Econometric Models for Household Disposable Income & Consumption Expenditure for Selected 7 Province Centers in Turkey

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1. INTRODUCTION

Household Income and Consumption Expenditure Surveys (HICES) are being conducted every 5 years to define household's socio-economic structure, income and consumption level in Turkey. This kind of survey application period is too long and it is very hard to estimate the mid-year during the 5 years. The purpose of this paper is to develop an instrument to predict household disposable income and consumption expenditure by household composition, asset ownership and other human capital variables.

The State Institute of Statistics bases the study on raw data by 1994 HICES and 1994 Household Income Distribution Survey (HIDS) conducted. Sampling design and sample households are as same as both surveys. 1994 HICES covered 2188 households per month using daily bookkeeping and frequent visits. Application period was during the one year from January to December 1994, for household disposable income reference period was survey month and last 12 months (using moving reference period), for expenditure survey month. At the beginning of the 1995, all sample households were revisited again to get fix calendar year' disposable income. Both survey sampling design can permit independent estimates for selected 19 provinces centers which have 200 000 and over population.

In this paper, only selected 7 provinces center' raw data for both survey overlap sample households information. When selection of these provinces center some important variables such as income and consumption value by household, average number of employed person, Gini coefficient were considered and used decision sampling methods.

II. MODELS

Three different functional forms are employed for income and expenditure estimations. The optimum models are being changed by provinces and income, expenditure. In this study cross sectional data were used, so that the heteroscedasticity tests done in the models, the Generalised Least Squares Estimation method was used.

(1) $\ln Y_t = \beta_0 + \sum \beta_i Z_{ti} + \sum \alpha_j U_{tj} + u_t \Rightarrow$ **Semi-log model**

(2) $Y_t = \beta_0 + \sum \beta_i Z_{ti} + \sum \alpha_j U_{tj} + u_t \Rightarrow$ **Linear model**

Where, Y= Monthly household disposable income, Z= Quantitative explanatory variables, U= Qualitative explanatory variables. The linear and semi-log models for selected provinces center are estimated including different combination of independent variables and the ones with the best explanatory and predictive performance were selected. In all the models 10 major groups variables and total 80 variables which were most of the qualitative variables were used for alternatives model. Quantitative variables are household size, number of persons employed, age of head of household, number of income earning persons, head of household's working hours per week, head of household's working life. Qualitative variables are owner occupied housing, ownership of durable goods, ownership of real estate, head of household' educational status, employment status, social security status, housing facilities . Human capital elements such as education, work experiences are important to define of household income and expenditure was considered only head of household level.

III. CONCLUSIONS

For selected 7 provinces center optimum model results for income and expenditure can be summarized as following.

1) By selected the optimum model, the predictive performance of the models are higher for income than expenditure. The simple correlation coefficients of determination between actual end predicted values of the dependent variables income and expenditure are obtained 0,63 maximum value for Erzurum and 0,43 minimum value for Bursa; 0,46 maximum value for İzmir and 0,30 minimum value for Ankara respectively. The optimum models performance are much higher for disposable income for selected all provinces than total expenditure.

2) The majority of optimum models form for all selected provinces by income and expenditure are semi-log models.

3) Head of household employment status, as an employer is very important explanatory variables for income and expenditure for 7 provinces. The percentage contributions of employment status of employer to household income are 119,62 and 21,55 for income and expenditure for Erzurum which has the biggest value.

4) Head of household educational status, as primary school is generally negative effects for household income and expenditure.

5) Type of housing, as apartment seems also very important variable to define income and expenditure for 4 provinces center.

6) Numbers of rooms have a similar effect as type of housing. For 4 provinces center number of rooms have positive effects for income and expenditure and maximum percentage contributions to income 18,82 for İzmir, minimum 7,08 for Gaziantep; maximum percentage contributions to expenditure 16 for İzmir, minimum 0,98 for Gaziantep.

7) Type of saving as real estate also has positive effect to income and expenditure for 4 provinces center.

8) Dish washer and automatic washing machine variables are important to explain income and expenditure by the selected optimum models.

9) In the model, most of the variables are used as dummy variables so that the model performances are being limited. If the head of household occupation and economic activity variables were used, the model performances will be better.

10) This study may be improved using the individual data rather than household level. This type of modeling study can be modified using all kind of settlements not only the provinces center. Because there are significant variation between the localities by household socio-economic variables.

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