

## **Newsletter Issue 26 – March 2013**

The topics addressed in this issue of Economic Research are the following: (i) Economic Valuation of the State Education in Cyprus, (ii) Welfare and Distributional Effects of EU's Energy and Climate Policies on Cypriot Households, (iii) ICT and Energy Use: Patterns of Substitutability and Complementarity in Production and (iv) a Development of a Dynamic Stochastic General Equilibrium Model

The public provision of private goods is seen in the literature as means to mitigate market imperfections (such as excludability, imperfect information and externalities) and, under certain conditions, to redistribute income. To our knowledge, empirical analysis in the context of consumer welfare analysis of publicly provided goods is generally limited to contingent valuation studies (mainly of environmental goods) and econometric analysis of willingness to pay, also elicited from contingent valuation surveys. Here we propose an alternative approach building on consumer behaviour theory to develop a model where a money-metric of utility from public provision can be estimated from the parameters of a complete demand system. The advantage of this approach is that the consumer valuation of private goods provided free of charge, including education, can be estimated with data drawn from readily available (and cross study comparable) household expenditure surveys.

The European Union's energy and climate policy package will cause an increase in end-user prices of electricity and fuels. We assessed the distributional effects of these price increases in Cyprus by specifying and estimating a household energy demand system with price heterogeneity between households. This novel method allows obtaining robust parameter estimates even when household expenditure surveys are limited. We found that the rise in energy prices results in welfare losses of EUR 31 and EUR 101 per household for 2013 and 2020 respectively (at 2009 prices), or a nationwide welfare loss of more than EUR 2009 33 million in 2020. Price increases will be regressive and will affect small and urban households more strongly than the rest of the population.

In this project we investigate the relationship between ICT, energy use and economic growth. We investigate the role of price increases and the technical efficiency levels of all inputs. From the estimation we observe that ICT capital has the largest rate of efficiency growth among all inputs. The large efficiency effect of ICT implies that every year the contribution of this input in production increases not only because of net additions, but also because those net additions has a higher marginal product than ICT inputs already in use. Similarly, energy inputs contribute to an increasing technical efficiency level. Elasticities suggest that energy is a complement to both ICT and non-ICT capital and both skilled and unskilled labour. It behaves, however, as a substitute to material inputs.

The objective of this study is to develop the DSGE-CY model, a Dynamic Stochastic General Equilibrium model that can help us understand the structure and cyclical variations of the Cypriot economy. General equilibrium models of this type have been increasingly used as a tool for conducting macroeconomic forecasts and for simulating the effects of alternative policies and shocks. This study constitutes the first known attempt to develop such a model for Cyprus.