Thesis Title : Factors Affecting the Household Demand for Electricity in Chiang Mai Province

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Abstract

The two objectives of this study are ; (1) to study the economics and non-economics factors that affect the household behavior in electricity consumption in Chiangmai Province. (2) to analize price elasticity of demand in order to design efficient policy to reduce electricity consumption of residential area.

The data for this study were gathered by using structured guestionaire. The survey was done on 300 households in Chiangmai province by separating the study area into 2 sections ; (1)the first area composed of 200 observations in urban area. (2) the second area composed of 100 observations in rural area.

The model used in this study is single equation with several variables. These variables includes ; average residential price of electricity per month (PE),average household income per month (Y), education (EDU), electricity knowledge index (KNO), household size (H), number of electric appliances in the household (U) as independent variables and average monthly electricity consumption per household (Q) as dependent variable.

The majority of households surveyed fall into the following characteristics : aged between 45-55, married, finished fourth grade or equivalent, household composed of 4 persons, average income is 13,496 baht per month, most of them run private bussiness. For sex ratio of samples surveyed, 48 percent are male and 52 percent are female.

For information on ownership and detail of the house, this study showed that 87.3 percent are single houses with 84.3 percent own both land and house.The majority of houses composed of 5 rooms and the refrigerator is the electric appliance that most of the household have.

Regarding the knowledge on electricity the study finds that most of the respondents can answer more than half of the questions. i.e. 11 out of 20 questions. Regarding attitude on the measures used by the government. the majority do not agree on the electricity price increase and the increase of electric appliance prices. For the

capacity of the energy production majority of respondents think that the present capacity is not sufficient. And they agree to have private sector join the investment in this area. They do not agree to use nuclear as a new source of energy and the use of some measure to force people to reduce the consumption of electricity. People in the urban area receive more knowledge and information concerning electricty such as price change and knowledge on efficient consumption of energy.

For the application of different model to the data gathered, the study finds that the dynamic model with lagged dependent variable (Q_{t-1}) and the independent variables consist of average electricity price per month (PE), average income of household (Y), education level of household head (EDU), index of electricity knowledge (KNO), household size (H), number of room (R), electric appliances (U), is the best model. The result of the study found is similar to the study in Bangkok metroplitan area ; the price increase does not significantly change consumption pattern.

The economic factors such as price of electricity , household income have low effect on the consumption. Income and price elasticity of demand are 0.01 and 0.03 respectively. Therefore the use of price increase to curb the consumption of electricity will have very little impact on consumption.

The increase of electricity price or the increase of the price of electric appliances including taxation are not well accepted at the present as the efficient measures. Instead the measures recommended for the present are indirect measures as giving more knowledge and understanding and some persuasive measures to encourage people to use the energy carefully.These measure will gain better result and lead to efficient use of electricity in the long run.