterized by incomplete canopy which affects the soil moisture adversely. The study area is made up of moderately rolling plain and groups of hills. According to [7], Nsukka local government area is characterized by high temperature falls between 27^{0}c and 28^{0}c and seasonal distribution of rainfall. The dry season fall between November to march while rainy season is usually between April and October. The total number of household is estimated at 40,263(forty thousand, two hundred and sixty three), male were 74,028 and female were 62,961 making it a total of one hundred and thirty six thousand, nine hundred and eighty nine (136,989) from the last population census in 2006. There are four major market and

one modern market found within the communities in the study area which include Afor Opi, Orie Ania, Eke Ede-oballa, Nkwo Okpuje and Ogige Main market respectively. The occupation of the inhabitant is predominantly small scale farming and trading, their major crop includes yam, oil palm, groundnut, maize, cocoyam, cashew, pear, orange, vegetables, honey and cassava. The cultural practice adopted in the area is multiple cropping in less than one hectare to about five hectare of land.

Sampling Techniques

A simple random sample procedures was adopted in the selection of respondents, out of the 16 communities in Nsukka L.G.A. 10 communities was randomly selected for the study. In each of the 10 selected communities, 10 cassava farmers were selected to make a total of hundred (100) cassava farmers that were interviewed and questionnaires presented.

Data Collection

Data was collected from both primary and secondary sources.

Primary Source: Primary data were collected through the use of constructed questionnaire and interview schedules. The data collected was based on the objective of the study.

Secondary Source: Secondary data were obtained from textbook, journals, magazines, research bulletins, project works and other document that were related to cassava production as well as effects of increase fuel pump price.

Data Analysis

Data collected were analysed accordingly. Objective (1) was analysed using frequency distribution tables. Objective (ii) was analysed using bar chart. Objective (iii) was analysed using gross margin analysis. Objective (iv) was analysed using frequency distribution table.

Model specification,

$$GM = TR - TVC \qquad (1)$$

$$where\ GM = Gross\ Margin, TR = Total\ Revenue, TVC = Total\ variable\ Cost$$

$$percentage = \frac{No\ of\ respondents}{sample\ size} \times \frac{100}{1} \qquad (2)$$

$$S\% = \frac{N}{n} \times \frac{100}{1} \quad where\ S = percentage, N = Total\ number\ of\ respondent, n = sample\ size$$

RESULTS AND DISCUSSION

This study was carried out to investigate the economic analysis of the effect of increase in fuel pump price on cassava production in Nsukka local government area in Enugu state. The findings of the research are recorded as follows:

The Socioeconomic Characteristics of the Respondents (cassava farmers)

Questionnaire were distributed in the area, the findings considered the age of the farmers, their marital status, gender, household size, religion, farming experience, level of education, major occupation, the type of labour adopted, farm size, the type of land acquisition, source of capital, source of cassava cuttings and whether the farmers belong to any farmers group or organization.

The results are as follows:

From the table 2.0 below, It shows that about 5% of the farmers (Respondents) are within the age range of 20-29,10% fall within 30-39, 35% fall within 40-49, 30% fall within 50-59 and 20% fall within 60and above. The marital status of the farmers were also investigated as seen 0n the table, whereby 60% of the respondents are married, 12% are single, 5% are divorced and 22% are either widow/widower. The genders were distributed in such a way that about 75% of the cassava farmers were female whereas 25% of the respondents were male as seen on the table. The spatial distribution of the household size of the area under survey shows that about 10% of the cassava farmers have a household size (1-3), 35% have household size (4-6), 40% have household size (7-9) and 15% have household size (10 and above) . The religion practiced within the area under survey shows that 60% of the respondents are Christians, 40% are African traditional Religion and no respondents practices Islam. The experience gathered by farmers in cassava (production) farming were

ascertained and the result shows that 20% of the farmers (respondents) have 1-5years experience, 40% have 6-10 years experience, 25% have 11-15 years experience and 5% have 15 years and above experience. Also the farmers educational background were surveyed to determine their level of education, 60% of the respondents had primary education,30% had secondary education, and 10% had tertiary education and no respondent had non other specified form of education. The major occupation of the farmers in the area were also ascertained, from the respondents, we gathered that, 35% of the respondents are full time farmers, 35% are part time farmers- combining farming and civil service work, 30% are part time farmers- combining farming and trading. The nature of the labour adopted in the area is of essence, and it survey to determine the type of labour readily available in the area. It was gathered that 50% of the respondents pay for hired labour, 35% of the respondent got family labour service and 15% derive labour service from communal efforts. Furthermore, the size of the cassava farms was also determined to be able to ascertain the hectare size of farmers in the area. From the respondent, 40% of the farmers control a farm size of 1-2 hectares, 40% control a farm size of 3-4 hectares, 16% control a farm size of 5-6 hectares and 4% control a farm size of 7 hectares and above. However, survey to determine how land is acquired was also carried out, the result shows that 60% of the respondent agree that land acquired through family inheritance, 35% of the land is by Purchase while 5% of the land is by rentage. Source of capital to support farming business in the area were surveyed to be able to ascertain whether funds available can finance cassava production in the area. From the respondents, we gathered that 60% of the farmers got their capital from personal savings, 35% from friends and family and 5% from credits and loans from financial institution like banks etc. Also cassava cuttings used in the area as a production inputs were ascertained from the farmers. From the respondents, 50% of the farmers got the cuttings from Family and friends, 35% from government agencies, and 15% of farmers got cutting from other non specified agencies like tertiary institution like University of Nigeria, Nsukka. Finally, farmer in the area were surveyed to ascertain whether they are a member of any farmers group or co operatives or a clusters, from the respondents, it was gather that 65% of the farmer are not in any co operative/ cluster/ group while 35% of the them are member of a co operative/ cluster/ group.

Table 2: Shows The Socioeconomic Characteristics of The Farmers.

Age	Frequency	Percentage	Mean
20-29	5	5	75.2
30-39	10	10	
40-49	35	35	
50-59	30	30	
60 and above	20	20	
Total	100	100	
Marital status			
Married	60	60	
Single	12	12	
Divorced	6	6	
Widow / widower	22	22	
Total	100	100	
Sex /gender			
Male	25	25	
Female	75	75	
Total	100	100	
Household size			
1-3	10	10	10
4-6	35	35	
7-9	40	40	
10 and above	15	15	

Total	100	100	
Religion			
Christian	60	60	
African traditional	40	40	
Islam	nil	nil	
Total	100	100	
Farmers experience (years)			
1-5	20	20	15.75
6-10	40	40	
11-15	25	25	
15 and above	5	5	
Total	100	100	
Level of education			
Primary	60	60	
Secondary	30	30	
Tertiary	10	10	
Total	100	100	
Major occupation			
Full time farmers	35	35	
Farmer & civil servant	35	35	
Farmer &trader	30	30	
Total	100	100	
Types of Labour			

Hired labour	50	50	
Family labour	35	35	
Communal labour	15	15	
Total	100	100	
Farm size (hectares)			
1-2	40	40	4
3-4	40	40	
5-6	16	16	
7 and above	4	4	
Total	100	100	
Method of land acquisition			
Family	60	60	
Purchase	35	35	
Rented	5	5	
Total	100	100	
Source of capital			
Personal savings	60	60	
Credits/loans	35	35	
Friends and family	5	5	
Total	100	100	
Source of cassava cuttings			
Family and friends	50	50	
Government agencies	35	35	

Other specify	15	15
Total	100	100
Membership of farmer group		
Member of Co-operative	35	35
Non-member of co-operative	65	65
Total	100	100

Source: Field survey 2014.

Due to variations within geographical location of the study area, as well as variation in farm sizes, the variable inputs required to produce cassava in the area with respect to individual farmers are different. Therefore, farmers were surveyed to determine their variable input required to cultivate cassava in the area. From the respondents, we realized that about ten variable inputs are required in the area namely: Cost of land**,** Tractor hiring, Labour, Cost of clearing/ploughing, Cassava cuttings, Fertilizer, Herbicide/weeding, insecticide, Harvesting /processing charges, and Transportation. The survey result shows that 40% of the respondents pay for the cost of land in the area, tractor hiring for field operation is not practiced here as seen from the respondents, 70% agree to pay for labour for cassava production, all respondents subscribe to pay for fertilizer (organic and inorganic), herbicide/ weeding, and insecticide,85% agree to pay for harvesting/processing and 95% agree to pay for transportation. Under other non specified variable cost, payment of security guard against nomads and natural disaster like bush burning/ flood were made. Figure 4.0: show the interrelationship between variable cost in the area of study.

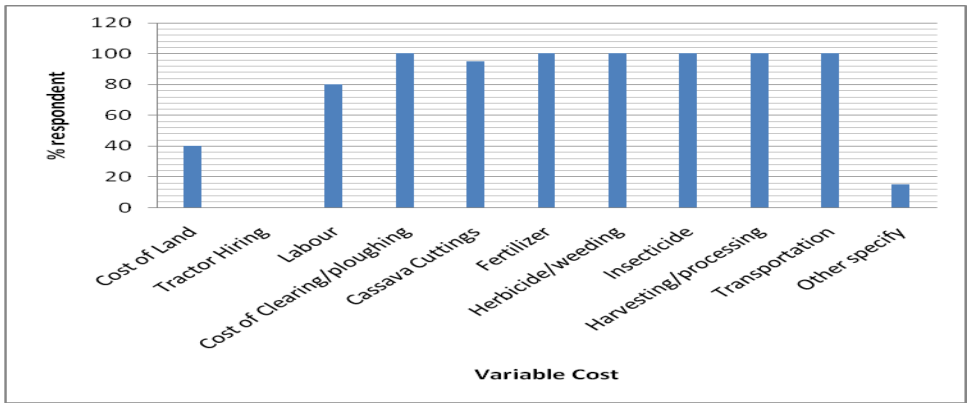

Fig. 1: Shows The Interrelationship between Available Input Variable Cost.

Source: Field survey 2014

Gross Margin Analysis

Fixed costs are cost that does not vary with production. The depreciation was determined using straight line method thus:

$$Depreciation = \frac{Cost - salvage\ value}{useful\ life} \qquad (3)$$

The salvage value of the production of cassava was assumed to be zero. Therefore, table 3: shows the fixed cost of the cassava production in the study area. The fixed material used in production are hand tools like hoes, cutlass, basket, barrow, digger, and local means of transportation (bicycle). The unit cost of procuring these fixed cost by 2011 and after 2011 are presented with quantities required for cassava production. The life span and their depreciation were presented. The gross annual depreciation of the fixed cost as at 2011 and after 2011 were recorded as #6438 and #8063 respectively as seen in table 2.

Table 3: Shows the Fixed Cost of Cassava Production in the Study Area

Fixed item	Quantity	Unit cost at ₦65	Unit cost at ₦97	Total cost at ₦65	Total cost at ₦97	Life span	Annual Depreciation at ₦65	Annual Depreciation at ₦97
Hoe	5	900	1200	4500	6000	8	563	750
Cutlass	5	800	1000	4000	5000	8	500	625
Basket	5	250	350	1250	1750	2	625	875
Barrow	2	9000	10,500	18000	21000	8	2250	2625
Digger	2	2500	3000	5000	6000	8	625	750
Bicycle	1	15000	19500	15000	19500	8	1875	2438
Total							6438	8063

Source: Field Survey 2014.

The variable costs of producing cassava in the study area were also determined. The variable cost includes: Cost of hiring land, hiring tractor, cost of clearing/ploughing, cassava cuttings, fertilizer, labour for fertilizer, herbicide, labour for herbicide, insecticide, labour for insecticide, cost of harvesting, transportation and security. The unit cost of procuring this variable cost by 2011 and after 2011 are presented with quantities required for cassava production. The total variable cost of production as at 2011 (₦65) and after 2011 (₦97) were recorded as ₦ 63200 and ₦86100 respectively as seen in table 4.

Table 4: Shows The Variable Cost of Cassava Production in the Study Area

Variable item	Unit	Qty	Unit Cost at ₦65	Unit Cost at ₦97	Total Cost at ₦65	Total Cost at ₦97
Cost of hiring Land	Ha	1	30,000	40,000	30,000	40,000
Tractor Hiring	-	-	-	-	-	-
Cost of	A-day work	5	1000	1200	3000	3600

Clearing/ Ploughing	(8 hours/day)					
Cassava Cuttings	Bundles	3	1,000	1200	3000	3600
Fertilizer	Bags	2	4000	5000	8,000	10,000
Labour-fertilizer	A-day work (8 hours/day)	2	500	1000	1000	2000
Herbicide	Litre	1	2100	3500	2100	3500
Labour-herbicide	A-day work (8 hours/day)	3	500	800	1500	2400
Insecticide	Litre	1	2100	3000	2100	3000
Labour-insecticide	A-day work (8 hours/day)	3	500	800	1500	3500
Harvesting	A-day work (8 hours/day)	4	1000	1200	4000	4800
Transport		-	2000	3500	2000	3500
Security		1(10 months)	400	500	4000	5000
Total					63200	86100

Source: Field Survey 2014.

Cassava production in the study area generated revenue as income for productivity to continue and also ascertain the viability of the enterprise. The produce for sale include: cassava tubers, cassava cuttings, garri, tapioca, akpu, flour and contingency (gift). The quantities, their unit prices and quantity price as at 2011(₦65) and after 2011(₦97) were recorded as seen in table 5. The total revenue generated is ₦527,000 and ₦785,000 respectively.

Table 5: Shows the Revenue Generated on Cassava Production in the Study Area.

Revenue	Unit	Quantity	Unit Price at ₦ 65	Unit Price at ₦ 97	Total Amount at ₦ 65	Total Amount at ₦ 97
Cassava Tuber	Kg	500	800	1200	400,000	600,000
Cassava Cuttings	Stands	10,000	5.00	7.00	50,000	70,000
Garri	50kg	20	2500	3500	50,000	70,000
Tapioca	Basin	10	800	1400	8000	14000
Akpu	25kg	10	1200	1800	12,000	18,000
Flour	25kg	2	1000	1500	2000	3000
Contigency (gift)	-	-	-	-	5000	10,000
Total					527,000	785,000

Source: Field Survey 2014.

From the tables above, we have derived the total revenue, total variable cost, and total fixed cost of production in the study area for ₦65 and ₦97 regime. Therefore, to determine the gross margin for production for the two periods were determined as seen in table 6. For the period of ₦65 (2011) and ₦97 (after 2011), the gross margin were determined as ₦467800 and ₦698900 respectively from calculation below.

Table 6: Shows the Gross Margin Generated on Cassava Production in the Study Area for the two periods.

Gross Margin	At ₦65	At ₦97
Total Revenue (TR)	₦ 527,000	₦ 785,000
Total Variable Cost (TVC)	₦ 63200	₦ 86100
Total Fixed Cost (TFC)	₦ 6438	₦8063

Therefore,

$$GM = TR - TVC$$

At ₦65

527000 – 59200 = 467800

$$NET\ PROFIT = TR - (TVC + TFC)$$

= 527000 –(63200+6438)

= 527000 – 69638

= 457362 at ₦97

GM = 78500 – 86100=-698900

$$NET\ PROFIT = TR - (TVC + TFC)$$

= 785000 – (86100 + 8063)

= 785000 – 94163

= 690837.

Challenges of the Farmers in the Study Area

The problems of the farmers in the study area were investigated to know the challenges they are facing working in the area. The following challenges were articulated from the respondents, the result shows that inadequate capital, lack of technical know-how, lack of government support, lack of improved cuttings, poor market, poor yield, inadequate credit facilities, inadequate fertilizer, lack of insecticide are their major challenges in the area. Their percentage responds to these problems are presented in table 7.

Table 7: Shows the Problems of Farmers in the Study Area

Challenges facing respondents in the study area.	Yes/(%)	No/(%)
Inadequate capital	80(80)	20(20)
Lack of technical know- how	25(25)	75(75)
Lack of government support	75(75)	25(25)
Lack of improved cuttings	62(62)	38(38)
Poor market	50(50)	50(50)
Poor yield	55(55)	45(45)
Inadequate credit facilities	72(72)	28(28)
Inadequate fertilizer	51(51)	49(49)
Lack of Insecticide	43(43)	57(57)
Lack of Herbicide	55(55)	45(45)
Pests and diseases infestation	15(15)	85(85)
Inadequate extension contact	62(62)	38(38)

Inadequate land for planting	75(75)	25(25)

Source: Survey 2014.

Hypothesis Decision

Since Z_{cal} is less than Z_{tab} we reject the hull hypothesis (H_o) and accept the alternative hypothesis (H_A) which says that increase in fuel pump price has a significant effect on cassava production. See appendix 2

CONCLUSION

This work has discussed the topic through questionnaire and interviews of farmers within the study area with concerted effort to determine inherent socioeconomic characteristics of the farmers, the effect of two regimes: period of fuel pump price of ₦65 (2011) and period of increase in fuel pump price of ₦97 (After 2011) on the production of cassava. The following conclusions were drawn from the findings:-

- That the farmers in the study area have got the requisite age necessary to undertake Agricultural (cassava) production as seen in table 4.0.
- That the farmers in the study area have got the social responsibility necessary to go into cassava production, that 60% of the respondents are married as seen in the table 4.0.
- It is favourable to note that, we have 75% of the farmers as female and 25% as male.
- The spatial distribution of household size shows that 40% of respondents agree that their household size is (7-9).
- Majority of the farmers in the area are Christians, 40% African traditional religionist and no Islam.
- The experiences of the farmers in the cassava production were determined and 40% of the respondents agreed that they have 6-10 years experience.
- Farmers, level of education were determined to show that 60% of the farmer had primary education, 30% secondary education and 10% tertiary education.

- In the study area, it was determined that 35% of the farmers are both farmers and civil servant and another 35% are full time farmers, with 30% both farmers and traders.
- The type of labour available in the area shows that 50% of the farmers hire labours, 35% are farmers get their labour from family and 15% of the farmers got their labour communally.
- The farm size were determined and 40% of respondents agreed that (1-2) hectares, and (3-4) hectares are the farm size prevalent in the area.
- 60% of the respondents acquire land by family inheritance, 35% is by purchase and 5% is by rentage.
- The source of capital in the area shows that 60% of the farmers got their capital through personal savings, 30% of the farmers got their capital through credit/loans while 5% of the farmers is through friends and family.
- 50% of the cassava cuttings in the area are gotten from family and friends and 35% from government agencies.
- 65% of the farmers in the area are not member of any group while 35% of the farmers belong to different groups/co-operative.
- Different variable cost contributes greatly to the cost of production in a study area. It was gathered that the following input variable cost are important in the cassava production:- cost of land, labour, cost of clearing/ploughing the field, cassava cuttings, fertilizer, herbicide/weeding, insecticide, harvesting/processing, transportation cost, and security.
- The following challenges were articulated from the respondents, the result shows that inadequate capital, lack of technical know-how, lack of government support, lack of improved cuttings, poor market, poor yield, inadequate credit facilities, inadequate fertilizer, lack of insecticide are their major challenges in the area.

Meanwhile, the gross margins of the production regimes were determined. The period of ₦65, the gross margin was ₦467800 and at period of ₦97, it was ₦698900. It shows that farmers were making profit in the two regime that is at the period of fuel pump price of ₦65 and ₦97 and from hypothesis result of 100 farmers shows that increase in fuel pump

has a significant effect on cassava production which implies that sales of cassava production depends on the individual farmer marketing strategies or by market forces at that point in time.

REFERENCES

1. Tsegai, D. and P.C. Kormawa (2002). *Determinants of Urban Household Demand For Cassava Products in Kaduna, Northern Nigeria.* In: Conference of International Research for Development, Witzenhause, 9-10 October 2002

2. Ezedinma, C., A.G.O. Dixon, L. Sanni, R. Okechukwu, M. Akoroda, J. Lemehi, F. Ogbe and E.Okoro (2006). *Trends in Cassava Production and Commercialization in Nigeria.* International Institute of Tropical Agriculture.

3. Ene, L.S.O. (1992). *Prospects for Processing and Utilization of Root and Tuber Crops.* In National Root Crops Promotion of Root Crop-Based Industries. Pp. 7-11.

4. Kormawa, P. and M.O. Akoroda (2003). *Cassava Supply Chain Arrangement for Industrial Utilization in Nigeria.* Ibadan.

5. NRCRI. (1996). *Regional Research Project on Maize and Cassava*. Project Report 1992–1995.

6. Nweke, F.I., Hahn, S.K. & Ugwu, B.O. (1994). *Circumstances of rapid spread of cultivation of improved cassava varieties in Nigeria.* Journal of Farming Systems Research and Extension 4(3).

7. Olaoye-Osinkolu, D. (2012) "Subsidy crisis: Mother of all strikes persists". The Nation 7 (2000) Tuesday Jan. pp. 13-14.

8. NRCRI.(1992). *Annual Report. National Root Crops Research Institute*, Umudike, Umuahia, Nigeria.

9. Jones, W.O. (1959). *Manioc in Africa. Stanford University Press.* Stanford, USA.