

Antoine DURAND, Fraunhofer ISI

Title: Household Energy Efficiency Adoption Behaviour: Integrating Findings from Choice Experiments into Energy Models

Abstract: Households' preferences for technology attributes typically differ. Similarly, households' response to policy is also likely to vary across households. Yet leading energy-economic models typically do not allow for such differences. Relying on demographically representative surveys in eight EU countries, this paper integrates results from stated preferences discrete choice experiments (SPDCE) on hypothetical refrigerator adoption decision into the FORECAST residential model for appliances (www.forecast-model.eu). The SPDCEs considered the purchasing price, size, duration of warranty, and customer ratings as technology attributes, and the EU energy label and subsidies for energy efficient refrigerators as policy instruments. The econometric analyses employed mixed logit models at the level of individual countries, and allowed calculating respondents' willingness to pay (WTP) for the attributes and policies. In particular, they allowed the WTP to vary by socio-demographics such as income or household size, and individual attitudes such as environmental preferences. In turn, this WTP is integrated into the FORECAST residential model, which calculates market shares of technologies through a multinomial logit model. This enhanced approach considers different adopter types as well as non-economic drivers in household decision-making. In particular, this modelling approach allows low-income or large-family households to respond differently to policies (such as energy labelling or subsidies) compared to high-income or small-family households.