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A STUDY ON FRUITS AND VEGETABLE INFLATION AND ITS EFFECTS ON PERSONS WITH SPECIAL DIETARY CARE IN NIGERIA. CASE STUDY OF AKWA IBOM STATE

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Abstract
This study examined supply of vegetables and fruits into Uyo Urban Markets with a goal of understanding why fruits and vegetables are sold at expensive prices even in their respective harvesting season. The economic condition of Nigeria affects the price affordability, transport, availability and perishability of vegetable and fruits in Uyo market. 400 copies of questionnaires were administered to fruits/vegetable sellers across the four (4) political clans that make up Uyo Local Government Area. Six (6) markets were sampled from the list of 18 markets using fruits/vegetable traders, buyers, fruit supplement dealers and food vendors. The study used ANOVA to determine the variation between the quantity of vegetables and fruits supplied into Uyo urban markets and seasonality. Four objectives were used for the study to explore the challenges facing the supply of fruits and vegetables brought into Uyo urban markets. The result of the analysis of variance indicated that there was a remarkable difference between the mean square shown by the high value of the F-ratio. In other words, the null- hypothesis is rejected since the F-ratio was greater than the table value of 2.99. Hence, there is a significant variation between the quantity of vegetables and fruits supplied into Uyo urban markets at various seasons. This variation reflects in the non-availability and non-affordability of these fruits and vegetables for patients with special dietary needs. Following the afore-listed constraint, it was suggested that if more attention is ejected towards provision of storage facility, farm input like fertilizer, pesticide as well as other favourable incentives that could create a productive environment for both fruit farmers and traders, the supply of vegetables and fruits would drastically increase.

Keywords: *Vegetables and Fruits Inflation, persons with Special dietary care, Akwa Ibom State, Nigeria*

Introduction

Fruit inflation is a phenomenon that has gained increasing attention in recent years due to its direct impact on food prices, consumer behaviour and patients with special dietary needs (Neeraj *et al*., 2017; Ayelech, 2011). Unlike staples such as grains or oils, fruit prices are often subject to volatile fluctuations basically due to perishability, burden of conveying the goods and inadequate substitute. Fruit inflation is considered as the increase in

the price of fruits over time and is often influenced by a variety of interconnected factors, such as production costs, supply chain disruptions, and demand shifts (Nyanjige and Bamangisa, 2018). While food prices are generally subject to inflationary trends, fruits are especially vulnerable due to their perishable nature and dependence on specific growing conditions (Damianos and Demoussis, 1992; Kotler, 2003). Fruit inflation has become particularly pronounced in recent years, with consumers in both developed and developing countries experiencing increased costs for fresh produce.

One of the most significant consequences of fruit inflation is the reduced accessibility of nutritious food, particularly for low-income households. Fruits are a critical source of essential vitamins, minerals, and dietary fiber, and their rising prices can make it difficult for families to maintain a healthy diet. According to the World Health Organization (WHO), a lack of fruit and vegetable consumption is linked to the increased incidence of chronic diseases such as heart disease, diabetes, and certain types of cancer (WHO, 2020). As fruits become more expensive, lower-income families may opt for cheaper, less nutritious alternatives, leading to poorer health outcomes.

Fruit inflation is connected with climate change scenario. Extreme weather events, such as droughts, floods, and temperature fluctuations, have increasingly impacted global agricultural output (Oyenuga, and Feyuga, 1975; Rola-Rubzen *et al*., 2015). Fruits, which are often grown in specific climates, are especially vulnerable to shifts in weather patterns. For example, droughts in regions like California, a major producer of fruits such as grapes, strawberries, and oranges, have reduced yields, leading to higher prices for these fruits (U.S. Department of Agriculture, 2020). According to the Food and Agriculture Organization (FAO), climate change has caused fluctuations in crop yields and reduced the predictability of fruit production, contributing directly to price increases (FAO, 2021).

Besides changing climate regime, fruits/vegetable inflation can be caused by supply chain disruptions particularly in developing economies. Nigeria for instance, experience cases of fragility of supply chains, arising from bad road network, roadside security charges, distance of production site, labor shortages, and transportation bottlenecks (FAO, 2021). The rising costs of inputs such as water, energy, fertilizers, and pesticides are significant factor contributing to fruit inflation. Fruit production is highly resource-intensive, and as the costs of these essential inputs increase, the cost of producing fruit also rises (Mengesha, 2016; Muluneh *et al.,* 2016). For example, the price of water, which is critical for irrigation, has increased in areas affected by droughts, making it more expensive to grow fruits. Additionally, the rising cost of energy has increased transportation costs, further inflating fruit prices. These rising input costs, coupled with labor shortages, have created a perfect storm that drives up the price of fruits (FAO, 2021; Abay, 2007).

Medically, Fruits and vegetables play a very important role in the nutrition and health especially as they contain substances which regulate or stimulate digestion, act as laxatives or diuretics, pectins and phenolic compounds which play a part in regulating the pH of the intestines. Fruits and vegetables are key

sources of vitamins, minerals, fiber, and antioxidants. For individuals with special dietary care needs—such as patients with diabetes, hypertension, cancer, or those recovering from surgery—these foods are crucial for proper nutrition and healing. For example, fruits like oranges, berries, and apples, along with vegetables like spinach, carrots, and tomatoes, provide the necessary nutrients that support immune function, wound healing, and overall bodily function (Abraham, 2013). Patients with special dietary needs often rely on a steady supply of these foods to manage their conditions, making their accessibility a critical concern.

According to the National Bureau of Statistics (2023), food inflation in Nigeria has consistently been higher than the general inflation rate, making it increasingly difficult for people to afford essential food items like fruits and vegetables (Adeyemo and Akinwale, 2022). For patients with chronic illnesses such as diabetes or hypertension, affordability is a significant barrier. These patients often need to consume specific fruits and vegetables to regulate their blood sugar levels or manage blood pressure. The rising cost of these essential foods, compounded by income instability due to the economic crisis, exacerbates their health conditions and complicates their dietary management.

Nigeria's reliance on imports for certain fruits and vegetables further complicates the supply chain. As the Nigerian naira continues to depreciate against major foreign currencies, the cost of importing fruits and vegetables rises, reducing the availability of these items in local markets. The exchange rate volatility also affects the cost of agricultural inputs, such as fertilizers, seeds, and pesticides, which are crucial for domestic food production (Ogunlela and Mukhtar, 2018; Bezabih *et al*., 2007).

Many fruits and vegetables are imported from neighboring countries or beyond the African continent. When foreign currency becomes scarce or expensive, as seen during the economic downturns, the cost of these imports increases. For patients with special dietary needs, this results in fewer options for obtaining the necessary nutrients and an increase in out-of-pocket expenses for imported or alternative sources of these foods (Ogunlela and Mukhtar, 2018). For patients requiring special dietary care, this scarcity may prevent them from receiving the appropriate nourishment needed for their health conditions, thus worsening their prognosis.

Due to the rising cost of fruits and vegetables, patients on special diets may be forced to make compromises in their food choices, opting for cheaper, less nutritious alternatives. This leads to nutritional deficiencies, which can have adverse effects on their overall health. For example, a diabetic patient may not be able to afford fruits rich in fiber and antioxidants, which are crucial for controlling blood sugar levels. Similarly, cancer patients, who require higher amounts of vitamins and minerals to support their immune systems, may experience worsened outcomes due to a lack of access to fresh produce (Mekasha and Gebre, 2019).

As the supply of fruits and vegetables becomes limited and expensive, patients may seek alternatives, such as supplements, to make up for the nutritional gaps. However, these alternatives often come at a high cost, increasing the financial burden on

individuals who are already struggling with the high cost of medical care. This could lead to a situation where patients either reduce the quality or frequency of their special dietary requirements, or forgo other essential health care services, further deteriorating their condition (Adeyemo and Akinwale, 2022; Diriba-Shiferaw *et al*., 2023).

A critical assessment of fruit inflation scenario in Akwa Ibom State, the inhabitants are known to be mainly farmers and traders. The region has recently been transformed into a booming commercial and industrialized center. This development has led to a massive influx of people into the area, thereby causing and posting serious implication on the flow of fruits and vegetables into major periodic markets and accessibility for patient with special dietary needs. A study by Oluwaseyi *et al.* (2018) indicated that fruits and vegetables in their fresh forms contain high percentage of water and they are difficult to handle considering temperature and humidity fluctuation. As a result, heavy losses are encountered in these crops. Most times, the Nigerian power sector that distributes electricity to the different regions lacks the capacity to offer reliable and steady services to businessmen. Thus, the quality of fruit and vegetables sold in Nigeria got bad and many traders sees this a key reason to back off from fruit and vegetable business (Bezabih, 2008). The fewer traders create monopoly, double the price of the products and the nutritional state of the population particularly got threatened. When this happens, consumption pattern of vegetables and fruits gets distorted, while patients with special dietary needs have to seek affordable but low nutritious supplements (Oluwaseyi *et al*., 2016). Numerous studies on fruit and vegetables research in Akwa Ibom State focus on the economic impact of fruit trading (Moti, 2007; Agbugba, 2013; Abraham, 2013; Bernadette, 2012), flow pattern of fruits and environmental conditions for fruit production optimization (Augustine, 2019).

Hence, there is a knowledge gap in the area surrounding the experience and burden of patients with special dietary needs in view of inflationary situations. The study was designed to achieved the following objectives: identification of the major fruits and vegetables that are affected by inflationary conditions in Uyo urban markets, assess the sources of vegetables and fruits in Uyo urban markets, effect of fruits/vegetables inflation on persons with special dietary needs, the challenges affecting the fruits and vegetables inflation in the study area and strategies for sustainable vegetables and fruits pricing and consumption in Uyo urban.

Theoretical Clarification

Marketing Mix Theory

The marketing mix is a theoretical tool used in marketing and by marketing professionals (Umar, 2011). This theory was proposed by marketer and academic, Philip Kotler and Jerome McCarthy in order to fast track marketing decisions (Kotler, 2003). The central idea of this theory is to create a balance between consumers' decision to consume and the marketers' choice on pricing (Bernadette, 2012). These form the factors that underlies why fruits are highly expensive or cheap in a particular location. The marketing mix is often crucial when determining a product or brand's offering, and is often synonymous with the seven Ps to address the different nature of services:

product, price, place, promotion, people, physical facilities and processes. In this study, the product is vegetable and fruit. Fruits and vegetables are highly patronized in Uyo urban, Akwa Ibom State as a result of high population of migrants and recommendations by medical professionals for their patients.

The price element of the marketing mix is dominated by what is being charged for the vegetables and fruits at the farm gates. The pricing element not only affects the revenues that a farmer derives from his fruits sales, but also affects consumer's perceptions of the quality. Prices are based on the law of supply and demand. It implies that as supply increases, the price will tend to drop or vice versa, and as demand increases, the price will tend to increase or vice versa. Horticultural produce frequently follow this theory and vegetable/fruits are not exceptional. In mango and native pears fruits, influence of seasonality plays out (Niyibigira *et al*., 2003). Fruits supply increases at certain months forcing the price downwards, and scarcity in supply, would push the price higher.

Secondly, the concept of place focuses on distribution method that the farmer adopts to provide the fruits to the market in a manner that meets consumer expectations. The development of alternative modes of distribution has grown significantly; no longer are the consumers confined to the particular place to get the fruits. Access to market within Uyo markets is mainly through middlemen. Promotion encompasses all the tools that farmers can use to provide the market with information on its offerings: advertising, publicity, public relations and sales promotional efforts. When one considers the wide variety of communication media with which a farmer needs to communicate, the use of just the middlemen is likely to be ineffective.

The people element of the marketing mix includes all the players that are involved in buying and selling of mango fruits. Kotler (2003) explained that where the microstructure of trade in a product is endogenously determined, buyers and sellers of a product who wish to trade can choose between middlemen and specialist. Specialists usually follow defined procedure of arriving at a price such as bidding, whereas the prices quoted by different middlemen are private information that can hardly be obtained.

Middlemen who buy vegetable and fruits from farmers at farm gates are very common in Uyo. Physical evidence is the tangible component of the service offering. A variety of tangible aspects are evaluated by a farmer's target markets, ranging from the infrastructure to the packaging of the fruits. As transport cost decreases, the prices fall resulting in increased demand for input use or more output supply according to microeconomic theory (Bernadette, 2012. Horticultural sector in most parts of Akwa Ibom State's agricultural areas is affected negatively by transport costs since such costs are very high. On daily basis, the price of fruits and vegetable is ever-rising. In Uyo, for instance, a bunch ripe of banana cost above N1000 compare with rural areas like Ikono and Obot Akara where fruit production is strong.

In the context of vegetable and fruit inflation, marketing mix gives clarification on the element of marketing as a key factor for the current status of horticultural crops supply and nutritional needs of patients. The elements may

include the processes of food supply, the price system, the locational factor, middlemen, transport charges and many others can influence the affordability, accessibility and utility of horticultural crops in the study area.

Study Area

Uyo is the capital of the Akwa Ibom State, in South-south Nigeria. According to statistics from Nigerian Population Census (NPC, 2006), the total number of inhabitant in Uyo was put at 148,281. Uyo is situated between latitudes 05° 02' 16.3" N and longitudes 007° 55' 27" E. The study area is easily accessible from Itu, Ikot Ekpene, Etinan and Abak Local Government Areas. Uyo also doubles as the State Headquarters and commercial centre of Uyo Local Government Area. Uyo is the transport nerve center of Akwa Ibom state. Arterial roads radiating from the city links it with all part of the state. The remotest part of the state can be reached by taxi. Intra- urban transport is by taxi or bus and tri-cycle. There are designated motor parks in each of the roads leading to the city. Uyo is also linked by direct motor transport with most state capitals in Nigeria. The transport system influences the availability of fruits and vegetables in the town. Though the condition of road in Uyo is good, the rural areas where the fruits and vegetables are produced suffer mobility constraint. However, the scope of this study was limited to five existing urban markets in Uyo: Uyo main market, Akpan Andem market, Itam market, Afaha Ibesikpo market and Mbak Etoi market. The five (5) markets were analyzed for the study.

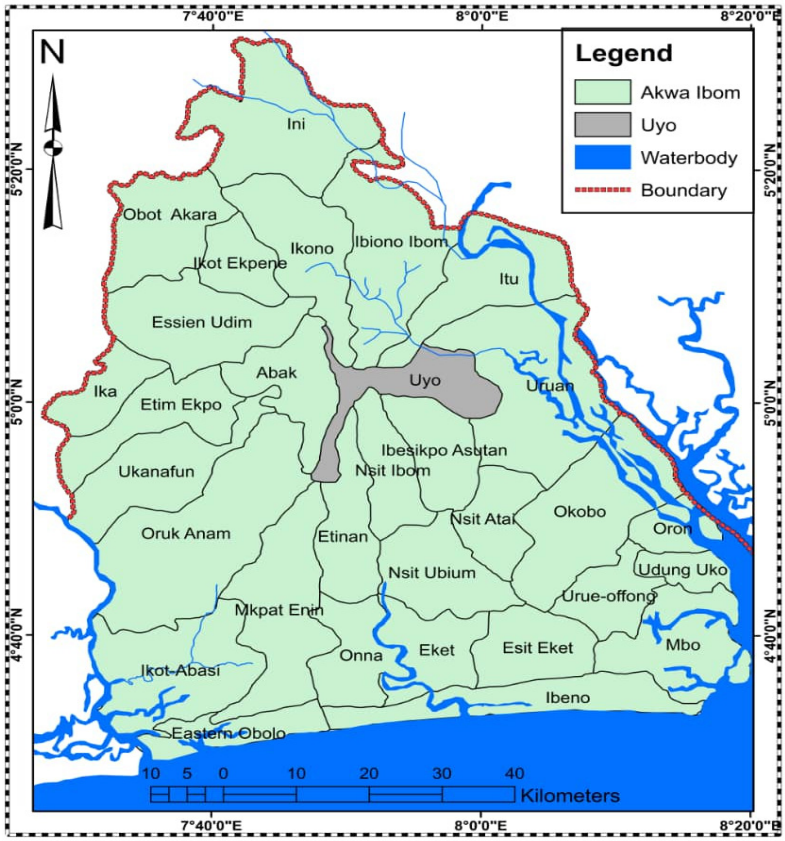

Fig. 1 Map of Akwa Ibom State showing Uyo LGA

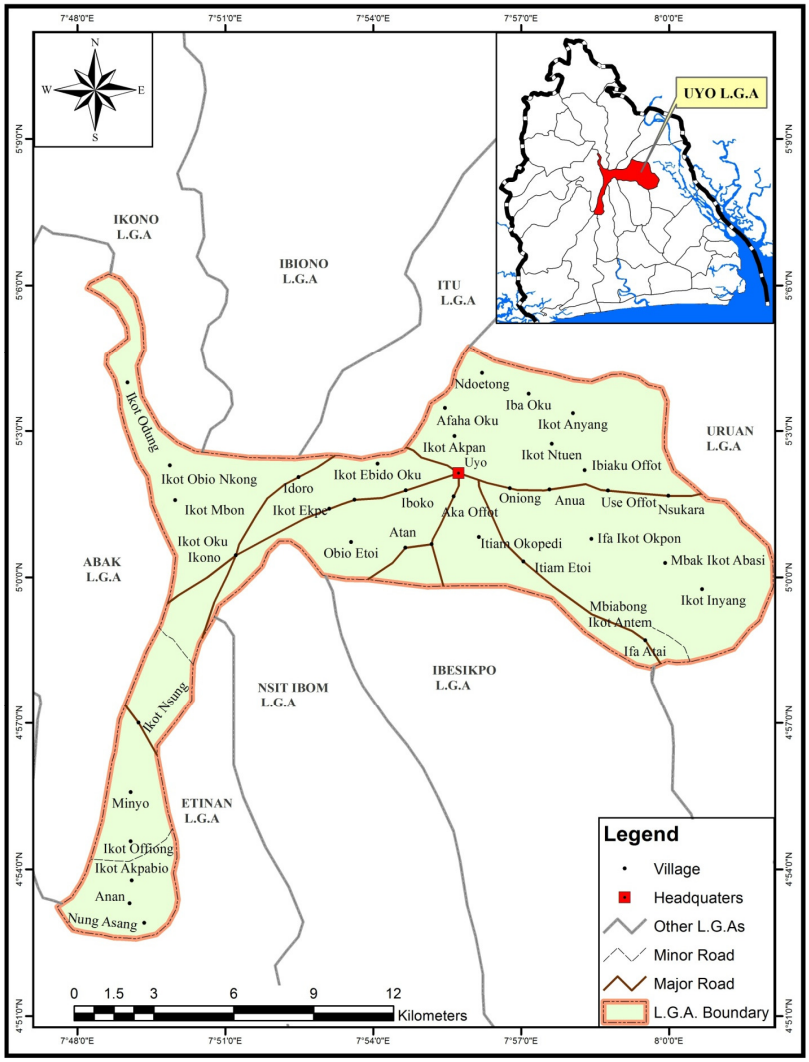

Fig. 2: Map of Uyo Local Government Area (Study Area)

Materials and Methods

Data Collection

This study was based on a survey design. Market survey was carried out on the spot in the sampled market. The researcher administered questionnaires to the sellers of fruits and vegetable within Uyo urban markets. The structured questionnaires administered were subjected to further data analysis. The study also used oral interview to supplement information obtained from the questionnaires. The population interviewed were wholesalers, retailers and some selected fruit consumers in the market. The population also constitutes selected patients with special dietary need at University of Uyo Teaching Hospital, Uyo. This was carried out by visiting the records of patients with special dietary needs at the medical facility with due consent of the Medical Director.

This source of information was of great importance to this research work because it offered opportunity for the researcher to access information on wide variety of persons including traders, consumers, farmers and patients with

special care. Observations were based on the types of fruits and vegetables sold in the environment, the season (month) that they were available in the market, maintenance of the crops and the transportation facilities and trader-customer relationship. Apart from the above-mentioned primary source of data, secondary data were also used and these included unpublished and published materials such as articles, journals and textbooks in related fields.

Simple random sampling technique was adopted for the study; communities in the study area were arranged alphabetically in a table of random number in order to determine the origin and to give every item an equal chance of being selected. Since there were 18 markets in the study area; the markets were chosen after every 3 markets to make up 6 markets that were considered for the study. The sampled communities were Akpan Andem Market, Mbak Etoi market, Uyo Main Market, Afaha Ibesikpo Market, Mbioto Market and Ikot Oku Ikono Market. These are the major fruit and vegetable market where a great number of sellers and buyers meet for their daily fruits/vegetable needs. The fruits and vegetables commonly affected by inflation were Banana, Okro, water leaf, atama leaf, adusa leaf, bitter leaf, okro, editan leaf, hunter weed, scent leaf, Mango, ripe banana, coconut fruit, garden egg, pineapple, water melon, pears, apple, pepper, pineapple, fluted pumpkin, bush cherry aidian fruit, onions, avocado pear, water leaf and tomato.

In analyzing the questionnaire, ANOVA statistical technique was used in addition to charts and tables.

Results and Discussion

Table 1 showing Types of Vegetable and Fruits affected by inflation

English name	**Scientific name**	**Local name**	**Frequency**	**Percentage (%)**
Water leaf	*Talinum triangulare*	Mong mong ikong	80	20
Pumpkin leaf	*Cucurbita pepo*	Nkong ubon	50	12.5
Bush apple leaf	*Heinsia crinite*	Atama leaf	60	15
Lasianthera africana leaf	*Lasianthera africana*	Editan leaf	40	10
Wild spinach	*Gnetum africanum*	Afang Leaf	35	8.75
Scent leaf	*Ocimum gratissimum*	nton	40	10
Adhatoda leaf	*Adhatoda vasica*	adusa leaf	45	11.25
Bitter leaf	*Vernonia amygdalina*	Etidot	20	5
Okro	*Abelmoschus esculentus*	etighi	10	2.5
Gongronema	*Gongronema latifolium*	utazi	20	5
Total			400	100

Table 2: Types of Fruit affected by inflation

English name	Scientific name	Local name	Frequency	Percentage (%)
Mango	*Mangifera indica*	Mango	40	10
Oranges	*Citrus sinensis*	Sokoro	50	12.5
Ripe banana	*Musa paradisiaca*	Mboro	80	20
Paw paw	*Carica papaya*	Paw Paw	20	5
cucumber	*Cucumis sativus*	Cucumber	20	5
Coconut fruit	*Cocos nucifera*	Isip mbakara	40	17.5
Garden egg	*Solanum melongena*	Garden egg	75	18.75
Pineapple	*Ananas comosus*	Akpan akpa	35	8.75
Water melon	*Citrullus lanatus*	Water melon	50	12.5
African Pears	*Dacryodes edulis*	Eben	10	2.5
Apple	*Malus pumila*	Apple	5	1.25
avocado pears	*Persea americana*	Eben mbakara	5	1.25
bush cherry	*Prunus* spp	Nyayated	5	1.25
Aidian fruit	*Tetrapleura tetraptera*	Uyayak	5	1.25
400			400	100

Table 3: Cost of vegetable in Uyo Urban

English name	Scientific name	Local name	Unit of Measurement	Amount (N)
Water leaf	*Talinum triangulare*	Mong mong ikong	25kg bag	20, 000
Pumpkin leaf	*Cucurbita pepo*	Nkong ubon	25kg bag	10,000
Bush apple leaf	*Heinsia crinita*	Atama leaf	25kg bag	10,000
Lasianthera africana leaf	*Lasianthera africana*	Editan leaf	25kg bag	40,000
Wild spinach	*Gnetum africanum*	Afang Leaf	25kg bag	8,000
Scent leaf	*Ocimum gratissimum*	nton	25kg bag	10,000
Adhatoda leaf	*Adhatoda vasica*	adusa leaf	25kg bag	5,000
Bitter leaf	*Vernonia amygdalina*	Etidot	25kg bag	35,000
Okro	*Abelmoschus esculentus*	etighi	25kg bag	5,000

Table 4: Cost of Fruits in Uyo Urban

English name	Scientific name	Local name	Unit of Measurement	Amount (N)
Mango	*Mangifera indica*	mango	25kg bag	30, 000-40,000
Oranges	*Citrus sinensis*	sokoro	25kg bag	20,000-30,000
Ripe banana	*Musa paradisiaca*	mboro	25kg bag	25,000-30,000
Coconut fruit	*Cocos nucifera*	Isip mbakara	25kg bag	5,000-8,000
Garden egg	*Solanum melongena*	Garden egg	25kg bag	10,000-20,000
Pineapple	*Ananas comosus*	Akpan akpa	25kg bag	10,000-12,000
Water melon	*Citrullus lanatus*	Water melon	25kg bag	20,000-30,000
African Pears	*Dacryodes edulis*	eben	25kg bag	25,000-30,000
Apple	*Malus pumila*	apple	25kg bag	35,000-40,000
avocado pears	*Persea americana*	Eben mbakara	25kg bag	15,000-20,000
bush cherry	*Prunus* spp	Nyayated	25kg bag	15,000-20,000
Paw-paw	*Carica papaya*	Paw-paw	25kg bag	15,000-20,000
Aidian fruit	*Tetrapleura tetraptera*	Uyayak	25kg bag	15,000-20,000

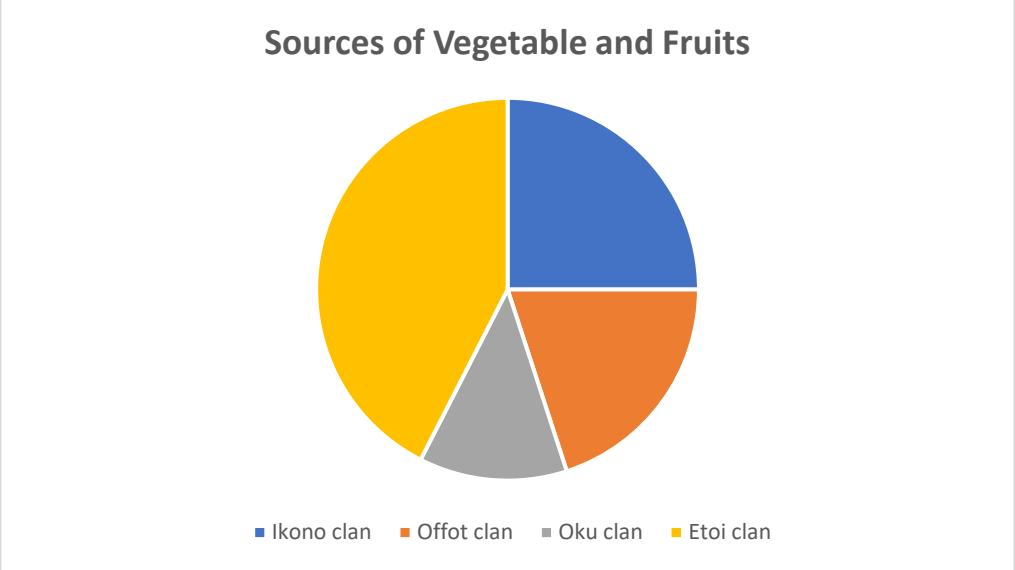

Fig. 3: Sources of Vegetable and Fruits

Table 5: Seasonal trend on the supply of Fruits

Fruits	**Seasons**	**Frequency**	**Percentage (%)**
Mangifera indica	February-October	40	10
Citrus sinensis	June-October	50	12.5
Musa paradisiaca	February-September	40	10
Paw paw	January- December	20	5
Cucumber	March-May	20	5
Cocos nucifera	January-December	40	17.5
Solanum melongena	February-September	75	18.75
Ananas comosus	May-August	35	8.75
Citrullus lanatus	February-September	50	12.5
Dacryodes edulis	May-October	10	2.5
Malus pumila	September-October	5	1.25
Persea americana	August- October	5	1.25
Prunus spp	December- February	5	1.25
Tetrapleura tetraptera	December –February	5	1.25
Total		400	100

Table 6: Seasonal trend on the supply of Vegetables

Options	Season	Frequency	Percentage (%)
Talinum triangulare	November - rainy season	40	10
Cucurbita pepo	March, September, October to December	90	22.5
Heinsia crinite	March, November	60	15
Lasianthera africana	March, November	40	10
Gnetum africanum	Dry season-January, December	35	8.75
Ocimum gratissimum	March, November, July and September.	40	10
Adhatoda vasica	March, November, July and September.	45	11.25
Vernonia amygdalina	March and September.	20	5
Abelmoschus esculentus	May, November September.	10	2.5
Gongronema latifolium	March, November and September.	20	5
Total		400	100

Testing of Hypothesis

Analysis of variance (one way-classification) was employed to examine the variations between the quantity of vegetables and fruits supplied into Uyo urban markets and its seasonality. The result of the analysis is given thus:

The variables used for data computation were seasonal fluctuation on yield, transport cost and distance from source of fruit/vegetable etc. The price differential on seasons were determined from the research instrument administered to the targeted populations.

Table 7: One-way Analysis of Variance among various fruits/vegetable market

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3923990505.045	2	1961995252.522	20.389	.000
Within Groups	29830167002.942	310	96226345.171		
Total	33754157507.987	312			

Following the premise for ANOVA, if the quantity of vegetable and fruit supplied were even or the same among the different urban market, the between group mean square would not differ from the within-group mean square at 0.05 level of significance. However, the result of the analysis of variance indicated that there was a remarkable difference between the mean square shown by the high value of the F-ratio. In other words, the null-hypothesis is rejected since the F-ratio was greater than the table value of 2.99. Hence, there is a significant variation between the quantity of vegetables and fruits supplied into Uyo urban markets at various seasons. This variation reflects in the availability and affordability of these fruits and vegetables for patients with special dietary needs.

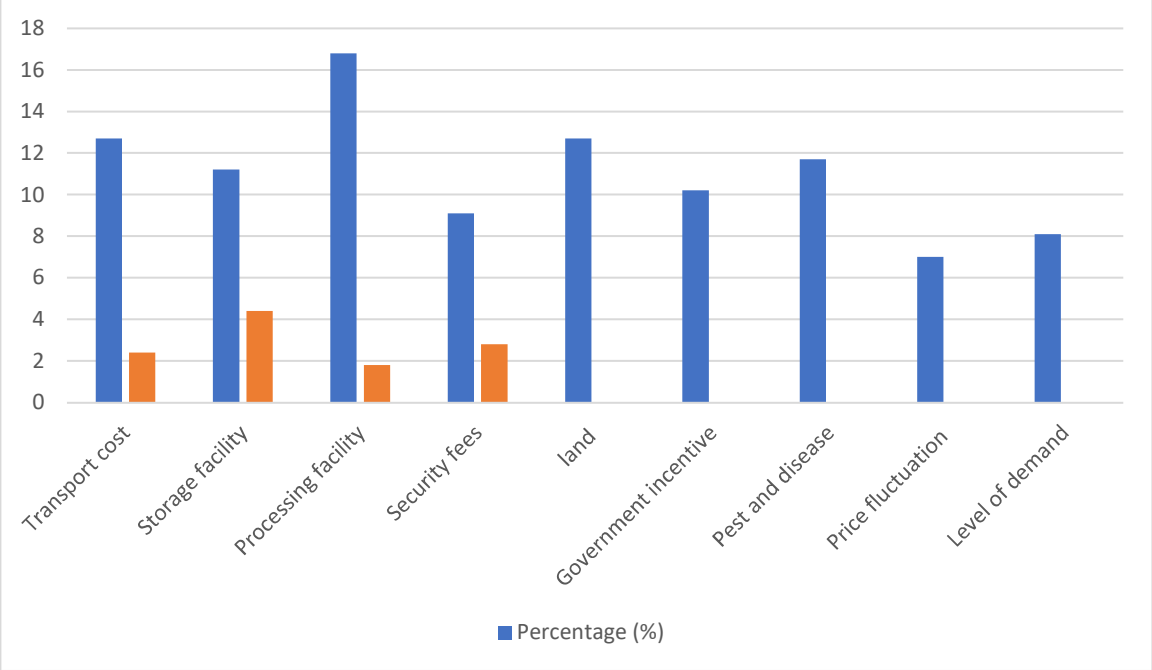

Fig. 4: Challenges facing the supply of vegetables and fruits

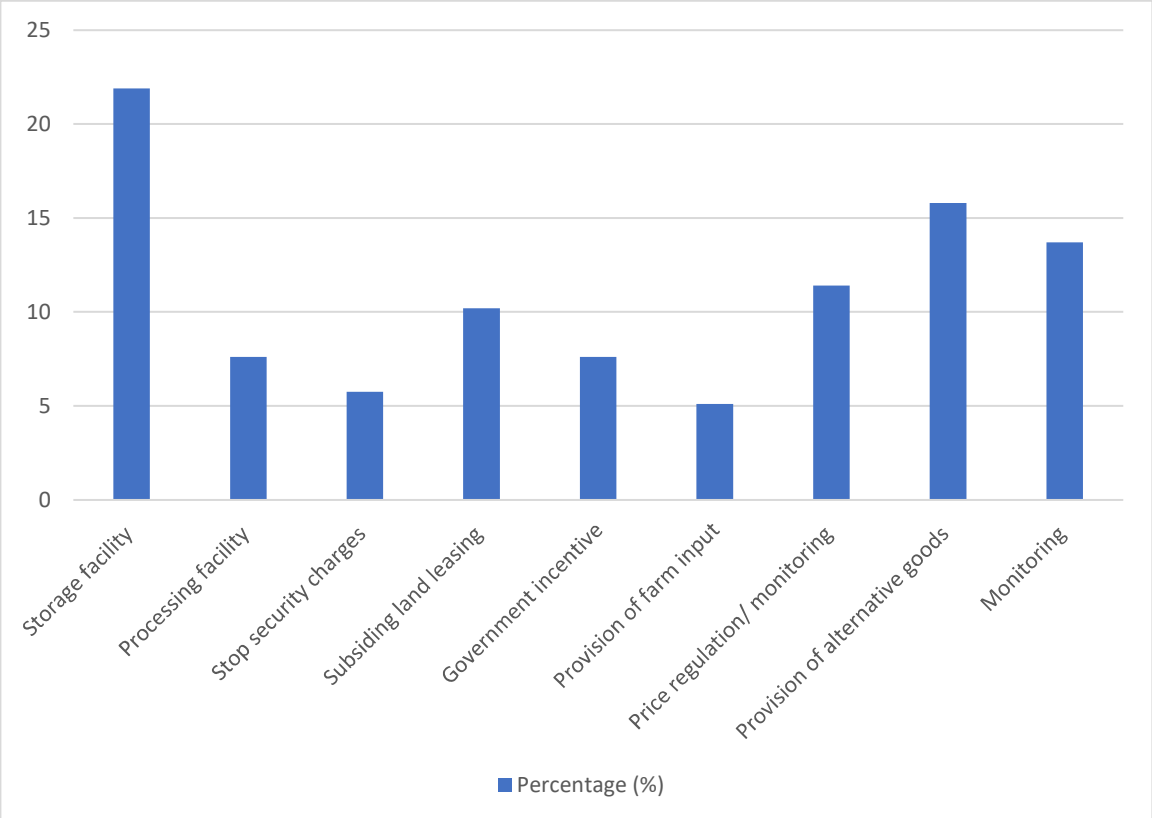

Fig. 5: Ways of Improving the supply of vegetable and fruits

Discussion

The study revealed that the type of fruits/vegetables available likewise prices differ due to seasonal changes, transport cost, climate change and demands of consumers, hence leading to a burden to patient with special dietary needs. The identified fruits and vegetables were waterleaf, pumpkin leaf, Atama leaf, Editan leaf, Afang leaf**,** Scent leaf, local spices, bitter leaf, Okro, hunter's weed, mango fruit, oranges, banana, coconut fruit, garden egg, pineapple, water melon, pears, apple, avocado pears and wild fruit. These fruits were significantly affected by economic inflation and were not affordable. It was noted that the sudden rise in the price of fruits and vegetables significantly affected people with special medical care who needs to have a daily intake of fruits and vegetables for optimum health performance. It was further noted that, since the supply of fruits was relatively scarce in urban areas, some middlemen had to purchase them from other local government and Cross River State at prices favourable to them. The study further revealed that seasonality of fruits/vegetable affect the price and demand. Price tends to drop during the peak of fruit season and exponentially rise as the season draws to a close likewise during the beginning of fruit seasons.

In addition to the issues of seasonality on fruit/vegetable supplies, it was revealed that the major contributor to fruit scarcity is lack of storage facility during the period of fruit abundance (peak season) to compensate for the period of insufficiency (critical season). From personal observation, fewer cold rooms were exclusively reserved for preservation of fresh meat and fishes. Due to the problem of storage facilities, farmers and traders have to push the price up immediately after the peak period in order to make much profit. Most of the fruits/vegetables sold in critical season. The most significant aspect of the study is the critical season and its implications on people with special medical care who need adequate ration of vitamins and minerals from fruits and vegetables. Apart from storage facility becoming a barrier to fruits and vegetable supply, transportation cost, price fluctuation, land scarcity and ever-increasing population were key drivers of scarcity in fruits and vegetables. The problem of distance also played a key role in fruits/vegetable supply and it was found out that most of these perishable crops sold in Uyo urban markets are brought in from outside the State and Local Government Areas far away from Uyo markets. This form of trade involves long distance and it vividly explains why some of these perishable crops are expensive. Some of the traders interviewed noted that they often take their fruits and vegetable from Odukpani, Afaha Obong, Ikom, Esin Oro, Uruan Inyang and Ukpom Abak which are widely known for production of those goods.

In addition, it was found out that higher prices of fruits and vegetables hinders patients from receiving quality health care and speedy recovery from their ailments. Most of the sampled patients totally abandoned the idea of eating fruits, but rather explore other alternatives for vitamins and minerals uptake. Hence, the consumption pattern changes. From one of the respondents, the cost of fruits discourage him from eating fruits after meal for better digestion and nutritional purposes.

Conclusion

Problems associated with fruit/vegetable inflation and its implication on patients with special dietary need is a serious concern. The supply of fruits/vegetables in Uyo Urban and Akwa Ibom State, Nigeria generally does not reflect the consumption rate and nutritional status of populace partly due to certain environmental and socio-economic barriers. There are numerous fruits and vegetables supplied into Uyo Urban markets including perishable vegetable, dry vegetable, processed vegetable, processed fruit and perishable fruits. These products and services are undertaken by either middlemen, farmers or some traders who penetrate peri-urban and rural parts of Uyo LGA and environs in search of vegetables and fruits for sale. Though, seasonality of goods may become a determinant factor for fruits/vegetable availability, the quantity of fruits and vegetables supplied into Uyo Urban market may be influenced by interplay of many variables including demand, transport cost, distance and locational factors. In Uyo urban markets, fruits and vegetable supply is affected by the forces of middlemen who spent much due to transport cost, security charges, and fuel in preserving the perishable goods for consumption. As a result, the cost of vegetable and fruits becomes too expensive and non-affordable for patients with special care to purchase and consume the items which is a requirement for functional human health. Fruits and vegetable produced within Uyo declines owing to the losses, limited capital of fruit/vegetable sellers, the fluctuating market price, the cost of production and transportation and means of preservation of the fruits and vegetables. Given these challenges, the need to reconsider the place of infrastructure and government supportive initiative in small and medium scale enterprises with specific attention to fruits and vegetable business is paramount.

Recommendations

There government could introduce subsidies or financial assistance programs for patients with special dietary needs. This would help reduce the financial burden of accessing essential fruits and vegetables, ensuring that patients can afford the nutrients necessary for managing their condition. Public health campaigns that educate Nigerians about the importance of fruits and vegetables, particularly for patients with chronic diseases, can help people make better dietary choices even in the face of economic hardship. Expanding food security programs that target vulnerable populations, including those with health conditions, could mitigate the impact of economic crises on food accessibility. These programs should focus on providing affordable, nutritious food options to people who need them most.

Considering the population growth of Uyo Local Government Area, more farmers should be encouraged to engage in fruits and vegetables production at all season. With this, the state government at large should aim to promote the sustainability of food systems, including the establishment of fruit/vegetable farming programs with incentives and farm input for farmers and traders through public-private partnerships so as to promote an all-season food supply system. Moreover, the quantity of vegetable and fruits sourced from Ikono clan axis, Offot clan, Oku clan and Etoi clan which is the

Central District of the State should be increased through soft micro-credit to farmers and traders and favourable marketing system be made to promote easy flow of fruits and vegetables to meet the demands of the people.

Improved varieties of fruits and vegetables should be introduced for planting so as to bring about high crop yield.

In order to curtail wastage, effective storage facilities should be provided to traders via their small groups (cooperative society) in order to increase their outlay.

Lastly, effective transportation system should be developed to reduce transport costs of fruits and vegetables while strengthening the resilience of local supply chain.

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