ECONOMIC ANALYSIS OF THE EFFECTS OF INCOME LEVELS OF CIVIL SERVANTS ON THEIR NUTRITIONAL STATUS IN ONDO STATE NIGERIA.

BY

ULEANYA ADAKU
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CERTIFICATION

I certify that Adaku Uleanya carried out this project under my Supervision in the Department of Agricultural Economics of the Federal University of Technology, Akure.

Dr. I. A. Ajibefun

31/07/06

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Supervisor

ABSTRACTS

Nigeria is a country with rich natural and material resources. However the ability to harness these resources effectively and efficiently in a way that the food needs of its citizens are met has always and is still a major issue to the nation. Income changes, by way of salary and wage increases, has been a means through which government seeks to improve the standard of living of its citizens. This study therefore aims at examining; the socio economic characteristics of households in Ondo State, the influence of certain socio economic characteristics on the daily protein and calorie intake and the poverty profile among identified households.

Structured questionnaire are used to source primary dates from 250 sampled households. However only 177 of the sampled housed were used in the analysis (Akure south 80 households, Akure North 32 households, and 65 households for Ifedore L.G.A.)

Data collected were analysed using descriptive Statistics (Frequency and percentage Table and means), Food and Energy Intake (FEI) method, poverty head count ratio regression. The (FEI) method was used to establish a food poverty line among the respondents.

The poverty head count ratio was used to ascertain the proportion of the population whose food expenditure is below the food expenditure poverty line. The monthly intake of Calorie and Protein functions were estimated using the Ordinary Least Square method (OLS).

The average households were made up of 5 person in all the L.G.As (Akure south, Akure north and Ifedore L.G.A). 68.4% of house hold were male headed (55% in Akure south, 84.4% in Akure south and 76.9% in Ifedore L.G.A.). More than 67% of house holds hired in flats and about 75% are in rented apartments.

The mean monthly rent was ₦1,756 (₦2, 935 in Akure south, ₦1, 983 in Akure north, and ₦1,665 in Ifedore L.G.As). Major source of drinking water was well

water, about 47% of all house holds. While kerosene was the major source fuel used in cooking (77% of the population used kerosene).National Electric power Authority was the major source of power supply, supplying about 90% of house holds.

A means monthly income of ₦14,726, ₦11,987, and ₦12820 for Akure south, Akure north and Ifedore L.G.As, respectively, and an overall means monthly income of ₦13,178= was revealed by the study .

Average monthly expenditure stood at ₦19,293 (₦20,904, Akure south ₦19,425 Akure north and ₦17,550 Ifedore L.G.As). Average monthly expenditure on food as revealed by the study was ₦7,531 (36%) in Akure south, ₦6,503 (33.5%) in Akure north and ₦7,328 (42%) in Ifedore L.G.As.

Poverty line as measured by the (FEI) method was ₦1,826=33 (₦1,919.20k for Akure south, ₦1,726=41 for Akure north, ₦1,832.52 for Ifedore L.G.As). Consumption poverty as measured by the head count index is 0.56,0.48, and 0.52 represent 56%, 48%, and 52% for Akure south, Akure North and Ifedore L.G.As respectively.

Consumption function estimated for monthly caloric intake and monthly protein intake for house holds, showed that house hold size, Educational level of individual household members, number of children in house holds, influenced the calorie and protein intake of the households.

DEDICATION

This work is dedicated to the "Great I am," the Almighty God without whom this work will never be possible. Also to my wonderful husband and sons.

ACKNOWLEDGEMENT

I like to acknowledge especially my supervisor Dr. I. A Ajibefun whose counsel, assistance, ideas and suggestion formed the Bedrock of this Work.

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My special gratitude go to my husband Pharm.(Dr) Anthony Ilebor for all his understanding, love and support. Finally, my greatest thanks goes to the almighty God from whom all Blessings come, whom out of his abundance provided and gave me the opportunity to complete successfully various stages of this work.

TABLE OF CONTENTS

CHAPTER THREE

CHAPTER FOUR

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

1.0. INTRODUCTION

Income is a basic determinant of people's consumption pattern vis-à-vis the quality of food consumed. The very poorest groups tend to include families of the unemployed or the underemployed and the low income earners. Food consumption is related to the distribution of income (Lappe and Collins, 1986). Approximately half the worlds population lives in nations in which annual per capita income average less than $50. These nations are found primarily in Asia and Africa. Although in most part of the world, per capital food production has experienced an upward trend due to the use of improved techniques, most African countries including Nigeria, has experienced a downward trend in food production (Latham, 1987).

People are not hungry because the world does not produce enough food. If the world's food supplies were evenly divided among the world population, each person would receive substantially more than the minimum amount of nutrients required for survival. The world is not on the brink of starvation because of low food supplies but because of low income. Population has increased roughly, 50% over the past 20 years, but food production has grown ever faster. (Norton and Alwang, 1993).

Annual variation in food production has been a serious problem as well. This variation has caused wide price swings that reduce food security for millions that are on the margin of not being able to purchase food.

Food prices in developed countries remained constant for several years. Lower prices for food is an indication or reflection of lower production cost perhaps due to adoption of improved technology. In a developing country like Nigeria, food price has trended up for several years. In the early 90's for example a "Congo" of garri in Akure, Ondo State sold for ₦10.00. The same measure of garri in the year 2001 and 2002 is being sold for ₦70.00 (field survey 2002). This probably reflects higher production cost and perhaps low adoption of improved

technology. It could also be as a result of demands shifts, resulting primarily from changes in production and income, compared to supply shifts, resulting from a variety of forces particularly new technologies (Durojaiye, 1985). Food price fluctuation directly affects the well being of the poor, who spend a higher proportion of their income on food. According to Lutz and Serafy 1989, low incomes are most frequently associated with malnutrition and underdevelopment.

1.1. The Nigerian Food Situation

One of the major issues facing Nigeria today is her inability to adequately feed her population. Consequently, and with the realization of the fact that food is one of the necessities of life for man's survival, the government did put in place various programmes, projects and policies (e.g. Operation Feed the Nation (1976), Green Revolution (1979), Directorate of food, Roads and Rural Infrastructure (1979), Agricultural Development Programme (1975), etc.) to increase and sustain food production in the nation. However, because of inconsistency, administrative overlap, and improper implementation among other things, these programmes could not yield the much acclaimed goals and objective of self sufficiency in food production for Nigerians and Nigerian households.

Moreover, it is becoming increasingly clear that having adequate food at the National level does not guarantee sufficiency in food production at the household level (Babu and Quinn, 1994). Inadequacy of required nutrients, according to Foster (1992) goes beyond overall regional, national or even global shortfalls in food supply to shortfalls at local, household and individual levels.

Food problem has been on a rising trend ever since the late 1980's. Nutritional problems in developing countries, particularly in the Sub-Saharan African (SSA), have received wide attention due to their immediate impact on the welfare of the population (Babu and Mthindi, 1994). For instance, malnutrition/under nutrition due to insufficient food supply or intake of minimum nutrient by an individual compared with the minimum requirement causes illness

(disease condition). This situation can result into low productivity, thus reducing the economic activity level of the individual with attendance adverse consequence on the economy as a whole. In Nigeria, this might be attributed, among other things, to uncontrolled population growth and inefficient utilization of productive resources, resulting in food problem.

In Nigeria, the household nutrition problem is manifested by the fact that calories and protein supplied or consumed by the household members fall short of the requirements, as confirmed by many studies (FAO, 1973; Aromolaran, 1987; CBN/NISER, 1992; Igharo, 1995).

The foregoing shows that there is need to critically investigate the household food problem in the nation with a view to highlighting the food security problems and making appropriate policy recommendations that will improve the age long problem.

In Nigeria, there have been general increases in production of some staple foods within 1970 – 1998 (Table 1.1). The per capita food production (calculated based on the combination of all food items which include nuts, pulses, fruits, cereals, vegetables, sugar cane, sugar beets, starch roots, edible oils, livestock and livestock products) has also been on the increase. However, neither the rate of growth per annum for the staple foods which average 1.1% within the period) nor that of per capita food production,(which averaged 2.6% between 1988 – 1993) (FOS, 1997) could correspondingly match the population growth rate of 2% per annum (FAO, 1997). Moreover, the food self sufficiency ratio of the country which was about 98% in the early 1950s dropped to less than 64% in 1986 and less than 40% in 1992 (Olanrewaju, 1992) with food importation into the country increasing.

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TABLE 1.1 OUTPUT OF SOME MAJOR STAPLES FOOD IN NIGERIA 1970 – 1998 '000TONNES]

Year	Maize	Rice	Wheat	Beans	Cassava	Yam	Vegetables	Melon	Palm Oil
1970	1443	280	19	884	5224	12033	1098	82	488
1971	1274	279	20	801	4516	9766	1136	63	500
1972	639	447	20	408	2573	6900	1175	91	460
1973	808	487	15	530	2912	6936	1211	182	430
1974	528	525	18	1097	3582	7160	1259	49	485
1975	1332	504	18	858	2324	8620	1303	208	500
1976	1068	218	18	727	1786	6470	1134	166	525
1977	650	410	20	408	1656	6376	1025	142	528
1978	658	280	20	498	1620	5866	976	106	530
1979	488	160	22	624	1446	5256	931	104	650
1980	612	105	24	510	942	5248	972	94	650
1981	720	158	26	560	620	5212	986	78	530
1982	766	212	26	616	592	5385	1048	74	500
1983	594	145	26	583	513	4047	909	51	500
1984	2058	157	27	477	11800	4600	1120	143	550
1985	1190	196	113	611	13500	4738	1254	147	615
1986	1336	283	132	732	12388	5209	1293	153	650
1987	4612	808	139	688	13876	4886	1241	145	715
1988	5268	2081	565	887	15540	9132	1354	275	614
1989	5008	3303	554	1232	17404	9609	1480	204	770
1990	5768	2500	554	1354	19043	13624	1761	208	730
1991	5810	3226	555	1352	26004	16956	2025	219	760
1992	5810	3260	515	1411	29148	19781	2243	231	792
1993	6290	3065	33	1576	30128	21633	2494	243	825
1994	6902	2427	35	1545	31005	23153	2843	253	837
1995	6931	3203	44	1751	31404	22818	2608	287	687
1996	6217	3122	47	1847	32950	23928	3506	317	776
1997	6285	3230	49	1957	33510	24713	3816	320	780
1998	6435	3486	51	2054	34092	25102	4018	328	792

Source: Central Bank of Nigeria 1998

The agricultural sector consist of crops, livestock, fishery and forestry subsectors. In the same way agricultural production generally includes all output from these subsectors.

Total food production can be defined as that part of agricultural production which is:

(i) Ear-marked for consumption by human beings for biological growth.

(ii) Utilized for animal feed, replanting and processing.

(iii) Exported to other countries for purposes in (i) and (ii).

Food products in Nigeria can be classified into:

(a) Cereals: Cereals are the seed of grasses; they are herbs which grow annually and others perennially. The main cereals grown in Nigeria are, maize, millet, sorghum or guinea corn, rice and wheat.

The composition of cereals varies. It usually contains 8% - 15% protein, 3% - 9% fat, 2% fibre with 70% carbohydrate which is by far the most important constituent of cereal (Grimand, 1996).

In Nigeria, cereals are important staple food, especially rice which is consumed in almost all the households.

(b) Roots and Tubers:- Root crops such as cassava, potato and yam make up part of the staple diet in many parts of the world though they are very high in carbohydrate and low in protein. Nearly all the world's root and tubers are produced in Africa and they are extremely important diets in Africa.

(c) Grains legumes:- This consists of groundnuts, or peanuts, cowpeas or beans and soybeans. The protein content of all legumes is relatively high but it is estimated to be between 17% - 35%. Some legumes are also very rich sources of vegetables oil.

(d) Oil seeds and Nuts

(e) Vegetable and fruits:- These have the role of providing variety to the diet fruit. Its major contribution is to provide vitamin C and fibre. Fruits are low in protein and fat and relatively low in carbohydrate.

(f) Vegetable Oils:- Palm oil, groundnut oil.

(g) Beverages:- Cocoa, coffee, local wine.

(h) Livestock products:- Meat, eggs, milk, butter, cheese and fish. These are extremely important sources of protein for a large number of the world population.

Apart from social and cultural factors, which may affect some food choices, income is the major determinant of food consumption and the nutritional status of the individual. Income level determines the quantities and the combination of food consumed (Ojo, 1991). This is so because at lower income levels the diet is dominated by cereal and starchy foods which are relatively cheaper while at higher income levels, there is a marked shift in food consumption to sugar, fruits vegetable s and livestock products (FAO, 1985).

1.2. Income Changes in Nigeria

Income in an economy can be determined in several ways. They can be regulated by custom and decree or be fixed by fluctuating labour market forces. Income can also be fixed or determined by the processes of collective bargaining in the sense that representations of business, government and labour negotiating an agreement to fix wages and other working conditions.

One mechanism may be more important in certain sector of the economy than others. In Nigeria traditional and intermediate sector, wages are set primarily by market forces of supply and demand, while in modern sector, wages are regulated by the administrative decisions of the government wage commission. This system was largely inherited from the colonial era (Fapohunda, 1982).

At the National Level, there has been several increase in wage, otherwise called minimum wage, from ₦3,500 in 1999 to ₦7,500 in 2000. In Ondo State however, minimum wage moved from ₦800.00k before January 1999 to N3,000.00 with effect from 1st January 1999 to ₦6,500 with effect 8th August 2000.Table 1.3 shows public service salary and allowances for public officer in Ondo state.

TABLE 1.2.

SALARY AND ALLOWANCES FOR PUBLIC OFFICERS IN ONDO STATE 1999 AND 2000 / ANNUM

	GRADE LEVEL	GRADE LEVEL	GRADE LEVEL
YEAR"99	(GL) 01	(GL) 08	(GL) 15
Annual pay	15,800	42,768	90,312
Basic	1,300	3,564	7,526
Rent	650	1,782	3,763
Transport	600	750	1,050
Meal	300	300	300
Utility	150	240	600
Entertainment /Allowance	--	-	-
Total	3,000	6,636	13,589
Year 2000			
Annual pay	48,000	133,632	301,452
Basic	4,000	11,136	25,121
Rent	800	1,113	2,512
Transport	1,000	1,320	1,820
Meal	450	630	810
Utility	250	420	670
Entertainment /Allowance	--	-	630
Total	6,500	14,619	31,563

Source: Office of Establishment and Management Service Governor's office Akure (Ref.(2000 No. E. 20/vol. V 1224)

1.3. Problem Statement.

Nigeria is endowed with abundant natural, human and material resources, these resources however has not effectively meet the food need of the poor in the country. According to a report by the World Bank (1996), the poor population inclined from 35million in 1992 to 44million in 1995 while per capita expenditure of the poor increased from N593 in 1985 to N795 in 1992and dropped to 720 in 1995.

In Nigeria during the period 1970-1979 the average annual difference in per capita daily calories intake was 24% and within the periods 1980-1989 and 1990-1994, it decreased to 8.38% in the said period. (CBN,1993) .

The calories and proteins supplied or consumed by the household members fall short of the requirement as shown by several studies (FAO 1973, Aromolaran 1987)

Wage is the return to labour. Over the past few years notably in late 80's through to the 90's and in the 21st century, wage or income increase has been one of the tools with which Government seek to improve the standard of living of its citizens.

An increase in income is expected to bring about the consumption of quality food. According to Norton and Alwang (1993), starchy staples are expected to be replaced with more protein as food. The question is how far has this increase in income gone to change the nutritional intake of the people. Are the increases enough to bring about the desired change in nutritional intake of the people? The study proposes to provide answers to these questions.

FAO (1992) estimated that total per capita per day protein in Nigeria is 45.4g as against 53.8g recommended. Aromolaran (1987), estimated the calorie intake of low income households in Ibadan to be 61% of FAO minimum requirement. International Conference on Nutrition (ICN) (1992) reported that low income rural and semi urban adult dwellers in Nigeria consume less than 60% of their energy needs and less than 40% of their protein needs. Average Nigeria's daily calories

per capita was estimated by CBN (1996) to be 2550kcal recommended minimum requirement for moderate activity.

1.4. Justification of the study

The ability of a nation citizen depends on the quality and quantity of food consumed by its citizenry. The lack of adequate data on nutritional situation of household is often cited as a major constraint in policy making and planning. There is therefore the need to provide current information for the adequate planning and policies aimed at improving the nutritional status of the population through critical assessment of the nutritional status of the populace.

In addition, adequate knowledge of the nutritional status will enable policy makers find wages and income that will adequately bring a balance in the calorie deficits. Even with the volume of research work in this area, the concept of income and nutrition require frequent investigation especially within policy period.

1.5. Objective of The Study

The main objectives of the study is to examine the effect of changes in income levels on nutritional intake in Ondo State.

The specific objectives of the study are

(i) to examine the socio-economic characteristics of households in Ondo State.

(ii) to examine the influence of certain socio-economic variables on household including income on the daily calorie intake and daily protein intake.

(iii) to examine the poverty profile among identified household, and

(iv) to make recommendation based on the results.

CHAPTER TWO

2.0. Theoretical framework and literature review

The need for food and the effective demand for food are related but distinct concept. Food needs, correspond to the nutrient consumption required to maintain normal physical growth in children and to sustain healthy bodies and normal levels of activities in adults (Mellor and Johnston, 1984).

The effective demand (often called simple demand) for food is the amount of food people are able and willing to buy at different prices given their disposable income. Because effective demand is related to income or purchasing power, any analysis of food consumption must consider the effects of both income and price changes (Norton and Alwang, 1993).

2.1 Theoretical Framework of Food Demand

The quantity demanded for food at a point in time generally bears an inverse relationship with price. This inverse relationship is called the law of demand. As price increases, less quantity is demanded, when prices fall, more quantity is demanded, this is shown in the figure below.

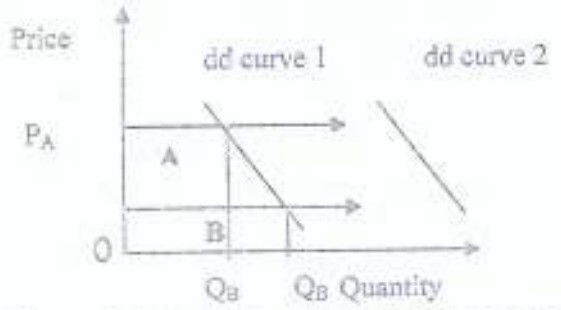

Figure 2.1.1. Hypothetical Demand Curve for a Commodity

A reduction in the price of the commodity will cause a movement along a demand curve say from point A to B and an increase in quantity demanded. Changes in determinants of demand like income population, price of other

goods etc, can cause a shift in demand say from demand curve 1 to demand curve 2 or vice versa.

The slope and the location of demand curve are determined primarily by per capita income among factors such as taste, habit, customs and the degree of urbanization changes in any of these factors causes the demand curve to shift as shown by the shift from dd curve 1 to dd curve 2 in figure above. This shift results in different quantities demanded at a given price.

According to Pinstrup (1987), a rise in per capita real income in developing countries is frequently associated with a sizable increase in total food demand. Real income is money income divided by a suitable price index if inflation is take into account, the effect of income growth on demand can be more important than the effect of population growth at certain stages of development.

Only in very high income countries is income growth relatively unimportant as a determinant of the rate of growth of food demand. Even in a country like the United state of America (U.S.A) however, income substantially influence the demand for goods by low-income consumers (Latham,1987).

The effect of income growth on demand also varies by commodity, because the influence of income on food demand is not constant across countries, within countries or by commodities. It is important to link a measure of the sensitivity of demand for food and for particular goods to changes in income. The measure is referred to as income elasticity of demand.

The demand for food could be physiological demand which is determine by population size and minimum calorie/protein requirement or as mentioned earlier, it could be effective demand as defined by income or purchasing power (Pierce 1990). Although it is reasonable to expect an increase in consumer income to cause a rightward shift in demand that is not always the case. Only normal goods cause a rightward shift in the demand curve with respect to increase in income. For inferior goods there is an opposite relationship to changes in income. The income effects of a price reflects the fact that a change in the price of a good causes a change in the real income of consumers who purchase it thereby causing then to

alter their purchases of such goods. Normal goods have positive income effect (i.e. the consumer buys more of it as their income rises and less as their income falls). However, sometimes an increase in income causes a consumer to buy less of a good. In this case the good has a negative income effect.

A consumer normally budgets an amount out of his total income depending on the budget consumer will maximize satisfaction by purchasing Y_1 of good Y and X_1 of good X denoted on point A on L_2 in figure (2.1.2).

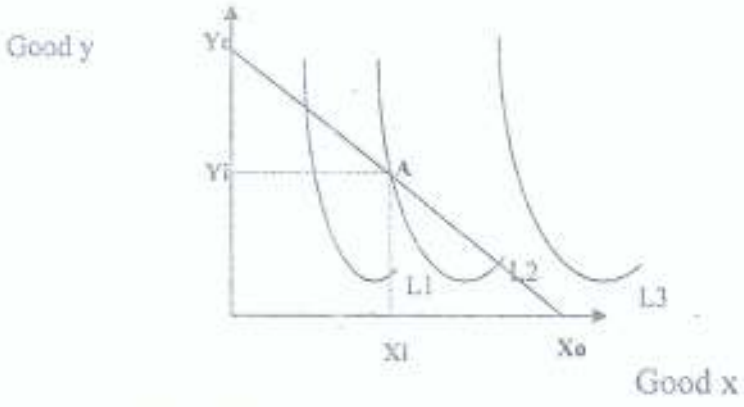

Figure 2.1.2 The Equilibruim Position of consumer.

This combination of goods Y and X will give the consumer the highest level of satisfaction that can be obtained without violating the budget constant.

In the case of an increase in income, the budget line $Y_0 X_0$ will shift outward from $Y_0 X_0$ to $Y_2 X_2$ as shown in figure (2.1.3).

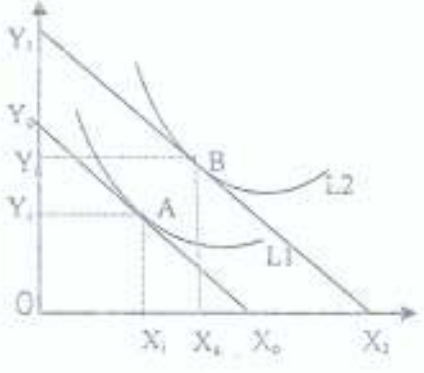

Figure2.1.3 The Effect of a Change in Income

The slopes of the budget line remains the same indicating that the price of good X relative to good Y has not changed the budget. Line $Y_2 X_2$ is further out from the origin indicating that with an increase in budget the consumer can buy more of both goods X and Y. As a result of increase budget, the consumer will maximize satisfaction by moving from point A to point B and increase the quantities purchased of both goods. In this case good A and B are normal goods.

The income elasticity of demand (% change in quantity demanded (Q) by the % change in income (I) other things remaining constant is given by Norton and Alwang. (1993) as

$$P_I = \frac{\% \text{ change in } Q}{\% \text{ change in } I}$$

Where

P_I = income elasticity of demand for good,

Q_i = quantity demanded of good,

I_i = income

Income elasticity of demand explains the consumption of certain goods. For normal goods, the income elasticity of demand is greater then zero. This implies that normal goods attract positive income elasticities. That is people buy more of these goods as income rises and less as income falls. Luxury goods on the other hand attract an income elasticity of less than one. This implies that people buy less as income rises and vice versa. However for agricultural products with low-income elasticities of demand, a recession or boom period will have little effect on the quantity demanded of a product (Truett & Truett, 1987).

Income elasticity of demand vary systematically by commodity, by income levels and by groups within a society. The latter particularly reflects the difference due to urbanization, culture and preference. (Timer, Walter and Pearson, 1983).

Poor people spent bulk of their income (at times even 80%) and a higher proportion of any income increases on food. As people reach a higher income level,

they spend smaller proportion of their income and smaller percentage of their income increase on food. This change in the proportion of the family budget spent on food is presented by Engel's law which says that as income increases, people spend a smaller proportion of their total income on food.

Pierce (1990), argues that the income elasticity of expenditures for food measured in monetary terms is greater than income elasticity of the consumption of food measures in physical units (calorie).

Engel demonstrated the elasticity of income in 1895. Engels law reflects in part the limited capacity of human stomach, but note that total expenditure on food can continue to rise as the proportion of the budget spent on food declines. Some additional quantities of food may be purchased. In addition to this, more expensive food stands to be consumed as income rises. Higher priced calories substitute for starchy staples. A wider variety of food is demanded and also more proteins are demanded as a higher quality diet is desired. The diversification of food consumption or Bennet's law, says that as income grows, less is spend on starchy staples such as cassava and yams (Norton and Alwang, 1993).

2.2. Literature Review

The diversification for food consumption with rising incomes reflects the fact that income elasticity vary by commodity. Estimated income elasticities of demand in Sub-saharian Africa from a range of commodity are shown in Table (2.12a).

Table 2.2.1. Estimated Income elasticity of Demand in Africa

Region	Wheat	Rice	Maize	Millet	Root s& tubers	Pulses
North	0.92	0.93	0.46	0.15	-0.04	-0.04
West	0.87	0.65	0.15	0.09	-0.12	0.24
Central	0.55	0.93	0.66	0.28	-0.21	0.14
Eastern	0.15	0.58	0.28	0.01	0.29	0.02
Southern	1.46	0.56	0.35	0.17	-0.15	-0.002

Selected income elasticity of demand for agricultural commodities

Sources: (Christensen, 1981)

Table 2.2.2 Estimated Income Elasticity for several specific countries and commodities.

Country	Cereals	Beef	Pork	Poultry	Cow's milk	Eggs
Nigeria	0.17	1.20	1.00	1.00	1.20	1.20
Egypt	0.4	0.80	0.70	1.30	1.00	0.70
India	0.25	1.20	0.80	1.50	0.80	1.00
Kenya	0.35	1.00	0.70	1.20	0.59	1.30
Brazil	0.15	0.58	0.29	0.64	0.45	0.55
Mexico	-0.10	0.59	0.49	0.93	0.68	0.59

Source: Serma, (1986)

Table 2.2.1, shows income elasticities of food grains and root crops. it is worthy to note that income elasticities for food grains :- wheat, rice tend to be higher than those of roots and tubers, which has consistently small elasticities of

demand. There are substantial variations in income elasticities across countries reflecting in part differences in income and in preferences for foods. For example, from Table 2.2.2, income elasticity of demand for beef is low in Latin America compared to Africa, partly because initial levels of beef consumption are high in Latin America.

Income elasticity for most foods range between 0 and 1. Economist, call these normal goods. Those with income elasticity greater than 1 are called luxury goods and represents foods which can be thought of as luxury in the diets in a particular country. If the income elasticities are less than zero, the goods are called inferior goods as consumption of the foods actually decline as income increases (Paulino, 1986).

According to Sreetens (1988) the fact that income elasticities vary by commodity means that increases in income will result in an asymmetric expansion in demand for different commodities. The demand for some commodities will expand by greater percentage (%) than that of others. Depending on the nature of commodity supply, this asymmetric expansion can cause different pressures on commodity prices. These changes in commodity prices can help determine the direction of development.

If income and price change at the same time, how can we know whether the real income has been increased, decreased or remained the same? It is therefore natural to say that a change in money income and price that leaves one on the same indifference curve as before has left real income unchanged (Friedman, 1990).

2.3. Income Levels and Poverty

Poverty is multi-dimensional. It is characterised by a lack of medium of exchange (money), expose to risk, inadequate means to social and economic services and limited opportunities for income generation. Aigbokhan (2000), defined poverty as the inability to attain a minimal standard of living. Poverty can also be defined as the absence of means to maintain and enjoy basic needs of life.

The situation leads to deprivation and the lack of access to good, social services and productive assets as well as makes it difficult for an individual to participate in the decisions that affect his or her life (Okunmadewa, 1998).

Generally, the magnitude of and facets of poverty in a nation depend on two related factors. First, is the average level of income, second, the degree of inequality in the distribution of that income. For a given distribution, the lower the average income level, the greater the incidence of poverty. Given the definition of poverty, there is the problem of measuring standard of living so as to be able to express the overall severity of poverty in a single index. The conventional method is to establish a poverty line to delineate the poor from the non poor (Aigbokhan, 2000). There are two approaches to the construction of a poverty line, the absolute poverty approach and the relative poverty approach. The absolute poverty approach considers some minimum nutritional requirement and converts it to minimum food expenses. To this is added some minimum non food expenditure such as clothing and shelter (Greer and Thorbecke, 1986). A household is then defined as poor if it's income or consumption is below this minimum. The relative poverty approach method takes a proportion of the average income as the poverty line. Two third (2/3) and one third (1/3) of the income has been popular. Relative poverty compare, the welfare of those with lowest amount of resources with others in the society (Afonja and Ogwumike, 1995).

The Federal office of statistics (FOS) carried out poverty studies in 1997 and 1998. These studies established poverty lines based on a money metric approach. i.e., total income (or expenditure) that is sufficient to guarantee basic subsistence. (Food and non-food). The study further revealed that the incident of poverty increased from 27.2% in 1980 to 46.3% in 1985, there was a decline in 1992 to 42.7%and a further increase in 1996 to 65.5%. This implies that the population of Nigerian whose income cannot guarantee basic subsistance was 17.7 million in 1980, 34.7 million in 1985, 39.7 million in 1992, 67.1 million in 1996. The study also confirmed that both urban and rural poverty were on the increase, but the rate

of increase in the latter was higher. While 59% of urban households are poor between 1980 – 1996, the corresponding value for rural households was 70%.

Aigbokhan, (2000) measured consumption poverty in Nigeria in the period 1995 – 1997 by the head count index and reported that 0.34, 0.43 and 0.47 in 1985, 1992 and 1996 . In other words, 38%, 43% and 47% of the population was running in absolute poverty increase by 9.3% between 1992/93 and 1996/97. According to him the corresponding figures for urban areas are 41%, 40%, 51%. This result shows that rural poverty is higher than urban poverty.

He also reported the gender distribution of poverty as been more among male-headed household. Regional distribution poverty was profiled at two levels. One is at the level of individual state of the federation and the other level is at the level of geo-political zone. This is as shown in the table 2.3.1.

Table 2.3.1 Distribution of poverty (1996 – 1997) in Nigeria by States

	URBAN				RURAL			
	P_0	P_1	P_2	N	P_0	P_1	P_2	N
National	0.37	0.14	0.08	2311	0.51	0.2	0.11	8269
FCT	0.29	0.12	0.07	107	0.42	0.12	0.06	64
Abia	0.23	0.1	0.06	49	0.41	0.13	0.06	186
Adamawa	0.48	0.25	0.15	48	0.53	0.21	0.11	466
Akwa Ibom	0.59	0.26	0.16	70	0.58	0.24	0.13	464
Anambra	0.49	0.13	0.05	39	0.34	0.12	0.06	357
Bauchi	0.85	0.47	0.31	40	0.88	0.66	0.47	533
Benue	0.25	0.09	0.05	85	0.5	0.19	0.09	461
Borno	0.37	0.11	0.04	81	0.7	0.29	0.16	316
Cross River	0.3	0.12	0.06	96	0.52	0.22	0.12	427
Delta	0.54	0.24	0.14	58	0.44	0.17	0.09	321
Edo	0.49	0.16	0.08	153	0.43	0.14	0.07	126
Enugu	0.29	0.11	0.05	59	0.46	0.16	0.07	466
Imo	0.11	0.05	0.02	38	0.49	0.18	0.09	300
Jogawa	0.88	0.56	0.43	10	0.89	0.79	0.65	544
Kaduna	0.39	0.12	0.05	153	0.47	0.17	0.08	381
Kano	0.83	0.48	0.32	128	0.82	0.53	0.34	404
Kastina	0.63	0.28	0.16	40	0.86	0.44	0.26	455
Kebbi	0.78	0.68	0.49	20	0.81	0.41	0.25	507
Kogi	0.84	0.51	0.34	30	0.87	0.54	0.38	337
Kwara	0.46	0.18	0.09	219	0.7	0.31	0.18	325
Lagos	0.36	0.15	0.09	251	0.69	0.51	0.27	21
Niger	0.3	0.08	0.03	57	0.54	0.21	0.1	531
Ogun	0.44	0.21	0.13	178	0.39	0.14	0.07	252
Ondo	0.52	0.23	0.14	83	0.46	0.16	0.07	222
Osun	0.47	0.29	0.16	264	0.71	0.3	0.17	231
Oyo	0.29	0.11	0.55	312	0.32	0.13	0.07	130
Plateua	0.5	0.2	0.1	68	0.69	0.32	0.19	325
Rivers	0.35	0.15	0.09	55	0.25	0.09	0.04	357
Sokoto	0.78	0.5	0.33	32	0.86	0.71	0.56	483
Taraba	0.71	0.34	0.19	7	0.52	0.27	0.17	377
Yobe	0.83	0.42	0.27	87	0.87	0.67	0.5	280

Note: Halfway through survey period six new states were created, bringing it to 36 states. These are Ebonyi (from Enugu), Ekiti (from Ondo), Bayelsa (from Rivers) Gombe (from Bauchi), Zamfara (from Sokoto) and Nassarawa (from Plateau). The state- statue is maintained for this study.

Sources: Aigbokhan, 2000

Table 2.3.2. Estimate of poverty by geographical zones (1996 -1997)

	URBAN			RURAL		
	P_0	P_1	P_2	P_0	P_1	P_2
All households	0.31	0.14	0.08	0.51	0.20	0.11
Northeast	0.51	0.22	0.12	0.64	0.28	0.16
Northwest	0.78	0.42	0.26	0.91	0.54	0.36
Middle Belt	0.34	0.12	0.05	0.58	0.24	0.13
Southeast	0.35	0.11	0.05	0.36	0.12	0.06
Southwest	0.37	0.15	0.08	0.44	0.16	0.08
South south	0.38	0.15	0.08	0.41	0.15	0.08

Source:Aigbokhan, 2000

As shown in Table 2.3.2., poverty tends to be generally lower in the southern part than in the Northern zone. It is observed also that the Southern zone experienced a deterioration, particularly in the rural areas. However Table 2.3.1 and Table 2.3.2 show that the incidence of poverty is not uniform within the zone e.g. in 1996/97 whereas head count is 0.36 in the South-South, Akwa-Ibom, Delta, Edo States have levels higher than 0.50. Similarly, Whereas the Northern zone has 0.61, Bauchi, Jigawa and Yobe each have over 0.80. Also World Bank (1996 a), the number of the rural poor is roughly twice that of the urban and the depth of poverty is more than double in the rural areas. It emphasized further that 85 percent and two-thirds of the extreme poor live in the rural area engaging in farming with worse income inequality. World Bank (1997), also indicated that the differences between the proportion of poor in farming households and that of the non farming households are 22 percent in 1985, 9 percent in 1992 and 13 percent in 1993.

Griffin and Ghose (1980), used India data to investigate the relationship between the rate of increase in agricultural output and changes in the incidence of poverty. They discovered that poverty diminished significantly merely by accelerating the growth of production. The causes of hunger and impoverishment have much to do with the pattern of growth rather than with its rate. The most direct way of reducing poverty, according to them is by redistributing productive

assets such as land, water rights, forest land plantation enterprises livestock mechanical equipment and other major structures with land reform being certainly the fastest and the only way to improve the standard of living of the very poor. Finally they affirm that income and wealth redistributions are not to be seen as substitutes for increased productivity in poverty reduction but as complements.

The World Bank (1996 a), confirm the above claim by Griffin and Ghose (1980), when they revealed that National Poverty in Nigeria could have been reduced by 13.6 percent as against 8.9 percent achieved only by growth had income distribution did not worsen.

Reardon and Taylor (1996), added a new dimension to the study of poverty and income redistribution. They examine the impact of agro-climatic shock on income inequality and poverty using household farm data from three agro-ecological zones of Burkina Faso. Their findings revealed that because the poor lack access to off-farm income, it increased income inequality and failed to shield the poor households against agro-climatic shock. In addition the direction of the empirical relationship between changes in income inequality and poverty after the drought depends on apparent constraints of income diversification at different 'points in the income distribution.

On the determinants of poverty, Rodriguez and Smith (1994), used a survey of almost 2400 households in Costa Rica to compare the determinants of urban, rural and farm poverty. They formulate modest estimate the effects of the different explanatory variables on the probability of a household to be poor. Different models were estimated for all families with heads employment. For all the models urban residence Central valley residence (location of national capital and the bulk of economic activity), employment of the head and particularly permanent employment (excepts for I farm households) significantly reduce the probability of poverty. Also farm residence was significantly related to an increase in poverty in all the models, the more years of education attained by the head and the higher the ratio of the family members employed to family size the lower the probability of

poverty. A higher child dependency ratio was also found to increase significantly the probability of poverty among all but farm families.

2.4. NUTRIENT REQUIREMENT

2.4.1 Energy Requirement

The energy requirement has been defined as the amount of energy needed to maintain health, growth and an "appropriate" level of physical activity. Energy needs are determined by energy expenditure. In principle, estimate of requirement should be based on measurements of energy expenditure. However, this kind of information is difficult to obtain, and sometimes the only feasible approach is to estimate requirement, from measurements of intake. If people are, on average, in a steady state, with appropriate body composition and levels of activity, measurements of their mean habitual intake will provide an estimate of their mean expenditure (FAO/WHO/UNO, 1985).

The most important component of energy expenditure, the basal metabolic rate (BMR), depends on the mass metabolically active tissue in the body, the proportion of each tissue becomes the energy metabolism of the whole body. As there are changes in the body composition with age, this markedly affects energy requirements.

2.4.2 Protein Requirement

The protein requirement of an individual is defined as the lowest level of dietary protein intake that will balance the losses of nitrogen from the body in persons maintaining energy balance at modest levels of physical activity. These losses of nitrogen are due to the body protein constantly undergoing breakdown and resynthesis (protein turnover), causing a net deposition of protein as well as increase in the turnover, vary from tissues to total protein turnover change with age and adaptation to various levels of protein intake (Waterlow, 1978).

2.4.3. Relationship between Energy and Protein Requirements.

The processes of protein synthesis and possibly of breakdown require sources of energy and are thus sensitive to energy deprivation. Consequently, the energy balance of the body becomes an important factor in determining nitrogen of dietary protein. The magnitude of basal energy needs and of the total amount of protein turned over in a day are both related to active tissue mass (Waterlow, 1978). In empirical study, most researchers focus on calorie as a proxy for all nutrients.

Although it is recognised that nutrition is more than just calories, this is justified on the opinion that energy is the limiting element in poor household's nutrition (Grimard, 1996). In this study calorie and protein (with emphasis on animal protein) were both examined.

Table 2.4.1 gives the dietary reference values (for both calorie in form of energy and protein) used in the study.

Table 2.4.1: Dietary Reference Values for Energy (Kcal/day) and protein (g/day)

Age group	Energy (Kcal/day)		Protein (g/day)	
	Male	Female	Male	Female
<1	745*	697.5*	II*	II*
1-3	1230	1165	11.7	11.7
4- 6	1715	1545	14.8	14.8
7- 10	1970	1740	22.8	22.8
11- 14	2220	1845	33.8	33.1
15- 18	2755	2110	46.1	37.1
19- 50	2550	1940	44.4	36.0
51 -59	2550	1900	42.6**	37.2**
60- 64	2380	1900	-	-
65- 74	2330	1900	-	-
75+	2100	1810	-	-

* These values represent average dietary reference values for energy (Kcal/day) and protein (g/ day) for the ages 0- 3, 4-6, 7 -9, and 10-12 months.

** These values represent dietary protein requirement for age group of 50+ and not just for 51 -59 age group alone.

Source: FAO/WHO/UNO (1985) .

(All energy values given in Table 2.4.1 are based on the Schofield equations (FAO/WHO/UNO, 1985) Also, the protein requirements are all based on the FAO/WHO/UNO 1985) report. All the values (both energy and protein) represent the estimated average requirement (EAR) of the nutrient intake requirement.)

2.5. Factors Affecting Food Consumption Pattern in Nigeria

The composition of the food basket in Nigeria varies across the nation, based specifically on socio-culture differences existing among the various tribes. Among the Yorubas, the dominating food items are gari, elubo, yam, pounded yam and beans while the Ibos food baskets composed of fufu, eba, and tuber crops. Tuwo from cereals such as maize, rice, millet and sorghum is the main food of the Hausas.

According to Lupien and Menza (1999); major shifts are occurring, even in the consumption of basic staples, towards more diversified diets. Milk and livestock products, fruits and vegetables and processed foods are increasingly demanded for. They noted that the demand for meat in developing countries is growing and is expected to rise rapidly, although from very low consumption levels.

A close look into the empirical literature (Aboyade, 1973, Ojo, 1983; and Okike 1988) indicates that certain demographic characteristics like household size, household composition and nature, age, educational level, religious, etc., have considerable influences on dietary pattern of either an individual or household. This was affirmed by Lupien and Menza (1999), stating that income, population movement, education, .preferences and life styles have a profound effect on dietary patterns. Okike (1988), and Davies 1982), found educational level of the household head to have positive and significant influence on nutritional status of the household. Furthermore, income stands out to be one major determining factor among other factors that determine food consumption. Other factors which also determining the food insecurity and nutritional risk include mode of food preparation and distribution among household members and health status (Aboyade, 1973; Anthonio and Oni, 1974; Ojo, 1983; Aromolaran, 1987; and Olayemi, 1995; Mbanasor, 1999).

Mbanasor (1999) stated that increasing the incomes of rural households that have malnourished members could improve their access to food. In general, increasing incomes are associated with increases in caloric intake of staple food,

especially for the poorer households. However, the amounts spend on food decreases as we move from the low- income group to high- income group. According to Anthonio and Oni (1974), 62 percent, 39 percent and 16 percent of the disposable income of the low-, middle and high-income households respectively were spent on foods in Nigeria. In more recent studies, 60,45 and 33 percents of the household earnings of the low-, middle and high-income households respectively were expended on food, with considerable proportion of that of low-income households been spent on starchy (carbohydrates) foods (Ojo, 1983; Durojaiye, 1985; and Umoh, 1994). On the other hand, the proportion of the household expenditure on proteinous food increases as the income increase (Ojo, 1983). In Ogun state, the proportion of the average monthly disposable income of the low-, middle- and high-income group in selected towns expended on food were 60.77, 56.90 and 42.78 percents respectively (Ilori, 1990). According to Olayemi (1995), relative allocation of expenditure on food is a function of nominal income of consumers, relative prices of different food items, physical and economic access to different types of foods, traditional food habits and locational differences (especially in food production possibilities).

2.6. Definition of the household Unit

The definition of the unit of analysis in any research requires careful prior description of the subject analysed. The concept of household varies widely across cultures. It ranges from the Western nuclear household to the African extended family system. The key element in defining the household is identifying the decision-making unit, which sets the strategy concerning the generation of income and the use of this income for consumption and reproduction. Household unit is thus, in general, "associated with the group that shares the same abode or health" (Sadoulet and de Janvry, 1995.)

In this study, the household unit is taken as "a group of people who shares the same abode, eats from the same food basket and under single decision-making process". The single decision-making process considered is characterized by either

a situation where a single household member decides on behalf of the others (a patriarch or materiarch) or one where there is enough consensus among members to treat internal dissensions as a minor considerations. In this consensual household, resources are assumed pooled into a unique strategy and consumption is shared, although by no means necessarily equal between household members just as noted by Bentley and Pelto (1991).

The rural household, in this study refers to the household within the rural landscape, whose company has agriculture as the backbone, and it is characterized by poor standard of living in terms of all-year-round quantity and quality (Olayide et al, 1975). The low-income urban household refers to the household with poor income and poor purchasing power in the urban centre.

In household analysis, the household unit has been modeled in two main ways, these are the unitary model and collective model. Most economists view the household as a collection of individuals who behave as if they agreed on how best to combine their time, goods purchased in the market and good purchased at home. The approach originates in standard demand analysis. This model of the household is referred to as preference model, the altruism model, or the benevolent dictator model, and by Alderman et al , (1995) as unitary model, "because the label describes how the household assumes to act (as one)". The unitary model allows for the analysis of the impact changes in policy and other relevant variables on individual's behaviour with relative ease and it can address diverse issues. In addition, it is-able to explain differences in individual welfare within household studies (Alderman et al., 1995) though not without some weakness. For instance, the model fails to incorporate the process by which resources are distributed within the households.

This study would be adopting the unitary model basically because of its applicability in this study and its relative ease of application.

CHAPTER THREE

3.0 METHODOLOGY

3.1 The Study Area

The study was carried out in Ondo state, made up of 18 Local Government Areas. It lies between longitudes 4^0 30" and 6^0 East of the Greenwich meridian, 5^0 45" and 8^0 15" North of the equator. This means that the state lies entirely in the tropics.

Ondo State was created in February 3, 1976 with an area of 14,793,189 square kilometres. Ondo State is located in the South Western part of Nigeria in boundary with Ogun, Osun, Kogi, Edo and Delta States. It is located within the rain forest belt in the tropical region of Nigeria.

With a total population of 2, 249,548 (1991 census, FOS.), Ondo state is made up of 18 Local Government Area, among which are Akure south, Akure North and Ifedore Local Government Area which is the study area for this study.

The study area is characterised by extensive fertile soil which greatly enhances agricultural production. The annual rainfall ranges between 1, 000mm to 2,000 mm, the temperature ranges between 21°C to 29°C while humidity is relatively high.

Ondo State has 22 ministries and non-Ministerial departments, 24 boards/commissions/corporations. These Ministries, boards, commission and corporation are distributed throughout the State with a large number concentrated in the state capital Akure. (Akure South).

The study area, Akure South, Akure North and Ifedore LGAs has a land area of 318sqkm, 992.87sqkm, 583.03 sqkm respectively which is 1.9%, 5.96%and3.5% of the State respectively. Akure South LGA one of the study area has a larger population of civil servants with the concentration of all the ministries, boards and parastatals in Akure. While only a few can be found in Akure North and Ifedore.

3.2 Method of Data Collection

3.2.1 Data Source

Primary data and secondary data were used in the study. Primary data was sourced through personal interviews with the aid of structured questionnaire .This represents the main source of data used in this study. Secondary data was sourced from textbooks, research publication, journals, magazines and the internet.

3.2.2 Sampling Technique

Stratified sampling technique was employed to select 250 household Grade level 1-15 in the study area.

Tables 3.2. a & b show the households respondents distribution.

Table 3.2.1a Respondent's Distribution. by LGAs

LGAs	No of households Sampled	No of households used in Analysis
Akure South	110	80
Ifedore	70	65
Akure North	70	32
Total	250	177

Source: Field survey, 2002.

Table 3.2. 1 b Respondent Distribution by Grade level

Grade levels	No of households Sampled	No of households used in Analysis
Grade 1-6	75	59
Grade 7-10	100	79
Grade 11-15	75	39
Total	250	177

Source: Field survey, 2002.

A total of 250 households (110 from Akure South, 70 from Akure North and 70 from Ifedore) were sampled using the random sampling approach. Out of this 177 (80 from Akure South, 65 from Ifedore and 32 from Akure with) were used in the analysis. The remaining 73, could not be used due to inadequate/unreasonable information supplied.

3.2.3 Data Collection

Structured questionnaire was used to collect the data for Monthly food consumption and expenditure. The data collected includes the type of food consumed monthly and the quantity consumed per food item/month. Data were also collected on the following.

Demographic/socioeconomic characteristics of the households and the members such as household size, sex, age, occupation, education level, religion, income, marital status, etc. of the households members. Household monthly expenditure records on: food, rent, clothing, school fees, transportation, social and religion, electricity, (fuel), household production (income -generating) activities etc.

3.3 Method of Data Analysis

The data collected were subjected to such analysis as descriptive statistics, Food Energy Intake method (FEI), poverty headcount ratio and multiple regression.

3.3.1 Descriptive Statistics

The use of frequencies and percentage table, mean, mode and standard deviation were adopted to describe the socio economic characteristics of the household.

3.3.2. Food Energy Intake (FEI) Method and Poverty Head Count Ratio:

(a) Food Energy Intake Method,

A regression of the cost of a basket of commodities consumed by each household (food expenditure E) on the calorie equivalent implied by the basket (Calorie consumption, C) is done. The estimated coefficients are then applied to the Calorie requirement to derive the poverty line or the cost of acquiring the recommended daily allowance (Ravallion and Bidani, 1994)

Log E = a+ bC

Where E = Food Expenditure

C = calorie consumption

The food expenditure E will be derived by summing the total value of food expenditure (E). This will then be converted into per capita value by dividing it by the household size.

$$\text{Per capita value} = \frac{\text{Total Food Expenditure (E)}}{\text{Number of people in household}}$$

The calorie consumption C was calculated by summing the calorie equivalent of the food items listed in each household. The cost of the basket or the cost of acquiring the recommended daily allowance (RDA) of calories which for this study is 2550kcal, which is the minimum energy intake requirement recommended by World Health Organization (WHO). The cost of acquiring the recommended daily allowance or food expenditure poverty line was derived from the formula below.

$Z = {}_e(^{a+Rb})$

Where Z = Food expenditure poverty line

R = Recommended calorie intake e, a b = estimated coefficients from Regression.

The FEI method was used to analyse the level of their nutritional intake and the extent to which income changes has affected their nutritional intake.

The FEI method has been shown to possess some limitation. Ravallion and Bidani (1994) and Ravallion and Sen (1996) have demonstrated that the method suffers inconsistency problem. It is argued that when the aim of setting poverty line is to reform policy whether or not a given standard of living constitutes poverty should not depend on the subgroup to which the person belongs.

The food poverty line established from the FEI method will then be used in delineating the poor from the non-poor in terms of amount spent on quality (nutritious food). The next stage is to express the overall poverty in a single index. The most common measure is the Headcount ratio. The number of poor established from the food expenditure poverty line and the total population.

$H = q/n$

Where q = number of poor

n = total sample population.

This gives the proportion of the population whose food expenditure is below the food expenditure poverty line.

According to Aigbokhan (2000) the head counts ratio has been criticized for focusing only on the number of poor and being insensitive to the severity of poverty.

Foster *et al.* (1984) however proposed a family of poverty indices based on a single formula capable of incorporating any degree of concern about poverty through the "poverty aversion" parameter.

The formulae are

$$(a)\ P\alpha = {}^{1}/_{N} \sum_{i=1}^{q} \frac{(Z - Yi)^{\alpha}}{Z}$$

Z = poverty line

q= number of household/persons below the line,

Yi = income of the household

α= F G T parameter which takes values (0, 1 & 2) depending on the degree of concern about poverty.

(ai) $P_o = {}^{1}/_{N}{}^{q} = {}^{q}/_{N} = H$

This is equal to the head count ratio, it measure, the incidence of poverty.

(aii) $P_1 = {}^{1}/_{N} \Sigma \underline{(Z - yi)}^{1} = H\,I$

$i=1 \quad Z$

I = Income gap

Here the headcount ratio is multiplied by the income gap between the poor and the poverty line this index increases the depth of poverty.

(aiii) $P_2 = {}/_{N} \Sigma = \underline{(Z - yi)}^{2}$

$i=N \quad Z$

This index allow for concern about the poorest of the poor.

These indices will be used to examine the extent to which income changes has reduced poverty among the respondents.

3.3.3a. Multiple Regression Analysis

Multiple Regression Analysis was used to estimate monthly intake of calories and protein functions using the ordinary least squared technique (OLS). Implicitly, the estimated models are

(i) Monthly calories intake function

$MC_1 = F(X_1\ X_3\ X_4\ X_5\ e)$----------(i)

(ii) Monthly protein intake function

$Mc_2 = F(X_1\ X_3\ X_4\ X_5 e)$----------(ii)

Where

MC_1 = Monthly calories intake of individual household member (KCal)

MC_2= Monthly protein intake of individual household members (g)

X_1= Household size

X_2 = Educational level of household heads in years

X_3 = Total monthly income

X_4 = Number of Adults in the household X

X_5 = Number of Children in the household.

e = error term

3.3.3b. Apriori Expectation

X_1 **Household size:** - This variable is the sum total of the people living under the same roof and eating from the same pot. Report from previous work reveal that this variable affects the quantity and quality of food proportional to an individual in a household. However this is subject to the total amount of income accruing to the household. If increase in household size results in an increase in total income then the reverse will be the case.

X_2 **Educational level of the household head:** This is the total number of years spent by the household head in attaining his highest educational level. Increase in the level of education is expected to increase knowledge about nutrition of the family that is, the right combination of food (balance diet). This variable has been shown by previous works as having a positive influence calories/protein intake level of the household.

X_3 **Total monthly income:** This variable refers to the total income accruing to the household from salary and from other sources which includes that from other members of the household.

X_4 **Number of Adults in the households:** This variable simply refers to the number of persons 18years and above (for this study) in a household. In any Nigerian home this variable has an effect on the calories/protein intake of individual members, in that, Adults eat more proteins than Children who are

supposed to consume more protein this implies that the more adults there, the more proteins and calories intake.

X_5 Number of children in the household: the more the children, the higher the dependency on the household head and this also implies dependency on the income of the household head.

CHAPTER FOUR

4.0. RESULT AND DISCUSSION

4.1. Demographic Characteristics of the Households in Akure South, Akure North and Ifedore LGAs.

With respect to sex 55% and 45% of the respondents in Akure South LGA are male and female respectively. Also 84.4% and 15.6% represents the proportion of male and female respondents in Akure North Local Government Area. 76.9% and 23.1 % are the percentage of 'male and female respondent from Ifedore LGA.

With respect to education, Table 4.1.1 shows that of all the 80 households sampled in Akure South Local Government Area, 51 households had University Graduates which represents about 63.8% of the population. The result also revealed that out of the 51 households, 31 households had 1 graduate each while the remaining 20 households had 2 graduates each.

Similarly in Akure North Local Government Area 50% of the households had a University Graduate with 37.5% having 1 while the remaining 12.5% had 2.

Also in Ifedore Local Government Area 77.7% of the sampled population had graduates while the remaining 22.3% where non graduates. Akure South Local Government Area has 35.8% as HND holders, 18.8% as OND holders, 32.5% NCE holders and 10.0% school certificate holders.Akure North Local Government Area has 25% of it's respondent as HND holder, 18.7% OND holders, 18.7% NCE holders and 21.9% School Certificate holders.

While Ifedore Local Government Area presented 27.7% HND holders, 20% OND holders, 15.4% NCE holders and 22.2% School Certificate holders.

With a mean household size of 4.5 approximatly 5 (4.9 in Akure South, 3.7 in Akure North, 4.8 in Ifedore LGA) majority of the sampled population about 60.5%, had household size between (4- 6) (62.5% in Akure South, 56.3% in Akure North, 60% Ifedore).

The mean number of Adults in a household is 3 (3 in Akure South, 2.34 in Akure North 3.4 in Ifedore). Akure South LGA had about 67.5% of sampled households with 3 number of Adults . 59.3% in Akure North, while Ifedore LGA

had about 64.6% of sampled household with a mean adult per household of 3.4. Similarly a mean number of Children in the sampled population is 2, 55% in Akure South had between 2- 3 children, 34.4% in Akure North and 30.7% in Ifedore.

Table 4.1.1 Demographic and Socio -Economic Characteristics of the Households.

	Akure South		Akure North		Ifedore		All Households	
	Freq.	%	Freq.	%	Freq.	%	Freq	.%
1.Sex								
Male	44	55	27	84.4	50	76.9	121	68.4
Female	36	45	5	15.6	15	23.1	56	31.6
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**
2.Educational Level								
(e) Univer. Grad	51	63.8	16	50.0	44	77.7	111	72
(d) HND	27	35.8	8	25.0	18	27.7	53	30
(c) OND	15	18.8	6	18.7	13	20.0	34	9.2
(a) School Cert.	8	10.0	7	21.9	19	22.2	34	23.7
(b) NCE	26	32.5	6	18.7	10	15.4	42	23.7
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**
3. Household Size								
1 -3	24	30.0	12	37.5	15	23.00	51	28.8
4 - 6	50	62.5	18	56.25	39	60.00	107	60.5
7 - 9	5	6.25	2	6.25	9	13.8	16	9.0
10 – 12	1	1.25	-	-	2	3.00	3	1.7
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**
Mean	**4.9**		**3.7**		**4.8**		**4.5**	

4. No of Adults	Akure south		Akure north		Ifedore	
	Freq.	%	Freq.	%	Freq.	%
1	7	8.75	3	9.40	2	3.1
2	12	15.00	8	25.00	8	12.3
3	54	67.50	19	59.30	42	64.6
4	7	8.75	2	6.25	13	20.0
Total	80		32		65	
Mean	3		2.34		3.4	

Source: field survey 2002

4.2 LIVING STATUS OF HOUSEHOLDS IN AKURE SOUTH, AKURE NORTH AND IFEDORE LGAs.

The nature of the dwelling place of the households is an indication of the living conditions and may have a relationship with the quality and quantity of food consumed and also has implication on the general expenditure of the households. Table 4.2.1 gives general Information on the dwelling place of House hold in Akure South, Akure North and Ifedore Local Government Areas.

As shown in Table 4.2.1, concerning type of housing unit 67.8% of the household population lived in a flat. (45% in grade levels 1 -3, 67.4% in grade levels 4- 6, 57.6% in grade levels 7 -10 while 74.7% are in grade levels 11 -15).

In Akure South LGA 72.5% of it's sampled population are living in flats, 53.1% lived in flats in Akure North LGA, while 69.2% lived in flats in Ifedore LGA.

Generally, only 28.8% lived in single rooms out of the sampled 177 households of which 55% are in Grade level 1- 3, 32.6% in grade levels 4- 6, 10% in grade levels 7 -10. No respondent in grade level 11 -15 lived in a single room. No respondent in grade levels 1 -6 lived in a Duplex.

With respect to the numbers of living rooms. A mean numbers of living rooms of 2.5which is approximately 3, was derived for the total sampled population (3 in Akure South, 2 in Akure North, 3 in Ifedore LGAs). Also 91.4% of respondents in Grade levels 1 -3 lived in 1 -2 rooms. 61.1% who are in grade level 4-6 lived in 1 - 2 room while only 18.3% of the respondent in levels 11 -15 lives in 1-3 rooms.

Generally, 71.8% of the total sampled population lived in rented apartment (76.3% in Akure South, 65.6% lived in Akure North, 69.2% in Ifedore). 19.8% of the sampled households lived in their own houses(18.8% in Akure South, 12.5% in Akure North, 24.6% in Ifedore LGAs). Another 5.6% lived in free accommodation (5% in Akure South, 6.3% in Akure North, 6.2% in Ifedore LGA).

Grade level wise, most of the respondent in grade level 1-3, about 76.7% lived in rented apartment, 13.8% lived in their own houses while 9.5% lived in

free houses. Similarly, 71.1% of respondents in Grade levels 4 -6 lived in rented apartment.

Also, 20.5% had their own houses and 8.4%lived in free accommodation 81.6% of respondents in grade levels 7 -10 lived in rented apartment, 14% had their own homes while 58.3% of respondents in grade levels 11- 15 lived in rented apartment 37.5% of this grade level had their own homes.

With a mean monthly house rent of ₦l ,756.60, (₦2,935 in Akure South, ₦l ,983 in Akure North and ₦l ,665 in Ifedore LGAs) when compared to the mean monthly income of ₦13,178.00, it represents 13.33% of their monthly income. This implies that each month each household spends 13.33% of their monthly income (monthly wage or salary + income from other sources) on house rent alone.

Generally only 41.3% had roads leading to their houses graded (41.3% of Akure South population, 46.9% of Akure North population, while 38.5% of Ifedore LGAs) 27.7% had 1 ungraded road leading to their houses, 23% had tared roads. While another 7.9% had tared roads but with pot holes.

Table 4.2.1a General Information on Dwelling Place among Household in Akure South, Akure North and Ifedore LGAs

	Akure South		Akure North		Ifedore		All Households	
	Freq.	%	Freq	%	Freq.	%	Freq.	%
1.Type of Housing Unit								
Single room	21	26.2	14	33.8	16	24.6	51	28.8
Flat	58	72.5	17	53.1	45	69.2	120	67.8
Duplex	1	1.3	1	3.1	4	6.2	6	3.4
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**
2.Number of Living rooms								
1 -3	53	78.8	24	75.0	55	84.6	142	80.3
4 - 6	15	18.8	8	25.0	10	15.4	33	18.6
7	2	2.6	-	-	-	-	2	1.8
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**
Mean	**3**		**2**		**3**			
3. Type of Accommodation								
Rent	61	76.3	26	81.2	45	69.2	132	74.6
Owner occupied	15	18.8	4	12.5	16	24.6	35	19.8
Free	4	5.0	2	6.3	4	6.5	10	5.6
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**
4. Monthly house rent								

0<300	21	26.3	9	32.4	26	41.5	58	32.8
300 – 900	6	8.8	7	15.6	6	9.2	20	11.4
1800	12	15.0	7	21.9	6	9.2	25	14.1
3000	30	37.7	7	21.8	23	35.2	58	32.2
4000	5	6.6	-	-	-	-	5	2.9
5000	1	1.3	-	-	-	-	1	0.6
>5000	-	-	-	-	-	-	-	
Free	4	5.7	2	2.0	4	6	10	5.7
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**
Mean		**₦2,935**		**₦1,983**		**₦1,665**		**₦1,756**
5. Nature of roads								
Graded	33	41.3	15	46.9	25	38.5	73	41.3
Upgraded	23	28.8	7	21.9	19	29.4	49	27.7
Tared	19	23.8	5	15.6	17	26.2	41	23.2
Tared with pot holes	5	6.3	5	15.6	4	6.2	14	7.9
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**

Source: field survey, 2002.

Table 4.2.1b General Information on Dwelling Place Among Households in Akure South, Akure North, and Ifedore LGAs. Percentage (%) by Grade Level.

Grade Level	Living in Single room	Living in Flat	% Living in Duplex
1 – 3	55	45.0	0.0
4 – 6	32.6	67.4	0.0
7 – 10	10.0	57.6	22.4
11 – 15	0	74.7	25.3

Source: Field Survey,2002.

Grade Level	% Occupying 1 – 3 rooms	% Occupying 4 – 6 room	More than 6 rooms
1 – 3	91.4	8.6	0.0
4 – 6	61.1	38.9	0.0
7 – 10	67.3	32.7	0.0
11 – 15	18.3	81.7	0.0

Source: Field Survey, 2002.

Grade Level	Living in Rented Apartment	Living in Own House	% Living in Free House
1 – 3	76.	13.8	9.5
4 – 6	71.1	20.5	8.4
7 – 10	81.6	18.4	0
11 – 15	58.3	37.5	4.2

Source: Field Survey, 2002.

4.3 Sources of Drinking Water

Access to clean and potable Water is essential for a healthy living and contributes greatly to the well being of the populace.

Table 4.3.1 shows the major sources of water and their proximity to households in the study area.

Generally, 46.9% of the total sampled household drank well water (48.8% of households in Akure South, 46.9% of households in Akure North, 44.6% of households in Ifedore).

This percentages shows the predominance of well in the study area. Only 16.9% drank bore hole water, only 3.4% drank from the water corporation.

Table 4.3.1 Major sources of drinking water among household in Akure South, Akure North and Ifedore LGAs.

	Akure South		Akure North		Ifedore		All Households	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Sources of drinking water								
Well	39	48.8	15	46.9	29	44.6	83	46.9
Borehole	18	22.5	5	15.6	7	10.8	30	16.9
Pipebone	18	22.5	11	34.4	25	38.5	54	30.9
Water corp.	1	1.3	1	3.1	4	6.2	6	3.4
Rain	1	1.3	-	-	-	-	1	.6
All	1	1.3	-	-	-	-	1	.6
Bottle water	2	2.5	-	-	-	-	2	1.1
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**

Source: Field survey, 2002.

4.4. Electricity supply and cooking fuel among Households in Akure North, South and Ifedore LGAs.

The National Electric Power Authority (NEPA) is the major source of power supply in Nigeria. The study area is under their coverage. However other sources of power supply are sometimes used alongside that supplied by NEPA like the use of power generating set known as generator, Lantern and Candles, and are sometimes used alone.

Table 4.4.1 shows the sources of electricity supply used among the household members and the kind of fuel used in preparing their food.

From the Table, about 90.4% of the sampled household used electricity supplied by NEPA (91.3% of households in Akure South, 90.6% of household in Akure North and 89% of house in Ifedore LGA) only 7.9 of all the households sampled used generator and NEPA.

Fuel used in cooking was predominantly Kerosine. Table 4.4.1 shows that majority (77.4%) use Kerosine (71.3%, Akure -South, 87.5% Akure North, 80%, Ifedore LGA).

The remaining 22.6% was shared among those who used wood (2.8%), gas (10.2%) , Electricity only (5.6%) a combination of gas and kerosene and a combination of gas and electricity 0.6%.

Table 4.4.1 Sources of Electricity supply and kind of fuel used by households in Akure South, Akure North and Ifedore LGAs.

	Akure South		Akure North		Ifedore		All Households	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Sources of power supply								
NEPA	73	91.3	29	90.6	58	89.2	160	90.4
Generator	7	8.7	1	3.1	6	9.2	14	7.9
Lantern/ Candle	-	-	2	6.3	1	1.5	3	1.7
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**
Fuel used in Cooking								
Kerosine	57	71.3	28	87.5	52	80	137	77.4
Wood	3	3.8	2	6.3	-	-	5	2.8
Electricity	7	8.8	1	3.1	2	3.1	10	5.6
Gas	12	15.0	1	3.1	5	7.7	18	10.2
Gas/Kerosine	1	1.3	-	-	5	7.7	6	3.4
Gas/Electricity	-	-	-	-	1	1.5	1	0.6
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**

Source: Field survey 2002.

4.5 Toilet Facilities and their Distances to households in Akure South, Akure North, and Ifedore.

Good sanitary conditions ensure healthy living and therefore reduce the cost of medical care in particular and total expenditure in general.

Table 4.5.1 shows the toilet facilities and their proximities to households.
The commonest kind of toilet facilities was the water closet (78.5%) sited within the dwelling place (73.5%). (Akure South LGA 76.3%; Akure North 75.0%, while Ifedore 69.2%).

However, grade level wise, only 33.3% of those in grade levels 1- 3 used water closet the remaining 66.7% either used covered pit or bush dung hill.
55.6% of house holds in grade levels 4- 6 used water closet while 44.4% used covered pit.

Table 4.5.1. Toilet facilities and their Distances to household in Akure South, Akure North and Ifedore LGAs.

	Akure South		Akure North		Ifedore		All Households	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Toilet Facilities								
Covered pit	8	10.0	11	34.4	10	15.4	29	16.4
Water closet	66	82.5	20	62.5	53	81.5	139	78.5
Bush/dunghill	6	7.5	1	3.1	2	3.1	9	5.1
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**5.1**
Distance of toilet facility to dwelling								
Indwelling	61	76.3	24	75.0	45	69.2	130	73.5
within 50cm	14	17.4	5	15.6	19	29.2	38	21.5
1 km	5	6.3	3	9.4	1	1.5	9	5.0
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**

Source: Field survey, 2002.

4.6 Income level and consumption expenditure pattern among household in Akure South, North and Ifedore LGAs.

Income level and expenditure pattern are one of the most widely use indicators in poverty and poverty related studies. This indicator probably reveals among other things the standard of living among the targeted population and the relationship they have with the quantity and quality of food consumed.

Table 4.6.1 shows the income per month (salary per month) plus income from other sources in households in Akure South, North, Ifedore LGAs.

4.6.1 Income Status and other sources of income in Akure South, North and Ifedore LGAs.

The total income for the house hold were generated from the monthly salary of the households and the sum of income generated from other sources.

From table 4.6.1a , the mean monthly income for the households in Akure South, North and Ifedore LGAs are ₦14,726; ₦ 11,987; ₦12,820; ₦13,178 respectively with a general mean monthly income of ₦13,178.

51.5% of the all the houses had monthly income equal or less than N16,000 (48. 75% in Akure South, 62.5% in Akure North, and 49.30% in Ifedore LGAs).

Concerning other income generated, Table 4.6.1b also shows that 72.3% of all the households in Akure South, Akure North, and in Ifedore LGAs. i.e (65% in Akure South, 78.1% in Akure North, and 78.5% in Ifedore LGAs) do not generate any other income. This shows their dependence on their monthly salary/wage.

Which probably might not be sufficient considering the mean household size of 5 and also considering the prevailing market prices.

Table 4.6.1a Income level, Consumption expenditure pattern among Households in Akure South, Akure North and Ifedore LGAs.

	Akure South		Akure North		Ifedore		All Households	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1. Monthly Income								
6000- 10000	10	12.50	14	43.75	20	30.80	44	24.90
10001- 16000	29	36.25	6	18.75	12	18.50	47	26:60
16001-28000	24	30.00	12	37.50	17	26.20	53	29.90
28001-36000	-	-	-	-	11	16.90	11	6.20
40000	12	15.00	-	-	2	3.00	14	7.90
>40000	5	6.25	-	-	3	4.60	8	4.50
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**
Mean	**₦14,726**		**₦11,987**		**₦12,820**		**₦13,178**	

Note: Monthly income = monthly wage + income from other source.

Table 4.6.1b Other Income Generated

2. Other sources of income								
nil	52	65.00	25	78.10	51	78.50	128	72.30
500 - 3,000	1	1.30	2	6.30	1	1.40	4	2.30
3,00 - 9,000	8	10.00	-	-	4	6.20	12	6.80
900 - 18000	10	12.40	3	9.30	5	7.70	18	10.20
1800 -25000	4	5.00	2	6.30	4	6.20	10	5.60
2500 - 50000	5	6.30	-	-	-	-	5	2.80
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**
Mean	**₦5,681**		**₦2,656**		**₦2,646**		**₦3,662**	

Source field survey, 2002.

4.7. General consumption expenditure pattern among the households in Akure South, North and Ifedore LGAs.

The General consumption expenditure as considered in this study refers to expenditures on food, Education in the form of school fees, remittances, transportation, social /religious and miscellaneous / domestic expenses.

Table 4.7.1 shows the average pattern of this expenditure among households in the study area. From the Table, the total expenditure for an average household was ₦20,904, ₦19,425, ₦17,550 in Akure South, North and Ifedore LGAs. These show that the amount spent on consumption exceed the average income per month by an average household.

From the foregoing one can infer that most of the consumption made by the households was not done on cash basis.

On the average, a household allocates 36.9% of his total expenditure to food (36% in Akure South; 33.5% in Akure North; 41.75% in Ifedore LGAs) as shown in Tables 4.6.1a and 4.6.1b (income is less than expenditure and with a larger share expended on food.)

Table 4.7.1 Consumption expenditure pattern of households in Akure South, North and Ifedore LGAs.

	Akure South		Akure North		Ifedore		All Households	
	Amt (₦)	%	Amt (₦)	%	Amt (₦)	%	Amt (₦)	%
Monthly Consumption Expenditure on								
Education	5,093	24.40	4,928	25:36	3,667	20.90	13,688	23.65
Medical care	500	2.40	330	1.70	430	2.54	1,260	2.20
Cloths	1,800	8.60	1,830	9.42	1,620	9.22	5,250	9.10
Food	7,531	36.00	6,503	33.50	7,328	41.75	21,362	36.90
Remittances	730	3.5	1,020	5.25	683	3.90	2,433	4.21
Transportation	3,000	14.35	2,872	14.80	1,464	8.30	5,815	10.00
Social religious	1,650	7.90	1,420	7.30	1,395	7.95	4,465	7.71
Miscellaneous	600	2.90	520	2.70	230	1.3	1,350	2.33
Total	**20,904**	**100**	**19,425**	**100**	**17,550**	**100**	**57,875**	**100**

Total Mean expenditure (₦19,293)

Source: Field survey, 2002.

4.8 Property Acquisition Pattern, their ages and Health Facilities among Households in Akure South, North and Ifedore LGAs.

The kind of health facility used is closely related to the income of the user likewise property acquisition and it is only when there is excess fund from the income that properties are acquired. Table 4.8.1 shows the pattern and age of properties acquired and the kind of health facility mostly used. With respect to health Facility used 52% of the Households in the study area use the state hospital (50% in Akure South, 41% in Akure North and 60% in Ifedore}.

Only 32.8% used private hospitals (31.3% in Akure South, 31.3% in Akure North and 35.3% in Ifedore). The remain 15.2% used either Pharmacy/chemist, or traditional healing.

Divine healing or a Combination of State hospital and Private or State hospital and Agbo.

As shown in Table 4.8.1, the properties examined are Television (Coloured and Black and White), Car, land without structure (in rural and urban area), farmland, gas cooker and video set. Television, generally 33.9% had no coloured television while 43% had coloured television 1-4 years old. (42.5% in Akure south, 53.1% in Akure north, 32.3% in Ifedore LGAs).

Also 84.7% of the households in Akure south, Akure north and Ifedore had no white and black television.

Car; about 77.4% had no car (85.3% of households in the Akure south, 75% in Akure north, 87.7% in Ifedore LGAs).

Land without structure in the rural area; 92.7% had no land in rural area (93.8% of Akure south, 96.9% Akure north, 89.2% Ifedore).Also 94.4% of the household in Akure south, Akure north and Ifedore had no land in urban area.

Farmland; 96% had no farmland, 91.5% had no gas cooker, 40.7% had no video set, the remaining 59.3% had video set between 1 -15 years.

The reason for the poor property acquisition among households in Akure south, Akure north and Ifedore LGAs can be linked with their expenditure (consumption expenditure). From which mean consumption expenditure was higher than mean income. Other reason could be their reliance on monthly salary (which from Table 4.6.1a discussed above is about 72.3%) and less income generated from other sources.

Table 4.8.1.Health Facilities used and Property Acquisition Pattern and their ages among Households in.Akure South. North and Ifedore LGA

	Akure South		Akure North		Ifedore		All HH	
	Freq	%	Freq	%	Freq	%	Freq	%
Health Facilities used								
Pharmacy/Chemist	5	6.30	2	6.30	1	1.50	8	4.50
State Hospital	40	50.00	13	40.60	39	60.00	92	52.00
Private Hospital	25	31.30	10	31.30	23	35.3	58	3280
Traditional healing	8	10.00	7	21.90	-	-	15	8.40
State/Private Hospital	1	1.30	-	-	1	1.5	2	1.1
State Hospital and Agbo	1	1.30	-	-	-	-	1	0.60
Divine Healing	-	-	-	-	1	1.5	1	0.60
Total	**80**	**100**	**32**	**100**	**65**	**100**	**177**	**100**
a Television coloured (ages)								
0	30	37.5	10	31.3	20	30.8	60	33.9
1- 4	30	37.5	17	53.10	29	44.6	76	42.9
5- 10	19	23.75	4	12.50	12	18.4	35	19.8
>11	1	1.25	1	3.10	4	6.2	6	3.39
b. Black and white (age)								
0	65	81.30	28	87.5	57	87.7	150	84.7
1- 4	8	10.10	1	3.1	3	4.5	12	6.8
5- 10	3	5.10	5	6.3	1	1.5	5	2.8
>11	3	3.9	1	3.1	3	6.1	8	4.5

3. Car (ages)

0	68	85.30	24	75.0	45	87.7	137	77.40
1 - 4	11	13.75	3	9.37	16	4.5	34	19.20
5 - 10	1	1.25	1	3.13	1	1.5	3	1.70
11- 15	-	-	-	-	1	1.5	1	0.60
> 16	-	-	-	-	2	3.1	2	1.10

4. Land in rural area(age)

0	75	93.8	31	96.9	58	89.2	164	92.7
1 - 4	1	1.3	1	3.1	3	4.6	5	2.8
5 – 10	2	2.6	-	-	4	6.2	6	3.4
11 - 15	2	2.6	-	-	-	-	2	1.1

5. Land in urban area (age)

0	74	92.5	30	93.8	63	96.9	167	94.4
1- 4	4	5.1	2	6.3	2	3.1	8	4.6
5 -10	1	1.3	-	-	-	-	1	0.6
11 -15	1	1.3	-	-	-	-	1	0.6

6. Farm Land (age)

0	76	95.0	32	100	62	95.4	170	96.0
1- 4	3	3.8	-	-	-	-	3	1.7
5 -10	-	-	-	-	2	3.0	2	1.2
11- 15	1	1.2	-	-	1	1.5	2	1.1

7. Gas Cooker (age)								
0	74	92.5	26	81.3	62	95.4	162	91.50
1- 4	4	4.0	6	18.7	2	3.1	12	6.80
5 -10	1	2.6	-	-	-	-	2	1.20
11 -15 8	-	-	-	-	1	1.5	1	0 .60
8. Video Set (age)								
0	34	42.5	17	53.1	21	32.3	72	40.7
1- 4	33	41.3	12	37.5	34	52.3	79	44.6
5 -10	13	16.2	3	9.4	8	12.3	24	13.6
11-15 -	-	-	-	-	2	3.1	2	1.1

Source -Field Survey, 2002.

4.9 Nutrition Poverty

4.9.1 Poverty line by food energy intake method (FEI).

The FEI method was adopted in estimating the poverty line for this study. Table 4.9.1. Show the food poverty lines in Naira.

Table 4.9.1a Food Poverty Line: FEI method

Akure South	Akure North	Ifedore	All HH .I
₦1,919.20	₦ 1,727.41	₦ 1,832.52	₦ 1,826.33

Note: Date reflects 2002 Naira value

Source Field Survey, 2002.

From Table 4.9.1a the poverty lines of ₦1, 826.23 means that a household must spend ₦1,826.33k on food per month, per head to be considered as not poor, with the mean household size at 5. This Implies that a household must spend the average of ₦9,132.00k monthly on food before they can be considered as non poor or considered to meet the nutritional standard. Akure south has a higher poverty line of ₦1 ,919.20k (i.e. in Akure south, Civil Servant can only be considered as not poor or meets the recommended nutritional standard if it spends ₦1 ,919.20k per head and ₦9,595 with a mean household size of 5). Similarly Akure north and Ifedore had poverty lines of ₦1,727.41k, and ₦ 1,832.52k for a household in Akure north and Ifedore to be considered as not poor and to meet the recommended nutritional status they must spend a mean sum of ₦8,635 and ₦9,160 respectively. Again Table 4.7.1 as discussed above revealed a monthly expenditure on food for Akure north, Akure south,and Ifedore LGAs of ₦7531.00k, ₦6,503.00k, ₦7,328.00k, when compared to what is required to meet the required standard as derived from from the FEI method , it shows a short fall of 22%, 25%, and 20% respectively for each of the local government areas, from the recommended daily calorie intake.

Table 4.9.1b shows that consumption poverty as measured by the headcount ratio for all the households is 0.53, 0.56, 0.48 and 0.52 in Akure south, north and Ifedore respectively. In other words 56%, 48% and 52% of the Civil Servants are Living in absolute poverty as defined by the local cost of living .

This result revealed that more than half the population of the household do not meet the recommended daily allowance of2550k cal by World Health Organisation (WHO).

This value of 56%, 48%, 52% poverty headcount for Akure south, Akure north and Ifedore L G As is comparable to 43% and 47% report for workers in Urban areas in Nigeria in 1992 and 1996 (Aigbokan, 2000)

Also the value of 56%, 48% and 52% poverty head count for Akure south Akure north and Ifedore LGAs is comparable to 52% poverty headcount in Ondo State (urban) and 46% (rural) in 1996/97 as reported by Aigbokan (2000).

Table 4.9.1b Estimated Poverty Index by Headcount Ratio in Akure South, Akure North and Ifedore LGAs .

LGAs	PO	%	PI	%	P2	%
Akure South	0.56	56	0.22	22.5	0.12	12
Population share	45					
Akure North	0.48	48	0.18	18	0.10	10
Population share	15					
Ifedore	0.52	52	0.19	19	0.10	10
Population share	34					
All households	0.53	53	0.20	20	0.11	11
Population	94					

Source: Field survey, 2002

4.9.2. Consumption Function Estimation

Two different consumption function (models) were estimated for the study.

4.9.2a. Calorie intake function estimation for all the households in Akure south, Akure North and Ifedore LGAs.

The estimated regression equation is given by:

$$MC_i = 21.65 + 93.4x_1 + 60.95x_2 + 6.989xI0^{-3}x_3 + 321.374x_4 + 114.770x_5$$

(0.132) (0.524) (0.393) (0.030) (0.566) (0.579)

R^2 .0.769 R=0.877 Adj. R= 0.71 F value = 0.157

The equation is significant at 5% level with a good coefficient of multiple determination (R=0.769)

This implies that all the regressor (X_1 -X_5) combined together affect the regressant (daily calorie intake) in the study area significantly with a 77% variation in the daily calorie intake happening as a result of change in (X1-X5) All the explanatory variables carried the expected sign.

4.9.2b. Protein intake function estimation for all the house holds in Akure south Akure north and Ifedore LGAs.

The estimated regression equation is given by

$MC_2 = 60.894 + 41.583x_1 + 143.22x_2 + 3.34x10^{-2}x_3 + 269.62x_4 + 235.9x_5$

(0.101) (0.404) (0.302) (0.023) (0.436) (0.447)

$R = .814$ $R^2 = .67$ F value = 0.732

The variables are significant at 5% level of significant and they all carry the expected positive sign. The coefficient of multiple determination ($R^2 = 0.67$) implies that about 67 % variation in the daily protein intake can be explained by changes in the- regressors (X_1 -X_5).

CHAPTER FIVE

5.0. Summary, Conclusion and Recommendation

5.1. Summary of Major Findings

The main focus of this study was the workers (Civil Service) in Akure South LGAs, Akure North LGAs and Ifedore LGAs. Data was collected on demographic characteristics, living conditions, income levels, expenditure pattern and food consumption pattern. These were used to assess the level at which this household and individual meet the recommended nutritional status (recommended daily allowance which for this study is 2550 kcal.

Most of the household in the study area had 5.0. as house hold size between (56% -63%). Household type married with children existed in most (>90%) of the households. Majority of the respondent (63.8% in Akure South, 50% in Akure North, 78% in Ifedore) were University graduates. The remaining were either Higher National Diploma (HND) holder or Ordinary National Diploma (OND) holder while the remaining were School Certificate holders.

With respect to head of households (sex), the following existed in the study area, most of the household were male headed 68.4%. (55% in Akure South, 84.4% in Akure North, 76.9% in Ifedore).

Further more, the study found that 67.8%, of sampled household lived in flats 26% lived in single rooms. The mean number of living rooms was 3.
About 75% of the households (76.3% in Akure south, 81.2% in Akure north, 69.2% in Ifedore LGAs) lived in rented accommodation. The mean monthly rent was N1,756.60 (N2,935 in Akure South, N1,983 in Akure North, 1,665 in Ifedore LGA).

Majority drank well water (47%) kerosine was the major kind of fuel used in cooking as shown by77% of households(71% in Akure south, 78% Akure north, 80% in Ifedore L.G.A.).

National Electric Power Authority (NEPA) was the major supplier of electricity supplying about (87%) of household in study area. Majority used the water closet, (78%) which was in dwelling.

In terms of income status and general expenditure pattern, the study revealed a mean monthly income of ₦14,736.00k, ₦11,987.00k and ₦12,820.00k for Akure South, North and Ifedore LGAs respectively, and an overall mean monthly income of ₦13,178.00k. Mean monthly expenditure of the household on general consumption was N20,904 in Akure South, N19425 Akure North andN17 ,550 in Ifedore. Mean expenditure on food was N7,531 (36%) in Akure South, N6,503 (33.5%) in Akure North, N7,328 (42%) Ifedore LGAs.

Poverty line as measured by the Food Energy Intake (FEI) method gave a poverty line of N1,826.33k (Nl,919.20k in Akure South, Nl,726.41 in Akure North Nl,832.52 in Ifedore LGA). Consumption poverty measured by the head count index is 0.56, 0.48 and 0.52 i.e. 56%, 48% and 52% for Akure South, North and Ifedore respectively.

The consumption function was estimated for monthly calorie and monthly animal protein intake for households in Akure South, Akure North and Ifedore LGAs. The result of the estimated function shows that: all the regressors had positive sign in the function estimated and were all significant at 5% level. This shows that changes in variables X_1 –X_5 greatly determine calorie intake and protein intake.

5.2. Conclusion

With a mean headcount of 53%, one can infer that more than half of workers in Ondo State are poor and hence their mean daily calorie/animal protein intake levels differ significantly with the minimum recommended standard of the World Health Organisation (WHO) (2550 kcal).

Majority of the workers depend solely on their monthly salary (72.3%) which can not meet the mean monthly expenditure of N19,293.00K as most of the worker have salaries less than these mean monthly expenditure.

5.3. Recommendation

Based on the findings of this study the following are recommended.

- Government should be involved in the regulation of market forces (supply and demand). This is because it is these forces that determine prices and when prices are continually soaring high the effect of any wage increase is immediately cushioned. One would have expected a remarkable change in the nutritional status of the workers considering the fact that they have had over 100% increase in wage/salaries in the last 4 years, yet a balance is always struck leaving the workers in the same position.
- Workers should be involved in Agricultural programmes aimed at production of food crops, livestock, etc. that can be sold to generate more income and consumed to enhance their nutritional status. Efforts should also be directed by the Government and civil servants towards acceleration of programmes aimed at increasing food production. Activities such as home gardening as well as back yard livestock raising should be promoted among the lower grade level civil servant. This effort will ensure that households can meet their food need and also increase their total monthly income while reducing their monthly expenditure.

- Since the study revealed that more than half of the sampled population do not meet the recommended daily allowance of 2550kcal set by World Health organization, (WHO), it is therefore imperative ,that civil servants in Ondo state be informed through enlightenment campaign programmes on the need for them to pay attention to their protein and calorie intake. Government can also aid by implementing meal/food subsidy programmes aimed at helping the household meet recommended daily allowances.

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