The Impact of Information Policies and Loyalty Programs on Consumer Choices in Retail Energy Markets

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Abstract

Regulators aim to improve information transparency in energy retail markets to foster informed decisions regarding energy contracts and increase consumer switch behaviour. Meanwhile, energy retailers are motivated to increase customer loyalty, as retention is more profitable than acquisition. Therefore, energy retailers' actions might mitigate regulators' efforts. We investigate the effects of contract standardisation (as a regulatory measure) and loyalty programs (as an action by retailers) on consumers' choices and underlying preferences for different attributes of energy contracts. We conduct an online choice experiments with 400 respondents. The results indicate that energy retailers' loyalty programs do not fully interfere with regulators' efforts to improve market efficiency, but seem to restrict regulators' efforts to encourage consumers to switch to renewable products. Our results attribute these effects to consumers' limited attention, rather than perceived search costs.

Track: Public Sector and Non-Profit Marketing

1. Introduction

The European Union consistently promotes consumer switching in retail energy markets to enhance market efficiency (Amenta et al., 2022), and align offerings with consumer preferences, thereby promoting green energy products (MacDonald & Eyre, 2018). Despite the benefits, consumers are reluctant to actively compare offers and switch contracts (Ioannidou, 2018). Regulators strive to foster consumer switch behaviour to ensure affordability and reach climate-policy objectives (ACER & CEER, 2022).

Regulators encourage switch behaviour through information transparency policies, which reduce the effort to find and process relevant information. This makes consumers able (Simon, 1959) and willing (Sallee, 2014) to match choices with their energy contract preferences, such as for energy sources. Hence, information transparency policies can increase switch behaviour and the attention to characteristics of energy products, such the contact's renewable energy source.

Energy retailers often prioritise customer retention over customer acquisition due to the much higher benefits of customer retention (Gupta et al., 2004). Through loyalty programs, they increase switch costs while redirecting consumers' attention to brand characteristics instead of product characteristics. Therefore, retailers' loyalty programs may partly counter the efforts of regulators to increase consumer switch behaviour.

The causal relations of these seemingly opposing actions on consumer choices remain largely unknown. Therefore, this paper contributes by assessing the isolated and joint causal effects of regulators' and energy retailers' actions on consumers' energy contract choices and underlying preferences. We capture the effects in a 2×2 between-subject experimental design. We compare respondents' preferences between treatment groups and identify consumer segments through a latent class analysis. We find that the actions of energy retailers partly mitigate regulators' efforts, as they diminish the positive outcomes for the energy transition.

2. Related Research

2.1 Consumer choice behaviour

Monetary costs are insufficient in explaining consumer switch behaviour (Deller et al., 2021). Some scholars attribute this to consumers' search- and switching costs (Giulietti et al.,

2014) or preferences for non-monetary attributes. The most important non-monetary attributes are (renewable) energy sources (Sundt & Rehdanz, 2015), retailers' brand characteristics (Hortaçsu et al., 2017), and duration (Yang et al., 2016). These preferences are not homogenous, as they vary based on socio-demographic characteristics, psychographic and behavioural factors, and individual values and norms (Tabi et al., 2014).

2.2 Information transparency policies and loyalty programs

Energy regulators' information transparency policies can influence both consumers' intention to switch contracts and their attention to different contract attributes. High behavioural switch costs can make consumers less able to process all information (Simon, 1959) or less willing to do so with rational inattention (Sallee, 2014). Consumers may choose to pay less attention to attributes and so induce choices which do not perfectly reflect consumers' preferences for renewable energy sources. Therefore, information transparency policies can increase both consumers' switching intentions and lead to choices that better reflect their preferences.

Energy retailers aim to influence consumers' choices and attention to attributes through loyalty programs. Loyalty programs can increase consumers' switch cost by increasing the opportunity costs of switching or by increasing the perceived risks of switching (Hellier et al., 2003). With a loyalty program, energy retailers shift consumers' limited attention from attributes as energy sources towards brand characteristics. Additionally, the status quo and endowment effects may cause psychological constraints which rule out alternative contracts, for example, because of regret or potential loss in some dimensions (Dean et al., 2017).

2.3 Choice model

Regulators' information transparency policies and energy retailers' loyalty programs affect consumers' switch costs and consumers' attention to different attributes. The information transparency policies create stronger responses to changes in the attribute levels, including energy source. Loyalty programs create stronger preferences for the current retailer brand and less attention to other attributes. This paper examines the distinct and joint effects of information transparency policies and loyalty programs on consumers' energy contract choices. Also, we analyse how these effects vary between different consumer segments.

3. Methods

3.1 Experimental design

We examine the effects of information transparency and loyalty programs on consumer preferences through a 2×2 between subjects experiment. The survey consists of three parts, an introduction to the experiment, a discrete choice experiment (DCE), and survey questions on the respondent's characteristics, knowledge, and attitudes.

In the experiment, the first treatment "standardisation" provides annual costs which are easier to compare among alternatives. Respondents without this treatment have alternatives with separate elements of the tariff construction, which are more difficult to compare. The second treatment, "loyalty program," informs respondents that they are a member of the loyalty program of their current energy retailer. Additionally, the DCE tariff layout will specify "including 6% loyalty discount". Both treatments entail solely layout changes, hence, all four treatment groups contain identical sets of alternatives with identical attributes and levels, differing only in the layout based on their respective treatment.

All respondents answer 10 choice sets with 3 contracts each, of which one offer is from the current provider, one from the large, well-known provider, and one from the small, new provider. The contracts differ base on the levels of their attributes, presented in Table 1.

Attribute	Description	Levels
Tariffs	Annual total costs	1. €3,745.51 2. €3,827.42 3. €3,909.32 4. €3,991.32
Source mix	Mix of energy sources	1. Green national wind electricity with CO_2 compensated gas 2. Mixed European renewables incl. wind, hydro(water), biomass, solar and geothermal electricity with CO_2 compensated gas 3. Non-renewable electricity mix (coal and gas) with regular gas.
Brand provider	Type of retailer	1. Your current provider 2. Another large well-known provider 3. Another small new provider
Contract duration	Length over time in which prices are guaranteed	1. 0 months 2. 6 months 3. 12 months

Table 1. Overview of attributes and levels

We derive a consumers' probability of selecting contract *i* with a conditional logit model. The systematic valuation of the attributes depends on the consumers' exposure to the regulator's information transparency policy and the energy retailer's loyalty program, which is defined as treatment *t* (*t* = 1, …, *T*). Therefore, the probability consumer *n*'s choice for product *i*, given choice set *J* when exposed to treatment *t* becomes

$$P\left(Y_{n|t} = i \middle| J\right) = \frac{\exp\left(\beta_t X_i\right)}{\sum_{j \in J} \exp\left(\beta_t X_j\right)}, \tag{1}$$

where β_t represents the treatment-specific vector of parameters of the observed attributes in vector *X*. We also conduct a latent class analysis to analyse heterogeneity among segments.

3.3 Data collection and characteristics

We created the survey in Qualtrics and distributed through the online platform Prolific. The sample comprises 400 respondents from 20 EU countries, ensuring a balanced male-female distribution, fluency in English, and no more than 500 prior submissions in Prolific. Respondents are randomly assigned to one of the four experimental groups through Qualtrics. Moreover, consumer characteristics do not differ significantly between the treatment groups.

4. Results

4.1 Conditional logit model

Table 2 provides an overview of the results of the conditional logit model. The first column indicates the parameters of the control group, which are the main effects. The three other columns indicate the interaction effects of the three treatments. Hence, the parameters of the last three columns indicate how the parameters of the control group change because of the treatments.

In the control group, there is a preference for the familiar, large brand over the current brand and the unfamiliar, small brand, and an aversion to the unfamiliar, small brand over the other brands. The standardisation treatment does not significantly affect the brand preferences, while the loyalty program positively affects respondents' preferences for their current brand, and negatively affects respondents' preferences for the other large brand. This effect persists in the combination of the treatments. In all treatment groups, green energy sources are preferred over grey energy sources. There is no significant difference in preferences between green wind energy and European

mixed renewable energy. The preference for green over grey energy sources is stronger with the standardisation treatment. This interaction effect is no longer persistent when combined with the loyalty program treatment. Respondents in all groups prefer contracts with fixed tariffs over contracts with variable tariffs. The interaction of the loyalty program treatment reduces the negative effect of the duration of 0 months.

|	Control	Standardisation	Loyalty program	Stan + Loyal
Current brand	0.0116 (0.0540)	0.1526 (0.0782)	0.3487 *** (0.0729)	0.3117 *** (0.0724)
Other large brand	0.2453 *** (0.0602)	-0.0592 (0.0923)	-0.2766 ** (0.0850)	-0.2223 ** (0.0856)
Other small brand	-0.2569 *** (0.0681)	-0.0934 (0.1034)	-0.0721 (0.0949)	-0.0894 (0.0957)
Tariff	-0.0114 *** (0.0008)	-0.0038 ** (0.0013)	-0.0005 (0.0011)	-0.0022 * (0.0011)
Source green wind	0.5954 *** (0.0686)	0.2199 * (0.1028)	0.0492 (0.0933)	0.1821 (0.0942)
Source mixed renew	0.5629 *** (0.0620)	0.1869 * (0.0935)	-0.1326 (0.0850)	0.0098 (0.0853)
Source grey	-1.1583 *** (0.0817)	-0.4069 ** (0.1306)	0.0834 (0.1119)	-0.1919 (0.1161)
Duration 0 months	-0.6752 *** (0.0704)	0.1831 (0.1043)	0.2188 * (0.0943)	0.1048 (0.0961)
Duration 6 months	0.3385 *** (0.0557)	-0.0713 (0.0830)	-0.1124 (0.0775)	-0.1148 (0.0769)
Duration 12 months	0.3367 *** (0.0704)	-0.1118 (0.1045)	-0.1064 (0.0962)	0.0100 (0.0958)

Table 2. Results of conditional logit (standard errors in brackets

*Note: (i) The first column provides the main effects and the last three columns the interaction effects of the treatments on the attributes. The total effect of the attribute level in the treatment is, therefore, the sum of the control-group coefficient and the treatment-group coefficient. (ii) * = $p < 0.05$, ** = $p < 0.01$, ** = $p < 0.001$.*

Respondents' attention to the different attributes is provided in Figure 1, which shows the ranges of the significant estimates of the attribute levels. Tariffs are the most important attribute in all groups and increases in the standardisation treatment. The response to energy source is significantly stronger in the standardisation treatment, but not in the combination of the treatments. The response to duration is similar among the treatment groups. The response to brand is small

compared to the other attributes. The response increases when respondents are exposed to the loyalty program treatment. Overall, we can see that respondents who are exposed to the standardisation treatment have a wider range of estimates and therefore pay more attention to the attributes.

Figure 1. Attribute importance

A MANOVA indicates that consumers perceived behavioural costs of the experiment and the minutes spent on answering the choice experiment do not significantly differ among the treatment groups with $F(6, 395) = 1.09$ and $p = 0.366$.
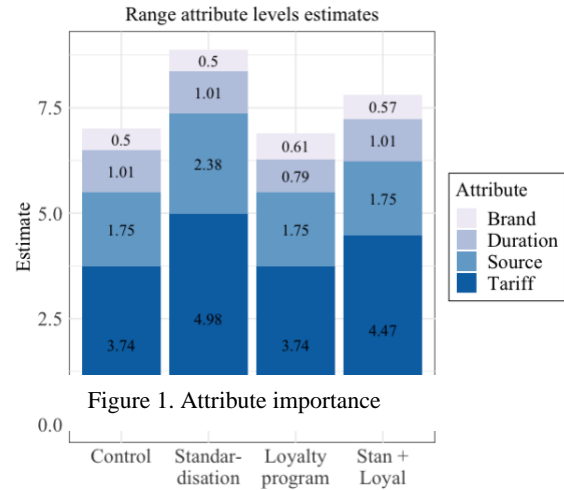
4.2 Latent class analysis

We identify three consumer segments. The first segment contains relatively less employed respondents (53.3%), with lower incomes, and are less likely to be a home-owner. These consumers are indifferent towards the energy retailer's brand, have a small price elasticity ($\beta = -0.006$), and prefer renewable energy sources. The second segment contains relatively less male respondents (44.8%), who are more often employed than the first segment (59.3%), and more likely to have children (10.3%). These consumers are also indifferent towards the energy retailer's brand, have a relatively moderate price elasticity ($\beta = -0.012$), and a strong preference for renewable energy sources. Consumers in the third segment are most often employed (60.8%), have higher incomes, and consume more energy. They have the highest preference for their current retailer and lowest preference for the small, unfamiliar retailer. They have a relatively high price elasticity ($\beta = -0.031$) and have a modest preference for renewable energy sources.

The standardisation treatment has a strong moderating effect on segment 1 as it more than doubles response to price and source. It slightly increases the price elasticity for the second segment. These effects persist when combined with the loyalty treatment. The loyalty program creates preference for the current retailer for the in control group brand-indifferent segments 1 and 2. This effect persists when combined with the standardisation treatment. Interestingly, the loyalty program increases the preference for green energy in segment 1 and decreases this preference in segment 2. This effect persists when combined with the standardisation treatment.

5. Discussion and conclusion

Our experiment examines the causal effects of regulators' information transparency policies and energy retailers' loyalty programs on consumer energy contract decisions. The results reveal that actions of energy retailers, in part, mitigate the effect of regulators' efforts, thereby diminishing the positive outcomes for climate policies.

We find that information transparency policies are effective in improving market efficiency. Additionally, information transparency policies stimulate changing energy sources and are, therefore, beneficial to foster the energy transition. Consumers spend more attention to these attributes when the information is easy to interpret, and, therefore, are better able to make decisions which fit their preferences. The preference for the current brand in the loyalty program treatment may be attributed to the status quo bias or the endowment effect, as suggested by Gärling et al. (2008). Nonetheless, the importance of the brand remains rather small compared to the importance of the contract's tariffs and energy source.

When the two treatments are combined, the increased preference for renewable energy sources in the standardisation treatment is curtailed. While the effect of standardisation on price elasticity is only slightly diminished by the actions of the energy retailer, the curtailing effect on climate change policies is substantial. Loyalty programs shift consumers' limited attention from product characteristics to brand characteristics. Contrary to the findings of Hortaçsu et al. (2017), we do not find a mitigating effect of information policies on the preference for the current retailer caused by the loyalty program.

The latent class analysis indicates that regulators' and retailers' effects are heterogeneous among segments. Information policies are most successful to align consumers' choices with their preferences for consumers with lower income and education levels. Loyalty programs mainly affect priorly brand-indifferent consumers and reduce attention to energy source for employed male consumers with children.

Our findings do not identify switch costs as an explanation for the differences between the treatment groups. An explanation may lie in the design of the research, as respondents do not occur behavioural costs related to retrieving information but only costs related to processing information. Our research does not distinguish the effects of a loyalty program from the effect of a discount, which also affects purchase intentions (Guha et al., 2018). We combine these effects in our

research as these often prevail together in practice. We encourage future research to explore the distinct effects of different types of loyalty programs.

Our results signify that small changes in the layout of information can have large implementations on behaviour of consumers. Regulators, therefore, are advised to closely monitor the layout of offers on for example comparison websites, which can steer consumers' attention from and towards certain attributes. Furthermore, our results indicate it may be more effective to encourage consumers in loyalty programs to switch to renewable energy sources within their current energy retailer. This way, loyalty programs can foster, rather than impede, regulators' climate objectives. Our research also has important implementations for future research as it highlights the important role of attention for consumer decisions. Future research can explore what determines a consumers' attention to certain attributes and how this can be altered.

Concluding, energy retailers' loyalty programs partly mitigate regulators' efforts, as they obstruct consumers' attention to changes in the energy source. This provides important insights for regulators to steer consumers' attention to relevant attributes and use loyalty programs in their advantage to increase internal switching to renewable energy. Moreover, this paves the way for future research to analyse how consumers divide attention over different contract attributes.

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