Economic Implications of Food Demand in Akoko South West, Ondo State, Nigeria: Aids Approach

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The study examined the socio-economic characteristics of food consuming households, estimated the complete demand functions for some selected common food commodities, their prices and expenditure elasticities in Akoko South West (ASW) local government in Ondo state, Nigeria. The study examined demand analysis for food in ASW, using primary data with the use of questionnaire on some selected food-consuming households within the study area. Data collected were subjected to descriptive statistics for estimating demographic variables. The result of the descriptive statistics showed that semolina constituted the largest share of the household total food expenditure, among the low income and rural households but mostly among the married and the medium-size male-headed households who had tertiary-education. The Almost Ideal Demand System results showed that besides being a normal good, price inelastic, and expenditure inelastic, semolina has changed from being a luxury to being a necessity and has become a major food staple in the ASW metropolis. In conclusion, the study discovered that the prices of rice, beans, yam, garri, wheat, yam flour, and semolina were significantly important in the share of household total food budget at constant real income. Finally, the study showed from the result that the importance of semolina in ASW metropolis diet will increase as economic growth continues. This study therefore recommends that effort should be made to boost economic activities of ASW zone. This will increase their income and consequently improve their spending on the nutritious food items.

Key Words: Demand System, expenditure elasticities, cross-price elasticities, food commodity groups, demand pattern, demographic effects, compensated elasticities

Introduction

Demand for food is an important area of study for economists of all ages. According to Koutsoyiannis (1982), the traditional study of demand is focused mainly on the price of the commodity (P0), the price of other commodity (P1), income of consumers (I), and tastes (T). The highlighted factors shows that demand pattern for food in Akoko South West (ASW) can be analyze and classified through the tools in simulation of income and prices for foods consumed by various consumers in the markets. The use of Almost Ideal Demand System (AIDS) will be assessed in view of estimating the demand for food making provisions for changes in income during past and present price shocks due to changes in government policies.

Akoko South West is a local government area with the composition of about four small towns, Akungba, Oba, Oka, and Supare (sub-groups of Yoruba speaking people in Nigeria), with the headquarters in the town of Oka (Akoko). ASW is predominantly situated in rocky areas of Ondo state,

the rock terrain nevertheless, as helped the region to become a melting pot of sorts among the other local governments in the state. It has an area of 530 km² and a population of 229,486 at the 2006 census (Wikipedia 2013). Its residence and visitors are predominantly involved in tradition and modern occupation like farming, teaching, business (banking, cyber café, and trading of all sorts of industrial goods) and with recent development of establishing a tertiary institution (Adekunle Ajasin University) in one of the towns–Akungba, more jobs are created and this has improved the economic welfare of the people in the local government as the marginal propensity to consume increase and the demand for commodities increase over time in the area.

Since the inception of AIDS by Angus Deaton and John Muellbauer, a demand system of linear function of expenditure is known as an exactly agreeable demand system because the same type of equation can be used for aggregate data as well as for micro data. AIDS is one of the most popular demand systems (Bereket, 2003).

Agriculture remains the most important sector of the economy, and the role of agriculture cannot be over emphasized given its importance in the life of

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human beings in the area under study. Agriculture is expected to ensure adequate supply of food to the people, however, it is disheartening to know that economic deregulation in Nigeria as a whole recently brought about a reduction in household income levels and this affect the livelihood pattern including food consumption of most rural household which have remain deplorable, ASW inclusive. The production of major foods in Nigeria has not been sufficient to satisfy the demand of an increasing population and do not provide a balanced diet, as such, malnutrition is prevalent in most homes. This has led to massive importation of food and massive foreign debts (CBN 1996) at the national level. Food remains a basic need for human existence and major source of nutrient needed to run the day activities, hence, the need for its availability and accessibility (USAID, 1992). Thus, it becomes imperative to analyze the demand patter of food in Akoko South West.

The main objectives of this study are to: evaluate the demand pattern of food item, examine the socio-economic character of food demand in ASW using the AIDS model and analyze the determinants of food demand among households in ASW.

Theoretical and Empirical Framework

Almost Ideal Demand System (AIDS) is consistent with the theoretical elasticity and consumer theory which requires general restrictions (Deaton & Muellbauer 1980). Also, various authors have estimated demand for food, meat, and consumable products in the past.

Blanciforti and Green (1986) explain the basic two approaches to estimate demand systems. The first approach starts with a utility function that satisfies certain axioms of choice. Demand functions are obtained by maximizing the utility function subject to budget constraints. The majority of demand functions estimated towards the focus area of concern used this approach. The second one starts with an arbitrary demand system and then imposes restriction on the system. This approach corresponds with macro and micro economics theories to a much closer extent than the first approach and it's therefore the method applied in various studies over the past years.

The popularity of the AIDS can be ascribed to several reasons according to Deaton and Muellbauer (1980); Alston and Chalfant (1993). Firstly, the linear approximate version of the AIDS is relatively easy to estimate and interpret. It satisfies the axiom of choice exactly. Secondly, it is as flexible as other locally flexible functional forms, but it has the added advantage of being compatible with allegation over

consumers. Thus, it can be interpreted in terms of economic models of consumer behavior when estimated with aggregate (macro-economics) or disaggregated (household survey) data (Glewwe, 2005). Thirdly, it is derived from a specific cost function and therefore corresponds with a well-defined preference structure, which is convenient for welfare analysis. Fourthly, homogeneity and symmetry restrictions depend only on the estimated parameters and are therefore easily tested and/or imposed. Fifthly, AIDS provides an arbitrary first order approximation to any demand systems. Sixthly, it aggregate perfectly across consumers without invoking parallel linear Engel curve, and finally, it has a functional form which is consistent with known household budget data.

Halbrendt et al (1994) and Fan et al (1995) applied the AIDS model to analyze the household pattern in china. The two studies found that the lowest expenditure elasticities are found in grain. Halbrendt used a few luxurious food products in the study, the highest expenditure elasticities was calculated for fruits. The major difference in the two studies' empirical findings is in the values of food expenditure elasticities which suggest that a massive number of food products are necessary goods. This could be ascribed to the facts that different sampling techniques and data set were employed in the two studies.

Blanciforti and Green (1986) using annual time series data from 1948-78 for United State of America analyzed four food groups with AIDS. He compared the estimates of linear approximation version of AIDS and the Linear Expenditure System (LES). He focused on comparing three models for four food groups; meat, fruits and vegetables, cereals and bakery production and miscellaneous foods. He concluded that the estimated expenditure elasticity's between the AIDS and the LES differ greatly.

Baharumshah and Mohamed (1993) using the linear approximate version of AIDS examined the demand for all meat products and obtained high expenditure elasticity of demand for poultry, mutton, pork, fish and beef. Ishida *et al* (2003), using only West Malaysia data affirmed that the changing pattern in food consumption among the Malaysians was highly attributed to the population growth, rapid urbanization and a higher per-capital income that led to the drastic change in Malaysian lifestyle.

According to Oyekale (2000) food calorie among Nigerian household has been found to have a strong empirical linkage with both human health productivity and thus determine the influence of income changes and price on the availability of nutrient. He found guinea corn as the food with the highest nutrient status for low income status. He

concluded that the major items for average and high income status are guinea corn, rice, millet, beans and maize.

In his study, Adejobi analyzed the relationship between the demand structure of rural household of food pattern and poverty. His study revealed that 72.0% of household total expenditure was on food and from which 56.0% was for cereals, 22.0% for animal protein, 7.0% for fruits, 5.0% for vegetables, 5% for legumes, 4% for roots and tubers and 1.0% for fat and oil and other food items, Adejobi (2004).

Methodology

The goal of demand analysis is to model households' expenditure patterns elasticity's and to estimate consumer welfare. This study employed the classic model of Deaton and Muellbauer (1980) where demand systems are specified with expenditure shares as the dependent variables. A household's expenditure share for good j is defined as:

$$\Omega_j = p_j q_j / m$$

Where p_j is the price paid for good j, q_j is the quantity of good j purchased or consumed by the household and m is the total expenditure on all goods in the demand system. With m defined as,

$$\sum_{n=1}^{k}$$

Where k is the number of goods in the system.

This study ensures an effective appraisal of food demand in Akoko South-West (ASW), using an Almost Ideal Demand System (AIDS). A questionnaire based interview is used for sampling the perception of consumers towards food demand in the market under study. The data gathered consist of spending, prices of different food commodities, per capital consumption of staple and non-staple foods in ASW. The questionnaire was classified into two sections. Section A focused on personal data and gave brief information of the respondents' background while section B focused on collection of relevant information on food prices, commodities consumed by consumers and the income spent on each commodity. The data gathered was analyzed using STATA software package version 11 for windows.

Model Specification

The expenditure share equation for the AIDS model is expressed as follows:

$$\Omega_j = \tau_j + \Sigma\lambda_{ji}\ln p_j + \eta_j\ln(\text{CO}/P) \ldots\ldots (1)$$

The explicit form of the budget share is presented as

$$\Omega_1 = \tau_{11} + \lambda_{11}\ln p_1 + \lambda_{12}\ln p_2 + \lambda_{13}\ln p_3 + \lambda_{14}\ln p_4 + \lambda_{15}\ln p_5 + \lambda_{16}\ln p_6 + \lambda_{17}\ln p_7 + \lambda_{18}\ln p_8 + \eta_1\ln(\text{CO}/P)$$

$$\Omega_2 = \tau_{21} + \lambda_{21}\ln p_1 + \lambda_{22}\ln p_2 + \lambda_{23}\ln p_3 + \lambda_{24}\ln p_4 + \lambda_{25}\ln p_5 + \lambda_{26}\ln p_6 + \lambda_{27}\ln p_7 + \lambda_{28}\ln p_8 + \eta_2\ln(\text{CO}/P)$$

$$\Omega_3 = \tau_{31} + \lambda_{31}\ln p_1 + \lambda_{32}\ln p_2 + \lambda_{33}\ln p_3 + \lambda_{34}\ln p_4 + \lambda_{35}\ln p_5 + \lambda_{36}\ln p_6 + \lambda_{37}\ln p_7 + \lambda_{38}\ln p_8 + \eta_3\ln(\text{CO}/P)$$

$$\Omega_4 = \tau_{41} + \lambda_{41}\ln p_1 + \lambda_{42}\ln p_2 + \lambda_{43}\ln p_3 + \lambda_{44}\ln p_4 + \lambda_{45}\ln p_5 + \lambda_{46}\ln p_6 + \lambda_{47}\ln p_7 + \lambda_{48}\ln p_8 + \eta_4\ln(\text{CO}/P)$$

$$\Omega_5 = \tau_{51} + \lambda_{51}\ln p_1 + \lambda_{52}\ln p_2 + \lambda_{53}\ln p_3 + \lambda_{54}\ln p_4 + \lambda_{55}\ln p_5 + \lambda_{56}\ln p_6 + \lambda_{57}\ln p_7 + \lambda_{58}\ln p_8 + \eta_5\ln(\text{CO}/P)$$

$$\Omega_6 = \tau_{61} + \lambda_{61}\ln p_1 + \lambda_{62}\ln p_2 + \lambda_{63}\ln p_3 + \lambda_{64}\ln p_4 + \lambda_{65}\ln p_5 + \lambda_{66}\ln p_6 + \lambda_{67}\ln p_7 + \lambda_{68}\ln p_8 + \eta_6\ln(\text{CO}/P)$$

$$\Omega_7 = \tau_{71} + \lambda_{71}\ln p_1 + \lambda_{72}\ln p_2 + \lambda_{73}\ln p_3 + \lambda_{74}\ln p_4 + \lambda_{75}\ln p_5 + \lambda_{76}\ln p_6 + \lambda_{77}\ln p_7 + \lambda_{78}\ln p_8 + \eta_7\ln(\text{CO}/P)$$

$$_8 = \tau_{81} + \lambda_{81}\ln p_1 + \lambda_{82}\ln p_2 + \lambda_{83}\ln p_3 + \lambda_{84}\ln p_4 + \lambda_{85}\ln p_5 + \lambda_{86}\ln p_6 + \lambda_{87}\ln p_7 + \lambda_{88}\ln p_8 + \eta_8\ln(\text{CO}/P) \ldots..(2)$$

Where:

p1-p8= Scaled up market prices of rice, beans, garri, wheat, yam, yam flour (elubo), poundo flour and semolina respectively

τ= The constant coefficient in the share equation representing the value of the budget share in the absence of income and price effects

λ= The budget share of the commodity

Ω= The price coefficients or the slope coefficient associated with any commodity in any other commodity's share equation

η= The expenditure coefficient of commodity

$G\mho$= The total expenditure on all commodities

P= The price index defined as

The theoretical properties are subject to the following constraints:

of adding up, homogeneity in prices and income and symmetry of cross effects of demand functions are subject to the following parametric restrictions:

$$\begin{aligned}
&\text{Adding up} & \Sigma\tau j &= 1; \\
& & \Sigma\lambda ji &= 0; \\
& & \Sigma\eta j &= 0\ldots\ldots\ldots\ldots(3) \\
&\text{Homogeneity} & \Sigma\lambda ij &= 0 \\
&\text{Symmetry} & \lambda ij &= \lambda ji
\end{aligned}$$

This study focuses on estimating demand system for food and food products (staple and non-staple). Therefore, the effect of economic and demographic variables on demand for food and food product will be examined. A stone price index suggested by Deaton and Muellbauer (1980) is considered in the function to effectively include demographic variables through either translation or scaling methods (Sadoulet & de Janvry, 1995).

$$\ln P = \Sigma\Omega_j \ln p_j \ldots\ldots\ldots\ldots\ldots\ldots(4)$$

The translation approach is more appropriate to model demographic effect for consumables. Also, the stone price index improves the linear approximation of the model where prices are engaged. We therefore re-specify he equation as:

$$\tau_j = \tau_0 + \Sigma\tau_{ji}D_i$$

Where D_i is the ith demographic variable

The extended model including demographic variable and error term (v_j) is defined as:

$$\Omega_j = \tau_0 + \Sigma\tau_{ji}D_i + \Sigma\lambda_{ji}\ln p_j + \eta_j\ln(G\mho/P) + v_j \ldots\ldots (5)$$

We simultaneously estimate the budget share equations as a system of equations using STATA version 11 software package.

The price and expenditure elasticities were derived from the parameter estimates of the model using the following formula:

$$\Sigma_{jj} = -1 + (\lambda_{jj}/\Omega_j) - \eta\ldots\ldots\ldots. (6) \text{ Own-price elasticity}$$

$$\Sigma_{ji} = (\lambda/\Omega_j) - \eta_j\Omega_i/\Omega_j) \text{ j for j not equal to i}\ldots(7) \text{ Cross-price elasticity}$$

$$\Sigma_j/\lambda = 1 + (p_j/\Omega_j)\ldots\ldots\ldots\ldots(8) \text{ Expenditure elasticity}$$

Analyses and Interpretation of Results

A descriptive statistics of respondent responses for the study (reported in table 1) examines the relationship between demand for food in ASW and the demographic variables. The variables of interest include age, status, sex, occupation and education.

Table 1. Demographic variables: descriptive statistics.

Variables	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation
Age	300	5	1	6	307	2.05	0.708
Status	300	2	0	2	287	1.42	0.600
Sex	300	2	0	2	319	1.51	0.612
Occupation	300	4	1	5	565	2.85	0.962
Education	300	5	0	5	798	4.14	0.985

The standard deviation for age, status, sex, occupation and education (demographic variables) are at 0.708, 0.600, 0.612, 0.962 and 0.985 respectively. The result shows that marital status has the least standard deviation for the selected demographic variables in this study. The mean values of the variables are 2.05, 1.42, 1.51, 2.85 and 4.14 respectively. The minimum and maximum values for the variables vary between 1 and 6, 0 and 2, 0 and 2, 1 and 5 and 0 and 5 respectively.

The AIDS results presented in table 2 show that the coefficients of τ_1 (-0.0402) and η_1 (-0.0617), τ_8 (- 0.2347) and η_8 (-0.0713) are positively related since they carry negative signs. To show that there is direct relationship between the estimated parameters in the model for the household expenditure and the demand for food item in ASW, as the demand for food item also increases by 17%, 2.3%, 3.5%, 63%, 18% and 35%, the household expenditure also increases by 2.2%, 1.3%, 0.1%, 14%, 4.1% and 6.8%, respectively at τ_2 (0.1703), τ_3 (0.0231), τ_4 (0.0348), τ_5 (0.6347), τ_6 (0.1845), τ_7 (0.3515) and η_2 (0.0222), η_3 (0.0131), η_4 (0.0010), η_5 (0.1375), η_6 (0.0413), η_7 (0.0684) respectively.

Table 2. Almost ideal demand system results.

Parameters	Coef	Std.Err	95% Interval
τ_1	-0.0402	-0.0038	-0.0272
τ_2	0.1703	0.0576	-0.0101
τ_3	0.0231	0.0034	-0.0149
τ_4	0.0348	0.0074	-0.0145
τ_5	0.6347	0.0368	0.0397
τ_6	0.1845	0.0016	0.0158
τ_7	0.3515	0.2530	0.1051
τ_8	-0.2347	-0.0279	-0.0357
η_1	-0.0617	-0.0022	-0.0125
η_2	0.0222	0.2168	-0.0270
η_3	-0.0131	-0.0054	-0.0400
η_4	0.0010	0.0003	-0.0481
η_5	0.1375	0.0386	0.0588
η_6	0.0413	0.0139	0.0010
η_7	0.0684	0.0299	0.0010
η_8	-0.0713	-0.0125	-0.0105
λ_{1_1}	0.1426	0.0382	0.0430
λ_{2_1}	-0.0579	-0.0111	-0.0086
λ_{3_1}	0.0226	0.0101	-0.0041
λ_{4_1}	-0.0111	-0.0030	-0.0374
λ_{5_1}	-0.0084	-0.0008	-0.0521
λ_{6_1}	-0.0176	-0.0072	-0.0406
λ_{7_1}	0.0473	0.0126	0.0158
λ_{8_1}	0.0065	0.0028	-0.0220
λ_{2_2}	0.1371	0.0300	0.0107
λ_{3_2}	0.0159	0.0012	-0.0067
λ_{4_2}	0.0093	0.0010	-0.0132
λ_{5_2}	-0.0081	-0.0019	-0.0541
λ_{6_2}	-0.0107	-0.0029	0.0229
λ_{7_2}	-0.0122	-0.0043	-0.0338
λ_{8_2}	-0.0019	-0.0001	-0.0270
λ_{3_3}	0.1088	0.0226	0.0252
λ_{4_3}	0.0171	0.0077	-0.0068
λ_{5_3}	0.0222	0.0106	-0.0113
λ_{6_3}	-0.0224	-0.0063	-0.0435
λ_{7_3}	-0.0180	-0.0076	-0.0418
λ_{8_3}	-0.0222	-0.0081	-0.0469
λ_{4_4}	0.1240	0.0227	0.0503
λ_{5_4}	0.0023	0.0004	-0.0329
λ_{6_4}	-0.0100	-0.0018	-0.0302
λ_{7_4}	-0.0282	-0.0012	-0.0521
λ_{8_4}	0.0206	0.0095	-0.0048
λ_{5_5}	0.1464	0.0610	0.0471
λ_{6_5}	0.0014	0.0004	-0.0287
λ_{7_5}	0.0350	0.0165	-0.0061
λ_{8_5}	-0.0669	-0.0128	-0.1007
λ_{6_6}	0.1302	0.0269	0.0106
λ_{7_6}	-0.0022	-0.0009	-0.0225
λ_{8_6}	0.0029	0.0013	-0.0186
λ_{7_7}	0.1053	0.0095	0.0068
λ_{8_7}	-0.0031	-0.0013	-0.0313
λ_{8_8}	0.1880	0.0309	0.0156

The standard errors are -0.0038, 0.0576, 0.0034, 0.0074, 0.0368, 0.0016, 0.2530 and -0.0279 for $S(\tau_1)$, $S(\tau_2)$, $S(\tau_3)$ and $S(\tau_4)$, $S(\tau_5)$, $S(\tau_6)$, $S(\tau_7)$ and $S(\tau_8)$ respectively. When compared half of each coefficient with its standard error, it was found that $0.0038 < 0.0402/2, 0.0576 < 0.1703/2, 0.0034 < 0.0231/2$, $0.0074 < 0.0348/2$, $0.0368 < 0.6347/2$, $0.0016 < 0.1845/2$ and $0.0279 < 0.2347/2$ for τ_1, τ_2, τ_3, τ_4, τ_5, τ_6 and τ_8 respectively and for τ_7, $0.2530 > 0.3515/2$. This shows that the estimated values for τ_1, τ_2, τ_3, τ_4, τ_5, τ_6 and τ_8 are statistically significant while τ_7 is not statistically significant. The implication of this is that demand pattern of rice, beans, garri, wheat, yam, yam flour (elubo) and semolina in respect to household expenditure are statistically significant while even though negative relationship exists between demand pattern of food items consumption in respect to household expenditure, poundo flour do not contribute significantly to the long run pattern of food demand in ASW, Nigeria.

In conjunction with the demographic variables, the relative prices are statistically significant except two out of thirty-six. This shows that a total change in price leads to same change in expenditure share of household for each food commodity which means there is higher quantity response to movement in relative prices.

With the AIDS model, expenditure elasticity values are measured for every estimated parameter value. Table 3 reveals that price elasticities are inelastic for commodity group G_1, G_3, G_4, and G_8, that is, demand is not elastic and that commodity group G_5, G_6 and G_7 are elastic. All the price elasticities are positive except for only one food commodity (semolina) which is negative. This means that a 1 % increase in the prices of G_1, G_2, G_3, G_4, G_5, G_6, and G_7 makes demand grow by 63.03%; 104.49%, 72.41%; 83.86%; 178.55%; 126.42%; and 146.51% respectively while a 1 % increase in the prices of G_7 reduces demand by 7.34%. The lowest and the highest price demand elasticities were observed in G_8, 7.34 and G_5, 178.55 respectively. This means that consumers are more responsive to price changes in G_5, and less responsive to price changes in G_8. These findings are consistent with economic theory, that is, consumers in G_5 are more sensitive than consumers in G_8 category.

Table 3. Distribution of expenditure elaticities for food commodity groups.

Food Commodity	Rice G_1	Beans G_2	Garri G_3	Wheat G_4	Yam G_5	Yam fl G_6	Poundo fl G_7	Semolina G_8
Expenditure	0.6303	1.0449	0.7241	0.8386	1.7855	1.2642	1.4651	-0.0734
Elasticity	Inelastic	Unitary	Inelastic	Inelastic	Elastic	Elastic	Elastic	Inelastic

Table 4. Compensated elasticities of food commodity group (AIDS Model).

r\c	Rice G_1	Beans G_2	Garri G_3	Wheat G_4	Yam G_5	Yam fl G_6	Poundo fl G_7	Semolina G_8
r_1	-0.2836	-0.1931	0.1006	-0.0566	0.2007	-0.0272	0.3351	-0.0750
r_2	-0.2698	-0.0380	0.1113	0.0511	-0.0216	0.2688	-0.0801	-0.0216
r_3	0.2025	0.1603	-0.0261	0.0915	0.3388	-0.2427	-0.1573	-0.3669
r_4	-0.1308	0.0848	0.1056	0.2859	0.0783	-0.1709	-0.3412	0.0883
r_5	0.2695	-0.0209	0.2265	0.0458	-0.3411	-0.0649	0.0926	-0.2074
r_6	-0.0585	0.4120	-0.2585	-0.1578	-0.1033	0.2495	-0.1170	0.0333
r_7	0.6155	-0.1054	-0.1436	-0.2701	0.1265	-0.1004	-0.1833	0.0607
r_8	-0.1952	-0.0399	-0.4704	0.0977	-0.3979	0.0403	0.0852	0.8802

The cross-price elasticities are reported in table 4. The table shows that compensated own price elasticities of all eight food commodity are relatively inelastic. All the cross-price elasticities are statistically significant and carry positive signs as expected for substitute products except for the cross-price elasticity between wheat demand and rice price, and vice versa. The consumption of semolina shows the strongest substitution response for the price of rice (0.61), whereas the consumption of rice is not as responsive to the price of semolina (0.88). The second strongest substitute response is the consumption of beans for the price of yam (0.33), followed by poundo flour for wheat (0.28) and garri for rice (0.11). All the other cross-price elasticities are less than 0.1. This implies that the demand for most food items is most inelastic and that any increase in expenditure of rice especially will not significantly affect the consumption of rice in ASW, Nigeria.

Conclusion and Recommendation

This study analyses the demand pattern of food in Akoko South West as the demand for semolina, the pattern of the semolina's expenditure is perfectly inelastic in ASW. Thus, semolina constitutes the largest share of the household total food expenditure in ASW metropolis whilst income does not have much weight in its consumption with less substitutability in response to changes in own-price.

The analyses of the study show that semolina has the highest budget share and average budget share among the food commodities. This implies that a substantial price decline with increased production will benefit the majority of households. Also, Semolina demand is not quite responsive to changes in own-price income, expenditure and household demographics such as household size, sex of household, average age of household, average education and occupation. For any food policy to be effective towards alleviating the problems of food insecurity and malnutrition, attention must be paid to these factors.

More so, Semolina was inelastic with respect to its own price and expenditure on food. This implies that, in general, income-oriented policies will have a greater effect on semolina consumption than price related policies. However, policy should be targeted at reducing the price of semolina particularly for the low-income households who still consider food as a means of surviving rather than an end of consumption.

Furthermore, Semolina constitutes the largest share of the household total food expenditure in ASW while income does not have much weight in its consumption with less substitutability in response to changes in own-price. Semolina has changed from being a luxury to being a necessity and has become a major food staple in ASW metropolis and Ondo state as whole. This implies that policies towards increased semolina production and productivity have significant effect on the availability, affordability and accessibility of semolina in the ASW, Ondo State economy. Finally, the expenditure elasticity of semolina has the highest elasticity among the food items considered as necessity. Thus, the importance of semolina in ASW metropolis diet will increase as economic growth continues.

This study therefore recommends that effort should be made to boost economic activities of this zone. This will increase their income and consequently improve their spending on the nutritious food items. Secondly, government should work on improving the literacy level of the zone so that they would be able to identify and understand the nutritional implication of their food consumption and obtain a balanced diet from the limited available resources with them. Finally, the government should see the need to increase the standard of living for all, as this will boost the consumption pattern of all household in ASW metropolis as a whole.

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