

HOUSEHOLD EGG CONSUMPTION EXPENDITURE PATTERN AND INCOME DISTRIBUTION IN KWARA STATE, NIGERIA

OLUBIYO, S.O. AND M.O ELUFISAN

Department of Agricultural Economics Wye College University of London Wye, Ashford, Kent

INTRODUCTION

major concern of many Nigerians nowadays, invariably, any human being, is the assurance of food supplies at reasonable cost. The initial consideration for food in Nigeria is the cost then its quality as people's purchasing power continues to fall. The concern for food stems from the critical role it can play in the sustenance of human life and the release of energy measured in calorie, for body metabolism and creative growth. The task of solving the food problems of the world's malnourished population is increasingly a major focal point of cooperation between governments, agriculturists, manufacturers and international agencies. One of the immediate goals is the introduction and eventual acceptance of the consumption of nutritious foods amongst low income workers, school children and impoverished urban dwellers accounting for over 60% of the Nigerian population. The effective accomplishment of the goal lies not merely in having a good product but requires greater knowledge of the dynamic changes taking place in markets, consumers and food ways.

The importance of food to supply the essential nutrients like carbohydrate, fat, oils, proteins, vitamins and minerals have been widely discussed and ascertained, (Ewusie, 1980; Elton, 1972 as cited by Pimentel 1979). However, the economic recession in Nigeria has changed the average consumption pattern among various households to the extent that an individual is no longer interested in the quality of food he consumes but in the quantity. It is even common among the households in Nigeria nowadays for the household head only to ask the children or other members of the household whether they have eaten rather than asking if they are satisfied with the volume of food taken. Such question is rather expected since most households can no longer afford even minimum requirement for the family food and shelter. The aftermath of this inadequacy is epitomised by the recent record of the increasing cases of nutritional deficiency symptoms and the relatively reduced resistance to diseases in the body, which portentous food could check. Thirival (1972) affirmed that inadequate food supply and nutrition combined with rudimentary health facilities, usually lead to low life expectancy and incident of infant and child mortality. Among the components of food mentioned, the importance of protein for body build up and growth cannot be overemphasized. It contains all the essential amino-acids in the proportion most useful to the normal metabolic processes in the body. Egg readily offers itself for easy purchase and hence the subject of this paper.

The broad objective of this study is to examine the impact of some selected socio-economic variables on egg consumption and to estimate patterns of income distribution

and monthly income expenditure on egg and other food items by the household. The specific objectives are:-

- (i) To examine the socio-economic characteristics of the households of the study area;
- (ii) To determine their protein consumption pattern as they relate to egg;
- (iii) To find out factors influencing egg consumption in the area, and
- (iv) To make suggestions on how the protein consumption of the people in the study area and others can be improved given the implications thereof.

EGG AS AN ANIMAL PROTEIN SOURCE

The role of animal protein in human nutrition has its importance from the physiological as well as the biological point of view. From the biological point of view proteins are important structural molecules, since they form a major part of the constituent of the cell.

Physiologically, protein helps in the normal functioning of the body system for the various activities and functions performed thereby permitting normal growth and development of the body. It is a generally accepted fact that protein content of the Nigerian diet is extremely low. Even, when the per capita income was very high, the FAO (1966) reported that the protein intake per person in Nigeria – both plant and animal sources, is less than 90% of the recommended figure of 65% and 72% per person. This protein intake is further compounded by the worsening economic recession that has rendered the real per capita income of an average citizen far below the poverty level prescribed among the international communities. Nigeria has been grouped among the poorest country in the world, as the per capita income is about \$280 per year.

The available proteins from animals sources have been reported to be of high nutritive value because it contains essential amino-acids which cannot be synthesized by the body system. This animal protein sources include, meat, egg, fish and milk. The nutritional levels of average Nigerian have been adjusted to fall below the optimum nutritional requirements. Reports have shown that average protein intake from animal sources per capital per day in Nigeria is averaged of 10% of the total protein intake. Okuneye and Banwo (1989).

According to Oni (1977) as cited by Elufisan (1994) egg consumption in Nigeria is primarily concentrated in the major urban areas. This is because the urban households are better informed as to the nutritional requirements and the protein supply of eggs. Similarly they relatively earn higher income than the average rural households. Egg consumption is essential for dietary purposes. It contains all the essential amino-acids of all food proteins. Also the fatty acids in eggs contain iron, which is important in blood formation. Similarly, eggs contain important vitamins such as Etinol, vitamin A, and vitamin D which is usually present in two forms, *D₂ ergocalciferp* and *D₃ chlocalcifero*. While vitamin A functions in vision and it is a component of the pigment called visual purple in the retina of the eye. Vitamin D is important in calcium and phosphorus metabolism in the body. Furthermore, eggs contribute substantially to the palatability of most dishes. An egg contains about the same amount of animal protein as pork and poultry meat, about three quarters that of beef and two thirds that of whole milk cheese, Stewart and About (1965) as cited by Akinwumi, (1976). Uncooked egg is fragile hence needed

extra care while handling. It has also been documented that persistent consumption of eggs can enhance the deposition of cholesterol which causes cardiac related illness.

There are various sources of eggs for human consumption. Some of these sources are eggs from hen, duck, goose fowl and turkey. Eggs from hen is the major source for human consumption, at least on a commercial scale. Many factors have been adduced to affect local consumption of eggs. These factors include, its availability, taste and habits of the consumers, the income earning power, level of education, unit price, as well as the price and availability of other animal protein sources. Some of these factors have been isolated to examine their relevance in egg consumption.

Egg Production in Nigeria

The introduction of modern poultry production into Nigeria dated back to the mid 1950s and immediately small scale poultry unit started springing up in different ecological zones of the country. The government further intensified campaigns for poultry farming. Unfortunately, this successful campaign failed to take cognizance of the eventual disposal-marketing outlet for the products. Still the awareness of poultry-egg nutritive values was very limited to a marginal proportion of the elite. Similarly the purchasing power of the masses could not heed the call for poultry meat or egg consumption, since there are no laws banning hunting for wild animals; bush meats were relatively cheaper and readily available. These contributed to the initial lukewarm attitude or reduced demand for poultry egg consumption. According to Akinwumi, (1976) many small scale producers had to abandon the enterprise because they lost money when the price of eggs dropped owing to poor market demand for the product.

The efforts at increasing egg production in Nigeria are militated against by various factors. Feed is a major cost item in poultry production accounting for as much as 40 – 65% of the total cost of production. Owing to some climatic variation, grains used as the major feed ingredients are sometimes now in short supply. There is a persistent high competition between human consumption of grains (maize) and its use as poultry feed. The federal government attempted to reduce this competition by setting up a task force comprises of experts in animal nutrition and production to formulate alternative feeds for livestock production that would rely on non-conventional feed source – grains. The report of this committee was not made public to users thus its proper evaluation and adequacy could not be ascertained.

Inadequate funding is another barrier at increasing egg production. Capital requirement for large scale poultry farming is enormous and the present farmers could not afford it more so that the financial institutions in the country are not readily willing to grant loan to farmers because of the high risk and uncertainty involved. The incidence of pests and disease outbreak can cause a total collapse of a promising poultry unit. Also, the incidence of poor quality feeds and adulterated feeds and drugs has caused a lot of set-back to poultry farming in Nigeria. All these factors have combined to dampen the initial enthusiasm to poultry farming in the country. The Central Bank of Nigeria (1990) observed that the rate of growth in livestock production, hence egg production could not compensate or match the rate of population growth or demand for egg in the country.

Household Food Consumption Patterns

According to Federal Office of Statistics (1966,1979, and 1992), in the consumer surveys carried out in 1964/65, 1979 and 1992, food is reported to be the dominant component of expenditure both in the urban and rural areas. It was discovered that the per capital household income in the wage earning sector was higher than for the self employed and that cash expenditure on food in urban area higher than in the semi-urban and rural areas. Adamu (1966) also observed that household size and its composition serve as the main determinants of household food consumption pattern in Nigeria. Davies (1982) stated that the general educational status of the household head has a positive significant effect on nutritional status of household, just as the income position of the household head is an important determinant of food expenditure. The implication of these findings is that socio-economic characteristic of the members of a household or the household head has an important influence on their consumption pattern. Dewey (1975) considered household as a person or group of persons who live together under the same roof and have a common feeding arrangement. Each member of this household may have different tastes and prefers one commodity to the other, the household usually blends these variance of preferences so as to allocate their money income among the array of household consumer goods. The concept of rationality of consumer behaviour affirmed that consumer deliberately calculate and consistently chooses among the various consumer goods so as to maximize satisfaction or utility. In attempt to maximize satisfaction, the factors that affect the availability and demand for the array of products would invariably affect the choice and utility. Some of these determinants according to Watson and Holman (1977) include, possible prices of closely related commodities. Specifically Adeyokunu (1975) stated that as household income increases, egg consumption increases thereby obliterating the household level of income, and upper asymptote for egg consumption. It was discovered that the income elasticity of demand for eggs, is on the average very high and that there is a household income below which household do not buy egg simply because they are poor to do so. The impact of some of these variables on egg consumption is isolated in this study.

METHODOLOGY

This study covers Ilorin West and East Local Governments Areas in Kwara State. Majority of the population lives in urban/semi-urban centers. Sizeable proportion of the population are government workers or in private businesses. However, agriculture predominates in the suburbs and still extensively practiced on part-time basis. Both primary and secondary data were collected for the study. A multi-stage sampling procedure was adopted in collecting information required with the aid of structured questionnaire from a total of 145 households. The respondents were grouped according to their income characteristics vis-à-vis low, middle or high income.. Those who earn less than N2,000 per month were in low income group, while income groups between N2,000 and N4,000, and above N4,000 per month were respectively grouped into middle to high income class. Descriptive statistics involving frequency distribution and percentages were employed for the study. Lorenz curve and Gini coefficient were estimated to depict the distribution of incomes among various household groups. Furthermore, multiple regression analysis was

used to examine the effects of some selected variables on egg consumption expenditure among the households.

Using the Lorenz curve, absolute equality of income distribution was represented by a 45° diagonal line between the representation of the cumulative percentages of respondents and their income in either axis. The quantification of the degree of inequality was done using Gini coefficient by comparing the area of inequality lying between the 45° line and the Lorenz curve. The coefficient ranges between 0 and 1. A coefficient of 0 illustrates perfect income equality while coefficient of 1 represents absolute inequality.

The multiple regression analysis was estimated using the ordinary least square methods in its implicit form,

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, U) \text{ where}$$

Y = Household expenditure on eggs

X₁ = Average income of the household

X₂ = Size of the household

X₃ = Household monthly expenditure on food

X₄ = Household monthly expenditure on other animal protein.

X₅ = Average age of the household head,

X₆ = Price per unit of egg

U = the error term which is assumed to be normally distributed with zero means and constant variance. This implicit equation is tested using different functional forms. The Cobb-Douglas function with the best fit was chosen as the lead equation and discussed.

RESULT AND DISCUSSION

Different numbers of respondents were interviewed from different income groups. Forty five, fifty one and sixty four respondents were covered who belong to the low, middle and high-income groups. Their average monthly incomes were N1,535.2 for the low income, N2,858.32 for the middle and N5,825.22 for the high income groups. Also the proportion of income spent on food were 77.23%, 76.53% and 51.66% for the various income groups. This invariably confirmed Engel's law and reveal that as income increases less is spent on food since more of the increased income will be devoted to luxury and the likes. In addition, average monthly expenditure on animal products ranges from N160.86, N466.96 and N788.01 for the low, middle and high-income groups. Similarly average monthly expenditure on eggs varies from N76.74, N86.44 and N97.62 among the income groups. The expenditure on egg represents 6.47%, 3.95% and 3.24% of the total income spent on food between the income groups. The implication is that the low income group still spent more of their income on eggs consumption as compared to the high income class that have a higher proportion of their food expenditure, 26.6% on animal products, (Table 1). A large proportion of the respondents earn between N500 and N2,500 per month. Table 2 indicates the Gini analysis of the respondents' income distribution. This analysis gives a value of 0.637, which reveals an uneven income distribution among the household groups. The implication is that there is a wide gap between the middle income and the low-income groups in their monthly take home pay. This result supports the observation among various elites and economic analysts that recent government policies especially its monetary policy

has gradually eroded a larger proportion of its population from middle income class to the low-income group. Figure 1 gives the Lorenz curve, which depicts graphically the nature of income distribution, which has been quantitatively analyzed in the Gini analysis. The degree of income inequality is as shown by the curve which forms an arc with the 45° line. The regression analysis was carried out for all the data obtained from the pooled data (all the income groups combined). Only three of the included variables statistically reveal significant influence, at 5% level on monthly egg expenditure among the sample. These variables are household size, X_2 , average age of the household members X_3 and the unit price of eggs in the market, X_6 . The average household size was 5, and 8 members for low, middle and high income groups. The signs of coefficients obtained for the average age of the household are negative for almost all the functional forms. The implication of this suggest that as the average age of the household increases the quantity of eggs consumed decreases. Within the last 4 years the price of eggs has increased more than 1000 percent, thus the negative sign of the coefficient support a priori expectation. For example in 1990 a crate of egg was still obtained at less than N10.00 but in 1995 it costs more than N160.00. By implication, the increase in the price of egg would cause a corresponding decline in egg purchase and consumption. The coefficient obtained for the household monthly income, household monthly expenditures on food and other animal products were not significant but they are positively signed, indicating a direct relationship between these included variables and level of egg consumption. The result from the descriptive statistics however revealed that the low income earners spent a higher proportion of their income on eggs as compared to higher income earners. The implication is that as the prices of eggs increase, the demand for them falls given the low purchasing power of the low income earners.

SUMMARY AND CONCLUSION

The importance of animal protein and especially egg has been examined in this study. The study identifies the inequality in income distribution as obtained in the Gini analysis. This may be a reflection of the general economic recession occasioned by the unfolding government monetary policies which have gradually placed a larger proportion of the population in the low income group. However, contrary to expectation the income level did not significantly affect household expenditure on egg in the study area. This result may not allow us to conveniently classify egg consumption as a luxury. The result of this study invalidates Adeyokunu's (1975) result which classified egg as a luxury and not a necessity.

Majority of the population are aware of the nutritive quality of egg consumption hence government recent campaign on egg consumption is superfluous.

Feed components have been identified as the major constraint for egg/poultry/livestock production. The government should release yearly a given proportion of its annual grain reserves to poultry production. The government also need to popularize the findings of its task force on alternative feed formulation. As a way of supplementing egg supplies from the poultry farmers, an individual can still keep backyard poultry or still keep local birds

A situation of a large family size coupled with increased unit price of the product, will require an enhanced income to effectively meet even the minimum standard of

household egg consumption requirement in the study area. To attain this level an enhanced real income or purchasing power of the population will be essential. This could be achieved through government subsidy on poultry industries or through a re-examination of income distribution pattern in the economy.

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Lorenz Curve of income Distribution of the Respondents

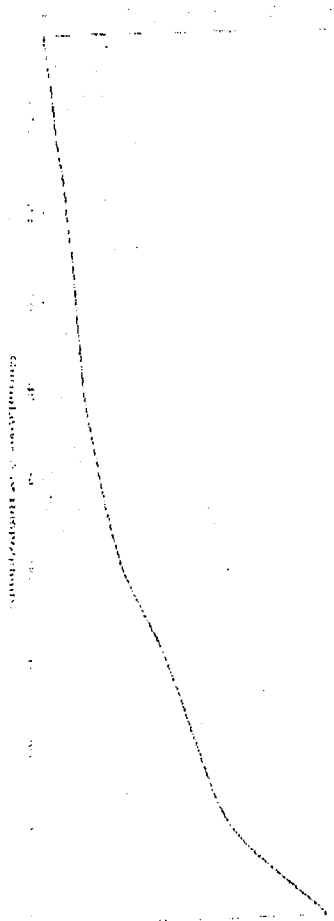


Table 1. DISTRIBUTION OF MONTHLY EXPENDITURE ON FOOD, ANIMA PRODUCTS AND EGG

Income Group	No of Households	Average Monthly disposable Income	Average Monthly Expenditure on food	% Monthly Expenditure on Food	Average Monthly Expenditure Animal Products ₦ K	% Monthly Expenditure on Animal Products	Average Monthly Expenditure on Egg ₦ K	% Monthly Expenditure on egg
Low Under ₦ 2,000 Month	65	₦1535.2	₦1185.66	77.23	160.86	13.57	76.74	6.47
Middle Between ₦2001 and ₦4000/month	37	₦2858.32	₦2187.38	76.53	466.96	21.35	86.44	3.95
High above N 4000/month	43	₦5825.22	₦3009.29	51	788.81	26.62	97.62	3.4

Income Class (A)	No of Respondents	% (X)	Cumulative %	Household monthly Income	% of Total income	Cumulative % of total income (Y)	ΣXY
500-1000	30	20.69	20.69	22833.47	6.63	6.63	0.014
1001-1500	35	24.14	44.83	44527.13	12.93	19.56	0.047
1501-2000	16	11.03	55.86	28360.09	8.24	27.80	0.031
2000-2500	14	9.65	65.51	32244.45	9.37	37.17	0.036
2501-3000	7	4.83	70.34	19175.59	5.57	42.74	0.021
3001-3500	7	4.83	75.17	23496.08	6.82	49.56	0.024
3501-4000	9	6.21	81.38	33292.58	9.67	59.23	0.037
4001-4500	6	4.14	85.52	26456.67	7.69	66.92	0.028
4501-5000	8	5.51	91.03	38108.50	11.07	77.66	0.043
5001-5500	5	3.45	94.48	25809.24	7.50	45.49	0.029
5501-6000	4	2.76	97.24	23015.57	6.68	92.17	0.025
Over 6000	4	2.76	100.00	26941.66	7.83	100.00	0.028

Table 2 Gini Analysis for the Respondents

Source: Field Survey, 1993

$$\begin{aligned} \text{Gini ratio} &= 1 - \frac{\Sigma XY}{\Sigma X \Sigma Y} \\ &= 1 - \frac{0.637}{1} \\ &= 0.637 \end{aligned}$$