International Journal of Academic Research in Business and Social Sciences
December 2013, Vol. 3, No. 12
ISSN: 2222-6990

# Identifying the Luxury Commodities for the Selected Food Groups in Iran (Emphasizing on the Income Elasticity of Demand)

**Malihe AliAhmadi**
M.A in Economics

DOI: 10.6007/IJARBSS/v3-i12/473 URL: http://dx.doi.org/10.6007/IJARBSS/v3-i12/473

**Abstract**
This paper examines the price and income elasticity of demand for Iraniannon-durable food groups using AIDS system in the rural and urban areas during the period 1989-2007.The groups that here are evaluated include Meat, Rice, Bread, Oil, beverage and Diary.The findings indicate that almost the commodities including Meat, Rice, beverage and Diary have an elasticity value more than one which known as the luxury products for both urban and rural areas while this value is less than one for the bread commodity. Additionally, the rice and meat groups have the highest value for the elasticity of income.

**Key Words:** Income Elasticity of Demand, AIDS System, Food Groups .

## Introduction

There are different functions of demand such as AIDS, AL, TL, AITL and GAITL have their specific properties In order to survey the consumer behavior in an economy. AIDS system is one of those demand functions that has been applied more than others. This pattern was presented for the first time by Muellbauer and Deaton (1980) and was named the AIDS pattern (Samadi, 2004).

There are various studies on the literature of demand function estimation in Iran and abroad. For instance, Torkamani and Azizi (2001) by measuring the AIDS demand function for the meat good in Iran. The results raised form this study indicates that the share of budget for the red meat in both urban and rural areas has been increased. Fidan and Klasra (2005) studied that quarterly effect of demand for the red and fish meat in Ankara. The findings indicate that the consumption for the meats is change in different seasons. In particularly the consumption for the Muslims in Ghorban Celebrity is raised remarkably. The paper also confirmed that the red meat is an inelastic good, but the fish meat is elastic (Ghorbani, 2010).

The consumption demand for a good is one of the important components to analyze and predict the effect of change in the consumer good price and income. This review can be examined for the food materials. Estimation for this good can give us an appropriate perspective to adopt corresponding policies.

This study consists of three sections. The first part of the study survey the literature review on the AIDS System and the former studies in Iran and abroad. Then, we put the

theoretical model in effect and according to the Statistical Center of Iran databases for some selected food groups in order to examine the luxury commodities. Eventually, giving the obtained results on the luxury commodities we recommend some policies for the respective officials.

## The Literature Review

### 1- Methodology

There are two methods to estimate the demand equations, single-equation and system equations. The demand function for the single-equation model is derived from the corresponding utility function. New systems of demand function were introduced after 1950. The Almost Ideal Demand System is one of the models.

### Almost Ideal Demand System

Considering the specific utility function is the main critic for the system equation models.*Deaton &Mullbauer* in order to solve this problem introduced the AIDS demand system which unlike the LAS and LES models doesn't follow a specific functional form. This kind of system considers the PIGLOG Expenditure function which is actually the logarithmic form of Price Independent Generalized Linear(PIGL)function. The expenditure almost is function of utility and price. Mulbur separated the utility function from the price.

The general PIGLOG form is as:

$$LnC(U,P) = (1-U)Ln\{a(p)\} + U\{b(p)\}$$

Where, $U$ is utility; $P$ is price vector. $a$ and $b$ are function of prices that leaner concave homogenous. Daiton and Mulbur defined these functions as:

$$Lna(P) = a_0 + \sum_{i=1}^{n} a_i Lnp_i + 1/2 \sum_{i=1}^{n}\sum_{j-1}^{n} \gamma_{ij} Lnp_i Lnp_j$$

$$Lnb(p) = Lna(p) + \beta_0 \prod_{i=1}^{n} p_i$$

Utility is zero for the poor people and it is one foe the reach people. If $U = 0$ , then $\ln a(\ p)$ denotes the minimum subsistence level.

$$LnC(U,P) = a_0 + \sum_{i=1}^{n} a_i Lnp_i + 1/2 \sum_{i=1}^{n}\sum_{j-1}^{n} \gamma_{ij} Lnp_i Lnp_j + U\beta_0 \prod_{i=1}^{n} p_i^{\beta_i}$$

The terms $a_I , \beta_i , \gamma_{ij}$ are the model parametrs. The expenditure function in order to be leanr-hemofenous, the following constraints shoule be considered:

$$\sum_{i=1}^{n} \gamma_{ij} = \sum_{j=1}^{n} \gamma_{ji} = \sum_{i=1}^{n} \beta_i = 0, \qquad \sum a_i = 1$$

The demand function is derived from the equation 3 under the Shephard's theorem as bellow:

$$q_i = \frac{\partial C(U,P)}{\partial P_i} \Rightarrow V_i = \frac{P_i q_i}{C} = \frac{\partial C(U,P)}{\partial P_i}\frac{P_i}{C} = \frac{\partial LnC}{\partial Lnp_i} \quad (4)$$

Therefore, the share of i-th good in the houshould budget is equal with the partial derevative of the expenditure logarithm to the logarithm of the i-th price of good. Hence, the derivation of equation 3 to $ln\, p_i$ is as:

$$V_i = \frac{\partial LnC}{\partial Lnp_i} = a_i + \sum_{j=1}^{n} \gamma_{ij} Lnp_j + \beta_i U \beta_0 \prod_{i=1}^{n} p_i^{\beta_i} \quad (5)$$

According to this equation, the share of each good expenditure is function of price and utility.

The total expenditure ($M$) is equaivant with $C(P,U)$ at the maximum of utility. Thus, if u is set given the $P$ and $M$, then:

$$V_i = a_i + \sum_{j=1}^{n} \gamma_{ij} Lnp_j + \beta_i Ln(M/p) \quad (6)$$

The above equation indicates the AIDS demand function where $P$ is derived from the following equaion:

$$LnP = a_0 + \sum_{i=1}^{n} a_i Lnp_i + 1/2 \sum_{i=1}^{n} \sum_{j-1}^{n} \gamma_{ij} Lnp_i Lnp_j \quad (7)$$

In effect, the price index is caclulated under the following approximation Stone index instead of the eqtaion 7:

$$LnP = a_0 + \sum_{j=1}^{n} V_j Lnp_j \quad (8)$$

**Income Elasticity of AIDS Model**

Derivation of equation 6 to the inceme is as:

$$\frac{\partial V_i}{\partial M} = \frac{\beta_i}{M} \quad (9)$$

Since $V_i = \frac{p_i q_i}{M}$, then:

$$\frac{\partial V_i}{\partial M} = \frac{\partial\left(\frac{p_i q_i}{M}\right)}{\partial M} \frac{p_i \frac{\partial q_i}{\partial M}.M - p_i q_i}{M^2} \quad (10)$$

The income elasticity in the AIDS models is Based on the equations 9 and 10 as follows:

$$\beta_i = p_i \frac{\partial q_i}{\partial M} - \frac{p_i q_i}{M} = p_i \frac{\partial q_i}{\partial M} - V_i$$

$$\Rightarrow \frac{\partial q_i}{\partial M} = \frac{\beta_i + V_i}{p_i} \Rightarrow \mu_{iM} = \frac{\partial q_i}{\partial M} \frac{M}{q_i} = \frac{\beta_i + V_i}{p_i} \frac{M}{q_i}$$

$$\Rightarrow \mu_{iM} = \frac{\beta_i + V_i}{V_i} = \frac{\beta_i}{V_i} + 1 \Rightarrow \mu = \frac{\beta_i}{V_i} + 1$$

## 2- Former Studies

HashemiBanab and GhahramanZadeh (2005) examined the consumption pattern of food commodities. The results show that the hypothesis entitled "the consumers' income

firstly is assigned among the different food groups and then it is distributed for the meat groups" is rejected. Jafari and Kohansal (2007) studied the demand function of several spices of meats and found that the fish and poultry meats are two substitutes.

Karagiannis and Mergos (2002) attempted to study the demand systems of food materials based on the cointegration technique in Greek. The practical result of this research under the linear AIDS model indicated that the sample size, the patterns of information harmonization and the techniques for apply are the main factors in estimating the demand systems. They also concluded that the homogeneity property is sensitive to the sample size.

Ghorbani et.al (2010) Estimated the demand function for different meat using AIDS model in Iran. The results stated that the elasticity is smaller in short run rather long rum. The income elasticity of demand also showed that the chicken meat at both short run and long run as well as the fish in short run are necessary goods.

AziziansTurkamani (2001) estimated the different demand function of meat in Iranian urban and rural areas using the AIDS system. The results show that the budget share of red meat at both the areas has been decreased while the budget for the fish and chicken has been raised gradually.

Fidan and Klasra (2005) studied that quarterly effect of demand for the red and fish meat in Ankara. The findings indicate that the consumption for the meats is change in different seasons. In particularly the consumption for the Muslims in Ghorban Celebrity is raised remarkably. The paper also confirmed that the red meat is an inelastic good, but the fish meat is elastic.

Skripnichenko and Chen (2002) combined the rarely Ideal demand function of Coper and Macklaren and the Ideal demand function ofMusichi and made a new effective demand function. They estimated the demand function for meat and finally compare their demand function with the Coper and macklaren's function. The results confirmed that their new model is not appropriate as the Coper and macklaren's function it is.

**Empirical Results**

We employed a system demand function for the groups of food materials in both rural and urban areas in Iran. It should be noted that we applied the Augmented Dicky Fuller (ADF) test to evaluate the stationary of variables. The results for this test indicate that all variables are stationary in their levels.

The income elasticity of demand verified that the groups including Meat, Rice, Oil, beverage and Diary are luxuryproducts for both urban and rural areas in Iran (this result has been confirmed in Torkamni (2001) study) while the group bread has income elasticity of demand value with less one.

**Conclusion**

This paper examined the price and income elasticity of demand for Iranian non-durable food materials using AIDS system in the rural and urban areas during the period 1989-2007. Since almost thecorresponding commoditiesare luxury in this review therefore we suggest the Iranian respective officials to focus more on the necessary goods that are important for the people.

**References**

Azizi, J andTurkamani, J., (2001), "Estimating the demand Function for Meat in Iran", *journal of Agricultural Economics and Development*, 34, pp. 17-35.

Fidan, H and Klasra, A.M., (2005), "Seasonality in Household Demand for Meat and Fish: Evidence from an Urban Area, *Turky. Vet Anim. Sci.,* 29, pp. 1217-24.

Ghorbani, M., Shokri, EandMatlabi, M., (2008), "Estimating the Corrected Error Pattern for the Meat", *Agricultural and Development Economics*, 69.

HashemiBanab, S and GhahramanZade, V., (2005), "Examining the Consumption Pattern of Food Commodities in Iran", 5th Conference on the Agricultural Economics, University of Sistan and Bluchestan.

Jafari, F and Kohansal, M.R., (2007), "Different Demand Function of Meat in Iran", 6th Conference on the Iranian Agricultural Economics, University of Mashhad.

Karagiannis, G andMergos, G.J. (2002), "Estimating theoretically consistent demand systems usingcointegration techniques with application to Greek food data", *Economics Letters.* 74, pp. 137–143.

Muellbauer, J and Deaton, A.(1980), "An almost ideal demand system", *The American Economic Review,* 70, pp. 312-326.

Skripnichenko, A. and Chen.K ., (2002), "Estimation of an effectively globally regular demand system:An application to United States meat consumption", *Empirical Economic*, 27, pp.601–606.

Samadi, A., (2004), "Assessing the AIDS System in the Consumer Behavior: stade Case for the Urban and Rural of Kohgiluyeh and Boyer-Ahmad Province", *Iranian Economic Researches,* 2o, pp. 157-187.