Price Elasticity of Electricity Demand in France*

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Electricity is generally considered as a utility and, especially for historical reasons, its price is generally set specifically on a production cost basis. Nowadays, with increased competition and the climate change, the analysis of consumer reaction to price changes (i.e. price elasticity) is of major interest for the electricity market operators. In particular, Network operators (TSO & distributors) need to plan their investments considering their forecast of prices changes and the related reaction of the demand.

Methodology

We use a large dataset from Enedis on the French electricity market to compute several models of demand for electricity. We estimate the price elasticity of electricity expenditure of private households through three different specifications: a canonical model in which we regress electricity consumption on a price per kWh; a second model of Almost Ideal Demand System (AIDS) and an extension including seasonal offers. All models are controlled for economic variables at the department level and calendar effects.

Main Results

• In our first estimation we find a price elasticity of electricity consumption of -0.8, a result remarkably in line with the previous literature.

• In our AIDS models we also obtain results very close to the ones seen in literature.

• In our seasonal model and distinguishing between peak and off-peak time of consumption, we obtain price elasticities of respectively -1.45 and -1.85 in winter; they are slightly higher (in absolute value) in summer, respectively equal to -1.61 and -2.08.

Conclusions

The difference in price elasticities in winter and in summer suggests that there may be considerable variation also across regions of France (especially south *vs* north). More research would probably shed light on differentiated patterns in both time and space, and help better estimate and forecast the consumption of electricity.

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