Ife J. Agric 1 (2) 1979

A quantitative analysis of shortrun household food expenditure behaviour in Western Nigeria

A. A. ADESIMI AND O. O. LADIPO
Department of Agricultural Economics, University of Ife, Ile-Ife Nigeria

Abstract

The importance of household food expenditure studies lies, among other things, in the fact that they help planners in understanding the direction of future development policy on agriculture and related industries. On the basis of this practical usefulness, this study aimed at (i) determining whether income or total expenditure is the more relevant measure of household purchasing power in the Nigerian context, (ii) examining the allocative decisions of households with regard to their expenditures on processed and unprocessed foods, and (iii) measuring the impact of household size and composition on food expenditures.

To provide a theoretical basis for the anlysis a review of the underlying economic theory was undertaken. This review was historical in perspective and was patterned along the three stages of the development of the theory. The three stages can be characterised as (i) the cardinal utility theory, which is associated with Gossen (1854), Jevons (1871) and Walras (1874), (ii) the ordinal utility theory representing the contributions of Pareto (1906), Hicks and Allen (1934) and (iii) the "intermediate" theory which included the works of Edgeworth (1881), Antonelli (1886) and Fisher (1892).

The data for the study were collected in 1976 in seven rural towns of the old Western State of Nigeria. A two-stage stratified sampling procedure was used in selecting the towns and the thirty households that were interviewed from each of the towns.

The coefficients of the model were estimated using ordinary least squares method. The results of the multiple regression showed that (i) total expenditure is a better measure of household purchasing power than total income, (ii) households spent more of an increase in their budgets on unprocessed foods than they did on processed foods, and (iii) household size is one of the important determinants of food consumption among the household sample.

Intrdocution

For several reasons food consumption is of interest to the Nigerian economy. First, the volume

of food consumed by households by far, represents a large proportion of aggregate farm output. This being so, the pattern of food consumption exerts a decisive influence on the level and composition of total agricultural output produced. Second, the quantity and quality of food consumed by households affect their health and economic wellbeing and these, in turn,have significant repercussions on the general level of economic activities and productivity. To understand the direction of future development policy on agriculture and related industries, therefore, it is essential to study the pattern of household food consumption.

The primary objective of this study is to examine the effects of income on food consumption, the allocative decisions of households with regard to their expenditures on processed foods, and the influence of household size on food expenditure patterns. The evidence emanating from such analysis is expected to be a useful guide to agricultural development planning and consequently to the socio-economic wellbeing of consumers and agriculturists.

Theoretical underpinnings of empirical demand analysis

In consumer behaviour analysis, of which household food expenditure analysis is a part, empirical and theoretical inferences are interwoven, economic theory of consumer behaviour being used to guide and support the statistical methods and to validate the empirical findings.

The economic theory of consumer behaviour is based on the notion that some relationship exists between consumption of a commodity and the utility or satisfaction derived from it, Thus, a commodity is desired because it possesses a perceived satisfaction or utility to the consumer. The theory is developed in three stages. The first stage started with the cardinal utility theory which was developed by Gossen (1854), Jevons (1871), and Walras (1874). The central principle of this theory is the statement that value depends entirely upon utility which was defined as the quality possessed by an object of producing pleasure or preventing pain. The cardinal utility theorists also contended that utility is not only measurable and additive but also that it deminished as more of a

commodity is consumed. Walras' special contribution was the combination of a utility theory of value with a mathematically precise theory of market equilibrium.

The second stage is associated with the names of Edgeworth (1881), Antonelli (1886), and Fisher (1892). They, like their predecessors, argued that utility is a measurable quality and diminished as more of a given commodity is consumed but disagreed with the additivity assumption and asserted that utility is non-additive. This view formed the basis of the indifference curves and maps which show the possibility of constructing a theory of consumer behaviour on the basis of scales of preference only.

The third stage - the ordinal utility theory - represents the approach of Pareto (1906) and later of Hicks and Allen (1934) who argued that what matters in the utility theory is the shape of the indifference map and that the main results of the theory can be deduced without making use of the concept of measurable utility. The main thesis of the ordinal utility is that the consumer has a scale or field of ordered preferences which enables him to compare any two budgets and to decide whether one is preferred, disfavoured or equivalent to the other. A fundamental proposition in the cardinal as well as the ordinal theories,however, is that if prices are fixed, as is the case in cross-section studies, the consumer will spend his income on a well-defined optimal budget, which is a function of income and prices, i.e.

$$qi = Qi \ (Y, P_1 \ldots\ldots P_n) \ \ldots\ldots\ldots \ (1)$$

q_i = quantity of the ith commodity purchased;

Y = consumer income, and P_1 P_n = prices of commodities in the budget of the consumer.

An important contribution to the development of consumer expenditure theory is due to E. Slutsky(1951) who deduced a set of general formulae for the change in the optimal budget with respect to infinitesimal changes in prices and incomes. According to Wold and Jureen (1952), these formulae can be directly transformed into price and income elasticities.

Samuelson (1947), originated the revealed preference theory which asserts that if a consumer, faced

with the choice between two bundles of commodities represented by A and B, chooses A, then, A is revealed preferred to B and therefore B will never be chosen in the market conditions in which A could be chosen. This theory has since been refined into a theory of consumer behaviour which dispenses with the notion of utility indices by concentrating on deducing influences from actual behaviour of the consumer.[1]

---

[1] See, Houthakker, H. S. (1950)

The data

The survey for the collection of the household budget data used for the analysis in this study was conducted in seven towns of the old Western State between March and August, 1976. The study area was stratified into three strata. The bases of stratification were ecological and political. The strata conformed to the new state structure while the sampling procedure also considered the towns located in the rain-forest, and savannah areas of the old Western State. While cash crops dominate the economy of the rain forest area food crops dominate the savannah region. Even though it is our belief that modern transportation facilities may reduce the effect of regional specialization on consumption expenditure patterns, regional specialization is still an important stratifying factor. Ibadan, a metropolitan and industrial centre was not included in the sampling because its economic and social structure is not representative of the State. Since most of the inhabitants of the old Western State live in rural and semi-urban areas and, in order to make our sample representative of the state, the frame was confined to rural and semi-urban towns.

A sampling frame consisting of such towns described above was compiled for each stratum-Oyo, Ogun and Ondo states. The first stage of the two-stage sampling procedure was the random selection of towns from each stratum. Three towns, Iwo, Inisa and Gbongan were selected from the largest stratum while two each came from Ondo - Ado Ekiti and Okitipupa, and Ogun - Ijebu Ode and Ilaro. In each town thirty

households were selected randomly. These thirty households were interviewed by enumerators trained for budget data collection.

Since the Nigerian households do not typically keep records of their daily food purchases, interviewers had to visit each household twice per week for a period of four consecutive weeks to record actual expenditures on food consumption. The other items on which data were collected include income, family size and composition and expenditure on nonfood items. Because of the limited coverage and the small size of the sample, we are constrained to advise that these data be interpreted with some caution. However, these limitations do not seriously jeopardise the usefulness of the data for the kind of analysis that is undertaken in the study.

Specification of the model

We saw in section II how economic theory of consumer behaviour provides the basic guide for specifying empirical expenditure studies. However, further work, particularly in the field of household food budget studies, have provided greater details which could guide the researcher in specifying the variables relevant to empirical expenditure studies. For analytical purposes these variables can be divided into two categories, namely, dependent and independent variables. Concerning the dependent variable, Wold and Jureen (1952) have explained that it is better and more practicable to use household expenditure data than to use quantity data because of the problems associated with measurement and aggregation of quantity data over various categories of consumer goods.

As regards the independent variables, the most important problem is to determine the relevant measure of household purchasing power. In this regard, Houthakker and Taylor (1970) and Wold and Jureen (1952) have asserted that either household income or household total expenditures may be used as the independent variable to characterise household purchasing power.

There are at least three arguments in favour of using income rather than total expenditures. First, there is the argument that during a short survey period, expenditure figures may be distorted by tran-

sitory factors such as the purchase of durables and the use of credit. Second, there is the contention that it is necessary to make allowances for taxation and saving. Third, some reviewer talked about the so-called "least squares bias" in household expenditure analysis. The argument is that expenditure on a commodity or a set of commodities is a component of total household expenditures, and therefore, there is the possibility of intercorrelation ("feed back") between these two variables.

On the other hand, however, at least five arguments may be put forward in favour of using total household expenditures rather than total income as the independent variable. First, there is the Permanent Income Hypothesis based on Friedman's (1957) position that current income does not adequately reflect current consumption. Second, Houthakker and Taylor (1970) have argued that total expenditures are a better measure of true household purchasing power than income is because consumers have more control over their expenditure, at least over a short period of time, than they have over their receipts of income. Third, Houthakker (1957) argued that the influence of household income may be lagged and that total expenditures fit neatly into a theoretical framework which ignores the influence of saving. Fourth, Wold and Jureen (1952) contended that there is a constant proportional relationship between income and total expenditures, so that expenditure elasticities are almost equal for income and total expenditures. Fifth, there is the pragmatic argument that true estimates of income are more difficult to collect than actual estimates of expenditures especially in the Nigerian context where consumers are very touchy about giving correct information about their income for fear of using such information for tax assessment.

More significantly, in a developing economy such as Nigeria, there is no way of measuring or estimating rural income accurately. Instead there is an official income assumed for the purpose of taxation. In the rural areas where this study was conducted, most people pay "flat rate" income tax which assumes a total annual income of about ₦150. But it is a common knowledge that most of the people grouped under this income bracket earn much more than the assumed income level. There was the case of a petty trader who was

not included in our study whose income was assessed at ₦1,000 per annum for the purpose of taxation. He was furious at this estimate and swore that he never in his life made so much money per annum. After talking to him it was discovered that he incurred a total expenditure of over ₦1,700 per annum excluding transport, entertainment and extended family expenses.

From the simple example given above, which is typical of Nigerians, especially of Western Nigerians, the petty trader's purchasing power is the total expenditure of over ₦1,700 rather than the assumed income of ₦1,000. Thus, given the above opposing arguments, the Nigerian situation as described above and bearing in mind that caution must be exercised in applying received theories of advanced economics to the problem of developing countries (Ladipo and Adesimi 1978) we decided to specify alternative formulation of purchasing power in this study. This approach is, however not new, Adeyokunnu (1976) employed the same procedure for studying egg consuption in Nigeria.

Apart from the question of specifying the relevant measure of purchasing power, there are other explanatory variables which cannot be ignored in cross-section house-hold budget studies. One of such variables is the size, sex and age structure of household. Wold and Jureen (1952) noted that biased elasticities may be expected if these factors are not taken into account. Several approaches have been suggested for including these factors in budget studies. The approach adopted in this study is what is known as the 'equivalent adult scale' which reduces the size, sex and age structures of households to a common basis in accordance with the importance of each member in food consumption. The scale of evaluation is constructed by assigning a weight of 1.0 to each active adult male and 0.8 to each active adult female. On this basis, the scale is progresively worked down for the other members of the family, as shown in Table 1.

TABLE 1: EQUIVALENT MALE ADULT SCALE WEIGHTS

Age Category	Male	Female
Over 55 years	0.80	0.70
15 - 55 years	1.00	0.80
10 - 14 years	0.60	0.60
5 - 9 years	0.55	0.50
1 - 4 years	0.20	0.20
Under 1 year	0.00	0.00

In the light of the above and having regard to the objectives of the study and the fact that cross-section data are being used, the following models are hypothesised as characterising household food expenditure behaviour in the area of study:

$$E_F = AY_h^{B}1 \quad H_s^{B2} \; U_1 \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad 2$$

$$E_F = KE_T^{b}1 \quad H_s^{b2} \; U_2 \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad 3$$

$$E_F = CE_p^{a}1 \quad E_L^{a}2 \quad E_N^{a}3 \quad H_S^{a}4 \quad U_3 \quad \ldots\ldots\ldots\ldots \quad 4$$

where E_F = household expenditure on food

Y_h = household current income

H_s = household size and composition

E_T = household total expenditure

E_p, E_n and E_L = a breakdown of E_T, i.e. household expenditures on (i) processed *food, (ii) non-food items, and (iii) unprocessed foods respectively.

For a summary of these approaches, see, Slater, J.M. (1968).

By the term "processed" we mean foodstuffs which have been transformed from its raw state in order to provide 'form utility to consumers.

A,K,C are constants and B_1, B_2, b_1, b_2, a_1 ..... a_4 are parameters. Ui = random disturbance terms which are assumed to obey all the classical least squares assumptions.

Ordinary least-squares technique was used to estimate the equations which were linearised by taking the logarithmic transformations. In using ordinary least squares technique for our analysis we are aware of running into two specification errors. Because we have a cross-section data there is a possibility of violating the assumption of homoskedasticity but since the OLS estimates are unbiased and consistent (12) and since the households within towns are fairly homogeneous we did not consider this violation serious. The second violation is the presence of multicollinearity. The estimates from OLS are unbiased, consistent and BLUE but presence of multicollinearity has the tendency of inflating the standard error of estimate. This implies that more often than not the presence of multicollinearity will tend to lead the investigator to conclude that a coefficient is not significantly different from zero or his hypothesized value. Whenever a coefficient is found to be significantly different from zero inspite of the presence of multicollinearity then its effect could be ignored. Bearing these in mind we estimated the equations specified above.

The regression results

In Tables 2 through 4 we present summaries of the results. Table 2 gives the result of equation(2). The regression result in Table 2 shows that income alone explained between 35 per cent and 59 per cent of the observed variations in food expenditures across the different households studied, except in Ado-Ekiti and Gbongan where the respective percentages are 5 and 11.

When the influence of the household size and composition was brought to bear on the model, the R^{-2} improved quite considerably, ranging from 41 per cent in Gbongan to 79 per cent in Ilaro. This suggests that income and household size and composition jointly explain the bulk of the variations in food expenditur over most of the towns.

In equations where income alone was included as the explanatory variable, most of the coefficients ar statistically significant at the 10 per cent level,

TABLE 2*: REGRESSION RESULTS SHOWING INCOME AND HOUSEHOLD SIZE AND COMPOSITION AS DETERMINANTS OF FOOD EXPENDITURE

Towns	Constant	Log Y_h	Log H_s	$\bar{R}^2$
Ado-Ekiti	3.03	0.14 (0.11)	-	0.05
	2.50	0.13 (0.06)	0.49 (0.06)	0.71
Inisa	0.74	0.57 (0.11)	-	0.49
	0.75	0.44 (0.10)	0.61 (0.16)	0.65
Iwo	1.11	0.51 (0.08)	-	0.59
	1.37	0.34 (0.12)	0.42 (0.22)	0.62
Ijebu-Ode	2.52	0.27 (0.07)	-	0.35
	2.69	0.12 (0.04	0.52 (0.07)	0.76
Okitipupa	0.92	0.61 (0.07)	-	0.51
	2.13	0.21 (0.12)	0.55 (0.12)	0.72
Ilaro	1.80	0.42 (0.10)	-	0.37
		0.07 (0.07)	0.56 (0.07)	0.79
Gbongan	2.80	0.18 (0.10)	-	0.11
		0.06 (0.08)	0.49 (0.13)	0.41
All Towns	1.48	0.46 (0.03)	-	0.44
		0.30 (0.03)	0.51 (0.05)	0.62

*Figures in brackets represent standard errors of estimated coefficients.

except in Ado-Ekiti and Gbongan where these coefficients are nonsignificant. In the remaining equations, namely, those containing both Y_h and H_s as independent variables, the estimated coefficients are also significant at the 10 per cent level with the exception of Okitipupa, Ilaro and Gbongan where the income variable has nonsignificant coefficients and with the exception of Iwo which has a nonsignificant coefficient for H_s. In addition, all the coefficients have positive signs which imply that the larger the income and household size, the greater the expenditure on food consumption.

The income elasticity coefficients, which measure the percentage change in food expenditures associated with a 1 per cent change in income, can be com-

puted directly from the equations whose income coefficients are significantly different from zero. Using the models having both Y_h and H_s as explanatory variables, the elasticities are 0.13 for Ado-Ekiti, 0.44 for Inisa, 0.34 for Iwo, 0.12 for Ijebu-Ode, and 0.30 for all the towns put together.

These elasticities are low compared with similar estimates (i) for Ile-Ife (1970) which were 0.51 and 0.45 respectively, (ii) for Enugu (1958) which was 0.60, and (iii) for Ibadan (1970/71) which were 0.92 for low income group, 0.62 for middle income group and 0.58 for high income group. One possible explanation for the relatively low income elasticities for the present study is the likely effect of subsistence production which is more pronounced in semi-urban centres than in the larger cities. Subsistence production has the effect of reducing market purchased foodstuffs which in turn lowers the estimated income elasticities. One other element is the fact that the present study is much more recent than most of the studies cited above. Over time as household incomes rise gradually in the process of economic development smaller percentages of a given increase in income are spent on food. This means that as we move through time, the tendency is for income elasticities to fall, given the facts of economic development.

Table 3 represents the regression results of equation 3 in which E_T and H_s are specified as independent variables. These results reveal that total expenditures alone explain very little of the observed variations in food expenditures in Ado-Ekiti and Gbongan. This evidence is very much similar to that obtained for equation 2 in which income alone also explained very little of the observed variations in food expenditures in the two towns. However, in the rest of the results, the explanatory power of total expenditures alone is much higher, ranging from 45 to 65 per cent. If we compare Tables 2 and 3, we will observe that total expenditures alone tend to explain more of the variations in food expenditures than does income alone. This result appears to support Houthakker and Taylor (1970) that total expenditure is a better measure of the true purchasing power of households than is income. These two scholars went on to assert that the use of total expenditures as an explanatory variable in this kind of study can be interpreted as being a variant of the permanent income hypothesis developed by Modigliani and Brumberg (1954) and Friedman (1957).

TABLE 3: REGRESSION RESULTS SHOWING HOUSEHOLD TOTAL EXPENDITURES AND HOUSEHOLD SIZE AS DETERMINANTS OF FOOD EXPENDITURES

Towns	Constant	Log E_T	Log H_s	$\bar{R}^2$
Ado-Ekiti	3.17	0.12 (0.09)	-	0.06
	2.71	0.08 (0.05)	0.48 (0.06)	0.70
Inisa	1.09	0.57 (0.08)	-	0.61
	1.21	0.46 (0.10)	0.34 (0.19)	0.64
Iwo	0.53	0.71 (0.10)	-	0.65
	0.85	0.54 (0.15)	0.32 (0.22)	0.66
Ijebu-Ode	1.56	0.50 (0.10)	-	0.47
	2.15	0.25 (0.07)	0.48 (0.06)	0.82
Okitipupa	-0.15	0.92 (0.13)	-	0.63
	1.07	0.50 (0.13)	0.46 (0.09)	0.80
Ilaro	1.53	0.51 (0.11)	-	0.45
	2.54	0.15 (0.07)	0.52 (0.07)	0.81
Gbongan	2.73	0.22 (0.10)	-	0.15
	2.63	0.11 (0.09)	0.47 (0.12)	0.43

In equations which include E_T and H_s as explanatory variables all the coefficients have positive signs as expected and the values of R^{-2} are relatively high, lying between 0.45 and 0.83. Similarly, most of the estimated coefficients of E_T are significant at the 10 per cent level with the only exception of Ado-Ekiti and Gbongan which have non-significant coefficients. The expenditure elasticities from these equations are: Inisa, 0.46; Iwo, 0.54; Ijebu-Ode, 0.25; Okitipupa, 0.50; Ilaro, 0.15 and for all towns, 0.38. These elasticities have similar interpretations to those presented in Table 2.

Finally, Table 4 summarises the regression results of equation 4 in which the explanatory variables include a breakdown of E_T into its economic components (E_P, E_L, E_N) and H_s. The special point of interest here is the behaviour of E_L and E_P which would enrich our knowledge concerning the allocative decisions

TABLE 4: REGRESSION RESULTS SHOWING H_S AND DISAGGREGATED COMPONENTS OF E_T AS EXPLANATORY VARIABLES

Towns	Constant	Log E_P	Log E_L	Log E_N	Log H_s	$\bar{R}^2$
Ado-Ekiti	0.74	0.28 (0.02)	0.66 (0.03)	0.004 (0.006)	0.04 (0.02)	0.98
Inisa	1.34	0.23 (0.08)	0.53 (0.25)	0.04 (0.06)	-0.11 (0.26)	0.70
Iwo	0.61	0.18 (0.05)	0.84 (0.14)	-0.09 (0.04)	0.10 (0.18)	0.91
Ijebu-Ode	0.69	0.35 (0.01)	0.64 (0.02)	0.005 (0.005)	-0.01 (0.01	0.99
Okitipupa	0.44	0.13 (0.01)	0.87 (0.05)	-0.02 (0.02)	0.02 (0.04)	0.97
Ilaro	0.69	0.29 (0.01)	0.69 (0.02)	-0.01 (0.01)	0.01 (0.02)	0.99
Gbongan	2.88	0.19 (0.03)	0.01 (0.05)	-0.05 (0.02)	0.40 (0.08)	0.77
All Towns	1.80	0.21 (0.02)	0.38 (0.05)	-0.05 (0.02)	0.29 (0.05)	0.76

of the sample of households with regard to their expenditures on "unprocessed" foodstuffs and "processed" foods. In this regard the evidence clearly indicates that the elasticities of "unprocessed" foods are consistently higher than those of "processed" foods in all towns except in Gbongan, and in that case the elasticity coefficient is in fact not statistically different from zero. This suggests that these households tend to spend much more of an increase in total budget on "unprocessed" foodstuffs than they spend on "processed" foods.

However, one problem about the results in Table 4 is the fact that some of the estimated coefficients have signs contrary to a prior expectation. For example, the coefficients of log E_N which are expected to be negative in all towns have positive signs in Ado-Ekiti, Inisa and Ijebu-Ode. In the same manner, the coefficients of log H_S which are supposed to have positive signs bear negative signs in Inisa and Ijebu-Ode. These "unexpected" signs, however, may result from either the smallness of the sample size in each town, the presence of multicollinearity or from heteroskedastic disturbance.

Nonetheless, two policy implications can be drawn from the evidence discussed above. First, any meaningful welfare programme designed by the government to control or subsidize food prices should be directed to "unprocessed" foodstuffs which at present account for a large component of household expenditures on food. Second, the encouragement of food processing in the Western way may have to proceed gradually especially in light of the current low levels of demand for these commodities in semi-urban or small urban centres. The currently low level of demand for Westernised processed foodstuffs may however stem from the fact that in general these commodities are relatively more expensive than foodstuffs that are not processed in the same way.

Summary and conclusion

Given the importance of food in the social and economic development of Nigeria, a statistical analysis of household food expenditure patterns was justified on the ground that it helps to quantify some of the significant socio-economic variables which may be of interest to agricultural planners in their efforts to steer the direction of development and to improve the welfare of the people. Within this broad context, the study sets out to examine the impact of various measures of household purchasing power on food expenditure, the allocative decisions of households regarding expenditures on processed and unprocessed local foodstuffs, and the influence of household size on food expenditures.

The multiple regression results showed that income alone explained between 5 and 59 per cent of the observed variations in food expenditures across the various households drawn randomly from seven urban centres of the old Western State. Total expenditure alone was found to account for between 6 and 65 per cent. The results therefore tend to support the contention that total expenditures are a stronger characterisation of household purchasing power than total income. This seems to imply that expansion or restriction of households' total expenditures would have more effective impact on food expenditures than income would have. This evidence, however, should be taken with some caution as more studies need to be conducted in order to make a more reliable conclusion.

When the influence of household size was brought to bear on the models, the value of $\bar{R}^2$ improved con-

siderably which tends to underscore the importance of this variable in food expenditures. Moreover, the individual estimated coefficients were tested for significance and the tests showed that most of them are statistically different from zero at 5 or 10 per cent levels. Thus, we can be confident that these coefficients are reliable estimates and that policy manipulation of them will tend to give the desired effects, all other things being equal.

The computed elasticity coefficients were found not only to be different in magnitude across the various urban centres but were also lower compared with the evidence of previous studies in Ile-Ife, Ibadan and Enugu. One plausible explanation for this apparent dissimilarity is the tendency for most households in the past two years to grow some of the food they consume especially in smaller urban centres such as the areas of the present study where facilities exist for subsistence production. If we accept this explanation, one would then contend that the intensification of the OFN campaign may be one of the surest ways of reducing pressure of food expenditures on household incomes. This will tend to leave more margin for providing the other essentials such as clothing, housing, education and health.

The result presented in Table 4 clearly indicates that the elasticity coefficients with regard to processed foods were in most cases, lower than those for unprocessed local foodstuffs. This evidence suggests that these households spend more of an increase in their budgets on unprocessed foodstuffs than they do on processed foods.

Given the above results, a subsidy on farm inputs will have the effect of reducing food production costs and increasing output of foodstuffs. The increase in food output will lead to a reduction of farm gate prices all things being equal. Then, control of the prices of "unprocessed" foods will then become necessary to ensure availability of cheap food to the urban consumers. More important, however, is the encouragement of local food processors who transform raw foods in the traditional way to provide form utility to consumers. Availability of this category of foods, namely, elubo (yam flour), gari, lafun, bean flour, etc. will go a long way in reducing prices and food shortages in the urban centres. Government policies on subsidy, price control and encouragement of

traditional food processing industries must be designed to achieve the above stated goals.

However, these recommendations should be regarded as tentative because of the smallness of our information base with regard to this study. A country-wide household budget study (when such is conducted) will provide a better information base for better policy prescriptions.

References

Adesimi, A. A. (1970 and 1977) Structural Patterns and Intertemporal Comparison of Household Food Expenditure in an African Semi-Urban Centre: A Case Study of Ile-Ife, Department of Agricultural Economics, University of Ife.

Adeyokunnu, T. O. (1976) "Permanent Expenditure and Food Consumption: Application to Eggs in Nigeria" *Journal of Rural Economics and Development 17 (1), 49 - 59.*

Antonelli, G. B. (1886) Sulla Teoria Mathematica della Economia Pura. Folchetto, Pisa., Reprinted *1951 in GE (New Series) 10, 233 - 263.*

Edgeworth, F. Y. (1881) Mathematical Psychics. Kegan Paul, London, 2nd ed., *London School of Economics Reprint of Scarce Works, 150pp.*

Fisher, I. (1892) Mathematical Investigations in the Theory of Value and Prices. *Trans-Connecticut Acad. 9, 1 - 124; also as Thesis (Yale, 1891).*

Friedman, M.(1957) A theory of the Consumption Function., Princeton University Press.

Gossen, H. H. (1954) Entwicklung der Gesetze des Menschlichen Verkehrs, Und der Daraus Flieseenden Regelin fur Menschliches Handelin. Berlin,Praeger.

Hicks, J. R. and Allen, R. G. D. (1934) "A Reconside ration of the Theory of Value." *Economica 1, 52-75 and 196-219.*

Houthakker, H. S. (1950) "Revealed Preference and the Utility Function" *Economica 17, 159 - 174.*

Houthakker, H. S. and Taylor, L. D. (1970). Consumer Demand in the United States: Analyses and Projections. (2nd and enlarged ed.) Harvard University Press Cambridge, Massachusetts.

Jevons, S. (1971) The Theory of Political Economy 2nd ed. 1979. *Macmillan, London, 315 pp.*

Kmenta, Jan (1971) Elements of Econometrics. The Macmillan Company, New York.

Ladipo, O. O. and Adesimi, A. A. (1978) "An Econometric Investigation of the Consumption Theory in a Developing Nation" *Ife Journal of Agriculture 1 (1)*

Modigliani, F. and Brumberg, R. (1954) "Utility Analysis and the Consumption Function: An Interpretation of Cross Section Date" in Post-Keynesian Economics, ed. K.K. Kurihara, Rutgers University Press.

Oni, S. A. and Anthonio, Q.B.O. (1958 and 1970/71) "An Emprical Analysis of Food Consumption Expenditures in Nigeria" The Nigerian Agricultural Journal, Vol. 1, II No. 1 April 1974, pp 17 - 24.

Pareto, V. (1906) Manuale di Economic Political. French eds. 1909 and 1927, Fiard, Paris.

Samuelson, P. A. (1947), Foundations of Economic Analysis. Cambridge, Harvard University Press.

Slater, J. M. (1968) Regional Consumer Expenditure Studies Using National Food Survey Data. Department of Agricultural Economics, University of Manchester.

Walras, L. (1874), Elements 'economie Pure. 5th ed. 1926 Durand - Auzias, Paris.

Wold, H. and Jureen, L. (1952) Demand Analysis. John Wiley and Sons Inc. N.Y.