Pork Consumer Behaviour in Cross River State, Nigeria: An Empirical Evidence

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ABSTRACT

The study tried to analyze empirically consumer behaviour toward pig meat in Cross River State. Data were mostly secondary sources [time series] from 1981 to 2001. Four forms of equation were tried out and the Double – log model was utilized as a lead equation. The pork product is a normal good a priori. Beef, mutton were complementary while goat meat exhibited a high degree of substitutability relationship. Result indicates that pork consumption in the study area is relatively price inelastic which indicates that a decrease in price will lead to a decline in total revenue. It is therefore important to increase consumer's per- capita income as consumption of pork would increase and may continue until optimum satisfaction is reached. This study will enable consumers and producers alike to make rational decisions with emphasis on efficient resource utilization.

Key words: Pork, Elasticity, Consumption Function.

INTRODUCTION

Livestock plays a significant role in the Nigerian economy as it contributes about 5% of the GDP and 20% of total agricultural output (David West, 1991). It is envisaged that when these farm animals are properly harnessed they can meet the protein need of our people to an appreciable extent. Ademosun (1996) reported that pork production represents a major national investment with important economic, nutritional and social implication for the country. The present status of pork production in Nigeria has passed through great challenges in the past. Purcell *et al* (1991) emphasized that pork sector in the last ten years has seen an unprecedented increase in feed cost. In essence, over 90% of pig farm recurrent expenditure is subjected to feed cost and this development has led to the collapse of several pig farms in recent times.

Small ruminants such as goat, pork, mutton contributes immensely in assisting humans during periods of cyclical and unpredictable food shortages in balancing energy and protein (Rege, 1992). It is commonly observed that during this period of high demand, consumers generally envisage problems such as meat shortage, poor organization of marketing system, inadequate and inefficient transport system. Such variations according to RIM (1992), are true indicators of market performance as shown by variations in price, volume of sales, cost of transportation and transactions. Ibe (1998) has emphasized that it is a well-known fact that productivity of farm animals in most developing countries or nations is very low and cannot support the per- capita requirements for animal protein in these countries. In other to appreciate and understand the problems in question which influence production and consumption of pig meat product in Cross River State, efforts must be made to understand the economic factors such as price of the pig meat product, tastes and preferences, population, consumers income, prices of related products have on the growth of the pork

industry in the state. Arising from this, the research question of interest are evolved which include:

- To what extent do these demand variables affect the prices of pork products with respect to consumption?
- Do changes in the prices of other related products affect the pattern of pork consumption?

However, low consumption of these livestock product may be attributed to short supply as a result of insufficient production or perhaps high prices, religious taboos and the major production centers lying outside and far off from the Northern Nigeria. Thus the study will serve as a basic tool for private pork farmers and marketing participants to arrive at meaningful decisions with respect to their economic activities as well as create an opportunity for proper evaluation of the impact of agricultural programmers/policies on the consumers, producers and farmers as a whole. The study will try to find out or identify the major factors affecting pork consumption in the study area, compute the relevant elasticities which will facilitate good policy formulations, estimate consumption functions and make policy recommendations from major findings.

METHODOLOGY

The study is carried out in Cross River State, Nigeria. The study of this nature is concerned with the measurement of the parameter of economic relationship and also predicting values of economic variables. Emphasis however was placed on those economic variables that influenced the rate of consumption of pork in the study area. The data for the study were from secondary sources (time series), which provided data on an annual basis. The data were available from published reports in the Cross River State Ministry of Agriculture Headquarters, Planning and Research Division, Calabar, Ministry of Finance and Economic Planning, Statistics Department, Calabar, Federal office of Statistics, Annual Abstract of Statistics 1986 and 1993 edition from 1981 to 2001. Appropriate conversion units were used and established where necessary.

ANALYTICAL TECHNIQUE.

The study will embrace the single equation technique using the Ordinary Least Squares Multiple Regression method. The consumption function was regressed using four different functional forms namely Linear, Semi-log, Double-log and Exponential functions and the one with the best fit in terms of a-priori expectation, statistical and econometric criteria was used as a lead equation. The specification of the model involves the determination of the dependent and explanatory variables, the a-priori theoretical expectations about the sign and magnitude of the parameters of the function and the mathematical form of the model. The model specification with respect to this study is based on economic theory. The consumption function as reflected in consumer behaviour with respect to the pork product in question could be expressed implicitly thus:

$$Q_t = f[X_1, X_2, X_3, X_4, X_5, X_6, + U_t]. \text{--------------------------------[eqn. 1]}$$

Where:

Q_t = Quantity consumed in [kg]

X_1 = Wholesale price of pork product [N]

X_2 = Wholesale price of beef [N]

X_3 = Wholesale price of goat [N]

X_4 = Wholesale price of sheep [N]

X_5 = Household Disposable Income [N]

X_6 = Trend factors [changes in tastes/preferences, population changes etc]

U_t = Error Term.

The trend factor has a qualitative effect and it was formed by simple consecutive numbering of the annuals starting with the first year 1981 as applied in the study. The consumption function model shown above reflects the position of consumer behaviour wishing to maximize satisfaction subject to a given budget constraint (Ray, 1982).

RESULTS AND DISCUSSION

Table 1: Regression estimates of pork consumption functions

Variables	Linear	Double-Log	Semi-Log	Exponential function
Price of pork	0.0178***	-0.8317**	32.7054**	1.4374**
	[0.0056]	[0.3276]	[7.9479]	[0.1432]
Price of beef	0.0001	-2.8488**	-0.6854	0.0432
	[0.004]	[1.2103]	[5.7909]	[1.2437]
Price of goat	0.0040	4.8601	0.1711	2.4014
	[0.0100]	[3.0412]	[12.0874]	[2.1027]
Price of mutton	-0.113	-0.8678	-4.5185	0.4574
	[0.0115]	[2.7488]	[10.4573]	[1.2563]
Income	-0.004	1.9857**	3.3577	2.7875**
	[0.0009]	[0.6503]	[2.6357]	[0.5129]
Time trend	0.3311	-0.0817**	-1.9540**	-0.1432
	[0.0968]	[0.0309]	[0.2687]	[0.1237]
Intercept	1.34	-8.14	-93.09	4.27
R2	0.98	0.90	0.96	0.87
Adjusted R2	0.96	0.89	0.95	0.85
F-Ratio	164.40	235.71	53.33	123.24
D.W	1.98	2.15	3.28	2.27

** Significant at 5% probability level in two- tailed test. Figures in brackets are the standard error.

Source: From own study [2003]

The empirical results as shown in table 1 [double-log] had the right sign and acceptable economic magnitude for price of pork and income from a-priori expectation indicating the pork product to be a normal good. Beef and mutton are complementary products with

cross-price elasticity values of –2.85 and –0.87 indicating that a one percent increase in prices of beef and mutton will decrease consumption of pork by 2.85 and 0.87 respectively which is in line with Olufonkunbi [1982] empirical work on demand for beef in Ile-Ife, Western Nigeria. Goat has a strong degree of substitutability with a cross-price coefficient of 4.86 indicating that a one percent increase in price of goat will increase consumption of pork by 4.86 in the study area. The standard error estimates show that coefficient for price of pork, price of beef, income and trend factors were statistically different from zero hence their influence on pork consumption. The trend factors showed a downward trend and negatively related. The own price elasticity of demand is very important for policy formulation and for this study it was found to be –0.83, which is relatively inelastic and low. This assertion as applied depends on the necessity consumers view the product and what percent of the consumers income is spent on it, the availability of substitutes and the time span over which consumer adjustment to a price change are being observed.

The income elasticity of demand with respect to the finding is 1.99, which indicates a positive income-consumption relationship. It is relatively low and inelastic and this implies that as consumer's income grow, a smaller or declining portion of their income will be spent on the product. Engel's law in term of elasticity agrees that food is income inelastic. However, a change in consumer's money income will have a significant influence on consumption of the product either by increasing or decreasing consumption.

Table 2: Elasticity of demand

Type of elasticity	Linear	Double-log	Semi-log	Exponential function
Own price	3.73	0.83	0.79	1.43
Income	-0.27	1.99	0.8	0.17
Cross-price	-0.98 beef	-2.84 beef	3.44 beef	2.23 beef
	-7.65 goat	4.86 goat	1.37 goat	-1.37 goat
	8.38 mutton	0.87 mutton	-6.54 mutton	0.78 mutton
Trend factors	0.331	-0.08	-1.954	-6.437

Source: From own study [2003]

CONCLUSION AND RECOMMENDATIONS

The significance of this study will to a large extent contribute to good farm policy formulation and market strategies that will enhance the growth of the pork sector. The study however found that the relevant variables that influence pork consumption in the study area include own price, consumers income, price of alternative products. From the result, the pork product is relatively price inelastic, which implies that a decrease in price of the product will to a decline in total revenue to the producer. As long as price reduction will not enable producers to maintain a good profit level for their product, increase in

consumers' income will have compensating effect in enhancing farmers income in this respect than a decline in price.

This study recommends that Cross River State government should open up good working environment with adequate incentives for improved productivity, which will then enhance consumer's income so that more of the product could be consumed and producers will increase their sales. Mores, a reduction in wholesale/retail prices for the product will enable consumers to increase purchases to satisfy their protein needs while sellers would sell more and increase their total revenue.

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