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Are Consumer Decision-Making Phenomena a Fourth Market Failure?

Pete Lunn

Abstract: This paper challenges the increasingly common view that the findings of behavioural economics constitute a fourth type of market failure. The market failure framework elevates the standard competitive market model to the status of an ideal. It provides us with tools to identify departures from the ideal model and to deduce a direction policy might take to restore it. Many behavioural phenomena also imply departures from the ideal model. Yet rather than allowing us to deduce a good direction for policy, the findings question the legitimacy and usefulness of this deductive theoretical framework for policy analysis. Two policy problems are highlighted here: the validity of inferring that consumers' choices after an intervention improve outcomes relative to their previous choices, and the potential for distributional consequences when policy alters consumers' choices. The paper concludes that, given these problems, conceiving of the relevant behavioural phenomena as an additional form of market failure is potentially to misunderstand their implications for consumer and competition policy.

Keywords: Market Failure; Decision-making biases; Behavioural economics; Regulation

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1. Introduction

Advances in behavioural economics and related disciplines have generated debates among those interested in consumer and competition policy. Specifically, many of the empirical findings unearthed by the behavioural approach to economics question the assumptions and applicability of orthodox (neo-classical) competitive market models. Consequently, they appear to have implications for policies that rely on such models for guidance (e.g., Bennett et al. 2010; Garcés 2010; Rosch 2010). These findings hence represent a new twist in the long-running argument about the extent of desirable intervention in markets (e.g., Micklitz et al. 2011; Salinger 2010; Sunstein 2011). Among the issues raised is whether information-based remedies for deficiencies are likely to improve welfare or merely place additional burdens on market participants for little return (Faure and Luth 2011; Sunstein 2011).

The present paper makes a contribution to this growing literature by challenging a specific conceptualisation of behavioural economic phenomena that violate orthodox microeconomic consumer theory. It is becoming increasingly common among academics and policymakers to conceptualise such behavioural phenomena as an additional form of market failure. Bennett et al. (2010, p. 115) state that, "...arguably, behavioural biases can be viewed simply as a fourth type of market failure", to be listed alongside externalities, market power and asymmetric information. Shogren and Taylor (2008; also Shogren 2012) introduce what they call "behavioural failure" when discussing environmental regulation, making an explicit parallel to the concept of market failure. Bar-Gill (2008) has coined the term "behavioural market failure" to emphasise the potential negative welfare effects of such phenomena in consumer markets. This term has also been adopted by Sunstein (2013). Similarly, in the UK Government Economic Service's guide for members, *Behavioural Economics: A Guide for Economists in Government*, the role of behavioural economics in market failure is labelled "rationality failure".

The present paper argues that there are dangers in conceptualising the relevant behavioural phenomena as additional forms of market failure and, hence, that it may be unhelpful for policymakers to think of the relevant behavioural phenomena in this way. The central argument can be stated as follows. The concept of market failure elevates the standard competitive market model to the status of an ideal. Analysts and policymakers can use the theoretical framework both to identify departures from this ideal and to deduce what direction policy might take to move back towards it. They are assisted by a substantial body of scholarship that has generated formalised models of market failures and associated corrections. In contrast, although many behavioural phenomena also constitute departures from the orthodox model, rather than providing direction to policy within this deductive theoretical framework, the findings question the legitimacy for policy analysis of the framework itself. Various empirically robust behavioural results present challenges to consumer and competition policy that the market failure framework was not designed to

address and about which it cannot provide clear policy direction. The specific challenges highlighted in the present paper relate to the ability of policymakers to identify normative preferences and the implications of behavioural phenomena for the distributional consequences of policy. The intractability of these issues within the market failure framework means that to list the relevant behavioural phenomena as an additional market failure is potentially to misunderstand their likely policy implications.

For ease of exposition, the paper employs a detailed example in the form of a particular challenge currently facing consumer and competition policy in telecommunications markets. Evidence has accumulated to suggest that “three-part tariffs”, which are widespread in mobile telephone and residential broadband markets, exploit established behavioural phenomena and result in significant consumer detriment (Bar-Gill and Stone 2009; Grubb 2009; Lambrecht and Skiera 2006). Whether and how policymakers might intervene in these markets in an effort to reduce this detriment provides a relevant case study for the discussion.

Section 2 first revisits the long-standing concept of market failure, noting that throughout its evolution the aim has been both to identify and to correct market failures by reference to an idealised model. Section 3 describes the three-part tariff problem, arguing that it exemplifies the policy challenges posed by behavioural economics and illustrating why the market failure framework does not provide clear policy direction. Section 4 generalises the argument by showing how the alternative scientific method employed in behavioural economics delivers findings that themselves undermine the market failure framework. Section 5 concludes and considers other ways that policymakers might conceptualise and respond to the relevant behavioural phenomena.

2. The Market failure Framework

The argument to be presented in part rests on how and why the concept of market failure evolved and how it has come to be used. This section shows that even prior to the marginal revolution in economics, the concept was directed at both the identification of and, crucially, the correction of departures from an idealised allocation system. The study of established market failures within economic theory has always relied and continues to rely primarily on deductive theory that aims to inform both diagnosis and treatment, subject to limitations of cost.

2.1 Market Failure in the History of Economic Thought

The concept of market failure can be traced back to nineteenth century classical economics. As documented by Robbins (1952), far from being conservative supporters of a free-market system, the classical economists were reformers intent on directing economic policy for the benefit of wider society. They held that the wellbeing of society as a whole would be advanced by free consumer choice within a market system in which producers also had freedom, subject to regulation by government to protect such freedom. Within this

tradition, the writings of John Stuart Mill in the mid-nineteenth century began an identifiable intellectual effort to define more precisely the legitimate extent of state intervention in the market. As Medema (2007) shows, Mill (1848) broke away from the classical tradition by identifying many cases of what came to be understood as examples of two of the three standard market failures studied in micro-economics: externalities (including public goods) and market power. Mill's analysis included examples relating to the consumer policy of the time, such as the state's role in establishing a standard set of weights and measures to alleviate buyers' difficulties when assessing quantities. For present purposes, the key point is that from its inception the analysis of market failures aimed to categorise departures from the ideal model and to deduce possible interventions to return the system to an ideal state, or what Mill called the "system of natural liberty".

This conceptualisation of market failure and the motivations for studying it continued through the turn of the twentieth century, notably in the work of the Cambridge School of Economics, which introduced analytical rigour and mathematics to the study of market failure (O'Donnell, 1979). While empirical examples and case studies were extensively discussed in the literature of the time, following the marginal revolution the primary scientific method employed was deductive. The efficiency of the market system was deduced from formalised assumptions. Instances were then analysed where certain assumptions did not hold and Pareto optimal outcomes did not obtain, allowing the further deduction of potential policy measures to correct the failure and return the model to its idealised form or, in later work, to a second best level of efficiency (Lipsey and Lancaster 1956). Perhaps the most celebrated early example is the Pigouvian tax as an antidote for externalities (Pigou 1920).

2.2 Three Standard Market Failures

While market failures may happen for a great number of reasons, on the assumption that public goods are considered a special case of externalities, orthodox microeconomics equips analysts and policymakers to identify and address three broad categories: externalities, market power and information asymmetry. It is for this reason that Bennett et al. (2010) contend that various behavioural phenomena constitute a "fourth type of market failure". With respect to information asymmetry, the same deductive scientific method characterised the initial analysis in the late 1960s and early 1970s as had previously been applied to externalities and market power. The breakthrough studies that changed understanding (e.g., Akerlof 1970) introduced an assumption of asymmetric information into standard equilibrium models, which by then had a highly formalised neoclassical flavour, and deduced suboptimal outcomes and potential solutions for restoring Pareto efficiency. The analysis proceeded via theoretical deduction, with the introduction of asymmetric information justified through casual observation, before seeking real world application and empirical tests to establish the extent of the identified market failure or the prevalence of efforts by market participants and authorities to combat information asymmetry (Stiglitz 2000).

Thus, while the market failure framework has developed over a period of more than a century and a half, the methodological approach has been consistent. A deductive model of

an efficient market is the starting point. The assumptions of the model are then tweaked to reflect potentially important properties of real markets. The efficiency properties of the model are reassessed and, where efficiency failures are identified, further deductions suggest possible corrections that might restore optimality or result in a second best level of efficiency. The elements of now standard policy solutions to market failures flow from such deductive analysis. Externalities can be removed by completing the market and pricing them in, or neutralised by taxing them at the efficient level. Market power can be addressed by preventing collusion and removing barriers to entry. Information asymmetry can be tackled by requiring accurate disclosure, improving access and policing product descriptions and quality guarantees. These solutions are born of the market failure framework in which it can be deduced that they will direct the market back towards the ideal competitive model.

2.3 Linking Behavioural Economics to Market Failure

Part of the impetus to describe and conceptualise relevant behavioural phenomena as market failures is to get them taken seriously by those whose instinct is to caution against excessive government intervention. An example is Bar-Gill (2008), who outlines evidence for “behavioural market failures” in credit card markets, where some consumers fail to make beneficial switches to lower cost cards and some simultaneously hold credit card debt that bears high interest and savings that earn much lower interest. Bar-Gill asks why detailed factual inquiry and legal intervention are not employed to address these market failures, just as they are when the market failure results from monopoly and collusion. Similarly, Sunstein (2013, p. 39) posits that behavioural market failures “supplement the standard (welfarist) justifications for government action”. Indeed, many behavioural phenomena can be linked to one or more violations of the orthodox competitive market model, thereby implying that in a market where such phenomena persist a deduction of efficient allocation is invalid.

Yet, as demonstrated above, the market failure framework was developed to do more than list violations of perfect efficiency. The framework presents an ideal to aim for and is designed to allow the analyst or policymaker to deduce a direction for policy that shifts allocation back towards this ideal. This aspect of the market failure framework is recognised also by Shogren (2012, p. 350), who uses the term “behavioural failure” in a parallel sense to market failure to “stress the normative notion in behavioural economics that society can ‘fix’ these failures given some third-party expert who knows the optimal outcome and can create cues and nudge people toward that outcome”. It is at this point, when the analyst or policymaker turns to the market failure framework to make deductions about potential policies, that various behavioural phenomena become troublesome. From the outset, it is with noting that while the three standard market failures were first investigated by scholars via the deductive method, the relevant behavioural phenomena were not. Arguably, therefore, we might expect these phenomena to have some distinctive properties. Before pursuing this further in a generalised analysis, however, a concrete case study helps to clarify the nature of the problem.

3. Case Study: Three-Part Tariffs in Telecommunications

“Three-part tariffs” consist of a fixed fee in return for a specified level of service up to a limit, beyond which additional charges are levied. Applying these tariffs to mobile telephone and broadband services, consumers pay for an allowance of units of the product (calls, text messages and/or megabytes of data), supplied at zero marginal price, while any units consumed beyond the allowance are charged at a positive (usually much higher) marginal price. These contracts are widespread in many countries and hence appear to be popular with both providers and consumers. Yet there is good evidence that they result in a substantial proportion of consumers paying considerably more for the service than they need to.

This section outlines explanations offered by behavioural economics for the empirical observation that three-part tariffs remain popular despite what appears to be substantial, ongoing, consumer detriment, occurring in competitive markets that offer consumers ample choice. It then considers the challenges raised for policymakers and the extent to which the market failure framework is helpful for conceptualising the problem and seeking a solution.

3.1 Overoptimistic and Miscalibrated Consumers

“Overconfidence bias” is an established phenomenon in behavioural economics, which manifests itself in two ways. Firstly, we are habitually overoptimistic in assessing our likely personal performance, abilities and outcomes. For instance, one classic and oft-cited study found that 93% of drivers thought their driving skills were above the median (Svenson 1981). Secondly, we are inclined to believe that our assessments of likely outcomes are more accurate than they in fact are, thereby underestimating the likelihood of extreme outcomes. Again, the size of this miscalibration can be very large. Ben-David et al. (2010) asked a sample of Chief Financial Officers to predict stock market returns and, in doing so, to predict the 10th and 90th percentiles of the distribution. Actual returns stayed within the stated 80% confidence range just 33% of the time. Laboratory and field studies of both types of overconfidence are reviewed by (DellaVigna, 2009), who finds evidence for the phenomenon among consumers when they choose health club contracts, credit cards and pension plans, and with respect to the judgements and decisions of both professionals and non-professionals in financial markets.

Recent evidence suggests that overoptimism and miscalibration probably help to explain data on consumers’ choices between three-part tariffs. In a study of 11,000 customers at a single German residential broadband internet provider, Lambrecht and Skiera (2006) found a substantial proportion had failed to select the cost minimising tariff for their usage pattern from a choice of just three different tariffs. The majority on the three-part tariff with higher fees and allowances would have been better off on a tariff with a lower fee and allowance. A smaller proportion of consumers overstepped the limits and paid penalty rates. Overall, the effects were large: the supplier was estimated to be doubling customer lifetime value from those not selecting the cost-minimising tariff. Similar effects have been recorded for mobile telephone tariffs in the US by Grubb (2009) and Bar-Gill and Stone (2009), with a somewhat

higher proportion overstepping allowances. Yet three-part tariffs remain popular among consumers. The most likely explanation for these findings, as argued by Grubb (2009), is overconfidence bias. Consumers seem to believe that they are in better control of usage than in fact they are, both underestimating the likelihood of going beyond allowances and of using too little of the service to justify the flat-rate payment. According to this account, therefore, three-part tariffs attract custom because consumers underestimate the likelihood of paying too much for the service at both ends of the usage distribution.

Importantly, however, this combination of overoptimism and miscalibration is not the only factor indicated by empirical results; other part-causes are probably involved (Lambrecht and Skiera 2006). Risk-averse consumers may pay extra for insurance against high bills, although they may not realise the true size of the insurance premium they are paying. The “taxi-meter effect” (Prelec and Loewenstein 1998), which refers to an observed tendency to enjoy consumption more after paying in advance than when watching the bill simultaneously mount, may also be involved. That is, surfing, chatting or messaging may actually be more pleasurable when the marginal cost is zero. Lambrecht and Skiera’s (2006) survey evidence suggests some role for both the insurance and taxi-meter effects, which are consistent with the observed preference for flat rates, although perhaps not with contracts that include high penalty rates for exceeding allowances (Grubb 2009).

Given the above findings, three-part tariffs raise clear issues for policy. Many consumers are paying much more than they need to for the level of service they receive, implying substantial consumer detriment. The prime suspect is a misperception, which while it is the subject of relatively recent and ongoing scientific investigation, is nevertheless already well-documented. The available evidence indicates that providers offer contracts that exploit the misperception and generate additional profits from the more overconfident consumers. Yet consumers and suppliers alike willingly enter contracts with three-part tariffs and overconfidence is not the only reason consumers are willing to pay more for flat rates. So, should regulators act? If so, how?

3.2 Representativeness as a Case Study

Before considering the usefulness of the market failure framework for tackling this awkward policy challenge, a brief discussion is merited regarding the extent to which this case study exemplifies the sort of consumer and competition policy dilemmas thrown up by behavioural findings. As well as topicality, the issue of three-part tariffs has a number of properties in common with other areas where behavioural findings have led to debate over the appropriateness of policy interventions. Firstly, while the basic empirical facts relating to the failure to select the minimum cost tariff for a given usage are not disputed, the precise cause is not a matter of scientific consensus. This situation applies to other behavioural phenomena that have been observed in real markets and brought to the attention of policymakers, such as the power of defaults to determine choices relating to retirement savings (e.g., Madrian and Shea 2001; Poterba 2009) or online transactions. The influence of defaults is easy to demonstrate empirically, yet it is unclear to what extent the effect is due to individuals treating defaults as advice, viewing them as an indication of what others do, or

simply sticking with the default through inertia or procrastination. Thus, the empirical findings and policy response are ahead of explanatory efforts, which are the subject of ongoing research. Secondly, modern telecommunications markets are contested and offer consumers plenty of choice. Despite the apparent presence of competition, the potentially problematic transactions are entered into willingly for periods of years, with many consumers seemingly unaware that they could be making much lower cost choices. Hence, policymakers must consider whether it is reasonable to conclude that the relevant consumers do not know what is good for them. Again, this implication is typical of behavioural findings relating to free consumer choices across a range of competitive markets, such as insensitivity to fees for investment products (e.g., Barber et al. 2005), the anchoring of credit card repayments by a prominent minimum repayment (Stewart 2009), or the impact of container size on food intake (e.g., Wansink and Kim 2005). Lastly, the selected case study is a consumer and competition policy issue that could potentially be addressed by a range of possible interventions drawn from current debates on the implications of behavioural economics. There are arguments for doing nothing, for mandating better information disclosure, for trying other “nudges” (Thaler and Sunstein 2008) such as timely or salient consumer feedback, for introducing price regulation (e.g., limiting the severity of penalty rates) or, at the extreme, a case can even be made for banning three-part tariffs on the grounds that price schedules with zero marginal cost are theoretically inefficient.

3.3 Applying the Market Failure Framework

The market failure framework was developed to allow policymakers and analysts to spot inefficiencies and to deduce potential solutions. Does it help here? It is not needed in order to conclude that three-part tariffs lead to potentially large consumer detriment. This inference requires only the assumption that consumers would rather pay substantially less for the same service, since the empirics suggest in straightforward fashion that consumers could be doing better. But does the market failure framework help an analyst or policymaker deduce a direction for policy?

Following the same logic as applies to the three established market failures, policymakers might deduce that a good policy is one that tries to move the market back towards the ideal competitive model. Interventions might be sought to make consumers’ perceptions of the distributions of their own likely future usages more accurate. Regulations might be introduced to force suppliers to disclose their own estimate of the probability that the consumer will overstep the allowance (Bar-Gill 2012), or to send a warning message when an allowance is about to be overstepped (Bar-Gill and Stone 2009), or to provide one-click access to contemporaneous graphical usage information (Lunn 2013). Such interventions, designed to “debias” consumers’ overconfidence, might initially appear to move the market back towards the ideal competitive model with consumers behaving according to rational choice theory.

There is, however, a problem with the logic here. To be effective, any intervention must alter choices. Yet how can the policymaker be sure that the new choices made following the intervention are better for the consumer than the previous choices? Note that where an

intervention successfully makes consumers' perceptions of the distribution of their own future usage more accurate, this is not a sufficient condition for a welfare improvement. For instance, another established finding of behavioural economics is that decision-makers overweight small probabilities when choosing between risky prospects (Camerer and Ho 1996; Tversky and Kahneman 1992). When this overweighting of small probabilities is combined with miscalibration, which reduces the perceived probability of small probability outcomes, it cannot be deduced that improving calibration with respect to future usage will necessarily result in a better outcome for the consumer. If, following the intervention, consumers perceive the probability distribution of their future usage accurately but overweight these small probability outcomes when deciding between contracts, they may actually end up making worse decisions overall, despite the improved accuracy of one of their perceptions.

In fact, it is not valid to deduce that a policy intervention is welfare improving even where it is known that the policy increases the proportion of consumers opting for cost-minimising tariffs, because policymakers do not know the optimal proportion of consumers on such tariffs to aim for. Some consumers' desire for insurance against high bills and their dislike of having the meter ticking may mean that they prefer to spend somewhat more than they need to for good reasons. The optimal proportion on cost minimising tariffs, therefore, will be less than 100%. How much less? An informed judgement is required of analysts and policymakers, but having accepted that some consumers' choices of tariff diverge from what is best for them, we no longer have a criterion for determining the optimum and, hence, whether an intervention is unambiguously beneficial for consumers. Given this, we cannot deduce a welfare improving direction for policy even in circumstances where the policy can be introduced at zero cost.

None of this is to suggest that any of the potential policy interventions listed above is a bad idea, nor that policymakers should shy away from intervening (cf. Epstein 2008; Bar-Gill 2008). Faced with the empirical evidence, many people might conclude that introducing such regulations would be a good idea; the broad sweep of telecommunications consumers may welcome them. The key point is more general and relates to the analytic approach. The market failure framework, in the face of the three standard types of market failure, usually allows analysts and policymakers to deduce that certain policies are welfare improving, at least prior to comparing the benefits with potential costs. But faced with relevant behavioural evidence regarding how consumers make decisions in the telecommunications market, equivalent deductions cannot be made. Thus, the case study presented suggests that these sorts of behavioural phenomena are somehow different from the three established forms of market failure and, therefore, may need to be conceived of in a different way. The following section generalises and extends the argument.

4. Beyond Market Failure

Scientific method lies at the heart of the analytical problems just raised. While the market failure framework exemplifies the use of the deductive approach to the investigation of economic questions, behavioural economics addresses economic questions via a contrasting inductive approach, more commonly employed in experimental psychology. The method has produced very many replicable empirical findings, the sheer volume of which make deductive welfare analysis intractable, at least at the present time and perhaps on a long-term basis. Furthermore, behavioural phenomena force policymakers in the area of consumer and competition policy to consider normative issues that lie outside the market failure framework. Here, two issues are highlighted: the problem of normative preferences and the redistributive implications of policy interventions.

4.1 *Deductive and Inductive Economics*

There is no agreed definition of behavioural economics. Most definitions offered centre on one or both of two aspects: the branch of economics that contrasts observed behaviour with the rational choice assumptions of orthodox microeconomics (e.g., Wilkinson 2008) or the incorporation of psychology into economics (cf. Thaler and Mullainathan 2000). The second of these is perhaps more accurate than the first. To see this, consider a standard behavioural economic experiment where rational choice theory offers a clear prediction. The experimenter would surely not cease to be engaging in behavioural economics if, in the event, the prediction were confirmed. Moreover, behavioural economists increasingly test predictions derived from other decision-making models. Thus, although behavioural economics has produced many refutations of standard microeconomics, it does not by definition entail such empirical outcomes or require a focus on rational choice theory. In favour of the second type of definition, there is little doubt that psychology and psychologists have been foundational for behavioural economics. Yet it is not clear that psychological theory or even psychological insights are necessary conditions for making advances through behavioural economic research. Arguably, what behavioural economics has adopted from experimental psychology is not so much theory or insight as a particular scientific method (Shiller 2005; Lunn 2012). The salient characteristic of this scientific approach is inductive logic, based on extensive empirical observation and experimentation. For the most part, theory is rarely deduced from normative (or other) assumptions, and then indirectly tested. Instead, behaviour is investigated through more direct and open-ended empirical study. Potentially illuminating or relevant economic situations are subjected to controlled empirical investigation. Behavioural principles and models are then inferred from repeated observation and experiment – a process of induction.

The use of this inductive scientific approach has consequences. Most importantly, as in experimental psychology, the method can produce very many significant empirical phenomena that are hard to unite through generalisable models. Thus, behavioural economics has established the existence of an extensive array of phenomena that influence economic decision-making, many of which have now been observed under both laboratory conditions and among economic actors in the field (Dellavigna 2009). For instance, should

policymakers turn to the established scientific literature for guidance on how consumers approach the purchase of retail investment products, they would discover that choices are likely to be influenced by reference dependence, hyperbolic discounting, extrapolation bias, behavioural convergence, overconfidence, action bias, choice overload, the focussing illusion, ambiguity aversion, inattention, framing effects and perhaps more. In at least some contexts, there is evidence that each of these phenomena, all of which generally violate rational choice theory, can have a substantial bearing on decisions. Behavioural economics has revealed that economic decision-making is highly complex, multifaceted and sensitive to quite subtle features of the decision-making environment. Behaviour may thus be poorly approximated by relatively simple axiomatic models, despite their merits in terms of power and generalisability. Instead, accurate models of how consumers behave in any given market may need to be quite specific to the particular context, with the strongest influences on consumer decisions identified by empirical study within the context concerned.

4.2 Implications for Normative Preferences

This understanding of how behavioural economic investigation proceeds allows the argument concerning three-part tariffs to be generalised. In many purchase contexts, particularly those the range of identifiable behavioural phenomena likely to affect consumer decisions is likely to be quite broad. In the case of telecommunications described above, while consumers may underestimate the likelihood of low or high usage, this miscalibration may be counterbalanced by the overweighting of small probabilities in decisions and the desire for insurance against one's own future behaviour. Even this combination of influences is likely to be an oversimplification of reality, since other behavioural phenomena such as time consistency and reference dependence are likely to influence choice of contract (Lunn, 2012). Thus, while a proposed policy or regulation might aim to "debias" the consumer, by extinguishing one seemingly disadvantageous aspect of consumer reasoning, it is not possible to deduce that consumer choices after the intervention will represent improvements on choices prior to the intervention. A clear direction to policy, as the market failure framework is intended to offer, cannot be discerned in this way.

At the crux of this problem is that the market failure framework assumes, in the absence of the established causes of market failure, that the preferences revealed by consumer behaviour represent desirable outcomes. The framework is fundamentally premised on the notion of an ideal model against which a deviation can be detected and corrected. If an intervention internalises an externality, reduces market power, or rebalances an information asymmetry, then the market outcomes will move back towards this ideal. The preferences then revealed are assumed to be normative. Yet the broad and expanding range of decision-making phenomena uncovered by behavioural economics undermines this premise, because it implies that in many cases revealed preferences cannot be treated as normative.

In the case study considered above, it is the possibility of interactions between potentially counterbalancing influences on decision-making that make it hard to identify normative preferences and, hence, to conclude that the policy improves consumer welfare. Some findings of behavioural economics, however, show that revealed preferences cannot be

treated as normative for other reasons. Most obviously, revealed consumer preferences can be inconsistent. Dellavigna (2009) reviews a number of studies where consumer decisions imply inconsistent preferences over time or in logically identical choice scenarios framed in different ways. Beshears et al. (2008) provide further examples where empirical findings suggest that revealed preferences cannot be regarded as normative, because of passivity of consumer choice, complexity of the choice-set, susceptibility to systematic forecasting errors or vulnerability to marketing. To consider just one of these examples in more detail, if consumers change their choice of retirement savings plan when more options are added to the choice-set (Iyengar and Kamenica, 2006), which of the two choices should be regarded as superior? Should policymakers aim to simplify choice or promote greater choice? Once empirical findings reveal instances where consumers do not make decisions that are in their own best interests, the identification of “normative preferences” is problematic and, therefore, policy direction is unclear.

Policymakers have the potential power to influence consumer decisions and behavioural economics offers insight into mechanisms that might achieve this. But unless they possess sufficient power to turn consumers into unwavering adherents to all the standard microeconomic axioms of consumer choice, whether such interventions are beneficial cannot be deduced. The evidence implies too many influences on decision-making and too much instability in revealed preferences for such a metamorphosis of consumers to be considered feasible. Consumer policy may influence decisions, but it cannot change human nature wholesale.

4.3 Distributional Concerns

Under the standard competitive market model, allocations are a function of initial endowments and relative prices. Agents differ in preferences and endowments, but are otherwise identical. The focus is on allocative efficiency. The first theorem of welfare economics states that under certain assumptions a competitive equilibrium is Pareto efficient, while the second states that, with some additional assumptions, any efficient allocation can be sustained by a competitive equilibrium. In the interests of efficiency, distributional concerns are relegated to consideration of initial endowments, which fall outside the scope of consumer and competition policy.

The evidence from behavioural economics challenges this relegation of distributional issues. As described above, consumer decision-making is a complex matter with many significant and potentially interacting influences. Consequently, one might anticipate meaningful variation in decision-making skill among the population – variation that rational choice theory assumes away. If so, not only is the overall quality of consumer decision-making an issue for policymakers, so is how that quality varies across individuals. Indeed, while empirical investigation of individual differences in behavioural phenomena have received much less attention than the identification and measurement of average effects, what evidence there is suggests that variation in decision-making quality across individuals may be considerable and, importantly, not simply limited to differences between the majority of consumers and certain categories identified as “vulnerable”, such as children or older

people. For instance, individuals who are prone to one seemingly disadvantageous decision-making phenomenon appear to be more prone to other such phenomena, i.e. biases in decision-making are significantly correlated at the individual level (e.g., Stanovich and West 2000; de Bruin et al. 2007). These and other studies (e.g. Frederick 2005; Peters et al. 2006) also find that measures of decision-making competence are correlated with tests or other indicators of cognitive ability. While such a correlation is not inconsistent with the notion that certain identifiable groups of consumers might be considered vulnerable, it also implies that there is important variation in decision-making across the population more generally.

These findings have further implications for the usefulness of the market failure framework for determining policy direction. The idealised market model has no variation across consumers in decision-making competence. Yet such variation means that policy interventions designed to help consumers to make better decisions may vary in the extent to which they improve average outcomes and the degree to which they reduce variation in outcomes across consumers. Which is the greater priority? Note that this is not merely a hypothetical problem. Return to the case of the three-part tariff. Policymakers might adopt Thaler and Sunstein's (2008) proposal for mandating companies to make available individual usage information in machine readable form. At the time of writing, a version of this intervention ("midata") is being implemented in the UK. The aim is to allow those with the technical capability to use bespoke software to compare tariffs and choose the lowest cost provider for their usage pattern. It may turn out on average to be highly beneficial to such consumers, but to do little for less sophisticated consumers who struggle to employ sufficient self-control to remain below usage limits. Contrastingly, the more strident regulatory policy of introducing price limits on penalty rates might be a greater help to that minority, but prove disadvantageous for the average customer who stays within allowances. Deciding between these policies requires regulators to take a position regarding the importance or otherwise of the distributional consequences.

The ideal market envisaged under the market failure framework suggests that policymakers should aim for a scenario where all consumers adhere to rational choice theory, which implies no variation between them. Yet, in addition to the difficulty of unambiguously improving consumer choices, given the volume and complexity of departures from rational choice theory, policies that improve some choices may increase variation in the quality of choices. Thus, one of the policy implications of behavioural economics is that policy may need to take account of substantial and probably enduring individual differences in consumers' decision-making abilities.

5. Conclusions

A conceptualisation of the findings of behavioural economics as a fourth market failure implies that the standard competitive market model remains the target for policy and that correction of the identified market failure should be the policymakers' aim. Through, first, the case study of the three-part tariff in telecommunications markets and, second, analysis

of the more general case, this paper has argued that trying to fit behavioural economic findings into this market failure framework may be unhelpful for devising appropriate policy responses.

The inductive scientific method that underpins behavioural economics has produced and continues to produce a broad range of empirical findings of relevance to consumer choice. In at least some markets, the empirics point to many influences on consumer choice, which are often dependent on subtle aspects of the decision-making environment and may interact or counterbalance one another. In contrast to the case of externalities, market power and information asymmetries, this complexity means that deductive analysis based on a highly generalised model of an ideal market is unlikely to determine policy responses that unambiguously improve welfare. Thus, behavioural findings undermine the market failure framework not only by demonstrating that consumer decision-making departs in numerous ways from rational choice theory, but also by showing that the assumption that true preferences are revealed by choices may in many cases be invalid. The extent and prevalence of these departures from the orthodox model and of the disjunction between revealed and true preferences remain the subject of ongoing investigation. Meanwhile, behavioural findings also indicate that there is likely to be important variation in decision-making capability between consumers. This implies that consumer and competition policy may have distributional consequences over and above those usually associated with policy responses to the three established market failures. In light of these empirical patterns, to conceive of the various phenomena uncovered by behavioural economics as constituting a fourth market failure may be to misunderstand their policy implications.

How, then, might policymakers be encouraged to conceive of the findings of behavioural economics and to exploit the new knowledge they impart? One potential answer to this question relates to what lies at the heart of the matter: scientific approach. The complexity and sophistication of human decision-making is what necessitates the use of the inductive scientific method to investigate it. By analogy, therefore, the implication of this complexity is that analysts and policymakers might need to adopt a less deductive and more inductive approach to policy development. This would involve the collection and consideration of a range of different types of evidence regarding how consumers make choices in specific markets, coupled perhaps with a willingness to experiment with policy design itself.

Beshears et al. (2008) list six forms of empirical evidence that, in circumstances where revealed preferences cannot be considered normative, might nevertheless give policymakers helpful insight into people's true preferences: active choices made by engaged decision-makers; asymptotic choices made by experienced decision-makers; aggregated choices across individuals; self-reported preferences; informed choices made by those with expertise or training; and structural estimation, where a model of revealed choices is estimated and mapped onto a normative decision-making framework. To these forms of evidence might be added others. Inferences might be made regarding normative preferences from how decision-makers respond to feedback, or how their decisions are affected by variation in the choice-set or the framing of choices. For instance, how people respond to the revelation of the gap between what they pay and what they could pay for the

same telecommunications service offers an indication of the desirability of their initial choice. A similar argument can be made regarding how consumers respond to realising their susceptibility to a framing effect.

None of these types of evidence necessarily permits analysts and policymakers to observe or otherwise unambiguously determine normative preferences, either on average or with respect to variation in outcomes across consumers. Thus, the range of available empirics may offer only an indication of what is likely to constitute a welfare improving policy, perhaps on the balance of probabilities or with additional assumptions regarding the relative weight to be given to distributional concerns. For those seeking objective empirical criteria to determine policy, this level of subjectivity is doubtless unwelcome. But the main implication of behavioural economics for consumer and competition policy may be that, at least in markets where significant behavioural phenomena have been identified, a subjective judgement informed by a range of objective but not decisive empirical findings will be the best we can do in pursuit of welfare improving policies. Such subjective judgements will surely produce better policy the more they are informed by evidence.

Recognition of this uncertainty over policy direction, where evidence suggests departures from rational choice theory, could usher in a more empirical approach to policy development itself. Policy experiments, pilots and (where possible) randomised controlled trials (RCTs) allow policymakers to observe the consequences of possible interventions, which cannot be deduced given the complexity of the context. Again, the question of whether post-intervention consumer decisions represent a welfare improvement may not always be answered decisively, but such an empirical approach is likely to provide indications and hence to support better policy decisions.

Finally, since many findings of behavioural economics suggest that consumers sometimes fail to act in their own best interests, there has been an understandable debate about the extent to which policy responses might be legitimately or excessively paternalistic, in limiting or promoting certain choices (e.g., Camerer et al. 2003; Sugden 2011; Sunstein 2012). Although this important debate is not central to the argument presented here, it is worth noting that explicit use of empirics in the development of policy has the potential to allay fears of paternalism, at least to some extent, if policymakers publish all their findings and proceed in a transparent fashion. Consumers and companies may be more willing to accept policies that constrain or otherwise manipulate choices when empirical evidence of the likely impact has been accumulated openly and subjected to scrutiny.

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