

Review Article

PICKING UP THE GAUNTLET: RICHARD THALER'S DEFENCE OF BEHAVIOURAL ECONOMICS

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Richard H. Thaler, *Misbehaving: The Making of Behavioural Economics*. Allen Lane (2015), 432 pp. ISBN: 978-1846144035 (hb, £20.00); 978-0141966151 (eBook, £9.99).

The main purpose of this essay is to offer a perspective on where behavioural economics now sits within the discipline of economics and on its strengths and weaknesses. The first papers in what is now regarded as behavioural economics were published in the 1970s. In *Misbehaving*, Richard Thaler maintains that the ideas were seen initially as a sort of weirdo pursuit, an area of study you would definitely not recommend to your graduate students. The leading American labour economist Orley Ashenfelter still refers to it, in conversations with Thaler, as 'wackonomics'. The term is part serious, part jest.

But my first task is to carry out the most basic functions of a book review, namely to try and convey a flavour of the book to potential readers, and to suggest who might be interested in reading it. This bit is easy. Thaler has authored a book which is very well written and structured. He describes his career essentially as that of an academic specialising in behavioural economics over the past four decades.

Thaler himself now occupies a commanding position in the discipline. He worked almost from the outset with the original members of what we might think of as the behavioural economics Hall of Fame – Daniel Kahneman, who received the Nobel Prize in 2002 for his work, and Amos Tversky, who sadly died before he could be honoured in the same way. Tversky and Kahneman published what is now widely regarded as the seminal work in behavioural economics in 1974. Thaler describes how the excitement of reading this paper was so great that it 'made my hands shake' (p. 23). As a graduate student, Thaler had already begun to harbour heretical thoughts about the rational choice model which dominates economics. Reading this piece by two psychologists shaped his entire career.

Thaler's book covers a great deal of the most important work in behavioural economics, and explains it in a clear and accessible way. But it also provides a fascinating insight into the growth of a scientific discipline. Thaler describes not just the science itself, but the process of forming alliances and gaining respect, all along being confronted with objections from the economics mainstream.

In short, *Misbehaving* can be recommended strongly not only to economists at all levels of the discipline, but to any non-economists with an interest in public policy. Buy it.

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The impact of behavioural economics on empirical analysis in economics

Over the past two decades, a period during which some 90 per cent of all papers in behavioural and the related field of experimental economics have been published, the discipline has moved centrefield. Leading mainstream journals now routinely accept papers which are behavioural in content. Yet the whole area sits slightly uneasily with the still dominant mainstream model of the rational economic agent. This is one of the key themes which I explore here.

Behavioural economics has two distinguishing characteristics. First, it is empirical. It looks for evidence about how agents – people, firms, governments – really do behave in practice. Second, its focus is on trying to identify ways in which their behaviour differs from the predictions of the rational agent model. As Thaler remarks, ‘Without the rational framework, there are no anomalies from which we can detect misbehavior’ (p. 251), and goes on to say ‘the real point of behavioral economics is to highlight behaviors that are in conflict with the standard rational model’ (p. 261). So behavioural economics is linked umbilically to the mainstream model of economic theory. It does not discard the precepts of economic rationality or offer instead a different general model of economic behaviour. Indeed, as Thaler himself states ‘I mostly advocate for thinking like an Econ [his shorthand term for the rational agent]’ (p. 72).

Before considering this tension in more detail, it is important to emphasise the very real achievement of the behavioural school in making economics a much more empirically based discipline. Even in the mid-1990s, most papers in leading academic journals were purely theoretical. One might have wondered just how many new findings remained to be discovered in the framework of the rational choice model, which was first formalised in the late nineteenth century. But the papers kept appearing. I wrote at the time that in many ways economists resembled Sir Nicholas Gimcrack, the leading character in Thomas Shadwell’s Restoration comedy *The Virtuoso*. He was held to be the finest swimmer in the world, though he never did anything as vulgar as actually getting into the water. He merely lay upon a table and imitated to perfection the movements of a frog.

Behavioural economics was instrumental in changing all that. Papers focused on pure theory still appear, but the emphasis is now far more upon empirics. For example, as I write these words the latest issue of the American Economic Association’s journal *Economic Policy* has arrived in my email inbox. Every single paper is empirical, covering topics such as the effectiveness of certain policies in poverty alleviation in Mexico, the manipulation of identity in colonial Punjab, how much teachers in the US will pay for retirement benefits, incentives and their impact on water pollution in China, and understanding the pro-cyclical movements in mortality rates.

The subject was helped substantially by the parallel rise of powerful technical advances in the econometric analysis of large-scale cross-section and longitudinal databases. The Nobel Prizes awarded to James Heckman and Daniel McFadden in 2000 were richly deserved. The fact that behavioural economics and these statistical developments represent distinct schools is illustrated by the fact that neither of the two Laureates is referenced in *Misbehaving*.¹

An illustration of developments in the analytical techniques is that of correcting for self-selection in participating in different kinds of policy programmes. This opened the way to the much more effective empirical evaluation of such programmes.

So economics faced pressure to become more empirical on two fronts: from behavioural economics, essentially grounded in psychology, and from what we can refer to as cross-sectional econometrics, grounded in statistical theory.

Despite important theoretical developments such as co-integration, time-series econometrics has not had anything like the same empirical success as cross-sectional analysis. This paper is not the place to explore why, but in my opinion a key reason is the fact that a great deal of macroeconomic data is dominated by noise rather than by signal. The true information content is low: see, for example, Ormerod and Mounfield (2000) for an illustration of this point in the context of macroeconomic forecasts. Thaler makes a related but different point about the lack of progress in macro, namely that ‘the field where behavioral approaches have had the least impact so far is macro-economics’ (p. 349). For the interested public, including in this ambit most other social scientists, macro is the public face of economics, and so it may seem that the old criticisms still apply. Economics is, however, ultimately a theory of individual behaviour, and at the micro level it has moved forward considerably.

Psychology and behavioural economics: an uneasy relationship

The reference to the other social sciences leads to a consideration of the relationship between behavioural economics and the discipline which inspired it, psychology. Thaler’s own comments are illuminating. With a few notable exceptions, psychologists themselves have not engaged with the area. ‘Behavioral economics has turned out to be primarily a field in which economists read the work of psychologists and then go about their business of doing research independently’ (p. 179). One reason for this which Thaler gives is that few psychologists have any attachment to the rational choice model, so studying deviations from it is not interesting. Another is that ‘the study of “applied” problems in psychology has traditionally been considered a low status activity’ (p. 180).

It is fashionable in many social science circles to deride economics, and to imagine that if only these obstinate and ideological economists would import social science theories into the discipline, all would be well. All manner of things would be well, for somehow these theories would not only be scientifically superior, but their policy implications would lead to the disappearance of all sorts of evils, such as austerity and even neo-liberalism itself. This previous sentence deliberately invokes a caricature, but one which will be all too recognisable to economists in Anglo-Saxon universities who have dealings with their colleagues in the wider social sciences.

A recent article in *Science* (Open Science Collaboration 2015) certainly calls into question whether psychology can perform this role of knight in shining armour. A team of no fewer than 270 co-authors attempted to replicate the results of 100 experiments published in leading psychology journals. There were so many authors because the original teams collaborated with the replicators, a fact which should enhance the rate of replicability. In fact, only 36 per cent of the attempted replications led to results which were statistically significant. Further, the average size of the effects found in the replicated studies was only half that reported in the original studies. The lead author, Brian Nosek, commenting on the paper in *Nature*, said that there is no way of knowing whether any individual paper is true or false from this work (Baker 2015).

Either the original or the replication work could be flawed, or crucial differences between the two might be unappreciated. A further point to note is that the studies examined were by established teams, and were published in leading journals. Clearly, the replicability factor elsewhere in psychology may be even lower. So the strategy adopted by behavioural economists of choosing for themselves which bits of psychology to use seems eminently sensible.

Some key findings in behavioural economics

With the above in mind, we might usefully reflect on some of the key empirical findings which have emerged from the behavioural economics research programme. This is not meant in any way to be a complete list, but to describe some departures from the rational choice model which seem to have strong support. These are all, with one exception, discussed at some length in *Misbehaving*.

The term ‘strong support’ needs immediate clarification. And the clarification is important enough for it to warrant its own separate paragraph. The result must not just be observed in a variety of real life contexts, but be capable, in each *particular* context, of providing a better account of observed phenomena than standard rational choice theory. However, it does not necessarily mean that it replaces the relevant assumption or implication of rational choice theory *in general*. This contrast between the general and the particular is a key reason why behavioural economics, despite its impressive empirical findings, has struggled to gain traction within economic theory. We return to this important point below, after considering a few examples of results with strong support.

Thaler recounts how, very early in his career following his excitement on reading the Tversky and Kahneman (1979) paper on prospect theory, he ‘...[formulated] a mission statement. Build descriptive models that accurately portray human behaviour’ (p. 30). Given that hindsight bias is one of the well-established results in behavioural economics, one might speculate whether a trace of it might have crept into that statement. To be fair, Thaler did take a huge risk as an academic by committing himself when he was still a graduate student to an entirely new field of enquiry, one which at the time had no visibility within economics. Hindsight bias might lead us to think that its success was inevitable. But *ex ante* this was certainly not the case. Thaler had just read an intriguing paper which predicts that people react differently to losses than they do to gains.

Over the years, prospect theory has gained acceptance because it can explain behaviour not just in lab experiments but in real life settings, such as game shows and investment behaviour, where large amounts of money are at stake. In the 1970s it was basically still a theory, without a firm base of empirical evidence. And most of the rest of behavioural economics was yet to be invented. None of it might have worked.

Prospect theory is essentially suggesting that in certain contexts utility functions have a more subtle mathematical shape than is implied by the standard formulation of diminishing marginal returns. People attach different weights to losses than they do to gains. A further well-supported result relates to the rate at which people discount future gains or losses. Intertemporal choices are in principle no different from any other choices, except that they need to be reweighted to take into account the delays involved in receiving gains or losses.

The standard way of doing this in economics is to discount future values at an exponential rate. It is a neat and tidy way of doing it. It also has the advantage of ensuring time consistency of preferences. Suppose I have a choice between outcomes A today, B next year, and C the year after. After applying my exponential discount rate, my preferences are for C over B and for B over A. They are transitive, so I choose to wait until I can have C. The next year A is no longer available, it is in the past. But exponential discounting ensures that I will still choose to wait for C and not select B instead.

Thaler discusses the substantial amount of evidence that in many contexts agents may discount the future not at an exponential but at a hyperbolic rate. A subtle variant, the so-called beta-delta model, is quasi-hyperbolic discounting (Laibson 1997). The mathematical formulae of hyperbolic discounting place even more weight on the present than does exponential discounting. I may still prefer C to both B and A right now. But next year B is the current choice, and given the weight placed

on this relative to benefits in the future, I might now prefer B to C. My preferences are not consistent over time.

Two further results with considerable empirical support can be mentioned briefly. Thaler devotes at least one chapter to each and more details can readily be found there. The first is the so-called endowment effect. People tend to value things which they already own (their ‘endowment’) more highly than things which they do not own but could – even when the things in question are the same. A short and amusing chapter describes experiments with coffee mugs which illustrate the phenomenon.

The second is the concept of sunk costs. As Thaler puts it: ‘when an amount of money has been spent and the money cannot be retrieved, the money is said to be sunk’ (p. 64). Economic theory suggests that in general these costs should be ignored. A good example is the advice given in most poker manuals. When it is your turn to bet, pay no attention to how much you have put into the pot in previous rounds of betting. What matters is your judgement about what to do now. However, Thaler ‘collected over the year dozens of examples of people paying attention to sunk costs’ (p. 64). Interestingly, a few pages later, when illustrating one of these instances, he writes ‘sunk costs matter, at least for a while, but may be forgotten eventually’ (p. 67). This raises directly an issue to which we return below. In any given practical situation, how do we know whether agents are paying attention to a behavioural concept such as sunk costs, and how do we know for how long they will persist?

The final example is not mentioned by Thaler. More precisely, it is mentioned almost in passing, but only to be dismissed. This is the question as to whether preferences are transitive. In other words, if I prefer A to B and B to C, transitivity requires me to prefer A to C. Transitivity is a different concept from that of time-consistent preferences discussed above. The preferences of an agent can be transitive at any point in time, but the way in which the agent discounts the future may lead to inconsistent preferences over time. Transitivity is a fundamental assumption of rational choice theory.

Thaler describes how in the 1940s von Neumann and Morgenstern created expected utility theory, how to make decisions in risky situations, in their *The Theory of Games and Economic Behavior* (1944). Thaler writes, ‘[they began] by writing down a series of axioms of rational choice. They then derived how someone who wanted to follow these axioms would behave. The axioms are *mainly uncontroversial* notions such as transitivity’ (p. 29; emphasis added). Now, the field of experimental economics has produced substantial evidence that this axiom is often violated by agents. A classic reference is the paper by Loomes et al. (1991). The results have been around for a long time, and there are many of them. Yet Thaler is able to refer to the assumption of transitive preferences, quite naturally, as being ‘uncontroversial’.

The blurred lines between behavioural, experimental and rational choice economics

This particular example illustrates the rather uneasy relationship between behavioural and experimental economics which seems to be bubbling away under the surface in *Misbehaving*. Kahneman did, after all, share the Nobel Prize with Vernon Smith, the seminal figure in experimental economics. Unlike Heckman and McFadden, Smith is referenced in a couple of short passages in the book. However, Thaler is keen to point out the differences between their approaches: ‘Smith’s research agenda was, at least at that time, different from the one I was imaging for myself. ... I told a reporter that the difference between the research agendas of [Smith and Kahneman] was that Smith

was trying to show how well economic theory worked, and Kahneman was doing the opposite' (p. 40). To be fair, Thaler does qualify this remark with a reference to Smith's later work in, for example, producing asset price bubbles in experiments, although this is confined to a footnote.

The distinction between analysis which sits perfectly well within standard economics and that of behavioural economics is similarly blurred on occasions. The particular example I use to illustrate this is the distinction between short- and long-run profit maximisation. Interestingly, the implicit assumption that a rational firm will be motivated by some form of profit maximisation is not questioned in *Misbehaving*, illustrating once again the close ties of behavioural economics with the mainstream world. In chapter 14 there is a long discussion on the concept of fairness. In particular, Thaler gives a number of examples, taken from completely different settings, in which firms are motivated by long-run rather short-run profitability. The Uber car service, a ski lodge, a very fashionable restaurant are all used to show that short-run profit maximisation, 'gouging' the customer as the ski lodge owner puts it, is not necessarily the best strategy. The National Football League takes a 'long term strategic view' (p. 129) towards ticket pricing at the Super Bowl, keeping them reasonable despite huge demand in order to foster its 'ongoing relationship with fans and business associates'.

Thaler ascribes this behaviour to an appreciation, by some companies at least, that consumers have a sense of what he calls 'fairness'. He writes: 'The value of seeming fair should be especially high for firms that plan to be in business selling to the same customers for a long time, since those firms have more to lose from seeming to act unfairly' (pp. 132–3). Perhaps the use of this concept helps. But the distinction between short- and long-run profit maximising behaviour has been around in economics for a long time. As an example, it featured clearly in the textbook I used as a student, the excellent *Positive Economics* by Richard Lipsey, which was first published over 50 years ago, in 1963 to be precise. And the fact that it was in an introductory text book suggests strongly that the distinction was even then a familiar, generally accepted concept within economics.

The discussion on profit contains a further example of the fuzziness between the worlds of rational and behavioural economics. Thaler devotes considerable effort early on in the book to how behavioural economics counters what he calls 'The Gauntlet', the subject of the whole of chapter 6. The Gauntlet consists of a set of criticisms levelled against behavioural economics by mainstream, rational choice economists. A particularly important one is the concept of learning. Surely, it is argued, consumers, given sufficient incentives, will eventually learn that their behaviour deviates from that of the rational model?

Thaler does give a number of convincing examples during the course of the book where this does not seem to happen. He also, perhaps unwittingly, gives examples of where learning apparently is important. So, in the discussion on fairness, he invokes the argument that consumers 'feel entitled to the terms of trade to which they have become accustomed and treat any deterioration in these terms as a loss' (p. 131). But the very fact that they have 'become accustomed' implies that they have been learning. Even more explicit is a discussion later in the book on the behaviour of New York cab drivers and the number of hours of work they supply each day. Very detailed data are available, and it is apparent from this that there are both high- and low-wage days, and that these can be predicted well by earnings during the first part of the day.

Thaler and colleagues looked at the influence of these wage effects on the hours supplied on the different days. They found that the higher the wage, the less the drivers worked. Thaler describes this as 'a result which economists found shocking' (p. 200), on the grounds that supply curves are meant to slope upwards. As it happens, it is well known that this is not always the case in terms of the supply of

hours, where both income and substitution effects may be strong. Even the simple description in Wikipedia makes this clear.² The point here, however, is that Thaler goes on to say that not all drivers made what he describes as ‘this mistake’. They split their sample data into segments based on the length of time the subjects had been cab drivers, and found that ‘in every case the more experienced drivers behaved more sensibly’ (p. 201).

So, sometimes agents learn, and sometimes they do not. Behavioural economics gives no general guidelines to help us work out which will be the case in any particular situation.

The lack of impact on economic theory

The empirical results obtained in behavioural economics are very interesting and some, at least, seem to be well established. But the inherent indeterminacy discussed above is the main reason for unease with the area within mainstream economics. Alongside *Misbehaving*, any economist interested in behavioural economics should read the symposium on bounded rationality in the June 2013 edition of the *Journal of Economic Literature*. The papers are tightly argued, and it is not the purpose of this article to consider them in detail. The main themes are informative.

‘Bounded rationality’ is related to much of behavioural economics, in that agents are observed making decisions which deviate from the rational, optimal choice. There are three papers. None of the authors is hostile to behavioural economics, though it is fair to say that the degree of enthusiasm varies. In a paper titled ‘Bounded-Rationality Models: Tasks to Become Intellectually Competitive’, Harstad and Selten make a key point that although models have been elaborated which incorporate insights of boundedly rational behaviour, ‘the collection of alternative models has made little headway supplanting the dominant paradigm’ (2013, p. 496). Crawford’s symposium paper notes that ‘in most settings, there is an enormous number of logically possible models... that deviate from neoclassical models. In attempting to improve upon neoclassical models, it is essential to have some principled way of choosing among alternatives’ (2013, p. 524). He continues further on the same page ‘to improve on a neoclassical model, one must identify *systematic* deviations; otherwise one would do better to stick with a noisier neoclassical model’.

Rabin is possibly the most sympathetic of the symposium authors, noting for example that ‘many of the ways humans are less than fully rational are not because the right answers are so complex. They are instead because the wrong answers are so enticing’ (2013, p. 529). Rabin does go on, however, to state that ‘care should be taken to investigate whether the new models improve insight on average... in my view, many new models and explanations for experimental findings look artificially good and artificially insightful in the very limited domain to which they are applied’ (2013, p. 536).

In his book Thaler spends considerable time defending behavioural economics from the more obvious criticisms from the economic mainstream, particularly in chapter 6, as noted above. For example, the fact that the participants in experiments are often paid very little evokes the argument that with proper incentives their behaviour would be different. *Misbehaving* counters this well, citing at length the now extensive literature in financial markets which does seem to show that the efficient markets view of the world is flawed. A favourite expression of economists is ‘as if’, so that markets react ‘as if’ firms were behaving as profit maximisers. If firms did not, regardless of how they themselves believe they are operating, they would be driven out of business. Thaler deals with this argument effectively. He does not, however, refer to the brilliant paper ‘Uncertainty, Evolution and Economic Theory’ by the Chicago economist Armen Alchian, written as long ago

as 1950. Alchian anticipates by decades modern mathematical developments in the theory of evolution, and interested readers are referred to it for a devastating destruction of the ‘as if’ argument in the context of profit maximisation. I have recently published a paper (Ormerod 2015) drawing out the wider implications of Alchian’s article for economics. These implications include the basis of a completely general model of behaviour for agents operating under uncertainty to replace that of rational choice.

But, as we have seen, *Misbehaving* does not deal nearly as well with the arguments that in many situations agents will learn to be rational. The arguments in the *Journal of Economic Literature* symposium both encompass and generalise this problem for behavioural economics. The authors accept without question that in many circumstances deviations from rationality are observed. However, no guidelines, no heuristics, are offered as to the circumstances in which systematic deviations might be expected, and circumstances where the rational model is still appropriate. Further, the theoretical models developed to explain some of the empirical findings in behavioural economics are very particular to the area of investigation, and do not readily permit generalisation.

Behavioural economics and policy: does it over-claim?

Behavioural economics is not, of course, simply about advancing scientific knowledge about the workings of the economy. Policymakers have become interested. Cass Sunstein, the co-author with Thaler of the 2008 book *Nudge: Improving Decisions About Health, Wealth and Happiness*, has served in the Obama administration as head of the Office of Information and Regulatory Affairs. David Cameron, Britain’s Prime Minister, in 2010 set up the so-called ‘Nudge Unit’ in the British government, an outfit which has relatively recently been spun off into the private sector.

Sunstein and Thaler have not been shy about their claims for the power of behavioural economics in practical policymaking. In *Nudge* they argue that people often make poor choices because human beings are susceptible to routine biases that can lead to embarrassing mistakes in areas such as education, personal finance, health care, mortgages and credit cards, happiness, and even the care of the planet. A dialogue with the authors which appeared on the Amazon.com website is illuminating:

Amazon: What are some of the situations where nudges can make a difference?

Thaler and Sunstein: Well, to name *just a few* [emphasis added]: better investments for everyone, more savings for retirement, less obesity, more charitable giving, a cleaner planet, and an improved educational system. We could easily make people both wealthier and healthier by devising friendlier choice environments, or architectures.³

The scene from the Monty Python film *Life of Brian* (1979) springs irresistibly to mind, when a member of the revolutionary People’s Front of Judea who is haranguing a crowd asks rhetorically, ‘What have the Romans ever done for us?’, only to be provided in reply with a list including clean water, sanitation, roads, wine, education, peace. ‘But apart from that?’, he asks plaintively.

In *Misbehaving*, Thaler is rather more circumspect. In the final part (Part VIII) he discusses a modest number of examples where the insights of behavioural economics seem to have helped policymakers. He is at pains to point out that he is not trying to ‘replace markets with bureaucrats’ (p. 307). He discusses at some length the term he coined with Sunstein, ‘libertarian paternalism’. The

concept is summarised as ‘by paternalism, we mean trying to help people achieve their own goals.... We use the word “libertarian” as an adjective to mean trying to help in this way but without restricting choices’ (p. 324).

We might perhaps reflect on why it is necessary to invent this term at all. The aim of any democratic government is to improve the lot of the citizens who have elected it to power. A government may attempt to make life better for everyone, for the interest groups who voted for it, for the young, for the old, or for whatever division of the electorate which we care to name. But to do so, it has to implement policies that will lead to outcomes which are different from those which would otherwise have happened. They may succeed, they may fail. They may have unintended consequences, for good or for ill. By definition, government acts in paternalist ways. By the use of the word ‘libertarian’, Thaler could be seen as trying to distance himself from the world of the central planner.

The extravagant claims of *Nudge*, which would have delighted the hearts of the architects of Gosplan in the old Soviet Union, are not repeated, though neither are they renounced. And yet the suspicion remains that the central planning mind set lurks beneath the surface. On page 324, for example, Thaler writes that ‘in our increasingly complicated world, people cannot be expected to have the experience to make anything close to the optimal decisions in all the domains in which they are forced to choose’. The implication is that behavioural economics both knows what is optimal for people and can help them get closer to the optimum.

Further, we read that ‘[a] big picture question that begs for more thorough behavioral analysis is the best way to encourage people to start new businesses (especially those which might be successful)’ (p. 351). It is the phrase in brackets which is of interest. Very few people, we can readily conjecture, start new businesses in order for them to fail. But most new firms do exactly that. Failure rates are very high, especially in the first two or three years of life. How exactly would we know whether a start-up was likely to be successful? There is indeed a point from the so-called ‘Gauntlet’ of orthodox economics which is valid in this particular context. Anyone who had a good insight into which start-ups were likely to be successful would surely be extremely rich.

What is lacking, not just in these examples but throughout the book, is recognition of the highly tentative, uncertain and experimental nature of successful policymaking. This is the point stressed throughout his career by Hayek. Hayek essentially believed that there are inherent limits to knowledge which no amount of intellect or information can overcome. His 1974 Nobel lecture, for example, is titled ‘The Pretence of Knowledge’ (Hayek 1989). Keynes, too, emphasised the great uncertainty that surrounds the outcome of any decision which has consequences beyond the immediate future. So he writes in the *General Theory* that

the outstanding fact is the extreme precariousness of the basis of knowledge on which our estimates of prospective yield [of a new investment] have to be made ... If we speak frankly, we have to admit that our basis of knowledge for estimating the yield ten years hence of a railway, a copper mine, a textile factory, the goodwill of a patent medicine, an Atlantic liner, a building in the City of London amounts to little and sometimes to nothing; or even five years hence. (Keynes 1936, p. 149)

Of course, while Keynes could and did expound his view on the limits to knowledge not just in the above quote but throughout the *General Theory*, at the same time he seems to have believed that these limits did not necessarily apply so stringently to the select few of the enlightened. Keynes thought not only that he had discovered why labour markets did not clear, but that he, and like-minded

others, could solve the problem. So, for example, towards the end of the *General Theory*, he writes ‘I conclude that the duty of ordering the current volume of investment cannot safely be left in private hands’ (1936, p. 320).

The same sort of tension exists in behavioural economics, certainly as exemplified in *Nudge* and reflected rather more weakly, though still present, in *Misbehaving*. The strength of the empirical results varies. The field does not give us heuristic guidelines on whether, when confronted with a policy question, to expect that agents will deviate from rational behaviour or not. It is not clear *ex ante* whether agents will learn over time either to alter their behaviour to be more in line with the rational choice model, or in some way to game the nudge with which they are confronted. Behavioural economics has developed some powerful theoretical models, but, with a few exceptions, these models do not appear to generalise readily. Yet, at the same time, its practitioners often make strong claims for the power and effectiveness of the approach to design effective policies.

Perhaps the single most important lesson from behavioural economics from a policy perspective is its emphasis on what is described as the ‘architecture of choice’. For example, it does appear to be the case, supported by quite extensive empirical evidence, that where a decision is required as to whether to opt out of or to opt in to a scheme, the way the default option is framed exercises a strong influence on the outcome. We might think of the current proposals in the UK that trade union members be required by law to opt into any political levy set up by their union, rather than having it deducted automatically with their union dues. How the choice is put can have a dramatic effect on the outcome, far greater than would be the case if it were a matter of ‘rational’ agents including the cost of the time spent filling in a simple form when assessing the various costs and benefits of trade-union membership. This might make a difference to a handful of people, those at the margin of joining or not. But in practice, the impact on the eventual outcome can be very substantial.

Concluding remarks

Mainstream economics already knows about the potential importance of the design of the architecture of choice in any particular situation. There is a large literature, for example, on the design of auctions, which is known to exercise a strong influence on the outcome. Many of the distinctive footprints of asset price changes, such as fat tails and clustered volatility, may be due to the price setting mechanism which is used, the continuous double auction, rather than to behavioural rules used by the buyers and sellers. The classic paper by Gode and Sunder (1993) showed over two decades ago that many of these features could be approximated by a model in which prices were set by this particular mechanism, but by assumption the agents in the model were assumed to have zero intelligence. The contribution of behavioural economics is to bring the question of the architecture much more to the forefront in policymaking.

As already emphasised early in this article, within economics itself the most important contribution of behavioural economics has been to shift the entire emphasis of the subject in the direction of empirical analysis, away from pure theory. This is by no means the only reason why this shift has happened. The impact of developments in the econometric theory of how to handle cross-sectional and longitudinal data has also been considerable. And perhaps economists themselves were not completely impervious to the criticisms that their discipline had come to place too much emphasis on pure theory. But behavioural economics certainly played a leading part in this shift.

Overall, behavioural economics has made an important contribution to the discipline of economics. Its devotees often over-claim its effectiveness in policymaking, but it cannot be ignored. An economist can no longer be said to have a good training in economics if he or she is not familiar with the main themes of behavioural economics, and the strengths and weaknesses of the approach.

Notes

1. There is a passing reference to the econometric techniques on page 8.
2. https://en.wikipedia.org/wiki/Labour_supply (accessed 13 December 2015).
3. <http://www.amazon.com/Nudge-Improving-Decisions-Health-Happiness/dp/014311526X> (accessed 13 December 2015).

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