

# Agenda

## Advancing economics in business

### Summoning the energy: consumers and competition

**If energy consumers say they are happy, and there are several suppliers in the market, then the market is functioning well—right? Not necessarily. Identifying the existence and scope of behavioural biases allows for a better understanding of the drivers of competitive market indicators. How can behavioural economics influence competition in retail energy markets, and how can hypothesised biases be tested? We consider the topic with Australian markets as a case study**

When people make decisions, especially ‘big’ ones such as buying a house or car, they usually consider the pros and cons of the different options very carefully. For everyday decisions, however, such as what chocolate bar to buy or what drink to order in a cafe, the same people often choose a product instinctively, taking little time to consider their choice.

Energy may fall into either category: energy bills can be a large expenditure, and some consumers engage with the market and select their energy supplier and tariff carefully. It is tempting to think that everyone will choose what appears to be the cheapest supplier. However, non-price factors, such as brand and quality of service, as well as behavioural factors, can lead to inertia from some customers. For others, it may also not be worthwhile engaging in the market, if the time and effort spent shopping around is worth more than the monetary savings from switching.

Building on the utility-maximising framework of traditional economics, behavioural economics captures the differences in how decisions are made in theory and in practice. It uses insights from psychology to explain the effects of cognitive and behavioural processes on how consumers behave, and on market outcomes.

Increasingly, regulators and competition authorities are also considering the implications of behavioural economics when assessing the competitiveness of markets and the likely effect of policies used to intervene in them.

A wealth of empirical evidence supports the key insights from behavioural economics that identify consistent and predictable ways in which people behave differently from the ‘rational agent’ that forms the basis of traditional economics.<sup>1</sup> Deviations from the rational agent are typically called behavioural ‘biases’. These biases are not

necessarily bad; rather, they are consistent deviations from what is typically considered a benchmark outcome from purely rational behaviour.

#### What’s so wrong with being ‘rational’, anyway?

All economic models rely on simplifying assumptions about how firms and consumers (economic agents) behave, which help us understand the complex world in which we live. In this way, behavioural economics is not a paradigm shift away from the rational agent model, but rather a development that accurately reflects cases where outcomes differ consistently from those generated in traditional economics.

To make economic models mathematically tractable, traditional economics stipulates that firms and consumers are ‘perfectly rational’ (indeed, the rational agent is often referred to as ‘homo economicus’). This assumption assumes that the agent makes choices based on the following.

- **A set of stable preferences:** the preferences of homo economicus do not depend on the context of a decision. In particular, they are not affected by the way information is presented or framed. Their preferences are also consistent over time, as consumers act according to their long-term interests and resist short-term urges that are detrimental in the long run.
- **Good recall and the ability to process information:** models with fully rational agents assume that agents remember past experiences, collect relevant information, and use that information to the fullest extent possible in making their decisions.

- **The ability to assess costs, benefits and probabilities** associated with each outcome: rational agents are assumed to correctly assess the probabilities and, given the available information, have accurate expectations of corresponding pay-offs in each scenario.
- **Own-utility-maximising behaviour:** the agent is assumed to choose the best expected outcome for themselves from among all the feasible options. The agent maximises their own utility only, without explicitly taking into account other concerns such as equity or social comparisons.

In many cases, the rational agent hypothesis is an accurate simplification of reality. In empirical studies into firms' investment behaviour, the hypothesis has been found to be more accurate than the proposed alternatives.<sup>2</sup> There is also empirical evidence that supports rational expectations as opposed to other models of price formation.<sup>3</sup> More generally, since empirical and theoretical approaches based on the rational agent have generated valid predictions, in many cases it may be appropriate to assume that agents behave rationally.

## Behavioural economics and competition

To understand outcomes in a market, it is important to consider both the demand-side behaviour that motivates those outcomes and the supply-side response by energy firms to consumers who exhibit behavioural biases. Behavioural insights provide explanations of why competition may be restricted in some markets, and why outcomes may differ from what is expected in competitive markets, even where there are a large number of competitors.

In many countries, retail energy markets have been liberalised fairly recently.<sup>4</sup> Even in contestable markets, however, there may be price regulation of certain tariffs, or at least a regulatory body. Energy is not a tangible product that you can take home. When switching to a cheaper tariff, the monetary savings are dissipated over the length of the contract. Many energy contracts default over time into 'evergreen' tariffs, which do not need to be renewed or 'replaced'. In addition, consumers do not need to switch supplier or actively purchase energy, since it is a subscription product that will continue to be provided as long as bills are paid.

These features can reduce consumers' interest in, and engagement with, the energy market, which in turn can lead them to be inert and use rules of thumb rather than a careful consideration of the available options.

Oxera explored the impacts of behavioural biases as part of a study for the Australian Energy Market Commission (AEMC), which wanted to identify how its competitive market indicators could be developed (to diagnose market-functioning problems), and how interventions (to remedy these problems) might be road-tested.<sup>5</sup> Further details are given in the box opposite.

### Case study: Australian retail energy markets

The AEMC currently tracks several competitive market indicators in retail energy markets in Australia that may be influenced by behavioural factors.<sup>1</sup> Identification of the existence and scope of behavioural biases allows for a better understanding of the drivers of these competitive market indicators. A crucial point is that behavioural biases are hypotheses. They need to be tested empirically with a relevant consumer population.

Behavioural biases are expected to affect the AEMC's competitive market indicators in the following ways.

1. **Customer activity**—switching rates are higher in Australia compared with other countries, which suggests that, on an international spectrum, Australian consumers participate actively in the energy market, although there are still some higher levels of concentration in certain states.<sup>2</sup> While, in general, behavioural biases tend to reduce switching because of the cognitive costs of engagement and selecting a new energy tariff, Oxera's study found that the level of switching in the Australian retail energy market was indicative of substantial consumer engagement.
2. **Customer satisfaction with market outcomes**—customer satisfaction is a stated-preference measure and may be affected by factors that are unrelated to the competitive landscape of energy markets.<sup>3</sup> It is therefore important not to rely too heavily on it. Behavioural economics research<sup>4</sup> suggests that satisfaction ratings may be biased due to consumers being over-optimistic about their existing energy tariff, or because they may overestimate the costs and hassle involved in switching.
3. **Barriers to retailers entering, expanding or exiting the market**—the relatively high switching rates in Australia are likely to contribute to limiting the degree to which barriers to entry or expansion can be constructed as a result of customer inertia. The current level of customer activity means that suppliers that offer more competitive products should be able to acquire new customers and thereby grow their market share.
4. **The degree of independent rivalry**—sufficient innovation and expansion of second-tier (mid-sized) suppliers provides good evidence of robust rivalry for active energy customers among retailers. However, product and consumer segmentation may mean that firms focus on

offering the best deals to engaged consumers, while there is less potential for rivalry for disengaged, inert customer segments.

**5. Whether retail energy prices are consistent with a competitive market**—significant product differentiation in the Australian energy market indicates that a degree of price dispersion<sup>5</sup> should be expected; however, there may be some segments of inactive consumers who are consistently charged a higher price.

Note: <sup>1</sup> For a list of relevant biases in retail energy markets, see Oxera (2016), 'Behavioural insights into Australian retail energy markets', report for the Australian Energy Market Commission, 11 March, <http://www.oxera.com/Latest-Thinking/Publications/Reports/2016/Behavioural-insights-into-Australian-retail-energy.aspx>, section 1. <sup>2</sup> Australia's annual switching rate of 23% is higher than in the EU (except for Belgium). See European Commission (2013), 'Consumer Market Monitoring Survey', [http://ec.europa.eu/consumers/consumer\\_evidence/consumer\\_scoreboards/market\\_monitoring/index\\_en.htm](http://ec.europa.eu/consumers/consumer_evidence/consumer_scoreboards/market_monitoring/index_en.htm), accessed 11 March 2016.

<sup>3</sup> Stated-preference measures ask individuals to report their valuation or preferences. In contrast, revealed-preference measures capture individuals' real-world decisions in a market. <sup>4</sup> For example, see Oxera (2016), 'Behavioural insights into Australian retail energy markets', report for the Australian Energy Market Commission, 11 March, <http://www.oxera.com/Latest-Thinking/Publications/Reports/2016/Behavioural-insights-into-Australian-retail-energy.aspx>, section 3.1. <sup>5</sup> The variation in prices for a product across different sellers.

Source: Oxera.

## Testing interventions

It can be difficult to predict the consequences of interventions in a market, especially if consumers display particularly biased behaviour. Unintended consequences of policy changes can be severe. There is a risk of worsening consumer outcomes, decreased competition, and increased regulatory instability (e.g. when additional interventions take place to counteract an original, poorly designed policy). This could have knock-on effects on related industries—for example, increased regulatory risk in retail energy could increase risk in energy generation, leading to reduced investment, potential problems with generation capacity, or a greater carbon footprint.

For example, the US Federal Reserve considered requiring mortgage brokers to disclose commission levels to potential customers. However, trials of this policy indicated that consumers were putting too much weight on information about commissions relative to the total cost of the mortgage (partly because commissions were displayed in dollars, whereas interest rates were presented as percentages, meaning that additional computation was needed to make the figures comparable). Consumers ended up paying more for their mortgages when commissions were made transparent than they would have done otherwise, and the policy was not implemented due to its adverse outcome for consumers.

It is therefore important for policymakers to test the effects of a proposed policy before it is rolled out to the entire market. This can be done using various experiments, as follows.

- **Field experiments**—these include randomised controlled trials (RCTs), where a policy is applied to a randomly selected group of actual market participants; and staggered introduction, where a policy is rolled out piecemeal to new groups of market participants. In these cases, the outcomes of interest are compared between the treatment group (those for whom the policy applies) and a control group (a randomly selected sample group for whom the policy does not apply). RCTs are the 'gold standard' of empirical testing of policy impacts, as they examine the causality of a policy in the actual setting in which it would be implemented.
- **Laboratory experiments**—where a field experiment is unfeasible or too costly, online and physical social science laboratories can be used instead. Laboratory experiments might involve incentives for experiment participants in order to mimic the actual incentives of the market in question. While a laboratory setting will never be the same as a real-world setting, there are examples of where laboratory evidence has been corroborated by field trials.<sup>6</sup> Experiments can also reveal causality when participants are allocated randomly to treatment and control groups.
- **Natural experiments**—in some cases, a similar policy may have been previously implemented in which agents were randomly (or almost randomly) assigned to a treatment and a control group. If so, valid inferences can be drawn from the resulting differential effects between the two groups, and plausibly applied to the policy being investigated.

## Concluding thoughts

Behavioural economics uses psychological insights to explain observed consumer behaviour that cannot be readily explained by the traditional 'rational agent' model. The traditional model predicts that informed, rational consumers will, for example, always switch to the best deals if there are gains to be made. Relying on stated consumer satisfaction—and an observation that there are several firms in the market—may lead to the conclusion that the market is working well.

However, this may not always be the case. Behavioural science shows that, where there are biases in preferences, decision-making or choice, competition and regulatory authorities should consider these to better understand the market dynamics. In particular, these authorities can test whether firm behaviour and interventions are working with or against behavioural biases.

If regulators do identify issues in markets and propose interventions, it is important to road-test potential policy changes before applying them to the market. Some market interventions may be detrimental to consumers, or may have unintended consequences, due to behavioural biases and their interaction with supply-side responses.

A robust evidence base that incorporates both rational and behavioural customer characteristics, as well as supply-side responses, is key to delivering more accurate diagnosis. It can also help to deliver better remedies, as these can then be targeted at mitigating the effects of any biases that may lead to undesirable outcomes.

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This article is based on Oxera (2016), 'Behavioural insights into Australian retail energy markets', <http://www.oxera.com/Latest-Thinking/Publications/Reports/2016/Behavioural-insights-into-Australian-retail-energy.aspx>, report for the Australian Energy Market Commission, 11 March.

<sup>1</sup> Dellavigna, S. (2009), 'Psychology and Economics: Evidence from the Field', *Journal of Economic Literature*, June, **47**:2, pp. 315–72.

<sup>2</sup> Jorgensen, D.W. and Siebert, C.D. (1968), 'Optimal Capital Accumulation and Corporate Investment Behaviour', *The Journal of Political Economy*, November–December, **76**:6, pp. 1123–51.

<sup>3</sup> Muth, J.F. (1961), 'Rational Expectations and the Theory of Price Movements', *Econometrica*, July, **29**:3, pp. 315–35.

<sup>4</sup> For instance, most European energy markets were liberalised in the late 1990s and early 2000s. European Commission (2012), 'Energy and environment overview', last update 16 April 2012, [http://ec.europa.eu/competition/sectors/energy/overview\\_en.html](http://ec.europa.eu/competition/sectors/energy/overview_en.html), accessed 14 December 2016.

<sup>5</sup> Oxera (2016), 'Behavioural insights into Australian retail energy markets', report for the Australian Energy Market Commission, <http://www.oxera.com/Latest-Thinking/Publications/Reports/2016/Behavioural-insights-into-Australian-retail-energy.aspx>, 11 March.

<sup>6</sup> Camerer, C. (2011), 'The promise and success of lab-field generalizability in experimental economics: A critical reply to Levitt and List', 30 December.