

Decarbonizing the Residential Sector: How Prominent is Household Energy-Saving Behavior in Decision Making?

Fateh Belaid^a

Achieving climate sustainability will require drastic curtailment of GHG emissions world-wide. Upscaling investments in energy efficiency offer the potential to ease the tension between economic growth goals and sustainability pledges. In addition to scrutinizing the decision process behind energy efficiency investment, this article investigates its association with energy-saving behavior. Its conceptual foundations are based on the intersection of behavioral change and “energy efficiency paradox” theories.

Based upon a rich, disaggregated dataset that is representative of the French housing sector, we develop an energy-saving score based on the item response theory model, which considers household attributes and ability levels. We then apply this score to a multivariate probit model to examine the drivers of household investment decisions for various energy performance solutions.

The results show that: (i) contextual and attitudinal attributes are two significant drivers of energy efficiency investments, and (ii) depending on the energy measure considered, there is a significant inverse relationship between energy-savings behavior and energy efficiency investments. This reveals that environmental awareness is not necessarily a driving factor behind energy efficiency investments and emphasizes the so-called “rebound effect” issue. The analysis highlighted that individual preferences for energy-efficient solutions have critical relevance for energy efficiency policymaking. It supports the view that promoting energy-saving behaviors and energy efficiency investments necessitate differentiated public policies that consider both individual preferences and housing stock heterogeneity. This study constitutes a step toward a more accurate evaluation of the behavioral-driven energy efficiency investment in the residential sector. The analysis offers valuable policy guidance and research agenda outlining future energy efficiency research priorities.

^a Research Fellow King Abdullah Petroleum Studies and Research Center, P.O. Box 88550, Riyadh 11672, KSA. E-mail: fateh.belaid@kapsarc.org