

Switching Electricity Tariffs: An Experiment to Identify the Role of Behavioral Biases and Search Costs

Ayşe Tugba Atasoy¹

Reinhard Madlener²

^{1,2} Institute for Future Energy Consumer Needs and Behavior (FCN), School of Business and Economics/E.ON Energy Research Center, RWTH Aachen University, Aachen, Germany

¹ +492418049836, TAtasoy@eonerc.rwth-aachen.de,

² +492418049820, RMadlener@eonerc.rwth-aachen.de.

1 Overview

The liberalization of the electricity markets has allowed for a significant increase in the number of providers and the options consumers have over their tariff plans. In Germany alone, there are 1,400 providers registered in 2015 (Bundesnetzagentur, 2015). While these developments give consumers an important role in the marketplace and provide additional options, again in Germany about 40% of the consumers have never switched their electricity providers, despite of an increasing trend (Bundesnetzagentur, 2017). The evidence shows consumers misoptimize or stay passive in distinct decision environments, even though the information is readily available. For example, consumers choose expensive branded drugs over the cheaper generic safe ones (Bronnenberg et al., 2015), stick to their current health insurance plan (Heiss et al., 2016), or a cell phone plan based on their past consumption (Grubb and Osborne, 2015). Choosing the right electricity tariff based on one's past consumption is no exception (e.g., Dressler and Weiergraeber, 2018; Hortasçu et al., 2017), a significant number of consumers remain apparently passive (Altmann et al., 2018).

While in most of these situations consumers leave money on the table by not actively choosing an option from a set of alternatives, costs associated with searching and switching are an important factor that keep them inactive. Hence, passive decisions are not always an outcome of behavioral biases (i.e., status-quo bias (inertia), intertemporal choices, trust, etc.), but consumers might also rationally not attend the available information as they perceive the associated costs to be substantially high.

We develop an experimental design to study behavioral biases and address these by designing improved decision environments. Additionally, we investigate how changes in search costs interact with the cognitive biases.

2 Methods

In the experimental set-up, we capture the default passive decision environment with an unrelated experimental task. Switching is designed to be an additional part of the experimental set-up enabling consumers to receive supplementary incentives. While this serves as a baseline treatment in the experiment, we design two additional decision environments to address specific behavioral biases – status-quo bias and intertemporal choices. Furthermore, we examine switching behavior under varying search cost conditions. Thus, including the search cost dimension allows us to investigate the interaction between search costs and behavioral biases.

Our experimental set-up constitutes a 3x2 between-subjects design for switching behavior (i.e., baseline, status-quo bias, intertemporal choice) and search costs (i.e., low and high search costs). We will test our setting in the AIXperiment, the laboratory for economic research at RWTH Aachen University, using complete randomization and a computerized experiment in February and March 2019. We will conduct 20 sessions, each with 30 participants and with repeated rounds. Besides, we design a pre- and post-experimental survey to elicit beliefs on the benefits and costs associated with the switching behavior.

3 Results

First, we analyze in how far the decision environments tailored considering the specific biases might improve the switching from passive to active choices. Here, we expect the two additional treatments that address distinct biases to increase the switching rates compared to the baseline condition for switching. Besides, we hypothesize that the improved decision environments are less effective for the low search cost condition compared with the condition of high search costs, as passivity can partly be attributed to the (mis-weighted) search costs.

4 Conclusions

Our design allows us to study the specific behavioral biases in the context of passive consumer choices. By designing tailored decision environments addressing these biases, we are able to cost-effectively induce consumers to study their choice set and actively decide between alternatives. These findings have strong policy implications in both mechanism-related and allocational policy design to improve consumer decisions in markets, where consumers have to choose from a large set of alternatives.

References

- Altmann, S., A. Grunewald, and J. Radbruch (2018, August). Passive Choices and Cognitive Spillovers. Working Paper.
- Bronnenberg, B. J., J. Dubé, M. Gentzkow, and S. J. M. (2015, July). Do Pharmacists Buy Bayer? Informed Shoppers and The Brand Premiums. *Quarterly Journal of Economics* 130(4), 1669–1726.
- Bundesnetzagentur (2015). Monitoringbericht 2015. Online.
- Bundesnetzagentur (2017). Monitoringbericht 2017. Online.
- Dressler, L. and S. Weiergraeber (2018, November). Alert the Inert! Switching Costs and Limited Awareness in Retail Electricity Markets. Working Paper. Indiana University.
- Grubb, M. and M. Osborne (2015). Cellular Service Demand: Biased Beliefs, Learning, and Bill Shock. *American Economic Review* 105(1), 234–271.
- Heiss, F., D. McFadden, W. A. Winter, J., and B. Zhou (2016). Inattention and Switching Costs as Sources of Inertia in Medicare Part D. *NBER Working Paper No. 22765*.
- Hortasçu, A., S. A. Madanizadeh, and S. L. Puller (2017). Power to Choose? An Analysis of Consumer Inertia in the Residential Electricity Market. *American Economic Journal: Economic Policy* 9(4), 192–226.