

Behavioural insights and regulatory practice

A review of the international academic literature

Professor Jeroen van der Heijden

School of Government

Victoria University of Wellington

State of the Art in Regulatory Governance Research Paper 2019.01

Disclaimer

The Chair in Regulatory Practice in the School of Government, Victoria University of Wellington, is part of the Government Regulatory Practice Initiative (G-REG). G-REG is a network of central and local government regulatory agencies and has been established to lead and contribute to regulatory practice initiatives. It works on actions that improve leadership, culture, regulatory practice and workforce capability in regulatory organisations and systems. The Chair is sponsored by ten agencies within G-REG, the Treasury, and the Victoria University of Wellington.

Through world-leading research on regulatory practice and active engagement with the G-REG community, and by contributing to the training of those involved in regulatory issues, the Chair aims to help improve New Zealand's regulations and their impact on economic and social performance. The Chair defines regulation broadly as the institutions, processes and instruments put in place to steer the behaviour of individuals and collectives towards desirable societal ends.

The State of the Art in Regulatory Governance Research Paper Series seeks to inform those involved in regulatory issues in New Zealand and elsewhere on developments in the regulatory literature. Papers in the series review the international academic literature and distil key insights for an audience of regulatory professionals in government and other sectors.

All opinions expressed in this paper are the author's and are not necessarily shared by G-REG or its supporting agencies, the Treasury, or the Victoria University of Wellington.

To cite this research paper:

van der Heijden, Jeroen (2019). *Behavioural Insights and Regulatory Practice: A Review of the International Academic Literature. State of the Art in Regulatory Governance Research Paper – 2019.01*. Wellington: Victoria University of Wellington/Government Regulatory Practice Initiative.

Behavioural insights and regulatory practice: A review of the international academic literature

State of the Art in Regulatory Governance Research Paper – 2019.01

Professor Jeroen van der Heijden

February 2019



Abstract

This research report presents findings from a broad range of international academic literature on the use of insights from the behavioural sciences in regulatory practice—an approach to regulation colloquially known as ‘nudging’. The report is targeted at managers and frontline workers in regulatory organisations and units who are interested in this approach to regulation. The report addresses six themes: (1) the evolution of thinking about rational behaviour, (2) examples of the use of behavioural insights in regulation, (3) evidence of the workings of this approach, (4) experiments and randomised control trials to understand those workings, (5) ethical challenges, and (6) epistemic challenges.

Contents

Contents.....	1
1 Introduction	3
2 The evolution of (ir)rational behaviour.....	6
3 Examples from around the world of regulation informed by behavioural insights	11
4 Experiments with regulation informed by behavioural insights, and evidence of performance.	15
5 Ethical and epistemic challenges.....	19
6 Conclusion.....	23
Appendix A –Suggestions for further reading.....	25
Appendix B – Methodology	28
Appendix C – References.....	29

1 Introduction¹

It is not often that a book on governance interventions becomes a bestseller, but Richard Thaler and Cass Sunstein's *Nudge: Improving Decisions about Health, Wealth and Happiness* ('Nudge') has done just that. Published in 2008, and republished since, the book outlines the seemingly immense potential for more innovative and less coercive government interventions to shape people's behaviour. These interventions build on the latest insights from the behavioural sciences and behavioural economics. The book was considered 'Best Book of the Year, 2008' by both *The Economist* and *The Financial Times*. This is an extraordinary achievement when compared with what happens to all the other books published each year on governance interventions that remain in their publishers' warehouses and are read by, at best, a handful of in-group specialist scholars.

The success story continues. Not only is *Nudge* widely read, but it is also widely applied. In 2010, the UK government created its Behavioural Insights Team (BIT), or 'Nudge Unit', to apply insights from academic research in behavioural economics and psychology to public policy and services—and Thaler acts in an advisory capacity to the BIT. Over the years, the BIT has grown from a small government organisation to a social purpose company (jointly owned by the UK government, Nesta, and BIT employees), with a staff of around 150 and offices in Manchester, New York, Singapore, Sydney and Wellington.

The UK BIT inspired the Obama administration to create its own Behavioral Insights Team², in 2012, and this was quickly nicknamed the 'Nudge Squad' by the US media (Fox News, 2013).³ On mainland Europe, the use in policy and regulation of insights from the behavioural sciences has gained attention in France and Germany and from the European Commission, with the latter having begun a collaborative program in 2012, Behavioural Studies for European Policies (BESTEP), to explore the use of behavioural insights in a European policy context.⁴ Since then, this interest has grown, with a recent report of the OECD pointing to over 100 case studies from around the world (OECD, 2017).

Interest in this approach to regulation is also growing in New Zealand. There are good reasons for this. Reading the experiences reported by policymakers and regulators, it becomes clear that using insights from the behavioural sciences 'allows policy-makers to better understand and influence people's behaviour' (European Commission, 2013), which will 'help [to] design public policies that work better, cost less, and help people to achieve their goals'. However, the foundations of this approach to policy

¹ The introduction to this report builds strongly on Kusters, M., & van der Heijden, J. (2015). From mechanism to virtue: Evaluating Nudge theory. *Evaluation*, 21(3), 276-291. Many thanks, again, to Mark Kusters for co-authoring that article with me.

² Cass Sunstein joined the White House as Administrator of the White House Office of Information and Regulatory Affairs after publishing *Nudge*. Here his focus was on better regulation, rather than on the application of behavioural insights per se. However, President Obama's interest in nudging has been well-documented (Legett, 2014). Under President Donald Trump the 'Nudge Squad' was rolled over into the Office of Evaluation Sciences.

³ The Obama Administration document referring to the possible creation of a Behavioral Insight Team was first made public by Fox News; see: <https://www.foxnews.com/politics/behavioral-insights-team-document> (accessed: 22 August, 2013)

⁴ https://ec.europa.eu/info/policies/consumers/consumer-protection/evidence-based-consumer-policy/behavioural-research_en (11 February 2019)

and regulation, its application and its performance are not always well understood by those who are keen to implement it in public policy and practice (Grimmelikhuijsen, Jilke, Olsen, & Tummers, 2017). Therefore, the Advisory Board of the Chair in Regulatory Practice has asked the Chair in Regulatory Practice to review the academic literature on the use of behavioural insights in regulatory practice. This report is the result of a systematic review of that literature, carried out between August and December 2018.

This report is targeted at managers and frontline workers in regulatory organisations and units in New Zealand who are interested in this approach to regulation. The report addresses six themes: (1) the evolution of thinking about rational behaviour, (2) examples of the use of behavioural insights in regulation, (3) evidence of the workings of this approach, (4) experiments and randomised control trials to understand those workings, (5) ethical challenges, and (6) epistemic challenges. Before moving to those topics, it makes sense to define what is meant by using behavioural insights in regulatory practice—more colloquially known as ‘nudging’.

What is it all about?

The central premise behind Thaler and Sunstein’s nudges is that individuals are not ‘Econs’—roughly defined as rational and self-interested utility maximisers. In other words, people frequently behave in a way that economic theory finds difficult to predict (Thaler & Sunstein, 2009, 7). It is, of course, not a novel insight that people do not act in their own best interests from an economic point of view. In 1973, Herbert Simon was awarded a Nobel Prize for his classic work on bounded rationality (Simon, 1945), which argues that people are unable to make economically optimal decisions because they lack both the capacity to store the voluminous information needed for such decisions and the cognitive ability to process that information. More recently, influential behavioural scientists such as Daniel Kahneman (2011), Roberto Cialdini (2009) and Dan Ariely (2008) have given evidence of what for a long time has been common knowledge: people do things that are not in their own best interest even when they are aware of this (bounded willpower), or do things that are not in their own best interests because they consider benevolent behaviour to be fairer than selfish behaviour (bounded self-interest).

Despite this long history of people pointing out that ‘Homo Economicus is a fiction’ (Leonard, 2008, 356-357), the law, and specifically the economic analysis of legal rules, has been hampered by focusing on the substance of rules (i.e. how the rules are written) and their function (i.e. how they should operate) rather than being concerned with how people respond to rules (Bardach & Kagan, 1982; Jolls, Sunstein, & Thaler, 1998; Sparrow, 2000; Supiot, 2007). In an analysis that predates *Nudge*, Thaler and Sunstein, along with Christine Jolls, suggest that, while behavioural insights challenge the ‘simplicity and parsimony’ of the conventional economic analysis of legal rules, they can provide a more accurate prediction of the likely behavioural response to legal rules (Jolls et al., 1998, 1487-1488).

In *Nudge*, the focus shifts from employing behavioural insights as prognosticators of human behavioural response to seeing such insights as key in the practice of shaping that behaviour. This application of behavioural insights is what Thaler and Sunstein refer to as changing the ‘choice architecture’ of those who are governed. To them, the answer to the question ‘why nudge?’ is that

the application of behavioural insights should result in more effective government and, therefore, should make people happier. For government, the answer is similar in some respects, in that effective governance, policies and regulations are obviously preferable to ineffective ones.

But what exactly does it mean to use insights from the behavioural sciences in regulation? Or, more colloquially, what is a nudge? Thaler and Sunstein provide us with this definition in the introduction to their book:

A nudge, as we will use the term, is any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be cheap and easy to avoid. Nudges are not mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not. (Thaler & Sunstein, 2009, 6)

Over time, the use of behavioural insights in regulation has moved beyond being a mere 'tool' (as per Thaler and Sunstein's definition) to become a process of developing, implementing, measuring, and adapting regulation and its performance. The OECD describes this process as follows:

An inductive approach to policy making that combines insights from psychology, cognitive science, and social science with empirically-tested results to discover how humans actually make choices.⁵

With this in mind, let us now turn to the problem that using behavioural insights in regulation seeks to address: why and how do people deviate from economic assumptions of rationality? The next chapter considers this question by exploring the evolution of our understanding of (ir)rational behaviour.

⁵ <http://www.oecd.org/gov/regulatory-policy/behavioural-insights.htm> (29 November 2018).

2 The evolution of (ir)rational behaviour

Policymaking and implementation have for many years been built on rational choice theory—and that is often still the case. Rational choice theory is an analytical framework in neoclassical economics for understanding and modelling the social and economic behaviour of groups of people—for example, the population of a country. A central aspect of this theory is that people are rational beings who have ‘stable, coherent and well-defined preferences rooted in self-interest and utility maximisation that are revealed through their choices’ (McMahon, 2015, 141). When they can choose from a variety of alternatives, they are expected to choose the alternative that has the highest worth or value to them. In technical terms, this would be called ‘utility maximisation’.

While this sounds like a plausible description of what people would do when facing a choice, economists and others have for long struggled with the notion of ‘utility’ (Read, 2007). The notion was initially introduced by moral philosophers such as Jeremy Bentham (1748-1832) and John Stuart Mill (1806-1873), who considered it as a measure of pleasure or satisfaction: positive utility is defined as the tendency to bring pleasure, and negative utility as the tendency to bring pain. Within this conceptualisation of utility, it is an open question whether what people desire (maximum utility) is what they choose.

With the advance of neoclassical economics in the early twentieth century, scholars became particularly interested in measuring and modelling utility (Barbera, Hammond, & Seidl, 1999). It was expected that if all the preferences of the individual people in a group were known, these could be added up to estimate the greatest (social) welfare possible for that group. Measuring individual utility is, however, exceptionally difficult (Pinto-Prades & Abellan-Perpignan, 2012). To overcome measurement problems, neoclassical economists have often used expressed or observed choices as indicators for utility. It has become accepted practice within this strand of economics to consider what people choose (or say that they would choose) to be representative of what they want (McMahon, 2015).

Updated understandings of utility

This understanding of utility and the related ‘Homo Economicus’ stereotype have received considerable criticism, however. Contemporary behavioural economists and others claim that this understanding of utility is too narrow. They point out that people may desire one thing (being healthy) but choose to do something else (smoke, eat unhealthy food, fail to take enough exercise). In part, this has to do with our personal and ever-changing understanding of the utility we get from a specific decision. Pioneering work, starting in the 1970s, by Daniel Kahneman and Amos Tversky (1937-1996), has pointed out that we humans have at least three understandings of utility: experienced utility, decision utility, and remembered utility (Kahneman, Wakker, & Sarin, 1997).

Experienced utility can best be understood as the pleasure (or pain) you experience right now when reading this paper. Decision utility is the pleasure (or pain) you expected to get from reading this paper before you started reading it. These two utilities may coincide, as neoclassical economics assumes, but often they will not (Friedman, Isaac, James, & Sunder, 2014). It is reported that people routinely

overestimate the positive utility (pleasure, joy, opportunity) and underestimate the negative utility (pain, regret, risk) they expect to get from a choice. To complicate matters further, the utility we later remember getting from a specific choice may again differ from these two other forms of utility (Kahneman, 2011).

These different forms of utility affect each other, and in doing so they make human behaviour less 'rational' than the predictions of neoclassical economics. For example, Kahneman has observed that the way in which an experience ends may alter the remembered utility of that experience (Kahneman, 2011). An overall painful experience may still be considered a valuable one if it ends on a high peak. Think about studying for exams: the utility experienced while studying does not depend on the outcome (the outcome is unknown while studying), and yet the remembered utility will be very different depending on whether the exam is passed or failed.

Deviations from the neoclassical economics understanding of rational behaviour

Scholars have also pointed out that, besides such deviations from the utility function, humans are less rational in making choices under uncertainty than is predicted by neoclassical economics. The American economist and political scientist Herbert Simon (1916-2001) was one of the first to note, in the mid-1940s, that people find it difficult to have a full understanding of many of the problems they are facing. It is often impossible for them to acquire all the relevant information they need to make a rational decision, and, even if they could get all this information, they are very likely to lack the mental capacity or the time to process it. In other words, when making decisions humans possess only 'bounded rationality' and must make decisions by 'satisficing'—they choose what makes them happy enough (Simon, 1945).

Moreover, the work of Kahneman and Tversky and other behavioural scientists has pointed out that people deviate in other predictable ways from the neoclassical assumptions of rationality—we humans rely on cognitive biases ('mental shortcuts') and heuristics when making choices. Sometimes this results in suboptimal outcomes. To name a few dominant heuristics and biases, and their possible suboptimal effects:

- Present bias and hyperbolic discounting: People tend to give stronger weight to a payoff that will be received sooner, when faced with a choice between two possible occasions for receiving the payoff. For example, when given a choice between receiving \$50 today or \$100 tomorrow, and when they don't need the money on either day, people are likely to choose to receive \$100 tomorrow. However, the longer the time between the two occasions, the more likely they are to opt for the instant \$50.
- Anchoring and framing: People tend to rely heavily on an initial piece of information, or on how that information is provided, when making a decision. For example, people tend to be much more likely to buy a used car for \$4,000 if the price has been reduced from \$5,000 than to pay \$4,000 when they were not given this initial 'anchor'. Likewise, people are more likely to purchase goods when they are framed as a 'Black Friday Bargain!!!' in the week following Thanksgiving than when the goods are offered for a similar price and without the sale claim the week before.

- Probability neglect: People tend to disregard probability when deciding under uncertainty—and the more unknown the situation, the less good we are at estimating likelihoods. This leads to the overestimation of small risks. For example, people tend to be much more concerned about the risk of an act of terrorism affecting their lives than about ordinary risks that are statistically much greater.
- Loss aversion: People tend to prefer avoiding losses to acquiring gains. For example, if one person is given \$50 and another is given \$100 but must give back (or otherwise lose) \$50 of that amount, the first person will experience greater pleasure than the second—even though the result is the same (an added \$50).
- Confirmation bias: People tend to seek confirmation for the beliefs they hold, to interpret information in a way that confirms these beliefs, to favour information that confirms their beliefs, and to downplay the value of information that goes against them. The effect of confirmation bias gets stronger for emotionally charged issues and for deeply entrenched beliefs.
- Optimism bias: People tend to believe that, compared to others, they are at a lower risk of experiencing adverse events and are more likely to experience positive ones. For example, smokers tend to believe that they are less likely to develop lung cancer than other smokers.

There are a variety of explanations for why we make these ‘irrational’ choices. A widely acknowledged explanation is dual process theory—often referred to as system 1 (or automated) and system 2 (or reflective) behaviour (Kahneman, 2011). The argument is that the brain capacities that we have inherited from our ancestors are well developed for making the automated life-or-death choices (system 1) that are needed to survive in the African savannah, but are ill-suited for making reflective and complex choices (system 2) that give the greatest utility in modern market economies (Bissonnette, 2016).

From predictable and rational to predictably irrational: Prospect theory

Bringing together insights from their studies of human behaviour, Kahneman and Tversky have proposed ‘prospect theory’ as a better predictor of choice under uncertainty than the neoclassical economic model of utility maximisation (Kahneman & Tversky, 1979). It would be beyond the scope of this report to explore prospect theory fully, but it is relevant to note that it is central to the ideas on why and how to use behavioural insights in regulation, as presented in the book *Nudge*, even though it is not discussed in that book (Jolls et al., 1998).

In a nutshell, prospect theory is not a normative but a descriptive model, building on the following premises (Oliver, 2015):

- When choosing under uncertainty, people set a reference point from which they assess perceived gains and losses,
- they become less sensitive to changes in probability as they move away from that reference point ('diminishing sensitivities'),
- they tend to overweight low probabilities, and
- they tend to underweight high probabilities.

The following examples are illustrative. What would you choose in the following four situations?

1. Get \$9,500 with certainty, or have a 95% chance of getting \$10,000.
2. Lose \$9,500 with certainty, or have a 95% chance of losing \$10,000.
3. Get \$500 with certainty, or have a 5% chance of getting \$10,000.
4. Lose \$500 with certainty, or have a 5% chance of losing \$10,000.

Most probably, you would take not take the risk in the first situation (and take the \$9,500); you would take the risk in the second and the third situation; and you would not take the risk in the fourth situation. Those were, at least, the answers given by most people when Kahneman and Tversky asked these and related questions (Kahneman, 2011). Have a closer look at what just happened:

1. Fearing disappointment of missing out on the certain \$9,500 even though the chance of getting \$10,000 is almost certain, most people would take the \$9,500. A fully 'rational' person would be risk-seeking, rather than showing the risk-averse behaviour observed by Kahneman and Tversky.
2. Hoping to avoid an inevitable loss of \$9,500, most people would take the bet of losing \$10,000, even though the chance of losing that bet is almost guaranteed. Here, a fully 'rational' person would be risk-averse, rather than showing the risk-seeking behaviour observed.
3. Hoping for the significant gain of \$10,000, most people would reject the certain \$500, even though the chance of getting the \$10,000 is almost nil. Again, a fully 'rational' person would be risk-averse, rather than showing the risk-seeking behaviour observed.
4. Fearing a substantial loss of \$10,000, most people would prefer to lose \$500 with certainty, even though the chance of the substantial loss is almost nil. In this final example, a fully 'rational' person would be risk-seeking, rather than showing the risk-averse behaviour observed.

What Kahneman and Tversky found is remarkable. Depending on the chance of gaining or losing a large sum of money, the direction of risk behaviour under the same probability of risk goes in opposite directions (seeking or avoiding). In addition, in all situations people generally choose the opposite of what a 'rational' human should do (that is, utility maximisation)—although, of course, some people would choose as predicted by neoclassical economics.

Why is all this relevant?

In sum, then, for many decades, research has shown that our behaviour is less rational than is often assumed by neoclassical economics modelling. This modelling is, however, at the base of many government policies and regulations. Scholars from the behavioural sciences, therefore, call for policy interventions (including regulatory practice) that is sensitive to the 'cognitive failures' of humans (Jolls et al., 1998). For example, our tendency for present bias and hyperbolic discounting may explain why some people do not save enough for their retirement, or our inability to deal well with probabilities may explain why some people get addicted to pokies (gambling machines), or text while they are driving, or buy too many or too few insurance policies.

Insights from behavioural economics, cognitive sciences, and psychology may help regulators to gain a better understanding of why people behave in the way they do, and what regulatory interventions may help to steer their behaviour towards the desired outcomes. In the next chapter, some examples are presented of regulation that is informed by behavioural insights.

3 Examples from around the world of regulation informed by behavioural insights

Inspired by insights from the behavioural sciences, governments around the world have begun to incorporate these insights into regulatory interventions. When reading the examples that follow, it is essential to keep a few things in mind. First, they are bound together by an ambition to address the predictable deviations of humans, when making a choice under uncertainty, from the neoclassical economy understanding of rational behaviour.

Second, some of the examples may feel anything but novel. Regulatory interventions that are now sometimes branded as ‘informed by the behavioural sciences’ have antecedents dating from well before the rapid growth of the behavioural sciences. The provision of information to help consumers make better choices is one such example: many countries around the world, New Zealand included, introduced mandatory requirements for consumer information to be provided by the producers of certain products well before the 1970s.

Third and finally, the examples that follow build on a range of political philosophies. Some of the regulatory interventions seek to enhance people’s reflective decision making and help them make choices that serve their personal well-being, but without limiting their options. Others seek to guide individuals towards making decisions that the regulator considers to be in their best interests, or in the best interests of society as a whole. Yet others seek to shape preferences or bias decisions in a certain direction (Baldwin, 2014).

Default rules

One of the most commonly discussed examples of regulation informed by behavioural insights is the use of default rules, or making of changes to the workings of default rules (e.g., Choi, Laibson, & Madrian, 2004).⁶ Default rules stipulate the choice outcome in situations where people decide not to make an active choice. They are particularly helpful in overcoming choice inertia, status quo bias and hyperbolic discounting.

An area where people show choice inertia and status quo bias is retirement savings. Rather than opting in to a savings scheme or actively and periodically deciding to put money into a savings account, we tend to push the decision into the future until it is too late. Seeking to overcome these problems, governments around the world have moved from such opt-in systems for voluntary savings schemes to opt-out systems.

A typical example is KiwiSaver in New Zealand. This is a voluntary long-term savings scheme set up by the New Zealand government in 2007. In short, anyone aged 64 and under who is entitled to live in New Zealand and who normally lives there, and who is employed, is automatically enrolled in KiwiSaver and will contribute a percentage of their before-tax pay to the scheme. People can opt out

⁶ Please note that the term ‘default rule’ here has a different meaning from the meaning of the same term in legal theory.

if they desire, however, giving them the freedom to choose another way of saving for the long term or not to save at all. The default savings are set at 3% of before-tax pay, but people can opt in to make higher levels of savings.

Changing the default from opting-in to opting-out has been shown to be effective for retirement savings, organ donation, and environmental protection (Johnson & Goldstein, 2003). Default rules, and changes to them, may, however, create undesired effects (Willis, 2013). In the KiwiSaver scheme, for example, it would probably be best for many members to switch their KiwiSaver provider or to increase their contributions to the scheme from 3% to a higher percentage. However, once they have defaulted into a specific setting people tend to stick to that setting, which is another example of status quo bias (FMA, 2018).

Disclosure of factual or comparative information

Another oft-discussed example is information disclosure (Loewenstein, Sunstein, & Golman, 2014). Here, the idea is that if people are provided with factual or comparative information about the products they buy or use, or the behaviour they (seek to) engage in, they will be able to make better-informed choices. Typical examples are the user manuals that come with new products, the food labels on produce and electronic equipment, and financial information disclosure. Information disclosure addresses some of our heuristics and biases, and also the typical information asymmetries between producers and consumers.

Here an illustrative example comes from the Netherlands. From 2002 onwards, providers of financial products in the Netherlands have been required to give consumers information on the risks of their financial products. In 2006, the legislation was changed to reduce the complexity of the information provided and to include a comparative label to give consumers a quick insight into the risk that the product could become a financial burden. The labels indicate the range from very low to very high risk by showing a figurine carrying a box. The higher the risk, the more the box is dragging the figurine down.

Reviews in the scholarly literature on the effectiveness of information disclosure show a bleak picture, however. There is no evidence that existing on-product warnings have a measurable impact on user behaviour. People often do not understand the information provided, find that there is too much information to process, or fail to attend to information when it is unpleasant to deal with. It has been suggested that simplification of information, standardisation of information, increased salience of information, and the provision of comparative information could provide a solution (Loewenstein et al., 2014).

However, a core problem may be that people inherently struggle to grasp the opportunity to make informed decisions when they are provided with information. For example, studies indicate that only 3% of people read privacy disclosures on websites before clicking 'OK'. To make things worse, we are more likely to be influenced by information that confirms our beliefs than by information that questions them—this is known as confirmation bias (Loewenstein et al., 2014).

Reminders and precommitment strategies

The use of reminders to improve regulatory outcomes has recently gained renewed interest from governments around the world. Reminders provide people with a cue to make a choice or to complete a task. Reminders are particularly helpful in addressing procrastination—the tendency to avoid tasks that need to be done. New Zealand citizens are familiar with receiving reminders from the New Zealand Transport Authority to renew their vehicle licences, for example. However, not receiving a reminder does not release them from their responsibility to renew their licence. To prevent such situations from happening, car owners can now sign up for an application that will send a prompt when their licence is due to expire.

In 2017, the United Kingdom Behavioural Insights Team explored whether reminders could also be used to help students in further education to succeed in their courses. This resulted in Promptable, an application that sends students text messages with helpful reminders, tips and motivation throughout the college year.⁷ To further improve their performance, students can nominate a ‘study supporter’ who will also receive these messages. This may initiate regular conversations between the student and his/her supporter. During the testing of Promptable, a 7% increase in attendance was measured between students who signed up to Promptable and those who did not.

Precommitment strategies step up the idea of reminders another notch. A well-documented example is the Save More Tomorrow plan. This builds on the notion that people find it more attractive to save in the future rather than in the present. To help people increase their savings, the plan therefore lets people precommit to an increase in their pension contributions, not now, but at the time when they receive a pay rise. As a result, people do not perceive a loss because the increased pension contribution is less than their pay rise (Benartzi, 2012). Since 2006 when this was rolled out as part of the USA Pension Protection Act, over 15 million Americans have committed to it.

In sum, precommitment strategies seek to address procrastination, status quo bias and hyperbolic discounting, but they do so at a time when these behaviours are not yet in play. They are sometimes referred to as Ulysses strategies, referring to the commitments made by Homer’s Ulysses not to be tempted by the sirens.

Social proof heuristics

Social proof heuristics work in at least two ways. The first is that we humans seek norm conformity in order to be accepted or liked. The second is that when faced with a novel or ambiguous situation, we humans tend to look at others to get cues about how to behave, and then we replicate the behaviour we see around us. However, if we cannot see how others are behaving in a given setting, how can we know which norm to conform to?

The classic social proof experiment was carried out by Opower, a USA based utility company. In 2008 it ran a randomised control trial to understand what would give the greatest incentive to its clients to reduce their energy consumption. The answer was to provide them with an easily understood

⁷ See: <https://promptable.com/> (30 November 2018).

comparison of their energy consumption against that of their peers. In this case, their peers were the 100 nearest houses of similar size. This easily understood information was as simple as printing a 'smiley face' on the energy bills of those who had average or below average consumption, and a 'frowning face' on the energy bills of those who consumed more than the average.

This low-cost and low-intrusive intervention resulted in a reduction of 2% in energy consumption, particularly because, on average, those who consumed more than their peers reduced their consumption. While this does not sound like a big reduction, it should be stressed that those who reduced their energy consumption did so without being given any signal. Since then, governments in collaboration with utility companies around the world have replicated this experiment, often receiving comparable outcomes.

The power of social proof heuristics seems to hold around the globe: no-one likes to be below average. Social proof heuristics may backfire, however. People who do better than average (for example, having a lower than average energy consumption) may feel entitled to use their fair share, or may feel they are doing more than necessary and regress to the average (for example, by using more energy than before) (Cooney, 2011).

More examples

These are but a handful of the vast number of regulatory interventions informed by behavioural insights that have been implemented around the world. The next chapter will address the evidence base for this approach to regulation. In other words, does it yield desirable regulatory outcomes? Readers who would like to see more examples are strongly recommended to read the following OECD reports⁸:

- OECD. (2017). Use of Behavioural Insights in Consumer Policy. Paris: OECD.
- OECD. (2017). Behavioural Insights and Public Policy: Lessons from around the World. Paris: OECD.
- OECD. (2018). The Application of Behavioural Insights to Financial Literacy and Investor Education Programmes and Initiatives. Paris: OECD.

⁸ The OECD regularly publishes new insights on the use of behavioural insights in policy and regulation. It also keeps a close eye on what other organisations are doing in this space, and reports on all this on a sub-section of its website: <http://www.oecd.org/gov/regulatory-policy/behavioural-insights.htm> (30 November 2018).

4 Experiments with regulation informed by behavioural insights, and evidence of performance

Now that we have a better understanding of human behaviour and have looked at some examples of regulatory interventions informed by insights from the behavioural sciences, it is time to ask the hard question: do these interventions work?

Answering that question is anything but easy because of the variety of responses to it in the literature. In this chapter, two strands of the literature will speak to each other. One voice is given to organisations dedicated to developing, testing and marketing these interventions. These include, but are not limited to, the UK based Behavioural Insights Team,⁹ the USA based Office of Evaluation Sciences¹⁰ and the European Nudging Network¹¹—which are referred to here as ‘BITs and Nudge-units’. Another voice is given to the broader academic community that has been scrutinising these interventions for some decades now.

BITs and Nudge-units: Applying behavioural insights often makes regulation work better

BITs and Nudge-units were first introduced around 2010, under the Cameron government in the UK and the Obama government in the USA.¹² They develop public policy by drawing on ideas from the behavioural sciences literature. They have seen considerable growth and expansion. The original UK based BIT, for example, started off with few staff, and is now an organisation with around 150 employees, with offices in London, Manchester, New York, Singapore, Sydney and Wellington.

These organisations are actively involved in tests and trials to understand whether a specific intervention has the desired outcomes. This allows them to draw detailed lessons about what works and what does not, before scaling up the trial to a large population. The ongoing testing and trialling have also allowed for more general lessons to be drawn about the use of behavioural insights in policy and regulation and about how interventions that work well can be developed.

BITs and Nudge-units often find that the regulatory interventions they have developed are effective in changing the behaviour of those they target. The UK BIT has been publishing annual reports that give insight into its trials. Its 2016-2017 Update Report presents tremendous results, including an intervention that resulted in a 20% reduction in speeding in the six months after police officers began to explain, to those caught speeding, why and how speed limits are set (BIT, 2017).

⁹ <http://www.behaviouralinsights.co.uk/> (30 November 2018).

¹⁰ <https://oes.gsa.gov/> (30 November 2018).

¹¹ <http://tenudge.eu/> (30 November 2018).

¹² The Nudge-unit that was launched under the Obama government has been merged into the Office of Evaluation Sciences under the Trump government.

Academia: No evidence that it works across the board

When looking at the broader academic literature, the answer to the question ‘does the use of insights from the behavioural sciences result in desirable regulatory outcomes?’ is less clear-cut. Academics find that interventions building on these insights sometimes have desirable effects, and sometimes do not. They stress that, currently, we lack robust evidence to make generic statements about the extent to which regulatory interventions informed by behavioural insights live up to their expectations. This is a careful way for academics to say that, despite the large amount of research, they do not know if this approach works across the board (Baldwin, 2014; Wright & Ginsburg, 2012).

Take the effects of information disclosure, for example. A major review of the literature on this topic from 2014 finds no or, at best, modest evidence that consumers respond to information disclosure in areas ranging from energy-efficiency labelling on appliances, to privacy disclosures on websites, to calorie labelling on food items. The review finds that people pay even less attention to the absence of information than to the presence of it, and that when information is unpleasant to deal with, people fail to attend to it. People are more likely to update their beliefs when the information provided supports the beliefs they held previously than when it challenges these beliefs (Loewenstein et al., 2014).

To complicate things further, people’s heuristics and biases appear to be age-dependent and cohort-dependent. In other words, a behavioural intervention that works to change the behaviour of men in their 30s and 40s may not have the desired effect on the behaviour of women, or that of pensioners. Similarly, an intervention that works in a group from a specific socio-economic background may not have the same effect on a group from another background (Bradbury, McGimpsey, & Santori, 2013). In short, evidence that a behavioural intervention has the desired effect in a specific policy area or geographic location is by no means a guarantee that exactly the same intervention will have the same impact elsewhere (Agarwal, Gabaix, Driscoll, & Laibson, 2009).

Academia: Research into the effects of these interventions is often below standard

Academics are particularly critical of the way in which studies into these interventions are executed (Moynihan, 2017). Such studies are often carried out in a laboratory or other manipulated setting, and not in the actual environment where the intervention is to be implemented. Lacking ‘real-world’ exposure, critical academics question how we can know how the intervention would perform in reality. Even more problematically, these studies are often carried out without first establishing a baseline against which the outcomes of the intervention can be assessed. How, these academics ask, can we then know if the intervention makes any real improvement at all?

Another criticism is that these interventions are never studied in comparison to other regulatory interventions. Even when they are found to work as desired, we do not know if another intervention would also have worked in that specific setting and perhaps at a lower cost. This indeed is also the verdict in the cases that are discussed in the 2017 OECD report *Behavioural Insights and Public Policy*, which brings together 111 policy and regulatory interventions that build on behavioural insights (the report was mentioned in chapter 3).

All 111 cases from the OECD report were recently scrutinised by a group of academics (Osman et al., 2018). These academics found that 18 cases were not experimental and 33 were not comparative (in other words, their outcomes cannot be compared with 'real-world' situations). They further found that conclusions on the workings of the intervention are often drawn without clear statistics or effect sizes being presented, and that in none of the 111 cases was a comparison made with the effects of other policy or regulatory interventions. The group of academics found that only 50% of the interventions were reported to have had a positive impact on behavioural change.

BITs and Nudge-units: Let's carry out more RCTs!

Who is right here? Surprisingly, perhaps, BITs and Nudge-units, as well as academia, have good points. There are no inherent conflicts in their findings. Moreover, the core challenge identified by academics (the quality of the studies into regulatory interventions that apply insights from the behavioural sciences) is addressed by BITs and Nudge-units. The BITs and Nudge-units around the world are also calling for more systematic research into the workings of regulatory interventions informed by behavioural sciences, and they are actively involved in such research by carrying out randomised control trials (RCTs).

RCTs build on the same logic as the testing of new medications or internet-based businesses. In a nutshell, an RCT follows the following steps. (1) People or organisations participating in the experiment are randomly allocated to one or more groups that are subject to the intervention or interventions to be tested or to a group that will not be subject to any intervention (the control group). (2) The groups are followed for a period in the same way, and the only difference between them is the intervention to which they are subject. (3) After the trial is completed, observations are compared between the groups to understand whether the behaviour of the group or groups that received the intervention is (statistically significantly) different from that of the control group.

For example, aiming to increase the on-time payment of traffic fines, the New South Wales Government BIT in Australia carried out an RCT in 2012. One group of people (the control group) received the traditional payment notice, and another group (the intervention group) received a redesigned payment notice. The redesigned notice had an obvious "PAY NOW" stamp on it, used simple language, and clearly communicated the consequences of not paying the fine. People who received the redesigned notice (the intervention group) were about 3% more likely to pay their fines, which was reflected in revenue of over AUD 1 million for the New South Wales government and 9,000 fewer people losing their licences.

Take home lesson: Test, Learn, Adapt

The strength of this approach to the development and implementation of policy and regulation is that different interventions can be tested within the population that is ultimately going to be the target of the intervention. The lessons learnt from these tests may help in refining and adapting the interventions, testing them again, and finally implementing the intervention that has been proved to result in the best outcomes.

While RCTs will not always be possible because of resource constraints or ethical considerations, it is relevant to note that they allow for the testing of many new regulatory interventions—whether or not these build on insights from the behavioural sciences. To help governments with the process of carrying out RCTs, the UK BIT has published *Test, Learn, Adapt* (Haynes, Service, Goldacre, & Togerson, 2012). This unpacks RCTs into nine key steps that are required to set up an RCT, and provides answers to many of the questions surrounding this approach to policy design and evaluation.¹³

Another advantage of the systematic testing of new regulatory interventions is that it becomes more possible to draw lessons across them. Combining insights from across its trials, the UK BIT has over the years also published reports that seek to aid the application of insights from the behavioural sciences in policy and regulatory practice. Two relevant reports from the UK BIT are:

- *MINDSPACE: Influencing Behaviour through Public Policy* (BIT, 2010). This publication brings together the evidence collected by the UK BIT on policy and regulation informed by behavioural insights into a manageable ‘checklist’ for developing interventions. *MINDSPACE* is a mnemonic for nine of the most robust behavioural influences: Messenger, Incentives, Norms, Defaults, Salience, Priming, Affect, Commitments, Ego. Besides discussing these nine behavioural influences, the publication presents a process for developing and implementing behavioural interventions.
- *EAST: Four Simple Ways to Apply Behavioural Insights* (BIT, 2014). This publication presents a methodology for applying behavioural insights in regulation. It draws on the UK BIT’s experiences of developing policies for the UK government, and a deep understanding of the academic literature in this area. *EAST* is a mnemonic to capture the idea that when seeking to change behaviours, it should be made Easy, Attractive, Social and Timely to do so.

These three publications—*Test, Learn, Adapt*; *MINDSPACE*; and *EAST*—are helpful guides for those interested in applying behavioural insights in regulation. However, before this is done, it is helpful to reflect on the ethical and epistemic challenges that come with this approach to regulation. The next chapter will touch on these issues.

¹³ For those interested in learning more about RCTs, here is a BBC Radio documentary on how to use them in testing government policy and regulation: <https://www.bbc.co.uk/programmes/b01phhb9> (30 November 2018).

5 Ethical and epistemic challenges

Over the years, concerns have been raised about the democratic legitimacy and accountability of applying regulation informed by behavioural insights (Alemanno & Spina, 2014). In other words, is it proper for governments to use people's heuristics and biases (or 'cognitive failures', as some call it) in guiding their behaviour? How can governments be sure that people do not act in their own best interests? Why would a government (and its representatives) not be subject to the same biases and heuristics as those it seeks to address in others?

To some, these are trivial questions. After all, if a democratically elected government decides to use insights from the behavioural sciences in regulation, how is that different from the same government using insights from the natural sciences in regulation? To others, they are absolutely fundamental questions. Such people fear that allowing governments to use behavioural insights in regulation will result in behavioural manipulation and covert techniques to influence decisions and shape preferences. Without delving too deeply into all the viewpoints and answers that scholars have provided, it seems relevant to touch on a few of the most recurrent ones.

The ethics of applying behavioural insights in regulation: Opposing views

Academics are actively discussing the ethical aspects of this approach to regulation. Those in support argue that, among other things, our brains have not been able to evolve as quickly as society has, and that as a result they are not 'programmed' to deal optimally with the choices we face on a day to day basis (Glimcher, 2011). Because we know that people make choices that are not in their own best interests, governments are obliged to help them to make choices that are. In other words, better health, wealth and happiness help people to make better choices and enjoy greater freedom (Jacobson, 2014). These academics further argue that businesses have been using behavioural insights for marketing and sales purposes, and question why governments should not be allowed to do the same (Pickett, 2018). Finally, they argue that people around the world have voiced support for the use of behavioural insights in regulation, legitimising this practice by governments. Cass Sunstein's recent book, *Human Agency and Behavioural Economics: Nudging Fast and Slow*, is a typical example of this set of responses (Sunstein, 2017). In a nutshell, these scholars are generally in support of what Thaler and Sunstein coined 'libertarian paternalism' in their book *Nudge*: the idea that it is legitimate and possible for government to affect behaviour while also respecting freedom of choice.

Those opposing the use of behavioural insights in government regulation often do so from a libertarian point of view. They consider that the proper role of government is to prevent people from harming each other, but that otherwise government should leave people alone. From this perspective, addressing people's heuristics and biases through regulation limits their individual freedom, which, in the eyes of this group, is a no-go. The use of behavioural insights by businesses, they argue, is a different matter altogether, as it happens in a competitive market setting: if people experienced adverse outcomes from 'nudges' from one business, they could go to another. These scholars further argue that 'soft regulatory' interventions like this open the door for government to intervene in more aspects of society and expand its power. A recent book by a group of mainly USA based scholars,

Nudge in Theory and Action: Behavioral Design in Policy and Markets, is a typical example of this set of responses (Abdukadirov, 2016).

Ultimately, these two groups have a different view of ‘freedom of choice’. Opponents of regulation informed by behavioural insights argue that governments should leave people to choose freely between different options, rather than seeking to steer their behaviour towards the choice that the government (in the role of choice architect) considers best. They consider the freedom to err to be an important aspect of freedom of choice (Bubb & Pildes, 2014). Proponents of this approach to regulation argue that, in almost any form of regulation, governments introduce a choice: comply with the speed limits or not, choose healthcare plan X or plan Y, and so on. However, sometimes people prefer not to choose; for example, they may worry they will err, they may be too busy to make a choice or lack bandwidth, or they may not want to have the responsibility for the outcome of the choice they make. In such situations, proponents argue, acknowledging people’s desire not to choose, and helping them to make the best choice for them (e.g., by setting default rules, by making some options more salient, or by providing information), is more respectful of people than forcing them to choose freely among the available options (Sunstein, 2017).

The ethics of applying behavioural insights in regulation: Nuanced views

Between these extreme responses, more moderate ones have also been suggested (Baldwin, 2014). Interventions that enhance reflective decision making or seek to bias a decision in the desired direction are not problematic, some scholars argue. Such interventions include the provision of factual information, active choosing, or a change in default rules. However, these scholars warn that interventions that are covert, manipulative or shape preferences, such as an anti-obesity campaign that uses slim, young and attractive models to show their ‘healthy’ waistlines, are problematic. Even more practical are the rules of thumb suggested by these moderate scholars. Can people uncover the ‘nudge’ or are they aware of being ‘nudged’? Is government seeking to help people to achieve their goals (‘means paternalism’) rather than shaping their goals (‘ends paternalism’)? Does the intervention preserve freedom of choice and does it avoid imposing material costs on people’s choices? If the answer to these questions is a firm yes, then most moderate regulatory scholars would agree that using behavioural insights in this way is justified.

Others argue for an asymmetrically paternalistic application of behavioural insights in regulation (Camerer, Issacharoff, Loewenstein, O’Donoghue, & Rabin, 2003). A regulation is asymmetrically paternalistic if it helps those who are most likely to make choices that go against their own interest, while imposing little or no harm to those who make deliberate and well-informed decisions. Those in favour of such an application argue that it is a more conservative take on the ‘libertarian paternalism’ proposed by Thaler and Sunstein, in that it requires those seeking to use behavioural insights in regulation to ask whether the intervention is unnecessarily harming a large group of ‘rational’ people. By means of illustration, it could (in hindsight) be argued that the opting-out system for retirement savings plans implemented by governments around the world unnecessarily harms people who might have made a better choice about their plans had they not been defaulted into a conservative savings scheme. These people might have chosen a more suitable savings strategy if they had been asked to

make an active choice, but now that they have defaulted to the conservative scheme, status quo bias prevents them from making an active change (Choi et al., 2004).

A final nuanced view that is worth mentioning is the distinction made between ‘nudging people towards desired behaviour’ and ‘nudging people away from undesired behaviour’ (Milne, 2012). While at first glance these are two sides of the same coin, this does not always have to be the case. For example, giving people the incentive to move towards a healthier lifestyle is different from giving them the incentive to move away from over-eating or to stop smoking.

The epistemic challenges of applying behavioural insights in regulation

The ethical problems that concern people in relation to the use of behavioural insights in regulation largely reflect their political philosophy. Those leaning towards libertarianism generally oppose this approach to regulation, while those leaning towards (moderate forms of) paternalism typically favour it. Nevertheless, a comment seems to be in place here. The book *Nudge* has a solid political undertone (a call for ‘libertarian paternalism’), which partly explains the strong pro and con debates on this approach to regulation.¹⁴ However, the use of insights from the behavioural sciences in regulation can be looked at from a politically neutral point of view. The question ‘does it help to achieve desirable regulatory outcomes?’ can, after all, be answered separately from the question ‘ought it to be applied?’.

Taking the political philosophy of the book *Nudge* out of the equation does not, however, remove all the critiques of this approach to regulation. Questions have been raised as to whether people are genuinely making cognitive errors. What about someone who understands the risks of smoking or texting while driving, consciously chooses these activities because they give her or him pleasure (utility), and fully accepts the consequences of carrying out these activities? Is she or he acting irrationally? In addition, neuroscience has indicated that human brains have phyletic and architectural constraints that hamper people from being perfectly rational in a ‘homo economicus’ sense of the term. Still, ‘rationality and irrationality ... have no distinct structural foundations in the brain itself’ (Bissonnette, 2016, 371). This research also questions assumptions made about dual process theory¹⁵ (Glimcher, 2011). The growing evidence from the neurosciences indicates that some people are simply ‘hardwired’ better than others to make the choices that our society has come to see as ‘rational’.

Scholars stress that rationality and irrationality are social constructs and qualifiers for behaviour. They are not facts, and cannot be objectively proved to be right or wrong (McMahon, 2015). What is considered rational today may not be considered in the same way in the future. What is rational in

¹⁴ The vast majority of articles reviewed for this research paper are concerned with the ethical aspects of nudging. This stands in stark contrast to the small number of articles reviewed that build on novel, empirical data. This is a relevant insight for policymakers and practitioners who are interested in further exploring the academic literature on the use of behavioural insights in regulation: this literature is rapidly growing, but a large part is a repetition of the same arguments for and against regulatory interventions informed by behavioural studies.

¹⁵ The notion that humans have an automated system and a reflective system for making decisions; see Chapter 2 of this research paper.

New Zealand may not be rational elsewhere. And what is rational for me may not be rational for you. Still, books like *Nudge* assume there is objective rationality that is external to people (Bubb & Pildes, 2014).

Can government be rational in applying behavioural insights to regulation?

In a related vein, scholars have asked whether governments are perhaps influenced by the same heuristics and biases that they seek to address in others (Vlaed, King, Dolan, & Darzi, 2016). They may, for example, be biased in their support for, or opposition to, the use of behavioural insights in regulation. When convinced that a specific solution will work, policymakers are likely to search for evidence that supports their earlier convictions and are unlikely to be swayed by arguments that go against it ('confirmation bias'). Trying to solve exactly this issue, the UK BIT published a report in 2018 on how government officials are indeed also subject to heuristics and biases, and how these can be addressed or mitigated (Hallsworth, Egan, Rutter, & McCrae, 2018).

The BIT publication, *Behavioural Government: Using Behavioural Science to Improve how Governments make Decisions*, addresses some of the most persistent biases and heuristics to which government officials are subject when developing and implementing policy and regulation. It provides a range of strategies to address and mitigate these issues. The lessons presented in this report are valuable not only to those interested in exploring the use of behavioural insights in regulation, but to those interested in virtually any form of regulatory intervention.¹⁶

¹⁶ The eight heuristics and biases it addresses are:

- *Framing*: The presentation of an issue can determine whether it is noticed by decision makers and how it is responded to.
- *Allocation of attention*: Certain issues and solutions are more likely to get attention than others, even if they are not the most important issues to respond to or the best solutions to a problem.
- *Confirmation bias*: People tend to seek out confirmation for their existing beliefs, and to ignore information that goes against them.
- *Group reinforcement*: People tend to censor their opinions and conform to the majority view of the group.
- *Illusion of similarity*: People assume that others have views similar to theirs. In addition, when heavily involved in a policy or regulatory issue, decision makers may think that others care as much about it as they do.
- *Inter-group opposition*: Group identity may result in situations where members of a group reject an argument of another group for no other reason than that the argument comes from a group that is not their own.
- *Optimism bias*: People tend to overestimate their abilities, the quality of the solutions they propose to a problem, and the likelihood of the future success of these solutions.

6 Conclusion

This research paper has reviewed a large collection of academic literature on the use of behavioural insights in regulation. It has addressed the evolution of thinking about rational behaviour (chapter 2); examples of the use of behavioural insights in regulation (chapter 3); evidence of the workings of regulation informed by behavioural insights, and experiments and randomised control trials to understand those workings (chapter 4); and the ethical and epistemic challenges that come with this approach to regulation (chapter 5). Each chapter has discussed key insights from the literature. Three conclusions can be drawn from the review.

First, the use of behavioural insights in regulatory practice is here to stay. With the institutionalising of behavioural insight teams in various countries and dedicated agencies within governments and other organisations (e.g., the European Commission’s BESTEP, discussed in the introduction), it now has a foot firmly in the door. Its growth in policy and regulatory practice has, in turn, increased interest in its workings from the academic community, resulting in the emergence of dedicated behavioural public administration and behavioural public policy communities.¹⁷ This means that over the years to come it is likely that we will see a stronger evidence base for where this approach to regulation works, and how and why it does so—and those interested in applying this approach are strongly recommended to read up on the latest insights.

Second, this approach to regulation holds promise for regulators, and yet it is certainly no panacea for every regulatory problem that a regulator wishes to address. Looking at the current knowledge base, the use of behavioural insights in regulation holds most promise when a regulator seeks to address clear cognitive biases and heuristics, and homogeneous target groups. In addition, not too much should be expected from regulation informed by behavioural insights working alone. Studies into the improvements in behaviour of those subject to such regulation often report results in the low single digit percentages. Scholars therefore often recommend that regulators use this approach to regulation in synergy with other approaches. For example, a mandatory retirement savings plan combined with a voluntary opt-out system from a high savings rate to a lower savings rate could be introduced.

Third and finally, this approach to regulation requires bespoke application. While the general mechanism underlying the approach (the addressing of cognitive biases and heuristics) travels well across geographies, it can by no means be expected that an intervention that works in one location will also work in another. It is important for regulators to carry out systematic randomised control trials (RCTs) when seeking to implement regulatory interventions based on insights from the behavioural sciences. In the slipstream of the popularity of such regulation, the use of RCTs in developing regulatory interventions has also become more popular. Even for those who are sceptical about regulation informed by behavioural insights, this is a promising development. After all, an

-
- *Illusion of control*: People tend to be overly confident about the amount of control they have over events.

¹⁷ See, for instance, the new journals *Behavioural Public Policy* and *Journal of Behavioral Public Administration* (<https://www.cambridge.org/core/journals/behavioural-public-policy>, and <https://journal-bpa.org/index.php/jbpa>, 23 January 2019).

increased use of RCTs (for developing regulatory interventions informed by behavioural insights and other regulation) will ultimately help to create better regulatory systems overall.

Appendix A –Suggestions for further reading

Serving the rapid growth of interest in the behavioural sciences from policymakers and practitioners, scholars from various fields (including behavioural economics, neuroeconomics, psychology, and marketing) have begun to publish ‘popular science’ books. Many of these provide superb introductions to various areas of behavioural economics and behavioural sciences, and to the regulatory responses that build on these. The following ten (in no specific order) are of interest to those who seek a more detailed introduction to behavioural insights.

Thinking, Fast and Slow (Kahneman, 2011)

The Financial Times captures it perfectly: ‘There have been many good books on human rationality and irrationality, but only one masterpiece.’ In this book, Daniel Kahneman takes you through his lifelong career as a psychologist with a keen interest in the psychology of judgement, decision making, and behavioural economics. He reveals the way we think, and the heuristics and biases we use when making decisions. It is a must read for those using behavioural insights for effective regulation.¹⁸

Influence: Science and Practice (Cialdini, 2014)

Robert Cialdini’s *Influence: Science and Practice* is the classic book on influence and persuasion—it follows up on his seminal book *Influence: The Psychology of Persuasion*, which was first published in 1984. This book will help you to understand why people say ‘yes’ (choose to do something), the heuristics and biases that influence them to say ‘yes’, and the strategies that others can apply to trigger those biases. This book was a big hit in the marketing and sales communities, but it also holds great lessons for the regulation and compliance community.

Predictably Irrational: The Hidden Forces that Shape our Decisions (Ariely, 2008)

The (Honest) Truth about Dishonesty: How we Lie to Everyone—Especially Ourselves (Ariely, 2012)

In *Predictably Irrational*, behavioural economist Dan Ariely, in exceptionally clear language, discusses a range of experiments that refute the common assumption that we behave in rational ways. He explains why and how we deviate from the neoclassical economist understanding of rational behaviour in systematic and predictable ways. In *The (Honest) Truth about Dishonesty: How we Lie to Everyone—Especially Ourselves*, he discusses more experiments in even clearer language. Dan Ariely also maintains a blog¹⁹ that will help to further your understanding of behavioural economics and how it may be applied to regulatory practice.

¹⁸ Kahneman discusses his book here: <https://www.youtube.com/watch?v=CjVQJdlrDJ0> (4 December 2018).

¹⁹ <http://danariely.com/resources/the-blog/> (4 December 2018).

[You are not so Smart \(McRaney, 2012\)](#)

[You are now less Dumb \(McRaney, 2014\)](#)

David McRaney maintains a blog²⁰ on self-delusion, flawed perception and overconfidence. The blog covers over a hundred heuristics and biases that affect our decision making. The blog entries are conveniently brought together in two paperbacks (*You are not so Smart* and *You are now less Dumb*), and McRaney is working on a third. Most of his blogs have appeared as podcasts.

[Willpower: Why Self-Control is the Secret to Success \(Baumeister & Tierney, 2011\)](#)

In *Willpower: Why Self-Control is the Secret to Success*, Roy Baumeister and John Tierney seek to increase our understanding of self-control—an important virtue when making decisions. They explain how willpower is a finite resource that depletes during the day as choices are made and temptations resisted. The lower your willpower, the less likely you are to make a decision, and the more likely you are to stick to the status quo. The book points out that our heuristics and biases may fluctuate over time, indicating that we humans may sometimes be less ‘predictably irrational’ than envisaged by the other books discussed here.

[Subliminal: How your Unconscious Mind Rules your Behaviour \(Mlodinow, 2012\)](#)

Leonard Mlodinow, a theoretical physicist, discusses the accumulated knowledge base on the workings of our minds. Mlodinow refers to us as being conscious and unconscious. This relates to what Daniel Kahneman refers to as system 1 and system 2 thinking—our automated and reflective decision making processes.²¹

[The Power of Habit: Why we do what we do in Life and Business \(Duhigg, 2012\)](#)

In *The Power of Habit: Why we do what we do in Life and Business*, Charles Duhigg discusses a range of classic and contemporary studies in neuroscience, organisational psychology and marketing. Many of these recur in the books discussed earlier, but Duhigg ties them together in a novel manner. He argues that successful change in behaviour requires a change of habit. While that sounds like common sense, Duhigg presents a new way of thinking about how to change habits. The novel habit needs to be seen as familiar. The trick for regulators is then to understand how to make the novel seem familiar. The book provides some inspirational strategies for how this can be done.

²⁰ <https://youarenotsosmart.com/> (4 December 2018).

²¹ Mlodinow discusses his book here: <https://www.youtube.com/watch?v=NJ-IfVHJH58> (4 December 2018).

Nudge: Improving Decisions about Health, Wealth and Happiness (Thaler & Sunstein, 2009)

The book *Nudge: Improving Decisions about Health, Wealth and Happiness* is of particular interest to government regulators and those they are working with, because it is written by a behavioural economist (Richard Thaler) and a legal scholar (Cass Sunstein). It cuts straight to the chase and explains how government regulators can use insights from the behavioural sciences to develop regulatory interventions that are less intrusive than traditional command and control regimes.

Appendix B – Methodology

Scholarly interest in the use of behavioural insights in policy and regulation has rapidly grown over recent decades (Grimmelikhuijsen et al., 2017). To come to a relevant but manageable selection of the peer-reviewed literature for the current research paper, a systematic search of the literature was carried out in the *Web of Science* database.

Articles and book chapters were sourced from the period 2008-2018 to capture the most recent insights from the field. The search was limited to the scholarly disciplines of law, economics, political science, public administration, business, social issues and sociology. Knowledge on how behavioural insights can be and are applied in a regulatory context is most likely to be published in these fields. Only English language texts were sourced.

The following set of key words was used to identify relevant articles and book chapters:

- behav* AND econom* AND regulat*
- “behav* insight*” AND regulat*
- “libertarian paternalism” AND regulat*
- “behavio*ral regulation” AND thaler
- “behavio*ral regulation” AND sunstein
- “behavio*ral regulation” AND “behavio*ral econom*”

Here the asterisk (*) functions as a wild-card, the AND indicates the logical ‘and’, and quotation marks cluster search terms.

This search, excluding duplications, resulted in 74 publications. These were all systematically read for the current research essay. The set of publications was complemented with additional sources, mainly peer-reviewed articles and academic books cited in the 74 publications sourced.

Appendix C – References

- Abdukadirov, S. (Ed.) (2016). *Nudge in Theory and Action: Behavioral Design in Policy and Markets*. Cham: Springer.
- Agarwal, S., Gabaix, X., Driscoll, J. C., & Laibson, D. (2009). The Age of Reason: Financial Decisions over the Life Cycle and Implications for Regulation. *Brookings Papers on Economic Activity*(2), 51-117.
- Alemanno, A., & Spina, A. (2014). Nudging legally: On the checks and balances of behavioral regulation. *Icon-International Journal of Constitutional Law*, 12(2), 429-456. doi:10.1093/icon/mou033
- Ariely, D. (2008). *Predictably Irrational: The Hidden Forces That Shape Our Decisions*. New York: HarperCollins.
- Ariely, D. (2012). *The (Honest) Truth About Dishonesty: How We Lie to Everyone—Especially Ourselves* New York: HarperCollins.
- Baldwin, R. (2014). From Regulation to Behaviour Change: Giving Nudge the Third Degree. *Modern Law Review*, 77(6), 831-857. doi:10.1111/1468-2230.12094
- Barbera, S., Hammond, P., & Seidl, C. (1999). *Handbook of Utility Theory*. Dordrecht: Springer.
- Bardach, E., & Kagan, R. A. (1982). *Going by the book: the problem of regulatory unreasonableness*. Philadelphia: Temple University Press.
- Baumeister, R., & Tierney, J. (2011). *Willpower: Why Self-Control is the Secret to Success*. London: Penguin Books.
- Benartzi, S. (2012). *Save More Tomorrow*. New York: Penguin Group.
- Bissonnette, J. F. (2016). From the moral to the neural: brain scans, decision-making, and the problematization of economic (ir)rationality. *Journal of Cultural Economy*, 9(4), 364-381. doi:10.1080/17530350.2016.1181097
- BIT. (2010). *MINDSPACE: Influencing behaviour through public policy*. London: Cabinet Office/Institute for Government.
- BIT. (2014). *EAST: Four simple ways to apply behavioural insights*. London: The Behavioural Insights Team.
- BIT. (2017). *The Behavioural Insights Team: Update Report 2016-17*. London: The Behavioural Insights Team.
- Bradbury, A., McGimpsey, I., & Santori, D. (2013). Revising rationality. *Journal of Education Policy*, 28(2), 247-267.
- Bubb, R., & Pildes, R. H. (2014). How Behavioral Economics Trims Its Sails and Why. *Harvard Law Review*, 127(6), 1593-1678.
- Camerer, C., Issacharoff, S., Loewenstein, G., O'Donoghue, T., & Rabin, M. (2003). Regulation for conservatives: Behavioral economics and the case for "asymmetric paternalism". *University of Pennsylvania Law Review*, 151(3), 1211-1254. doi:Doi 10.2307/3312889
- Choi, J., Laibson, D., & Madrian, B. (2004). For Better or for Worse: Default Effects and 401(k) Savings Behavior. In D. Wise (Ed.), *Perspectives on the Economics of Aging* (Vol. 81-125). Chicago: University of Chicago Press.
- Cialdini, R. (2009). *Influence: The Power of Persuasion*. New York: William Morrow.
- Cialdini, R. (2014). *The (Honest) Truth About Dishonesty: How We Lie to Everyone—Especially Ourselves*. New York: William Morrow.
- Cooney, K. (2011). *Evaluation Report: OPOWER SMUD Pilot, Year 2*. Chicago: Navigant Consulting.
- Duhigg, C. (2012). *The Power of Habit*. New York: Random House.
- European Commission. (2013). Behavioural Economics. Retrieved from <http://is.jrc.ec.europa.eu/pages/BE/BEindex.html>
- FMA. (2018). *KiwiSaver annual report 2017*. Auckland and Wellington: Financial Market Authority.

- Fox News. (2013). Gov't Knows Best? Retrieved from <http://www.foxnews.com/politics/2013/07/30/govt-knows-best-white-house-creates-nudge-squad-to-shape-behavior/>
- Friedman, D., Isaac, M., James, D., & Sunder, S. (2014). *Risky curves: On the empirical failure of expected utility*. London: Routledge.
- Glimcher, P. (2011). *Foundations of Neuroeconomic Analysis*. Oxford: Oxford University Press.
- Grimmelikhuijsen, S., Jilke, S., Olsen, A. L., & Tummers, L. (2017). Behavioral Public Administration: Combining Insights from Public Administration and Psychology. *Public Administration Review*, 77(1), 45-56. doi:10.1111/puar.12609
- Hallsworth, M., Egan, M., Rutter, J., & McCrae, J. (2018). *Behavioural Government: Using behavioural science to improve how governments make decisions*. London: The Behavioural Insights Team.
- Haynes, L., Service, O., Goldacre, B., & Togerson, D. (2012). *Test, Learn, Adapt*. London: Cabinet Office.
- Jacobson, P. D. (2014). Changing the Culture of Health: One Public Health Misstep at a Time. *Society*, 51(3), 221-228. doi:10.1007/s12115-014-9768-z
- Johnson, E., & Goldstein, D. (2003). Do defaults save lives. *Science*, 302(5649), 1338-1339.
- Jolls, C., Sunstein, C., & Thaler, R. (1998). A Behavioral Approach to Law and Economics. *Stanford Law Review*, 50(5), 1471-1550.
- Kahneman, D. (2011). *Thinking Fast and Slow*. New York: Farrar, Straus and Giroux.
- Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47(2), 263-292.
- Kahneman, D., Wakker, P., & Sarin, R. (1997). Back to Bentham? Explorations of experienced utility. *Quarterly Journal of Economics*, 112(2), 375-405.
- Legett, W. (2014). The politics of behaviour change: nudge, neoliberalism and the state. *Policy and Politics*, 42(1), 3-19.
- Leonard, T. (2008). Book review: Richard H. Thaler, Cass R. Sunstein, Nudge. *Constitutional Political Economy*, 19(1), 356-360.
- Loewenstein, G., Sunstein, C. R., & Golman, R. (2014). Disclosure: Psychology Changes Everything. *Annual Review of Economics*, Vol 6, 6, 391-419. doi:10.1146/annurev-economics-080213-041341
- McMahon, J. (2015). Behavioral economics as neoliberalism: Producing and governing homo economicus. *Contemporary Political Theory*, 14(2), 137-158. doi:10.1057/cpt.2014.14
- McRaney, D. (2012). *You Are Not So Smart*. New York: Gotham Books.
- McRaney, D. (2014). *You Are Now Less Dumb*. New York: Gotham Books.
- Milne, E. M. G. (2012). A public health perspective on transport policy priorities. *Journal of Transport Geography*, 21, 62-69. doi:10.1016/j.jtrangeo.2012.01.013
- Mlodinow, L. (2012). *Subliminal*. New York: Pntheon books.
- Moynihan, D. (2017). A great schism approaching? Towards a micro and macro public administration. *Journal of Behavioural Public Administration*, 1(1), 1-8.
- OECD. (2017). *Behavioural Insights and Public Policy: Lessons from around the world*. Paris: OECD.
- Oliver, A. (2015). Nudging, Shoving, and Budging: Behavioural Economic-Informed Policy. *Public Administration*, 93(3), 700-714. doi:10.1111/padm.12165
- Osman, M., Radford, S., Lin, Y., Gold, N., Nelons, W., & Löfstedt, R. (2018). Learning lessons: how to practice nudging around the world. *Journal of Risk Research*, online first, 1-9.
- Pickett, B. (2018). The New Paternalists. *Polity*, 50(2), 300-329. doi:10.1086/696967
- Pinto-Prades, J. L., & Abellan-Perpinan, J. M. (2012). When normative and descriptive diverge: how to bridge the difference. *Social Choice and Welfare*, 38(4), 569-584. doi:10.1007/s00355-012-0655-5
- Read, D. (2007). Experienced utility: Utility theory from Jeremy Bentham to Daniel Kahneman. *Thinking & Reasoning*, 13(1), 45-61.

- Simon, H. A. (1945). *Administrative behavior. A study of decision-making processes in administrative organization*. New York: Free Press.
- Sparrow, M. K. (2000). *The Regulatory Craft. Controlling Risks, Solving Problems, and Managing Compliance*. Washington: Brookings Institution.
- Sunstein, C. (2017). *Human agency and behavioural economics: Nudging fast and slow*. Cham: Palgrave Macmillan.
- Supiot, A. (2007). *Homo juridicus on the anthropological function of the law*. London: Verso.
- Thaler, R., & Sunstein, C. (2009). *Nudge - revised edition*. London: Penguin.
- Vlaed, I., King, D., Dolan, P., & Darzi, A. (2016). The theory and practice of "nudging": Changing health behaviours. *Public Administration Review*, 78(4), 550-561.
- Willis, L. (2013). When Nudges Fail: Slippery Defaults. *University of Chicago Law Review*, 80(3), 1155-1229.
- Wright, J., & Ginsburg, D. (2012). Behavioral Law and Economics: Its Origins, Fatal Flaws, and Implications for Liberty. *Northwestern University Law Review*, 106(1), 1033-1092.