CONSUMPTION P ATTERNS OF HOUSEHOLDS IN NORTH CYPRUS

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Abstract: This is a quantitative study concerning how household expenditure on different groups of commodities changes when there are changes in the income of urban households in North Cyprus. For this purpose a survey is conducted on 300 households from Lefkoşa, Gazimağusa, Girne and Güzelyurt. The information obtained from this survey is used to estimate Engel curves and from them income elasticities. The empirical findings indicate that expenditure on food, rent, electricity, water, gas, household services, transportation and communication are inelastic (less than 1), and expenditure on restaurants, clothing, furniture, health, personal care, culture, education, entertainment, and other commodities are elastic (more than 1). These results show many similarities to various empirical results obtained for Turkey.

Keywords: *Engel Curves, income elasticities.*

Özet: Bu çalışmada, Kuzey Kıbrıs'ta şehirlerde yaşayan ailelerin gelirleri arttıkça değişik mal gruplarına olan taleplerinin nasıl artış gösterdiği kantitatif olarak araştırılmıştır. Kuzey Kıbrıs'ta bu konuda gerekli olan veriler bulunmadığı için anket çalışmasına başvurulmuş, Lefkoşa, Gazimağusa, Girne ve Güzelyurt'ta 300 aileye dağıtılan anket sorularına verilen cevaplardan elde edilen veriler ve dört ayrı fonksiyon tipi kullanılmak suretiyle Engel eğrileri ve onlardan da gelir esneklikleri elde edilmiştir. Elde edilen bulgulara göre gıda, kira, elektrik, su, gaz, ev hizmetleri, ulaşım ve iletişim için gelir esneklikleri birden küçük (esnek değil), restoran, giyim, mobilya, sağlık, kişisel bakım, kültür, eğitim, eğlence, ve diğer mallar için birden büyük (esnek) çıkmıştır. Bu bulgular Türkiye için yapılmış çeşitli Engel eğrisi çalışmalarından elde edilen bulgulara büyük bir benzerlik göstermektedir.

Anahtar kelimeler: *Engel eğrileri, gelir esneklikleri.*

1. INTRODUCTION

Many studies have been done on the consumption patterns of households in various countries, including Turkey. But, there has not been any study done on this matter for North Cyprus. So, the main purpose of this study is to examine quantitatively the consumption patterns of urban households in North Cyprus.

The origins of quantitative studies on consumption patterns of households go back to the publication of a quantitative study done by Ernst Engel (1821-1896) in the year 1857 (Houthakker, 1957: 532-551). Engel, using Belgian cross-section data for the incomes and expenditures of certain clerical groups, took broad categories such as food, clothing, housing, and luxuries, and computed the percentage of incomes spent on each at different income levels. These relationships have come to be known as Engel's Law, although Engel emphasized only the one for food. According to Engel's Law: (1) Percentage spent on food decreases as income rises, (2) percentage spent on housing stays about the same, (3) percentage spent on clothing stays the same (or increases), and (4) percentage spent on luxury increases. Income-expenditure curves of this sort are called Engel curves, after Ernst Engel who was the first to make them. From the Engel curves it is possible to obtain income elasticities, showing the ratio of percentage change in expenditure on a consumption item to a percentage change in income. Income-expenditure elasticities according to Engel's Law would be expected to be something like this: food, inelastic ($e < 1$); housing, unit elastic ($e=1$); clothing, unit elastic ($e= 1$) or elastic ($e > 1$); and luxuries, elastic ($e > 1$).

There have been many Engel curves studies done for various countries, mostly confirming the expectations indicated above. Cross-section data are used for this purpose. For the Engel curve studies done for Turkey, generally grouped cross-section data based on household income and consumption expenditures surveys conducted by the State Institute of Statistics are used. In the case of North Cyprus there was no appropriate cross-section data to be used for Engel curves studies. So, we collected the necessary data based on a survey we conducted and used the data we obtained from this survey. But, first let us consider the functional forms that we will use for our Engel curves study.

2. FUNCTIONALFORMS

There are various functional forms used for econometric studies on Engel curves. The most widely used ones are (Şenesen & Selim, 1995: 209)

1. $Y = a + b X$	$e = b (X / Y)$
2. $Y = a + b \ln X$	$e = b (1/Y)$
3. $Y = a - b (1 / X)$	$e = b (1 / XY)$
4. $\ln Y = a + b X$	$e = b X$
5. $\ln Y = a + b \ln X$	$e = b$
6. $\ln Y = a - b (1 / X)$	$e = b (1 / X)$
7. $Y / X = a + b X$	$e = 1 + b X (X / Y)$
8. $Y / X = a + b \ln X$	$e = 1 + b (X / Y)$
9. $Y / X = a - b (1 / X)$	$e = a (X / Y)$

Where:

Y = expenditure on a certain group of commodities,
X = income,
e = income elasticity of a group of commodities.

We will not try all those functional forms, but use only four of them; namely: linear form (1), semi-logarithmic form (2), double-logarithmic form (5), and Working-Leser form (8). The main reason is that those four functional forms many times have given better results than the others.

3. DATA

We collected our own data by means of a consumer expenditure survey that we conducted for North Cyprus. The sample consisted of 300 households: 40% of households from Lefkoşa, 30% from gazimağusa, 20% from Girne, and 10% from Güzelyurt. The survey was conducted during April 1–15, 1997 and in the questionnaire the households were asked to indicate their net income (income after taxes) and expenditure on the following group of commodities:

Y_1 = Food	: Includes expenditures on tobacco, alcoholic and non-alcoholic beverages.
Y_2 = Restaurant	: Expenditures in restaurants and similar places.
Y_3 = Clothing	: Expenditure on clothing for men, women, and children.
Y_4 = Furniture	: Expenditure on house furnishings, furniture and rugs, electrical and non-electrical appliances.
Y_5 = Rent	: Expenditures on rent.
Y_6 = Electricity, water and gas	: Expenditures on electricity, water and gas.
Y_7 = House Services	: Expenditures on goods and services for household operation. Includes domestic services, maintenance, and expenditures on cleaning agents.
Y_8 = Health	: Expenditures on health-care services, and medicines.
Y_9 = Personal-care	: Expenditures on goods and services for personal care such as in beauty-parlours and barber shops.
Y_{10} = Transportation and Communication	: Expenditures on transportation and communication. Includes purchases and repair of transport equipment plus fuel expenses.
Y_{11} = Culture, education and entertainment	: Expenditures on cultural, education and entertainment activity. The expenditures on radios, music and television sets, movies, concerts, theatres, sport events as well as school fees and other educational expenses are included here.
Y_{12} = Other	: Other expenses.

From the data we collected we also obtained total expenditure figure for households by adding expenditures of households on all groups of commodities.

4. ESTIMATION

In the estimation of Engel curves it has been common practice to use total expenditure in place of income (Tansel, 1986: 244). There are some drawbacks of using income figures, such as false reportings of the income level. On the other hand, expenditure figures are error free and are used as proxy of household income (Çınar, 1987: 361).

In our study both total expenditure and income are used alternatively, as explanatory variables. The results obtained when total expenditure is used are better than the results obtained using income as explanatory variable. Table 1 below gives the elasticities obtained from Engel curves estimated when total expenditure is used as explanatory variable as proxy of household income.

Table 1. Total Expenditure Elasticities Obtained from the Four Functional Forms Estimated.

Expenditur e Group	**Linear** (1)	**Semi-logarithmic** (2)	**Double-logarithmic** (5)	**Working-Leser** (8)
Food (Y_1)	0.702	0.646	0.669	0.671
Restaurant (Y_2)	0.925	0.903	0.743	1.185
Clothing (Y_3)	1.034	0.962	0.965	1.206
Furniture (Y_4)	1.955	1.598	1.172	1.891
Rent (Y_5)	0.432	0.526	0.732	0.668
Electricity, water and gas (Y_6)	0.536	0.503	0.512	0.517
House services (Y_7)	0.840	0.769	0.836	0.860
Health (Y_8)	1.316	1.070	0.850	1.164
Personal care (Y_9)	0.978	0.899	0.817	1.045
Transportation and communications (Y_{10})	0.690	0.660	0.807	0.790
Culture, education and entertaintment (Y_{11})	1.500	1.225	1.034	1.393
Other (Y_{12})	1.677	1.407	0.826	1.789

Theoretically, we would expect the weighted arithmetic mean (average) of elasticities to be equal to one (Â wi ei = 1) where ei is the total expenditure elasticity for the ith commodity, and wi is the share of the ith commodity in the total expenditure. We find that average elasticity is 0.964 for Working-Leser form, 0.905 for linear form, 0.824 for semi-log form, and 0.785 for double-log form. The one

which gives us an average elasticity nearest to one is Working-Leser form. So, we consider Working-Leser form results as the most satisfactory ones. Elasticities obtained from the Working-Leser functional form estimates indicate that food, rent, elasticity, water and gas, house services, and transportation and communication are necessities ($e < 1$) and the others (restaurant, clothing, furniture, health, personal care, culture, education and entertainment, and other) are luxuries ($e > 1$).

5. CONCLUSION

Here we will conclude the evaluation of our empirical results in comparison to the results of some studies done on Engel curves for Turkey.

We found food to be a necessity, elasticity being less than 1. It shows a low income elasticity at every income level and for all functional forms. This is an expected result confirmed by earlier studies. Tansel (1984), Günlük-Şenesen (1987), Kasnakoğlu (1991), and Şenesen and Selim (1995) all found food to be a necessity. In our study restaurant expenditures seem to be near to unity. Kasnakoğlu, Şenesen and Selim found restaurant expenditures as unity. But Tansel and Günlük-Şenesen found restaurant expenditures as luxury. Clothing is a luxury in our study. Günlük-Şenesen and Kasnakoğlu found clothing expenditures as necessity goods. Tansel, Şenesen and Selim found clothing as luxury. Furniture is luxury in our study. In all studies done for Turkey it is found to be a luxury also. Both in our study and in the studies for Turkey rent, electricity, water and gas are found to be necessity. In our study and in all studies for Turkey, except that of Şenesen and Selim, house services are found to be necessity. In the study of Şenesen and Selim it is found to be a luxury. Personal care expenditure lie in the vicinity of unity in our study and in the studies done by Günlük-Şenesen, Kasnakoğlu, and Şenesen and Selim; but, as luxury good in the case of Tansel. In our study and in the study by Günlük-Şenesen transportation expenditures are found to be a necessity; in the others, it is found to be a luxury commodity. In our study and in the studies done by Tansel, and Şenesen and Selim cultural expenditures are luxury; whereas, in the studies by Günlük-Şenesen and Kasnakoğlu it is a unity elasticity commodity. To summarize, our findings show much similarity to the findings of studies done for Turkey, concerning income elasticities.

REFERENCES

ÇINAR, Mine (1987), "The Sensitivity of Extended Linear Expenditure System Household Scales to Income Declaration Errors," *Journal of Econometrics*, Vol. 34.

GILBOY, W. E. (1968), *The Economics of Consumption*, New York, Random House.

GÜNLÜK-ŞENESEN, Gülay (1987), "İstanbul'da Yaşayanların Harcama Kalıplarına İlişkin Bir Deneme," XI. Ulusal Yöneylem Araştırması Kongresi Bildiriler Kitabı.

HOUTHAKKER, A. S. (1957), "An International Comparison of Households Expenditure Patterns Commemorating the Centenary of Engel's Law," Econometrica, Vol. 25.

KASNAKOĞLU, Zehra (1991), "Regional Consumption Patterns and Income Elasticity in Turkey: 1987," *Journal of Economic Cooperation Among Islamic Countries*, Vol. 12.

ŞENESEN, Ümit and Raziye SELİM (1995), "Consumption Patterns of Turkish Urban and Rural Households in 1987," *METU Studies in Development*, Vol. 22, no. 2.

TANSEL, Aysıt (1986), "An Engel Curve Analysis of Household Expenditure in Turkey, 1978-79," *METU Studies in Development*, Vol. 13.