

Agenda

Advancing economics in business

Spoilt for choice: consumer decision-making and the optimal market outcome

Conventional economics emphasises the benefits of choice for both consumers and competition. These benefits depend on consumers' ability to identify and switch to the option that best meets their needs. This article reviews a growing body of evidence that argues that too much choice may be as detrimental as too little

From economics textbooks to government policy, offering 'choice' to consumers is generally regarded as a good thing. Libertarians equate 'choice' with 'freedom' and empowerment of the individual. Economists would argue that the ability of well-informed consumers to choose between a wide variety of firms and products 'oils the wheels' of competition. Firms will know that, if customers act rationally, they will switch to lower-cost and/or higher-quality providers if they are available, and will therefore compete to offer the best deals.

The benefits of choice are not limited to the rational world of economics; indeed, psychology literature spanning a number of decades has consistently established the role of choice in improving motivation, task performance and life satisfaction.¹

Yet there is a growing body of literature in behavioural economics and psychology that argues that too much choice can be detrimental to both consumers and competition, and this appears to be increasingly reflected in regulatory policy. Concerns over consumers' ability to compare complex products and effectively switch between providers have been expressed by regulators, including Oftel (the former UK telecoms regulator)² and Ofcom (the current communications regulator),³ and some consumer groups.⁴

Underpinning their concerns is the notion that consumers are not empowered or able to make effective choices when faced with too many options or unduly complex information. The effects weaken the switching behaviour of consumers, limit incentives for competition between firms, and hence restrict the welfare gains from competition.

Aside from demand-side factors, excessive choice may also weaken competition if firms are able to 'crowd' the product space and raise barriers to entry. In such a

situation it could be possible for firms to use product differentiation strategically to protect their market power.

This article considers whether the evidence supports these concerns and whether consumers are indeed being harmed. The evidence for consumer harm is considered in terms of market failure. This may be defined as a situation in which the market does not deliver the optimal outcome to consumers and/or producers, for either efficiency or equity reasons. As such, the focus is on *outcomes* rather than *processes*.

The conventional economic view of human decision-making may be simplified and defined as a human machine capable of performing an infinite number of complex equations in a short period of time. While this is clearly unrealistic, the analytical benefits of such simplifying assumptions become problematic for the purposes of economic analysis only if they result in spurious conclusions. Therefore, in essence, this article examines two propositions.⁵

- Consumers are processing all available information and making rational decisions given their set of preferences, such that the market outcome is optimal and no market failure occurs.
- Bounded rationality or other psychological factors in decision-making are resulting in sub-optimal outcomes and hence a market failure.

Choice and consumer decision-making

There is an established body of evidence that consumers do not always appear to make financially optimal decisions when faced with choices between products. For example, a study of the UK electricity market found that 86% of a particular sample could have saved

approximately £43 per year by choosing an alternative provider.⁶ The study also showed that the number of such sub-optimal choices increased with the number of firms (and hence choice) in the market. At the heart of the issue is the question of whether low switching rates are evidence of a market failure that is limiting the scope of choice to facilitate competition.

Conventional economic analysis would argue that this apparently sub-optimal behaviour results from underlying or unobserved costs, and therefore forms part of the normal market operation. However, psychology theory and a growing body of behavioural economics literature suggest that this may represent a market failure that could justify some form of intervention. (It is important to recognise at the outset that, while the theoretical literature is well developed, supporting empirical evidence remains scarce and controversial.)

The conventional economics literature has put forward a number of explanations that attempt to demonstrate that low switching rates are consistent with conventional economic theory.

- **Quality/reputation differences between firms.** This represents a non-price factor in consumer decision-making that would need to be accounted for before determining that switching was sub-optimal.⁷
- **Risk aversion.** It is well established that consumers are often risk-averse and this may lead them to make decisions that do not maximise their financial return. For example, there is evidence that suggests that consumers exhibit a 'flat-rate bias' whereby they prefer the certainty of a flat-rate tariff, even though it is more expensive than a variable-rate tariff.⁸
- **Demand uncertainty.** Consumers may appear to select incorrect tariffs if they face uncertainty about their future level of demand—ie, the theory states that they may select the incorrect tariff or firm on an ex post basis, but that their decision was rational given their ex ante expectations.⁹

The crucial point about these factors is that they may require small adjustments to the standard economic models, but that they do not represent a market failure as regards the outcome.

An alternative perspective is to consider that the outcomes could be sub-optimal, which appears to be supported by the more recent behavioural and psychological schools of thought. These emphasise the importance of 'cognitive costs' and 'regret' over choices.

Cognitive costs

There are many examples that demonstrate human cognitive limits, such as the following question:

A bat and a ball cost \$1.10 in total. The bat costs \$1 more than the ball. How much does the ball cost?¹⁰

Many people incorrectly answer \$0.10 (rather than \$0.05). This anecdotal evidence is supported by various studies of human cognition, which show that allowing for computation and related costs significantly improves models of human behaviour.¹¹ Furthermore, psychological research has shown that reliance on heuristics, rather than calculating the answer systematically, increases with the number of choices.¹²

This raises the crucial question of how limits to cognition affect consumer decisions in the marketplace, and how this could relate to the availability of choice. One perspective is that, faced with too many choices, consumers will be more likely to make a choice that is not in their best interests.

An alternative perspective is that consumers direct their cognitive effort according to the importance they place on the decision, and therefore the outcome of their decision remains operationally rational even if it is not financially optimal:

the making of decisions is costly, and not simply because it is an activity which some people find unpleasant. In order to make a decision one requires information, and the information must be analyzed. The costs of searching for information and of applying the information to a new situation may be such that habit [and inertia] are sometimes a more efficient way to deal with moderate or temporary changes in the environment than would be a full, apparently utility-maximizing decision.¹³

Some studies have attempted to address the cognitive cost concept using natural (as opposed to experimental) data, with apparently conflicting results. One study showed that consumers systematically made the optimal choice, provided that the difference between those options was sufficiently valuable to them.¹⁴ Another found that, although consumers did not always select the best tariff offered by the market, they did select the best tariff offered by their existing supplier, suggesting that cognitive costs were unlikely to be responsible for sub-optimal decisions.¹⁵

Choice and regret

As with the traditional economics literature, most psychology research concludes that choice is beneficial for consumers. However, there are some studies that appear to show that excessive choice can reduce consumer satisfaction with their decisions, and indeed reduce the probability that they will make any decision at all. For example, in an experiment involving supermarket shoppers, some participants were offered a choice of six

types of jam, while others were offered 24 types. While 30% of the former group subsequently purchased some jam, only 3% of the latter group made a purchase.¹⁶ The authors suggest that the difference between their results and the more conventional psychological results may be due to most studies being restricted to a much smaller range of options.

The research does not identify the underlying reasons for these differing results, but possibilities include consumers being concerned that they may make the wrong decision, leading to regret, or simply feeling overwhelmed by the choice. Nevertheless, the results appear to support the proposition that the benefits of choice may be reduced or reversed when the number of options increases significantly.

Differentiation as a barrier to entry

Firms could take advantage of limits of human cognition to increase their profitability. However, choice can also have a role in firm strategy irrespective of the discussion above. Specifically, there may be pure supply-side effects at work: incentives for firms to engage in supply-side product differentiation in order to crowd the product space, and prevent rivals from entering the market.

The basis of the argument is that consumers have preferences for products and will choose those products that most closely match their preferences. Consequently, products can be thought of as existing in preference space, where they will compete with each other if they overlap in that space. A dry white wine is more likely to compete with a medium wine than a sweet wine, for example. Thus firms will find that products become

increasingly profitable the further they are in preference space from other products.

The implication of this is that an incumbent firm might introduce a range of products that are sufficiently close together that a rival could not profitably compete by introducing its own brands.

The economics literature has identified examples where this appears to be happening, including:

- some recent evidence suggesting that pharmaceutical companies may be engaging in these strategies;¹⁷
- the (ultimately unsuccessful) prosecution in 1972 of America's four largest cereal manufacturers by the US Federal Trade Commission.¹⁸ The case concerned the highly concentrated market with a large number of brands, unusually high profits by the manufacturers and the lack of any significant entry by rival firms;
- General Motors' 1921 decision to offer a complete range of cars, and the strategic rationale for that decision;¹⁹
- the decision of the Swedish Tobacco Company to double the number of brands it offered following the loss of its legal monopoly.²⁰

However, product proliferation strategies do not necessarily imply an attempt to increase barriers to entry. Indeed, empirical analysis of the personal computer industry concluded that product proliferation was driven by pure supply- or demand-side factors, unrelated to strategic considerations.²¹

Strategic product differentiation

With strategic product differentiation the incumbent firm introduces additional products in order to deny potential entrants the necessary product space to compete profitably. The success of this strategy rests on the ability of the incumbent to demonstrate that it would maintain the strategy if entry occurred. This is because a multi-product monopolist has a greater incentive to exit a market than a single-product entrant, provided that price reductions in the contested market reduce demand for its other products.¹ This implies that the role of exit barriers is crucial to the credibility of a product differentiation strategy.²

- Consider a market where no more than two products could profitably be produced (cars and bicycles, for example), and where the monopolist produces both of these goods.
- Furthermore, consider the implications of a new firm entering the market and following a strategy of

competing for one of the products, say bicycles, on price. Following entry, Bertrand competition (on price) ensures that the price of bicycles will be reduced to the marginal cost of production, with the result that neither the entrant nor the incumbent can make positive profits in the production of bicycles.

- If the reduced price of bicycles also reduces demand for cars then the incumbent firm could increase profits by exiting the bicycle market. This is because exiting would result in higher prices for bicycles and hence increased demand for cars, which the incumbent still produces.
- Thus the incumbent's strategy is credible only if the exit barriers from bicycle production are large enough to outweigh the gains from exiting the bicycle market.

Notes: ¹ Tirole, J. (1988), *The Theory of Industrial Organization*, London: MIT Press.

² Judd, K. (1983), 'Credible Spatial Preemption', *The RAND Journal of Economics*, 16:2, pp. 153–66.

Furthermore, the success of differentiation as a barrier to entry is likely to be significantly determined by the size of barriers to exit for the incumbent.²² In particular, as the box above demonstrates, high barriers to exit may be necessary to ensure the credibility of the strategy.

Can less be more?

Choice is traditionally viewed as being of benefit to consumers because it both fuels competition and improves the match between consumer preferences and the available services. However, these benefits depend on the ability of consumers to identify and switch to the suppliers that best meet their needs.

This article has considered evidence that suggests that excessive choice could reduce the consumers' ability to compare products, as well as strategic incentives for firms to limit competition through the introduction of excessive choice. The analysis of strategic product differentiation is more developed in the literature and shows that it is unlikely to be an effective strategy unless barriers to exit are particularly high.

There is evidence that consumers often do not always select the cheapest phone tariff, electricity supplier, etc, which raises the question of whether the complexity or variety of choices may be preventing consumers from selecting the option that is in their best interests.

In this vein, the existing—albeit limited—research examined attempts to identify whether a market failure

has occurred, leading to a sub-optimal market outcome, or whether the market outcome is efficient once the full set of economic drivers is accounted for. More specifically, the two outcomes are as follows.

- **Efficient market outcome.** Consumers are behaving rationally once the full range of economic factors is accounted for. While there may be differences in price, these may be outweighed by quality or reputational differences between firms and risk aversion among consumers. In addition, uncertainty over future demand may mean that consumers are making systematically correct decisions ex ante, even though this does not appear to hold ex post.
- **Sub-optimal market outcome.** Cognitive limits constrain the ability of consumers to make the optimum choice when faced with complex or numerous choices. Excessive choice means that consumers are more likely to select an option that is not in their best interests, or to avoid making a decision altogether.

If evidence of the latter set of factors is identified, there could be a case for intervention in the market, although it would still be necessary to demonstrate that the benefits of intervention outweighed the costs. The current empirical work has produced some evidence supporting the argument that too much choice could be harmful, but as yet the evidence is not sufficiently broad for general conclusions to be reached.

- ¹ See, for example, Iyengar, S. and Lepper, M. (2000), 'When Choice is Demotivating: Can One Desire too much of a Good Thing?', *Journal of Personality and Social Psychology*, **79**:6, December, pp. 995–1,006.
- ² Competition Commission (2002), 'Vodafone, O2, Orange and T-Mobile: Reports on References under section 13 of the Telecommunications Act 1984 on the Charges Made by Vodafone, O2, Orange and T-Mobile for Terminating Calls from Fixed and Mobile Networks—Volume 1: Summary and Conclusions', December.
- ³ Ofcom (2006), 'The Consumer Experience: Telecoms, Internet and Digital Broadcasting', November.
- ⁴ See, for example, Consumer Action Law Centre (2007), 'Submission to the Productivity Commission Inquiry into Australia's Consumer Policy Framework', June.
- ⁵ See also *Agenda* (2007), 'When Economics met Psychology: Rethinking Incentives', March.
- ⁶ Wilson, C. and Waddams Price, C. (2005), 'Irrationality in Consumers' Switching Decisions: When More Firms May Mean Less Benefit', ESRC Centre for Competition Policy, University of East Anglia, August.
- ⁷ Economides, N., Seim, K. and Viard, B. (2006), 'Quantifying the Benefits of Entry into Local Phone Service', Working Paper 05-17, Department of Economics, New York University, August.
- ⁸ Lambrecht, A. and Skiera, B. (2006), 'Paying too much and Being Happy about it: Existence, Causes and Consequences of Tariff-choice Biases', *Journal of Marketing Research*, May.
- ⁹ Economides, N., Seim, K. and Viard, B. (2006), op. cit.
- ¹⁰ Kahneman, D. (2002), 'Maps of Bounded Rationality: A Perspective on Intuitive Judgement and Choice', Nobel Prize Lecture, December.
- ¹¹ See, for example, Gabaix, X. and Laibson, D. (2000), 'Bounded Rationality and Directed Cognition', MIT Department of Economics Working Paper.
- ¹² Timmermans (1993) showed that 21% of his sample used option-elimination strategies in the case of three options, rising to 77% for nine options. Cited in Iyengar, S. and Lepper, M. (2000), op. cit.
- ¹³ Stickler and Becker (1977), cited in Miravete, E. and Palacios-Huerta, I. (2004), 'Rational Attention and Deliberation Costs in a Repeated Decision Problem', CEPR Discussion Paper No. 3604, September, p. 1.
- ¹⁴ Miravete, E. and Palacios-Huerta, I. (2004), op. cit.
- ¹⁵ Economides, N., Seim, K. and Viard, B. (2006), op. cit.
- ¹⁶ Iyengar, S. and Lepper, M. (2000), 'op. cit.
- ¹⁷ Ellison, G. and Fisher Ellison, S. (2007), 'Strategic Entry Deterrence and the Behaviour of Pharmaceutical Incumbents Prior to Patent Expiration', NBER Working Paper No. 13069, April.
- ¹⁸ Schmalensee, R. (1978), 'Entry Deterrence in the Ready-to-eat Breakfast Cereal Industry', *Bell Journal of Economics*, **9**:2, pp. 305–27; and Reimer, J. (2004), 'Market Conduct in the US Ready-to-eat Cereal industry', *Journal of Agricultural and Food Industrial Organisation*, **2**, article 9.
- ¹⁹ Tirole, J. (1988), *The Theory of Industrial Organization*, London: MIT Press.
- ²⁰ Ibid.
- ²¹ Bayus, B. and Putsis, W. (1999), 'Product Proliferation: An Empirical Analysis of Product Line Determinants and Market Outcomes', *Marketing Science*, **18**:2, pp. 137–53.
- ²² Judd, K. (1983), 'Credible Spatial Preemption', *The RAND Journal of Economics*, **16**:2, pp. 153–66.

If you have any questions regarding the issues raised in this article, please contact the editor, Derek Holt: tel +44 (0) 1865 253 000 or email d_holt@oxera.com

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