

Richard H. Thaler: A Nobel Prize for Behavioural Economics

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Abstract

This paper provides an overview of Richard Thaler's career and the contributions to behavioural economics that earned him the 2017 Nobel Memorial Prize in Economic Sciences. It focuses on his role in exposing and making sense of empirical anomalies in orthodox economics, his analysis of mental accounting, and his work with Cass Sunstein on the notion of libertarian paternalism and the 'nudge'-based behavioural approach to economic policy. It then considers his contributions critically and explores how, unlike previous behavioural economics, Thaler succeeded in getting his new approach to behavioural economics accepted by mainstream economists.

Keywords: anomalies in economics, heuristics and biases, mental accounting, liberal paternalism, nudge

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Introduction

Richard H. Thaler was awarded the 2017 Nobel Memorial Prize in Economic Sciences for his contributions to behavioural economics. His contributions build on work by two previous Nobel Laureates, Herbert Simon (in 1978) and Daniel Kahneman (in 2002, jointly with the pioneer of experimental economics, Vernon Smith). From Simon (1957), Thaler adopted the idea of bounded rationality in its broadest sense but not Simon's view of decision-making as a 'satisficing' process. This provided him with a pretext for exploring the economic implications of Kahneman's work with the late Amos Tversky (Tversky and Kahneman, 1974) on the predictable effects of bias-inducing heuristics on the quality of decision-making. He also pioneered the use within economics of their Prospect Theory approach to risky choices (Kahneman and Tversky, 1979), showing it had significant implications even where choices were not seen as risky.

Thaler's contributions to economics broadly fall into three categories: (i) exposing the empirical shortcomings of rational choice theory and developing the Kahneman and Tversky perspective to make sense of a wide range of anomalies, (ii) developing a theory of 'mental accounting' and using it to understand the ways that consumers respond to different kinds of pricing strategies, and (iii) developing the concept of 'liberal paternalism' with Cass Sunstein and exploring its practical implications for policy, especially via the 'nudge' technique. But his Nobel award is really also a reflection of the extent of his impact via his persuasive use of memorable everyday examples of how real people do not always behave as rational choice theory asserts they should: more than anyone else, Thaler has raised the public profile and policy impact of what Sent (2004) has labelled 'new' behavioural economics and contributed to the field becoming a part of the mainstream economics curriculum.

Biographical Sketch

Thaler was born on 12 September 1945, in East Orange and grew up in Chatham, both in New Jersey, USA. He was educated at Case Western Reserve University (BA) and the University of Rochester (MA, PhD), becoming a faculty member at the latter in 1974 after completing his doctorate. However, after managing to get funding to work for a year at Stanford in 1977–1978—during which he spent time with Kahneman and Tversky and travelled to meet the eminent experimental economists Vernon Smith and Charles Plott—he decided to move on from Rochester to a position at Cornell University that he hoped would offer a more supportive research environment. By 1993, his interest in applying behavioural insights to financial markets had resulted in him co-founding Fuller and Thaler Asset Management and two years later he was appointed to a chair in the Booth School of Business at the University of Chicago.

His 2015 intellectual autobiography *Misbehaving* provides an engaging account of his academic career from the time of his doctoral work, but his story was already well known courtesy of Roger Lowenstein's (2001) article about him in the *New York Time Magazines*. Lowenstein's article implicitly marks the transition from what Sent (2004) subsequently called 'old' behavioural economics to Thaler-style 'new' behavioural economics. It was published just two days after the death of Herbert Simon yet made no mentions of Simon or other notable behavioural economists prior to Thaler. This was despite emphasizing in its penultimate paragraph that what made Thaler's approach different from the mainstream was the idea that rationality was 'bounded'.

Thaler (2015, loc. 254) claims that the Lowenstein (2001) article reported his thesis advisor Sherwin Rosen as saying, 'We did not expect much of him'. I have not

found this claim in the online version of the article but evidently, if Rosen (who died shortly after it was published) actually made the remark to Lowenstein, he must have been very surprised to see Thaler's achievements by that point. The picture of Thaler that Lowenstein provides is of someone with 'a sharp wit and voluble ego', who, despite a rather lazy disposition, had the tenacity that drove him to persist in trying to make sense of behaviour that puzzled him and to get his findings published, even where this meant dealing with considerable initial hostility.

There is much that young heterodox economist can learn from Thaler's rise to fame. He succeeded despite appearing to have built up neither an encyclopaedic knowledge of the history of behavioural/psychological approaches to economics nor the technical skills required to get inputs from psychology into core mainstream economics via formal models in the manner of younger elite behavioural economics such as Matthew Rabin or David Laibson. Rather, he observed what people do and reflect on his own behaviour in relation to quite basic implications of conventional economics. This strategy enabled him to be a devastating critic. An illustration of this is the seminar interaction with Ken Binmore that is reported in his autobiography and by Lowenstein. Binmore had claimed that people make rational choices in the long run because they learn from their errors. This was a reincarnation of an argument that Richard Day (1967) had offered in defence of the assumption of profit maximization, but Thaler did not seek to demolish Binmore by noting this and then pointing out that Sidney Winter (1971) had disposed of that claim by arguing that iterative processes cannot be relied upon to produce optimal outcomes in a Schumpeterian world of 'creative destruction'. Nor did he argue about the problem of learning in relation to Shackle's (1949, 1972) work that emphasizes the challenges of life's make-or-break 'crucial experiments'. Rather, Thaler simply thought on his feet and pointed out that

Binmore's argument might apply with products such as milk that are purchased regularly, but not to the big purchases or to other big decisions that people only make occasionally.

Thaler's career success also illustrates well the importance of lucky connections. Two examples will suffice for now; others will be evident in the next section. At the outset, the fact that his father was an insurance actuary made it easy for him to discover how to get the data that he needed for his doctoral research, which was on the relationship between workplace risks of fatal accidents and earnings in different occupations. This in turn led him to attempt to infer the value of saving a human life. As Lowenstein reports, Thaler's findings left him feeling uneasy, since when he talked with friends about his research 'most insisted that they would not accept a 1-in-1,000 mortality risk for anything less than a million dollars. Paradoxically, the same friends said they would not be willing to forgo any income to eliminate the risks that their jobs already entailed'. This was his first step towards identifying what he came to label as the 'endowment effect'. When he went to a conference in Monterey in 1976 to present the paper he and Rosen had written on the value of saving a human life (Thaler and Rosen, 1976), he happened to meet two psychologists, Baruch Fischhoff and Paul Slovic, the first academics he encountered who studied how people actually made decisions. After the conference, Thaler gave Fischhoff a lift to the airport and thereby learnt about Fischhoff's PhD advisors, Daniel Kahneman and Amos Tversky, and the yet to be published Prospect Theory approach to risky choices. This was pivotal in enabling him to start seeing what he could do with phenomena such as the endowment effect.

Toward a Positive Theory of Consumer Choice

The heading for this section is the title of Thaler's seminal (1980) article in the very first issue of the *Journal of Economic Behavior and Organization (JEBO)*. *JEBO* had been founded by Richard Day and Sidney Winter, who by then had buried their differences about optimization (in the latter's favour), Thaler was in good company: his paper came immediately after the lead article by Oliver Williamson, who later would be a co-recipient of the 2009 Nobel Memorial Prize. However, according to Lowenstein (2001) and Thaler (2015), the paper had earlier been rejected by several well-established journals but was accepted by *JEBO* because the new journal was desperate for copy. However, regardless of whether Day and Winter were so short of papers, Thaler's article fitted perfectly their goal to make *JEBO* a forum for debate and controversy in relation to the basic propositions of economics. It also aligned with their call for papers on, amongst other things, bounded rationality and behavioural economics (see Day and Winter, 1980).

Thaler's choice of title alludes to Friedman's classic (1953) paper on the methodology of positive economics, in which it is argued that the realism of a theory's predictions is what matters, not the realism of its assumptions. What Thaler seems to have realized is that if a deviant economist seeks to challenge mainstream analysis without demonstrating that predictions from the latter are at odds with reality, any attempt by the deviant to propose an alternative theory that has more realistic assumptions is doomed to failure. However, it would have been problematic for Thaler to aim his critique of orthodoxy at the conventional model of choice in which comprehensive preference orderings, represented graphically as sets of indifference curves, are confronted with well-defined budget constraints. This model is blatantly unrealistic for many situations but is hard to dispose of empirically since it is largely

devoid of empirical content: in essence, it predicts that the sign of the substitution effect is negative and does not even predict that demand is a negative function of price. For this reason, this model remains part of the orthodox core toolbox despite the extensive empirical work of Houthakker and Taylor (1970) demonstrating that changes in relative quantities purchased are driven primarily by income effects, not substitution effects. Thaler thus needed to look elsewhere to find some empirical chinks in orthodoxy's armour.

He also needed an empirical strategy that could not be disposed of readily on the basis of its research method. Pioneering questionnaire-based attempts by Hall and Hitch (1939) (and in other studies by their fellow members of the Oxford Economists' Research Group (OERG)) and Lester (1945) to challenge marginal analysis had in turn been challenged on methodological grounds (see respectively Robinson, 1939, and Machlup, 1946). These debates had provided part of the impetus for Friedman's paper (see Friedman, 1953, pp. 15 and 31) but they signalled to everyone that it was hazardous to try to challenge predictions via non-standard research methods.

The 'old' behavioural economists of the 1950–1970s era seemed to have taken note of this lesson, too, but in doing so left themselves vulnerable to having their work brushed aside via reference to Friedman's paper. Simon and his colleagues has set out to offer descriptively more realistic models of how the economy worked and sought to see whether their models predicted effectively (as with the model of a department store's pricing policies offered by Cyert and March, 1963), but they generally did not set out to show that existing theories with less realistic assumptions offered empirically invalid predictions about what would be observed in real-world markets. Moreover, if 'old' behavioural economists (such as Leibenstein, 1966, in his paper on 'X-inefficiency') actually produced evidence to that firms failed to optimize,

mainstream economists could readily fend it off by asserting that individuals in organizations were optimizing in their own areas of interest, and were able to get away with acting against shareholder interests due to market imperfections. Thus, rather than leading to acceptance of Simon's rule-based view of choice and the idea of satisficing, such empirical work that challenged the idea of profit maximization led instead to principal–agent issues being explored in terms of rational choice theory.

Though seemingly unaware of the OERG; work and its reception (see the penultimate section of this paper), Thaler was conscious of the Lester–Machlup debate (see Thaler, 2015, loc. 744) and Simon's failure to gain traction with the mainstream (*ibid.*, loc. 437). His success depended both on challenging mainstream choice models empirically and in coming up with a way to do this that could deflect the kind of critique that had been waged against the OERG and Lester. Thaler's genius in writing his 1980 paper had two components. First, he challenged the theory of rational choice on a more basic level, questioning things that seemed so intuitively correct to economists as normative propositions that it was common to assume that no sane person would not follow these principle in everyday life. Secondly, he mounted his attack on multiple empirical fronts with multiple sources of evidence. The latter made it much harder for potential critics to dispose of what he was saying, effectively forcing them either to ignore his arguments or accept them.

In exposing anomalies, Thaler simultaneously outlined a set of things that should form some of the foundations of an evidence-based toolkit for analysing consumer behaviour, including what he came to call SIFs, i.e. what, rational choice theorist would regard as 'supposedly irrelevant factors'. In particular,

- People commonly require more to give up something than they would be prepared to pay for it if they did not already own it (the endowment effect).
- People are prone to favour activities in which they have previously invested resources, rather than making choices based only on the relative returns that new resource commitments make possible (the sunk cost effect).
- Search will be conducted until the proportion the consumer expects to save relative to an initial reference value reach a critical 'just noticeable' figure, rather than until the marginal expected savings equal the marginal costs of search. The possibility of saving \$10 on a product listed at \$1000 thus motivated search far less than does the prospect of saving \$10 on a product listed at \$100.
- Anticipated feelings of regret can affect choices, as the utility that people derive from chance outcomes (e.g., lotteries) is affected by their knowledge of what their situation could otherwise have been if they had made different choices.
- People make pre-commitments to constrain their behaviour in situations where they recognize that they suffer weakness of will.

In order to argue that people do not behave in accordance with rational choice theory Thaler drew upon a catalogue of anecdotes that he had accumulated, as well as on experimental work in psychology, particularly that by Kahneman and Tversky, and a diverse range of other studies. He also tried to show how Kahneman and Tversky's Prospect Theory could be useful for making sense of some of these phenomena, via its *S*-shaped value function. Unlike the value function in Subjective Expected Utility Theory, which displays continuously diminishing marginal utility of

wealth, the Prospect Theory value function envisages decision makers as focusing on gains and losses relative to a reference point (rather than on the impact of their choices on their expected total levels of wealth) and is concave for gains and convex for losses. Hence it could readily accommodate the endowment effect and loss aversion.

At various points in his *JEBO* paper Thaler acknowledged the limitations of the empirical work on which he could draw and announced that he planned to undertake research to fill these gaps. In the ensuing years, he more than delivered on his promises, not merely doing experimental work on areas such as the endowment effect (Kahnemen, Knetsch and Thaler, 1990), but also studies on further anomalies such as the willingness of consumers to incur costs to punish behaviour they perceived as unfair (Kahnemen, Knetsch and Thaler, 1986b), seasonality effects and over-reactions to shocks in stock market (De Bondt and Thaler, 1985 (his second most cited paper), 1987, 1990) and how myopic loss aversion might explain the ‘equity premium’ (i.e., the fact that, over the long term, investor preferences ensure that a diversified portfolio of shares earns more than a portfolio of bonds: see Benartzi and Thaler, 1995, and the subsequent survey by Siegel and Thaler, 1997).

According to Google Scholar, by the time Thaler received his Nobel award, his 1980 *JEBO* paper had notched up over 5,000 citations, ranking fourth on his list of works by citation counts. But although it achieved 32 citations in 1981, its initial impact was not spectacular, for it averaged just under 27 citations per year in its first decade. Although citations rose steadily thereafter, it was not until 2002 that its annual citation rate passed 100. What undoubtedly led to the paper’s ultimate stellar status was another lucky break: in a dinner conversation with Hal Varian, the idea of a series of articles devoted to particular empirical anomalies was hatched, and Varian

then passed it on to Carl Shapiro and Joseph Stiglitz, editors of the American Economic Association's new *Journal of Economic Perspectives*. Thaler was then offered the opportunity of writing an 'Anomalies' article for each issue of the journal, providing him with a free hand to explore a succession of anomalies at length, contrasting received wisdom with empirical findings.

From Thaler's first Anomaly piece (on the January effect in financial markets) in the first issue of the *Journal of Economic Perspectives* (Thaler, 1987) until the first issue of fifth volume of the *Journal* (on the endowment effect, loss aversion and the status quo bias) (Kahneman, Knetsch and Thaler, 1991, which is Thaler's fifth most-cited publication, with over 4600 Google Scholar hits). Thaler and various co-authors provided an Anomaly paper for each issue with the exception of Summer 1989. These fourteen papers were reprinted in *The Winner's Curse* (Thaler, 1992) but despite their high profile, the Anomalies papers, too, did not have an overnight impact. Thaler continued producing Anomalies papers on a more sporadic basis and his frustration is evident, along with his rhetorical skills, in one that he wrote with Matthew Rabin on risk aversion (Rabin and Thaler, 2001) around the time of Lowenstein's article in the *New York Times Magazine*. In concluding the paper, they argued that the behaviour of economists in the face of anomalies was rather akin to that of the pet shop owner in the famous Monty Python's Flying Circus 'Dead Parrot Sketch', except for the fact that, after offering all manner of bizarre claims to the contrary, the pet shop owner did eventually concede that the parrot he had sold was indeed dead.

Mental Accounting

Thaler continued the methodology of his 1980 *JEBI* article when he developed his analysis of mental accounting (Thaler, 1985, 1992, chapter 9, 1999; Thaler and

Johnson, 1990). Here, he was challenging one of the most basic notions in economics, namely ‘fungibility’ and his (1985) paper (now his third most cited, with over 6,000 hits on Google Scholar) appeared in an early volume of *Marketing Science*, not an economics journal. Fungibility is the notion that money carries no labels, so the way that a person uses it should not be affected by the context of its acquisition or use. For example, a person gambling at a casino would not be expected to gamble more recklessly with money won earlier in the gambling session than they would with money they had brought to the casino. Similarly, what we do with a windfall should not be affected by its source and banks should not expect to find people simultaneously in debt on one account and in credit on another if there are no barriers to switching money between them. However, anomalies abound.

Thaler argues that people make their choices cognitively easier and guard against self-perceived weakness of will by erecting mental compartments for different parts of their lives, including specific compartments for major projects. Like corporations, they assign budgets to their mental compartments and create policies about the kinds of spending that are allowed. For example, a couple might choose to limit themselves to spending \$100 per week on alcohol and prohibit themselves from consuming more than one bottle per night or spending more than \$20 on a single bottle. On this basis, they will refrain from buying a \$30 bottle of Champagne even if, at the week’s end, there is \$30 unspent in their alcohol budget. Such rules inhibit the development of more expensive tastes or bad habits. However, their use may cause opportunities to be missed in other areas if sticking to them prevents money from being transferred from an account that is in surplus to one for which a temporary deficit is required if a bargain is not to be missed.

The mental accounting framework provided a way for Thaler to make more sense of the reluctance of decision-makers to disregard sunk costs when choosing. For example, suppose we class the purchase of a pair of shoes as an investment but the shoes then prove very uncomfortable. To dispose of them will entail mentally writing off this investment but we can keep the prospect of a positive return on our investment alive by continuing to wear them, despite the discomfort, in the hope of ‘breaking them in’. If this proves to no avail, keeping them in our closet preserves their status as an asset (‘in reserve’) until, months or years later, we at last toss them out whilst investing time in reorganizing our storage to make space for new acquisitions. Only then is the account closed, and in a way that has benefits!

To assess how their various mental accounts are faring, consumers need rules for coding how their experiences relate to those accounts. Thaler (1985, 1999) examined which mental accounting rules would be effective for consumers to use if they wish to feel as good as possible. Once again, he considers what we might infer via the S-shaped gain/loss value function proposed by Kahneman and Tversky. This value function implies that, considered separately, two gains each equivalent to \$50 will give more utility than a single gain equivalent to \$100, so they should be kept in separate compartments or accounting periods. This is consistent with the rule ‘Don’t open all your Christmas presents at once’. By contrast, it pays, if possible, to lump losses together: the disutility of a \$100 loss is less than from two \$50 losses considered separately. Thus, if there are chores to be done, it is best to ‘get them all out of the way in one hit’. Because the Kahneman and Tversky function incorporates loss-aversion, there is scope for varying the accounting period to feel better over long term. For example, if things have predominantly been going well in a particular area today, it may be better to write off today’s bad experiences against today’s good ones,

rather than carrying all gains and losses forward: things might not go well in that area tomorrow and, if so, any loss carried forward would weigh more heavily, whereas at least we end today feeling good, on balance. When little has gone well today, however, it may be better to avoid an interim verdict and carry everything forward, keeping today's 'silver lining' cognitively separate from today's large losses.

In Thaler's framework a significant factor that will affect the management of a mental account is how the consumer initially codes transactions in terms of the prices paid. We get a sense that such coding takes place when we hear consumers speak of 'getting a bargain' or viewing the price of some products as a 'rip-off'. To make sense of such comments via traditional economic theory it is necessary to frame them in relation to the extent of consumer surplus the consumer obtains: when the price paid is much less than the maximum the consumer would have been prepared to pay, the product is a bargain, whereas if the consumer discovers that the value offered by the product is worth far less than the amount paid, it is a 'rip-off'. Thaler calls the extent of consumer surplus a measure of the consumer's 'acquisition utility' but then offers a different interpretation of 'bargain' and 'rip-offs' by adding the notion of 'transaction utility'. This is a further application of the idea the utility is reference-dependent.

Transaction utility arises, according to Thaler, from the difference between the price actually paid and the reference price the consumer had in mind regarding what it might have been necessary to pay for the product in question. This reference price might be cued by the manufacturer, as with a 'Suggested Retail Price' or 'Recommended Retail Price', or it may be a personal construct based on the consumer's impression of the price for which the product is normally sold. A product is a 'bargain' if purchased for less than the reference price but will be viewed as a 'rip-off' where the supplier is offering it for a price that is greater than the reference

price. In the latter case, the consumer will opt not to purchase a product if the (negative) transaction utility exceeds the acquisition utility from the best-value source that is currently available. In Thaler's vision, then, consumers are concerned not just about whether they will get utility from consuming the product in excess of that offered by the opportunity cost of their money; they also care about the utility they get from 'the deal'.

One of Thaler's favourite illustrations of this is the 'beer at the beach' scenario that he used in his empirical study of the existence of transaction utility. He posed to his subject the question of how much they would authorize a friend to pay to get them a beer whilst they stayed on the beach. Despite the fact that the beer brought back by the friend would be the same regardless of where it was purchased, subjects that were told the only nearby supplier was a run-down convenience store were, on average, prepared to pay significantly less than those who were told the only nearby supplier was an up-market beachfront hotel (Thaler, 1985, p. 206). This finding is clearly problematic for the conventional analysis as it entails willingness to pay being affected by factors other than the characteristics of the beer itself.

Thaler interpreted this as arising because subjects do not see paying a higher price to the hotel as a 'rip-off' since the hotel offers more value for money (for example, a better atmosphere), even though they are not going to be acquiring any of this when they consume the beer on the beach. In other words, by offering additional features, even if these are not actually desired by customers, a supplier may be able to raise the reference price that potential customers use when appraising the prospective deal. An asking price that would have seemed a 'rip-off' if those features had not been included may thereby be deemed acceptable. A somewhat different perspective is that, in considering whether a supplier is seeking to 'rip them off', charging a fair

price or offering a bargain, buyers make an assessment of what the asking price implies about the mark-up on the costs of supplying the product (Earl, 1986, pp. 260–1): consumers may have no detailed knowledge of production costs but that may not preclude them from using heuristics of some kind to form such verdicts.

Thaler’s analysis of the psychology of pricing offers a plausible way of making sense of why supermarkets that offer ‘weekly specials’ tend to thrive at the expense of those that offer ‘everyday low prices’ despite there being no difference in the overall costs of a typical week’s shopping. As he notes (Thaler, 2015, loc. 1005), ‘Getting a great deal is more fun than saving a small and largely invisible amount on each item’.

Liberal Paternalism and Nudges

The most publicly significant contributions by Thaler are those he has produced on libertarian paternalism with Cass Sunstein, a member of the University of Chicago’s School of Law. These expanded from their initial journal articles (Sunstein and Thaler, 2003; Thaler and Sunstein, 2003) into the policy-focused bestselling book *Nudge* (2008), whose message was first applied, with input from Thaler, by the UK Government via the creation of its Behavioural Insights Team. Their philosophy was then rapidly adopted in many other countries and applied to a very diverse range of policy issues via the creation of what came to be known as ‘nudge units’ (for an comprehensive survey of ‘lessons from around the world’ see OECD, 2017). By 2018, *Nudge* had already become Thaler’s most cited work, with over 10,000 hits on Google Scholar.

Thaler and Sunstein’s notion of libertarian paternalism grew out of their pioneering paper with Christine Jolls (Jolls *et al.*, 1998) in which they set out the case

for behavioural foundations for law and economic, a field previously underpinned by rational choice theory. The emergence of laws banning, for example, usury and price gouging is hard to explain from a neoclassical perspective where perceived fairness should not affect choices, but is entirely consistent with Kahneman, Knetsch and Thaler's (1986b) finding that real-world consumers do place a value on fairness and are prepared to impose costs upon themselves to punish those whose behaviour they judge to be unfair. Moreover, if real-world decision-makers are prone to make systematic, predictable errors of judgment, their behaviour is open to manipulation by devious producers—as was elaborated by Hanson and Kysar (1999a, 1999b). (Likewise, lawyers who applied behavioural insights might manipulate courtroom juries with even more effect than by merely employing their usual rhetorical skills.) However, rather than going on to focus on using behavioural insights, as 'hard' paternalists would do, as a basis for regulatory bans on devious business practices, Thaler and Sunstein's 2003 papers raised the possibility of governments being able to improve wellbeing by softer policies that left consumers with the freedom to behave irrationally but tried to nudge them into making better choices than they otherwise might have made. In the same year, Camerer *et al.* (2003) offered a similar perspective but they did not follow through with anything like *Nudge* to flesh out what they envisaged in practice.

Although they view humans in general as best by cognitive shortcomings, Thaler and Sunstein see experts such as themselves as being able to transcend these shortcomings enough to see how to design 'choice architectures' that counteract the effects of bias-inducing heuristics. By 'choice architecture' they mean the way that choices are presented, such as the sequence in which options or pieces of information are presented, which information is presented and how it is framed, whether and how

social norms are referred to as reference points, and, most famously, what the default option is.

This is well illustrated in relation to the design of policy to nudge people into saving more for retirement and thereby reduce the burden of state pensions without making it compulsory to have a retirement savings account. The retirement saving issue has been a long-standing interest of Thaler's (see Thaler and Shefrin, 1981; Shefrin and Thaler, 1988, Thaler, 1992, chapter 9) because of his concern with weakness of will, loss aversion and status quo bias. The 'Save More Tomorrow' plan that he worked out with Shlomo Benartzi (2004, see also Benartzi and Thaler, 2007) is simple and has been used to nudge into contractual saving scheme thousands of workers who might otherwise have repeatedly put off an active choice to sign up for such a plan. Save More Tomorrow entails employers offering membership of a retirement savings plan as the default strategy, with the initial contribution rate being kept very low to counter loss aversion. However, workers are informed that, as their incomes rise, the amount that they pay will progressively increase until it reaches a particular percentage, but without their take-home pay falling. If they do not want to be part of this, they have to make the effort to opt out by a specified date.

Nudges may also be used in the interest of government departments (and implicitly, the population at large) rather than those who are successfully nudged. An example, an early assignment that Thaler worked on with the UK's Behavioural Insights Team attempted to reduce late tax payments. The team proposed using an appeal to the desire not to be out of line with the wider population as means to speed up the flow of revenue: simply send a reminder letter that referred to the facts that (a) most people pay their taxes on time and (b) the addressee was in the very small minority who had not yet done so (Thaler, 2015, loc. 4978–4990).

A central notion in *Nudge* is that policymakers should confine their interventions to those that result in their target audience behaving in a manner equivalent to, or at least closer to, how they would have behaved had they not been encumbered by the cognitive shortcomings that make real-life decision-makers different from ‘econs’. This begs the question of how we can judge whether a policy is improving welfare, Thaler and Sunstein (2008, p. 5) insist that those whose behaviour the policy affects should be the ones who make the assessment. (It is not clear whether the targets of the late tax payments letter were given such an opportunity.)

This ‘as judged by themselves’ (AJBT) criterion has worried some scholars (most notably, Sugden, 2009, 2017). An important issue for the present author is whether this criterion is applied *ex ante* or *ex post*. From the standpoint of ‘old’ behavioural economics, the criterion needs to be applied *ex post*, for an ‘old’ behavioural economist would doubt whether lurking inside all of us is a set of preferences that would drive us to make choices like an ‘econ’ if only we were not cognitively constrained. To the extent that people have any hardwired preferences these may, for good evolutionary reasons, take the kind of hierarchical form that Maslow famously envisaged. The rest or what drives our choices may be just personal sets of heuristics, *not all of which are dysfunctional*, that we each construct as our operating system (including the rules we use for defining who we are). Some of these heuristics we come to regard as central to our lives, but others we may be open to changing as we address the situations that face us (see further Earl, 1986). If so, there is no fixed underlying reference point against which people assess the impacts policies have on their wellbeing; indeed, there are many things people resist that they then come to appreciate if, for whatever reason, they end doing them. From this

standpoint, then, one would have less worry about whether or not nudges improve wellbeing in an *ex ante* AJBT sense but would be concerned about how well people coped after being nudged. In any case, using, say, focus groups to assess a policy *ex ante* could be problematic due to social interactions amongst group members distorting their discussions and because, unlike ‘econs’, they may suffer from ignorance and uncertainty about how events might unfold if they did change their behaviour as a result of a change in the choice architecture.

All this favour proceeding via randomized control trials of rival choice architectures, with *ex post* surveying that explained what was being attempted and then asked subjects not merely what they had chosen to do but also whether they felt it improved their wellbeing: with hindsight, were they glad to have been presented with the choice architecture that was being trialled? This strategy aligns well with Thaler’s (2015, loc. 4490) laudable enthusiasm for randomized control trials and with the second of his two key rules for behavioural intervention policies: ‘We can’t do evidence-based policy without evidence’. (Thaler’s first rule for designing nudges that work is ‘If you want to encourage someone to do something, make it easy’ (*ibid.*)) However, note the complications that arise where the choice architecture that is being trialled has mixed results.

In the case of, say, nudges to encourage women over 50 to have mammograms, some women might be glad to have had a cancer diagnosed that they might otherwise not have known of until too late. Others might have come to see how good it felt to have had the check and not discover a problem when otherwise they might have not bothered and experienced nagging doubts about whether they should have taken up the opportunity. But yet other women might regret having been nudged into a process that generated a false alarm the led them to undergo painful procedures

and endure unwarranted dread until the results were known. Properly implemented, libertarian paternalism needs ways of deciding whether to proceed with nudges that do not entail Pareto improvement. However, there is a very real risk that those who have become nudge enthusiasts have done so on the presumption that nudges never have negative welfare implications for any of those who are nudged.

Critical Assessment of Thaler's Contributions

The impact of Thaler's work in economics is undeniable and stands in sharp contrast to that of the 'old' behavioural economists who had employed a very different strategy for challenging the conventional wisdom. A cynic might conclude that Thaler both deliberately and wisely avoided aligning himself closely with the 'old' behavioural economists in order to enjoy the benefits of being seen as the person who founded the behavioural approach to economics and to ensure that his kind of behavioural contributions did not get rejected. Unlike the 'old' behavioural economists who had offered a general challenge to the hard core of the research programme of orthodox economics (in particular, to the presumption that every act of choice is an act of constrained optimization), Thaler simply drew attention to areas where orthodoxy had empirical shortcoming. Moreover, his work with Cass Sunstein on libertarian paternalism could be seen as an astute way of making interventionist policies acceptable to those whose faith in unfettered markets was challenged by the behavioural research program.

Certainly, despite the strong growth of interest in Thaler-style of behavioural economics, his empirically focused challenge has not resulted in the abandonment of the conventional core. All that orthodoxy has concede is that the traditional approach has a more restricted empirical domain than had previously been assumed. The

traditional view of how economic agents ideally should behave remains the reference standard by which actual behaviour is judged. Thaler's approach—dominated by the 'heuristics and biases' perspective—reinforces the status of normative rational choice theory: he has not sought to pile on more radical objections by building bridges with those such as Gigerenzer and Brighton (2009) and Gigerenzer, Todd and the ABC Research Group (1999), who argue that, for the real world, the rational choice model is misleading since simple heuristics can outperform attempts at optimization.

This is a win-win outcome for Thaler (and his followers) and for members of the economic establishment who might otherwise have been more exposed to public and professional criticism. By admitting Thaler-style economics into elite journals and the economics curriculum, the economics establishment has been able to give the impression that it is not akin to a religion but is open to scientific evidence. Paradoxically, Thaler's kind of behavioural economics has ended up serving to protect orthodoxy: empirical anomalies can be accommodated via an ad hoc collection of heuristics and biases but, in other areas, the message is that it is acceptable to keep using the traditional non-behavioural approach even if its depictions of economic activity are descriptively sharply at odds with what actually happens. Meanwhile, the success of 'new' behavioural economics has resulted in academic glory for Thaler and neglect of the pre-1980 behavioural literature, with bounded rationality becoming a concept that gets employed without any reference to the alternative implications drawn from it in the earlier behavioural literature. With hindsight (and probably with hindsight bias), Thaler might thus be construed as a master strategist when it comes to winning the games economists play.

However, an alternative interpretation of Thaler's success is that the anchoring of his work to the rational choice perspective was not a cunning strategic ploy at all

and simply reflected his limited knowledge of the earlier behavioural literature and him not bothering to study contemporary literature that continues in the same spirit. This would have ensured that he did not end up getting attracted to following the more radical core-challenging path taken by ‘old’ behavioural economics, one strand of which merged with Schumpeterian and Veblenian themes and turned into modern evolutionary economics. This latter interpretation is consistent with Daniel Kahneman’s view (readily accepted by Thaler, 2015, loc. 117) that Thaler is, by nature, lazy.

The limitations of his knowledge of the ‘old’ behavioural literature are evidenced by Thaler’s (2015, loc. 528) claims that ‘Simon had coined the term “bounded rationality”, but had not done much fleshing out of how boundedly rational people differ from fully rational ones. There were a few other precedents, but they too had never taken hold’. As an example, he offers Baumol’s (1962) model of the expansion of the firm, which is a conventional optimizing model except that managers are presumed to pursue growth of corporate revenue rather than profits. It is as if he was unfamiliar with the satisficing view of choice that Cyert, March and Simon had developed extensively. This contention is consistent with the analysis offered in his jointly authored (Camerer *et al.*, 1997) study of the labour supply choices of New York cab drivers. The study’s key finding was that they seemed to set a daily earnings target and hence worked long hours on days when few fares were available and went home early on busy days, yet there is no acknowledgement of the findings as evidence of satisficing behaviour.

It should be noted, however, that in his jointly authored work on fairness, mention *is* made of Cyert and March’s (1963) ‘observation of cost-plus pricing as a routine procedure in firms’ (Kahneman, Knetsch and Thaler, 1986a, p. S292). There,

Thaler and his co-authors present evidence that they claim shows ‘Cost plus is not the rule of fair pricing’ since only about 20–30 per cent of their various groups of subjects thought suppliers should pass on cost savings via a cost-plus pricing rule.. This was in a thinly sketched scenario with no scope for referring to competitors’ behaving and, strangely, they make attempt to reflect on their findings in relation to the view presented in their other study (Kahneman *et al.*, 1986b) in which a clear message is that consumers would regard suppliers as behaving unfairly if they attempted to raising prices (of, for example, for snow shovels after a snow storm, Cabbage Patch dolls prior to Christmas 1983, or major sports events) to market-clearing levels when demand exceeded supply. They note that suppliers seem aware of this, as evidenced by the latter’s willing to leave it to black markets to find market-clearing prices (see also Jolls, Sunstein and Thaler, 1998, pp. 1512–15).

These studies of fairness displays a simplistic view of cost-based/non-market-clearing pricing that seems a consequence of ignorance of earlier analysis based on studies of how firms actually behave, offered by members of the OERG (Hall and Hitch, 1939; Andres, 1949, 1964). This earlier research had already revealed—consistent with even earlier analysis by Marshall (1890)—that firms were concerned about how fair they were perceived to be and often set their prices mindful of the damage they could cause to their reputations, goodwill and long-run profits if they operated in a manner that their customers perceived as unfair. Their solution was to base prices on ‘normal costs’, plus a mark-up set with reference to how competitive their costs are relative to their rivals and those of potential competitors. In other words, mark-up pricing is simple way of preserving a firm’s long-run position in its industry, which would be jeopardized if prices were to be set in a short-run market-clearing manner by equating marginal costs and marginal revenues (see Lee, 1998, for

a comprehensive examination of the wider literature in this tradition). From the OERG perspective, even the risk of 20–30 per cent of a firm’s customers switching elsewhere if their prices were unfair would probably be quite enough to deter greedy pricing and lead to pass on savings in costs (cf. Andres, 1964, p. 102).

Thaler’s limited grounding in the ‘old’ organizations-focused behavioural economics may also explain why so little of his writing refers to decisions inside firms. A consequence of this is that ‘new’ behavioural economics has become focused on the behaviour of consumers and participants in financial markets. Modern ‘behavioural industrial organization’ research has been on how firms can exploit heuristics and biases to profit at the expense of consumers, rather than on how real firms operate. This is unfortunate, particularly since on rare occasions where Thaler has applied his approach to what happens inside firms—such as his discussion of how hindsight bias deters bold decision-making (see Thaler, 2015, chapter 20)—he has done so to great effect.

Although Thaler has displayed a knack for spotting engaging anomalies he has not called upon a very wide range of sources in decision sciences and psychology to develop a deep understanding of how the human mind has adapted to deal with life’s challenges. He has used the ideas of limited self-control, heuristics and biases, Prospect Theory, and ‘just noticeable differences’ to great effect but does not draw widely on other areas of psychology such as personality theory and social psychology that offer alternative perspectives on some of the phenomena that he portrays as anomalies. This is an important shortcoming of his approach, for the memorable cases of ‘misbehaving’ to which he refers are often rather loosely specified and more may be going on than Thaler acknowledges. Three illustrations follow.

Consider first Thaler's (1980, p. 43) *Example 2*: in which Mr H mows his own lawn, declining to accept the offer of his neighbour's son to do it for \$8 and yet would not mow his neighbour's similar-sized lawn for \$20. Thaler offers this as an example of contradictory behaviour in respect of opportunity costs, as Mr H seems to value the time it takes to mow the lawn at more than \$20 *and* as less than the out-of-pocket cost of \$8. But the example is only partially specified: perhaps Mr H derives exercise benefits from mowing his lawn and enjoys the opportunities it gives him for interacting with his neighbours, whereas he would perhaps find it beneath his dignity to seek to earn money by mowing his neighbour's lawn.

Secondly consider Thaler's (1980, p. 50) analysis of why a person may be willing to incur the costs of travelling to a more distant supplier to save a given sum on low-value product but will not do so, to save the same amount, for a higher value product. Thaler makes sense of this via the Weber-Fechner law from psychology, arguing that the extent of search is determined by the proportionate amount that could be saved (and whether it is big enough to be 'noticeable'), not the absolute amount. This might indeed be the case for the two products in his example, a cheap clock radio versus a television, but perhaps, in terms of his subsequent work, the real issue is that of avoiding negative transaction utility that would come from purchasing the clock radio at a 'rip-off' price. Moreover, if the products were a television versus a car, the underlying determinants of the limits to search might be quite different even though the exposition of the search choice in logical terms was exactly the same. In the former case, the shopping environments might be exactly the same (electrical appliance stores), whereas in the latter case they are not and even if the car being sought is a new one (so there are no issues of quality uncertainty to resolve), there may still be the loathsome prospect (see Barley, 2015) of having a further interaction

with a car dealer: if one has already found the desired vehicle at a satisfactory price, not bothering to pursue the possibility of a cheaper price at another dealer saves the additional time *and* the unpleasantness of engaging with and haggling with another dealer.

Thirdly, consider the significance Thaler and Sunstein assign to the framing effect whereby people react differently to logically identical stimuli that are presented in different ways. In his critique of their work on liberal paternalism, Gigerenzer (2015) argues that where people are being presented with incompletely specified situations they apply what he calls ‘social intelligence’ to try to infer more about what they are being told. People are used to doing this in situations where they recognize others are trying to leave them to make a decision and yet may have a view on what that decision ought to be. A statement of fact may thereby be accorded normative associations. For example, the fact that ‘this product is 90 per cent fat-free’ may be interpreted as ‘the source of the information is trying to tell me that it’s OK if I consume this product’, whereas presenting the same fact as ‘this product is 10 per cent fat’ may be taken as a signal that ‘the source of the information is trying to tell me that I shouldn’t consume this product’. From Gigerenzer’s standpoint, there may indeed be scope for nudging behaviour in particular directions depending on how information is presented. However, the key thing is to understand how the target audience is likely to use heuristics to ‘read between the lines’ en route to choosing how to respond. To view framing effects as evidence of inherited human tendencies towards irrationality is to take a potentially misleading, one-sided view of the role that heuristics play in human action.

Thaler’s focus on bias-inducing heuristics as an aspect of human nature promotes a view of humans as generally suffering from pathological shortcomings

that lead them to squander the resources available to them (Mehta, 2013). This way of thinking keeps new behavioural economists from considering how individuals differ in the heuristics they pick up socially or develop themselves—rather than those they inherit by virtue of being human—to cope with life. These operating systems differ in their effectiveness. Some people do indeed display genuinely pathological economic behaviour, such as compulsive spending or hoarding goods to such an extent that their homes become dangerous places to inhabit. Others may get less out of their lives than they might have done due to unwarranted anxiety about stepping out of their comfort zones or having operating systems that limit the depth to which they commit to anything, whilst others place themselves at risk by building lives that are insufficiently diversified to enable them to cope with shocks and disappointments (see Earl, 1986). To build more cheerful, fulfilling and/or solvent lives, people with these genuine economic pathologies typically need inputs from clinical psychologists or debt counsellors rather than gentle nudges that take no account of humans differing in how they operate.

It should also be recognized that, insofar as people differ in the sets of heuristics that make up their operating systems, nudges that benefit some may come at the cost of others changing their behaviour in ways that harm their wellbeing (for example, by becoming overly cautious, as argued by Gill and Gill, 2012, p. 931). However, to the extent that Thaler and Sunstein emphasize differences between people it is not in terms of heuristics but whether their behaviour differs from social norms: they recognize the risk of ‘boomerang effects’ if those whose performance exceeds the norm discover this via policies that were aimed at nudging under-performers to meet the norm.

To the extent that heuristics and bias make humans predictably irrational, Thaler and Sunstein's libertarian paternalism is not really about leaving people to make their own choices; rather it is about manipulating them (see further, Grüne-Yanoff, 2012). Clearly, there is no such thing as a neutral choice architecture, but a properly libertarian response to evidence of people being prone to act against their best interests is not to design choice architectures to steer behaviour in particular directions. Rather, early education in statistics, decision studies and home economics should be provided to 'boost' decision-making capabilities (Grüne-Yanoff and Hertwig, 2016; Hertwig, 2017). Although proponents of 'nudging' might assume that such 'boosts' would decay as time passed and might be impossible to achieve in the first place, Gigerenzer (2015, pp. 373–6) reports studies that point toward a more optimistic perspective. Indeed, as well as arguing that humans can cope with statistical thinking even in the early years of their education, he also challenges Thaler's view that ordinary people fail to operate 'the Bayesians way' when handling probabilities. He argues that the problem is that the experiments that underpinned this view presented probabilities as percentages rather than what he calls 'natural frequencies' (e.g., 'a 75% chance of' rather than 'in three out of four cases'). People have evolved to use the latter in everyday life: they are computationally simpler to work with when using our memories to assess how likely things are. It turns out that when experiments are repeated using natural frequencies, people are able to make Bayesian inferences, whereas information presented as percentages seems to inhibit this.

The trouble is, investing in 'boosts' and then leaving people to make their choices without being 'nudged' entails significant upfront costs, whereas the nudge approach has been viewed as a fertile source of low-cost means for inducing changes

in behaviour. Worse still, there is a principal–agent issue here. Implementing nudges can also be a means for policymakers to get more people to behave in ways that suit the policymakers but which may not actually serve the interests of those who are ‘nudged’. For example, the cancer screening industry has an interest in partnering with government health agencies to nudge more people into screening programs by, say, sending them letters with pre-assigned appointments that require them to opt out and by representing the benefits in terms of relative risk reduction rather than absolute risk reduction (Gigerenzer, 2015, pp. 362, 378). However, it is not in the screening industry’s interest to highlight the costs of such screening in terms of false alarms and unnecessary procedures.

It would appear that both ‘nudges’ and ‘boost’ may be necessary: the former to guard against human inertia of the kind that Thaler has rightly emphasized, and the latter to ensure that those whom the nudges target can make properly educated choices. Nudges by public policymakers may also be more effective if combined with education and the promotion of public debate about the resourcing challenges that governments face and what these challenges imply for the social obligations of citizens (John, 2018).

Conclusion

Thaler’s contributions have none of what might be called the ‘faux rocket science’ aspects that characterize the contributions of economists who work at what they believe to be the core of economic theory. He has specialized in asking questions about the limitations of quite simple conventional economic analysis for making sense of things that he has noticed occurring in real life, and he has provided uncomplicated new ways of making sense of behaviour that is at odds with conventional economic

thinking. Despite, or probably because of, the refreshingly down-to-earth nature of his work, he has had a major influence on economic policy, and thereby on actual behaviour, as well as on the content of the economics curriculum. His status as 2017 Nobel Laureate is clearly well deserved.

However, the Nobel Committee missed an opportunity to send economists an important pluralistic signal of the kind they sent with the awards in 1974 (Friedrich Hayek and Gunnar Myrdal), 2009 (Oliver Williamson and Elinor Ostrom) and 2013 (Eugene Fama, Lars Peter Hansen and Robert Shiller). On those occasions, the Nobel recipients had made major contributions in the same broad area but had done so from very different standpoint. If the 2017 Prize had been awarded jointly to Richard Thaler and Gerd Gigerenzer it would have signalled that heuristics can be used in a dysfunctional way (Thaler) but can also be very effective, and indeed are absolutely necessary, for coping with the complex environments with which real-world decision-makers have to deal (Gigerenzer). It would have signalled to the economics profession that there is a case for rethinking economics in a more radical way than Thaler has suggested, a case for going beyond ‘misbehaving’ to a wider analysis of ‘homo heuristics’. But this was not to be and as a result there was no prompt to question that validity of standard rational choice models as the benchmark for normative analysis. As a consequence, heuristics are likely to continue to be seen by most economists only as things that cause humans sometimes to make dysfunctional choices.

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