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Analysis of Household Expenditure in Rural Areas of Ondo State, Nigeria: Using Quadratic Almost Ideal Demand System

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Abstract
Poverty level in Ondo State is extremely high particularly in rural areas, this is due to low per capita income coupled with various factors and the consumer price index increasing on a daily basis such a way that household income can hardly cope with the trend. Consequently, there are several empirical studies on household expenditure but most of those studies focused on only foodstuffs, however, this study focused on food and non-foodstuffs. This study investigated households' expenditure in rural areas of Ondo State and the specific objectives were: (i) examined the effects of income on household expenditure in rural areas of Ondo State and (ii) identified the determinants of household expenditure in rural areas of Ondo State. Data collected from five hundred and nineteen (519) households' heads selected for the study through multi-stage sampling method were analyzed using the QUAIDS. The study found that all expenditure elasticities were positive, indicating that food and non-food items are normal goods. It was also discovered that Beans (0.22) and Gari (0.82) are necessities with their elasticities less than 1 while others are luxury goods since their elasticities are greater than 1. Own price elasticities were mostly negative as expected in both uncompensated and compensated price elasticity estimates for food items. The Hicksian cross-price elasticities showed that gari and meat were substitutes. The study concluded that income and price influence household purchasing power in rural areas. And thus recommended that economic policies should be geared towards preventing fluctuations majorly in the price of food and non-food items.
Keywords: Luxury, QUAIDS, Elasticity, Expenditure, Food Demand and Household

Introduction

Household expenditure is the most important part of aggregate demand and forms one of the major components of Gross Domestic Product (GDP). Household expenditure refers to the monetary value of basic needs or goods and services purchased by household on daily, weekly, monthly and yearly basis. It can be broken down into a number of categories, covering major items like food, electricity, holidays, clothing, spending on transport, internet, health, recreation and culture, and housing, fuel and energy and so on. An analysis of household expenditure pattern has become topical due to the impact of household decisions on economic development and policy planning purposes.

Household budget surveys across Africa consistently show basic food to be the main consumption expenditure item in rural areas, but as relevant as food is, however, non- food is alsopertinent to human life and its role in reducing poverty cannot be overemphasized. The study by Gale(2005), found food to be the largest single expenditure item for rural Chinese people, but according to National Sample Survey Office (NSSO, 2012), larger households were found in the recent time to spend more on non-food items in view to reduce poverty.

According to the report of the National Sample Survey Office (NSSO, 2012) in India, the recent trends in consumption expenditure show a considerable shift from food to non-food items. It is estimated that the share of non-food items in consumer expenditure in the studied rural areas is 71.34 percent, which is higher than the share of urban Kerala. The share of non-food expenditure in total consumption expenditure in India is 54 percent in 2009-2010. Its report also shows that, between 2000-2010, the share of food in total consumption expenditure has fallen from 68.96 percent to 46 percent. According to Europe Consumption Report (2012), the more developed a society becomes, the less it spends on food and the more it spends on non-food items.

Statement of the Problem

The level of poverty in Ondo State is very high due to low per capita income coupled with various factors and the consumer price index increasing on a daily basis such a way that households' income can hardly cope with the trend. This has contributed immensely to the poor purchasing power of the household and negatively affected the expenditure pattern of the people. However, the decision to reverse the ugly trend and reduce poverty has become a major concern.

Application of demand system enables the modeling of allocation of total expenditure among commodities given a certain budget set, Pangaribowo and Tsegal, (2011). In order to apply demand theory in the real world, empirical model of demand system is needed. A number of approaches (locally or internationally) have been used to quantify the role of household composition in determining household expenditure using any of Linear

Expenditure System (LES), Rotterdam Model, Almost Ideal Demand System (AIDS), Linear Approximation Almost Ideal Demand (LA-AIDS) and the Quadratic Almost Ideal Demand System (QUAIDS). However, most of those studies have one or two shortcomings for example, the Linear Expenditure System adopted by Stone (1954), the Rotterdam Model of Theil (1965) the Linear Approximation of the AIDS adopted by; Agboola 2003; Ogunnuyi 2011; Suleiman, Umar and Abubakar 2013; do not allow for adequate curvature of the Engel curve.

Likewise, most other studies which adopted either of the AIDS, LA/AIDS or the QUAIDS model and so on, such as; Olorunfemi (2012), studies demand for food in Ondo state using QUAIDS. Gallet (2007) uses AIDS model to study demand for higher education in the United States. Taljaard (2003), uses the Linear Approximate of Almost Ideal Demand System (LA/AIDS) model to estimate the demand for meat in South Africa.All use an annual income as a proxy for a household's economic situation and they only focused on foodstuffs in the models. However, this study deviated from the previous studies by including non-foodstuffs in its modeland the study areas were majorly rural areas where annual income is erratic and inconsistent. The broad objective of the study is to examine the expenditure pattern of households in rural areas Ondo state, Nigeria: using Quadratic Almost Ideal Demand System, and specifically, examine the effect of income on household expenditure in rural areas of Ondo State. Identify the determinants of household expenditure in rural areas of Ondo State.

The scope is limited to household expenditure in six rural communities selected purposively from three local governments in the eighteen local governments across the three Senatorial Districts in Ondo State. It focused on domestic food and non-food demand. The work sought to analyze the food and non-food demand situation in the state, using QUAIDS model. A moderate and reasonable purchasing power in spite of low per capita income, price among others has been the prime concern of the people of the world in the recent time. The conclusions drawn from this study shall be a useful stepping stone to other researchers, who want to make further study on this topic. For the purpose of achieving the objectives of this study, this research is organized into five chapters; chapter one provides the general introduction of the study, statement of the problem, objectives of the study. Chapter twocontains theoreticaland empirical framework. Chapter threedeals with the research methodology, sampling technique, and model specification. Chapter four focuses on the presentation of the QUAIDS, Interpretation of the data.Chapter five contains findings, Conclusion, and Recommendations

Literature Review

Conceptual Literature

According to Koutsoyiannis (1979), demand is a multivariate relationship that is determined by many factors simultaneously. Some of the most important determinants of the market demand for a particular product are its own price, consumers' income, price of other commodities, consumers' tastes, income distribution, total population, and past levels of income. The tradition theory of demand only concentrates on; price of the goods, income of the consumer, price of substitute, preference and taste. This can be stated or modeled as follow.

$$Q^dA = F(P_a, P_b, Y, T)$$

Where Q – Quantity demanded, P_a – Price of commodity a, P_b- Price of commodity b, Y– Income, T – Taste and preference. It should be noted that the traditional theory of demand examines only the final consumers' demand for durables and non-durables. According to Sivaramane (2012), demand models are variously classified based on the specification of models, their estimation procedure, number of equations and so on. There are two approaches that can be followed to estimate the parameters of demand equations. One consists of specifying estimable single equation demand function in a pragmatic fashion without resource to economic theory. Demand estimation from time series data falls under this category.

Theoretical Framework

The Theory of Consumer Demand

A consumer's demand gives the number of units of a particular product that the consumer would choose to buy at each possible price over a specified period of time (Ekelund and Ault, 1995). Given any available set of bundles of products, the consumer chooses that bundle which maximizes his utility or satisfaction. Thus, consumer's demand for a good is the quantity chosen as a result of this utility maximization, which is also dependent on precisely what sets of bundles of goods are available. According to Henderson and Quandt (1986), commodity prices and consumer income are the main determinants of the demand level for a commodity. McKenna and Rees (1992) also note that prices, consumer income and preferences (tastes, habits and desires) interact to determine the individual demand function.

The Theory of Consumer Behaviour

The basic approach to utility maximization is to purchase the next product that delivers the most marginal utility at a given price. Loudon and Bitta (1993) define consumer behaviour as the decision process and physical activity individuals engage in when evaluating, acquiring, using, or disposing of goods and services. Consumer purchase decisions appear to be based on a combination of economic and sociological factors and they could

therefore be better understood if the concepts of the two disciplines are combined for the purposes of analysis.

Empirical Literature of the Study

Over the years series of studies have been conducted on the analysis of household expenditure. Some of those studies are analyzed below coupled with their findings. Olorunfemi, (2012), examined Demand for food in Ondo state, Nigeria: Using quadratic almost ideal demand system(QUAIDS) and non-parametric statistics with data gathered from 1,200 respondents and found that estimated expenditure elasticities for all Ondo State are all positive and statistically significant, indicating that all the food items are normal goods and that rice, beans, yam-flour, meat and vegetable and fruits are luxury goods since the coefficients are respectively which are greater than one. However, garri, yam, bread and plantain are all necessity goods.

Adetunji and Rauf (2012), investigate household demand for meat in the Southwest, Nigeria. Analysis was done using Descriptive Statistics and Almost Ideal Demand System (AIDS) Model. Data were collected from two hundred and forty household in the study area through well-structured questionnaire. Their findings showed that beef (43.7%) was mostly preferred in the study area, income levels of respondents and taste influenced the type of meat preferred.

Katsuura (2012), studies time-series properties and demand system of household expenditure on culture in Japan. Data were collected from the Family Income and Expenditure Survey (FIES), which is conducted monthly by the Statistics Bureau, Ministry of Internal Affairs and Communications, Japan. Were analyzed using unit root, co-integration, and an Almost Ideal Demand System (AIDS) with error correction terms to estimate monthly household cultural and recreational expenditures. The result of elasticity shows that, there exists a strong relationship between expenditures for cultural (e.g admission fees for movies and plays, cultural establishments, amusement parks and so on).

Summary of Literature and Gap to be filled

A review of the existing literature has shown that a dense literature on household demand exists. In an attempt to examine household demand pattern in order to stimulate the effect of income and exogenous price shock on expenditure pattern, studies in the past in both developed and developing countries have adopted and modeled demand using different models. Most recent studies which adopted the LA-AIDS, AIDS or QUAIDS model and so on, such as; Odusina (2008), Abiodun (2009), and Robert (2012), among others only focused on food items. LikewiseKatsuura (2012) who extended his scope to non-food examined household demand for culture in urban Japan using the AIDS in conjunction with unit root and cointegration, only focused on urban centers. However, having considered the shortcomings of those studies, this present study therefore deviated from the previous studies as it examined household expenditure on eleven broad categories of domestic food and non-food items (Rice, Beans, Gari, Meat, Fresh fish, Yam, Semovita, Kerosene, Premium Motor Spirit, Drinkable water and Cooking gas). Perhaps, QUAIDS has been chosen as the demand model for empirical strategy of estimation in this study based on its advantages. The study sought to extend QUAIDS model with to investigate the role of non-economic and economic variables in household demand baheviour in rural areas of OndoState.

Methodology

The Study Area

The study area of this research work is rural areas of Ondo state. The state was the seven states created on 3rd February, 1976. Ondo state covers a land area of about 15,500 square kilometres with its administrative capital in Akure. The 2006 census put the population of the state at 3,441,024. The State is made up of 18 Local Government Areas (LGAs) with three Senatorial Districts; and, it is bounded in the North by Ekiti and Kogi States and in the South by the Atlantic Ocean. Ondo State is located entirely within the Tropics. The people of the state are mostly of the Yoruba race, although other Nigerians and Foreign nationals coexist peacefully in the state. The most known sub-groups are the Akoko, The Akure, the Ijo (made up of Apoi and Arogbo), and the Ikale, the Ilaje, the Ondo and the Owo. Generally, the people have similar customs, tradition and language.

Sampling Technique and Method of Data Collection

Data collected through a multistage sampling method were analyzed. The eighteen LGAs in the state were stratified into three Senatorial Districts. From these, three Local Government Areas were selected purposively and each Local Government Areas was selected from each Senatorial District, to reflect differences in expenditure along the three senatorial districts. Two rural communities were selected purposively from each of the Senatorial District and these to include; Ifon and Imeri (Ose Local Government, Ondo North Senatorial District), Igbara-oke and Ijare (Ifedore Local Government, Ondo Central Senatorial District), Irele and Ajagba (Irele Local Government, Ondo South Senatorial District).

In this study, well-structured 600 questionnaires based interview were used for sampling the behaviour of consumers towards food and non-food demand in the study areas. The 600 questionnaires used for sampling

were distributed in ratio (25: 40: 35)% among the selected local government and (60:40)% among the selected communities.

Model Specification

This study employed QUAIDS as used by Poi (2002). QUAIDS maintains all the relevant properties of its linear counterpart (AIDS), allowing for exact aggregation over households. While alternative demand system specification like Translog or AIDS have budget share equations that are linear in the logarithm of income, QUAIDS has more flexible Engel curves and retains integrability. By introducing the quadratic income term, the model gains more flexibility, which positively affects the quality of the model outcome. In this study it assumed that household preferences over *n* consumption bundles are represented by the following indirect utility function, where *m* is the total household expenditure and vector p represent commodity prices

$$w_i(p) = \alpha_i + \sum_j \gamma_{ij} \ln p_j + \beta_i \left[\ln \frac{m}{\alpha(p)}\right] + \frac{\lambda_i}{b(p)} \left[\ln \frac{m}{\alpha(p)}\right]^2 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 19$$

Nature and Source of Data

Primary data was used in this research work and it was sourced through well-structured questionnaires. Questionnaires were administered to generate necessary information from the households in the rural area of Ondo state. Data were collected on some household characteristics such as household size, income, expenditure, age, gender, education, quantities of food and non-foodstuffs consumed etc.

DATA ANALYSIS AND INTERPRETATION

This chapter presents the analysis and interpretation of data generated to examine household expenditure pattern in rural Ondo State, Nigeria: using QUAIDS. Specifically, the analysis intends to examine effect of income on household expenditure and to identify determinants of household expenditure. The analysis ascertained if the parameters of the QUAIDS model for food and non-food items are statistically significant in deciding whether or not to reject the null hypotheses and to examine the expenditure and price elasticities of the selected commodities.

Results of Own Price and Expenditure Elasticity

Table 4.3: Own price and expenditure elasticity of the commodities

Food items	Compensated	Uncompensated	Expenditure elasticity
Rice	0.48859352	-0.16256809	2.9112853
Bean	0.18038912	0.1386712	0.22911542
Gari	-0.3238252	-0.42325475	0.82812288
Meat	-0.23973303	-0.38440069	2.5666452
Fresh Fish	0.07005899	-0.04917451	3.1496755
Yam	0.0283621	-0.02560136	1.9251459
Semovita	0.23463373	0.10337433	2.0440864

Source: Author's Computation from QUAIDS (2017).

Table 4.4: Expenditure Elasticity for Foodstuffs

Food Aggregates	Expenditure Elasticity
Rice (C_1)	2.9112853
Beans (C_2)	0.2211542
Gari (C_3)	0.82812288
Meat (C_4)	2.5666452
Fresh fish (C_5)	3.1496755
Yam (C_6)	1.9251459
Semovita (C_7)	2.0440864

Source: Author's Computation from QUAIDS (2017).

Expenditure (income) elasticity

Tables 4.3 and 4.4 presented the own price elasticities for both compensated and uncompensated. Also expenditure elasticity results were presented. A commodity can be classified as luxury, necessity, inferior or superior depending on the degree of fluctuation of demand with a change in the income. Expenditure (income) elasticity measures the responsiveness of demand to a change in consumer income and is affected by the time period over which they are measured (the shorter the time period the lower the income elasticity of demand) and degree of necessity of the good (the more necessary the good, the lower income elasticity of demand). Sloman and Norris (2002).

Table 4.4 shows the calculated expenditure elasticity of household demand for major food items in rural

Ondo State. The elasticities are computed and presented at their mean levels. The result showed that all the expenditure elasticities for the food items were positive and consistent with *a priori* expectation. This implies that; rice, beans, gari, meat, fresh fish, yam and semovita were all normal goods. In terms of magnitude, commodity or food with expenditure elasticity greater than 1 are regarded as luxury. In this study; rice, meat, fresh fish and semovita are regarded as luxuries while beans (0.22911542) and gari (0.82812288) are regarded as necessities because their coefficients are less than 1.

When computed at their mean level, the expenditure elasticity for Rice is 2.9112853. This implies that 1 percent increase in the income of consumers or households is expected to increase the expenditure or budget share devoted to Rice by 29 percent. The same goes for beans, gari, meat, fresh fish, yam and semovita with expenditure elasticities of 0.2211542, 0.82812288, 2.5666452, 3.1496755, 1.9251459 and 2.0440864. A percent increase in the income of the household will bring about 22 percent, 82 percent, 256 percent, 314 percent, 192 percent and 204 percent increase in the budget share of household for the selected food items. With this result, the null hypothesis (H_0); there is no statistically significance relationship between household income and household expenditure in rural areas Ondo State is being rejected while alternative hypothesis (H_1) is accepted. Thus, this result is consistent with the findings of Olorunfemi, (2012).

Price Elasticity (Own and Cross Price Elasticities)

Price elasticity of demand measures the responsiveness of quantity demanded for with a change in price and are specific to the product, market conditions and time period over which the analysis is done (Petersen, 2005). The uncompensated or Marshallian price elasticities contain both income and price effects. The uncompensated own price and cross elasticity matrix were calculated at their sample means and the results are shown in table 4.5. In line with consumer demand theory, we expect all own price elasticities are negative. The negative own price elasticity means that an increase in the price of a commodity results in a decrease in demand for that particular commodity. Some of the uncompensated own price elasticities possess the expected negative signs and are statistically significant at the 5% level. The uncompensated own price elasticities of rice (-0.162568), gari (-0.423255), meat (-0.384401), fresh fish (-0.049175) and yam (-0.025601) are all significant. The own price elasticities are shown in bold figures along the major diagonal in table 4.5.

Result of the QUAIDS for Non-foodstuffs

Table 4.7: Estimated Parameters of QUAIDS for Non-foodstuffs

Coef.	Std. err.	z	P>/z/	
alpha				
alpha_8	0.0634274	0.0129147	4.91	0.000
alpha_9	0.7782598	0.0257342	30.24	0.000
alpha_10	0.0048861	0.0064318	0.76	0.447
alpha_11	-0.1012294	0.0174491	-5.80	0.000
beta				
beta_8	0.0245667	0.0072825	3.37	0.001
beta_9	-0.0054749	0.0114914	-0.48	0.634
beta_10	-0.0063072	0.0037025	-1.70	0.088
beta_11	-0.0995417	0.0102409	-9.72	0.000
gamma				
gamma_8_8	0.0286071	0.0013122	21.80	0.000
gamma_9_8	-0.0094248	0.0010537	-8.94	0.000
gamma_10_8	-0.0004838	0.0004303	-1.12	0.261
gamma_11_8	-0.0067279	0.0021273	-3.16	0.002
gamma_9_9	0.2794723	0.0087606	31.90	0.000
gamma_10_9	-0.00208	0.0004203	-4.95	0.000
gamma_11_9	-0.0099755	0.0031342	-3.18	0.001
gamma_10_10	0.0089004	0.0002923	30.45	0.000
gamma_11_10	-0.0007451	0.0009933	-0.74	0.453
gamma_11_11	0.0639174	0.0052214	12.24	0.000
lambda				
lambda_8	0.0047517	0.0010676	4.45	0.000
lambda_9	-0.0353625	0.0021171	-16.70	0.000
lambda_10	-0.000335	0.0005493	-1.52	0.129
lambda_11	-0.0142315	0.0015794	-9.01	0.000

Source: Author's Computation from the QUAIDS model (2017)

The results of the estimated parameters of the QUIADS model for non-foodstuffs are displayed in table above. The four non-food items (kerosene, premium motor, drinkable water and cooking gas are listed in order of _8, _9, 10_ and _11 respectively. From the QUAIDS result, the constant parameters represent the average value of budget shares of non-food items when income and price effects are equal to zero. As being displayed in the result, all the constant parameters are statistically significant except alpha_10 (the constant coefficient of drinkable water). There is no economic justification for this because the constants in the QUAIDS are prim and included to aid the estimation process. The result suggested that in the absence of income and price effects, kerosene budget share will increase by 6 percent; PMS by 77 percent; drinkable water by 0.4 percent. However, households in the rural areas will reduce their gas expenditure by about 10 percent. This goes to show that gas is responsive to change in price and income.

The degree of responsiveness of the non-food items to change in income is captured by expenditure term (beta). The result suggests that only two out of the four non-food items are statistically significant. From the forgoing, therefore, one can infer that there is no much quantity response to change in relative expenditure in kerosene, PMS, drinkable water and cooking gas. Specifically, when expenditure effects are identical equal to zero, demand for kerosene increases by 2 percent. Also, 1 percent increase in the income of households lead to about 0.5 percent decrease in the expenditure share of premium motor spirit; while 1 percent increases in income leads to about 0.6 percent and 0.9 percent decrease in expenditure share of drinkable water and cooking gas respectively.

The gamma coefficients represent the price effect for the non-food items. The result shows that fifty-six out of the sixty-six price effects are statistically significant at 5% significant level. Put different, fifty six price effects are statistically and significantly different from zero; this implies that there is much quantity response to movement in relative prices. For example 1 percent increase in the demand for kerosene brings about 2 percent increases in the price of kerosene. The same situation holds for PMS and drinkable water. For example, the price of PMS and drinkable water will decrease by 0.9 percent and 0.04 percent respectively. On the price effects between food and non-food, it is expected that a percent decrease in the demand for gariby 5 percent will lead to 1 percent increase in the price of cooking gas. Also, 1 percent increase in demand for beans will increase the price of kerosene by 2 percent. Finally, if the price of cooking gas increases by 1 percent, it is expected households demand for the product to increase by 6 percent.

Summary, Conclusions and Recommendations

This study examined household expenditure pattern in rural areas of Ondo State, Nigeria: Using quadratic almost ideal demand system with a specific objectives; examined the effect of income on household expenditure and to identify determinants of household expenditure. The study deviated from the previous studies by taken both food and non-food items in consideration and study sought to provide solution to poverty in the rural areas. Data generated through multi stage sampling technique from 519 heads of households were analyzed using QUAIDS model. The major finding was that; all expenditure (income) elasticities were positive and significantly different from zero for the two models indicating that the domestic food and non-food items are normal goods. It was also discovered that Beans (0.22) and Gari (0.82) are necessities with their elasticities less than 1, this indicates that those goods are staple items which must be made available irrespective of the level of income and price while other goods are luxury goods since their elasticities are greater than 1. Own price elasticities were mostly negative in uncompensated and positive in compensated price elasticity estimates for food items. The Hicksian cross-price elasticities showed that some of the food groups were substitutes. The fuse interesting relationship between those variables has substantiated the claim that a reasonable level of income with a drastic reduction in the price of goods available to household in the rural areas will perhaps reduce the poverty to an infinitesimal level.This study therefore, concluded that price and income play a significant role on household purchasing power and thus recommended that Policy should, therefore, focus on measures to improve the production of food and non-foodstuffs at the producing areas and its distribution to the consuming centers to forestall the possibility of any skyrocket in prices as consumers' incomes improve and also household income levels in rural areas should be improved through job creation especially at a minor level to empower households to meet their total household food non-food requirements as these will affect expenditure pattern in rural areas of Ondo State and consequently improve their purchasing power.

Expected Contribution To Knowledge:

It is of the believe of previous studies that in an attempt to reduce poverty, sustainability of food items must be the prime objective of government at all level and also those studies emphatically drawn the attention of government and non-governmental organizations to only urban centers but this present study focused on rural areas because the level of poverty in rural areas is far higher than of the urban. This present study, therefore, came up with a new view that sustainability of food items irrespective of the level of income and price could not only provide permanent solution to poverty but in conjunction with non-food items because results revealed that

both food and non-food items are normal goods and are all consistent with demand theory.

References

Abiodun, E.D., Okoruwa V.O. &Ajayi .O.I.Y (2009). Cross Sectional Analysis of Food Demand in the North Central, Nigeria: The Quadratic Almost Ideal Demand System (QUAIDS) Approach. *China Agricultural Economics Review*. 1(2), 173-193.

Adetunji, M.O. &Rauf.O. (2012).Analysis of household demand for meat, Southwest, Nigeria.*Global Journal of Science Frontier Research Agriculture and Biology*.12(1). 1-10

Agboola, F. W (2003). Estimation of food demand patterns in South Africa based on a survey of households, *Journal of Agricultural and Applied Economics,* 35 (3), 662 – 670

Ekelund, R. B. Jr& Ault, R. (1995).*Intermediate Microeconomics; Price theory and Applications;* D.C. Health and Company.

Gale, F. P. Tang, X. &Bai, H.(2005). Commercialization of food consumption in rural China; *Electronic report from the Economic Research Service*, USDA, Report no. 8, July 2005.

Gallet, C.A. (2007). A Comparative Analysis of the Demand for Higher Education: Results from a Meta-analysis of Elasticities. *Economic Bulletin*, 9(7),1-14.

Henderson, J. M. &Quandt, R. E. (1986). Microeconomic theory, a mathematical approach, economic hand book Series, 3rd Edition, McGraw-Hill Publishing Company.

Katsuura, M. (2012a). Lead–lag relationship between household cultural expenditures and business cycles, *Journal of Cultural Economics*. 36(1) 49-65.

Katsuura, M. (2012b).Time-Series Properties and Demand System of Household Expenditure on Culture in Japan.*Faculty of Economics, Meijo University, 1-501 Shiogamaguchi, Tempaku-ku, Nagoya, Aichi 468-8502, Japan.*Keynes, J.M., 1936. *The General Theory of Employment, Interest and Money*, New York: Harcourt, Brace.

Koutsoyiannis, A. (1979). Modern Microeconomics: Second Edition, Macmillan, London.

Loudon, D. L. &Bitta. A. J. (1993). Consumer Behaviour; Concepts and Applications, 4th edition, McGraw-Hill, Inc.

McKenna, C.J. & Rees.R. (1992).Economics; A mathematical introduction, Oxford University Press.

Odusina, O.A (2008). "Urban Rice Demand Analysis: A case Study of Ijebu Ode Township. *Middle-East J. Sci. Res*. 3(2), 62-66.

Ogunniyi, G. (2011). "An Examination of the Keynesian consumption function in Nigeria*,* 1975-1994"*, Rivers journal of the Social Sciences*, 1, 2(11), 34-42.

Olorunfemi, S. (2012).Demand for food in Ondo state, Nigeria: Using Quadratic Almost ideal System. *Journal of Sustainable Development in Africa* 15(6), 8-12, Clarion University of Pennsylvania, Clarion, Pennsylvania.

Pangaribowo, G &Tsegal.(2011). "Private direct cost of secondary schooling in Tanzania," *International Journal of Educational Development*, 5 (1), 1-10.

Petersen, E. (2005). Estimating wholesale demand for live reff food fish in Hong Kong. A Research Report on Australian Centre for Internation Agricultural Resaerch (ACIAR), 12.

Poi, B. (2002).Easy demand-system estimation with QUAIDS. The Stata J. 12(3): 433-439

Robert, A. (2009). An Analysis of Yam Consumption Patterns in Ghanaian Urban Communities: *A Dissertation submitted for the Award of Doctor of Philosophy*.

Sloman, J. & Norris, K. (2002).Microeconomics 2nd Edn, Prentice Hall, Australia.

Stone, R.N (1954). Linear expenditure systems and demand analysis: An application to the pattern of British demand. *Econ. J.* (64), 511-527.

Suleiman, M., Umar, S.T. &Abubakar, N. (2013).Effect of hike in food prices on household food expenditure in Kano State, Nigeria."A case study of 2008 global food crisis" *Agriculture and Biology Journal of North America*.5(4).155-159.

Taljaard, P.R (2003). Economic Estimation of the Demand for meat in South Africa, M.Sc., May, 2003.