

Why does real-time information reduce energy consumption?

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Abstract

A number of studies have estimated how much energy conservation is achieved by providing households with real-time information on energy use via in-home displays. However, none of these studies tell us why real-time information changes energy-use behavior. We explore the causal mechanisms through which real-time information affects energy consumption by conducting a randomized-control trial with residential households. The experiment attempts to disentangle two competing mechanisms: (i) learning about the energy consumption of various activities, the “learning effect”, versus (ii) having a constant reminder of energy use, the “saliency effect”. We have two main results. First, we find a statistically significant treatment effect from receiving real-time information. Second, we find that learning plays a more prominent role than saliency in driving energy conservation. Our findings support the use of energy conservation programs that target consumer knowledge regarding the energy use of different devices and activities.