

Consumer Inattention, Heuristic Thinking and the Role of Energy Labels

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Executive summary

Research has shown that buyers of energy-using durables tend to pay less attention to opaque lifetime cost than to salient purchasing prices. Indeed, inattention to energy cost is one aspect that may explain the low tendency of consumers to invest in cost-effective efficiency technologies, i.e. the so-called “energy efficiency gap”. To bridge this gap, policy-makers all around the world have introduced energy labels on electric appliances. Some of them summarize energy information in an intuitive way, such as efficiency classes, which consumers might employ instead of the more detailed information on energy use.

This paper analyzes the potential of energy labels with efficiency classes to influence consumer choices. We propose a conceptual model of investment decisions on energy efficiency that explicitly takes into account consumers’ inattention to operating cost and their tendency to employ decision heuristics based on energy efficiency classes. In our empirical analysis, we first investigate whether households have a willingness-to-pay for efficiency class differences per se, i.e. irrespective of energy use differences. Second, we analyze how an increase in the salience of annual operating cost as well as the number of stimuli that compete for attention affect appliance choices. Third, we investigate the channels through which changes in the salience of operating cost and the number of competing stimuli operate.

We conduct a stated-choice experiment among 5,000 households and frame it as a purchasing decision on refrigerators that display the EU energy label and assign participants randomly into three groups. Participants in a control condition receive information on the appliances based on a label that only displays the annual energy use and efficiency classes. In the first treatment condition, we increase the salience of the cost component by adding estimated annual operating cost on the label. In the second treatment condition, participants see further non-energy related appliance characteristics that act as additional stimuli competing for attention.

Our results demonstrate that additional cost information on the EU energy label steers consumers to more energy-efficient appliances. In contrast, exposing consumers to additional non energy-related appliance characteristics can impede the choice of energy efficient appliances.

We further show that consumers value efficiency class differences per se: even when differences in energy use are marginal, two thirds of consumers are willing to pay at least 30 EUR for a better efficiency class. This holds particularly for individuals with a higher

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cognitive burden of decision making, for instance, respondents who are uninformed about electricity prices. The presence of such decision heuristics is far from innocuous, as they can distort consumers' valuation of energy efficiency with far-reaching implications on producers' innovation activities. In particular, it may discourage producers from developing new efficiency technologies that do not result in better efficiency classes.

Moreover, we find that adding information on operating cost to the EU energy label works through two distinct channels: it increases attention to operating cost and decreases the valuation of efficiency class differences. Hence, we identify a substitution effect between operating cost information and the information incorporated in efficiency classes. Consequently, raising the salience of operating cost can have ambiguous effects on the adoption of energy efficient appliances: it increases households' attention to electricity use, but also decreases consumers' valuation of efficiency class differences. This finding enhances the understanding of how coarse summary information on labels interacts with more detailed information. This has implications for the design of not only energy labels, but also labels in other domains.

Based on our results, we argue that positive welfare effects of a label revision seem likely. First, the provision of operating cost can be considered a "pure nudge", i.e. a behavioral intervention that only informs previously uninformed consumers, but has no further effects. We do not expect private welfare of consumers to decrease after being better informed. Second, implementation cost to introduce and update the operating cost information seem limited. Finally, a revision of the label promises significant reductions in negative externalities associated with electricity consumption. As more than 15 million refrigerators and millions of other appliances are sold annually in the EU, even small improvements in the energy efficiency of the appliance stock can help to reduce electricity consumption and the associated carbon emissions substantially.