Not All About the Money: Service Quality Information Improves Consumer Decision-Making[*]

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Abstract

Information asymmetries are pervasive in many industries and can result in large losses in consumer welfare. Does providing product quality information result in improved consumer decision-making? We study this question in a market where quality is notoriously hard to determine ex ante: the residential energy market. Using a discrete choice experiment (N=1,002), we document a substantial willingness-to-pay (37 − 45% of the median bill) for four service quality attributes (transparency, agency, authenticity, and convenience). In an incentivized search task (N=432), we show that *how* quality information is presented matters: consumers who view information in the form of ratings and stamps of approval are (i) 4% more likely to opt in to the search task, and (ii) 20% more likely to correctly identify given levels of quality, relative to consumers who are provided with bar graphs, pie charts, and text. Finally, using a decision experiment (N=510) with real company names familiar to our participants, we find that the provision of quality information increases choices of the best-rated company more than 20-fold, relative to the control scenario where quality information is absent, in which consumers select companies predominantly on price and brand awareness. Our findings are applicable to other markets in which information asymmetries are present, where policymakers should consider interventions that promote transparency and quality information provision.

Keywords: Energy Markets, Service Quality Attributes, Decision-Making, Presentation of Information, Informed Decisions

JEL: D12, D18, D83, M31

1 Introduction

The availability of complete information is a crucial determinant of market efficiency. Complete information enables consumers to make informed decisions, considering various price and non-price features of products and services based on their preferences. However, when key information is absent, consumers often choose sub-optimally (Yoo & Sarin, 2018), which reduces consumer welfare. Consequently, consumers engage in search activities, such as reading online reviews or seeking opinions from their social networks, to navigate the marketplace. However, even simple search tasks, such as gathering and processing objective information like prices or comparable products, come at a cost (Stigler, 1961). For more complex search tasks, cognitive limitations (Camerer, 1998) and behavioral biases, such as inattention or aversion to cognitive effort (Ergin & Sarver, 2010; Ortoleva, 2013), create additional obstacles for consumers in resolving the ambiguities and uncertainties arising from incomplete information. Consequently, consumers often default to status quo choices (Hortaçsu et al., 2017), failing to fully benefit from the competitive dynamics that markets are expected to generate.

The challenges posed by incomplete information are particularly acute where product quality is hard to ascertain *ex ante,* which can create incentives for unethical behavior by producers.[1] Asymmetric information can reduce competitive pressure on organizations, inhibiting incentives to pursue product improvements or cost reductions (Chioveanu & Zhou, 2013; Yoo & Sarin, 2018). Thus, when consumers lack access to information about service quality, high-quality providers struggle to differentiate themselves, while entrenched lower-quality providers can evade scrutiny (Yoo & Sarin, 2018). In fact, research has revealed that firms have the incentive to impede competition by deliberately introducing complexity into their offerings, such as through add-ons, and by withholding relevant information to increase consumers' search costs (Carlin, 2009; Spiegler, 2006; Brown, Hossain, & Morgan, 2010; Chioveanu & Zhou, 2013; Ellison & Wolitzky, 2012). This obfuscation and lack of transparency make it challenging for consumers to evaluate and compare products and services, resulting in reduced consumer welfare, higher prices, and increased ambiguity in determining product quality (Fehr & Wu, 2023).

This paper examines the role of service quality information in decision-making within the energy market of Victoria, Australia. The energy market in Victoria underwent deregulation in 2002, transitioning from a state monopoly to a competitive landscape (Essential Services Commission, 2013). The primary aim of this deregulation was to foster increased competition among energy providers. However, the reality has fallen short of expectations, as highlighted by the independent Thwaites Review, which deemed the deregulation efforts a failure due to widespread obfuscatory practices among retailers (Redrup, 2017). This pattern of obfuscation is not unique to Victoria but instead appears to be a pervasive issue in utility markets worldwide (Edelman Trust Barometer, 2021). Dissatisfaction among consumers with the functioning of utility markets suggests that enhanced information provision can potentially yield positive welfare effects (Hortaçsu et al., 2017).

Against this backdrop, this paper aims to achieve three key objectives. First, we identify the specific service quality attributes that are important to consumers. Second, we estimate economic valuations associated with these attributes, shedding light on their relative significance in decision-

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[1] Where quality is hard to ascertain but investment in quality by firms is observable to consumers, markets may deliver high-quality products (Belleflamme & Peitz, 2014; Kawai, 2015). But investment in quality is often hard to ascertain, which is true in a wide range of markets, including energy.

making processes. Third, we investigate whether the presentation format of information pertaining to these attributes influences consumer engagement and choices during search tasks and market interactions. The retail energy market serves as an ideal testing ground for our research questions due to its intended competitive nature, the presence of price and product quality variation, and the limited accessibility of information. Additionally, the complexity of products offered in this market, such as time-of-day discounts, introductory offers, and waiting times, further accentuates the relevance and applicability of our study.

We focus on four key attributes of product quality which we derived from interviews with participants in the Victorian retail energy market. The first attribute, *transparency*, measures the extent to which energy retailers communicate charges, plans, and profit details to their customers in a clear and transparent manner. The second, *agency*, assesses the degree to which energy retailers empower customers to take control, make informed decisions, and monitor their energy usage. *Convenience*, our third attribute, evaluates the ease with which customers can obtain the necessary information and resolve any issues with energy retailers. Finally, *authenticity* measures the degree to which consumers can build a professional relationship with retailers based on mutual understanding and respect.

Next, we use a discrete choice experiment to quantify the value consumers place on these service quality attributes. Our findings demonstrate that consumers exhibit a willingness to pay of 37-45% of the median quarterly bill for the largest possible improvements across all four service quality attributes. This valuation highlights the importance consumers attach to enhancing these attributes and underscores the potential impact of service quality information on consumer decision-making.

Then, using a search task and a decision experiment, we delve into the presentation of information and its influence on consumer search behaviour and choice outcomes. In the search task experiment, we show that when consumers are presented with service quality information in their preferred format, such as ratings, rankings, or stamps of approval, as opposed to raw data, they are 4% more likely to engage in the search process and 20% more likely to correctly identify higher-quality retailers. This suggests that aligning the information presentation with consumers' preferences enhances their decision-making capabilities.

Building upon these insights, in the decision experiment, we explore the impact of service quality information by randomizing the provision of information to our participants. Our findings reveal that in the absence of service quality information, consumers tend to opt for the cheapest offer or select providers based on brand awareness. However, when service quality information is made available, consumers exhibit a preference for the option offering the highest service quality. When quality information is present, consumers are more than 23 times more likely to pick the highest-quality provider. These results emphasize the crucial role of service quality information in shaping consumer decisions.

In summary, our research demonstrates that consumers value service quality information. Moreover, the manner in which service quality information is presented exerts a clear influence on the search process, aiding consumers in identifying the most suitable retailer, and ultimately affecting the decisions they make.

As highlighted by Longstaff and Whitaker (2018, p. 4), "individuals and organisations will find it difficult (if not impossible) to operate effectively if they do not enjoy the trust and confidence of the community in which they are located". Our research findings provide valuable insights into creating an environment where market deregulation can genuinely promote competition that benefits consumers. By equipping consumers with service quality information, our approach fosters a dynamic

market where competition is driven by consumer choices, and contributes to the ongoing discourse on market efficiency, consumer welfare, and the role of information in shaping competitive environments.

2 Contributions and Related Literature

2.1 Contributions

In markets with homogeneous products, relatively inelastic demand, and widespread obfuscatory behavior by firms (Uddin et al., 2021; Burke & Abayasekara, 2018; Balarama et al., 2020; Tyers et al., 2019), understanding the impact of service quality information on consumer choices is of utmost importance. Examining the effects of service quality information holds significant economic implications, both at the micro-level by reducing search costs for consumers, and at the macro-level by incentivizing firms to compete based on quality attributes, ultimately enhancing overall consumer welfare. This paper makes three key contributions to this literature.

First, we establish that consumers heavily rely on information concerning service quality attributes and demonstrate a significant willingness to pay for such attributes. Thus, ensuring that consumers have easy access to relevant and easily comprehensible information is imperative for informed decision-making. Our research underscores the critical role of information presentation in effectively utilizing service quality information. By identifying consumers' preferred presentation formats, we mitigate decision errors and enable choices that align more closely with their preferences. In doing so, we contribute to the literature on the impact of service quality information on consumer choices, which has been explored in various domains, including health (Beaulieu, 2002; Scanlon et al., 2002; Darden & McCarthy, 2015), food choices (Nikolova & Inman, 2015; Carlsson et al., 2022), and energy consumption (Newell & Siikamäki, 2014; Kallbekken et al., 2013). While previous studies aim to induce behaviour change through information provision linked to cost efficiency or social acceptability (Allcott & Rogers, 2014; Alcott, 2011; Brent et al., 2015; Ferraro et al., 2011; Burkhardt et al., 2019), our objective is to equip individuals with relevant information to make better decisions. Indeed, informing and educating consumers enhances their engagement with decisions and empowers them to make better choices for themselves (Rundle-Thiele, Paladino & Apostol, 2008; Boogen et al., 2022), aligning with the objectives of policymakers (informed decision-making) and addressing consumer needs (transparency and agency).

Second, we contribute to the literature on the valuation of product/service quality in energy markets, specifically. Existing research has primarily focused on two dimensions of service that consumers value. The first dimension pertains to service disruptions, where consumers are willing to pay higher bills for a reduction in disruptions (Carlsson & Martinsson, 2008; Abdullah & Mariel, 2010; Amador et al., 2013). The second dimension relates to the use of greener technologies, with consumers demonstrating a willingness to pay more for suppliers employing environmentally friendly generation processes (Goett et al., 2000; Sundt & Rehdanz, 2015; Kalkbrenner et al., 2017). In contrast to these studies, our research identifies and emphasizes the significance of transparency, agency, authenticity, and convenience as the service quality attributes prevalent in this market, as derived from our interviews with market participants. Our findings highlight the importance of conducting in-depth interactions with consumers, placing them at the forefront of the research process. Subsequently, our quantitative studies validate the interview findings by demonstrating a high

willingness to pay for the identified attributes. Our findings provide impetus for policy interventions or retailer-driven provision of information aimed at enhancing consumer welfare.

Third, this research contributes to the literature on comparison sites by (i) highlighting the importance of incorporating information about service quality attributes and (ii) uncovering the most effective ways to present such information. Traditionally, research on comparison sites has focused on the role of commercial comparison sites (Uddin et al., 2021; Baye & Morgan, 2001; Moraga-González & Wildenbeest, 2008; Ronayne & Taylor, 2018). These commercial sites charge fees to firms advertising on them and/or consumers using them. In contrast, government-initiated comparison sites (e.g., Uddin et al., 2021) do not charge access fees for consumers or firms and may even offer monetary incentives to users. We believe both types of comparison sites can benefit from the insights uncovered in this paper, particularly regarding the presentation of service quality attributes through ratings, rankings, or stamps of approval. In the energy market, accessible information about the service quality of providers is likely an essential ingredient for fostering competitive pressure.

2.2 Relationship to the Service Quality Literature

A large stream of services research, beginning with Zeithaml et al. (1988), has concluded that service quality is typically measured by the following five dimensions: (i) *Tangibility* (the appearance of physical facilities, equipment, and personnel); (2) *Reliability* (the ability to perform the promised service dependably and accurately); (3) *Responsiveness* (the willingness to help customers and provide prompt service); (4) *Assurance* (the knowledge and courtesy of employees and their ability to convey trust and confidence); and (5) *Empathy* (the caring, individualized attention the firm provides its customers).

The service quality attributes we document in this paper are closely related to the Zeithaml et al. (1988) classification. *Reliability* is conceptually close to what we term *convenience*, while *assurance* and *empathy* coincide with our *authenticity* attribute. *Tangibility*, on the other hand, resembles our *transparency* attribute. While there is some overlap between these service quality attributes (e.g. authenticity arguably captures assurance and empathy; convenience arguably captures both responsiveness and reliability), we also note that agency is found to be important by consumers. Indeed, recent research in services marketing has evolved into taking a strength-based approach to helping consumers make decisions. Instead of focusing on vulnerabilities and weaknesses, interventions or communications are about acknowledging and harnessing the strengths of consumers in making decisions and the "development of collaborative relationships that instil hope and build strength" (Russell-Bennet et al., 2023). *Agency*, in combination with the other attributes, allows consumers to make up their own minds, and empowers them to make better choices for themselves, rather than being told how to make choices, or having choices made for them.

In this research, we provide consumers with information on service quality that they need, in the way that they prefer to see it, to be able to make better decisions for themselves. The services research literature specifically looking at the provision of information describes different factors that influence the quality of information provided. For example, in tele-retail, Lim et al. (2012) find that higher telepresence, screening capability, and channel trustworthiness, and lower cognitive overhead positively influence perceived information quality. Rachmawati et al. (2020) note that information provided should be accurate, timely, relevant, complete, and uncertainty-reducing. Our research focuses on *how* this information should be provided to facilitate decision-making. For example, we used a ranking format in line with consumers' needs, and informed the actual ranks using real data,

for real brands, based on accurate metrics and data. As a result, we produce a prototype of an intervention, tested in the final decision experiment, that provides the service quality information that consumers want, and how they want it.

3 Interviews

3.1 Background

To determine the service quality attributes that consumers value in the specific energy market we were studying, we conducted in-depth interviews with 16 market participants. These interviews were conducted using a semi-structured approach and the "why-how" laddering technique (Hinkle, 1965; see link in Appendix A for the complete interview protocol), which has been validated in various research settings (Rugg & McGeorge, 1995). The "why" questions helped us uncover the underlying concerns and needs that consumers aim to fulfill during their decision-making process, such as the need for security or trust. The "how" questions allowed us to translate these abstract needs into concrete ways in which an independent party, like a comparison website, could assist consumers in assessing whether energy retailers met their needs. This approach enabled us to identify operationalizable service quality attributes that consumers value, such as transparency in meeting the need for security.

The interview method enables deep insights to be captured, employing a "why-how" soft-laddering approach (means-end-chain) which is particularly useful for eliciting goals and underlying values using means-end structures in the interviewee's memory. By adopting a semi-structured technique that allows participants more freedom of expression, the interviews balance exploring the research questions and themes to be addressed in the study alongside participants' memories and reflections on their experiences. Our approach to the interviews is based on the theoretical idea (that product and service attributes are associated not only with consequences, or product benefits and risks, but also with the personal values the service can help consumers fulfill. The result is a value chain linking an attribute to its functional consequence, to the psychosocial (or emotional) consequence, and to the underlying personal value. It allows for gaining insights into consumers' actual underlying needs (e.g., transparency), rather than superficial wants (e.g. cheaper).

3.2 Sample and Procedure

The interviews began by providing participants with some general background about the study and asking for their informed consent. We then sought to understand their household structure (how many members, ages, and relationships between members). Next, we asked the participants why and how they chose their current energy provider(s). At this stage of the interview, we used why-laddering: for example, if the participant relied on a recommendation from a real estate agent, we asked why they did so. Continuing to why-ladder might bring the conversation, for example, to a point where the participant tells us that they are time-poor. The next stage delved into consumer needs, service attributes, and the interaction between the two. For example: a participant may be time-poor because they prefer to prioritize another need, such as spending time with family. How does this translate into a desired service attribute? Here, we asked participants to indicate, in conceptual terms, how an energy company might provide a service that can help them fulfill a particular need. They might for

example say that they want to be provided only with information that is relevant to them. Finally, in terms of the interaction between needs and attributes, we asked participants to indicate, in concrete terms, how their needs might be met by energy companies. For example, they might say that an energy company that informs them that their waiting times on the phone are shorter than the industry average, would help them meet their need to safeguard their family time.

Our participants were first recruited through convenience sampling from the researchers' networks and a call put out by our research partner, the Consumer Policy Research Centre (CPRC), a leading consumer affairs research institute in the state of Victoria, Australia. We then utilized a snowball sampling approach to expand our participant pool. The final sample consisted of eight women and eight men, with 11 of them having switched energy providers in the last five years. Appendix B provides a summary of interview participant demographics.

The interviews were transcribed verbatim and initially coded for all aspects related to service quality. The resulting codes were further categorized into first-order categories under the overarching theme of "service quality attributes" (Corley & Gioia, 2004; Gioia et al., 2013). When we analyzed the data, we also identified references to distinct decision-making styles among the interviewees. We coded any mentions of decision-making approaches, including information search behaviour, and found that these codes can be grouped into two distinct themes in terms of decision styles: rational information seekers and opinion seekers. Iterative discussions among the researchers were conducted to ensure agreement on the categorization of codes. We provide a more detailed description of each theme below, and Appendix C presents a table with quotes supporting the identified themes.

3.3 Results

3.3.1 Service Quality Attributes

We identified four service quality attributes that are important for consumers to be able to fulfil particular needs and/or concerns in their choice of energy retailers. These are discussed below. Appendix C, Table C1 presents the main quotes for each of the four service quality attributes.

Transparency. One crucial service quality attribute that emerged from our interviews is transparency. Consumers express a strong desire for transparency, particularly in relation to trust. They perceive the energy industry as lacking trustworthiness, with companies intentionally confusing and withholding information from consumers to maximize their profits. To address this concern, consumers emphasize the importance of understanding how energy retailers generate profits and the presence of any hidden charges that may contribute to higher-than-expected bills. With transparent information, consumers can make informed decisions and assess whether their energy provider aligns with their expectations.

Agency. Another important attribute that emerged from our interviews is agency, which refers to consumers' ownership of the decision-making process. Consumers value having control over their choices and dislike feeling that decisions are taken out of their hands. This attribute is distinct from transparency, as it focuses on consumers' confidence in their decision-making abilities and their desire to be in charge of their own fate. Consumers want to be actively involved in the decision-making process and to have the freedom to explore options independently. They are bothered by cold calling and feel that such approaches restrict their agency by not providing them with the desired information

to make informed decisions. Instead, they want the flexibility to assess deals and compare offers on their own terms.

Convenience refers to the time and effort consumers invest in understanding their bills, rates, and resolving any issues they encounter with their energy provider. Consumers value a streamlined and efficient experience that minimizes the time and steps required to address their concerns. They want clear and straightforward information that is easy to understand, allowing them to quickly grasp the details of their energy usage and charges. Additionally, the speed at which issues are resolved is a crucial factor. Consumers appreciate a prompt resolution with minimal effort on their part. If an issue can be resolved in a single phone call, it significantly enhances convenience. Consumers also desire continuity and personalized service when interacting with their energy provider. They appreciate dealing with the same customer service representative who is familiar with their previous conversations and can efficiently address their concerns. Furthermore, convenience extends to the ease of switching energy providers. Consumers value a straightforward and hassle-free process when joining a new provider. They appreciate a seamless transition where the provider takes care of transferring the account, minimizing the need for additional steps on their part.

Authenticity. The attribute of authenticity pertains to the desire of consumers to establish a genuine and respectful relationship with their energy retailer. Consumers value a connection that goes beyond the product or service itself and is rooted in mutual understanding and respect. They seek retailers who treat them as individuals and engage in conversations on equal terms, demonstrating an authentic commitment to meeting their needs. Consumers appreciate being heard and understood, with conversations conducted at eye level. They value retailers who take the time to listen to their concerns, consider their individual circumstances, and provide tailored solutions. This mutual understanding and respect foster a sense of authenticity in the relationship. Consumers appreciate retailers who have integrity, deliver on their commitments, and treat consumers fairly.

3.3.2 Decision-Making Styles

We found two different decision-making styles to be prevalent among our participants. The ***rational information seeker*** makes decisions by weighing off many options, collecting data and information online, and creating spreadsheets. This decision style is intentional, analytic, relatively slow, rule-governed, and logically defensible, akin to Tversky and Kahneman's (1974) System II. Some participants explicitly described their own data gathering process: *"It was probably April this year, when I had done my re-evaluations, and I do a spreadsheet up, so I can compare all of the offers that are out there;"* or as a another participant indicated, *"so far what I've used is basically I've got one sheet for gas, one sheet for electricity, and I've got another sheet that will take the combined and basically gives me how much of a difference or how much of a saving it can make on the expenses based on my past consumption."*

In contrast, the ***opinion seeker*** makes decisions by seeking and following opinion leaders' advice. They ask for others' opinions, use peer reviews, and/or listen to their friends' and family's opinions or expert opinions. Participants highlighted the use of other people's opinions as follows: *"I guess I generally go on other people like my friends. People whom I trust or know and their experiences"*, or *"I just want to see what experiences they've had with the product. Because then, if majority of that is good, then I guess the quality must be good, if a lot of people are satisfied with it."*

Our findings are in line with prior research showing how decision-making does not only depend on task and environmental factors but also on characteristics of the decision maker (Hamilton

et al., 2016). Some individuals adopt a systematic and cognitive approach, while others act in a more affective and less systematic way (Hamilton et al., 2016). Additionally, consumers employ different types of informational sources on which to base their decisions (e.g., Hamilton et al., 2016; Flynn et al., 1996). For instance, Flynn et al. suggest that "consumers appear to trust the opinions of others more than they do formal marketer-dominated sources of information such as advertising, and they use interpersonal sources to reduce risk" (1996, p. 137). In contrast, the rational decision-making style explored by Hamilton et al. (2016) highlights the need to weigh off many options based on different facts and information. As discussed above, we find these two different approaches in our data as well, with some of our participants placing more importance on relatively subjective data in the form of opinions from other consumers or experts, and others preferring more objective information in the form of statistics and numbers as a basis for decision-making.

4 Discrete Choice Experiment

4.1 Background

To understand the value that consumers place on service attributes and their willingness to pay for each attribute, we conducted a discrete choice experiment (DCE). The DCE methodology, a well-established and widely used empirical approach, offers valuable insights into individuals' decision-making processes. In a DCE, participants are presented with choices involving goods or services characterized by multiple attributes. The core aim of a DCE is to assess the relative importance individuals place on different attributes by examining their willingness to trade one attribute for another. To capture this information, participants are presented with a series of choice sets, each consisting of several alternatives defined by various attribute levels.

4.2 Sample and Procedure

Our DCE sample consists of a total of N = 1,002 participants.[2] To ensure eligibility, participants were required to meet the following criteria: (i) be at least 18 years old; (ii) hold the primary or joint role of financial decision maker in their household; (iii) reside in a dual (gas and electricity) household; and (iv) live in the state of Victoria, Australia.[3]

In our study, participants were asked to pick one of two energy plans with varying attribute levels. Each plan consisted of three levels (Low, Medium and High) for the price as well as for each

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[2] Recruitment of participants was outsourced to the company QRS, a partner approved by the RMIT Ethics board. Participants are paid by QRS as previously agreed between them. QRS participants receive a small incentive for participation. For example, on behalf of participants, QRS donates money to charities. Other rewards include sweepstakes, points, gift cards, prizes such as digital cameras and music downloads and cash payments. In order not to introduce bias, QRS uses a reasonable level of reward based on how much effort is required to complete the study, the population being surveyed, and the study topic. This incentive is small in order to recruit participants who are inherently motivated to participate in research and not monetarily motivated. The researchers did not pay the participants directly, nor deal directly with them, other than through the survey itself. The DCE took on average 18 minutes to complete.

[3] Across all the studies we conducted, our samples are fairly representative of the target population (i.e. adults in the state of Victoria), with manual workers / adults with low levels of formal education slightly underrepresented. Summary demographics are shown in Appendix D.

service quality attribute (transparency, agency, convenience, and authenticity) associated with the plan. [4] Definitions of these attributes can be found in Table 1.

To ensure participants have a clear understanding of attribute levels, the DCE literature recommends providing concrete examples. Therefore, we operationalized the Low, Medium, and High levels for each attribute based on specific concerns that emerged as recurrent themes in our interviews with market participants. Detailed information on the attribute levels presented to participants can be found in Appendix E.

Table 1. Discrete choice experiment: Attribute definitions.

Attribute	Definition
Price	The amount of money a 3-person Victorian household pays for energy (electricity and gas combined), over a 3-month period, after discounts.
Transparency	The degree to which energy retailers are clear and transparent in their communications to you, in terms of providing information on charges and plans, and how they actually make their profits.
Agency	The degree to which energy retailers enable you to take control and make your own decisions (for e.g. to remain, switch, or change energy plans) and monitor your own energy usage behaviour.
Convenience	The degree to which energy retailers make it easy and workable for you to resolve issues or obtain information you need.
Authenticity	The degree to which you can build a professional relationship with energy retailers that is based on an understanding of your circumstances and mutual respect.

Given that each plan consisted of 5 attributes with 3 levels each, there were 3^5 = 243 distinct plans in total. Comparing each plan to the 242 other plans is unnecessary, since some plans strictly dominate others (i.e., a cheaper plan with higher levels of all service quality attributes strictly dominates a more expensive plan with worse service quality). To reduce the number of choice sets, we employed an orthogonal design using the Federov algorithm, which yielded 28 choice sets. This approach ensures that there is no pairwise correlation between two attributes and limited correlation between levels of attributes, while maintaining efficiency (Aizaki & Nishimura, 2008).

To maximize participant engagement and minimize cognitive fatigue, we limited the number of choices each participant made to seven. Research by Bech et al. (2011) has demonstrated the

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[4] Medium, Low, and High prices in our DCE correspond to the median, 10th percentile, and 90th percentile of the distribution of quarterly energy bills for the average consumption per household as of November 9, 2018, shortly before our DCE was launched. Specifically, we first obtained average residential consumption figures for electricity (4,000 kWh / year) and gas (54.4 GJ / year) from the relevant regulator (Essential Services Commission, 2018). Then, we used these figures as inputs on the Victoria Energy Compare website, which is operated by the Victorian state government, in order to determine the distribution of energy bills for the average household.

impact of response variance when comparing a smaller number of choices (e.g., five) to a larger number (e.g., 17) per participant. The choice sets, as depicted in Figure 1, consisted of two options labelled Plan A and Plan B. By analyzing the responses from the DCE, we can examine if higher levels of a specific attribute systematically influence the likelihood of selecting a particular plan.

	Plan A	Plan B
Price	High ($715)	Low ($545)
Transparency	Medium	Medium
Agency	High	Low
Convenience	Medium	Medium
Authenticity	High	Medium

Figure 1. Example of a choice set.

4.3 Results and Discussion

To determine whether consumers value the service quality attributes from Table 1, we estimate fixed effects conditional logit models (McFadden 1974) of the form:

$$\Pr(Y_i = j) = \Phi\left[\sigma_i + price_j + Agency_j + Transparency_j + Convenience_j + Authenticity_j + \epsilon_{ij}\right]$$

where the dependent variable $\Pr(Y_i = j)$ is a dummy variable equal to 1 if individual *i* chooses option *j*, and 0 otherwise, Φ is the cumulative distribution function of the logistic distribution, and ϵ is the error term. Thus, $Pr(Yi = j)$ is the probability that individual *i* chooses option *j*. On the right-hand side, the explanatory variables are the attributes of plan *j* (price, agency, transparency, convenience, and authenticity), as well as a full set of respondent fixed effects σ_i, which allow us to absorb unobserved heterogeneity between respondents. Thus, we are able to estimate the effect of each key attribute on choice, while accounting for potential differences between decision-makers. We can therefore identify the effect of each attribute on the probability of choosing a plan, and calculate the willingness to pay for the attributes. We cluster standard errors over respondents.

Figure 2 displays the odds ratios (ORs) for each of the five attributes. The dependent variable is the probability of choosing a plan one-unit better along a given attribute (ceteris paribus), such that an OR of 1.50 for transparency indicates that a one-unit increase in transparency results in a 50% increase in the probability of choosing an otherwise identical plan. All five attributes have positive (OR > 1) and statistically significant effects, with ORs ranging from 1.30 for authenticity to 2.26 for price.
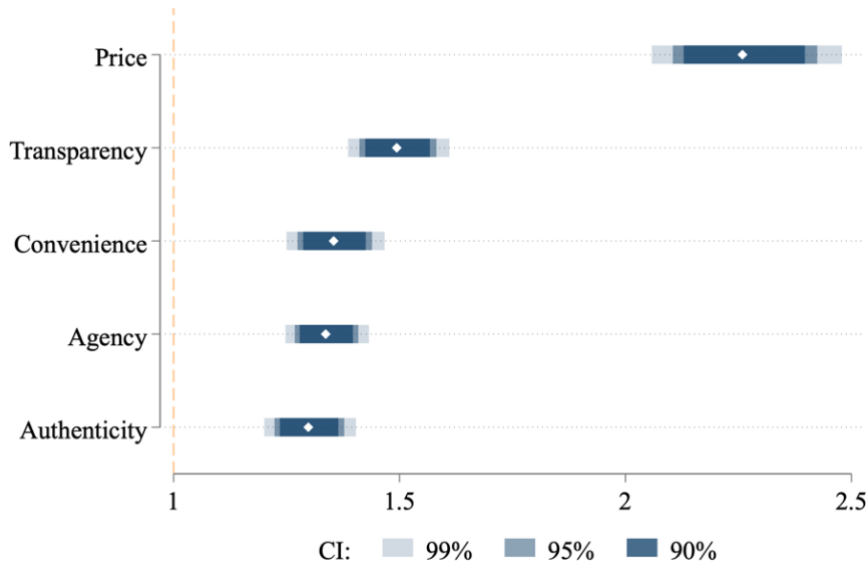
Figure 2. Discrete choice experiment: Odds ratios of service quality attributes.

DV: probability of choosing a plan. CI: confidence interval. Standard errors clustered over respondents.

Note: the dependent variable is the probability of choosing a plan one-unit better along a given attribute, holding other attributes constant. For example, the central estimate for transparency indicates that out of two otherwise identical plans, Plan A (with medium transparency) is 1.5 times more likely to be chosen than Plan B (low transparency).

Willingness to Pay (WTP). A key feature of DCE approaches is that they allow us to estimate a willingness to pay for each non-monetary attribute. The WTP is the marginal rate of substitution between price and a given quality attribute, and is calculated by dividing the coefficient of each non-monetary attribute by the normalized coefficient of price ($WTP_{attribute} = \frac{\hat{\beta}_{attribute}}{\hat{\beta}_{price}/85}$). It is necessary to first divide the coefficient of price by 85, since the step change between our low, medium and high price levels is $85 (the levels are $545, $630, and $715 respectively). Table 2 reveals interesting findings: consumers are willing to pay the most for transparency (AU$42 per quarter for a 3-person household), followed by convenience (AU$32), agency (AU$30), and authenticity (AU$27). These amounts are meaningful: for a change from the lowest to the highest quality across all attributes, customers are willing to pay AU$262 (approximately USD$164) more per quarter, which is 42% of the median quarterly bill for a 3-person household (AU$630 approximately). It is evident that service quality holds substantial importance for consumers. In order to quantify the uncertainty around our WTP estimates, Table 2 also reports WTP figures calculated by replacing the point estimates $\hat{\beta}_{attribute}$ and $\hat{\beta}_{price}$ by the lower and upper bounds of their 95% confidence intervals. Based on these, we estimate that customers are willing to pay 37-45% of the median quarterly bill for improvements from low to high levels across all attributes.

Table 2. Willingness to pay for energy plan attributes. Units: Australian dollars per quarter.

Attribute	Willingness to Pay		
	Point Estimate	Lower Bound	Upper Bound
Transparency	$41.87	$39.33	$44.00
Agency	$30.26	$27.14	$32.89
Convenience	$31.62	$27.67	$34.94
Authenticity	$27.22	$23.03	$30.75
Total	$130.99	$117.18	$142.58

Decision-Making Styles. Figure 3 plots the willingness to pay for each quality attribute by decision-making style. Each colored bar extends from the lower to the upper bound as calculated in Table 2, with point estimates shown in white.[5] We define primarily information-seeking individuals (green bars) as those who score above-median on the Hamilton et al (2016) information-seeking scale *and* below-median on the Flynn et al (1996) opinion-seeking scale. Similarly, opinion-seekers (red bars) are those participants who score above-median on the Flynn et al (1996) scale *and* below-median on the Hamilton et al (2016) scale. While we are comparing two well-established decision-making profiles, an important caveat is that not all participants can be neatly allocated to only one of information-seeking and opinion-seeking decision-making styles. Some participants may be high on both or low on both. We do not include these latter groups in our analysis.

Appendix F provides a table analogous to Table 2, broken down by decision-making style. The upper and lower ends of each confidence band are calculated by replacing the point estimates for price and each attribute, in the expression $WTP = \frac{\hat{\beta}_{attribute}}{\hat{\beta}_{price}/85}$, by the top and bottom of their respective 95% CIs. We find that more information-seeking decision-makers (green bars) are somewhat more willing to pay, for all attributes, than opinion-seekers (red bars). It is also interesting to observe that the order of importance of the attributes is approximately preserved across decision-making styles, which suggests that the ordering of attributes is not driven by any particular decision-making style.[6]

To summarize, consumers value all four of our tested service quality attributes. Consumers appear to be particularly willing to pay for transparency ($42 per quarter for a 3-person household), followed by convenience ($32), agency ($30), and authenticity ($27). These results indicate that price is not the only attribute consumers evaluate when making a decision for a specific energy provider. Instead, consumers not only take information about service quality into account but are indeed willing to pay non-trivial sums for service quality.

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[5] Out of the 1,002 participants, 181 (18.1%) were primarily information-seekers and 198 (19.8%) were primarily opinion-seekers.

[6] In Appendix G, we employ an inverse probability weighting procedure to ensure our results are not driven by selection bias. Specifically, we estimate each individual's propensity to be selected into the relevant decision-making style via a logistic regression where the dependent variable is, e.g., Pr(Information Seeking), and the independent variables are demographics (age, occupation, education, and language spoken at home). We then re-estimate the WTPs for each decision-making style and attribute using the inverse estimated propensities as probability weights. The results are similar.
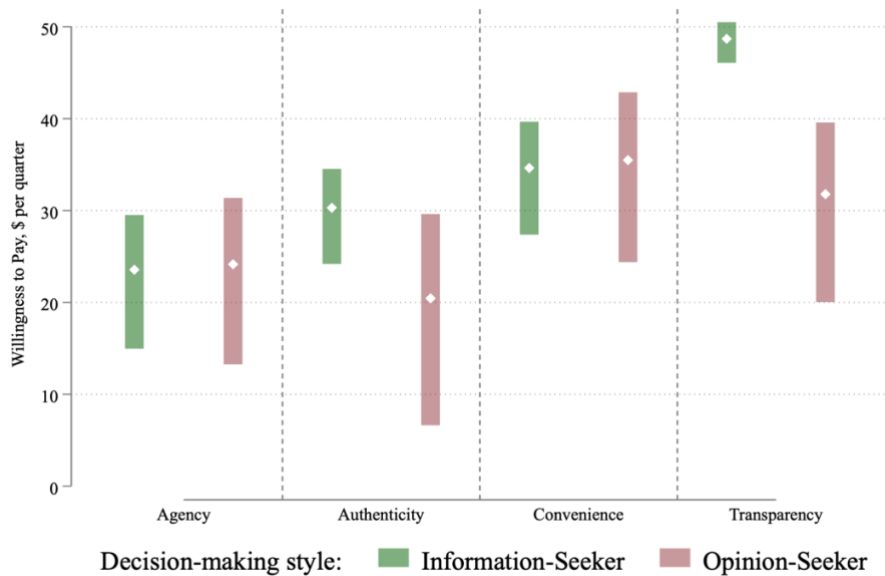
Figure 3. Willingness to pay for each quality attribute, by decision-making style.

Note: the y-axis reports the willingness to pay (WTP) in AU$ per quarter, for opinion-seekers and information-seekers, across quality attributes. The median quarterly bill for a 3-person household in the State of Victoria was equal to approximately AU$630 at the time the study was conducted.

5 Framed Field Experiment: Search Task

5.1 Background

In the DCE, our focus was on quantifying the value that energy consumers place on different service quality attributes. Building upon the insights gained from the DCE, the objective of the framed field experiment is to examine whether the presentation format of service quality information impacts consumer decision-making.

Even when service quality information is publicly available, consumers may experience welfare losses if the information is presented in ways they cannot fully understand. Extensive research has been conducted to identify the most effective ways of presenting information for decision-making purposes (Kelton et al., 2010). However, there is no universal consensus on the "best" format for information presentation, as it depends on various factors such as task complexity (Davis, 1989; Dickson et al., 1986; Kelton et al., 2010).

Given the inconclusive results in this area of research, our aim is to investigate the appropriate form of presentation for individual decision-making tasks within the context of service providers, with the goal of achieving optimal welfare outcomes for consumers. To inform the design of the framed field experiment. we conducted two pre-tests to identify the specific pieces of information that consumers require to assess the service quality attributes of transparency, agency, convenience, and authenticity (pre-test 1), as well as the preferred form of information presentation (pre-test 2).[7] In pre-test 1, *N* = 472 participants (same sampling frame as the other studies) were provided the

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[7] Both pre-tests recruited participants through QRS (see footnote 2 for more information). On average, pre-test 1 took 22 minutes to complete, and pre-test 2 took 23 minutes to complete.

definitions of each of the four attributes. For each of the four attributes, multiple pieces of information (25 for transparency, 15 for agency, 16 for convenience and 14 for authenticity) were provided and participants were asked to rate them on a 7-point Likert scale. These pieces of information were generated based on our interviews, and input from an industry expert panel consisting of members from a consumer research centre and other government/policy groups with expertise in the Victoria energy market for validity purposes. We utilized exploratory factor analyses with Varimax rotation to identify 13 pieces of information for transparency, 7 for agency, 9 for convenience, and 6 for authenticity.

In pre-test 2, participants (*N* = 552) were presented with the definition of each attribute and visual examples of the four different presentation types (as described below) before they were invited to choose the type of presentation they preferred for each piece of information identified in pre-test 1. The four presentation types that they were asked to evaluate were: 1 = "Detailed raw data and facts about the energy retailer", 2 = "Data about energy retailers presented in a bar graph or a pie chart", 3 = "Detailed written accounts from experts (such as the energy regulator/ombudsman) or detailed reviews from other energy consumers", 4 = "A rating, ranking, or a "stamp of approval" in the form of a star rating or "tick" given by the energy regulator/ombudsman or a "thumbs up" based on consumer reviews". Results indicated, irrespective of attributes, that people significantly prefer information to be presented as a rating, ranking or stamp of approval, followed by detailed written accounts from experts or consumers, and least prefer information to be presented as bar graph or pie chart. Additional details about Pre-tests 1 and 2 can be found in OSF links provided in Appendix A.

To assess whether the preferred presentation formats identified in the pre-tests result in improved decision-making, we conducted a framed field experiment. In this experiment, we employed an incentivized real-effort task to test whether the presentation format determined in the pre-tests (based on unincentivized survey responses) enabled participants to accurately identify companies with specific attribute levels. For example, participants were instructed to identify a company with both high transparency and high agency levels.

5.2 Study Design and Data

5.2.1 Search Task Experiment: Two-Treatment Between-Subject Design

Treatments. Our experiment used a two-treatment between-subject design to assess the impact of presentation format on consumers' decision-making. The two treatments (*most* and *least* preferred modes of information presentation) were determined in the pre-tests.

In the '*most preferred'* treatment, transparency information was presented using detailed raw data and facts about the energy retailer, while agency, authenticity, and convenience information pieces were presented using ratings, rankings, and stamps of approval. In the *'least preferred'* treatment, transparency information was presented in the form of text written by a regulatory body; authenticity information was shown using pie charts; while agency and convenience were presented using bar graphs. Participants were randomly assigned to one treatment only. In Appendix H, we provide instructions along with the visual presentations used in each treatment.

Task Structure and Decision-Making Process. After providing consent for participation and answering questions around demographics and selection criteria for screening, the participants were provided with a background of the study and an account of the four types of information (transparency, agency,

convenience and authenticity) relevant for the task. This was followed by a description and example of the search task (described below) along with the relevant treatment stimuli. Participants were informed that there were three rounds and that one of those rounds would be randomly chosen for bonus payment purposes. A comprehension quiz was administered before participants moved to the search tasks.

In each round, participants were asked to imagine themselves as customers in a hypothetical energy market with three energy companies. One of these companies, randomly assigned, represented their current energy provider (default). Each company had predetermined levels of transparency, agency, convenience, and authenticity, categorized as high, medium, or low. The search task entailed identifying a company from the list of three companies.

Upon reviewing the information, participants had the option to either opt-in or opt-out of the search task. Opting out meant relying on their default company for bonus payment calculations. Participants who opted to engage in the search task were required to identify the company with a specific attribute level (high, medium, or low) for each of the four service qualities, as well as the best company, which had the highest rating in all four attributes.

Incentivized Decision-Making and Bonus Payments. To ensure incentive compatibility, participants received a payment of 50 cents for each correctly identified attribute. Additionally, if participants correctly identified the best company (matching the required level in all four attributes), they received an additional 50 cents. Therefore, the total amount a participant could earn was $2.50 in Rounds 1 and 3 and $3 in Round 2, where an additional 50 cents was paid for opting in to complete the search task. We selected one of the three rounds at random for payment purposes.

Independent Rounds. Each round was independent, allowing participants to choose to engage in some rounds and opt-out of others. At the outset of the round, the participant does not specifically know which level (high, medium, or low) of the attribute they are to look for in the search task. While the companies (including the default) changed in each round, the search task remained the same. This aspect mirrors real-world situations where consumers have the flexibility to search for and switch to energy companies that align with their preferred service qualities, or choose to remain with their current provider if it is the best match.

Real-world Relevance. Our experimental design captures key elements of real-world decision-making scenarios. Participants simulate the process of using the provided information to search for an energy company that aligns with target levels of service quality. They have the freedom to decide whether to remain with their default company or switch to a better alternative. The bonus payments reflect the tangible benefits that consumers derive from successfully selecting a company that meets their preferences. Participants also have the option to opt-out of the search task, reflecting the opportunity cost of time associated with searching for alternative providers. Furthermore, an additional bonus payment (50 cents) was given in the second round for choosing to engage in the search task, mirroring policy interventions that provide flat subsidies to incentivize consumers to explore and compare energy companies, similar to the AU$50 Power Saving Bonus provided by the Victorian Energy Compare website in Australia between July 2018 and June 2020, where our participants reside.

5.2.2 Measures and Predictions

Our independent variable is the treatment variable, i.e. the effect of the most preferred presentation of service quality information, relative to the least preferred presentation. We have three dependent variables of interest.

The first dependent variable is the number of correct choices made in the search task for each service quality attribute and overall. Correct choices indicate whether consumers, after searching for information, successfully identify and select the company that corresponds to the level of service quality in the search task. We hypothesize that the most preferred presentation of information will enhance consumers' ability to make more correct choices. Thus, we predict a significantly higher number of correct choices in the *Most* treatment compared to the *Least* treatment (Hypothesis 1).

The second dependent variable is the number of opt-in choices. Opt-in choices reflect consumers' decision to actively engage in the search for the best company based on the provided information. We anticipate that the most preferred presentation of information will instil greater confidence in consumers' ability to utilize the information effectively, resulting in a higher number of opt-in choices. Consequently, we predict a significantly greater number of opt-in choices in the *Most* treatment compared to the *Least* treatment (Hypothesis 2a).

Third, we are interested in assessing the effectiveness of subsidies in promoting engagement with the task during Round 2, which encourages the search and comparison of energy companies. We expect that the provision of subsidies will lead to a higher number of opt-in choices in this round compared to the other rounds. Furthermore, comparing the opt-in rates between the second and final rounds will provide insights into what to expect when subsidies are removed. We hypothesize that once the subsidy is removed, the opt-in rate will decrease. Thus, we predict a significantly higher number of opt-in choices in the second round compared to the first and last rounds (Hypothesis 2b).

5.2.3 Sample and Procedure

A total of $N = 432$ participants were recruited for the experiment, with $N = 220$ assigned to the *Most* treatment and $N = 212$ assigned to the *Least* treatment. The sampling procedure was the same as for the DCE (see Appendix D). We find no evidence that assignment into treatment can be predicted by demographic characteristics.[8]

The experiment was conducted online, and participants were required to provide their consent before participation. Detailed instructions were provided, and participants had to answer two comprehension questions to ensure their understanding of the task. Those who passed the comprehension questions proceeded to the three rounds of the experimental search task. Upon completion of the three rounds, demographic information and attitudinal questions were collected. Average completion time was 24.5 minutes. On average, the participants received a bonus of $2.25. This was in addition to their participation fee provided by the panel provider, Qualtrics.

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[8] To test for whether demographic characteristics predicted assignment into treatment, we ran a Probit regression where the dependent variable was the assignment to treatment and the independent variables were demographic and socioeconomic characteristics (gender, employment status, education level, income level, type of job, disability status and place of residence). Using the estimated coefficients, a test for the joint effect of all independent variables on treatment assignment was carried out ($p = 0.286$).

5.3 Results and Discussion

Share of Correct Choices (H1). The most preferred mode of information provision significantly increased the share of correct choices by 12.9 percentage points compared to the least preferred mode. In the *Least* treatment, participants made a total of 1,944 correct decisions out of 2,945 (66.0%). Conversely, participants in the *Most* treatment made 2,502 correct choices out of 3,170 decisions, corresponding to 78.9% accuracy. The difference between the two conditions was highly significant using a two-tailed t-test ($p < 0.001$).

Figure 4 provides a breakdown of the percentage of correct choices by attributes, including the sub-task of identifying the best overall company. Consistent with our expectations, participants in the *Most* treatment (83.3%) outperformed those in the *Least* treatment (67.9%) in identifying the best overall company across all four attributes ($p < 0.001$, two-tailed t-test). These findings provide support for Hypothesis 1. Notably, the presentation of information on agency and authenticity using ratings or rankings in the *Most* treatment significantly improved the accuracy of choices compared to presenting the same information using bar graphs or pie charts in the *Least* treatment ($p < 0.001$ for both attributes, two-tailed t-test). For the attributes of transparency and convenience, the treatment effects were not statistically significant.
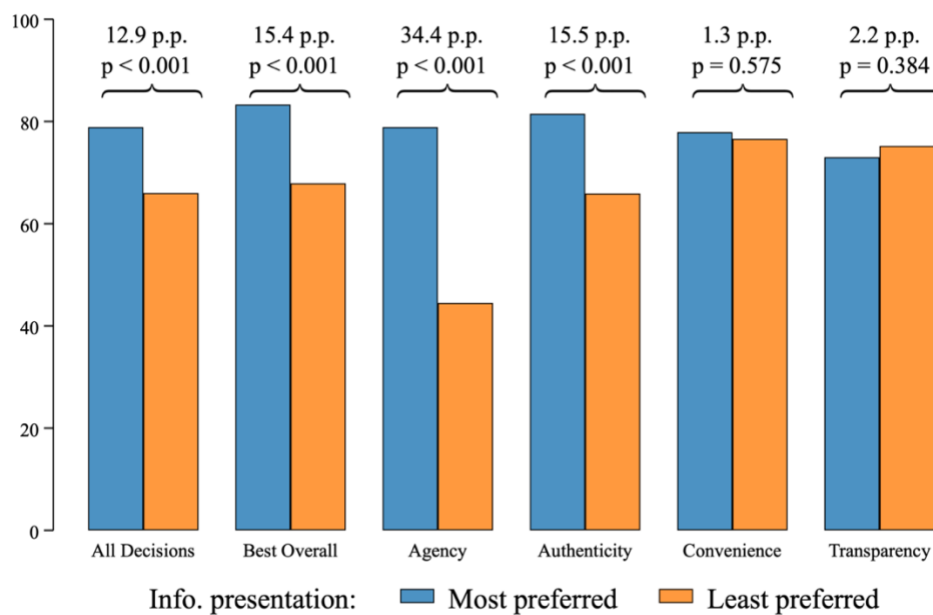
Figure 4. Percentage of correct choices by experimental treatment (*Most* vs *Least* preferred information presentation mode).
Note: the y-axis reports the frequency of correct choices corresponding to the different atributes reported in the x-axis, across treatments. p-values based on two-tailed t-tests.

Opt-in Choices (H2a & H2b). Figure 5 presents the percentage of opt-in choices made by participants, both overall and in each round, for each treatment. Consistent with our expectations, participants in the *Most* treatment (96.2%) exhibited a higher propensity to engage in the search task compared to those in the *Least* treatment (92.7%) across all three rounds ($p = 0.006$), providing support for Hypothesis 2a.

Regarding Hypothesis 2b, we anticipated that Round 2 would have higher opt-in rates than Rounds 1 and 3 due to the subsidy. However, while the point estimate for the *Most* treatment relative to the *Least* treatment was positive, we did not find statistically significant evidence to support this (p = 0.280). Consequently, our results do not validate Hypothesis 2b.

Interestingly, we did observe that the subsidy effectively encouraged engagement when the information presentation was poor. This can be observed by the absence of a significant difference in opt-in rates between the *Most* treatment (96.4%) and the *Least* treatment (94.3%) in Round 2, whereas in Rounds 1 (96.8% vs. 92.9%) and 3 (95.4% vs. 91.0%), they were significantly different as predicted by Hypothesis 2a. Another notable finding is the decline in opt-in choices from Round 2 to Round 3, which fell below the rate observed in Round 1 for both treatments, although the difference was not statistically significant.
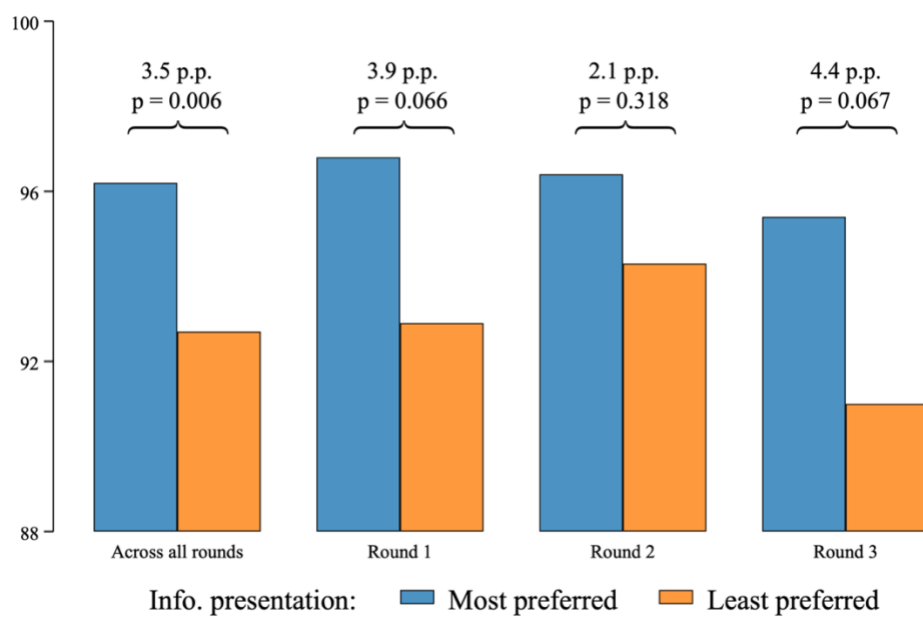
Figure 1. Percentage of opt-in choices by experimental treatment (*Most* vs *Least* preferred information presentation mode).

Note: the y-axis reports the frequency of correct choices corresponding to the different atributes reported in the x-axis, across treatments. p-values based on two-tailed t-tests.

Decision-Making Styles. In Table 3, we examine the robustness of our main results across the same two decision-making styles outlined in the DCE: opinion-seekers and information-seekers. Here, the proportion of opinion-seekers and information-seekers were 22.2% and 22.0% of the sample respectively. The remaining 56% of the participants could not be put neatly into either category based on their responses, i.e. rated high or low on both scales.

Among opinion-seekers, we find that the *Most* treatment leads to a higher likelihood of engagement in the search task compared to the *Least* treatment. Conversely, for information-seekers, the treatment assignment does not significantly impact the engagement choice. It is worth noting that information-seekers already exhibited a very high level of engagement in the *Least* condition (96.0%), compared to only 90.4% for opinion-seekers.

However, for information-seekers, the presentation of information has a substantial impact on the number of correct choices made in the search task. Specifically, in four out of the five choices, the treatment effect is positive, statistically significant, and practically meaningful, with treatment effects ranging between 12% and 42% more correct choices. This suggests that the information presentation format plays a crucial role in aiding decision-making for this group. In contrast, for opinion-seekers, the impact of information presentation primarily increased the proportion of correct choices for the agency attribute, while its effects on the other attributes were statistically insignificant and close to zero. To test the robustness of these results to selection bias, we perform additional analyses with the weighting procedure described in footnote 6. These results, presented in Appendix G, are very similar in terms of magnitude and significance to those presented in Table 3.

Table 3. Treatment effects on engagement and correct choices, by decision-making style.

Treatment Effect	Opinion-Seekers	Information-Seekers
Engagement (%)	7.4**	2.3
Correct Choices (%)		
Overall	0.2	23.3***
Transparency	-6.2	-2.9
Agency	31.9***	41.7***
Convenience	-2.9	11.5**
Authenticity	1.7	17.3***

Note: Treatment effects (difference between the Most and the Least treatments) based on OLS regressions. Dependent variable: (i) Engaged in the search task (1= yes 0 =no) and (ii) Correct choice made in the task (1= yes 0 =no); Independent variable: treatment assignment (Most or Least).
 $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$

In summary, our findings indicate that presenting information about service quality to consumers in their most preferred format leads to an increase in the number of correct choices made, in terms of identifying companies as instructed by the search task. This improvement is driven by the superior performance observed in identifying the attributes of agency and authenticity, where information was presented using ratings and rankings, as opposed to pie charts and bar graphs. For the transparency and convenience attributes, information presentation did not have any statistically significant impacts. One potential explanation for this deviation is that the transparency attribute was presented in a text-based format in both treatments which was in stark contrast to the other three attributes. With regards to the convenience attribute, the presentation formats across treatments were similar to those for the agency attribute and while there was no treatment effect overall, we did observe that a segment of the population, i.e. information-seeking participants, improved their performance due to the treatment. Finally, the most preferred presentation format also fosters greater engagement in the search task, especially in the first round, where no subsidies were provided.

Furthermore, we observe heterogeneity in the impacts of information presentation format. Opinion-seekers exhibit higher motivation to engage when information is presented in their most preferred format, and they also display a moderate increase in the likelihood of making correct decisions. On the other hand, information-seekers are not more inclined to engage at a higher rate

due to the information presentation format. However, they exhibit substantial improvements in the share of correct choices when information is presented in their most preferred format.

Lastly, we find evidence that, where information presentation is poor (least preferred mode), cash subsidies effectively encourage greater engagement in the search and comparison process. In contrast, where information presentation is good (most preferred mode), cash subsidies have no effect. These results imply that if policymakers do not have the power to mandate clear information disclosure, cash subsidies are an effective (but costly) policy tool. If policymakers do have the power to mandate clear information disclosure, our results suggest they should indeed do so, as it would foster engagement in the market without incurring any costs.[9]

6 Decision Experiment

6.1 Background

So far, we have focused on (i) the types of service quality information that energy consumers find most valuable when making comparisons in the energy market, and (ii) the effects of different presentations of such information on their choices.

In this section, we report the results of a decision experiment, in which we are interested in answering the following questions: (i) Do consumers make different energy company choices depending on whether service quality information is presented to them or not, and (ii) Are companies which are rated higher in terms of service quality more likely to be chosen when service quality information is presented? To achieve this goal, we asked energy consumers to choose an energy retailer in an ecologically valid decision environment. Across two experimental treatments, participants are either provided with service quality information or not.

6.2 Study Design and Data

6.2.1 Decision Experiment: Two-Treatment Between-Subject Design

In our experiment, participants had to make one decision. They were asked to imagine that they were in the market for a new energy company, and were presented with 11 real energy companies. They had to choose the company they most preferred to be their energy provider.

To achieve ecological validity, we used an interface similar to that of the current *Victorian Energy Compare* website. The choice of these 11 companies were guided by consultations with our research partner, CPRC. Based on their local market expertise as the main consumer affairs research institute in the state of Victoria, CPRC assessed the 11 companies presented here as representative of the broader array of energy retailers in the state, based on brand awareness as well as service quality

We utilized a between-subject design with two treatments: In the Information (*Info*) treatment, information on each of the four service qualities (transparency, agency, convenience, and authenticity) was provided to participants in the form of ratings. In the No Information (*No Info*)

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[9] There would of course be a once-off cost, likely borne by the suppliers, in re-organizing how information is displayed to the public. Thus, such a change is not free of any trade-offs. The gains from enhanced competition, however, would more than offset the costs.

treatment, no such information was provided. In both treatments, the names of the 11 companies along with their brand logos and the estimated annual bill were presented, as is always the case on the *Victoria Energy Compare* website. See Appendix I for examples of each treatment. Participants were randomly allocated to one treatment only.

The ratings of each company on all four service quality attributes were created with the support of experts from CPRC based on publicly available data from two Victorian state government agencies, namely the Essential Services Commission (ESC) and the Energy and Water Ombudsman Victoria (EWOV). We also drew on data from the Canstar Blue (a popular product review website in Australia) energy ratings.[10] For more information about the measures used, refer to Appendix J.

6.2.2 Measures and Predictions

Our independent variable is the treatment variable. As mentioned above, the difference between the two treatments is that in the *Info* treatment, information about service quality is provided, and in the *No Info* treatment, it is not. Our dependent variable is the decision participants make, more specifically, which energy company they most prefer.

The main hypothesis (H3) of this study is that participants choose differently when presented with service quality information. In addition, we test a second hypothesis (H4), which posits that the provision of service quality information will lead to more participants choosing companies with higher service quality ratings.

6.2.3 Sample and Procedure

We recruited a total of $N = 510$ participants for the experiment, $N = 232$ for the *Info* and $N = 278$ for the *No Info* treatments respectively. A similar recruitment procedure to that of the DCE and search task was followed. Participants were paid a flat participation fee by the panel provider, Qualtrics. Appendix D displays some summary demographics for our sample. We did not find support for the hypothesis that assignment into treatment can be predicted by these demographic characteristics jointly ($p = 0.321$).

The experiment took place online. Eligible participants had to give their consent to participate. Then, they were taken to the instructions page detailing the experiment and what they were required to do. Next, they participated in the decision task as described above. At the completion of the decision task, we collected information on participants' demographics, attitudes and brand awareness of the 11 companies utilized in the study. The average time taken to complete the experiment was 19.5 minutes.

6.3 Results and Discussion

Choice of Company (H3). Table 4 shows the distribution of choices made by participants across treatment. We used real energy company names and logos in the experiment, but we report

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[10] Canstar Blue is a consumer review and comparison website that was launched in 2010. According to their website "Canstar Blue is an initiative of Canstar – Australia & New Zealand's premier research and expert ratings agency, working with more than 30,000 products and more than 300 brands in the financial services industry. Canstar is focused on educating and helping consumers make better financial decisions."

anonymized company-level choices here. When service quality information was not provided (*No Info*), participants' most preferred choice was Company K (88 out of 278, 31.7%), one of the two cheapest energy providers in the choice set. The second most preferred was Company J (51 out of 278, 18.3%), the provider with the highest level of brand recognition in the choice set (based on the responses to our brand awareness questions)[11]. Together, these two companies accounted for around 50% of the choices made by the participants.

In contrast, when service quality information was provided (*Info*), 75 out of the 232 participants (32.3%) chose Company B. This is in stark contrast to the *No Info* treatment, where only 4 out of the 278 participants (1.4%) chose Company B. Importantly, Company B is the highest rated company in the choice set in terms of service quality. Companies J and K, the two most chosen retailers in the *No Info* treatment, accounted for only 37% of the total choice in the *Info* treatment.

Table 4 Choice (%) of energy company across information provision treatments.

	Service Quality (Scores out of Five)					Price	Info. Provided	
Company	Transparency	Agency	Convenience	Authenticity	Overall (not presented)		No	Yes
B	5	5	4	4	18	1240	1.4%	32.3%
K	3	5	3	3	14	1220	31.7%	24.6%
D	3	4	4	3	14	1270	3.2%	5.2%
C	4	2	5	3	14	1420	1.4%	1.7%
E	3	3	4	3	13	1420	5.4%	2.2%
F	2	3	4	3	12	1260	6.8%	3.0%
A	1	3	3	4	11	1420	1.4%	3.0%
G	3	1	4	2	10	1220	9.7%	2.2%
I	2	2	4	2	10	1340	10.4%	7.3%
H	2	2	3	1	8	1420	10.1%	6.0%
J	1	4	1	1	7	1270	18.3%	12.5%

Note: Company names have been masked for privacy reasons as per our ethics protocol. The last two columns report % frequency of choices corresponding to the companies reported. Only participants in the Info treatment were provided with service quality information. In terms of overall service quality measures, Company B is the highest rated (18 out of 20) followed by C, D and K (14 out of 20).

To formally test whether the two distributions of choices across the *Info* and *No Info* treatments are significantly different, we ran a two-sided χ^2-test. The results of the test show that the two distributions are statistically different ($p < 0.001$). This validates Hypothesis H3.

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[11] As a part of the post-experimental questionnaire, participants were asked to state their agreement with the following statement on a 1 (Strongly agree) to 5 (Strongly Disagree) scale: I am aware of [Name of Energy Provider].

Choice of Company with Better Service Quality (H4). To test Hypothesis H4, we examined whether the choice of Company B (the company with the highest service quality rating) is statistically different between the *Info* and *No Info* treatments. Company B was chosen 32.3% of the time in the *Info* and 1.4% in the *No Info* treatments respectively, which is a 23-fold increase. Using a two-sided *t*-test, the null hypothesis of equality of mean choice of Company B between *Info* and *No Info* can be rejected ($p < 0.001$). As a robustness check, we also conducted the same test for the top four companies with the highest service quality ratings (Companies B, K, D, and C). We find that these four companies, pooled together, were significantly more likely to be chosen (37.8% vs 63.8%, $p < 0.001$) in the *Info* treatment. These results suggest that the provision of service quality information leads customers to choose companies with better service quality ratings, validating Hypothesis H4.

Decision-Making Styles. We also investigate whether our main results are robust across the two decision-making styles outlined above. Out of the entire sample, 20% identified as either high opinion seeker or high information seeker. The remaining 60% could not be classified as either.

In Table 5, we can observe that for both these groups Hypotheses 3 and 4 are validated. To test the robustness of our results to selection, we run additional analyses using the weighting procedure described in footnote 6. These results are presented in Appendix G and are largely consistent with the results presented in Table 5.

Table 5. Heterogeneity of treatment across decision-making styles**Table 5.** Heterogeneity of treatment across decision-making styles.

	Difference between No Info and Info treatment		
	Hypothesis 3 (Choice different across treatment)	**Hypothesis 4 (Choice of Company B)**	**Hypothesis 4R (Choice of the four highest service quality companies)**
Opinion-seekers	p = 0.002	27.5***	29.4***
Information-seekers	p < 0.001	41.4***	31.3***

Note: p-values based on χ^2-test for hypothesis 3. For hypotheses 4 and 4R, p-values of the treatment effect (difference between Info and No Info) based on a OLS regression, where dependent variables is the choice of the highest rated service quality company/ies (1 = yes, 0 = no) and independent variables is treatment assignment. Note that for information-seekers, none of the participants chose company B (Hypothesis 4), therefore the estimates are based on t-tests.

To summarize, in the absence of service quality information, consumers are most likely to choose energy companies that provide the lowest cost and have the highest brand recognition. When service quality information is provided to consumers, their choices are significantly different, and leads to them choosing companies with higher service quality ratings.

7 Summary

Before we move on to some concluding remarks, we briefly take stock of what we have learned throughout the studies presented above. Simply put: what are the main takeaways from this research?

(i)   First, using a discrete choice experiment, we show that product/service quality matters to customers. The word 'matters' has a clear quantitative interpretation: specifically, we show that residential consumers are willing to pay up to 40% more for energy, in exchange for large improvements in product/service quality (which comprises of transparency, agency, authenticiy, and convenience).

(ii)   Second, we take the finding that quality matters into an incentivized search task, where we determine that *how* quality information is shown to decision-makers is important. We contrast clear visuals (ratings and stamps of approval, on the one hand) and factual but not necessarily visually appealing forms of information (text, bar graphs, and pie charts, on the other hand). The former is superior to the latter both at the intensive and at the extensive margin. With clear visuals, decision-makers are more likely to opt into the search task and, conditional on opting in, are more likely to identify information correctly.

(iii)   Third, we feed the above finding (that decision-makers find clear visuals helpful) into a decision experiment, with real company names known to our participants, to study whether the provision of information is sufficient to overcome any priors the participants may have had about given energy companies. The answer is an unambiguous *yes*: where information provision is not provided (i.e. at the baseline condition), decision-makers rely on price and brand-awareness as short-cuts. Where information is provided, decision-makers are overwhelmingly likely to pick high-quality companies.

How do these findings apply to real-world markets? We turn to this question in the conclusion.

8 Conclusion

Despite early enthusiasm for deregulated utilities markets, competition in those markets has not always increased. As Fehr & Wu (2023) show, a stable obfuscation equilibrium can emerge, where the supply-side charges higher prices and deliberately imposes higher search costs on prospective buyers, thus lowering consumer welfare. In the long run, this is likely to induce 'missing' product improvements: in the obfuscation equilibrium, firms have little incentive to invest in innovation activities which would improve the product and result in higher welfare. This view is consistent with much anecdotal evidence. In Victoria, Australia, where our studies were conducted, the independent Thwaites Review assessed that deregulation had failed. Australia is hardly alone in this: similar claims have been made in many countries, including the United States (Slocum, 2007), Spain (De La Fuente, 2018), and the United Kingdom (Baines & Hager, 2021).

In this paper, we provide strong evidence that the competitive performance of markets would be improved by the provision of clear service quality measures in user-friendly formats. Our results thus furnish strong evidence that providing clear service quality information would reduce the supply-side's opportunities for obfuscation, and thus make markets more competitive. Increasing competition in this manner is likely more desirable than more heavy-handed regulations, including getting rid of the competitive market altogether, which would re-introduce the age-old problems of natural monopolies (Train, 1991).

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Appendix A

Interview Protocol

The full interview protocol is available at the following permanent link on the Open Science Framework: https://osf.io/f52uj/?view_only=d8ffa11b243048f7b77255b500ae971f

Appendix B

Summary demographics of the interview participants

| Demographic	Range/level	%
Age	25-34 years	43.8
	35-44 years	25.0
	45-54 years	12.5
	55-64 years	6.3
	65-74 years	12.5
Education	Completed some postgraduate	25.0
	Ph.D. or medical degree	12.5
	Master's degree	37.5
	Bachelor's degree	18.8
	Below Year 11	6.3
Employment	Employed full time	68.8
	Retired	18.8
	Other	6.3
	Self employed	6.3
Location of suburb	Northern municipality	6.3
	South-eastern municipality	12.5
	Western municipality	25.0
	Eastern municipality	12.5
	Inner City municipality	43.8
Council	-	6.3
	City of Boroondara	12.5
	City of Brimbank	12.5
	City of Darebin	6.3
	City of Frankston	6.3
	City of Glen Eira	6.3
	City of Knox	6.3
	City of Melbourne	12.5
	City of Monash	6.3
	City of Moreland	6.3
	City of Port Phillip	6.3
Income (annual)	Less than $10,000	6.3
	$20,000-$29,999	6.3
	$30,000-$39,999	6.3
	$50,000-$59,999	6.3
	$60,000-$69,999	25.0
	$80,000-$89,999	6.3
	$100,000-$149,999	37.5

	More than $150,000	6.3
Number of people in the household	1	6.3
	2	50.0
	3	12.5
	4	12.5
	5	6.3
	6	6.3
	Four (4)	6.3
During the past year, did your household	Just get by	12.5
	Save money	50.0
	Spent savings and borrowed money	12.5
	Spent some savings	25.0

Appendix C

Table C1. Main supporting quotes for each service quality attribute

Transparency	"These companies are making a lot of profit. They take advantage of people who just... I understand we're all responsible for our own choices, but I think when an organization's business model is structured around relying on people not being informed in their decision making, and they don't offer that information initially, that really bothers me. Not only does it affect me, but it affects everyone I know". "I won't say distrust, but I think the information is not as transparent and I think it should be".
Agency	"'We can give you this, this, this.' I would say, 'Look, I'll look into it myself.' I feel more comfortable myself to actually go through the numbers because it's so confusing and convoluted". "I wanna be able to go in and look for myself and say, 'Yes. That's a good deal. That's a good deal.' Not like with this [comparison website name omitted] where they actually find you a deal".
Convenience	"I didn't want to have to go through that. I wanted to deal with the person that I had been dealing with because they knew the conversation we had, and then carry on from that". "And joining them was super easy, so I wanted to... I think if I joined up with them, they took care of, then transferring the account over to them and I didn't need to do anything else".
Authenticity	"And then I saw online that they were offering 35% discounts to new customers. And so I thought, if my reward for loyalty is to lose 12%, I am not going to be loyal". "Being able to deliver as a consumer guideline, because I'll only be calling up about things I've seen. So, if they won't deliver on them or if there's clauses or there's things they won't do based on how they've advertised, then that's an alarm bell for me".

For detailed supporting quotes for each service quality attribute, please see the following link:
https://osf.io/f52uj/?view_only=d8ffa11b243048f7b77255b500ae971f

Summary demographics of the participants, all studies

Age
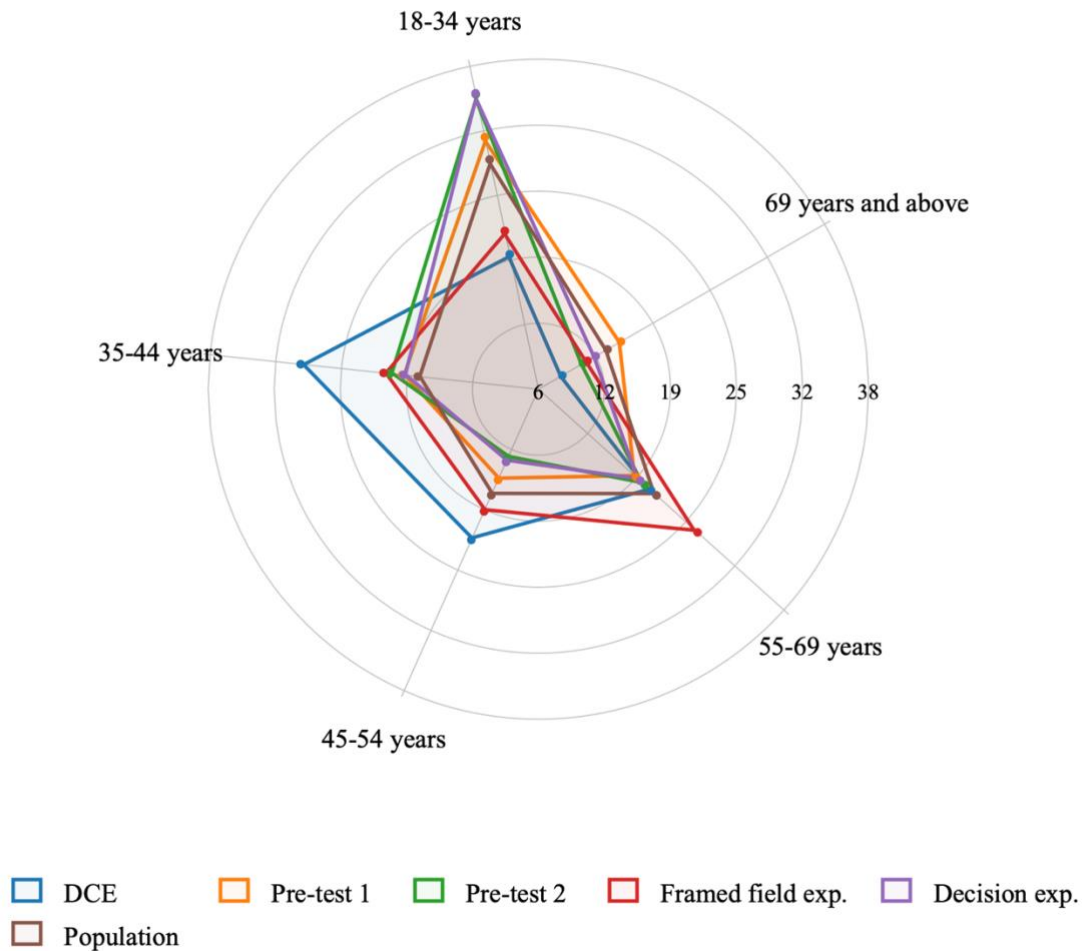
Figure D1. Age distribution: Study participants and target population (state of Victoria).

Source: Authors' calculations and Australian Bureau of Statistics (ABS).
Population-level statistics pertain to the 2016 Victorian Census and are available from the ABS at
https://www.abs.gov.au/census/find-census-data/quickstats/2016/2.
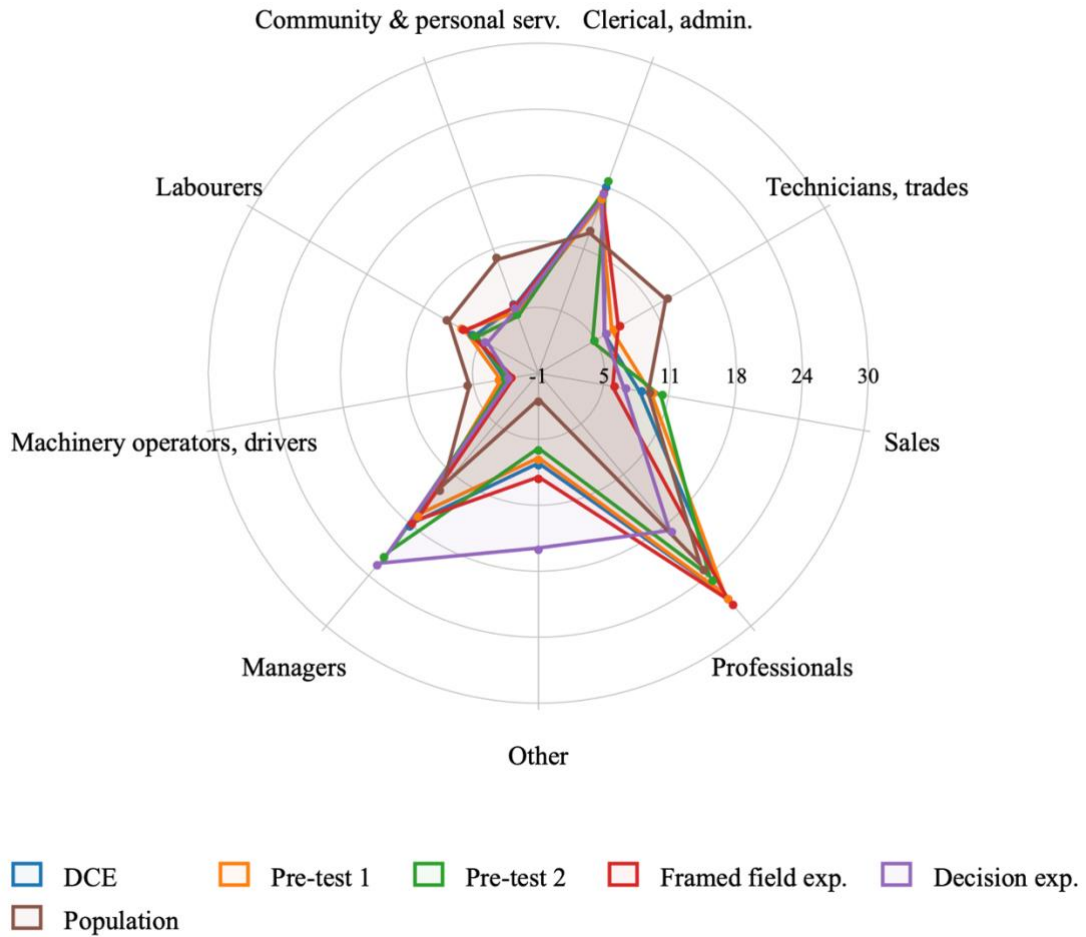
Occupation

Figure D2. Occupational distribution: Study participants and target population (state of Victoria).

Source: Authors' calculations and Australian Bureau of Statistics (ABS).
Population-level statistics pertain to the 2016 Victorian Census and are available from the ABS at
https://www.abs.gov.au/census/find-census-data/quickstats/2016/2.
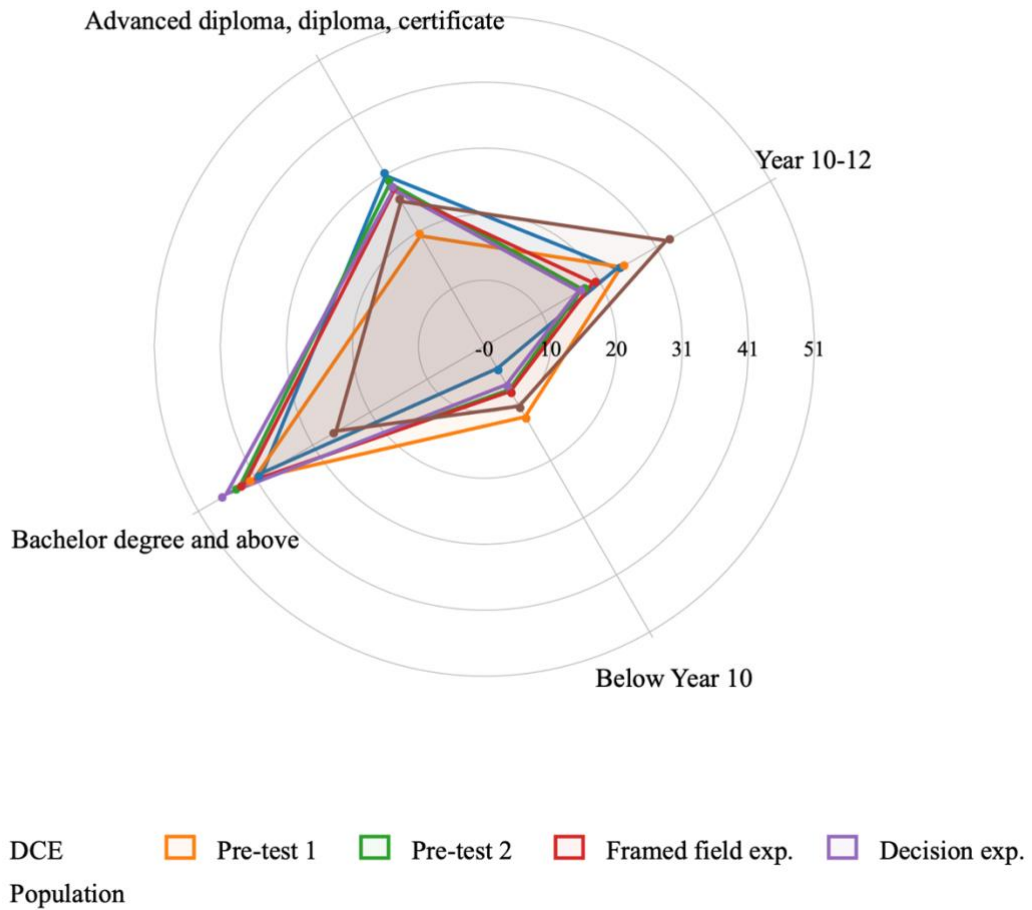
Education

Figure D3. Educational distribution: Study participants and target population (state of Victoria).

Source: Authors' calculations and Australian Bureau of Statistics (ABS).

Population-level statistics pertain to the 2016 Victorian Census and are available from the ABS at https://www.abs.gov.au/census/find-census-data/quickstats/2016/2.

% English spoken at home

Legend:
- DCE
- Pre-test 1
- Pre-test 2
- Framed field exp.
- Decision exp.
- Population
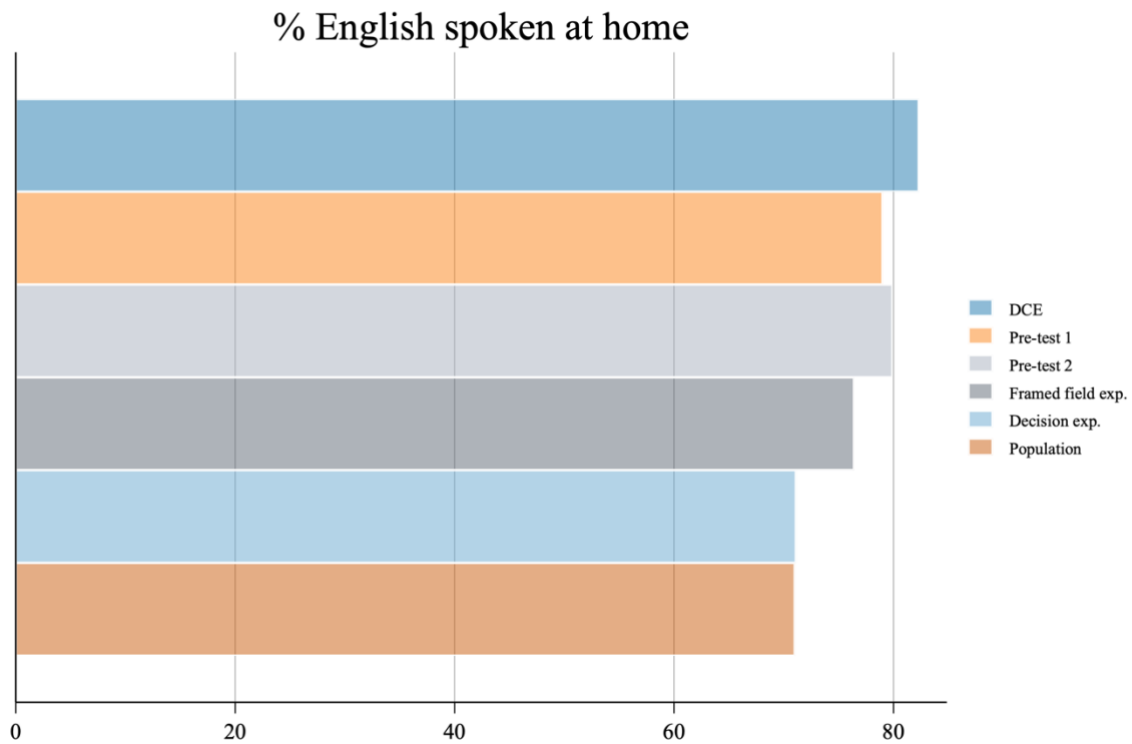
Figure D4. Language spoken at home: Study participants and target population (state of Victoria).

Source: Authors' calculations and Australian Bureau of Statistics (ABS).
Population-level statistics pertain to the 2016 Victorian Census and are available from the ABS at
https://www.abs.gov.au/census/find-census-data/quickstats/2016/2.

Appendix E

Discrete choice experiment: Specific descriptions for Low / Medium / High levels by attribute

Attribute	Levels		
Price	**High: $715** About 10% of Victorian households of 3 persons pay more than this amount for energy (electricity and gas), over a 3-month period, after discounts.	**Medium: $630** This is approximately what an average Victorian household of 3 persons pays for energy (electricity and gas combined), over a 3-month period, after discounts	**Low: $545** About 10% of Victorian households of 3 persons pay less than this amount for energy (electricity and gas), over a 3-month period, after discounts
Transparency	**Low:** - Incorrect billing is regularly reported - Regular reports of hidden charges becoming apparent after a contract is signed - Small/fine print regularly found in contracts - Hardly any insights provided on how they actually make their profits	**Medium:** - Incorrect billing is occasionally reported - Occasional reports of hidden charges becoming apparent after a contract is signed - Small/fine print occasionally found in contracts - They provide some insights on how profits are actually made	**High:** - Mostly bill correctly - Generally, no hidden charges have been reported after a contract is signed - Generally, no small prints/fine print occasionally found in contracts - They provide full disclosure on how profits are actually made
Agency	**Low:** - Does not inform you in advance about when and why rates increase - Provides very minimal insights into your usage patterns and bills - Often engages in push-marketing or cold calling - You can only switch plans by calling the customer care centre and depending on them to inform you of available offers	**Medium:** - Inform you when and why rates increase quite late - Provides quarterly overviews of your usage patterns and bills - Sometimes engages in push-marketing or cold calling - You can switch plans based on your own research, but only by calling the customer care centre who will offer options to you (you cannot switch through a website or an app)	**High:** - Inform you when and why rates increase well in advance - Provides monthly detailed insights into your usage patterns and bills - Does not engage in push-marketing or cold calling - You can switch plans yourself based on your own research, through a website or an app or by calling
Convenience	**Low:** - Issues/enquiries are not resolved quickly and require multiple call backs - Often you speak to multiple people in trying to resolve your issue/enquiry - You often get sent to different departments while trying to resolve your issue/enquiry when you call - Switching retailers requires a lot of effort	**Medium:** - Will resolve issues within acceptable timeline but may need call-backs/chats - You sometimes speak to multiple people, depending on the issue/enquiry - Sometimes you may be switched to different departments when you call/chat - Switching retailers requires some effort	**High:** - Resolves your issues/enquiries with one phone-call/chat - You deal with only one person when calling/chatting about issues/enquiries - There are no jurisdiction issues or switching between departments when you call/chat - Switching retailers is taken care of completely and is rather effortless
Authenticity	**Low:** - There is a large discrepancy between what the retailer promises and what they actually deliver - You deal with customer service agents who generally do not understand your situation or the circumstances in your particular area - Loyalty is not rewarded; often newcomers get better rates than you	**Medium:** - There is some discrepancy between what the retailer promises and what they actually deliver - Sometimes you deal with customer service agents who understand your situation and the circumstances in your particular area but this varies per agent - Loyalty is sometimes rewarded; newcomers do not always get better rates than you	**High:** - The retailer is known to deliver on what they promise - You deal with customer service agents who understand your situation and the circumstances in your particular area - Loyalty is rewarded; you get better rates than a newcomer

Appendix F

Discrete choice experiment: Heterogeneity of choices by gender and risk preferences

Attribute	Decision-making style	Willingness to Pay		
		Point Estimate	Lower Bound	Upper Bound
Transparency	*Information-seeker*	$47.92	$45.54	$49.57
	Opinion-seeker	$29.82	$18.29	$37.54
Agency	*Information-seeker*	$24.47	$16.15	$30.25
	Opinion-seeker	$23.54	$13.04	$30.58
Convenience	*Information-seeker*	$33.66	$26.76	$38.46
	Opinion-seeker	$30.22	$18.40	$38.13
Authenticity	*Information-seeker*	$29.95	$24.21	$33.94
	Opinion-seeker	$21.73	$8.08	$30.88
Total	*Information-seeker*	$135.99	$112.67	$152.23
	Opinion-seeker	$105.31	$57.81	$137.13

Decision-making styles: Inverse probability-weighted estimates

Discrete choice experiment

Red = opinion-seeker; Green = information-seeker.
Diamond = unweighted; circle = inverse prob. weighted
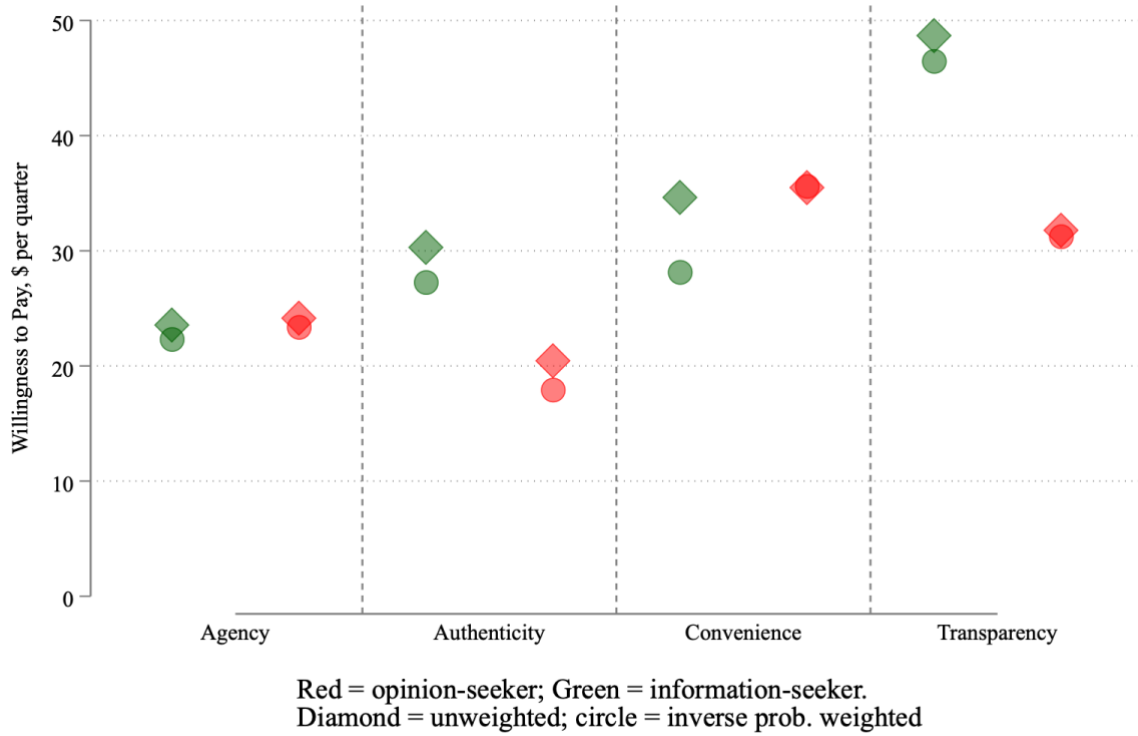
Figure G1. WTP for each attribute, by decision-making style, with and without weights.

Search task experiment

Table G1. Treatment effects by decision-making style, with and without weights.

Treatment Effect	Opinion-Seekers	Opinion-Seekers (Weighted)	Information-Seekers	Information-Seekers (Weighted)
Engagement (%)	7.4**	9.1***	2.3	1.8
Correct Choices (%)				
Overall	0.2	0.07	23.3***	23.7***
Transparency	-6.2	7	-2.9	2.6
Agency	31.9***	31.0***	41.7***	41.9***
Convenience	-2.9	-1.5	11.5**	12.1**
Authenticity	1.7	1.3	17.3***	14.3***

Treatment effects (difference between Most and Least treatments) based on OLS regressions.
Dependent variable: (i) Engaged in the task (1= yes 0 =no) and (ii) Correct Choice made in the task (1= yes 0 =no);
Independent variable: treatment assignment (Most or Least).
* p < 0.1, ** p < 0.05, *** p < 0.01

Decision experiment

Table G2. Treatment effects by decision-making style, with and without weights.

Treatment Effect	Opinion-Seekers	Opinion-Seekers (Weighted)	Information-Seekers	Information-Seekers (Weighted)
Choice of highest rated company (H4)	27.5 ***	27.2***	41.5***	36.3***
Choice of the four highest rated companies (H4R)	29.4***	26.4***	31.3***	21.4***

Treatment effects (difference between Info and No Inf treatments) based on OLS regression, where dependent variables is the choice of the highest rated service quality company/ies (1 = yes, 0 = no) and independent variables is treatment assignment (Info or No Info).
* p < 0.1, ** p < 0.05, *** p < 0.01

Appendix H

Instructions for the search task experiment

Example of Treatment 2 (*Least*).

Background of this study

A few months ago, we conducted interviews with Victorian energy (gas and electricity) consumers to find out what service quality attributes they find most important when choosing energy providers. From the interviews, we identified **four** attributes as the most important: transparency, agency, convenience and authenticity. These are defined below:

DEFINITIONS

1. TRANSPARENCY:
The degree to which energy companies: are clear and transparent in their communications; provide clear information that can help consumers make a decision on which energy company to choose.

2. AGENCY:
The degree to which energy companies: help consumers take control and make their own decisions (e.g. to remain, switch or change energy plans or to change their usage patterns); help consumers take matters into their own hands and make their own choices, as opposed to feeling like they are dependent on the energy companies.

3. CONVENIENCE:
The degree to which energy companies: make it easy and workable for consumers to resolve issues and/or obtain the information they need.

4. AUTHENTICITY:
The degree to which energy companies: can build a relationship with consumers based on understanding and mutual respect; make consumers feel understood and that the energy companies are being honest with them.

We also found out which types of information consumers find most useful to help them assess the levels of transparency, agency, convenience and authenticity of different energy companies. These include:

TYPES OF INFORMATION

For **TRANSPARENCY**: information about the number of customers that the energy company has; information about pricing, before and after discounts.

For **AGENCY**: information about whether the energy company can provide all the support and information required in a timely manner to enable customers to make decisions.

For **CONVENIENCE**: information about whether the energy company's call centre staff can provide customers with all the help required without hesitation.

For **AUTHENTICITY**: information about whether the energy company responds well to complaints.

Instructions

In this study, suppose you are a customer in a hypothetical energy market consisting of three energy companies. One of these three companies will be randomly allocated to you as your default current energy company. You are now studying these three companies, to decide if you still prefer your default current company or one of the other two.

Based on past performance, each company has a given level of quality for each of the four attributes. For example, transparency can be high, low, or somewhere in between (we call this level "medium", but it can fall anywhere between high and low). Agency, convenience and authenticity can also be high, low, or medium. One of the three companies will be better than the other two. You will be given the levels of transparency, agency, convenience and authenticity for each company. Below is an example of how this information will be provided to you. You can click on the diagram to open in a new window.
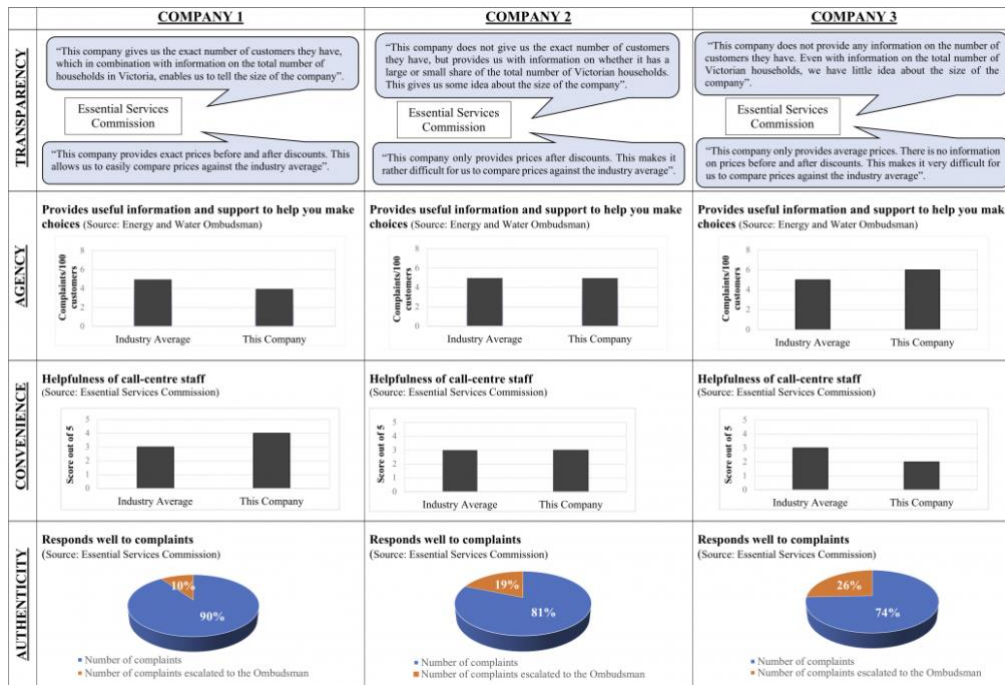
Please click ">>" to proceed to further instructions.

This study consists of **three rounds** of questions.

In each round, after studying the information given, you will be asked to match the company with the described level (high/medium/low) of the four attributes: transparency, agency, convenience and authenticity.

One of the three rounds will be randomly chosen for **bonus payments**. This is on top of what you will be paid by Qualtrics for participating in this study. In this chosen round, when you identify a correct answer, you will receive a bonus of $0.50. In each round, there are five questions, so you can earn up to $2.50.

If you don't want to answer the questions in a particular round, your default company will be used instead as your answers. You will still be able to earn the bonus, but only if your default company matches with the correct answers.

In addition, the second round (Round 2) includes an additional $0.50 bonus simply for choosing to answer the questions.

Each round is independent– you can choose to answer the questions in some rounds and defer to your default company in others. The companies will change in each round. The questions may change too.

Please take each round seriously as each has an equal chance of being randomly chosen for the bonus.

If you have understood these instructions, we would like to ask you two comprehension questions, just to check your understanding. Please click ">>" to continue.

[Comprehension Questions omitted]

Decisions:

Thank you for answering the comprehension questions.

This is now **Round 1.**

The three companies in this hypothetical energy market are: Companies **A**, **B** and **C**.

The below is your randomly allocated default company for Round 1.

If you choose not to answer the questions in this round, this default company will be used to determine your bonus payments should this round be picked for payment. If you choose to answer the questions, you can choose between this and the two other companies to determine your bonus payments should this round be picked for payment.

Round 1

Your default company is: Company A [*randomly chosen*]

Would you like to answer the questions in this round?

◯ Yes - proceed to the questions

◯ No - use my default company instead and proceed to the next round

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Round 1

The three companies in this hypothetical energy market are: Companies **A**, **B** and **C**. Please see below for information about their levels of transparency, agency, convenience and authenticity. You can click on the diagram to open in a new window.

Please now search the information provided above and tell us [*there were three different variations of the search task, where the participants had to choose the highest, medium and the lowest level for the four attributes. Participants were randomly allocated to one of these sub-conditions. Participants always had to choose the best overall irrespective of the search condition*]

	Company A (1)	Company B (2)	Company C (3)
Which company provides the **highest** level of *transparency*? (2)	○	○	○
Which company provides the **highest** level of *agency*? (3)	○	○	○
Which company provides the **highest** level of *convenience*? (4)	○	○	○
Which company provides the **highest** level of *authenticity*? (5)	○	○	○
Which company is the **best overall** in terms of *transparency*, *agency*, *convenience* and *authenticity*? (6)	○	○	○

Example of Treatment 1 (*Most*) stimuli

	COMPANY A	COMPANY B	COMPANY C
TRANSPARENCY	**Number of customers** (Source: Essential Services Commission) ☐ Total number of customers: 420,103 ☐ Total number of households in Victoria: 2,520,620 **Pricing before and after discounts** *This Company* ☐ Monthly price without discount: $1,975 ☐ Monthly price with discount: $1,925 *Industry average:* ☐ Monthly price without discount: $2,340 ☐ Monthly price with discount: $1,975	**Number of customers** (Source: Essential Services Commission) ☐ Total number of customers: A sizeable portion of the market ☐ Total number of households in Victoria: 2,520,620 **Pricing before and after discounts** *This Company* ☐ Monthly price without discount: Not Available ☐ Monthly price with discount: $1,925 *Industry average:* ☐ Monthly price without discount: $2,340 ☐ Monthly price with discount: $1,975	**Number of customers** (Source: Essential Services Commission) ☐ Total number of customers: Not Available ☐ Total number of households in Victoria: 2,520,620 **Pricing before and after discounts** *This Company* ☐ Average monthly price: $1,925 *Industry average:* ☐ Monthly price without discount: $2,340 ☐ Monthly price with discount: $1,975
AGENCY	**Provides useful information and support to help you make choices** (Source: Energy and Water Ombudsman)	**Provides useful information and support to help you make choices** (Source: Energy and Water Ombudsman)	**Provides useful information and support to help you make choices** (Source: Energy and Water Ombudsman)
CONVENIENCE	**Helpfulness of call-centre staff** (Source: Essential Services Commission)	**Helpfulness of call-centre staff** (Source: Essential Services Commission)	**Helpfulness of call-centre staff** (Source: Essential Services Commission)
AUTHENTICITY	**Responds well to complaints** (Source: Essential Services Commission)	**Responds well to complaints** (Source: Essential Services Commission)	**Responds well to complaints** (Source: Essential Services Commission)

Appendix I

Examples of the treatments used in the decision experiment

We used actual logos and brand names; the information shown here is anonymised.

<u>Example of Treatment 1 (*Info*)</u>

Suppose you are in the market looking to change your electricity company or get a new electricity deal.

Please take a good look at all the information provided on the comparison website below.

*The measures for service quality were developed by a consumer policy expert,
based on publicly available performance data from the Essential Services Commission,
the Energy and Water Ombudsman Victoria, as well as based on survey data from Canstar Blue's energy
retailer rankings.

Example of Treatment 2 (*No Info*)

Suppose you are in the market looking to change your electricity company or get a new electricity deal.

Please take a good look at all the information provided on the comparison website below.

ENERGY RETAILERS			EST. PRICES (inc. GST)
Retailer Logo K	Retailer Name and ID	Eligibility criteria	With conditional discounts $1,220 $1,220 /year
Retailer Logo G	Retailer Name and ID	Eligibility criteria	With conditional discounts $1,220 $1,220 /year
Retailer Logo B	Retailer Name and ID	Eligibility criteria	With conditional discounts $1,240 $1,240 /year
Retailer Logo F	Retailer Name and ID	Eligibility criteria	With conditional discounts $1,260 $1,260 /year
Retailer Logo D	Retailer Name and ID	Eligibility criteria	With conditional discounts $1,270 $1,270 /year
Retailer Logo J	Retailer Name and ID	Eligibility criteria	With conditional discounts $1,270 $1,270 /year
Retailer Logo I	Retailer Name and ID	Eligibility criteria	With conditional discounts $1,340 $1,340 /year
Retailer Logo C	Retailer Name and ID	Eligibility criteria	With conditional discounts $1,420 $1,420 /year
Retailer Logo A	Retailer Name and ID	Eligibility criteria	With conditional discounts $1,420 $1,420 /year
Retailer Logo E	Retailer Name and ID	Eligibility criteria	With conditional discounts $1,420 $1,420 /year
Retailer Logo H	Retailer Name and ID	Eligibility criteria	With conditional discounts $1,420 $1,420 /year

Appendix J

Measures used to determine the service quality aspects in the decision experiment

- For *transparency*, we used the measure "information on whether the bills are generally clear and simple to understand", represented by a combination of ESC billing complaints data between 2017-2018 (per 100 customers) and Canstar data on bill and cost clarity (ratings by approximately 3000 consumers in 2019).

- For *convenience*, we used the measure "information on whether you can switch energy companies without errors (e.g., correct address, correct tariff)", represented by a combination of ESC published data on the number of complaints about transfer and switching errors per 100 customers and Canstar data on ease of sign up (ratings by approximately 3000 consumers in 2019).

- For *agency*, we used the measure "information on whether when you speak to someone at your energy company, they can provide all the support and information you need at that time to make your decisions", represented by ESC published data on the average call response times (seconds) per retailer, ESC published data on the percentage of calls answered within 30 seconds per retailer, and Canstar data on online tools and services.

- For *authenticity*, we used the measure "information on whether the energy company responds well to complaints", represented by EWOV investigations/complaints and ESC published data on the number of complaints per 100 customers.

Note that unlike the search task experiment, transparency was presented as a quality rating in this study. Although consumers prefer transparency to be presented as detailed objective data, we do not expect a website to present such information in reality. Moreover, in the search task, we did not find that presenting transparency as detailed objective data had an impact on mistakes that consumers made in the search and comparison task. Further, the measures we used for the attributes were not necessarily the most preferred measures out of all possible measures (see pre-test 1), because no data was publicly available for them. Hence, the measures used were the most preferred of those that had data publicly available to represent them. Based on the raw data, rankings of the 11 energy companies were generated for each attribute which were then visualised in a way that was deemed most representative of these measures by the CPRC and the authors. These measures were also used as headings for each ranking.