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# Communication-Based Approach for Promoting Energy Consumer Switching: Some Evidence from Ofgem's Database Trials in the United Kingdom

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**Abstract:** Prompted by rising concern about weak consumer switching and the practice of price discrimination, over the period of 2016–2019, the Office of Gas and Electricity Markets (Ofgem) undertook a series of trials on communication-based interventions to encourage consumer switching in the United Kingdom. The main purpose of this paper is to assess the experience of these Ofgem trials with a view to draw some lessons for policy makers. The analytical framework adopted for this purpose is informed by existing literature on the barriers for consumer switching. The results of the analysis suggest that while the Ofgem trials have made positive impacts on consumer switching, these impacts varied significantly across the trials, suggesting that some interventions were more effective than others. Further, the overall impacts of the Ofgem trials were moderate, as around 70% of participants did not switch suppliers even in the most impactful trial. This reflects a general lack of understanding in the literature about the behaviour-influencing factors, their impacts, and their context-connects. By implication, the difficulty in stimulating consumer switching, as demonstrated by the Ofgem trials, suggests that weak consumer switching and the practice of price discrimination may simply reflect significant competition, rather than a lack of it, especially if retail margins are not greater than the competitive level. In this case, the communication-based intervention aimed at encouraging consumer switching may lead to further price discrimination, especially for the most vulnerable consumers, who are more likely to stay with their incumbent suppliers.

**Keywords:** weak consumer switching; price discrimination; behavioural economics; communication-based interventions; fairness

## 1. Introduction

Electricity market reforms have been underway worldwide for nearly three decades now. The majority of developed countries and more than 70 countries have undertaken steps to reform their electricity industries [1]. These reforms were expected to introduce market competition in the electricity industry through restructuring, privatisation, and re-regulation [2]. This, it was argued, would result in efficient allocation of resources, drive down electricity prices, and provide appropriate

signals for system expansion [3–6]. As part of the industry-wide reform programs, several countries (including, Australia, most European countries, New Zealand, and some states of the United States) also introduced competition in the retail segment of their electricity industries, where consumers were given the choice of selecting their own energy suppliers, despite considerable debate on the worthiness of retail competition for household consumers in the literature [7–10].

However, the outcomes of retail competition—expressed in terms of, for example, consumer switching—look considerably different than what was expected in many cases [9,11,12]. Even in the United Kingdom (UK), where the retail market is widely considered as competitive as compared with most other countries, there seems to be a growing concern in recent years about weak consumer switching and the practice of price discrimination (i.e., charging higher prices for inactive consumer and lower prices for active consumers) [13]. This concern, together with rising electricity prices, prompted the introduction of a range of policy instruments in various countries for promoting consumer switching. These instruments can be categorised into two broad groups, namely, indirect, and direct. The indirect approach focuses on redressing market-related factors (such as tariff complexity, and high information cost) that affect the behaviour of consumer switching through, for example, tariff simplification, provision of standardised information on energy offers and bills, and introduction of a tariff comparison website [14].

In contrast, the main focus of the direct approach is to influence the switching behaviour of energy consumers by communication-based interventions. In recent years, the direct approach has attracted increasing policy attention around the world, especially in countries (such as, Australia and New Zealand), where deeper retail market reform is currently under consideration [15,16]. This attention has primarily arisen from growing recognition of the difficulty of promoting consumer switching indirectly by redressing market-related barriers, due to the presence of psychological biases that could deviate the behaviour of energy consumers away from economic rationality. Therefore, the direct approach is widely considered as a promising solution, mainly because of its ability to encourage consumer switching by considering psychological bias.

One interesting application of the direct approach is the communication-based trials implemented by the Office of Gas and Electricity Markets (Ofgem) over the period 2016–2019. Ofgem is the independent regulator of the gas and electricity industries in the UK. It was created in 1999 by combining the functions and operations of the former gas and electricity regulators, the Office of Gas Supply and the Office of Electricity Regulation. Its main responsibilities are to protect energy consumers' interests, promote competition and innovation, and ensure the secure supply of low-cost energy services [17]. The communication-based trials were implemented by Ofgem as a response to a report on retail energy markets released by the Competition and Market Authority (CMA) in 2016, which argued that weak consumer switching and the existence of a large group of inactive consumers gave incumbent energy suppliers a position of unilateral market power. These suppliers could exploit their market power through price discrimination—setting their standard variable tariffs (tariffs for inactive consumers who have not chosen their own energy suppliers) higher than non-standard tariffs. To rectify the situation, it recommended several measures to be undertaken by Ofgem for promoting consumer switching [18]. Key measures included: (1) research and trials to find new and more effective ways of encouraging consumer switching; and (2) establishing a database of non-switching consumers to support the research and trials. These measures are also known as the database remedy [18]. The implementation of these measures led to the development of an Ofgem-administered database of about 8 million non-switching consumers in the UK who have been on the standard variable tariffs for three years or more, and the trials of various communication-based interventions to encourage consumer switching [19].

The main purpose of this paper is to review the experience of the Ofgem trials in the UK, with a view to draw some lessons that policy makers and planners may like to consider while designing their own programs for reforming retail energy markets. Some studies have already been undertaken to assess the experience of the Ofgem trials, focusing on the impacts of a particular

intervention (for example, a follow-up reminder) on shaping consumer switching [20–23]. In this paper, the experience of the Ofgem trials is examined from a more pragmatic, policy-oriented perspective, which focuses on the overall effectiveness of the communication-based approach for encouraging consumer switching. This examination, we contend, could enable the development of valuable insights into how psychological bias can deviate energy consumer behaviour away from economic rationality. This is especially true if one notes that in the case of the UK's energy market, there still exists a large proportion of inactive energy consumers, despite significant efforts made since the early 2000s to redress market-specific barriers for promoting consumer engagement. Some key elements of these efforts include: the removal of the retail price cap and the introduction of the Confidence Code for governing the commercial price comparison websites in 2002, the imposition of several obligations (such as, provision of price comparison and cost information on energy bills) on energy suppliers in 2010, aimed at removing 'unjustified price differentials', and the simplification of energy tariffs in 2011 [24,25]. These efforts have led to the removal of major market-specific barriers for consumer engagement in the UK's energy markets and improvements in the ease of switching, as indicated by high switching rates in the UK when compared with other countries [11,14]. However, the prevalence of inactive consumers indicates that switching behaviour is not only influenced by economic rationality but importantly, by psychological bias. The communication-based trials implemented by Ofgem were mainly aimed at redressing these non-market barriers, to promote more active consumer engagement in the UK's energy market. A review of the UK's experience would therefore provide valuable insights for other countries where reforms are currently under consideration for redressing the issue of consumer disengagement in the energy market [16,26].

This paper is organised as follows. The next section outlines the framework employed in this paper to assess the Ofgem trials. Section 3 analyses the Ofgem trials based on the application of this framework. Section 4 provides some further discussion on the analyses. Section 5 concludes the paper and discusses policy implications.

## 2. Method

This section reviews existing literature on the barriers for consumer switching in the energy market, and informed by insights gained from the review, presents the analytical framework adopted in this paper.

### 2.1. Existing Literature on Consumer Engagement

There is a vast amount of studies that has been undertaken over the years on identifying the barriers for consumer engagement in the energy market. These studies can be broadly categorised into two groups.

The first group is built on rational choice theory that views household consumers as economic beings (*homo economicus*), who make rational decisions in order to maximise their utility under budgetary constraints [27]. Their rationality may however be bounded by limited access to (complete) information required to make optimal decisions, and restricted cognitive capacity to process the information and translate that information into action [28–30]. This means that the decision not to switch electricity retailers made by household consumers may be rational, if they believe that the costs incurred by switching to an alternative retailer or a better contract provided by the incumbent retailer would exceed the expected benefits that may arise from switching [31].

The second group is built on behavioural economics that originates from the economic thoughts of Amos Tversky, Daniel Kahneman, Richard Thaler, and many others [32]. This school of thought strongly criticises the 'rational economic agent' assumption of mainstream economics, which views the decisions made by an energy consumer as being exclusively driven by the considerations of utility maximisation. Instead, it suggests that these decisions are also affected by psychological biases, which could lead to significant deviations from rational decision-making [33–35]. Most of the psychological biases are related to information-processing rules (i.e., mental shortcuts), also known as heuristics.

They arise when energy consumers are making decisions under specific situations (e.g., risk, uncertainty, and complexity) [36,37]. The outcome of these psychological biases is the so-called status quo bias, where household energy consumers tend to stay with their incumbent retailer (the default option), even though better options are available in the market and switching costs are low [27,38,39].

Existing studies have, therefore, identified two broad categories of barriers for consumer engagement in the energy market. Studies built on rational choice theory tend to view the high costs of switching to alternative energy suppliers as the main barriers for consumer engagement. They accordingly suggest that the market outcomes (expressed in terms of consumer switching) can be improved by reducing the switching costs, and this can be achieved by, for example, providing energy consumers with more information (e.g., by creating online price comparison tools), reducing the complexity of pricing and discount information in energy offers, and simplifying the switching process [40–43]. As guided by insights gained from these studies, regulators in various countries have required energy suppliers to provide their consumers with more and clearer information and have mandated the creation of online price comparison tools, in order to promote more active consumer engagement in the energy market [14,44,45]. Despite some positive outcomes, many consumers remain inactive, even though significant savings are available to them if they switch to alternative suppliers [18].

Studies informed by behavioural economics highlight the importance of psychological bias, to explain why reducing switching costs alone is insufficient for encouraging more active consumer engagement. Accordingly, in addition to measures for reducing switching costs, these studies also suggest to directly influence the switching behaviour of energy consumers through communication-based interventions that consider their psychological biases as the means of encouraging more active consumer engagement in the energy market [22]. This suggestion is supported by emerging evidence from other sectors where communication-based interventions have increased consumer engagement. For example, in the health sector of the United States, Ref [46] found that sending people a letter with personalised cost information on health insurance plans (also freely available online) increased the rates of insurance plan switching to 28%, from 17% in the control group with no letter intervention. It is also found that plan switching saves on average about \$100 per year for those people who have switched to alternative insurance plans. Similarly, in the banking sector of the UK, Ref [47] found that sending a letter to bank account holders with a pre-filled return switching form as well as a reminder increased the switching rate by up to 9%, when compared with the control group with no letter intervention. Several studies have also been undertaken to examine the effectiveness of various types of communication-based interventions in facilitating behavioural change. These include, for example, poster messages for promoting stair-climbing behaviour in the workplace [48], clearer labelling for encouraging the purchase of energy-efficient appliances [49], and text messages, emails, or letters for encouraging energy savings in the household sector [50]. There are also some studies that analyse whether some types of communication-based interventions are more effective than others in facilitating behavioural change [51].

## *2.2. Framework for Analysing the Ofgem Trials*

In the analytical framework adopted in this paper, the Ofgem trials are first reviewed, with the aim of assessing the extent to which these trials could overcome the two broad categories of barriers (namely, switching costs, and psychological biases) for energy consumer switching discussed in the preceding section. This is then juxtaposed against the actual outcome (expressed in terms of consumer switching) of the Ofgem trials in order to develop insights into their overall effectiveness. Further, this framework considers the most widely discussed barriers for energy consumer switching in the literature. An overview of these barriers is presented in Table 1, and further details are provided below.

**Table 1.** Barriers for consumer switching.

Barriers	Descriptions
Switching costs	Information costs: opportunity costs of the time taken up in searching for alternative retail offers, and for information in understanding their benefits and costs. Transaction costs: costs incurred during contracting processes and procedures when switching.
Loss and risk aversions	Tendency to put high weight on losses and risks than comparably sized gains and certainty, resulting in the so-called status quo bias.
Complexity aversion	Tendency to retain the status quo in the situation of decision complexity with too much choice.
Trust as a decision heuristic	The status quo bias may get further strengthened if energy consumers consider alternative energy suppliers as untrustworthy.
Psychological biases	Tendency to put high weight on benefits and costs in the short-term than in the long-term.
Hyperbolic discounting	This may encourage the energy consumers to stay with their existing suppliers because the switching costs are immediate, whereas the benefits from switching gradually accrue over time.
Normative social influence	Consumers are more likely to switch after being suggested by their neighbours, friends, and relatives (neighbourhood norm).
Availability bias	Tendency to make decisions based on the most easily accessible information in memory.

Source: Developed by the authors based on the discussion in Section 2.2.

Switching costs may be real or perceived, and they are incurred when switching happens [52]. These costs can be grouped into two broad categories, namely, information costs and transaction costs. Information costs refer to the opportunity costs of the time taken in searching for alternative retail offers, and for information in understanding the benefits and costs of these offers [53]. How high these costs are is dependent on several factors, such as, a priori knowledge, education, and public information availability [34,54,55]. Transaction costs occur during contracting processes and procedures when switching. Some examples of these costs are handling charges, and early termination fees [52,56].

Some of the key psychological biases are loss and risk aversions. Household consumers are often found to put significantly high weight on losses and risks than comparably sized gains and certainty. This will in turn lead to loss and risk averse behaviours [57,58]. An outcome of these behaviours is the status quo bias—a tendency for energy consumers to stay with their default option, despite the existence of better options in the market [40]. This tendency may get further strengthened if energy consumers perceive switching as complex due to too much choice [59] and consider alternative energy suppliers as untrustworthy [60].

Another important psychosocial factor that could strengthen the status quo bias is hyperbolic discounting, where household consumers attach high weight to benefits and costs in the short-term than the long-term [61]. Because the switching costs are immediate, whereas the benefits from switching to a cheaper energy deal gradually accrue over time, energy consumers are more likely to stay with their current energy supplier, even though the short-term switching costs may be smaller than the long-term benefits from switching [62,63].

Besides, consumer engagement could also be affected by normative social influence, as energy consumers are likely to follow the behaviour of their neighbours [40]. It is found that household consumers tend to conform to a neighbourhood norm, when they start looking for alternative energy supply options after being suggested by their neighbours [57]. However, the reverse of this tendency

may sometimes happen if some consumers believe that non-normative behaviour is more favourable and behave in that way will help improve their social status and self-image [64,65].

In addition, some people tend to make decisions based on the information most readily available in memory, which may sometimes produce biased assessments of the likelihood of different outcomes that are relevant to their decision-making. This tendency is known as the availability bias [66]. It means that energy consumers who have switched their energy suppliers before are more likely to switch again, especially if their switching experience has been positive.

### 3. Assessment of the Ofgem Trials

Ofgem implemented two main groups of database trials on energy consumer switching during the period 2016 to 2019. They are: the Better Offer trials, and the Collective Switching trials. These trials are reviewed in this section, with the aim of assessing their effectiveness. This assessment is made based on the application of the analytical framework discussed in the previous section.

#### 3.1. Better Offer Trials

The Better Offer trials comprised three trials, namely, the Small-Scale trial, the Cheaper Market Offer Letters (CMOL) trial, and the Cheaper Market Offer Communications (CMOC) trial. These trials involved sending select energy consumers a simple and personalised letter highlighting the potential savings from switching and signposting up to six cheaper energy deals. These were expected to reduce the inconvenience consumers would experience in searching the market for cheaper energy deals [67]. This inconvenience may arise from (1) high opportunity costs incurred by time-consuming tasks of searching for alternative energy deals and information required for appreciating their benefits and costs; (2) decision complexity with too much information; and (3) concerns about loss and risk associated with switching.

Key features of the three Better Offer trials are summarised in Table 2. Further details are provided below.

The Small-Scale trial involved 2400 energy consumers (1200 from each of the two select large retailers) who had been on default tariffs for at least three years. Each consumer was randomly assigned to receive either (1) up to six marketing letters from other retailers (the CMA group); or (2) a best offer letter from Ofgem (the BOL group); or (3) no letter (the control group). Before that, customers in the CMA and BOL groups also received a letter informing them that they can choose to opt-out if they decide not to participate in the trial [68].

Compared with the Small-Scale trial, the Cheaper Market Offer Letters (CMOL) trial involved a larger group of default tariff customers (around 150,000 from two select retailers) who had been on default tariffs for at least one year. Besides, the CMOL trial also gave specific emphasis on reducing the decision complexity by limiting the number of energy deals included in the letter to three, and encouraging the energy consumers to act by using a more trustful messenger (Ofgem or current suppliers) [20].

The Cheaper Market Offers Communications (CMOC) trial was the largest and the most complex trial among the three Better Offer trials. It involved around 600,000 energy consumers from five select suppliers (three large and two mediums) who had been on default tariffs for at least 3 months. Consumers of the three large suppliers were randomly allocated to 9 groups, using a  $2 \times 4$  factorial design with a do-nothing control group. These consumers received communication from their own suppliers: with or without a follow up reminder; by letter or according to their preferred means (either letter or email); and with three cheaper energy deals from alternative suppliers or two from alternative suppliers and one from their own suppliers [69]. Similarly, consumers of the two medium suppliers were randomly allocated to 5 groups, using a  $2 \times 2$  factorial design with a do-nothing control group. These consumers received communication from their own suppliers: by letter or according to their preferred means (either letter or email); and with three cheapest energy deals from alternative suppliers or tariffs in the market or two from alternative suppliers and one from their own suppliers [69].

**Table 2.** The Better Offer trials: Key features.

	Small-Scale Trial	Cheaper Market Offer Letters (CMOL)	Cheaper Market Offer Communication (CMOC)	
Switching costs	Information costs	provision of simple and summarised information regarding the potential savings from switching and better energy deals		
	Transaction costs	provision of needed information (e.g., current supplier, tariff name, and annual energy consumption) and steps for switching		
Psychological biases	Loss and risk aversions	highlight potential savings from switching assurances that switching is 'easy and safe' and will 'not lead to supply cut-off'		
	Complexity aversion	simple and summarised information	simple and summarised information limit the number of energy deals included in the letter to three	
	Trust as a decision heuristic	n.a.	letter sent by a trusted messenger (Ofgem or existing supplier)	letter sent by a trusted messenger (existing supplier)
	Hyperbolic discounting	reduced upfront costs (information and transaction costs) for switching highlighted long-term savings from switching		
	Normative social influence	n.a.	n.a.	n.a.
	Availability bias	n.a.	n.a.	n.a.

Note: 'n.a.' indicates that no explicit consideration has been given to overcome the barriers for consumer engagement. Source: Developed by the authors based on the discussion in Section 3.1.

### 3.2. Collective Switching Trials

In the Collective Switching trials, a series of three letters were sent to select energy consumers over a seven-week period, to offer them a cheaper and exclusive energy deal and signpost them to a switching service provider (energy helpline) who already had their information and data [70]. The first letter informed the consumers that (1) they were on one of the most expensive energy tariffs; (2) they were eligible for a cheaper and exclusive tariff (negotiated by Ofgem and not available on the market); and (3) they could opt out of the trials. The second letter informed the consumers of their personalised savings from switching to the exclusive tariff, and the steps to take to switch (energy helpline website and phone number were provided). The third letter was a reminder for the consumers [70].

Key features of the Collective Switching trials are summarised in Table 3. Further details are provided as follows. In the trials, energy consumers were provided with an exclusive energy deal; this deal was negotiated by Ofgem and not available on the market. This was expected to create a scarcity effect to provide additional incentives for consumers to switch, because people are more likely to choose products that are perceived as scarce. The second letter highlighted personalised savings for consumers from switching to the exclusive offer, estimated based on their current energy consumption and tariffs. This letter also assured consumers that (1) switching would not affect their existing billing and payment options and not lead to supply interruption; and (2) the exclusive offer would be provided by a credible supplier. These were expected to redress loss and risk aversions that could hamper consumer engagement. In the trials, some attention was also given to normative social influence by highlighting that the consumers have been on one of the most expensive energy deals, implying that they have paid more than other people [70].

**Table 3.** The Collective Switching trials: Key features.

Collective Switching Trials		
Switching costs	Information costs	provision of simple and summarised information regarding the potential savings from switching and one exclusive deal
	Transaction costs	provision of needed information (energyhelpline website and contact number) and steps for switching
Psychological biases	Loss and risk aversions	highlight personalised savings if switching to the exclusive offer in the second letter assurances: switching would not affect existing billing and payment options, and the exclusive deal would be provided by a credible supplier
	Complexity aversion	provision of simple and summarised information in three letters only one exclusive deal the third letter: a reminder to help overcome procrastination in making complex decisions
	Trust as a decision heuristic	all three letters from either Ofgem or consumers' current suppliers
	Hyperbolic discounting	reduced upfront costs (information and transaction costs) for switching highlight long-term savings from switching
	Normative social influence	highlight that the consumers have been on one of the most expensive energy deals, implying that they have paid more than others
	Availability bias	second collective switching intervention 6 months after the initial intervention

Source: Developed by the authors based on the discussion in Section 3.2.



### 3.3. Analysis of the Results

As discussed above, Ofgem undertook several trials on energy consumer engagement over the period 2016 to 2019. These trials essentially sought to stimulate consumer switching by overcoming the economic (i.e., information and transaction costs) and psychological (for example, status quo bias) barriers. In doing so, each of these trials was designed to test the effectiveness of specific interventions on encouraging consumer switching. The tests were undertaken through randomised controlled experiments, where the participants were randomly assigned to two or more groups, with one (the control group) receiving no intervention, and the others (the experiment groups) receiving the interventions being tested. Table 4 presents a summarised overview of the outcomes (i.e., switching rates) of the Ofgem trials. The main points, based on a review of the table and discussion in the previous sections, are presented below.

**Table 4.** Switching rates of the Office of Gas and Electricity Markets (Ofgem) trials: A summary.

Trial	Group	Switching Rate (%)			
		Internal	External	Total	No Switching
Small-Scale	CMA	8.4	5.0	13.4	86.6
	BOL	7.1	5.0	12.1	87.9
	Control	2.0	4.8	6.8	93.2
CMOL	Ofgem	0.6	1.8	2.4	97.6
	Supplier	0.9	2.5	3.4	96.6
	Control	0.3	0.7	1.0	99.0
CMOC	Experiment	2.9	3.9	6.8	93.2
	Control	1.4	1.5	2.9	97.1
Collective Switching	Experiment	n.a.	n.a.	14.0–29.5	86.0–70.1
	Control	n.a.	n.a.	2.0–4.5	98.0–95.5

Notes: n.a. = not available; experiment = experiment groups that receive the interventions; control = control group receiving no intervention; internal = consumers switched to alternative energy deals provided by their existing suppliers; external = consumers switched to energy deals provided by alternative suppliers. Sources: [20,67–69].

The communication-based interventions had positive impacts on consumer switching, as indicated by higher switching rates (2.4–29.5%) in the experiment groups than that in the control groups (1.0–6.8%). These impacts also appeared to vary significantly across the trials, suggesting that some interventions were more effective than others. For example:

In the Small-Scale trial, the switching rate is 13.4% for the CMA group that received letter interventions from alternative suppliers (see Table 3). This is slightly higher than that for the BOL group that received letter interventions from Ofgem, implying that consumers are more comfortable receiving information on alternative energy deals from suppliers. This viewpoint gets further substantiated by the CMOL trial, where switching rates are increased from 1% in the control group to 2.4–3.4% in the experiment groups, and this impact is more significant for those consumers who received the supplier-branded letters (3.4% in the supplier group), as presented in Table 3. Similar results are also found in the Collective Switching trials, where switching rates are higher (26.9%) in the group that received supplier-branded letters than that in other experiment groups (15.0–18.5%) [70].

In the CMOC trial, sending a reminder is found to have significantly increased the switching rates by 27%, from 5.9% for those with no reminder, to 7.5% for those with reminder [69]. This implies that the reminder communication could be a powerful tool for redressing consumer inertia when making complex decisions. Higher switching rates (14.0–29.5%, as presented in Table 3) of the Collective Switching trials may lend further credence to this viewpoint, because one of the key factors that

differentiates these trials from the Better Offer trials is the sending of a series of three letter interventions with the third letter as a reminder.

As shown in Table 3, the switching rates are much higher (14.0–29.5%) in the Collective Switching trials than that in the three Better Offer trials (2.4–13.4%). This could partly be explained by the so-called choice overload, where consumers have a difficult time making a decision when faced with many options, as more choices are available to the customers in the Best Offer trials (no less than three) than the Collective Switch trails (only one).

It worth noting that it would be useful to discuss the variation of the effectiveness of communication-based interventions in encouraging consumer switching across age and income groups. This discussion, however, cannot be developed because the Ofgem trials were implemented with information provided by energy suppliers, who do not require their customers to provide demographic information [22]. There is therefore a lack of information required for analysing the effect of demographic factors in shaping the switching behaviour of the energy consumers.

#### 4. Some Further Discussion

As discussed in the previous section, the Ofgem trials made positive impacts on consumer engagement, as indicated by high switching rates (2.4–29.5%) in the experiment groups receiving letter interventions, compared with switching rates of 1.0–6.8% in the control groups receiving no intervention. There also appeared to be a significant variation in these impacts across the trials, suggesting that some interventions (most notably, supplier as a messenger, reminder communication, and less choices) were more effective than others. However, the overall impacts of the Ofgem trials were moderate, and around 70% of participants did not switch even in the most impactful trial. There are three possible explanations.

Firstly, the behaviour of energy consumers to stay with their default supply option could be influenced by a myriad of factors, and these factors are not fully understood, which makes the design of effective intervention difficult. As argued in Lunn (2014, p 45), 'Designing a good policy is made more awkward by the fact that the reasons why defaults are so powerful are not fully understood' [71]. If it is not clear which factor drives the behaviour in each specific case, the intervention designed to drive behavioural change may be less effective [72]. Similar argument is echoed by Lunn (2012, p 440): 'Many important issues in BE (Behavioural Economics) are complex and unresolved. Behavioural economists themselves have not reached a shared understanding of which behavioural findings have the strongest impacts on behaviour, nor in what contexts behavioural biases result in benefit or harm. Yet these issues can be pivotal for the policymaker' [73].

Secondly, the impacts of various behaviour-influencing factors may be different across the consumers. For example, it is found in [58] that consumers are unlikely to change energy suppliers if they perceive high switching costs, and these effects are much higher for those who have limited switching experience in other markets. Similarly, [59] found that consumers' attitudes to markets (e.g., big bargain hunter, life is too short, and feelings of regret) are correlated with their switching behaviour, with considerable variation in the strength and statistical significance of these relationships, implying different impacts of attitudes on switching behaviour amongst consumers. This variation means that a one-size-fits-all intervention may not be the most effective way to encourage consumer switching. Rather, a wide variety of interventions is needed to stimulate switching activity effectively amongst different consumers [74]. This viewpoint is underlined by the outcomes of the Ofgem trials which show that different consumers reacted quite differently to the same intervention: some switched internally to a cheaper deal provided by their current suppliers, and some others switched externally to alternative suppliers, and the remaining consumers decided to stay with their current supply options (see Table 3).

Thirdly, the socio-material structures that may hinder behavioural changes required for consumers to actively engage with the energy market are not explicitly considered. This viewpoint stems from the social practice theory that views individuals as not consuming energy for its own sake, but relying on it

to facilitate social practices (for example, cooking, watching TV or conducting meetings) [75]. This view moves the focus of energy analysis, away from individual behaviour, towards energy-consuming practices. According to [62], social practice is 'a routinised type of behaviour which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge' [76]. These elements can be further grouped into three categories of interconnected elements of practice: material, competence and meaning [77]. Material comprises all physical activities (for example, the use of material artefacts) required for performing a practice. Competence is referred to as the skills and knowledge required to perform a practice through, for example, the use of material artefacts. Meaning refers to the beliefs, emotions, and ideas associated with a practice, which have deep cultural and historical roots [78,79]. In the context of energy, the social practice theory characterises the behaviour of energy consumers as a social phenomenon, meant to facilitate social practices. Therefore, even if individuals may be incentivised to switch suppliers, there also exist various socio-material structures that could inhibit this behavioural change [80].

The overlook of the socio-material structures in the Ofgem trials may reflect a general lack of understanding of how to use and apply insights from the social practice theory in policy making, although several scholars have over the years called for more practicable applications of social practice theory to develop deeper insights for policymakers [81,82]. As argued by some researchers who are working or have recently worked in the British government, 'We'd need to have something that's accessible, that's got some evidence underneath it, some case studies. If we could have some evidence on its application as well as theory. We would be the ones who would be promoting it. Social practice theory needs to be crystallised in concepts which people can understand. You need micro-applications of it. Little trials of social practice theory' [80].

## 5. Conclusions and Policy Implications

This paper has analysed the design features and outcomes of the database trials on energy consumer engagement implemented by Ofgem over the period 2016–2019. The results of the analysis suggest that the Ofgem trials have made positive impacts on consumer engagement, as evidenced by higher switching rates (2.4–29.5%) in the experiment groups than that (1.0–6.8%) in the control groups. There also appeared to be a significant variation in these impacts across the trials, suggesting that some interventions (most notably, supplier as a messenger, reminder communication and less choices) were more effective than others. Nevertheless, the overall impacts of the Ofgem trials appeared to be moderate, as around 70% of participants remained inactive even in the most impactful trial, reflecting a general lack of understanding in the literature of the behaviour-influencing factors, their impacts, and their context-connects.

The paragraphs below discuss the issues arising from the results of the analysis undertaken in this paper that policymakers and energy planners may like to consider while designing reform programs for their energy markets.

The difficulty in stimulating consumer switching, as demonstrated by the Ofgem trials, poses a problem for the energy regulator and policymakers. Is price discrimination an inevitable outcome of market competition? Or is it an outcome of the use of market power to exploit more 'naïve' and inactive household consumers? The Ofgem trials are premised on the argument that weak consumer switching is an indication of market inefficiency, because it gives large energy suppliers 'a position of unilateral market power concerning their inactive customer base' which they can exploit through the practice of price discrimination [18]. An alternative argument, put forward or supported by several renowned energy economists and former energy regulators, is that the practice of price discrimination does not necessarily reflect the exercise of market power and unfair pricing, as suggested by CMA. Rather, it may also indicate significant competition and welfare-enhancing pricing, especially when prices and retail margins in aggregate are not significantly higher than what is normally regarded as a

competitive market level. In these cases, any intervention aimed at encouraging customer engagement is more likely to undermine competition, resulting in welfare losses [24,83].

Existing energy literature suggests that for a homogeneous product like electricity, suppliers tend to rely on price differences to attract consumers, and this tendency provides incentives to both incumbents and new entrants to offer cheaper energy deals [84]. But not all consumers take advantage of these deals. In an empirical analysis of the New Zealand electricity market, [72] found that about 14% of energy consumers are captive and unlikely to switch suppliers for any bill savings. Based on an analysis of the behaviour of suppliers and household consumers in the Norwegian energy market, [73] found that there exists a very competitive market segment with active consumers and lower energy prices and a monopolistic market segment with inactive consumers and higher energy prices. Likewise, [26] found that in the Dutch electricity market, a large proportion of consumers did not switch suppliers after the introduction of retail competition and remained on default offers, which are more expensive than other offers available in the market. The outcomes of the Ofgem trial may lend further credence to these findings, as a large fraction of consumers (70.1–96.6%) did not switch even with the introduction of various interventions aimed at stimulating engagement activity (see Table 3).

The market segmentation between active and inactive consumers allows energy suppliers to implement strategies of price discrimination, simply to survive in the market. Therefore, consumer segmentation and the practice of price discrimination may simply reflect significant competition, rather than a lack of it, especially if retail margins in general are not significantly above the competitive level [85,86]. As explained in [69]: ‘In order to survive and operate economically, most energy suppliers seem to need a combination of less engaged customers on higher tariffs and more engaged customers on lower tariffs. If all their customers are on a single high-priced tariff, they lose customers. If all their customers are on a single low-price tariff, they cannot cover their total costs. In either case, they would eventually go out of business’.

However, price discrimination may raise the question about ‘fairness’, especially involving vulnerable consumers. Here, particular attention is given to equal outcomes rather than equal opportunities, which further give rise to a fundamental question about the appropriateness of market-based arrangements for pricing electricity. A full-length discourse—aimed at redressing this question—will require considerable additional research, involving tracing back to the philosophical debate between the Roman and Greek doctrines of *Verum Pertium* (natural price) and *Iustum Pretium* (just price). This is beyond the scope of this paper. Despite this, it is plausible to argue that while the communication-based interventions may seem intuitively attractive, they are likely to undermine fairness by further raising the prices for inactive consumers. This is so because these interventions could encourage more active consumer engagement and hence place additional pressure on energy suppliers to offer cheaper prices to attract active consumers. In order to operate economically, the suppliers would then need to increase energy prices offered to the inactive segment of the consumers, leading to further exploitation of the inactive consumers.

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## References

1. Besant-Jones, J.E. *Reforming Power Markets in Developing Countries: What Have We Learned?* World Bank: Washington, DC, USA, 2006.
2. Joskow, P.L. Lessons learned from electricity market liberalisation. *Energ. J.* **2008**, *29*, 9–42. [[CrossRef](#)]
3. Pollitt, M. Electricity Reform in Chile: Lessons for Developing Countries. *Compet. Regul. Netw. Ind.* **2004**, *5*, 221–262. [[CrossRef](#)]
4. Joskow, P.L. Electricity sectors in transition. *Energy J.* **1998**, *19*, 2–52. [[CrossRef](#)]
5. Newbery, D. Electricity liberalisation in Britain and the evolution of market design. In *Electricity Market Reform: An International Perspective*; Sioshansi, F.P., Pfaffenberger, W., Eds.; Elsevier: Cambridge, MA, USA, 2007.
6. Yang, M.; Sharma, D. The spatiality and temporality of electricity reform: A comparative and critical institutional perspective. *Energy Res. Soc. Sci.* **2020**, *60*, 101327. [[CrossRef](#)]
7. Littlechild, S. *Why We Need Electricity Retailers: A Reply to Joskow on Wholesale Spot Price Pass-Through*; Department of Applied Economics, University of Cambridge: Cambridge, UK, 2000.
8. Joskow, P.L. *Why Do We Need Electricity Retailers? or Can You Get It Cheaper Wholesale?* Center for Energy and Environmental Policy Research at MIT: New York, NY, USA, 2000.
9. Defeuilley, C. Retail competition in electricity markets. *Energy Policy* **2009**, *37*, 377–386. [[CrossRef](#)]
10. Littlechild, S. Retail competition in electricity markets—expectations, outcomes and economics. *Energy Policy* **2009**, *37*, 759–763. [[CrossRef](#)]
11. CEER. *Monitoring Report on the Performance of European Retail Markets in 2018*; Council of European Energy Regulators: Brussels, Belgium, 2019.
12. Cavanagh, R.; Levin, A. Rehabilitating Retail Electricity Markets: Pitfalls and Opportunities. In *Future of Utilities—Utilities of the Future: How Technological Innovations in Distributed Generation Will Reshape the Power Sector*; Sioshansi, F.P., Ed.; Elsevier: Cambridge, MA, USA, 2006.
13. Simshauser, P. Price discrimination of the modes of failure in deregulated retail electricity markets. *Energy Econ.* **2018**, *75*, 54–70. [[CrossRef](#)]
14. Ros, A.J.; Brown, T.; Hesmindhalgh, S.; Reitzes, J.D. *International Experiences in Retail Electricity Markets*; The Brattle Group: Sydney, Australia, 2018.
15. ACCC. *Position Paper: Data Access Model for Energy Data*; Australian Competition & Consumer Commission: Sydney, Australia, 2019.
16. MBIE. *Electricity Price Review—Options Paper*; Ministry of Business, Innovation & Employment: Wellington, New Zealand, 2019.
17. Ofgem. Our Priorities and Objectives. 2020. Available online: <https://www.ofgem.gov.uk/about-us/our-priorities-and-objectives> (accessed on 21 September 2020).
18. CMA. *Energy Market Investigation*; Competition & Markets Authority: London, UK, 2016.
19. Energy Helpline. *Submission to Ofgem: Draft Consumer Vulnerability Strategy 2025*; Energy Helpline: London, UK, 2019.
20. Ofgem. *Cheaper Market Offer Letter Trial*; Office of Gas and Electricity Markets: London, UK, 2017.
21. Ofgem. *Check Your Energy Deal*; The Office of Gas and Electricity Markets: London, UK, 2018.
22. Tyers, R.; Sweeney, M.; Moon, B. Harnessing behavioural insights to encourage consumer engagement in the British energy market: Results from a field trial. *J. Behav. Experp. Econ.* **2019**, *80*, 162–176. [[CrossRef](#)]
23. Deller, D.; Giulletti, M.; Loomes, G.; Price, C.W.; Bermejo, A.M.; Jeon, J.Y. *Switching Energy Suppliers: It's Not All about Money*; Centre for Competition policy at the University of East Anglia: Norwich, UK, 2017.
24. Littlechild, S. Competition, regulation and price controls in the GB retail energy market. *Util. Policy* **2018**, *52*, 59–69. [[CrossRef](#)]
25. Pollitt, M.; Haney, A.B. Dismantling a competitive retail electricity market: Residential market reform in Great Britain. *Electr. J.* **2014**, *27*, 66–73. [[CrossRef](#)]
26. ACCC. *Restoring Electricity Affordability and Australia's Competitive Advantage*; Australian Competition & Consumer Commission: Canberra, Australia, 2018.
27. Gamble, A.; Juliusson, E.A.; Garling, T. Consumer attitudes towards switching supplier in three deregulated markets. *J. Socio-Econ.* **2009**, *8*, 814–819. [[CrossRef](#)]
28. Wilson, C.M.; Waddams Price, C. Do consumer switch to the best supplier? *Oxf. Econ. Pap.* **2010**, *62*, 647–668. [[CrossRef](#)]

29. Annala, S.; Viljainen, S.; Tuunanen, J. Rationality of supplier switching in retail electricity markets. *Int. J. Energy Sect. Manag.* **2013**, *7*, 459–477. [[CrossRef](#)]
30. Wieringa, J.E.; Verhoef, P.C. Understanding customer switching behavior in a liberalising service market: An exploratory study. *J. Serv. Res.* **2007**, *10*, 174–186. [[CrossRef](#)]
31. Mulder, M.; Willems, B. The Dutch retail electricity market. *Energy Policy* **2019**, *127*, 228–239. [[CrossRef](#)]
32. Wilkinson, N.; Klaes, M. *An Introduction to Behavioral Economics*, 3rd ed.; Red Globe Press: London, UK, 2018.
33. Roe, B.; Teisl, M.; Levy, A.; Russell, M. US consumers' willingness to pay for green electricity. *Energy Policy* **2001**, *29*, 917–925. [[CrossRef](#)]
34. Ek, K.; Soderholm, P. Household's switching behavior between electricity suppliers in Sweden. *Util. Policy* **2008**, *16*, 254–261. [[CrossRef](#)]
35. Hobman, E.V.; Frederiks, E.R.; Stenner, K.; Meikle, S. Uptake and usage of cost-reflective electricity pricing: Insights from psychology and behavioural economics. *Renew. Sustain. Energy Rev.* **2016**, *57*, 455–467. [[CrossRef](#)]
36. Gigerenzer, G.; Gaissmaier, W. Heuristic decision making. *Annu. Rev. Psychol.* **2011**, *62*, 451–482. [[CrossRef](#)]
37. Tversky, A.; Kahneman, D. Judgement under uncertainty: Heuristics and biases. *Science* **1974**, *185*, 124–131. [[CrossRef](#)]
38. Camerer, C.; Issacharoff, S.; Loewenstein, G. Regulation for conservatives: Behavioral economics and the case for asymmetric paternalism. *Univ. Pa. Law Rev.* **2003**, *151*, 1211–1254. [[CrossRef](#)]
39. Daghli, T. Consumer governance in electricity markets. *Energy Econ.* **2016**, *37*, 326–337. [[CrossRef](#)]
40. Frederiks, E.R.; Stenner, K.; Hobman, E.V. Household energy use: Applying behavioural economics to understand consumer decision-making and behaviour. *Renew. Sustain. Energy Rev.* **2015**, *41*, 1385–1394. [[CrossRef](#)]
41. Wilson, C. Market frictions: A unified model of search costs and switching costs. *Eur. Econ. Rev.* **2012**, *56*, 1070–1086. [[CrossRef](#)]
42. Hortacsu, A.; Madanizadeh, S.A.; Puller, S.L. Power to choose? An analysis of consumer inertia in the residential electricity market. *Am. Econ. J. Econ. Policy* **2017**, *9*, 192–226.
43. Giulietti, M.; Waterson, M.; Wildenbeest, M. Estimations of search frictions in the British electricity market. *J. Ind. Econ.* **2014**, *62*, 555–590. [[CrossRef](#)]
44. Weil, D.; Fung, A.; Graham, M.; Fagotto, E. The effectiveness of regulatory disclosure policies. *J. Policy Anal. Manag.* **2005**, *25*, 155–181. [[CrossRef](#)]
45. Bodur, H.O.; Klein, N.M.; Arora, N. Online price search: Impact of price comparison sites on offline price evaluations. *J. Retail.* **2016**, *91*, 125–139. [[CrossRef](#)]
46. Kling, J.R.; Shafir, E.; Vermeulen, L.; Wrobel, M.V. Comparison friction: Experimental evidence from medicare drug plans. *Q. J. Econ.* **2012**, *127*, 199–235. [[CrossRef](#)]
47. FCA. *Attention, Search and Switching: Evidence on Mandated Disclosure from the Savings Market*; Financial Conduct Authority: London, UK, 2016.
48. Slaunwhite, J.M.; Damman, O.C.; Jelsma, J.G.M. Using normative messages to increase healthy behaviours. *Int. J. Workplace Health Manag.* **2009**, *2*, 231–244. [[CrossRef](#)]
49. Kallbekken, S.; Salen, H.; Hermansen, E.A. Bridging the energy efficiency gap: A field experiment on lifetime energy costs and household appliances. *J. Consum. Policy* **2013**, *36*, 1–16. [[CrossRef](#)]
50. Allcott, H. Social norms and energy conservation. *J. Public Econ.* **2011**, *95*, 1082–1095. [[CrossRef](#)]
51. Durantini, M.R.; Earl, A.N.; Gillete, J.C. Conceptualising the influence of social agents of behaviour change: A meta-analysis of the effectiveness of HIV-prevention interventionists for different groups. *Psychol. Bull.* **2016**, *132*, 212–248. [[CrossRef](#)] [[PubMed](#)]
52. Mollard, M. Switching costs and the pricing strategies of incumbent suppliers on the British retail electricity market. In Proceedings of the 4th Conference on Applied Infrastructure Research, Berlin, Germany, 15–17 November 2005.
53. Sturluson, J.T. *The Importance of Consumer Search and Switching Costs for Competition in Electricity Power Retailing*; Stockholm School of Economics: Stockholm, Sweden, 2005.
54. Smith, G.E.; Venkatraman, M.P.; Dholakia, R.R. Diagnosing the search cost effect: Waiting time and the moderating impact of prior category knowledge. *J. Econ. Psychol.* **1999**, *20*, 285–314. [[CrossRef](#)]
55. He, X.; Reiner, D. Why consumers switch energy suppliers: The role of individual attitudes. *Energy J.* **2017**, *38*, 25–53. [[CrossRef](#)]

56. Creti, A.; Fontini, F. Assessing the Benefits of Retail Competition. In *Economics of Electricity: Markets, Competition and Rules*; Creti, A., Fontini, F., Eds.; Cambridge University Press: Cambridge, UK, 2019.
57. Sirin, S.M.; Gonul, M.S. Behavioral aspects of regulation: A discussion on switching and demand response in Turkish electricity market. *Energy Policy* **2016**, *97*, 591–602. [[CrossRef](#)]
58. Schleich, J.; Faure, C.; Gassmann, X. *Household Electricity Contract and Provider Switching in the EU*; Working Paper Sustainability and Innovation 14/2017; Karlsruhe Fraunhofer ISI: Karlsruhe, Germany, 2017.
59. Greifender, R.; Scheibehenne, B.; Kleber, N. Less may be more when choosing is difficult: Choice complexity and too much choice. *Acta Psychol.* **2010**, *133*, 45–50. [[CrossRef](#)]
60. Terwel, B.W.; Lakioti, E. Going beyond the properties of CO2 capture and storage (CCS) technology: How trust in stakeholders affects public acceptance of CCS. *Int. J. Greenh. Gas Control.* **2011**, *5*, 181–188. [[CrossRef](#)]
61. Wilson, C.; Dowlatabadi, H. Models of decision making and residential energy use. *Annu. Rev. Environ. Resour.* **2007**, *32*, 169–203. [[CrossRef](#)]
62. Allcott, H.; Mullainathan, S. Behavioral science and energy policy. *Science* **2010**, *327*, 1204–1205. [[CrossRef](#)]
63. Simshauser, P.; Downer, D. *Limited-Form Dynamic Pricing: Apply Shock Therapy to Peak Demand Growth*; AGL Applied Economic and Policy Research: Sydney, Australia, 2011.
64. Blanton, H.; Stuart, A.E.; van den Eijnden, R. An introduction to deviance-regulation theory: The effect of behavioral norms on message framing. *Personal. Soc Psychol. Bull.* **2001**, *27*, 848–858. [[CrossRef](#)]
65. Blanton, H.; Christie, C. Deviance regulation: A theory of action and identity. *Rev. Gen. Psychol.* **2003**, *7*, 115–149. [[CrossRef](#)]
66. Taylor, S.E. The Availability Bias in Social Perception and Interaction. In *Judgement under Uncertainty: Heuristics and Biases*; Kahneman, D., Slovic, P., Tversky, A., Eds.; Cambridge University Press: Cambridge, UK, 1982; pp. 190–200.
67. Ofgem. *Insights from Ofgem's Consumer Engagement Trials*; Office of Gas and Electricity Markets: London, UK, 2019.
68. Ofgem. *Small Scale Database Trial*; The Office of Gas and Electricity Markets: London, UK, 2017.
69. Ofgem. *Cheaper Market. Offer Communication Trial*; Office of Gas and Electricity Markets: London, UK, 2017.
70. Ofgem. *Ofgem's Collective Switch. Trials*; Office of Gas and Electricity Markets: London, UK, 2019.
71. Lunn, P. *Regulatory Policy and Behavioural Economics*; OECD: Paris, France, 2019.
72. Kuehnhanss, C.R. The challenges of behavioural insights for effective policy design. *Policy Soc.* **2019**, *38*, 14–40. [[CrossRef](#)]
73. Lunn, P. Behavioural economics and policymaking: Learning from the early adopters. *Econ. Soc. Rev.* **2012**, *43*, 423–449.
74. Price, C.W. Shedding light on consumer behaviour in energy markets. In *Behavioural Economics in Competition and Consumer Policy*; Mehta, J., Ed.; University of East Anglia: Norwich, UK, 2013.
75. Warde, A. Consumption and theories of practice. *J. Consum. Cult.* **2005**, *5*, 131–153. [[CrossRef](#)]
76. Reckwitz, A. Toward a theory of social practice: A development in culturalist theorizing. *Eur. J. Soc. Theory* **2002**, *5*, 243–263. [[CrossRef](#)]
77. Shove, E.; Pantzar, M.; Watson, M. *The Dynamics of Social Practice: Everyday Life and How It Changes*; SAGE: London, UK, 2013.
78. Shove, E.; Pantzar, M. Consumers, producers and practices. *J. Consum. Cult.* **2005**, *5*, 43–64. [[CrossRef](#)]
79. Ropke, I. Theories of practice: New inspiration for ecological economic studies on consumption. *Ecol. Econ.* **2009**, *68*, 2490–2497. [[CrossRef](#)]
80. Hampton, S.; Adam, R. Behavioural economics vs social practice theory: Perspectives from inside the United Kingdom government. *Energy Res. Soc. Sci.* **2018**, *46*, 214–224. [[CrossRef](#)]
81. Keller, M.; Halkier, B.; Wilska, T.A. Policy and governance for sustainable consumption at the crossroads of theories and concepts. *Environ. Policy Gov.* **2016**, *26*, 75–88. [[CrossRef](#)]
82. Sahakian, M.; Wilhite, H. Making practice theory practicable: Towards more sustainable forms of qconsumption. *J. Consum. Cult.* **2014**, *14*, 25–44. [[CrossRef](#)]
83. Littlechild, S. Competition and price controls in the UK retail energy market. *Nertwork* **2017**, *63*, 1–11.
84. Price, C.W. Back to the future? Regulating residential energy markets. *Int. J. Econ. Bus.* **2018**, *25*, 147–155. [[CrossRef](#)]

85. Baumol, W.J. *Regulation Misled by Misread Theory: Perfect Competition and Competition-Imposed Price Discrimination*; AEI Press: Washington, DC, USA, 2006.
86. Cooper, J.; Froeb, L. Does price discrimination intensify competition? Implications for antitrust. *Antitrust Law J.* **2005**, *72*, 327–373.



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