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ANALYSIS OF INCOME LEVELS ON THE PATTERN OF BREADFRUIT CONSUMPTION IN EBONYI STATE

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Abstract

The output of breadfruit in Ebonyi State is gradually declining. Therefore the study analyzed the income levels on the pattern of breadfruit consumption in Ebonyi State. This is done with a view to ensuring that all stakeholders benefit from breadfruit consumption. One hundred and twenty (120) randomly and purposively selected breadfruit farmers were interviewed. The study was conducted in Ebonyi State because it was traditionally known for production of breadfruit. Data collected were analyzed using mean, Percentage and multinomial logit regression. The result showed that the respondents had a mean age of 43 years, mean household size of 8 persons and mean monthly income of ₦21,500. The study revealed a high level of consumption of breadfruit in the area with 49% consumed breadfruit at least twice a week. About 80% change observed in the consumption level of breadfruit was as result of the consumers' income. Furthermore, about 89% variation observed in the consumption level of breadfruit was as a result of the combined effects of the identified socio-economic characteristics of respondents included in the regression model. The predominant factors that influenced the consumption of breadfruit in Ebonyi State included: price of breadfruit ($\bar{X}$ =2.98), nutritional value ($\bar{X}$ =2.95), time for cooking ($\bar{X}$ = 2.93), level of supply ($\bar{X}$ =2.83) and method of cooking or preparation ($\bar{X}$ =2.81). The study concluded that consumers' socio-economic characteristics had significant influence on the consumption level of breadfruit in the area. It was also observed that there was high level of consumption of breadfruit in the area even though there were identified factors that influenced consumption level. The paper recommends diversification of sources of income to attract more people with high income in consumption of breadfruit. Also, more awareness should be created to encourage those who have not tested breadfruit to do so.

Keywords: Breadfruit, consumers, earnings, nutrition, Ebonyi State

Introduction

Agriculture is the main economic backbone in Nigeria. According to Ezra (2022) Nigerian agricultural sector currently employs about 70% of the country's labour force making it the dominant sector in the economy. Crops contribute immensely to agricultural GDP. Apart from its contribution to the agricultural GDP, they are important to humans for it is a part in the food chain. African breadfruit (*Treculia africana*) is a tree species in the genus, Treculia (T) and family, Moraceae (Ofoedu et al., 2018). It is a native of Africa as indicated by its name (Atuanya et al., 2012). In Nigeria, a lot of traditional names are given to African breadfruit which include, "Bafafula" in Hausa, "afon" or "bere-foo-foo" in Yoruba, "ediang" in Efik and Ibibio, and "izea" in Ijaw (Ofoedu et al., 2018), "ize" in Benin (Ugwu and Iwuchukwu, 2012). Similarly, according to Ebo (2016), the most common name is "ukwa" in local Igbo language parlance.

African breadfruit "ukwa" is one of the most delicious and expensive of all Igbo food delicacy. It can be cooked and eaten plain white, roasted and eaten with coconut or palm kernel and also prepared as porridge (Okeke, 2019). African breadfruit does not only help to ensure food security by meeting the protein need of people but also provides income to rural poor households that produce, process and/or preserve this crop.

Income plays an important and diverse role in assessing well-being, predicting consumption and productive activities, analyzing national economic growth and fluctuations and measuring the equity of tax systems. Income is the flow of cash or cash equivalents received from work (wage or salary), capital (interest or profit), or land (rent) (www.business dictionary.com, 2019). Income level can be determined by how consumer utility compares between different items. Consumers' level of income can be measured by their satisfaction with a specific item, compared to the opportunity cost of that item since whenever you buy one item, you forfeit the opportunity to buy a competing item. These preferences are dictated by personal taste, culture, education and many other factors such as social pressure from friends and neighbours (Riccarda et al., 2011). Consumer's income is an indicator of consumption level. Income levels of the consumers are a positive motivation, expressed by the affective compatibility towards a product, service or trading form.

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African breadfruit has restricted distribution, sparse density and is threatened with extinction, yet it has a high potential for selection and genetic improvement.

It is currently included in the list of endangered species of Southern Nigeria and this is quite worrisome (Ohajianya and Osuafor, 2017). The nutritive and economic value of breadfruit may not be in doubt. It is cherished and consumed in both rural and urban area. In the past, it was a major source of food and income to poor rural households. The output of this important crop is continuously declining to the extent that the household consumption for it is no longer met. The consumer income level and behaviour is an important means determining acceptability of new products. Although income level of breadfruit consumers is not new, ascertaining effects of income level on pattern of consumption is the crux of the matter in this study. Therefore, there is need to ascertain how this present scenario has affected the pattern of breadfruit consumption in Ebonyi State hence the need to document the consumption pattern of breadfruit vis-a-vis the income level of consumers.

The broad objective of the study analyzed the income level on the pattern of breadfruit consumption in Ebonyi State. Specific Objectives were to: describe socio-economic characteristics of breadfruit consumers; ascertain the consumption pattern of breadfruit consumers; determine consumption pattern of breadfruit in relation to consumers' income; and ascertain factors influencing consumption pattern of breadfruit.

Materials and Methods

Sampling

The study made use of post test design because it best served to answer the questions and the purpose of the study. The study was carried out in Ebonyi State of Nigeria. All breadfruit consumers in selected rural communities of Ebonyi State constituted the population of the study. Multi-stage, purposive and random sampling techniques were used in selecting breadfruit consumers in Ebonyi State. Stage I: Ebonyi North and Ebonyi Central Agricultural Zones were purposively selected based on pattern of breadfruit consumption in the zone. In Stage II, two LGAs were purposively selected for the same reason one from each Zone while in Stage III, two town (2) communities were purposively selected from each selected LGAs to give a total of four town communities. In Stage IV, from the selected town communities, two (2) villages were selected to give a total of (eight) 8 villages. From the selected villages, a list of 20 consumers was compiled and 15 were randomly selected from each village which gave a total of one hundred and twenty (120) breadfruit consumers (number per gender). Data were collected from breadfruit consumers by the use of structured interview schedule. Socio-economic characteristics of breadfruit consumers were measured such as: Age (years); Sex (Male and Female); and Marital status (Single, Married, Divorced, Widow). Pattern of consumption of breadfruit was measured thus: Very high (twice a week), High (once a week), Average (once a month) and Low (once in two months). Factors influencing consumption of breadfruit were measured on a four-point Likert-type scale using the responses: Strongly agree (4), Agree (3), Disagree (2) and strongly Disagree (1). The values were added (4+3+2+1) to give 10 divided by 4 to give a mean score of 2.5. Variables with mean score of 2.5 and above were factors agreed to be influencing consumption of breadfruit while variables which scored less than 2.5 were those not influencing the consumption. Income level of breadfruit consumers in relation to quantity of breadfruit consumed was determined through multinomial logit regression analysis. Multinomial logit regression model was used to determine the effect of socio-economic characteristics of breadfruit consumers and consumption pattern of breadfruit consumers.

Instrument for Data Collection

Both primary and secondary data were used. Primary data was collected by the researcher through field survey using structured questionnaire/interview schedule which elicits responses from breadfruit exploiters and consumers. Secondary information was sourced from relevant literatures, journals and periodicals.

Validation of the Instrument

The questionnaire designed for the study was subjected to a validation process for face and content validity. Face validity is the idea that a test should appear superficially to test what it is supposed to test and Content validity is the notion that a test should sample the range of behaviour represented by the theoretical concept being tested (Oluwatoyo, 2012). In the validation process of this study, copies of the questionnaire were given to three lecturers, two from Agricultural Economics and Extension Department and one from Crop Science Department to carefully ascertain the appropriateness and adequacy of the instrument. However the other useful observations and suggestions by experts were incorporated in the final production of the instrument.

Method of Data Collection

Data for the study were obtained from primary and secondary sources. Primary data were collected from breadfruit consumers using a structured questionnaire/interview schedule on all the

objectives of the study. Secondary sources of data were obtained from the library, resource room and available literatures. The sources included research projects, text books, Journals and published books from the internet on the subject matter. This research work took advantage of these data sources to form an effective basis for the study.

Measurement of Variables

Objective 1 measures Socio-economic characteristics of the respondents and was achieved by measuring the following variables of socio-economic characteristics of breadfruit consumers such as age (years), sex (male and female), marital status (single, married, divorced, widow etc.). Objective 2 measures pattern of consumption of breadfruit thus: once a week, twice a week, once in two weeks, once in a month, once in two months, once in three months and when available. Objective 3 measures the consumption pattern of breadfruit in relation to consumers' income. This was determined by multinomial logit regression. Variables in objective 4 were measured by means of a four-point Likert-type scale by using the responses: Strongly agree (4), Agree (3), Disagree (2) and strongly Disagree (1).

Data Analysis

Data collected were analysed using both descriptive (percentage, mean) and inferential statistics (multinomial logit regression). Hypothesis was tested using multinomial logit regression. The multinomial logistic regression adopted from El-Habil (2012) is defined as:

$$Log\left[\frac{\pi_j(X_i)}{\pi_i(X_i)}\right] = \alpha_{oi} + \beta_{1j}X_{1i} + \beta_{2j}X_{2i} + \cdots \beta_{pj}X_{pi} \quad \cdots (1)$$

Where j = 1, 2,… (k – 1), i = 1, 2,…, n

Where all the π's adds to unity, then the reduced model is:

$$Log(\pi_j(X_i) = \frac{exp^{\alpha_{oi}+\beta_{1j}X_{1i}+\beta_{2j}X_{2i}+\cdots\beta_{pj}X_{pi}}}{\sum_{j=1}^{k-1} exp^{\alpha_{oi}+\beta_{1j}X_{1i}+\beta_{2j}X_{2i}+\cdots\beta_{pj}X_{pi}}} \quad \cdots (2)$$

Where π is the response categories or level of breadfruit consumption, *Xi* are the vector(s) of explanatory.

βj is the parameter to be estimated which uses maximum likelihood estimate method.

Multinomial logistic regression uses a baseline category and the predicted probability of estimate is defined as:

$$\pi_j = \frac{e^{\alpha_j+\beta_j Y}}{\sum_h e^{\alpha_h+\beta_h Y}} \quad \ldots. \quad (3)$$

The probability of the explanatory variables is predicted from:

$$\widehat{\pi_1} = \frac{exp(y_i)}{1+\sum exp(y_i)} \quad \cdots \quad (4)$$

Where *yi* is the predicted responses from the multinomial coefficient.

The multinomial logic model is simply defined as:

$$Log(\pi_i(X_i)) = \alpha_{oi} + \alpha_{1j}X_{1i} + \alpha_{2j}X_{2i} + \cdots \alpha_{pj}X_{pi}$$

Where:

π = response categories (consumption level)

αi = parameter to be estimated

Xi = vectors of socioeconomics and demographic characteristics.).

The explanatory variables are as follows:

X1 = Age

X2 = Gender (dummy variable: male = 1, Female = 0)

X3 = Educational qualifications (years)

X4 = House hold size (number)

X5 = Years of Consumption

X6 = Marital status (dummy)

X7 = Annual income

X8 = Occupation

Ei = Stochastic error term

Results and Discussion

Socio-economic characteristics of breadfruit consumers

Sex: The result of the sex in Table 1 shows that majority (69.2%) of the breadfruit consumers were females while the remaining 37.3% were males. This suggests that more females consume breadfruit than males in the study area. This may be as a result of the local assertion in Africa that females prefer consumption of some food crops than males. This finding is in line with Vineetha (2014) report that most of the consumers of breadfruit in Nigeria are females. However, Osuafor et al. (2018) posit that more males consume breadfruit in Owerri agricultural zone of Imo State.

Age: The greater proportion (39.2%) of the respondents was those within the age the bracket of 41 – 50 years while the least (10.83%) were those who were below the age of 30 years. The mean age of the respondents was 43 years. This implies that young and active persons are involved in consumption of breadfruit. This aligns with the finding of Roberts and Nkrumah (2014) who report that most of the consumers of breadfruit in West Indies are aged persons above 40 years. Conversely, the report of Mohammed and Wickham (2011) reveal that breadfruit is consumed by all ages with little or no discrepancies in age.

Level of Education: The greater proportion (49.2%) of the respondents had primary school education while 3.3% had tertiary education. The reason for this finding may be the fact that highly educated people are likely to be more in urban areas than in rural areas. Also, it may be because bread breadfruit perceived as food for the poor can be exploited in the wild by people of low educational qualification. This finding concurs with Diange and Craig (2018) who report that most of the consumers of breadfruit in India were persons who did not achieve high level of education. In a reverse opinion presented by the findings of Richard and Nuku (2016) consumers of breadfruit in Kenya were those who attended secondary school education.

Household Size: Findings in Table 1 reveal that the majority (51.7%) of the respondents had household size of between 6 – 10 persons while households above 10persons were 30.8%. The mean household size of the respondents was 8 persons. This entails that most of the consumers of breadfruit in the area were those whose households' size were large. The reason for large number of persons may be attributed to the fact that rural households are mainly engaged in farming activities which require family labour. This agrees with the finding of Akanbi et al. (2016) who report that most of the rural farmers in rain forest zone of Nigeria have high number of persons in their household. On the other hand, it was reported by Antoinette et al. (2013) that most of the rural dwellers in Africa are polygamous in nature and most often with large household size.

Major Occupation: In Table 1, the majority (55.8%) of the breadfruit consumers had farming as their major occupation while 4.2% combined farming with civil service as their major occupation. The reason it is so may not be far from the fact that it is mostly farmers that cultivate breadfruit and so, may have higher tendency of consuming their farm produce unlike those who may not be cultivating it. This concurs with the finding of FAO (2009) who noted that farming is the major occupation of rural farmers especially women who have not acquired any special skill to get themselves engaged in other ventures. Similarly, it was reported by Mbam and Igwe (2014) that most of the rural dwellers in Ivo L.G.A of Ebonyi State have farming alone as their basic occupation. Furthermore, Onu and Onu (2016) report that most rural farmers in Ohaozara L.G.A of Ebonyi State have agriculture as full time occupation.

Years of consumption: It was further reported in Table 1 that about 73.3% of the breadfruit consumers have been doing so for between 11 – 15 years while only a few (5.0%) have been consuming breadfruit for over 15 years. The mean years of consumption is13 years. This implies that most of the consumers of breadfruit have been doing so for the past 13 years. This corresponds with the finding of Simon and Benjamin (2011) who report that most of the breadfruit consumers in Maidugiri have enjoyed the health benefits of breadfruit for over 10 years.

Monthly Income: Entries in Table 1 reveal that 55.0% of breadfruit consumers earned a monthly income of below ₦30,000 while 6.7% earned above ₦90,000 monthly. The mean monthly income of the breadfruit consumers was ₦21,500 which was relatively low. This shows that most of them earned below the new national minimum wage of ₦30,000 per Month. However, it is more than World Bank 2018 standard of 1.95 Dollars per day, cumulating to (₦248,430) annually. The reason for this may not be far from the fact that most rural dwellers in the area are not engaged in quality paid jobs with high level of monthly income, rather, they are engaged in poorly revenue generating ventures that may not be enough to earn them high income. It may also be that farmers are not producing enough to breakeven and make profit. This aligns with the report of Daniel et al. (2010) that most rural farmers who engaged in cotton production did not earn high income.

Marital Status: The result in Table 1 shows that 74.2% of breadfruit consumers were married persons. This may be an indication that breadfruit requires involvement of some family members in preparation and cooking of breadfruit.

Pattern of Consumption of Breadfruit

Table 2 reveals that greater proportion (49.2%) of the respondents had a very regular pattern of consumption of breadfruit (twice a week), 34.2% had a regular pattern of consumption (once a week) while 10.8% and 5.8% had average pattern (once a month) and low pattern of consumption (once in two months). The implication of this finding is that breadfruit has been accepted and consumed at a high level among the people of Ebonyi State. The high level of consumption of breadfruit can be attributed to the high level of cultivation of the crop in the area. Ripe breadfruit is great for desserts and perfect for cakes, pies, cookies, energy bars and other sweet treats. Another important attribute of breadfruit that increased its consumption is that it can be processed into differently accepted forms such as: steamed, boiled, fried and roasted. In a similar study, Nela and Laura (2013) report that most common methods of cooking breadfruit include: steaming, boiling, frying, chips, roasting, in soups, roasting then frying and baking, as a whole fruit or in pies, in declining order. Currying and microwaving are less common methods and only 1.6% of consumers report preparing breadfruit as 'tum-tum. The food service operators indicate that the cooking methods most

preferred by their customers are boiling (52.4%) and steaming (28.6%).

Again, Atuanya et al. (2012) reports that breadfruit is a tree crop which the roots, leaves, and latex are used to make medicine. The root and leaves are taken by mouth for arthritis, asthma, back pain, diabetes, fever, gout, high blood pressure, liver disease, and toothaches.

Table 1: Socio-economic characteristics of bread fruit consumers in Ebonyi State

Socio-economic characteristics	Frequency (n = 120)	Percentage (%)	Mean ($\bar{X}$)
Sex			
Male	37	30.8	
Female	83	69.2	
Age			
Below 30	13	10.8	
30-40	41	34.2	
41-50	47	39.2	43
Above 50	19	15.8	
Educational Level			
No formal Education	14	11.7	
Primary Education	59	49.2	
Secondary Education	34	28.3	
Tertiary Education	09	7.5	
Others	04	3.3	
Household Size			
1-5	21	17.5	
6-10	62	51.7	8
Above 10	37	30.8	
Major Occupation			
Farming alone	67	55.8	
Farming and Civil Service	05	4.2	
Farming and Artistry	21	17.5	
Farming and Trading	27	22.5	
Years of consumption			
Below 5	11	9.2	
5-10	15	12.5	13
11-15	88	73.3	
Above 15	O6	5.0	
Monthly Income			
Below 30,000	66	55.0	21,500
30,000-60,000	33	27.5	
60,001-90,000	13	10.8	
Above 90,000	08	6.7	
Marital Status			
Married	89	74.2	
Single	11	9.2	
Separated	03	2.5	
Widowed	17	14.2	

Similarly, the latex is taken by mouth for diarrhea and stomach pain while the root and leaves are as well applied to the skin for boils, burns, ear infections, herpes, skin infections, sore or tired eyes and thrush (Osabor et al., 2009). Breadfruit latex is applied to the skin for broken bones, sprains and sciatica. Generally, the seeds and fruit of breadfruit are eaten as foods. This shows that there was high level of consumption of breadfruit in the area.

Table 2: Regularity of Pattern of Consumption of Breadfruit in the Area

Regularity of consumption	Frequency (n = 120)	Percentage (%)
Once a week (Regular)	41	34.16
Twice a week (Very regular)	59	49.16
Once a month (Average)	13	10.83
Once in two months (low)	07	5.83

Source: Field Survey (2019)

Factors Influencing Consumption pattern of Breadfruit

The result of the mean score derived from a 4-point Likert-type scale on the factors that influence the consumption of breadfruit in the area shows that the predominant factors that influence the consumption of breadfruit in Ebonyi State include: price of breadfruit ($\bar{X}$ =2.98), nutritional value ($\bar{X}$ =2.95), time for cooking ($\bar{X}$ =2.93), level of supply ($\bar{X}$ =2.83) and method of cooking or preparation ($\bar{X}$ =2.81) (Table 3). This implied that the market price of breadfruit was the most predominant factor that influenced the consumption of breadfruit in the area. This is because according to the law of demand, the price of goods will highly influence the demand level by so doing, influencing the consumption level. In other words, increase in price leads to low demand and consumption. This corresponds with the finding of Babatunde et al. (2017) who report that increase in price of agricultural products decreased quantity demanded and vice versa. Again, research evidence was obvious that nutritional value of breadfruit strongly influenced consumers' demand and consumption level. This is because if the consumers perceive breadfruit as a very nutritive food crop, there will be high demand and consumption unlike when they perceive it as a food crop with lower nutritive value. This corresponds with Osuafor et al. (2018) who report that increase in demand and consumption of breadfruit in Owerri agricultural zone of Imo State was as a result of the perception of breadfruit as a nutritive crop. Furthermore, the time for cooking of breadfruit also influenced the level of consumption as a result of the fact that when there is increased preparation time, it leads to poor level of zeal to demand and consume

and vice versa. This is why most of the mostly consumed food crops are foods which are referred to as fast foods. These classes of food are easier to prepare and reduces drudgery in food preparation.

Influence of socio-economic characteristics on the income level of breadfruit consumers in the Area

The socio-economic characteristics were analyzed using multinomial logit regression to depict the combined influence on the consumption pattern of breadfruit in Ebonyi State. The result of the multinomial logit regression analysis on the effects of socio-economic characteristics on the income level of breadfruit consumers as presented in Table 4 shows that the coefficient of multiple determinations (R2) of 0.892, implying that about 89.20% variation observed in the income level of breadfruit consumers was as a result of the combined effects of the identified socio-economic characteristics of respondents included in the regression model. The result was further observed to be reliable with a low standard error of 0.351 and a low value of Durbin Watson constant (1.222) which indicated the absence of autocorrelation.

Table 3: Factors influencing consumption pattern of breadfruit in Ebonyi State

Factors	Weighted mean ($\bar{X}$)	Average mean score ($\bar{X}$)
Taste	2.87	
Nutritional value	2.95	
Method of cooking or preparation	2.81	
Use of breadfruit to prepare other products, e.g. bread	2.66	
Preference for other tree crop	2.80	
Aroma of breadfruit	2.78	
Price of breadfruit	2.98	
Labour in breadfruit processing	2.11	
Water supply level	2.43	
Time for cooking	2.93	
Population pressure	2.41	
Pests and diseases attack	2.45	
Level of species improvement	2.46	
Duration of fermentation	2.58	
Level of supply	2.83	
		2.50

Furthermore, the overall influence of the explanatory variables (socio-economic characteristics) on the explained variable (consumption level of breadfruit) was indicated by F-statistics, whereas the close relation of the R^2 and the $AdjR^2$ which constituted about (19.00%) of the total variation that was not explained means that the explanatory power of the chosen model was not exaggerated. The implication is that this result can be used for forecasting purpose since it has an output that is of economic relevance.

Table 4: Multinomial logit regression analysis on the influence of socio-economic characteristics on in come level of breadfruit consumers in Ebonyi State

Variable code	Variable name	Coefficient	P>/Z/
B_0	Constant	0.981	0.00*
X_1	Age	0.569	0.002*
X_2	Gender	0.085	0.057***
X_3	Educational level	-0.986	0.988
X_4	Household size	0.180	0.044**
X_5	Years of Consumption	0.542	0.001*
X_6	Marital status	-0.609	0.554
X_7	Monthly income	0.442	0.001*
X_8	Occupation	0.854	0.902
R^2	Coefficient of multiple determinations	0.892	
$AdjR^2$	Adjusted R^2	0.810	
S.E	Standard Error	0.351	
DWC	Durbin Watson Constant	1.222	
NS	Not significant		
*	Significant at 1%		
**	Significant at 5%		
***	Significant at 10%		

Source: Field Survey, 2019

The coefficient of age (X_1) was positive and statistically significant at 1% level. This implies that any increase in age of consumer will increase the probability of consumption pattern of breadfruit whereas any decrease in age will lead to the reverse. This is in line with the *a priori* expectation since old persons have been strongly linked to breadfruit consumption. Breadfruit is a strong reliable source of protein and as such, old persons are advised by medical personnel to increase their consumption of breadfruit rather than consuming starchy carbohydrate foods. This agrees with the report of Nela and Laura (2013) who argue that breadfruit consumption increases with age.

The coefficient of gender (X_2) was positive and statistically significant at 10% level. This implied that both males and females have equal level of consumption of breadfruit. This is not in line with the *a priori* expectation since females have been

observed over the years to have higher consumption of breadfruit than their male counterparts. This is against the finding of Enibe (2007) who reports that males have higher consumption of proteinous food than females. This is attributed to their high level of engagement in energy consuming activities.

The coefficient of educational qualification (X_3) was negative and statistically not significant. This implied that any increase in educational qualification of the breadfruit consumers will decrease their consumption level and vice versa. This is not in line with the *a priori* expectation since increase in educational qualification increases the ability of the consumer to understand the economic importance of breadfruit and thus, may lead to increased consumption unlike an uneducated person who may not understand the economic and nutritive implications of breadfruit in the area. This may be that most of the rural dwellers are uneducated. Dauda et al. (2014) report that educated person had higher consumption of breadfruit in Nigeria than uneducated person.

The coefficient of household size (X_4) was positive and statistically significant at 5%. This implied that any increase in household size will increase the consumption level of breadfruits in the area and vice versa. This is true to the a priori expectation given the fact that when someone has larger number of persons in his household, there is more number of persons to satisfy their consumption need and thus, increases consumption unlike when there is lesser number of persons in the household. This corresponds with the finding of Eke et al. (2012) who report that increase in household size increases demand and utilization of breadfruit in derived savannah.

The coefficient of years of consumption (X_5) was positive and statistically significant at 1%. This implied that any increase in number of years spent in consuming breadfruit will increase the level of consumption and vice versa. This agrees with the a priori expectation since the more the number of years a person consumes breadfruit, the more the person feels comfortable with the consumption and thus, increases consumption unlike when a person has been newly introduced to breadfruit consumption. This corroborates the finding of Farinde et al. (2016) in a study to analyze breadfruit production, processing, marketing and utilisation in Egbedore Local Government Area of Osun State, Nigeria who found out that consumption of breadfruit increased with increase in years of consumption.

The coefficient of marital status (X_6) was negative and not statistically significant. This implies that there is no equal consumption among the married, singled and separated in the study area. This is not in line with the a priori expectation as marital status may be a direct factor to consumption level. This is in concomitance with the finding of Ajani (2012) who reports that married people and unmarried people do not have equal opportunities to consume breadfruit in Nigeria. This is because married persons have more family responsibilities unlike others who may not have children to cater for their needs. Similarly, Varmudy (2017) argues that married people have higher family responsibilities and are poised to purchase larger quantities of breadfruit unlike their counterparts (single, divorced) who may have lesser responsibilities in the homes.

The coefficient of monthly income (X_7) was positive and statistically significant at 1%. This implies that any increase in income increases the probability of the consumption pattern of breadfruit while any decrease in income may lead to the reverse. This is true because people who earn high income from their farms have higher ability to save money and as well purchase any kind of food crop they desire unlike those who earn low. Consumption of bread is skewed to the rich and affluent members of the society. In a typical occasion, breadfruit (ukwa) is served to only the people on the high table. Consequently, breadfruit is food reserved to people of high economic status. This corroborates the finding of Schipper (2014) who posit that farmers who earned high income have higher opportunity to purchase larger quantities of food crops for their family consumption.

The coefficient of occupation (X_8) was positive and not statistically significant. This implies that the occupation of the consumer determines the level of consumption. This is true because farmers who engage in breadfruit production have higher consumption since they may have little or no need to pay for the breadfruit and thus gets higher access to larger quantities from their farms.

Conclusion

The study concluded that consumers' socio-economic characteristics had significant influence on the consumption pattern of breadfruit in the area. It was also observed that there was very regular pattern of consumption of breadfruit in the area even though there were identified factors that influenced the consumption pattern. Also age, gender and household were socio-economic characteristics that had positive relationship with level of income of breadfruit consumers. Prominent factors that influenced the pattern of breadfruit consumption in Ebonyi State were price of breadfruit, nutritional value and time of cooking.

Recommendations

Based on the conclusions, the following recommendations were made: Farmers in Ebonyi State should be encouraged to produce breadfruit as an economic venture not only for consumption purposes. There should also be diversification of sources of income to attract more people with high income in consumption of breadfruit. Also, more awareness should be created to encourage those who have not tested breadfruit to do so.

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