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Giving consumers too many choices: a false good idea? *Lab experiment applied to water and electricity tariffs*

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Abstract Electricity and water tariffs are undergoing significant changes due to smart metering, retail competition, and regulatory changes. Consumers now have to choose between different tariffs which are getting more and more complex. Theoretically, these new tariffs aim to use more cost-reflective pricing to incentivise consumers to adopt the right behaviours. However, empirical evidence from real pricing shows that consumers are confused by the complexity. Based on a lab experiment, this paper investigates how electricity and water consumers adopt more or less complicated tariffs and adapt their behaviours accordingly. We show that subjects prefer simple tariffs over complex ones. However, when they receive adequate information about tariffs and appropriate behaviours, they choose more complex tariffs. These results argue in favour of self-selection of tariff forms, in order to account for consumers' different abilities to respond to the price signal. Lastly, we discuss the appropriateness of using a price mechanism to incentivise consumers.

Keywords experiment · electricity · water · tariff design · experimental economics · microeconomics

1 Introduction

Electricity and drinkable waters are two essential goods (low price elasticity of demand) that are critical in tackling climate change through resource conserva-

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tion and active demand response behaviours, notably.[1] When less electricity is consumed, the GHG emissions released by fossil fuel power plants are reduced. Reducing water consumption not only prevents droughts and water shortage, but also reduces the energy required to process and deliver water, thereby lowering pollution and conserving fuel resources. However, conservation behaviours are rarely attractive or spontaneous when consumers are asked to make a costly effort to adapt and the impacts are uncertain. As for all goods, tariffs are the natural vehicle to incentivise consumers to adopt efficient consumption behaviours,[2] but tapping this potential ultimately relies on consumer uptake and optimisation of usage, which is far from obvious. Tariff uptake depends on the perception of the tariff itself, which various behavioural biases may distort. Simultaneously, optimal usage assumes a perfect understanding of the pricing mechanism in order to adapt behaviours to incentives and circumstances.

Consumers are now accustomed to facing different tariffs for goods which were initially proposed at standard flat-rate tariffs, such as phone plans and train or plane tickets. This pricing is more recent for electricity and water contracts, and was encouraged by the roll-out of digital communication technologies (smart meters) providing two-way communication between the household and the energy and water company. For electricity most notably, this allows real-time information on prices associated with remote control devices to help consumers take a more active role in managing electricity consumption. How do electricity and water consumers choose between different tariffs? Do they effectively adapt their behaviours depending on the tariff in order to benefit from it? On the one hand, the standard argument is that choice is suitable for consumers because it gives them freedom, self-determination, and autonomy. On the other hand, consumers may be stressed and obfuscated by too many choices and more sophisticated tariffs because decision-making becomes a complicated and costly task offering no clear-cut trade-off in practice. There are behavioural barriers to switching to new tariffs that raise doubts about the efficiency of water and electricity companies' pricing programs in inducing conservation and active demand response behaviours.

This paper compares tariff uptake for water and electricity tariffs and investigates a potential "good effect". We focus on the two phases of the uptake decision: perception of the tariff and optimal usage, which assume that consumers understand the price signal and agree to adapt their behaviour ac-

[1] Active demand response refers to the new options given to electricity consumers by smart meters to make the electricity system flexible and thus flatten peak demand. Consumers can shift consumption away from peak-demand times when electricity is costly and polluting to produce, by running their washing machines or tumble-dryers or charging their electric vehicles in off-peak periods (when the electricity rate is cheaper). This saves energy and increases system efficiency through reduced grid infrastructure investment and better system management.

[2] Non-monetary incentives complement monetary incentives. They refer to personal feedback (information, advice) and social feedback (comparisons with other households consumption). They are based on behavioural economics and psychological theories (Thaler and Mullainathan (2000)).

cordingly over time in order to benefit from it. Among the different expected behaviours, we focus on time-independent conservation behaviours. Hence, we explore three basic types of time-independent tariffs, corresponding to variations in linear tariffs.[3] These tariffs differ in their cost-reflectiveness and complexity, which are critical factors in perception and optimal usage.

The simplest form of tariff considered is the standard flat volumetric tariff, where every unit of consumption is charged at a flat rate regardless of time or demand level. Traditionally, in regulated markets such as those for water and electricity, a fixed price covering the sector's high fixed costs can be added to this flat tariff to improve efficiency and equity of use.[4] This leads to the so-called two-part tariff. The third type of tariff we consider is a popular variation of the linear tariff, the so-called increasing block tariff, where the volumetric rate increases across successive bands of marginal consumption in a step-wise manner. Increasing block tariffs are already used in many countries that face water scarcity and droughts. They are intended to provide the poorest and low-usage consumers with inexpensive (potentially subsidised) water while charging the highest prices to wealthy consumers and high users. Obviously, by charging higher prices for high consumption levels (above a given threshold), increasing block tariffs discourage excessive water use. In France, for example, the use of increasing-block tariffs has been implemented by a law passed in 2013[5] to incentivise saving behaviours (rather than enforcing restrictive measures through the rule of law). Unlike in France's water sector, it was decided not to apply the increasing block tariff in the electricity sector because its implementation was overly complicated and costly. Additionally, gathering and matching the social and fiscal data necessary to elaborate this discrimination strategy raised privacy issues. However, in the United States, many electric utilities have replaced flat pricing with increasing block tariffs to decrease aggregate energy use without imposing costs on low-income households.

Faced with this choice of tariffs, consumers may become confused if they do not understand the mechanism behind each tariff and its underlying signal on how they must adapt their behaviours in practice to benefit from the one they have chosen. Giving them more information and choice might not be sufficient for them to make optimal decisions and act in ways that are economically rational (from the perspective of maximising personal gain) because of behavioural biases (Thaler and Mullainathan (2000)). Cognitive and decision-making biases have been extensively studied in the literature in all behavioural

[3] New electricity dynamic tariffs (such as real-time pricing, critical peak pricing, and peak-time rebates) are more cost-reflective than the three tariffs considered since they are time-based tariffs. They are used to stimulate active demand response in the electricity sector.

[4] A standard result in utility regulation originally developed by Coase (1946) is that efficiency requires two-part tariffs with marginal prices set to marginal costs and fixed fees equal to each customer's share of fixed costs

[5] *Loi n. 2013-312 du 15 Avril 2013 visant à préparer la transition vers un système énergétique sobre et portant diverses dispositions sur la tarification de l'eau et sur les éoliennes*

domains. The primary behavioural biases involved in water consumption are similar to those in electricity consumption. They include aversion to complexity, status quo bias, framing effect, loss aversion, risk aversion, and time inconsistency (for Economic Co-operation and Development (2017)). Solutions to overcome these biases are based on cost-reflective pricing, information support, and nudges towards conservation. Through the lens of behavioural economics and a lab experiment, our paper aims at investigating these solutions in order to provide a better understanding of consumers' electricity and water tariff choices, starting from the most straightforward time-independent tariff. The lab experiment allows us to control for variables that are very difficult to gather with observational data, notably the household characteristics (number of people, revenues) which influence consumption (in KWh or cubic metres), but also households' knowledge and awareness of their consumption and potential savings at the time they adopt a given tariff. By controlling for these variables in the lab, we can test the commonly-held assumption that greater information and awareness will induce behaviour change. By studying tariff uptake for two different goods in a controlled environment, we aim to identify a potential "good effect", something that to the best of our knowledge has not yet been done in the literature.

The experimental design consists of three sequential stages. In the first stage, 237 participants choose between the three tariffs (two-by-two) based solely on their perception of the tariff (awareness of their level of consumption evaluated at the beginning of the session through a survey on their equipment and consumption habits): their decision is not associated with any monetary gain in the experiment. This makes it possible to observe whether, spontaneously and at first sight, individuals might choose the calibrated, most economically advantageous tariff (the increasing block tariff) despite its complexity. In the second stage, the participants make these same tariff choices but in an informed context: we explicitly explain the link between the tariff, the conservation behaviours, and the benefit. The third stage consists of a survey on tariff preferences. The resulting data are compared to the choices made in the two previous stages.

Based on the behavioural literature, we expect participants to prefer at first sight the most straightforward tariff, with no "good effect". Once they get more information on their potential savings (in KWh for electricity or cubic metres for water), they should choose the tariff that minimises their bill (in euros) given their estimated level of consumption, which we can consider as rational behaviour.[6]

Our main results show that without any incentives and relying only on their first immediate perception, participants have a strong preference for simple (flat/two-part) tariffs, which is consistent with the literature on the topic based on observational data (Ito (2014), Mayol and Porcher (2019)). Moreover, their choices are not consistent between the two goods, suggesting a "good effect"

[6] Rational choice models assume that consumers engage in economically rational information-processing and decision-making from the perspective of maximising personal gain.

that bears little relation to their stated decision-making criteria. Conversely, we find a stronger preference for the complex increasing block tariff with the monetary incentive provided in Stage 2. However, 70% of participants still prefer the least economically advantageous but simplest tariffs. This result confirms that consumers have somewhat limited rationality and an aversion to complexity, despite decision-making support, which is not enough to solve behavioural biases.

The paper is organised as follows. Section 2 briefly presents the literature and derives a number of conjectures regarding tarifs uptake by electricity and water consumers. Section 3 describes the experimental design and empirical strategy to test the validity of the conjectures. Section 4 presents and discusses the results, and Section 5 concludes the paper.

2 Literature and conjectures

What are the efficiency properties of the flat tariff, the two-part tariff, and the increasing-block tariff? Under what conditions do they respectively incentivise consumers to lower consumption? To identify the theoretical properties of the three tariffs, the standard IO literature, drawing on rational choice models, assumes that rational consumers will reduce their consumption when faced with marginal price increases or a monetary reward. However, empirical evidence shows that consumers' choices and behaviours deviate systematically from these assumptions such that the outcome of these pricing schemes does not always meet expectations. Insights from behavioural economics help to understand how consumers adopt a tariff and adapt their consumption accordingly. Below, we investigate the various biases in decision-making that lead consumers to behave in ways that traditional models cannot explain, inducing serious errors in the potential impact of alternative tariffs on conservation behaviours. We derive a number of conjectures that we test with data collected in the lab.

The IO literature on price discrimination has highlighted many of the theoretical advantages and drawbacks of linear and nonlinear tariffs under perfect information and perfect rationality assumptions(Tirole and Jean (1988) Malin and Martimort (2001). Typically, the standard flat tariff where the price remains stable regardless of time or demand is neither cost-reflective, in the sense that it does not send any signal to lower consumption based on the level of production costs, nor cost-recovering. Instead, flat rates are designed to cover the cost of an average consumer. Consequently, in practice, some consumer groups will over-consume and others under-consume. This leads to cross-subsidising and inequitable pricing at the expense of low users. The trade-off between equity and efficiency is particularly acute in markets with high fixed costs. Coase (1946) was among the first to address the specificity of tariffs in markets with high fixed costs (and declining average costs) such as energy, water, transportation, and telecommunications: a single price set equal to marginal cost (competitive solution) does not provide enough revenue to pay for fixed costs.

His solution was to use two-part tariffs.[7] To pursue distributional objectives, the discrimination principle sets a fixed part that is different for categories of consumers, such that the total fixed parts of all consumers who buy the commodity cover the total cost. More generally, the literature shows that no tariff can simultaneously satisfy the cost recovery-efficiency-equity triptych. Indeed, the three objectives of pricing schemes can even be in direct conflict. Besides, the generation of revenues allowing cost recovery was often neglected in the past, when unprofitable public monopolies were systematically subsidised.

This position regarding the efficiency conditions of price discrimination worsens when the perfect information and perfect rationality assumptions are relaxed. Designing an efficient tariff is very demanding in terms of information, starting with the volume effectively consumed at the household level. Typically, without a proper meter it is practically impossible to measure how much energy is unused relative to the expected average consumption (or used in excess), which worsens the flat rate tariff's inefficiency and inequity: it does not incentivise consumers to lower their consumption. While smart meters for electricity are currently being rolled out in many countries, this is not the case for water; many consumers live in collective dwellings that do not even have individual meters. Additionally, suppliers have difficulty observing the price elasticity of demand and other characteristics needed to implement price discrimination in practice.[8] Consequently, under imperfect information, the monopoly may reduce the quantity produced and this may induce distortions among consumers (at the expense of small users and in favour of larger users), as shown by Crampes and Lozachmeur (2014) (electricity sector) and Mayol and Porcher (2019) (water sector) in the case of increasing block tariffs. These distortions are reinforced by the heterogeneity of the price elasticities of demand, which is a reality (it notably depends on the quality of equipment in terms of energy efficiency or water savings, and on remote control).

Nor do the theoretical results hold when the perfect rationality assumption is relaxed and behavioural biases involved in water and energy consumption are explicitly considered.[9]. The behavioural economics literature emphasises motivations to save water or electricity other than monetary incentives and proposes various behavioural incentives based on nudgesThaler and Sunstein (2008) to influence behaviours accordingly. Typically pro-social or altruistic motivations (which are considered as behavioural biases, i.e. deviations from rational decision-making (perfect rationality assumption)) are addressed via information feedback on consumption or cost (via the bill, a website, an app, or even a smart meter) or general saving tips. Numerous papers based on

[7] According to Coase (1946), the two-part tariff has two components, a volumetric charge, and a fixed monthly fee. In the optimal two-part tariff, the volumetric charge is set equal to marginal cost, and the fixed monthly fee has to be set equal to each customer's share of fixed costs.

[8] It is also worth noting that the majority of electricity consumers are traditionally relatively price-inelastic.

[9] In this paper, we focus on the behavioural biases linked to limited rationality, ignoring the other two types of biases - bounded willpower and bounded-self-interest - identified by Thaler and Mullainathan (2000)

observational or experimental data on water and electricity consumption discuss a set of cognitive biases that are likely to influence consumers' responses to the tariff (Buckley (2020)). Status quo bias, risk aversion, framing effects, or cognitive dissonance towards complexity (aversion to complexity) are the main forces that shape consumer tariff choices and conservation behaviours and limit economic rationality.[10] How are the three tariffs' uptakes and usages affected by these cognitive biases?

Aversion to complexity is implicated in consumers' perception of the choice of tariffs. Carlin (2009) suggests that suppliers might even be suspected of taking advantage of this cognitive bias by using price complexity or reduced transparency as a strategic obfuscation technique. Since the seminal contribution of Kahneman and Tversky (1979) to the analysis of the limits of human capacity to process information, there have been many empirical contributions highlighting how people tend to rely on simple heuristics or other decision-making shortcuts, especially in a risky, uncertain, complex environment. [11] Typically, when the amount and the complexity of information or calculations overwhelm people, they do not process all the information that would lead to the optimal outcome Simon (1976). For example, Ito (2014) find evidence based on field data indicating that, when facing increasing block tariffs with different marginal prices for the same product which is complex *per se*, electricity consumers take decisions based on the average price (as an approximation of the marginal price), rather than on the marginal price itself.

Numerous empirical studies based on observational data or natural experiment data assess the influence of complex and obfuscating tariffs on consumers' tariff uptake and usage, highlighting a wide diversity of impacts depending on the specificities of each tariff. For example, Ascarza et al. (2012), using natural experiment data, show how offering allowances or "free" units of the telecommunication service in addition to a two-part tariff (a so-called three-part tariff) induces an "overuse" by consumers in comparison with the prior two-part tariff usage. They attain a level of consumption that cannot be explained by a shift in the budget constraint, inducing misuse. Other studies show that even rational consumers facing complex or numerous tariffs might take suboptimal decisions because of the high computational cost and learning effect. Observed non-rational behaviours might thus be more rational than they appear to be, since they internalise these costs in their uptake decision. However, this might

[10] See Hobman et al. (2016) for a detailed review of the behavioural biases involved in the uptake and usage of cost-reflective electricity pricing and the practical solutions that can be proposed to reduce the distortions induced by each type of bias.

[11] According to the utility theory of Von Neuman and Morgenstern (1944), the optimal decision for a rational individual is the one that maximises the utility function, weighted by the probabilities of the occurrence of different alternatives. Nevertheless, as shown in many studies since the seminal paper of Kahneman and Tversky (1979), actual behaviour does not follow expected utility maximisation, and individuals estimate the welfare consequences of their choices according to different behavioural elements. Thus, individuals may make such estimations based on changes implied by their decisions compared to a given individual reference point, which might be impacted by various features: past experiences, social norms, or how the alternative is presented (framing effect).

only be a transitory feature in the dynamic process of tariff choices associated with learning, suggesting that improving the learning process (with decision support tools, notably) might help to improve their understanding and reduce the transaction cost.[12] Miravete (2003) documents the dynamics involved in the choice of optional tariff plans in the telecommunication services market, showing that consumers correct their initial mistakes in tariff choices, if any, by learning and switching tariffs. At all events, learning and switching are not free-lunch: they raise learning costs and transaction costs for the consumer. Solutions might exist to reduce the learning and transaction costs incurred by consumers which prevent them from switching tariffs, notably decision support tools such as a recommended tariff framed as a status quo or default setting, or harmonising the tariff presentation neutrally. Hobman et al. (2016) suggests that customers are less likely to naturally default to the standard and simple flat-rate tariff, thus avoiding the status quo bias. This phenomenon can be explained by loss aversion, according to which changes that make things worse loom larger than corresponding gains. Therefore, individuals tend to prefer their current situation to any other variant that implies changes and potential losses, even if there are potential gains.[13] More generally, ensuring the simplicity (or avoiding the complexity) of the tariff and providing clear information and explanations about how consumers might benefit from it should significantly reduce the expression of common behavioural bias such as the aversion to complexity.

We aim at testing in the lab several empirical regularities identified in the literature on behavioural biases associated with tariff uptake and usage. Notably, we address aversion to complexity; we design a lab experiment to verify the following two conjectures:

1. Without any incentives, participants should prefer the simplest tariff, that is, the order of acceptance should be: flat-rate tariff, two-part tariff and increasing block-tariff

2. By introducing monetary incentives that compensate for the preference for the simple tariff, we speculate that we can correct the aversion to complexity.

Another reason why switching to a new electricity tariff might be a somewhat confusing and costly decision is that one might face numerous possibilities and the uncertainty related to the implications of future consumer behaviour and the monetary impact on the bill. Also, in the case of electricity (and even in the case of water in some circumstances), there is an additional risk since the consumer does not know ex-ante the exact amount of electricity he or she will need in the future (it depends on exogenous conditions (weather) as

[12] Faruqui et al. (2010) show that time-variable pricing creates transaction costs for customers, who must track price changes and respond accordingly.

[13] Hartman et al. (1991) find exciting results regarding the status quo effect in electricity consumption. They use contingent valuation survey data to empirically investigate the existence of a status quo effect in consumer valuations of a particular unpriced product, the reliability of residential electricity service (i.e. Power outage). They find a strong status quo effect which corroborates the contingent valuation literature on consumer "irrationality".

well as endogenous factors such as behaviours, use of remote control devices, willingness to save energy, etc.) and thus the monetary impact of the tariff choice. This introduces time inconsistency and temporal discounting into the picture, which complicates the decision heuristics. The literature on time inconsistency and spatial discounting based on seminal papers by Loewenstein and Thaler (1989) and Thaler (1981) shows that consumers have a natural tendency to be shortsighted about imminent or immediate costs and benefits and farsighted about costs and benefits that are further away. More generally, the risk aversion bias, that is, the tendency to prefer certainty over risk (choose a particular or guaranteed gain as compared to gamble on an uncertain payout), is also associated with the three tariffs we consider, in the sense that there is uncertainty regarding the potential saving induced by conservation behaviours.

The theoretical literature always considers one good and one representative agent, without explicitly factoring in the heterogeneity of behaviours according to the type of good. Empirically, studies are generally mono-sectoral and do not compare the consistency of behaviour for several goods. This experiment aims to analyse the behaviour of participants faced with a choice of tariffs and to confront the consistency of preferences regarding two similar but not identical goods. Indeed, water and electricity share common characteristics (essential goods, very low price elasticity of demand, no or few substitutes, natural monopolies, environmental impact justifying conservation). However, these two goods differ in certain respects, such as the history of pricing in France. The price of electricity represents a high proportion of the French household budget, and the introduction of retail competition has given consumers the choice of both suppliers and tariffs.[14] Meanwhile, drinking water remains opaque in terms of consumption and pricing (e.g. for the majority of users, water is paid for as a lump-sum in rental charges, independently of actual consumption). Assuming the rationality of participants, we conjecture the non-existence of a "good effect", that is, the participant in the lab should make the same tariff choice, whatever the good.

3. The choices of th rational participant should not differ in terms of tariff uptake whatever the good.

3 Experimental design and empirical strategy

3.1 Experimental design

We conducted a lab experiment[15] (13 experimental sessions) organised in the LEEP (Laboratoire d'Economie Expérimentale de Paris) at the University of

[14] The picture is somewhat more complex, since until now there has been a regulated tariff that remains the default tariff offered by the incumbent and serves as a reference point (inducing a potential framing effect). For a discussion of the implications of this coexistence of regulated and non-regulated tariffs, see Martimort et al. (2020).

[15] Our experimental design is similar to the one used in (Robin et al. (2018)). However, our paper focuses on conservation behaviour whereas they also address active demand response.

Paris 1 from December 2018 to March 2019[16]. We recruited 237 participants, using the standard ORSEE procedure (Greiner (2004)), from the LEEP experimental database. [17] We used a framed context of decision-making, starting by calculating each participant's annual household electricity and water consumption explicitly at the beginning of the session (in KWh and cubic metres, respectively) through a detailed survey on their usages and equipment.[18]. This information was available all along the experiment. During each session, the participants had to make decisions consisting of a choice between three types of tariffs (two-by-two, that is, six combinations): a flat-rate tariff, a two-part tariff, and an increasing block tariff. We designed two different stages which differed in terms of information structure:

- Stage 1: participants only have information about their consumption[20] (in KWh and cubic metres), estimated using a standard survey on their usage, considering household composition, housing characteristics, equipment, etc. The choice criterion is their immediate perception of each tariff. The choice is not incentivised, meaning that their experimental gain (in €) will not depend on this decision.
- Stage 2: we provide them with information regarding electricity and water conservation behaviours and ask them whether they are willing to adopt these behaviours. Based on their declaration, we evaluate their potential savings (as a % of their actual estimated consumption) if they effectively adopt these saving behaviours and provide them with this information. Next, they have to choose the tariff, as in the first situation. In this situation, they are informed that one tariff is more economically advantageous than the other given their estimated consumption and their potential savings. If they choose the most advantageous one, they are rewarded. If they choose the other one, they are not rewarded (monetary gain is zero). The choice is thus incentivised. The choice criterion is bill minimisation.

Consequently, we consider only three time-independent tariffs (leading to six decisions) while they also consider dynamic pricing (testing for up to thirty decisions based on the different specifications of each tariff (in terms of the level of the fixed part and expected value)). The originality of our experiment lies in the fact that we consider two goods (electricity and water) and aim at investigating a potential "good effect".

[16] Detailed procedure and instructions are available upon request.

[17] We recruited participants in the experiment representing a variety of consumers, selecting them according to various household characteristics (age, gender, household composition, address (Paris or suburb), type of housing (individual house or multiple dwelling) and other socio-economic variables). They had to declare that they were actually paying their electricity and water bills to avoid including participants who had no clue as to what choosing a tariff for electricity or water means.

[18] The survey is based on the interactive tool provided by electricity and water suppliers as well as the guides published by French Agency for the environment and energy saving, Ademe (*Agence de l'environnement et de la maitrise de l'énergie*)[19]

[20] consumption expressed through a confidence interval and not as an average. This point is significant because, on the one hand, it allows the introduction of risk into the choice, and on the other hand, it ensures that the experiment is not reduced to a mental arithmetic contest.

These two stages are only partially realistic: in practice, most consumers (especially for electricity) make their tariff choices without any specific or reliable information, i.e., based only on their perception of the tariffs. Those actively looking for information might use price comparison websites and materials on the legal information obligations that all suppliers must fulfil.[21] However, as emphasised by the French Energy Ombudsman in its annual report (Gaubert (2020)), this information might be either missing, incomplete or so fallacious that consumers might not understand it at first sight. Notably, they might not understand the types of behaviours they have to adapt to actually benefit from the different tariffs. After dealing with the tariff decisions, the participants participate in a lottery procedure, which we use to elicit their risk aversion in analysing the results (Eckel et al. (2012), Holt and Laury (2002)). The final payment consists of the lottery payoff, the payoff for the six incentivised tariff decisions, and a 5-euro show-up fee. To determine the tariff section's payoff, they receive one euro per decision if they have selected the most advantageous tariff (the one that minimises the bill), that is, 6 euros maximum.

4 Empirical strategy

Our empirical strategy consists of explaining the tariff choices in the two situations, using a probit model.

4.1 Sample presentation

Participants were selected according to a quota selection method. They are representative of inhabitants from the Paris region: 47% live in Paris centre, and the rest live in Paris suburbs; 32% of the participants are women (68% of men), 63% own their homes, and only 13% live in an individual house (87% in collective dwellings).

We also observe an age pyramid, which generally follows a standardised trend (as shown in figure 1), and which does not over-represent young adult students, as may be the case in many experiments in economics. Figure 2 also shows a correct representation of households[22].

The distribution of the different socio-professional categories of participants is summarised in table 1.

[21] *Articles L. 224-3 et L. 224-7 du code de la consommation.*

[22] In France (2017, from INSEE Data): 36,2% (1 person), 32;6% (2 persons), 13,7% (3 persons), 11,5% (4 persons), 5,9% (¿4 persons)

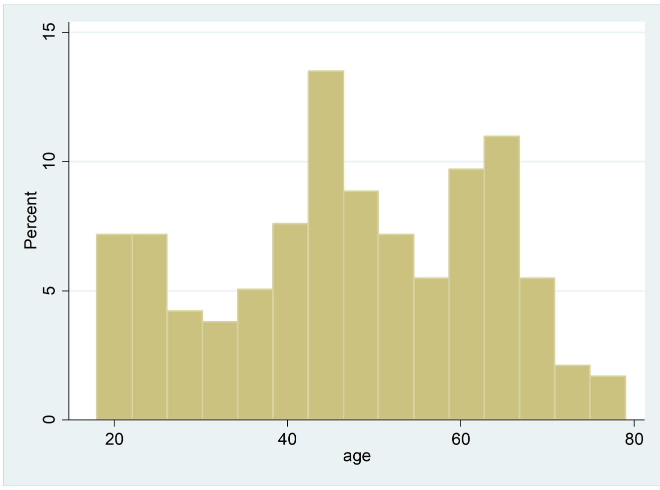

Fig. 1 Distribution of the age pyramid in the sample.

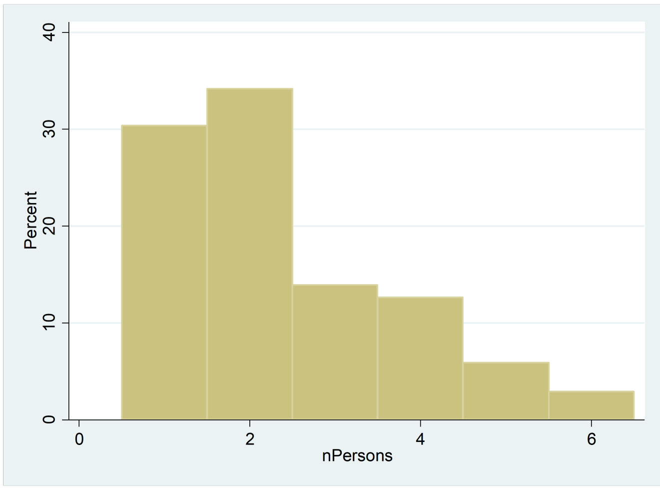

Fig. 2 Number of persons per household.

4.2 The econometric model

4.2.1 Probit models

Using a probit regression, we want to understand the determinants of preferences for a type of tariff. In other words, we want to know which consumer profile strictly prefers the flat-rate, the two-part, or the increasing block tariff. To do this, we devise two different sets of models.

The first set seeks to explain the choice of tariff without monetary incentives (i.e. the dependent variable will be the tariff preference expressed in stage

Socio-professional category	Frequency	Percentage	Cum.
Never worked or long-term unemployed	9	3.8	3.8
Higher managerial and professional occupations	29	12.24	16.03
Employees	80	33.76	49.79
Students	25	10.55	60.34
Students with a job	5	2.11	62.45
Intermediate occupations	40	16.88	79.32
Retired people	39	16.46	95.78
Owner-manager and own account workers	10	4.22	100
TOTAL	237	100	

Table 1 Socio-demographic distribution of the sample.

1). This leads us to make six probit series (three different tariff preferences tested with two different goods). This allows us to measure the coherence of choices between water and electricity as well, that is, the "good effect".

The second set of models explains the tariff uptake with monetary incentive as a dependent variable. In the explanatory variables, we add the dependent variables of the first model to see whether there is a link between the answers expressed in the first and second phases.

Let us define

$$z = \beta_0 + \beta_1 X \quad (1)$$

$$Pr(Y = 1|X) = \Phi(\beta_0 + \beta_1 X) \quad (2)$$

We include several sets of explanatory variables in this probit model.

- Different control variables
- A set of choice explanatory variables expressed in the qualitative survey at the end of the session
- A set of variables on tariff preferences for the other good (to measure whether there is transitivity and consistency of choices between goods)

This allows us to explain why a consumer expresses a preference for a particular type of tariff. The second model (with incentive) allows us to determine whether these preferences are modified when faced with monetary incentives.

4.2.2 Control variables

These different control variables are used in our model to determine whether they can influence the tariff choice. Indeed, we can surmise that a homeowner or wealthier person might be more sensitive to pricing issues than others, notably when they have to invest in their housing or electrical devices (Crampes and Lozachmeur (2014)). These variables provide a useful insight into the relationship between socio-economic parameters and sensitivity to tariff incentives. This element contributes to the discussion on the determinants of tariff uptake.

The following table 2 summarises our different control variables :

The binary variable *owner* (1 if the participant owns his home) is introduced to capture the fact that home ownership could affect the consumer's price elasticity (through the importance of the type of electrical devices and

Table 2 Summary statistics for the control variables

Variable	Mean	Std. Dev.
Owner	0.338	0.474
House	0.131	0.338
Scoreratio	0.671	1.109
Paris	0.473	0.5
nPersons	2.384	1.347
Age	47.245	15.205
Gender	0.321	0.468
Income	4642.308	5121.815

appliances), as shown by (Crampes and Lozachmeur (2014)). That is why homeowners have more incentive to renew facilities than tenants do. We can therefore expect this variable to affect participants' sensitivity to prices. The accommodation type is considered in the 'house' variable or the 'apartment' variable in a collective dwelling (the variable is equal to 1 if the accommodation is a house). As studies in the drinkable water sector have shown (Mayol (2017)), we expect the type of housing to affect price sensitivity since households in individual homes generally consume significantly more than those living in collective dwellings. The 'Paris' variable designates the share of individuals living in Paris (if the participant lives in Paris, the variable is equal to 1). The number of people in the household (**??**) is an important factor in the price elasticity of consumers, whether it for water or electricity (Mayol (2017), Mayol and Porcher (2019)). We introduce the 'Scoreratio' variable to test the participant's level of cognitive ability, referring to the standard Cognitive Reflection Tests of Frederick (2005). We tried to incorporate the traditional risk aversion test (Holt and Laury (2002)), however, it was not significant. We preferred to use the responses to the questionnaire to measure the subjects' subjective risk aversion. We also want to control whether gender influences the choice of prices. Finally, we control for the participants' socio-economic category, which is taken as a proxy of the standard of living of the household.[23]

4.2.3 Dependent variables: Preferences and choice variables

In both stages of the experiment, the participants made successive sets of choices between two tariffs. In the first stage, participants chose one of the two proposed tariffs for each good, without any monetary incentive. Their choice was thus supposed to reflect their strict (and transitive) preferences for one type of tariff. In the second stage, a built-in monetary incentive was added to the same choices: the participants were explicitly told that there was one type of fare that was more advantageous. They could earn more money by reducing the bill.

[23] Integrating the income variable directly into the model did not appear relevant because the income gap can be huge between people living in the Paris region, with a similar profession.

Therefore, we have two sets of participants' preference variables according to the experiment phase (without incentive vs with incentive) for each good. The following tables (tables 3 and 4) report the different descriptive statistics for these variables.

Table 3 Summary statistics for the variables of preferences (without incentives)

Variable	Mean	Std. Dev.
pref_increasing-block_elec	0.219	0.415
pref_two-part_elec	0.232	0.423
pref_linear_elec	0.439	0.497
pref_increasing-block_water	0.219	0.415
pref_two-part_water	0.346	0.477
pref_linear_water	0.325	0.469
indif_elec	0.042	0.201
indif_water	0.063	0.244

Table 4 Summary statistics for the variables of preferences (with incentives)

Variable	Mean	Std. Dev.
pref_increasing-block_elec_p2	0.257	0.438
pref_two-part_elec_p2	0.232	0.423
pref_linear_elec_p2	0.422	0.495
pref_increasing-block_water_p2	0.257	0.438
pref_two-part_water_p2	0.346	0.477
pref_linear_water_p2	0.3	0.459
indif_elec_p2	0.055	0.228
indif_water_p2	0.034	0.181

These preference variables would serve as dependent variables for the probit models.

We can graphically (figure 3) observe the distribution of participants' choices and their evolution after introducing an incentive into their choice.

We observe that the increasing block tariff is the least preferred tariff among participants, for both goods. For water, the two-part tariff is preferred, followed by the linear tariff and the increasing block tariff. Nevertheless, we note that introducing a monetary incentive shifts the preference to the increasing block tariff. We observe the same phenomenon for electricity, with a stronger aversion to the fixed part of the two-part tariff. We can explain this by the historical importance of subscription in France's electricity price structure, which can be as crucial as the variable part based on the household's electrical uses.

This first graphical indication suggests two things. First, consumers have a spontaneous aversion to complex tariffs; second, this aversion seems to be reduced when taking a risk is explicitly compensated for by a monetary incentive.

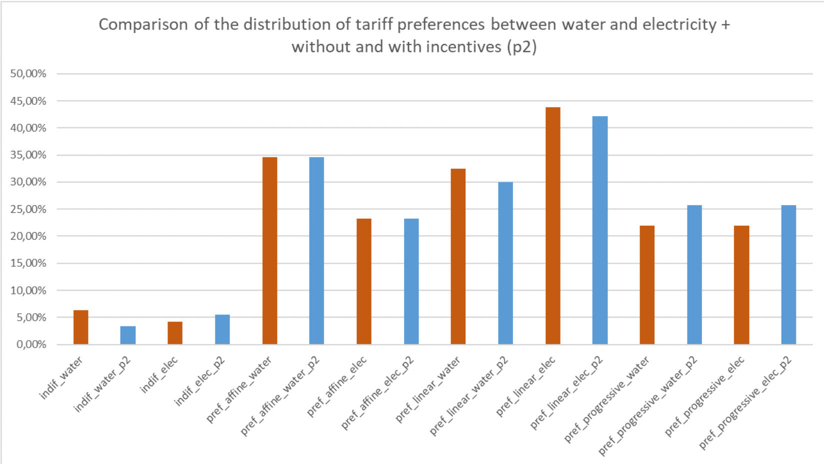

Fig. 3 Comparison of the distribution of tariff preferences between water and electricity + without and with incentives (p2).

4.2.4 Stated preference survey

In the third stage of the session, participants respond to a stated preference survey to help understand their choice and characterise their stated preferences and willingness to adapt their behaviour. This data enabled us to assess whether their decisions are influenced by ecological, economic, or simplicity determinants and whether there is a difference in approach between water and electricity (”a good effect”). These variables are coded as a Likert scale (from 1 (strongly disagree) to 5 (strongly agree)), commonly used to assess behaviours and to operationalise perceptions. We summarise the set of variables used to explain the choices in table 5.

5 Results and interpretation

We present the results successively for the two empirical models. For the sake of readability we will present them in blocks of variables, showing the marginal effects directly. The complete tables of results are available in the appendix. First, we will analyse the results for tariff choices without incentives (table 6).

5.1 Results: model without monetary incentives

Variables for comparing choices
The results seem to show a ”good effect” since the preference for one type of tariff for one good is not necessarily correlated with the preference for this same tariff for the other good. For example, choosing the linear tariff for water has a very positive effect on choosing an increasing-block tariff for electricity (and

Question	Name of the variable
1. When choosing my prices, I have given priority to...	
1.1. ...the simplicity of the tariff	pref11
1.2. ...predictability of the invoice	pref12
1.3. ...the most financially advantageous.	pref13
2. On a daily basis, you seek to reduce your electricity consumption.	pref2
3. On a daily basis, you want to reduce your water consumption.	pref3
4. What is your motivation to reduce your electricity consumption?	
4.1. Reduce your bill	pref41
4.2 Avoiding waste	pref42
4.3. Participating in the fight against global warming	pref43
4.4. Other...	pref44
5. What is your motivation for reducing your water consumption?	pref5
5.1. Reduce your bill	pref51
5.2 Avoiding waste	pref52
5.3. Participating in the fight against drought	pref53
5.4. Other...	
6. You are willing to accept a decrease in comfort or a change of habit to reduce your water consumption.	pref6
7. You are willing to accept a decrease in comfort or a change of habit to reduce your electricity consumption.	pref7
8. Your effort should result in savings on your bill.	pref8

Table 5 Questions explaining consumer choices and stated preferences and the names of the variables.

vice versa). Preferences are thus not consistent for the two goods, suggesting a "good effect."

Control variables:
First, for electricity, we observe that home ownership influences participants' choices. Being a homeowner negatively favours the two-part tariff but positively favours the increasing-block tariff. The fact that homeowners are more favourable to increasing-block tariff is in line with the findings of Crampes and Lozachmeur (2014). Indeed, homeowners can better control their electricity consumption, in particular through appliance selection. We also find that the number of people in the household influences preferences, but more marginally.

For drinking water, the most critical variable is the number of people. This could be explained by the fact that many houses do not have an individual water meter in France, and water is paid for in proportion to the number of people in the dwelling. Moreover, water use is directly linked to individual uses. Thus, being in a large family offers the possibility of earning more, which could explain why increasing-block tariffs are preferred.

Stated preference variables
For electricity, participants seek simplicity in tariffs (pref12 variables (indirectly since the fact that the invoice is predictable implicitly makes it simpler), which is detrimental to the preference for the flat tariff and but has a positive impact on the two-part tariff. It is worth noting that the *pref11* variable directly linked to the simplicity of the tariff is not significant. However, the quest for economic gains is not necessarily associated with the most efficient choice (pref13 is not significant). Regarding drinking water, it can also be seen that those who want to reduce their consumption will logically prefer the increasing-block tariff (pref3 variable).

From this point of view, the explanation of the choices shows a relative coherence, but some answers do not always appear to be very coherent. This shows the limited rationality between the participants' intentions and their final choices.

Overall, without monetary incentives, we see a significant gap between the preferences stated in the survey and the choices in the first and second stages. Moreover, there is a "good effect", with a slightly stronger consistency of choice for electricity than for water.

5.2 Results: model with monetary incentives

Introducing an explicit incentive for participants between tariff uptake and usage significantly impacts our results. First, we observe that socio-demographic characteristics tend to have a lower effect on the choice of tariff. This suggests that the choice becomes more rational and less contingent on the participant's socio-demographic characteristics. This could indicate that decision support providing clear information on the optimal usage (the link between the tariff and the associated behaviours which minimise the bill) allows the consumer to better focus on effective decision-making. In the second part, we observe a significant improvement in the coherence between stated preferences and choices. For example, the *pref8* variable on the association between effort and monetary gain is an excellent predictor of tariff choices. The coefficient is significant for the flat-rate tariff and the increasing block tariff for electricity, but with a negative sign for the latter; for water, it is significant for the two-part tariff and the increasing block tariff, but with a negative sign for the former. Moreover, we observe a reduction in the differences between the two goods. Finally, with monetary incentives, participants seem to prefer increasing block tariffs over non-incentive choices. In absolute terms, the flat-rate tariff is always preferred in both cases (choices with and without incentives) and for both goods. The "good effect" also decreases, and there is greater consistency between water and electricity.

These results are very encouraging since they show that decision support and explicit incentives would help to decontextualise choices and push the consumer closer to efficiency. Suppliers are encouraged to develop an appropriate communication and marketing strategy to provide more information on the characteristics of tariffs. Meanwhile, consumer associations or any organisation such as an Ombudsman, whose role is to inform consumers and protect them against abusive commercial practices and promote an efficient and sustainable industry, should also contribute to providing such transparent information on the link between the tariff, the conservation behaviour, and the potential benefit. Alternatively, remote control devices could play this role once consumers are ready to accept the relative loss of control over their consumption and provided that privacy is not an issue.

6 Conclusion

Our results provide several insights into tariff design for electricity and drinkable water.

First, without incentives or information to increase their awareness, participants in the lab prefer simple tariffs to complex ones (considering flat/two-part tariffs as simple and the increasing block tariff as complex, since it requires calculation and information processing to make an efficient decision). This confirms the findings of the literature on water and electricity tariff design based on observational or field data; this literature explains the low residential price responsiveness to dynamic prices by the lack of consumer awareness, costly information processing, and small gains in demand response due to weak price variation Harding and Sexton (2017), Shin (1985), Dütschke and Paetz (2013). Conversely, our results show that in the lab, participants are more willing to choose complex tariffs if they are accompanied by persuasive communication and information campaigns to ensure that the advantages of the tariff and the corresponding behaviours are properly perceived.

Overall, uptake of the increasing block tariff increases in the lab when there is a monetary incentive to compensate for its complexity. Still, this choice remains marginal compared to the simple tariff uptake. Indeed, complex tariffs are based on rational behaviour by consumers, who can easily and at relatively low cost control their consumption. Such consumers represent a relative minority among our participants (very little diffusion of remote control equipment). This result confirms the conclusion drawn by Ito (2014) based on observed data showing that consumers generally have an absolute aversion to "unpredictable" (risky) tariffs.

We can also provide an alternative interpretation, which, without entering into the debate on consumer rationality, is based on an elasticity differential. In this interpretation, consumers willing to adopt complex tariffs would be the most price-sensitive consumers. This differential may have several explanations, such as risk aversion or, more simply, the tendency to resist change (strong status quo bias). Ultimately, favouring the status quo or the "default" setting, that is, a simple but expensive tariff, could be monetised by losing profit on the bill from choosing the sub-optimal tariff. Solutions to this behavioural bias involve non-monetary incentives such as presenting the complex tariff in a more favourable way or designing a risk-free tariff that provides an incentive to lower consumption (through bill rebates, safeguards against higher bills for an initial period of time (money-back guarantees or free bill protection insurance for a trial period), or a withdrawal period).[24]

Incentivising households to lower their electricity and water consumption to tackle climate change through demand management is increasingly used as a powerful tool. It is not the only one, and its implementation is hazardous. Our results in the lab suggest that tariffs as a vehicle for monetary incentives are only part of the answer because of various behavioural biases which reduce tariff uptake and effective usage. Our results show that a large share of participants are reluctant to switch to more complex tariffs, or might choose a tariff but avoid adapting their behaviours accordingly.

In line with discrimination theory, our results argue in favour of screening different types of consumers, taking into account their heterogeneity in terms of willingness to pay. Due to consumers' different preferences and levels of risk aversion, it is necessary to help them choose the appropriate tariff (especially in their economic calculation of tariffs). Otherwise, there is a risk of having tariffs that are underused or misused by consumers. One solution could be to offer a menu of fares to consumers, who would then self-select the optimal fare according to their elasticity and preferences. However, we show that without assistance in this choice, their spontaneous preference will tend towards simplicity rather than efficiency.

This study has some limitations. First, as in most semi-field experiments, it is difficult to generalise the results due to limited samples and experimental conditions. Nevertheless, these results are in line with others from natural experiments with water and electricity. They actually allow us to refine previous results. Second, it is difficult to assess the usage of tariffs in the lab. These are declarative answers. Local experiments with "smart metering" could lead to exciting and testable natural experiments.

Finally, these results suggest that it is preferable to propose a menu of tariffs with self-selection, rather than imposing a more sophisticated pricing scheme that is unsuited to consumers' cognitive abilities or not aligned with their elasticity.From a broader perspective, the results also suggest that the decentralisation of consumption control through the use of the price signal remains limited. For some consumers (a minority), the use of these incentive tariffs is useful, while for others, other mechanisms (standards, regulation, etc.) are complementary, but not substitutes. This study emphasises the importance of the context (including the good) in understanding demand characteristics and price control.

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[24] See Hobman et al. (2016) for a review on behavioural economics-inspired solutions.

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7 Appendix

7.1 Extended table: Marginal effects from probit model without incentives

7.2 Extended table: Marginal effects from the probit model with incentives

Table 6 Marginal effects from probit models without incentives.

Dep. Var. (preference)	Linear	two-part	Increasing-block	Linear	two-part	Increasing-block
Good	Elec.	Elec.	Elec.	Water	Water	Water
Incentives	No	No	No	No	No	No
Owner	-0.006	-0.215***	0.136**	0.006	-0.009	-0.005
	(-0.10)	(-3.85)	(2.08)	(0.10)	(-0.14)	(-0.08)
House	0.130	0.062	-0.149	0.007	-0.015	0.059
	(1.60)	(0.70)	(-1.42)	(0.09)	(-0.14)	(0.66)
Scoreratio	-0.005	0.010	-0.004	-0.035	0.002	0.004
	(-0.22)	(0.47)	(-0.16)	(-1.49)	(0.06)	(0.18)
Paris	-0.042	-0.028	0.074	0.031	0.047	-0.082
	(-0.78)	(-0.56)	(1.22)	(0.56)	(0.75)	(-1.54)
nPersons	0.038**	0.020	-0.034	-0.037*	-0.049**	0.064***
	(2.01)	(1.09)	(-1.48)	(-1.90)	(-2.09)	(3.28)
Age	0.003*	0.002	-0.001	-0.002	0.000	0.004**
	(1.66)	(0.97)	(-0.42)	(-1.00)	(0.12)	(2.00)
Gender	-0.049	0.013	0.027	0.094*	0.041	-0.079
	(-0.92)	(0.26)	(0.44)	(1.91)	(0.67)	(-1.48)
Income	-0.000	-0.000	-0.000	-0.000	0.000	0.000
	(-0.46)	(-0.31)	(-0.42)	(-0.09)	(0.68)	(0.70)
pref11	0.020	0.002	-0.011	-0.026	0.036	0.039*
	(0.96)	(0.08)	(-0.44)	(-1.28)	(1.58)	(1.75)
pref12	-0.065**	0.058**	-0.014	-0.024	0.001	0.016
	(-2.53)	(2.13)	(-0.45)	(-0.96)	(0.03)	(0.56)
pref13	0.118**	-0.055	0.025	0.016	0.075	-0.039
	(2.39)	(-1.39)	(0.53)	(0.42)	(1.64)	(-0.98)
pref2	0.047	-0.072	-0.018	-0.143***	-0.025	0.049
	(0.85)	(-1.47)	(-0.26)	(-3.01)	(-0.40)	(0.82)
pref3	-0.018	-0.013	0.066	0.131**	-0.001	-0.132**
	(-0.30)	(-0.26)	(0.91)	(2.45)	(-0.01)	(-2.28)
pref41	0.005	0.015	-0.001	0.099**	-0.049	-0.047
	(0.07)	(0.29)	(-0.02)	(2.33)	(-0.92)	(-1.04)
pref42	0.064	-0.007	-0.120*	-0.022	-0.014	0.048
	(1.20)	(-0.15)	(-1.72)	(-0.39)	(-0.20)	(0.86)
pref43	0.036	0.011	0.003	0.005	-0.004	-0.037
	(0.85)	(0.33)	(0.07)	(0.15)	(-0.08)	(-0.97)
pref51	-0.000	-0.025	0.012	-0.000	-0.032	0.018
	(-0.01)	(-0.48)	(0.22)	(-0.01)	(-0.56)	(0.39)
pref52	-0.056	-0.014	0.066	0.002	0.007	0.037
	(-0.83)	(-0.25)	(0.75)	(0.03)	(0.10)	(0.58)
pref53	0.028	-0.028	-0.045	-0.039	-0.049	0.137***
	(0.54)	(-0.65)	(-0.84)	(-0.96)	(-0.91)	(2.98)
pref6	-0.052	0.156***	-0.068	0.019	-0.043	0.024
	(-1.15)	(3.40)	(-1.30)	(0.43)	(-0.73)	(0.50)
pref7	-0.007	-0.009	0.012	0.038	0.059	-0.058
	(-0.17)	(-0.20)	(0.21)	(0.83)	(1.06)	(-1.22)
pref8	-0.050	-0.034	0.041	-0.038	0.019	0.033
	(-1.32)	(-0.89)	(0.86)	(-0.98)	(0.41)	(0.90)
pref_increasing-block_water	0.131	-0.113	-0.088			
	(1.63)	(-1.23)	(-0.78)			
pref_two-part_water	-0.092	0.089	-0.062			
	(-1.18)	(1.12)	(-0.57)			
pref_linear_water	-0.159*	-0.188**	0.356***			
	(-1.95)	(-2.24)	(3.55)			
pref_increasing-block_elec				0.107	-0.136	0.033
				(1.29)	(-1.30)	(0.33)
pref_two-part_elec				-0.113	0.164	-0.045
				(-1.27)	(1.64)	(-0.44)
pref_linear_elec				-0.126	-0.164*	0.333***
				(-1.58)	(-1.84)	(4.11)
Pseudo-R2	0.2508	0.1893	0.1799	0.1555	0.2743	0.4026
Obs.	237	237	237	237	237	237

Table 7 Marginal effects from probit models with incentives (part 1/2)

Dep. Var. (preference)	Linear	two-part	Increasing-block	Linear	two-part	Increasing-block
Good	Elec.	Elec.	Elec.	Water	Water	Water
Incentives	Yes	Yes	Yes	Yes	Yes	Yes
Owner	-0.053	0.004	-0.001	0.059	-0.001	-0.000
	(-0.90)	(0.07)	(-0.01)	(1.10)	(-0.01)	(-0.00)
House	0.014	-0.047	-0.010	-0.009	-0.069	0.041
	(0.16)	(-0.58)	(-0.10)	(-0.12)	(-0.74)	(0.54)
Scoreratio	0.018	0.024	-0.011	-0.014	-0.022	0.059***
	(0.96)	(1.22)	(-0.42)	(-0.71)	(-0.90)	(3.10)
Paris	0.024	0.001	0.006	0.062	0.037	-0.101**
	(0.47)	(0.02)	(0.10)	(1.24)	(0.64)	(-2.02)
nPersons	-0.006	0.020	-0.005	-0.016	-0.000	0.035*
	(-0.31)	(1.11)	(-0.20)	(-0.80)	(-0.01)	(1.92)
Age	-0.004**	-0.002	0.006***	0.002	-0.002	0.001
	(-2.42)	(-1.21)	(2.93)	(1.35)	(-0.93)	(0.79)
Gender	0.056	-0.042	-0.006	0.028	-0.017	-0.052
	(1.07)	(-0.89)	(-0.10)	(0.59)	(-0.29)	(-1.01)
Income	0.000	-0.000	-0.000	-0.000	0.000	0.000
	(1.44)	(-0.09)	(-0.84)	(-1.58)	(1.51)	(0.02)
pref11	0.007	0.014	-0.004	-0.071***	0.012	0.089***
	(0.35)	(0.58)	(-0.15)	(-3.93)	(0.50)	(4.40)
pref12	-0.016	-0.008	0.015	0.005	0.041	-0.053**
	(-0.58)	(-0.30)	(0.48)	(0.20)	(1.21)	(-2.08)
pref13	-0.070*	0.067*	0.018	0.118***	-0.065	-0.077**
	(-1.75)	(1.74)	(0.40)	(2.76)	(-1.45)	(-2.51)
pref2	0.034	0.025	-0.076	-0.092	0.129*	-0.141***
	(0.62)	(0.50)	(-1.12)	(-1.47)	(1.89)	(-2.71)
pref3	-0.075	-0.002	0.015	0.071	-0.045	-0.019
	(-1.63)	(-0.03)	(0.22)	(1.34)	(-0.78)	(-0.36)
pref41	0.034	-0.026	0.036	0.055	-0.083*	0.093**
	(0.64)	(-0.65)	(0.72)	(1.48)	(-1.77)	(2.52)
pref42	0.005	-0.138**	0.045	0.025	-0.034	0.051
	(0.11)	(-2.49)	(0.69)	(0.55)	(-0.55)	(0.87)
pref43	0.021	0.032	-0.034	0.050	-0.049	-0.043
	(0.62)	(1.01)	(-0.76)	(1.25)	(-1.15)	(-1.23)
pref51	-0.065	0.020	0.049	-0.014	0.085*	-0.116***
	(-1.29)	(0.46)	(0.94)	(-0.37)	(1.77)	(-3.24)
pref52	-0.088	0.265***	-0.023	-0.045	-0.049	0.065
	(-1.64)	(2.79)	(-0.34)	(-0.88)	(-0.80)	(1.02)
pref53	0.059	-0.013	-0.013	-0.049	0.114**	-0.005
	(1.40)	(-0.31)	(-0.26)	(-1.18)	(2.24)	(-0.12)
pref6	0.028	-0.041	-0.045	0.012	0.003	-0.035
	(0.62)	(-1.05)	(-0.89)	(0.30)	(0.07)	(-0.76)
pref7	-0.070*	0.060	0.022	-0.042	-0.007	0.114**
	(-1.66)	(1.35)	(0.42)	(-1.06)	(-0.14)	(2.25)
pref8	0.188***	-0.036	-0.093**	-0.033	-0.093**	0.113**
	(4.21)	(-1.09)	(-2.31)	(-1.03)	(-2.25)	(2.56)
Pseudo-R2	0.2865	0.2982	0.2228	0.3345	0.2633	0.4026
Obs.	237	237	237	237	237	237

Table 8 Marginal effects from probit models with incentives (part 2/2)

Dep. Var. (preference)	Linear	two-part	Increasing-block	Linear	two-part	Increasing-block
Good	Elec.	Elec.	Elec.	Elec.	Elec.	Elec.
Incentives	Yes	Yes	Yes	Yes	Yes	Yes
pref_increasing-block_elec	0.228**	-0.154*	0.040	0.080	-0.012	-0.006
	(2.54)	(-1.88)	(0.38)	(0.75)	(-0.11)	(-0.07)
pref_two-part_elec	0.030	0.091	-0.164	0.101	-0.051	0.005
	(0.30)	(1.18)	(-1.48)	(0.94)	(-0.47)	(0.05)
pref_linear_elec	0.049	-0.157**	0.204**	0.042	-0.006	0.028
	(0.56)	(-2.10)	(2.10)	(0.40)	(-0.06)	(0.32)
pref_linear_water	-0.023	0.043	0.084	0.018	0.088	-0.137*
	(-0.30)	(0.50)	(0.79)	(0.23)	(0.82)	(-1.73)
pref_two-part_water	-0.054	0.121	0.088	-0.047	0.356***	-0.420***
	(-0.67)	(1.39)	(0.80)	(-0.61)	(3.72)	(-5.51)
pref_increasing-block_water	0.003	0.049	0.078	0.142*	0.091	-0.290***
	(0.04)	(0.51)	(0.69)	(1.84)	(0.90)	(-3.16)
pref_increasing-block_water_p2	0.228***	-0.071	-0.272***			
	(2.61)	(-0.83)	(-2.69)			
pref_two-part_water_p2	-0.065	0.130*	-0.143			
	(-0.69)	(1.67)	(-1.45)			
pref_linear_water_p2	-0.086	-0.031	0.089			
	(-0.86)	(-0.32)	(0.85)			
pref_increasing-block_elec_p2				0.158*	-0.172	-0.072
				(1.84)	(-1.61)	(-0.81)
pref_two-part_elec_p2				-0.101	0.110	-0.017
				(-1.06)	(1.09)	(-0.21)
pref_linear_elec_p2				-0.097	-0.110	0.143*
				(-1.11)	(-1.15)	(1.80)
Pseudo-R2	0.2865	0.2982	0.2228	0.3345	0.2633	0.4026
Obs.	237	237	237	237	237	237