Agenda

Advancing economics in business

The science of misbehaving: Richard Thaler wins the Nobel Prize

Richard Thaler has been awarded the 2017 Nobel Prize for his contributions to behavioural economics. His work on mental accounting, self-control and 'nudging' are stand-out achievements. Thaler's work from the late 1970s to the present day reflects a combination of collaboration and determination, and has affected government and regulatory policy around the world.

On 9 October 2017, the Royal Swedish Academy of Sciences awarded the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel to Richard H. Thaler for his contributions to behavioural economics. Behavioural economics is the application of psychology to explain behaviours that cannot be readily accounted for by the standard 'rational-choice' model. The standard paradigm assumes that individuals process relevant information objectively, which they optimise to make good, consistent choices. Thaler calls these rational decision-makers 'econs'. In contrast, the behavioural model acknowledges that we are 'human' and that we can be manipulated, make mistakes, and find it difficult to follow and stick to the right path.

While Thaler was not the first to explore these issues (in particular, Herbert Simon, Daniel Kahneman and Amos Tversky went before him), it was he who developed behavioural economics as a discipline, and challenged the prevailing paradigm head-on.

A long journey

Thaler is best known today for his work on 'nudges'—helping people to make better decisions by changing the way in which their choices are presented, and applying default options and other measures. For example, such initiatives can help individuals to save for retirement or lead a healthier lifestyle. Nudges can also be used to increase organ donation rates and encourage people to pay their taxes.

Thaler's journey began in 1978, when he began to make a list of anomalies that the rational-choice model could not explain. He subsequently developed the concept of

'mental accounting' and the 'planner-doer' model of self-control. Key to Thaler's success were the collaborations he formed with other academics—in the fields of economics, psychology and law. Another important ingredient was that he undertook numerous experiments on students to test his ideas for empirical robustness. This twin-track approach helped Thaler to challenge the considerable resistance that he faced from proponents of the rational-choice model in the mid-1980s. Much of this came from academics at the University of Chicago where, interestingly, Thaler would eventually take up residence. Behavioural economics is now becoming mainstream—and is increasingly being made use of by policymakers.

Fair's fair

A major area of Thaler's research has been mental accounting. The standard economic model assumes that money is money and that it does not have 'labels' (i.e. it is 'fungible')—money in a savings account is the same as money in a jar, and we optimise our spending and saving decisions accordingly. Thaler challenged this assumption.

Thaler uses a simple illustration. Assume that you are on a beach with a friend, and that you would like to drink a cold beer. How much would you be willing to pay for this thirst-quenching refreshment? Assume that your friend says that he'll get up and buy a beer for you from an upmarket hotel—the only vendor nearby—but only if it is priced at or below your stated willingness to pay (WTP). What would you say to your friend was your WTP? Now assume your friend says he'll buy you a beer from a run-down 7-11—again, the only vendor nearby. What would your WTP be in this alternative scenario?[1]

The standard model predicts that your WTP would be the same in both instances. All you would care about is the utility gained from acquiring and drinking the beer. This is 'acquisition utility'. A cold beer is a cold beer, and where it comes from is irrelevant. However, Thaler's experiments produced average answers of $7.25 and $4.10, respectively. This is a clear violation of the standard theory. The explanation is 'transaction utility'—or the perceived fairness of the deal relative to a reference point. This also explains why furniture stores seem to have sales on almost constantly. Here, the 'was'/'now' pricing fulfils two functions: the higher price provides a signal of good quality, but the difference between the high and lower price produces a satisfying spoonful of transaction utility.

Thaler similarly notes that the standard model assumes that businesses maximise profits by taking advantage of short-run increases in demand: rational decision-makers (econs) don't care *why* the price has increased. Thus, when demand increases and supply is more limited, prices should increase accordingly. In practice, however, people punish what they perceive to be exploitative behaviour. There is a difference between people's WTP at any point in time and the norms of what a product is inherently worth. In the long run, it may be unprofitable for a firm to ramp up prices to fully reflect WTP during peak periods—as it will be punished during normal times: 'why create enemies to increase profits a few days a year?'.[2] However, people react differently if they see that prices have risen due to a clear rise in underlying costs.

Fairness runs deep. Over the years, Thaler (and his colleagues) have devised experiments to measure people's attitudes to fairness and how they would split a given amount of cash between themselves and a recipient. The 'dictator game' experiment reveals that people making offers to split a sum of cash care about fairness, and that many split it evenly. The 'punishment game' experiment shows that people punish those who behave unfairly towards others—even if this involves taking a financial hit themselves.[3] Money is important, but we are not purely self-interested econs.

Avoiding loss

Thaler also explored the role of mental accounting in explaining how people behave when faced with gains and losses. This built on previous work by Kahneman and Tversky who noted that, contrary to the standard model, people dislike losses more than they like equivalent gains. This is 'loss aversion', or the 'endowment effect'. People then also tend to be risk-averse when faced with prospective gains (going for the certain option) but are risk-taking when trying to avoid losses (selecting a gamble over the certain option). This is the essence of 'prospect theory'.

However, Thaler realised that this theory was incomplete. Through experiments, he found that people who were threatened with particularly big losses, but who were given a chance to break even, will tend to take big risks—even if ordinarily they are fairly risk-averse. However, where

there is no prospect of breaking even, people tend not to gamble. The key here is that people who think that they are behind relative to some mental account—a gambler at a casino, an investor in a fund—will either exhibit risk-taking or risk-averse behaviour according to whether they *think* they can do something about it. This is all problematic for the standard model—which assumes that we are generally risk-averse, do not hold mental accounts, and ignore sunk costs (i.e. we don't throw good money after bad). It provides us with a richer understanding of the behaviour of naive gamblers, failing businesses and rogue traders.

Thaler undertook further work on loss aversion with Kahneman in the mid-1980s. In an experiment, students were selected at random and were given mugs emblazoned with the Cornell University insignia. They were then offered successive chances to trade—to either sell them or buy them. The sellers needed to specify in advance their minimum reservation price while the buyers needed to specify the maximum price they would be willing to pay. Standard economic theory predicts a high volume of trading activity, with the mugs going to those with the highest WTP. However, what was observed was a low volume of trading activity, with an average buy price of $2.75 and an average sell price of $5.25—indicating that there was a wedge between WTP and willingness to accept (WTA). The explanation was the endowment effect—once I have a mug it is mine, and giving it up would be a loss. Importantly, this effect was not found when trading was over monetary tokens as opposed to physical possessions. Thaler's work helps to explain in part why we see status quo bias in real-world markets.

Self-control

Thaler also pioneered work on self-control problems—the 'planner-doer' model. The standard model assumes that we discount future rewards exponentially. This means that we stick to a given path over time—i.e. the one in our long-term interests. In contrast, Thaler noted that we face a conflict between our short-term urges (eating a pizza) and our long-term plans (going to the gym). Even though our long-term interest is best served by the 'planner' in us, the 'doer' can lead us astray.

To explore this, Thaler developed the model of quasi-hyperbolic discounting. Essentially, while 'exponentials' stick to their plans, 'hyperbolics' do not. 'Hyperbolics' are 'present-biased' or suffer from 'time inconsistency'.[4] The baton in this area has since been picked up by others—including David Laibson, Matthew Rabin and George Lowenstein. In models of quasi-hyperbolic discounting, such authors distinguish between sophisticated and naive individuals. The former have an appreciation of their self-control problems, whereas the latter do not. The implication? Sophisticated individuals will try to put into place some regime or rule to follow to act as a commitment device against giving in to temptation—for example, designating Thursday night as 'gym night'. A more extreme example may be Odysseus's order to be tied to the mast

of the ship so that he cannot succumb to the songs of the sirens. In contrast, naive individuals may not be in a position to do this, and it is they who arguably require more protection.

Naive individuals with self-control problems may be overly optimistic about their future behaviour, and (for example) may take out a credit card and get into difficulties. They may also not get around to saving for retirement—preferring immediate consumption instead. As discussed below, policy has been developed around this area. It is also of note that economic models of markets have since been developed that distinguish between the two types of consumer (in terms of their appreciation of self-control, as proposed by Paul Heidhues, Botond Kőszegi and Takeshi Murooka). These models show that, in markets with numerous firms, naive consumers can be exploited whereas this would not be possible if everyone were rational.

Nudging policy

Thaler's emergence into the popular mainstream came with the publication of *Nudge* in 2008. The central premise of the book, co-authored with Cass Sunstein, is 'libertarian paternalism'. Essentially, this involves helping people to make better decisions (as would be judged by themselves) without forcing them to do anything.

For example, in the field of organ donation it was noted that previous work had identified the power of defaults. The research had shown that countries with opt-out systems ('presumed consent') had significantly higher organ donation rates than those with opt-in systems. Thaler and Sunstein found that, in practice, the policy of presumed consent was often not adhered to—instead, relatives were still asked for their agreement. Given the emotional stress that this can involve, the authors instead proposed that 'prompted choice' might be more effective: when renewing a driving licence, people are asked whether they wish to become a donor. This has been adopted by various states in the USA. The UK has also since introduced a prompted choice policy. This illustrates how using the right nudge—at the right time and in the right place—can increase donation rates while overcoming practical and ethical difficulties.

Importantly, Thaler has consistently emphasised that interventions should be tested through experiments before they are rolled out. In this context, Thaler's work led to the creation by the UK government of the Behavioural Insights Team (BIT).[5] The BIT explores how public services can be redesigned, using behavioural science and field trials to test alternative remedies. Thaler's ideas have been instrumental in influencing the work that Oxera has undertaken in behavioural science. For example, on behalf of the UK Financial Conduct Authority (FCA), and in collaboration with the Centre for Experimental Social Sciences (CESS, at Nuffield College, University of Oxford), we have undertaken online lab experiments to explore different interventions to nudge workers into better retirement product decisions.[6]

Thaler's work in creating a new discipline has been achieved through a process of collaboration and determination. The policy implications are far-reaching, and his work has affected the approaches adopted by government bodies and regulators across the world. Nudging is now mainstream parlance. Perhaps, in future, behavioural economics will simply be called 'economics'?

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[1] This, and a number of other examples referred to in this article, are taken from Thaler, R.H. (2015), *Misbehaving: The Making of Behavioural Economics*, Allen Lane (Penguin Books).

[2] Thaler, R.H. op. cit., p. 138.

[3] See Chapter 15 of Thaler, R.H. op cit. In the dictator game, the 'dictator' determines how to split an endowment (e.g. $20) between themselves and a 'recipient'. The latter accepts whatever has been chosen. If dictators were rational decision-makers (econs), they would simply allocate the entire endowment to themselves—giving nothing to the recipient. In experiments, however, three-quarters of dictators divide the money evenly. This is consistent with fairness concerns or 'other-regarding preferences'—the dictator cares not just about their own welfare, but also about that of the recipient. The punishment game is a second stage of the dictator game. Here, individuals are told about the behaviour of a dictator in the first stage. They are asked whether they would split $10 evenly with a dictator who was 'fair', or $12 evenly with someone who was 'unfair'. In practice, around 80% of people prefer to split the lower amount ($10) with someone who is 'fair'. This indicates that people dislike unfair offers made to others, and will punish such behaviour even if it means taking a financial hit ($5 versus $6).

[4] Under exponential discounting, I discount future rewards at a constant discount rate over time. Rewards tomorrow are worth less than rewards today, but my preferences remain the same over time and are independent of the delay with which I will receive the future reward. So if I prefer £10 this week to £12 next week, I will still prefer £10 in 20 weeks' time to £12 in 21 weeks. In this vein my preferences are 'time-consistent'. With hyperbolic discounting, I excessively favour immediate gratification over future rewards. My discount rate depends on the delay to receiving the reward, so my preferences change over time—what I prefer and plan for today (in my long-term best interests) can switch at another point in time. If asked today whether I would prefer to watch TV or go to the gym next week, I may answer 'gym', but when next week actually arrives I may opt for immediate gratification—TV. Hyperbolic preferences are 'time-inconsistent'.

[5] The Behavioural Insights Team (BIT) is now a social purpose company, owned jointly by the UK government, Nesta (an innovation foundation), and its employees.

[6] Oxera (2017), 'Goodbye tension, hello pension! Metrics to help consumers choose the best deals', *Agenda*, August, www.oxera.com/Latest-Thinking/Agenda/2017/Can-summary-cost-metrics-help-consumers-choose-the.aspx; Oxera (2016), 'How can consumers be persuaded to shop around?', *Agenda*, August, www.oxera.com/Latest-Thinking/Agenda/2016/How-can-consumers-be-persuaded-to-shop-around.aspx.