An Roinn Dlí agus Cirt
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An Evidence Review of Behavioural Economics in the Justice Sector

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Contents

Introduction

Behavioural economics combines elements of economics and psychology to better understand how and why people behave the way they do in the real world. While behavioural economics originally sought to better understand *economic* decision-making, it has since grown in scope and application, and it is increasingly used by governments, government departments and other organisations to shape and implement public policies in a range of policy areas.

This Review considers the application of behavioural economics theories and concepts (commonly referred to as *behavioural insights*) to the justice sector in a range of areas of justice policy in different jurisdictions. Areas of justice policy include improving immigration and integration policies, tackling domestic, sexual and gender-based violence, improving policing, community safety and penal policy, making court systems more efficient, accessible and fair, and addressing broader challenges and opportunities presented by innovation and climate change.

This Review is broken into two main parts. Part 1 is about behavioural economics generally. It explains the background to the field and its evolution to the present day and contextualises behavioural economics within the broader fields of economics and psychology. The main concepts and theories of behavioural economics are explained. Part 1 also addresses how behavioural economics research is conducted, explains some of the critical and ethical debates that have emerged within the field, and evaluates how and why behavioural economics emerged as a popular tool for policy design.

Part 2 is about the application of behavioural economics to the justice sector. It is broken down into a series of policy areas within the justice sector. These areas were pre-identified by the authors with the Department of Justice as being particularly relevant to its work to inform and assist with policy formation. The specific areas are:

- immigration and integration,
- domestic, sexual and gender-based violence,
- policing, community safety and penal policy,
- court systems and access to justice, and
- innovation and climate action.

Part 2 presents case studies of policy interventions informed by behavioural economics theories and concepts from other jurisdictions in each of these areas. Often these

interventions are pre-tested for their effectiveness before their wider roll-out in the general population. Alongside specific policy interventions, Part 2 also considers literature that assesses how behavioural economics theories and concepts can help to better understand and solve policy problems that arise in the justice sector.

The Review concludes with observations and analysis of the implications of behavioural economics research for the justice sector, and how best to harness it to improve justice policies in the future.

Defining Behavioural Economics and Other Terminology in the Field

Terminology in the field of behavioural economics can be complex and accurately defining and disentangling key terms such as "behavioural economics," "behavioural science" and "behavioural insights" can be nuanced. These complexities of terminology arise owing to a combination of factors, including the field's interdisciplinary nature, its rapid evolution over a relatively short timeframe, and its growth in popularity in academic and government circles and in the public consciousness, particularly since the turn of the century.

The origins and evolution of the field of behavioural economics are set out in more detail below in section *1.1, Background context and evolution of behavioural economics*. To briefly outline, behavioural economics has its origins in the field of economics and was primarily designed to augment understanding of *economic* decision-making by drawing upon theories and concepts from other disciplines, primarily psychology. Richard Thaler, whose work is foundational to the discipline, observes that behavioural economics "is still economics" but "done with strong injections of good psychology and other social sciences."[1] The term *behavioural economics*, therefore, at least in its original conception, captures the integration of psychological insights to better explain *economic* decision-making – that is, using psychology to focus on why people's actions consistently deviate from standard economic theory. As one definition puts it, *"[b]ehavioural economics is an approach to economic analysis that incorporates psychological insights into individual behaviour to explain economic decisions. Behavioural economics is motivated by the observation of anomalies that cannot be explained by standard models of choice."*[2] The field can be conceived of as a *response* to mainstream economics theory that assumes that humans are entirely rational and self-interested individuals.

However, the term *behavioural economics* has, over time, developed broader connotations, often used in contexts beyond decision-making in a purely *economic* sense, to refer to a discipline that looks to explain and understand decision-making in a more general sense. For instance, Baddeley presents behavioural economics as a discipline that "*blends* insights from economics and psychology to explain how people make everyday decisions."[3] In a similar vein, Lunn acknowledges that while it is "not straightforward to

[1] https://review.chicagobooth.edu/magazine/summer-2015/the-evolution-of-economics-and-homo-economicus
[2] John Black, Nigar Hashimzade and Gareth Myles, *A Dictionary of Economics* (Oxford University Press 2012).
[3] Michelle Baddeley, *Behavioural Economics: A Very Short Introduction*, vol 505 (Oxford University Press 2017).

define," behavioural economics "has its origins in the relationship between psychology and economics – in particular the use of methods imported from experimental psychology."[4] Indeed, as will be explained further in section 1.2 *Conducting behavioural economics research*, an important characteristic of the field of behavioural economics is its reliance on experimental and observational research. This inductive approach," Lunn explains, "contrasts with the traditional deductive approach to economics, which deduces theories based on assumptions about what constitutes rational behaviour."[5]

One recent definition perhaps encapsulates what behavioural economics is about better than most:

> "Behavioral economics combines elements of economics and psychology to understand how and why people behave the way they do in the real world. It differs from neoclassical economics, which assumes that most people have well-defined preferences and make well-informed, self-interested decisions based on those preferences. … behavioral economics examines the differences between what people 'should' do and what they actually do and the consequences of those actions."[6]

So, whereas the term *behavioural economics* in its original guise captured the integration of psychological insights to better explain *economic* decision-making, the term has evolved to suggest a field that is concerned with decision-making and behaviour more generally.

The term *behavioural science* has gained traction in recent years, although the term itself is older, tracing back to the World War II era.[7] Banerjee defines behavioural science, *the science of behaviour*, as the study of "human behaviour by scientific means as preliminary approximation to the finding out of the various stimuli—internal or mental and external or physical—that cause such behaviour. It sets out to analyse and explain behaviour…."[8] The subject matter of behavioural science, therefore, is human behaviour and decision-making more generally, beyond merely economic decision-making, and to investigate it by scientific means.

Delaney remarks that "[m]uch ink has and will continue to be spilled on what the emerging area of behavioural science actually consists of," rhetorically asking if it is simply "a

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[4] Pete Lunn, *Regulatory Policy and Behavioural Economics* (2014) <https://www.oecd-ilibrary.org/content/publication/9789264207851-en>.
[5] ibid.
[6] Max Witynski, 'Behavioral Economics, Explained' (*UChicago News*) <https://news.uchicago.edu/explainer/what-is-behavioral-economics>.
[7] Mrityunjoy Banerjee, *Organization Behaviour* (Allied Publishers 1995) 10–12.
[8] ibid 11–13.

rebranding of psychology?"[9] Whatever the case, the precise boundary of the field "still remains elusive."[10]

Behavioural insights is another important term, popularly used by teams of researchers who apply behavioural economics concepts and methods, more often than not in a public policy context, to better understand why people behave the way they do. In its simplest form, *behavioural insights* refers to the application of behavioural economics.[11] It is used to describe the application of behavioural economics and/or behavioural science by governments, government agencies, public institutions and other organisations to better understand decision-making in societies to improve public policy. The OECD explain how behavioural insights involve "taking an inductive approach to policy-making, where experiments replace and challenge established assumptions based on what is thought to be the rational behaviour of citizens and business."[12]

Such an inductive approach gives rise to *behavioural interventions*, a term used to describe specific interventions that are designed and implemented to affect decision-making outcomes. Throughout this Review, case studies on behavioural interventions are described and analysed.

With questions of definition and terminology now addressed, the next section explains the methodology used by the authors to undertake this Review.

[9] Liam Delaney, 'Behavioural Insights Team: Ethical, Professional and Historical Considerations' (2018) 2 Behavioural Public Policy 183, 188.
[10] ibid.
[11] OECD, *Behavioural Insights and Public Policy: Lessons from Around the World* (OECD Publishing 2017) 401.
[12] ibid 16. See further, Yuval Feldman, 'Using Behavioral Ethics to Curb Corruption' (2017) 3 Behavioral Science & Policy 86.

Methodology

This Review was conducted using a systematic search strategy designed to maximise the inclusion of appropriate literature, with a particular emphasis on identifying:

a) high-quality, scientifically-rigorous empirical studies on behavioural concepts and their application to public policy, particularly justice policy,
b) publications that made important contributions to behavioural economics theories and concepts as a standalone discipline, or that helped to contextualise behavioural economics within the wider economics and psychology literature, and
c) influential policy documents and reports from government agencies and policy institutions on the application of behavioural economics in public policy contexts.

It is necessary to provide some context for the authors' strategic approach to searching for relevant literature. Behavioural economics is, by definition and nature, a multi-disciplinary field, principally at the intersection of economics and psychology. Further still, the *application* of behavioural economics in different policy contexts overlaps with other disciplines; for instance, business, finance, environment, healthcare, and of course – importantly for present purposes – law and justice. Therefore, the authors were cognisant of devising a search strategy that was necessarily *broad* and *flexible* enough to capture relevant literature both in terms of subject matter, sources, and date range.

A further added dimension – specific to behavioural economics as it applies to public policy – is that a considerable body of important and influential research is published outside of academic channels such as monographs, textbooks and peer-review journals. Many influential, heavily-cited empirical studies on applied behavioural economics and theoretical and conceptual contributions to the discipline are published in grey literature, most prominently by behavioural research teams (for instance, the UK Behavioural Insights Team) and inter-governmental organisations (for instance, the OECD). The authors, therefore, decided at the outset that the Review ought not to be confined to peer-reviewed papers in academic journals, and rather, should encompass a search of a wider range of sources including grey literature.

The authors conducted their searches of the literature using four main multi-disciplinary databases: Web of Science, Scopus, PubMed and Google Scholar. These multi-disciplinary databases were chosen to reflect the inter-disciplinary nature of behavioural economics and its application in a range of contexts, including justice policy. In tandem, the authors conducted further searches using discipline-specific databases such as Psycnet in relation to psychology, and LexisNexis, Westlaw IE, Westlaw UK and HeinOnline in relation to law and justice policy. Separately, the authors identified discipline-specific journals (see Appendix A for a list of these journals).

The official websites of all of the English-speaking behavioural research teams around the globe and inter-governmental agencies that embed behavioural economics into their policy development (for example, the OECD and the European Commission) were identified. These websites were sifted for grey literature publications on the themes of applied behavioural economics and, in particular, on the application of behavioural economics to the justice sector.

Separately, the authors identified discipline-specific 'target' journals (see Appendix A for a list of these journals) on behavioural economics generally, journals at the intersection of law, criminology and behavioural economics and journals at the intersection of economics, behavioural economics and public policy. The authors separately conducted hand searches on the recent volumes of these journals to identify articles on the substantive areas covered by this Review.

A different keyword search was conducted for each of the main substantive sections of the Review. The authors used Boolean search expressions as appropriate for the four multi-disciplinary databases identified above. State-of-the-art terminology was used in each of the discrete policy areas set out in Part 2 and as identified at an early stage in the drafting of the Review.

To give one example, to identify literature on the application of behavioural economics concepts to improve the effectiveness of court-operated mediation services, the following initially broad search string was used in the 'title', 'abstract' and 'keywords' fields of the various databases:

> "behavioural economics" OR "behavioural science" OR "behavioural insight*" OR "psycholog*" OR "decision-making," OR "decision making" OR "nudge" OR "nudge theory*" OR "choice architect*" OR "cognitive error*" OR "cognitive bias*"
> AND

> “mediat*” OR “alternative dispute resolution” OR “ADR” OR “civil justice” OR “civil proceeding*” OR “court*” OR “court system*”.

Distinctions between American and British spelling and variations in spelling and grammatical constructions were accounted for.

Following initial keyword searches, the authors further refined search parameters and keywords as necessary, and reviewed and evaluated the abstracts of articles that the searches presented to determine their relevance for inclusion in the Review. If the publication was deemed relevant to the substantive area covered by the corresponding section in the Review, the authors conducted a further evaluation of the academic rigour of individual publications, including checks on methodologies and statistical validity where applicable, to ensure that the literature included in the Review met appropriate academic standards.

Finally, hand searches were conducted on the publication histories of individual authors internationally recognised for their seminal contributions to behavioural economics, including Herbert Simon, Amos Tversky, Daniel Kahneman, Richard Thaler and Cass Sunstein.

The authors used Zotero, citation management software, to store, categorise and manage studies and their bibliographic details during the review.

Part 1: Behavioural Economics

Part 1 starts by introducing the background, context and evolution of behavioural economics as a discrete discipline. It then explains the main ways that behavioural economics research is conducted before going on to introduce the main theoretical and practical concepts that are essential to understanding the field. From there, the main themes from critical debates around behavioural economics are explained, including ethical issues, the scalability of behavioural interventions, critical perspectives on policy-makers' use of behavioural economics and standard-setting in conducting research. The application of behavioural economics to public policy is then generally considered.

1.1 Background, context and evolution of behavioural economics

This section sets out the background to, and evolution of the field of behavioural economics in the context of the broader field of economics and the social sciences.

Behavioural economics can be thought of as a response to some of the key tenets of mainstream economics. Mainstream (or orthodox or traditional) economics is based on *rational expectations* theory that assumes that individuals are rational in the sense that, a) they have well-defined preferences based on beliefs and expectations that are considered unbiased, b) they make optimal choices based on these beliefs, without error and in the context of possessing perfect information, and c) although they may sometimes behave altruistically, individuals' primary driver and motivation is self-interest. As a consequence of these assumptions, mainstream economics is deep-rooted in the belief that individuals are expected to be rational and that their preferences are consistent and predictable over time, which enables certain economic models and theories to work. Rational expectations are considered a ubiquitous modelling technique used to support economic analysis as it enables the simplification of a complex reality.

In contrast, behavioural economics does not assume that people are rational all of the time. Rather, behavioural economics investigates the *limits* to rational decision-making and the factors that lead to errors of judgement. It seeks to critically analyse existing economic theories and models through psychological theory and concepts, to help provide a more realistic account of the economic implications of human decision-making processes.

Although behavioural economics emerged as a discipline in its own right from about the 1970s onwards, historians of economics have convincingly argued that some of the leading

figures in modern economics were not entirely tethered to the notion of perfect rationality in economic decision-making. Rather, some of the main forerunners in modern economic thought were, to varying degrees, aware of the potential for human foibles and error to infiltrate decision-making. For instance, Ashraf, Camerer and Lowenstein offer convincing arguments that portray Adam Smith, perhaps the leading figure in modern economic thought, as a behavioural economist of his time.[13] For example, in *The Wealth of Nations*, Smith adverted to essential concepts from behavioural economics such as *overconfidence bias* (*"the over-weening conceit which the greater part of men have of their own abilities"*).[14] In other writings, he observed loss aversion (*"[p]ain … is, in almost all cases, a more pungent sensation than the opposite and correspondent pleasure*).[15] Richard Thaler, a dominant figure of behavioural economics, also notes that Irving Fisher and John Maynard Keynes, at least in part, took a behavioural approach to understanding economic dynamics.[16]

As a standalone discipline, behavioural economics emerged in the 1970s thanks to the earlier pioneering work of Herbert A. Simon and later, Daniel Kahneman and Amos Tversky. Simon objected to the concept of perfect rationality, arguing instead that rationality is bounded (or limited) when individuals make decisions, particularly in complex and challenging situations.[17] In essence, the concept seeks to address the discrepancy between assuming that individuals are perfectly rational, and the realities of human cognitive error.

Kahneman and Tversky made significant contributions to the emerging discipline, developing *prospect theory*[18] – a model which explains how people frame risk, and hypothesises that individuals are less accepting of taking a risk when there are gains to be made, and more accepting of risk when there is potential for loss. They also conducted important experimental work which focused on *heuristics* (shortcuts for thinking) and *cognitive biases* and how they can affect decision-making.[19] The first three heuristics that Kahneman and Tversky studied were *availability*, *representativeness*, and *anchoring and adjustment*. This literature precipitated further research on heuristics and cognitive biases,

[13] Nava Ashraf, Colin F Camerer and George Loewenstein, 'Adam Smith, Behavioral Economist' (2005) 19 Journal of Economic Perspectives 131.
[14] Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776) bk I.
[15] Adam Smith, *The Theory of Moral Sentiments* (1759) bk III.
[16] Richard H Thaler, 'Behavioral Economics: Past, Present, and Future' (2016) 106 American Economic Review 1577.
[17] Herbert A Simon, 'A Behavioral Model of Rational Choice' (1955) 69 The Quarterly Journal of Economics 99; Herbert A Simon, 'Rational Choice and the Structure of the Environment' (1956) 63 Psychological Review 129.
[18] Daniel Kahneman and Amos Tversky, 'Prospect Theory: An Analysis of Decision under Risk' (1979) 47 Econmometrica 263.
[19] Amos Tversky and Daniel Kahneman, 'Judgment under Uncertainty: Heuristics and Biases' (1974) 185 Science 1124.

which are explained more fully below in section 1.4 *Critical perspectives on behavioural economics*.

The work of Richard Thaler from the 1980s onwards is also influential. He further challenged the conventional assumption from mainstream economics of perfect rationality,[20] explored individuals' lack of self-control in decision-making, considered the effects of social preferences on decision-making, and developed, among other things, along with Kahneman, the *endowment effect*, the phenomenon that individuals tend to value items *more* if they own them compared to those who do not own them.[21] In 2008, Thaler and Cass Sunstein published *Nudge: Improving Decisions about Health, Wealth, and Happiness* which popularised behavioural economics, transforming it from a primarily academic discipline to one that governments, organisations and the general public saw as having practical significance in day-to-day life.[22] In it, Thaler and Sunstein advocated for *libertarian paternalism*, an approach that preserves freedom of choice but that authorises both private and public institutions to steer people in directions that will promote their welfare.

They suggested that policymakers have control over *choice architecture* – how choices are structured and how decision-making processes are designed. Policymakers are *choice architects*, who can change people's behaviour and improve their decision-making by tweaking how choices are structured and presented to them through *nudges*. A nudge, Thaler and Sunstein explained, "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."[23]

Governments and their agents, and other public institutions have embraced nudge theory, developing specialist 'nudge departments' to try to shift societal behaviours on a large scale. The past decade has witnessed considerable growth in the use of behavioural insights and behavioural interventions to improve the efficacy of policy in several domains. These are detailed in section 1.5, *The application of behavioural economics to public policy: background and context*.

[20] Richard Thaler, 'Toward a Positive Theory of Consumer Choice' (1980) 1 Journal of Economic Behavior & Organization 39.
[21] Daniel Kahneman, Jack L Knetsch and Richard H Thaler, 'Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias' (1991) 5 Journal of Economic Perspectives 193.
[22] Richard H Thaler and Cass R Sunstein, *Nudge: Improving Decisions about Health, Wealth, and Happiness* (Yale University Press 2008).
[23] ibid 6.

1.2 Conducting behavioural economics research

This section explains the main modes of behavioural economics research, with a particular focus on how research is conducted in an applied policy context, and the strengths and weaknesses of different research modes to resolve policy problems. Behavioural economics research is characterised by a combination of observational and experimental research modes, in contrast to mainstream economics which is largely premised on descriptive theories of rational economic behaviour.

Some general principles of how best to approach applied policy research are worth reflecting on, before exploring the main modes of behavioural economics research. Best-practice applied policy research dictates that first, a policy problem is precisely defined, second, objective research questions are identified to diagnose the problem, third, the best method to answer those research questions is selected, and finally, remedies are pre-tested (where possible) and designed based on the diagnosis.[24] Reflecting on these core principles, Lunn observes that there is "nothing inherent to behavioural economics that alters [this] natural way of conducting applied research."[25]

As such, behavioural economics researchers ought to proceed in a logical series of steps. Put simply, one is more likely to fix a policy problem if they have an *accurate diagnosis* of why it is happening in the first place. The logical extension of this is that, generally speaking, behavioural interventions ought to be considered and devised towards the *end* of the research process; designed in light of the diagnosis of the problem, rather than used to start the research process in motion.

A lot of policies do not work as effectively as hoped. *Behaviourally-tested* policies stand a better chance of working because they proceed on the basis of evidence through *pre-testing*. Pre-testing can take different modes, or a combination of them: laboratory experiments (either in-person or online) and/or field experiments (essentially, experiments conducted in the real world as distinct from a 'laboratory'). The most common type of field experiment in behavioural economics is a randomised controlled trial (RCT). These different types of experiments are detailed below. Sometimes, these different modes are combined to further increase the chances that the policy will work in the general population, a process called *triangulation*.

[24] Peter D Lunn, 'Nudger Beware: Diagnosis Precedes Remedy' (2019) 3 Journal of Behavioral Economics for Policy 23, 25.
[25] ibid.

There are four main stages to an effective research process that uses behavioural economics to improve policy: i) initially *identify* the policy problem, ii) collect and analyse data to *observe* the policy problem, iii) *pre-test* a behavioural intervention, and iv) *implement*, at an appropriate scale, an intervention based on the one that which has enjoyed success at the pre-testing phase.[26]

1.2.1 DATA COLLECTION, OBSERVATION AND ANALYSIS

Once a policy problem is identified, collecting, observing and analysing data is a vital first step in the research process. Through observation and analysis of relevant data, it can be established whether the problem does in fact exist, and, if so, to what extent, and where and when it is occurring. This stage is crucial to formulating initial hypotheses on why the problem may be occurring, and what can be done to solve it. Put another way, the suitability and true effectiveness of behavioural interventions depend on the quality and appropriate analysis of the data gathered both before and after the intervention. As such, it is as important to allocate sufficient resources to data analysis before the pre-testing phase as it is to allocate resources to the intervention itself. In this regard, the evolution of data science and big data represents a major development in the field of economics generally, and in the narrower field of behavioural economics, allowing for more powerful and more efficient analysis and interpretation of data which can more precisely inform the development of behavioural interventions at the pre-testing phase.

1.2.2 PRE-TESTING

The next stage is pre-testing. Through a mixture of data observation and analysis with pre-testing, an accurate diagnosis of the problem can be made, which, in turn, allows for a precise prescription to solve the problem: a scalable behavioural intervention.

Pre-testing behavioural interventions generally takes the form of one or both of two main experimental modes: field experiments and laboratory experiments. Influential behavioural economist Dan Ariely vividly described how experiments, for social scientists, “are like microscopes or strobe lights. They help us slow human behaviour to a frame-by-frame narration of events, isolate individual forces, and examine those forces carefully and in more detail. They let us test directly and unambiguously what makes us tick.”[27]

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[26] Saugato Datta and Sendhil Mullainathan present a similar systematic approach to applied behavioural economics research comprising three central stages: defining, diagnosing and designing. Saugato Datta and Sendhil Mullainathan, ‘Behavioral Design: A New Approach to Development Policy’ (Center for Global Development 2012) CGD Policy Paper 016 <http://www.cgdev.org/content/publications/detail/1426679> accessed 22 November 2021.

[27] Dan Ariely, *Predictably Irrational: The Hidden Forces That Shape Our Decisions* (HarperCollins Publishers 2008) xxi.

Researchers debate the merits of using one experimental mode over the other, or indeed if both ought to be conducted and the results combined.

Field experiments and randomised controlled trials (RCTs)

A field experiment is an experiment conducted in a real-world setting outside of a laboratory. Participants are exposed to an *independent variable* (the variable that is specifically manipulated or observed by the researcher) to test for its effect or influence on a *dependent variable* (the outcome that is observed to occur).[28] The main type of field experiment used in behavioural economics is a randomised controlled trial (RCT). In an RCT, subjects are assigned to either an experimental group (who receive the intervention being tested) or a control group (who receive the conventional treatment that is the status quo). Results are analysed to see if there are any differences between the groups. In behavioural economics, RCTs are used to test the effectiveness of behavioural interventions before implementing them on a larger scale. RCTs enjoy strong support in behavioural economics. The UK Behavioural Insights Teams describe them as "the best way of determining whether a policy is working."[29] The European Commission's Joint Research Centre suggest that they are "the purest and most accurate observation of behaviour, unlike experiments which take place in a laboratory."[30]

However, while RCTs usefully facilitate observation of the effectiveness of behavioural interventions in a real-world setting, some researchers advocate that RCTs (and field experiments more generally) ought to be complemented by laboratory experiments, primarily because experiments conducted 'in the laboratory' have their own intrinsic strengths.[31]

The ethical issues of conducting RCTs must be considered. There are concerns that, by their nature, some participants in RCTs will necessarily not benefit from an intervention because they will be assigned to a control group.[32] In certain contexts, the weight of such a concern may be overwhelming. For example, Stephenson and Imrie note that in early efforts to try to understand behaviours to prevent sexual transmission of HIV, no RCTs were conducted regarding the efficacy of condoms to prevent sexual transmission of HIV because

[28] Dictionary of the American Psychological Association.
[29] Laura Haynes, Ben Goldacre and David Torgerson, 'Test, Learn, Adapt: Developing Public Policy with Randomised Controlled Trials' [2012] Behavioural Insights Team 4.
[30] René Van Bavel and others, 'Applying Behavioural Sciences to EU Policy-Making' (2013) 26033 Doc. EUR 8, 14.
[31] Glenn W Harrison and John A List, 'Field Experiments' (2004) 42 Journal of Economic Literature 1009, 1010. For an overview of the strengths and weaknesses of each mode, see Peter D Lunn and Áine Ní Choisdealbha, 'The Case for Laboratory Experiments in Behavioural Public Policy' (2018) 2 Behavioural Public Policy 22.
[32] Phil Ames and Michael Hiscox, 'Guide to Developing Behavioural Interventions for Randomised Controlled Trials' (Behavioural Economics Team of the Australian Government 2016) Guidance Note 24–25.

such studies would have been unethical given the seriousness of the disease.[33] The counter-argument to this concern, in a broad sense, is that RCTs must necessarily be designed in this way to see if a small sample (the experimental group) benefits from an intervention before considering the potential for the intervention to be implemented at scale. As such, there is no long-term exclusion for most of the population from any benefits that the RCT may suggest.[34]

Moreover, the alternative of not running an RCT carries with it the risk of a policy intervention actually leading to unintentional adverse outcomes. A failure to tackle genuine uncertainty about the effectiveness of interventions through RCTs can, in and of itself, be considered unethical because it may allow ineffective or even harmful policy to continue unchecked.[35]

Laboratory experiments

Laboratory experiments are experiments conducted in an artificially-created environment that allow researchers to precisely test for multiple conditions under complete experimental control. The word 'laboratory' in this context – while it has connotations of it being a physical space – is loosely defined here, to refer to experiments conducted either in-person or online. Their main distinction from field experiments is that in laboratory experiments the researcher has direct control over the environment and can fully manipulate the independent variables. This allows for greater *internal validity* – that is, the researcher can be more confident that there is a cause-and-effect relationship between the independent variable(s) tested for and the outcomes observed. In laboratory experiments, there is less chance that confounding factors are the cause of the results observed. To extend Ariely's metaphors of microscopes and strobe lights, with laboratory experiments, the microscope becomes more focused and the strobe light becomes brighter in the laboratory than it does 'in the field' because laboratory experiments' strength lies in their ability to isolate discrete variables that may cause (or solve) a policy problem. On the other hand, compared to field experiments, laboratory experiments lack *external validity* – that is, the extent to which results can be generalised in the real-world beyond the sample of participants who participated in the experiment.[36] However, while an effect demonstrated in a field experiment may explain how an intervention *might* work in the general population, results ought to be interpreted

[33] Judith Stephenson and John Imrie, 'Why Do We Need Randomised Controlled Trials to Assess Behavioural Interventions?' (1998) 316 BMJ (Clinical research ed.) 611, 612.
[34] Ames and Hiscox (n 32) 24.
[35] Stephenson and Imrie (n 33) 611.
[36] Dictionary of the American Psychological Association.

cautiously because they only definitively prove that the exact intervention implemented in the RCT worked in the very specific context in which it was tested.[37]

Lunn argues that laboratory experiments have the potential "to make direct and telling contributions to policy development," and that they ought to serve a complementary role alongside field experiments in certain contexts.[38] Specifically, where researchers are not particularly confident that a particular 'off-the-shelf' behavioural intervention may work in an RCT, it may be sensible to conduct a laboratory experiment beforehand to try to identify the irrational behaviour that may be the root cause of the policy problem. If it is not fully understood *why* a policy problem exists, then a laboratory experiment can help to identify the mechanisms and irrational behaviour that may be at play, and this can inform the design of a behavioural intervention to be tested later through a field experiment.

It is because of the respective strengths and weaknesses of the two experimental modes that the two can complement each other: if both a laboratory and field experiment combine to indicate a particular mechanism or form of irrational behaviour may be the cause of a policy problem, and a behavioural intervention is identified *on that basis* and is pre-tested, then, together, there can be a higher level of confidence that the behavioural intervention will work at scale.

Finally, it is important to note that rigorous, cost-benefit analyses ought to be conducted at various stages of the behavioural research process: both at the outset, to assess the costs and benefits associated with data collection and the design of behavioural interventions, and after the intervention, to evaluate and review its impact and effectiveness, and its potential for implementation on a larger scale. Cost-benefit analyses have been used to evaluate specific justice reform programmes and crime prevention initiatives.[39]

1.3 The main concepts of behavioural economics

This section introduces some of the key concepts from behavioural economics. Recall that behavioural economics *combines* elements of economics and psychology to understand

[37] Lunn and Choisdealbha (n 31) 26.
[38] ibid 23.
[39] J Roman and G Farrell, 'Cost-Benefit Analysis for Crime Prevention: Opportunity Costs, Routine Savings and Crime Externalities' (2002) 14 Crime Prevention Studies 53; John Roman, 'Cost-Benefit Analysis of Criminal Justice Reforms' (2013) 272 NIJ Journal 31; Mark A Cohen, 'Measuring the Costs and Benefits of Crime and Justice' (2000) 4 Criminal justice 263.

what affects decision-making and how and why people behave the way they do.[40] As such, many of the concepts have their origins in principles and theories from psychology.

Before exploring specific concepts, it is worth broadly considering some key factors in decision-making:

- individuals' motivations and incentives,
- social factors,
- the effects of time,
- individuals' perceptions of risk, and,
- individuals' reliance on heuristics (using rules of thumb when reasoning towards a decision).[41]

Individuals' *motivations and incentives* are key drivers of decision-making. Economists and behavioural economists alike are both concerned about what incentivises and motivates decisions, although they approach their analysis from different perspectives. Whereas economists are primarily concerned with monetary incentives – for instance, higher wages may drive workers to be more productive – behavioural economists take a wider view, categorising motivations and incentives into two broad groups: *intrinsic* and *extrinsic*. Some motivations or incentives are *intrinsic*: a potter likes to make pottery because they enjoy it. Some motivations or incentives are *extrinsic*: a potter may also like to make money from selling the pottery they make.

Individuals are *pro-social* creatures and this can affect decision-making: for instance, we care about what people think about us, we generally prefer fair, rather than unfair outcomes, we tend to co-operate with each other, and we tend to reinforce social norms. We also identify with *in-groups*, and we are prepared to challenge or even shun *out-groups*, and this can affect decision-making. We imitate others, we 'herd', and we follow the crowd.

When we make decisions, we factor in the *risks* and rewards associated with our choice.

Another important influence on our decision-making is our attitude to *time*. Our patience or otherwise can have a bearing on the quality of our decision-making. Individuals can be tempted to support options that realise short-term gains at the cost of long-term goals.

[40] Witynski (n 6).
[41] These categories are described in further detail in Baddeley (n 3).

Individuals often have to make decisions quickly with some degree of intuition, relying on rules of thumb called *heuristics*. Relying on heuristics can lead to different cognitive biases that can detrimentally affect optimal decision-making. Tversky and Kahneman's experimental work from the 1970s onwards is particularly influential in this regard.[42]

The next section provides an overview of the main concepts and key theories from the literature on behavioural economics, some of which have already been briefly mentioned above. In the main, these concepts and theories explain how different phenomena, based on the broad factors identified above, can affect behaviour and decision-making.

1.3.1 BOUNDED RATIONALITY

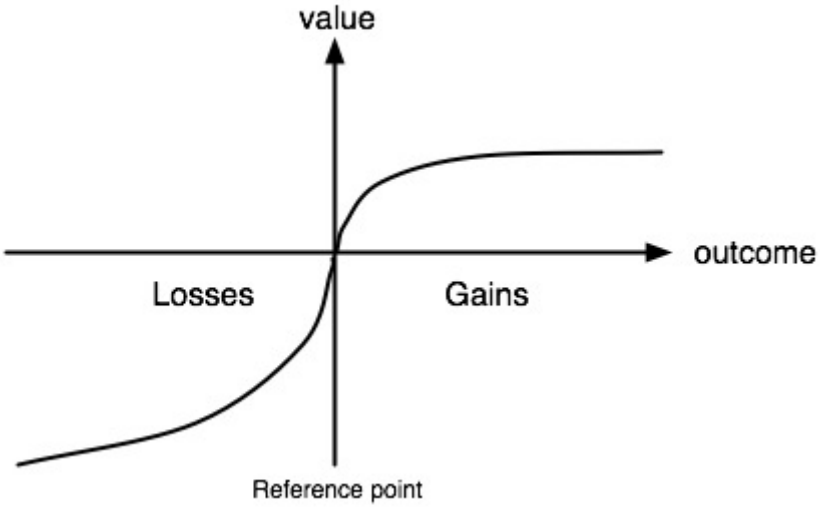
Bounded rationality dictates that there are boundaries or limits to human rationality. Herbert A. Simon argued that when we make decisions, there are limits to our thinking capacity, and to the information available to us and that there are time constraints on us.[43] Bounded rationality is an important fundamental principle of the discipline of behavioural economics, distinguishing the field from mainstream economic theory, and the assumption of perfect rationality embedded in it.

1.3.2 PROSPECT THEORY

Prospect theory is an influential behavioural model developed by Daniel Kahneman and Amos Tversky in 1979.[44] It explains phenomena that occur when people make decisions that involve the prospect of risk. It demonstrates that individuals are *loss averse* – that is, they are less accepting of taking a risk when there are gains to be made than they are of taking a risk when there is potential for loss. Put another way, individuals dislike loss more than they like equivalent gains, and are, therefore, more willing to take a gamble on avoiding something they stand to lose than they are to take a gamble on acquiring an equivalent gain.[45]

The following is a visual representation of this theory:

[42] Tversky and Kahneman, 'Judgment under Uncertainty: Heuristics and Biases' (n 19); Amos Tversky and Daniel Kahneman, 'The Framing of Decisions and the Psychology of Choice' (1981) 211 Science 453.
[43] Simon, 'Rational Choice and the Structure of the Environment' (n 17); Herbert A Simon, *Models of Bounded Rationality: Empirically Grounded Economic Reason* (MIT Press 1982).
[44] Kahneman and Tversky (n 18).
[45] For an overview of how prospect theory has developed since its introduction, see Nicholas C Barberis, 'Thirty Years of Prospect Theory in Economics: A Review and Assessment' (2013) 27 Journal of Economic Perspectives 173.



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Note that the value function is asymmetric. It is steeper for losses and shallower for gains. This is to indicate that people feel losses more than they feel gains.

1.3.3 HEURISTICS, COGNITIVE BIASES AND THE TWO SYSTEMS OF THINKING

Heuristics are cognitive shortcuts or rules of thumb that help to simplify decisions. Kahneman and Tversky identified the availability, representativeness and anchoring heuristics in 1974.[46] Often heuristics successfully help individuals to make good decisions more efficiently, but sometimes they can lead to errors of judgement.

The *availability heuristic* occurs when people make judgements about the likelihood of an event based on how easily an example, instance, or case comes to mind.[47] The instance or occurrence of an event that is salient, vivid or foremost in the mind of the decision-maker may affect their decision; for example, personal experience may hold more sway than statistical knowledge.[48]

[46] Tversky and Kahneman, 'Judgment under Uncertainty: Heuristics and Biases' (n 19).
[47] ibid.
[48] Schauer describes how when decision-makers are in the thrall of a highly salient event, that event will dominate their thinking. Frederick Schauer, 'Do Cases Make Bad Law?' (2006) 73 The University of Chicago Law Review 883, 895. Chugh and Bazerman refer to "the human tendency to make judgments based on attention to only a subset of available information, to overweigh that information, and to underweigh unattended information." Dolly Chugh and Max H Bazerman, 'Bounded Awareness: What You Fail to See Can Hurt You' (2007) 6 Mind & Society 1, 7. Chiodo and her colleagues elaborate, "people often give too much weight to memorable evidence, even when better sources of information are available." Abbigail J Chiodo and others, 'Subjective Probabilities: Psychological Theories and Economic Applications' [2004] Federal Reserve Bank of St. Louis Review 33, 35. On highly publicised causes of death, consider the example of deaths by shark attacks as something that many would disproportionately fear in comparison to other more

The *representativeness heuristic* is a mental shortcut for making judgements about the probability of something being the case.[49] The heuristic occurs when people make assumptions about something or someone belonging to a particular category because it possesses characteristics that are representative of that category. Tversky and Kahneman offer an example where they describe a character 'Steve' as "very shy and withdrawn, invariably helpful, but with little interest in people, or in the world of reality. A meek and tidy soul, he has a need for order and structure, and a passion for detail." Faced with an array of options as to what Steve's profession is, people are more likely to think Steve is a librarian than a farmer. They associate Steve's traits with those of a librarian and conclude he is more likely to be one. However, he is, in fact, more likely to be a farmer because there are more of them in the general population than there are librarians. The traits override an assessment of the objective probabilities involved.

The *anchoring heuristic* occurs when someone's judgement of a value is influenced by a preceding value, an anchor.[50] The individual adjusts their assessment of the value on the basis of the anchor, even if that anchor is irrelevant or unrealistic.

Experimental research has demonstrated how *cognitive biases* – systematic errors in thinking – arise as a consequence of overreliance on heuristics such as those described above. Biases include:

- *hindsight bias* (also referred to as the 'knew-it-all-along effect') – the tendency to think that an event is more predictable or inevitable after it has happened than it actually was at the time, and

- *confirmation bias* – the tendency to selectively seek out information or overestimate the quality of information that supports our preconceived belief and to disregard information to the contrary.[51]

There are many other heuristics and cognitive biases aside from some of the main ones described above.

Finally, another key concept overlapping with heuristics and cognitive biases is the *dual-system thinking* model. This model categorises two ways of thinking to help explain how and

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likely causes of death, perhaps owing to its higher salience in the media. Scott Plous, *The Psychology of Judgment and Decision Making.* (Mcgraw-Hill Book Company 1993) 121.

[49] Tversky and Kahneman, 'Judgment under Uncertainty: Heuristics and Biases' (n 19).

[50] Adrian Furnham and Hua Chu Boo, 'A Literature Review of the Anchoring Effect' (2011) 40 The Journal of Socio-Economics 35.

[51] Brian M Barry, *How Judges Judge: Empirical Insights Into Judicial Decision-Making* (Informa Law from Routledge 2021).

why such errors of judgement can arise. Keith Stanovich and Richard West,[52] and later Daniel Kahneman,[53] distinguished between two systems of thinking: "system 1 thinking" – that is fast, automatic, stereotypic, unconscious, based on reaction and instinct, and "system 2 thinking" – that is slower, more deliberative, effortful, controlled and conscious. Heuristics and cognitive biases are said to be manifestations of system 1 thinking: a result of intuitive, impressionistic, automatic thought processes.

1.3.4 NUDGES AND CHOICE ARCHITECTURE

As briefly described earlier, in 2008, Thaler and Sunstein published *Nudge: Improving Decisions about Health, Wealth and Happiness*, which presented important concepts that have been particularly influential in the application of behavioural economics to public policy.[54] They coined the term *choice architecture* – the process of influencing how choices are made by "organizing the context in which people make decisions,"[55] – essentially, how choices are structured and how decision-making processes are designed. *Choice architects* are those who can change people's behaviour and improve their decision-making by tweaking how choices are structured and presented to them through *nudges*. A nudge, Thaler and Sunstein explained, "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 easy and cheap to avoid. Nudges are not mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not."[56] Nudge theory and heuristics are inextricably linked. Nudges are essentially behavioural interventions designed to improve decisions that are made using heuristical reasoning.

To introduce some examples of nudges: some are designed to *change the default option*. For example, changing the default in a public organ donation scheme such that it operates on an *opt-out* basis may help to increase organ donation rates because people may be less likely to opt-out of such a scheme than they may be to opt into it.[57]

Another nudge is based on tackling *choice overload*: decision-makers may not be able to make the best decisions for themselves because they face too much choice.[58] For example,

[52] Keith E Stanovich and Richard F West, 'Individual Differences in Reasoning: Implications for the Rationality Debate?' (2000) 23 Behavioral and Brain Sciences 645.
[53] Daniel Kahneman, *Thinking, Fast and Slow* (Farrar, Straus and Giroux 2011).
[54] Thaler and Sunstein (n 22).
[55] Richard H Thaler, Cass R Sunstein and John P Balz, 'Choice Architecture' in Eldar Shafir (ed), *The Behavioral Foundations of Public Policy* (Princeton University Press 2013).
[56] Thaler and Sunstein (n 22) 6.
[57] Thaler and Sunstein (n 22).
[58] Alexander Chernev, Ulf Böckenholt and Joseph Goodman, 'Choice Overload: A Conceptual Review and Meta-analysis' (2015) 25 Journal of Consumer Psychology 333.

in the consumer energy market, consumers may be susceptible to *status quo bias* (a preference for things as they are), rather than tease out the permutations of what the best deal in the market is.[59] To increase market competitiveness regulators can incentivise consumers to make the more advantageous choice to change providers by using a nudge that presents information more clearly to them. This can help to reduce *choice overload* involved in switching providers.

Social nudges are another example. By telling people how their decisions compare to their social peers – for example, that they consume more household energy than others do, or that their inclination to pay their taxes late is out of step with others in their community – this can nudge them into making better, more proactive decisions. Other nudges include, for example, facilitating commitment, making information visible, and providing reminders.[60]

Although the field of behavioural economics has become somewhat synonymous with nudges (most commonly, perhaps, in public policy circles), the former is, of course, a more multi-faceted discipline than the latter. The implications of behavioural economics for policy are broader than the testing and usage of nudges. Conflating behavioural economics with nudge theory downplays the importance of broader concepts from behavioural economics to develop effective policy.[61] Nevertheless, as will become evident in this Review, nudges and choice architecture form the basis for much of the behavioural economics research as it applies to the justice sector, primarily because the application of behavioural economics to public policy is generally based on nudges and choice architecture.

1.4 Critical perspectives on behavioural economics

The emergence of behavioural economics, and, in particular, its increasingly-popular application to public policy has provoked debate, both in academia and among the wider public. Much of this debate concentrates on the ethics of nudging as a tool to effect change in the public's behaviour, although further critical perspectives have emerged regarding the need to ensure good practices, principles and standards in applying behavioural economics to public policy. Others query the scalability of behavioural interventions – that is, the ability to convert successful behavioural interventions in a localised setting to the wider population.

[59] William Samuelson and Richard Zeckhauser, 'Status Quo Bias in Decision Making' (1988) 1 Journal of Risk and Uncertainty 7.
[60] Barnabas Szaszi and others, 'A Systematic Scoping Review of the Choice Architecture Movement: Toward Understanding When and Why Nudges Work' (2018) 31 Journal of Behavioral Decision Making 355, 359.
[61] Andrew Leicester, Peter Levell and Imran Rasul, 'Tax and Benefit Policy: Insights from Behavioural Economics' (Institute for Fiscal Studies 2012) IFS Commentary C125 9.

Others even question whether behavioural economics is a "fad"[62] that will come and go, although there is perhaps too much evidence to the contrary, both in terms of the growth of academic commentary and in the rise in the number of institutions and organisations specialising in behavioural economics research.

This section overviews these debates and critical perspectives on behavioural economics.

1.4.1 THE ETHICS OF NUDGING

A rich debate has emerged on the ethics of nudging, perhaps as a consequence of the enthusiastic adoption of nudges by governments and their agents as a means of achieving policy goals.[63] Recall Thaler and Sunstein's definition of a nudge as "any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives." The definition itself speaks to notions of autonomy and freedom of choice. As Sunstein later observed, nudges "steer people in particular directions but also allow them to go their own way."[64] Despite this emphasis on allowing people to "go their own way," most ethical criticisms of nudging generally centre on concerns that nudges do, in fact, compromise or limit autonomy and individual agency in some way.

Perhaps pre-empting criticism and the debate to follow, Thaler and Sunstein cast a theoretical basis for nudging: libertarian paternalism. Here, two contradictory concepts combine: libertarianism, which advocates that people should be free to do what they like,[65] with paternalism, state power as a "benign parent,"[66] or "benevolent interference."[67] Thaler and Sunstein explain: "when we use the term libertarian to modify the word paternalism, we simply mean liberty-preserving… [l]ibertarian paternalism is a relatively weak, soft, and nonintrusive type of paternalism because choices are not blocked, fenced off, or significantly burdened."[68] They further note that libertarian paternalism is apolitical, neither left nor right.[69]

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[62] Zeina Afif and others, 'Behavioral Science around the World: Profiles of 10 Countries' (World Bank 2018) 9.
[63] See generally, Andreas T Schmidt and Bart Engelen, 'The Ethics of Nudging: An Overview' (2020) 15 Philosophy Compass e12658; Daniel M Hausman and Brynn Welch, 'Debate: To Nudge or Not to Nudge' (2010) 18 Journal of Political Philosophy 123; Luc Bovens, 'The Ethics of Nudge' in Till Grüne-Yanoff and Sven Hansson Ove (eds), *Preference change* (Springer 2009); Cass R Sunstein, 'The Ethics of Nudging' (2015) 32 Yale Journal on Regulation 413; Cass R Sunstein, *The Ethics of Influence: Government in the Age of Behavioral Science* (Cambridge University Press 2016).
[64] Sunstein, 'The Ethics of Nudging' (n 63) 417.
[65] Thaler and Sunstein (n 22) 5.
[66] Simon Blackburn, *A Dictionary of Philosophy* (Oxford University Press 2016) <https://www.oxfordreference.com/view/10.1093/acref/9780198735304.001.0001/acref-9780198735304>.
[67] K Grill, 'Paternalism' in Ruth Chadwick (ed), *Encyclopedia of Applied Ethics (Second Edition)* (Academic Press 2012) 359 <https://www.sciencedirect.com/science/article/pii/B9780123739322001848>.
[68] Thaler and Sunstein (n 22) 5.
[69] ibid 14.

However, many do not share Thaler and Sunstein's perspective that nudges, and the theory that underpins it – libertarian paternalism – are as benign and unobtrusive as they make them out to be. Rebonato argues that "libertarian paternalists claim to have managed to reconcile libertarianism and paternalism."[70] "Proponents of choice architecture delude themselves into believing that their paternalism is libertarian" observes sociologist, Fred Furedi. Political scientist Alan Wolfe contests that "[u]nder the rules of libertarian paternalism, all power goes to the choice architects."[71]

In a recent overview of the debate on the ethics of nudging, Andreas T Schmidt and Bart Engelen break down the main arguments for and against nudging. The arguments *for* nudges are that they:

- promise a cost-effective, and relatively easily implementable means of promoting positive policy outcomes (although their success is of course, not guaranteed),

- generally respect a decision-maker's freedom of choice: they are "liberty-preserving,"[72] in that they do not remove options, nor are they designed to change economic incentives,

- compared to other interventions like taxation and fines, citizens are more likely to find nudges acceptable, and

- choice architecture is inevitable and so, it is better to use it to make people better off, and to try to reduce suboptimal choices.[73] For example, there will always be *some* product that a consumer sees first when they enter a supermarket. It may be better to make it a healthy one, to perhaps nudge more people to buy that healthy product, rather than buy an unhealthy one.

The arguments *against* nudging, Schmidt and Engelen observe, generally revolve around concerns that they compromise or limit autonomy and individual agency in some way.

They unpack the arguments as follows: first, nudges compromise *volitional autonomy* – the idea that one's actions should reflect their own preferences, desires or ends. When it comes

[70] Riccardo Rebonato, *Taking Liberties: A Critical Examination of Libertarian Paternalism* (Palgrave Macmillan 2012) 1.
[71] 'All Power to the Choice Architects' (9 November 2009) <https://www.newamerica.org/economic-growth/policy-papers/all-power-to-the-choice-architects/> accessed 15 October 2021.
[72] Cass R Sunstein, 'Nudging: A Very Short Guide' (2014) 37 Journal of Consumer Policy 583, 583.
[73] Sunstein, 'The Ethics of Nudging' (n 63).

to nudging, the concern may be that "when we are nudged, we are no longer the 'authors' of our choices."[74]

Second, nudges undermine *rational agency*. One's capacity to make rational choices is not respected, or even undermined by nudges because they often rely upon and tap into irrational decision-making processes in order for them to work. To varying degrees, nudges take advantage of people's decision-making errors and exploit them. In a similar vein, nudging can deprive people of the capacity for making wrong choices and erodes their responsibility for their own decisions. Some argue that nudging is not as liberty preserving as some suggest: an individual loses some control over their own evaluation when making a choice.[75] Nudges, put simply, compromise *how* we make decisions. Schmidt and Engelen synopsise: "nudgers pull our strings and employ tricks to get us to do what *they* want."[76]

Third, some critics worry that nudging, in the wrong hands, can become a tool to exercise problematic and excessive governmental control over citizens' lives[77] and that they can be used to achieve illicit ends such as politically partisan goals.[78]

While (perhaps inevitably) leading behavioural economists will generally advocate for the benefits of their discipline and the advantages that behavioural insights and behavioural interventions can bring, the critical perspectives outlined above give policy-makers pause for thought, to reflect on their responsibilities to set standards and implement good practices when using behavioural economics to improve public policy.

1.4.2 STANDARD-SETTING AND GOOD PRACTICE IN THE USE OF BEHAVIOURAL ECONOMICS TO IMPROVE PUBLIC POLICY

The emergence of behavioural economics as a powerful tool for governments and other organisations to further policy goals presents a challenge: to devise guidelines and frameworks that incorporate best-practice research methods and embed ethical practices in the design and implementation of behavioural interventions. The OECD provides context for why conducting behavioural economics research in an ethical and rigorous way is particularly important when it is applied to public policy: "perhaps even more so than other areas of scientific endeavour, because public policy has far-reaching considerations and ought to operate in a transparent way, it is important to integrate ethical considerations into

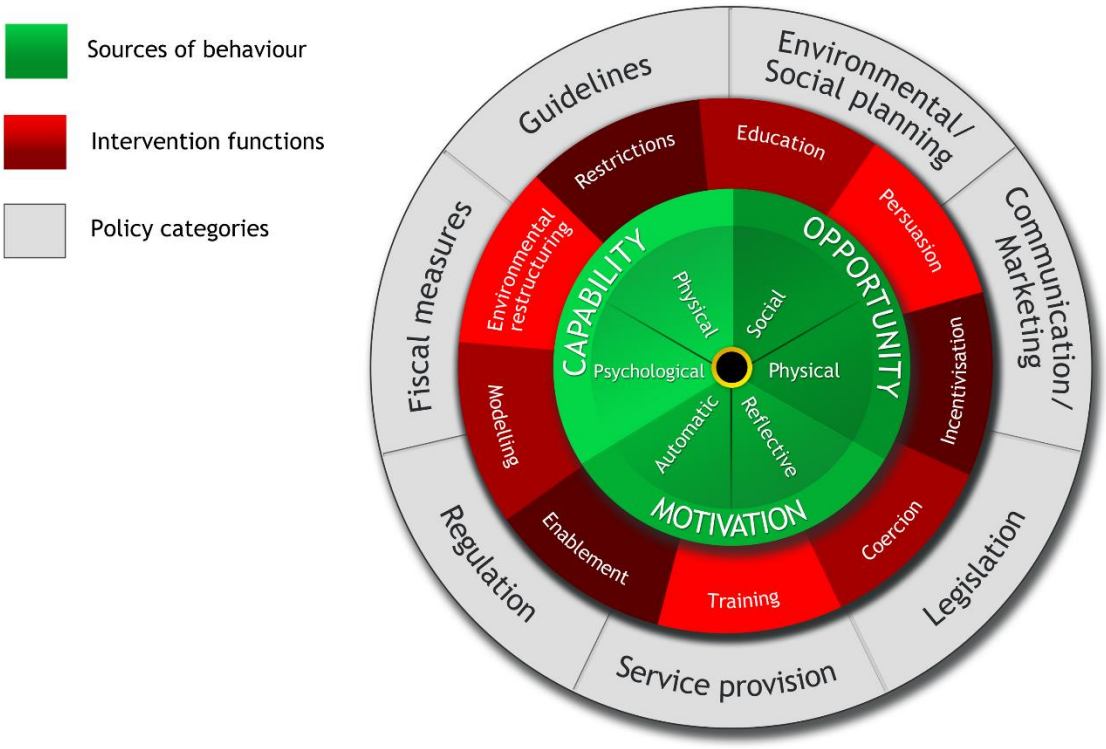
[74] Schmidt and Engelen (n 63) 4.
[75] Hausman and Welch (n 63) 128.
[76] Schmidt and Engelen (n 63) 4.
[77] ibid 6–7.
[78] ibid 8.

the design and implementations of behavioural interventions."[79] Behavioural interventions, the OECD further notes, come with "specific ethical concerns that are different from traditional public policy because it often involves the use of primary data of individual- or group-level behaviours and leverages behavioural biases to inform policies."[80] Some of these considerations include issues related to privacy, consent and the ethics of applying certain solutions to some groups but not to others.[81]

Given this context, behavioural research teams both within and independent of governments, universities, and intergovernmental institutions and political unions such as the OECD and EU Commission have sought to design such guidelines and frameworks, often based on memorable mnemonics, in a bid to encourage and standardise best-practice in behavioural economics research, particularly in the design and implementation of behavioural interventions.

One of the most widely-cited models for characterising and designing behavioural interventions is Susan Michie and others' behaviour change wheel.[82] The model is based on three wheels: the inner-most hub captures conditions that affect behaviours (capability, opportunity and motivation), around which are nine different types of interventions aimed at addressing deficits in one or more of these conditions, and around this are placed seven categories of policy that could enable those interventions to occur. The behaviour change wheel presents a systemised way to approach identifying issues that can be improved by behavioural economics concepts, and by designing interventions and implementing policies that aim to improve behavioural outcomes.

[79] Organisation for Economic Cooperation and Development, OECD, *Tools and Ethics for Applied Behavioural Insights: The BASIC Toolkit* (Organisation for Economic Cooperation and Development, OECD 2019) 8.
[80] ibid.
[81] ibid 11.
[82] Susan Michie, Maartje M Van Stralen and Robert West, 'The Behaviour Change Wheel: A New Method for Characterising and Designing Behaviour Change Interventions' (2011) 6 Implementation Science 1.



The Behavioural Change Wheel © 2011, Michie et al; licensee BioMed Central Ltd

The OECD propose that public policy can be improved by behavioural insights by following a process, based on the mnemonic BASIC, that looks at "behaviour, analysis, strategies, interventions, change." This framework, the OECD suggest, "equips the policymaker with best practice tools, methods and ethical guidelines for conducting [behavioural insights] projects from the beginning to the end of a public policy cycle."[83]

As regards devising and implementing nudges, Delaney and Landes devise an ethics framework that synthesises key aspects of the ethical debates around nudging, suggesting that policy-makers who implement nudges should consider seven core ethical dimensions set out by the mnemonic FORGOOD: fairness, openness, respect, goals, opinions, options and delegation.[84]

In a similar vein, the UK Behavioural Insights Team, and its predecessor, the Institute for Government, have presented frameworks. The first was the MINDSPACE framework, a

[83] Organisation for Economic Cooperation and Development, OECD (n 79) 6.
[84] Leonhard K Lades and Liam Delaney, 'Nudge FORGOOD' [2020] Behavioural Public Policy 1.

"checklist for policy-makers" that sets out the most robust, non-coercive influences on individuals' behaviour:[85]

Messenger	we are heavily influenced by who communicates information,
Incentives	our responses to incentives are shaped by predictable mental shortcuts such as strongly avoiding losses,
Norms	we are strongly influenced by what others do,
Defaults	we "go with the flow" of pre-set options,
Salience	our attention is drawn to what is novel and seems relevant to us,
Priming	our acts are often influenced by sub-conscious cues,
Affect	our emotional associations can powerfully shape our actions,
Commitments	we seek to be consistent with our public promises, and reciprocate acts,
Ego	we act in ways that make us feel better about ourselves.

Later, in 2014, the Behavioural Insights Team presented the mnemonic EAST that sets out "four simple principles for influencing behaviour: make it **e**asy, **a**ttractive, **s**ocial and **t**imely."[86]

Despite the neatness of these frameworks and their role in providing accessible ways of conceptualising behavioural changes in real-world settings, critics argue that they also

[85] Paul Dolan and others, 'MINDSPACE: Influencing Behaviour for Public Policy' (Institute for Government 2010) 8.
[86] Owain Service and others, 'EAST: Four Simple Ways to Apply Behavioural Insights' (Behavioural Insights Team 2014).

potentially frame research as merely “a set of tools to be used to achieve an outcome” rather than speak to the weight of responsibility that states and other organisations ought to bear.[87]

1.4.3 OTHER PERSPECTIVES

Other critiques of applied behavioural economics centre on understanding the limitations of behavioural insights to promote long-term, sustainable change in policy outcomes. Some argue that behavioural interventions, particularly nudges, may only generate temporary positive effects that may not be sustained over time. The risk is that nudges may be viewed as a panacea, replacing more fundamental interventions that ought to address more structural issues that can give rise to negative policy outcomes.[88]

A further critical consideration that has emerged as behavioural economics matures as a discipline and becomes more mainstream concerns scalability to the general population. Delaney argues that because a great deal of the public’s awareness of behavioural economics is based on site-specific RCTs, this has led to an over-focus on some of the eye-catching, high-profile successes in this regard, at the expense of meaningful considerations of scaling interventions over an entire population.[89] He suggests that behavioural researchers need to embrace collaboration and foster greater connections with a broader range of experts in the broader economics field such as organisations that specialise in econometric modelling (he cites the Institute for Fiscal Studies [IFS] in the UK as an example). Similarly, Chetty argues that the discipline of econometrics stands to benefit from behavioural insights.[90] Econometricians, who deal in statistical and mathematical modelling to study and predict economic outcomes would be well-served by integrating behavioural insights into their modelling to improve their economic forecasts.

Delaney also suggests that behavioural researchers ought to develop a better understanding of cost-benefit literature to provide a more informed understanding of how the results of (necessarily selective) behavioural trials conducted at a local level may convert to the broader population.[91]

As noted earlier in this Review, cost-benefit analyses have been used to evaluate specific justice policy initiatives in contexts that are not informed by or tested using behavioural

[87] Delaney (n 9) 185.
[88] Peter John, *How Far to Nudge?: Assessing Behavioural Public Policy* (Edward Elgar Publishing 2018) ch 6.
[89] Delaney (n 9) 184.
[90] Raj Chetty, ‘Behavioral Economics and Public Policy: A Pragmatic Perspective’ (2015) 105 The American Economic Review 1, 2.
[91] Delaney (n 9) 184.

economics theories or concepts.[92] For instance, Welsh and Farrington reviewed the costs and benefits of 13 situational crime prevention programmes in the UK, Australia, the Netherlands and the US by calculating the *benefits* of programmes (as measured by the monetary savings resulting from the reduction in the number of crimes) versus the *costs* of designing, implementing and running the programmes; thereby creating benefit-cost ratios.[93] Eight of the studies provided a return on investment.[94]

Cost-benefit analyses of sentencing policies have also been systematically reviewed.[95] The authors of this systematic review pointed to an absence of a standardised outcome measure to compare different sentencing options. Indeed, the absence of standardised measures to compare the costs and benefits of other policy initiatives in the justice sector was also pointed out by Welsh and Farrington. Policy-makers ought to be cognisant of this, and other limitations of cost-benefit analyses of this nature. McDougall and others observe that putting monetary values on all tangible and intangible outcomes of crime at times makes executing cost-benefit analyses a necessarily subjective exercise for even the seasoned economist or policy-maker.[96]

1.5 The application of behavioural economics to public policy: background and context

Worldwide, governments have become increasingly aware that conventional policy tools of legislating and informing may not be sufficient to bring desired behavioural changes. As a consequence, they are turning their attention towards behavioural economics mechanisms for making policies more effective and cost-efficient. The application of behavioural economics to public policy is a relatively recent development, largely precipitated by the rise in popularity of nudge theory and choice architecture. Since then, it has become a pervasive approach to public policy in many jurisdictions.[97]

The first formal efforts to integrate behavioural insights into public policy started in 2009, when Cass Sunstein, co-author of *Nudge: Improving Decisions about Health, Wealth and*

[92] Roman and Farrell (n 39); Roman (n 39); Cohen (n 39).
[93] Brandon C Welsh and David P Farrington, 'Value for Money? A Review of the Costs and Benefits of Situational Crime Prevention' (1999) 39 British Journal of Criminology 345.
[94] ibid 364.
[95] Cynthia McDougall and others, 'The Costs and Benefits of Sentencing: A Systematic Review' (2003) 587 The Annals of the American Academy of Political and Social Science 160.
[96] ibid 163.
[97] Cass R Sunstein, Lucia A Reisch and Micha Kaiser, 'Trusting Nudges? Lessons from an International Survey' (2019) 26 Journal of European Public Policy 1417, 1417. See generally, Cass R Sunstein, *Simpler: The Future of Government* (Simon and Schuster 2013); Kai Ruggeri, *Behavioral Insights for Public Policy: Concepts and Cases* (Routledge 2018); David Halpern, *Inside the Nudge Unit: How Small Changes Can Make a Big Difference* (Random House 2015).

Happiness, was invited by US President Barack Obama to head up the White House's Office of Information and Regulatory Affairs. During his tenure, Sunstein embedded behavioural insights into the development of a wide range of Obama's signature policies.

The first dedicated research unit to operate within a government was the UK's Behavioural Insights Team (BIT), founded in 2010 by David Cameron and Nick Clegg's coalition government. It initially operated within the UK Cabinet Office on a probationary basis. In 2014, the BIT partiality privatised through the formation of a limited company, with ownership split equally between the UK government, the charity Nesta and the team's employees. Today, the BIT operates globally with offices in several jurisdictions.

Many other national behavioural research units have since been established in, for example, Canada, Australia, Netherlands, Austria, France, Germany, Italy, Japan, India, Indonesia, Peru and Singapore.[98] International institutions such as the European Commission,[99] the Organisation for Economic Co-operation and Development (OECD), the World Bank, and agencies of the United Nations, notably the World Health Organisation (WHO) and the United Nations International Children's Emergency Fund (UNICEF) have followed the trend.[100] In Ireland, the Behavioural Research Unit operates within the Economic and Social Research Institute (ESRI), a research institute that operates independently of government providing evidence-based research to inform public policy in a variety of domains.

1.5.1 POLICY AREAS

Behavioural economics has been applied in a wide range of policy areas globally. For example, a 2018 scoping review of the literature on the "choice architecture movement" revealed 422 tested interventions contained in 116 empirical articles in peer-reviewed journals. The domain of health was the most studied field (42%), followed by the domain of sustainability (19%), followed by consumer choice (10%).[101] Other areas that the authors of the scoping review identified included prosocial behaviour (perhaps the category closest to justice policy), finance, transportation and education. To briefly offer some examples, nudges have been employed in areas such as quitting smoking,[102] food choice,[103] reducing

[98] Marianna Baggio and others, 'The Evolution of Behaviourally Informed Policy-Making in the EU' (2021) 28 Journal of European Public Policy 658, 659.
[99] For an overview, see ibid 661–665.
[100] ibid 659.
[101] Szaszi and others (n 60) 359.
[102] Scott D Halpern and others, 'Randomized Trial of Four Financial-Incentive Programs for Smoking Cessation' (2015) 372 New England Journal of Medicine 2108.
[103] Jan Michael Bauer and Lucia A Reisch, 'Behavioural Insights and (Un) Healthy Dietary Choices: A Review of Current Evidence' (2019) 42 Journal of Consumer Policy 3.

alcohol consumption,[104] overeating,[105] organ donation,[106] and switching to sustainable energy.[107] It is worth noting, however, that the findings of this 2018 scoping review exclude grey literature including studies that are not published in peer-reviewed journals, which are relatively common and quite influential in the behavioural economics literature.

1.5.2 PUBLIC ACCEPTANCE

International surveys on public acceptance of the use of nudges in public policy development suggest that there are generally high levels of approval for nudges as policy tools and that the strength of approval correlates closely with the public's trust in institutions in each jurisdiction.[108] Acceptance levels are reduced as nudges become more intrusive and less transparent.[109]

As Sunstein notes, therefore, it is important that policies that rely on nudges are adopted transparently, that there is an opportunity for public engagement, and that there is an openness to citizens' objections and concerns regarding their implementation.[110] Moreover, nudges may garner more public acceptance in some policy areas than others, and how nudges are devised and presented may also have a bearing on the public's acceptance of them.[111]

[104] Thom Brooks, 'Alcohol and Controlling Risks through Nudges' (2015) 21 The New Bioethics 46.
[105] Anneliese Arno and Steve Thomas, 'The Efficacy of Nudge Theory Strategies in Influencing Adult Dietary Behaviour: A Systematic Review and Meta-Analysis' (2016) 16 BMC Public Health 1.
[106] Matthew Rockloff and Christine Hanley, 'The Default Option: Why a System of Presumed Consent May Be Effective at Increasing Rates of Organ Donation' (2014) 19 Psychology, Health & Medicine 580.
[107] Cass R Sunstein and Lucia A Reisch, 'Automatically Green: Behavioral Economics and Environmental Protection' (2014) 38 Harvard Environmental Law Review 127.
[108] Sunstein, Reisch and Kaiser (n 97).
[109] ibid 1439.
[110] ibid.
[111] Haoyang Yan and J Frank Yates, 'Improving Acceptability of Nudges: Learning from Attitudes towards Opt-in and Opt-out Policies' (2019) 14 Judgment and Decision Making 26.

Part 2: Applying Behavioural Economics to the Justice Sector: Case Studies and Analysis

Part 2 of this Review investigates how behavioural economics research has informed five areas of policy development in the justice sector:

- immigration and integration,
- domestic, sexual and gender-based violence,
- policing, community safety and penal policy,
- court systems and access to justice, and
- innovation and climate action.

In each section, case studies of behavioural interventions to tackle discrete policy problems are outlined.

2.1 Immigration and integration

Immigration is a delicate and complex problem with profound social and economic implications. Having a close understanding of the decision-making of migrants, both in decisions regarding migration itself and in terms of how they navigate services and integrate in their host country, is important to developing effective policy. Economics and economic modelling can play an important role in this regard; for instance, Žičkutė and Kumpikaitė-Valiūnienė synergise different theoretical models from economics to show how they can be used to usefully examine and understand migration decisions, which, in turn, can provide insights to governments on how to develop migration policy.[112]

As for the role of behavioural economics, while some countries have occasionally used behavioural insights to support the development of immigration and social integration policies, their use in this context is less prolific than in other policy areas. Often the literature describes how behavioural insights ought to be *considered*, rather than fully-realised studies on how they have actually been implemented in practice. Sanders and others note, in the context of refugee integration, that few interventions use a behavioural economics approach.[113] Benton and her colleagues, in their report for the Migration Policy Institute

[112] Ineta Žičkutė and Vilmantė Kumpikaitė-Valiūnienė, 'Theoretical Insights on the Migration Process from Economic Behaviour's Perspective' (2015) 213 Procedia-Social and Behavioral Sciences 873.
[113] Jet G Sanders and others, 'Responsibility for Refugee and Migrant Integration' in S Karly Kehoe, Eva Alisic and Jan-Christoph Heilinger (eds), *Responsibility for Refugee and Migrant Integration* (De Gruyter 2019) 165 <https://doi.org/10.1515/9783110628746-012>.

Europe, identify the potential of behavioural economics in this area, suggesting that behavioural insights are among "the most promising new tools to reinvigorate integration policy."[114]

Behavioural insights can facilitate strengthening migrants' sense of belonging in their host country, help them understand their potential contribution to their local community and develop a feeling of being valued in their host country. In parallel, host communities can also be supported and guided so that they are able to identify and understand the benefits that migrants can bring to the country and their local communities, so discrimination and biased views towards migrants are addressed. Behavioural insights can also be used to improve uptake of services and naturalisation processes.

The relatively limited application of behavioural insights in the field of immigration can be categorised as follows:

- Nudges directed towards migrants to foster integration,
- Behavioural interventions to increase naturalisation uptake, and
- Behavioural interventions to combat natives' biased attitudes towards immigrants.

As mentioned, aside from *implemented* behavioural interventions, researchers also consider their potential in other areas of immigration policy.[115]

2.1.1 NUDGES DIRECTED TOWARDS MIGRANTS TO FOSTER INTEGRATION

Researchers have designed experiments based on behavioural interventions to foster immigrants' integration into their host country. Broadly speaking, although a great deal is understood about how social identity affects behaviour, less is known about an individual's investment in their identity, and being part of a new social group.[116] Bearing this in mind, Grote and her colleagues, noting that learning the host country's language is viewed as an important factor for refugees' successful integration,[117] decided to design an intervention to improve refugees' uptake of an online language-learning platform.

The researchers manipulated the text of emails sent to refugees with information about the online language-learning platform. The control group received an email with the subject line:

[114] Meghan Benton, Antonio Silva and Will Somerville, *Applying Behavioural Insights to Support Immigrant Integration and Social Cohesion* (2018).
[115] ibid.
[116] Nora Grote, Tim Klausmann and Mario Scharfbillig, 'Investment in Identity in the Field - Nudging Refugees' Integration Effort' (Gutenberg School of Management and Economics, Johannes Gutenberg-Universität Mainz 2021) 1 <https://EconPapers.repec.org/RePEc:jgu:wpaper:1905>.
[117] British Council, 'Language for Resilience: Supporting Syrian Refugees' (2016).

“New German learning application.” Two experimental groups received an email that included identity-framed nudges; one framed as an opportunity to ‘gain’ identity, the other framed to warn against ‘losing’ identity. In the respective groups, the email subject line was either: “New German-learning application: Become part of Germany” or ”New German-learning application: Stay part of Germany.” The main text of the emails in the two experimental groups was the same as the text in the control group except that the main text included either “Learning German will help you become part of the German society. It will allow you to connect with others and help you feel at home” or “Learning German will help you stay part of the German society. It will ensure you stay connected and do not feel isolated.”

The researchers found that both interventions succeeded in significantly increasing some aspects of language-learning behaviour, specifically, opening the email, clicking the link to the platform, and the number of completed exercises within the platform relative to the control group.[118] There were no differences evident between the two different interventions. The study suggests that simple identity-framed nudges may strengthen migrants’ initiative to strengthen their sense of belonging and identity in their host country.

Other researchers have highlighted how migrants’ initial navigation of public services can be difficult. Meghan Benton and Alexandra Embiricos identify Portugal’s National Immigration Support Centres as a “gold standard” initiative to co-locate government agencies that support migrants, including providing advice on migrant issues, interpretation services, and socio-cultural mediators among other services.[119] Although this initiative is not behaviourally tested using the normal modes of behavioural research, co-location of services in this way has led to measurable benefits, including improving uptake and users’ experiences.[120]

2.1.2 IMPROVING UPTAKE OF NATURALISATION

Naturalisation of immigrants’ status can serve to catalyse social and political integration and can enable immigrants to earn higher incomes.[121] Behavioural insights have been usefully

[118] Grote, Klausmann and Scharfbillig (n 116) 4.
[119] Meghan Benton and Alexandra Embiricon, ‘Doing More with Less: A New Toolkit for Integration Policy’ (Migration Policy Institute Europe 2019) 12.
[120] Catarina Reis Oliveira, Maria Abranches and Claire Healy, ‘Handbook on How to Implement a One-Stop-Shop for Immigrant Integration’ (ACIDI 2009).
[121] Michael Hotard and others, ‘A Low-Cost Information Nudge Increases Citizenship Application Rates among Low-Income Immigrants’ (2019) 3 Nature Human Behaviour 678, 678. See further, OECD, *Naturalisation: A Passport for the Better Integration of Immigrants?* (2011) <https://www.oecd-ilibrary.org/content/publication/9789264099104-en>; Bernt Bratsberg, Jr Ragan James F and Zafar M Nasir, ‘The Effect of Naturalization on Wage Growth: A Panel Study of Young Male Immigrants’ (2002) 20 Journal of labor economics 568; Jens Hainmueller, Dominik Hangartner and Giuseppe Pietrantuono, ‘Catalyst or Crown: Does Naturalization Promote the Long-Term Social Integration of Immigrants?’ (2017) 111 American Political Science Review 256.

employed to improve uptake of naturalisation processes in the US. Hotard and his colleagues identified various barriers that impeded naturalisation rates in the US, most pressingly the cost of naturalisation for applicants. They designed an informational nudge and an RCT to test its efficacy in informing low-income immigrants about their eligibility for a fee waiver to apply for citizenship. In their RCT, they observed that the information nudge increased the rate of citizenship applications by about 8.6 percentage points from 24.5% in the control group to 33.1% in the treatment group.

The study highlights the importance of providing clear, well-presented information to immigrants in order to ensure uptake in a specific immigration policy.

2.1.3 BEHAVIOURAL INTERVENTIONS TO COMBAT BIASED ATTITUDES TOWARDS IMMIGRANTS

Humans are susceptible to "in-group bias."[122] Systematic unconscious biases, based on favouring members from one's own in-group over others, can plague our decision-making. This can lead to people from a host country displaying in-group favouritism and negative, biased attitudes towards immigrants, and minoritised racial groups more generally, in many areas – essentially, racial and ethnic discrimination. One area that this can manifest itself is the labour market. Bertrand and Duflo detail an abundance of evidence of discrimination in recruitment from around the globe, in Latin America,[123] Asia,[124] Australia[125] and in Europe,[126] including Ireland (where candidates with Irish names fared better in recruitment exercises than candidates with distinctively non-Irish names did).[127] A further body of literature shows discrimination in the initial stages of recruitment through correspondence testing, a field-experimental technique whereby researchers apply for real jobs with fictitious candidates to discern discriminatory practices by recruiters.[128]

To tackle this discrimination, researchers in several European jurisdictions have conducted field experiments testing whether anonymising job applications reduces discrimination

[122] Henri Tajfel and others, 'Social Categorization and Intergroup Behaviour.' (1971) 1 European Journal of Social Psychology 149.
[123] Francisco B Galarza and Gustavo Yamada, 'Labor Market Discrimination in Lima, Peru: Evidence from a Field Experiment' (2014) 58 World Development 83.
[124] Margaret Maurer-Fazio, 'Ethnic Discrimination in China's Internet Job Board Labor Market' (2012) 1 IZA Journal of Migration 1.
[125] Alison L Booth, Andrew Leigh and Elena Varganova, 'Does Ethnic Discrimination Vary across Minority Groups? Evidence from a Field Experiment' (2012) 74 Oxford Bulletin of Economics and Statistics 547.
[126] Stijn Baert and others, 'Do Employers Discriminate Less If Vacancies Are Difficult to Fill? Evidence from a Field Experiment' (CESifo Working Paper Series 2013).
[127] Frances McGinnity and others, 'Discrimination in Recruitment: Evidence from a Field Experiment' (The Equality Authority and the Economic and Social Research Institute 2009).
[128] For a meta-analysis see Eva Zschirnt and Didier Ruedin, 'Ethnic Discrimination in Hiring Decisions: A Meta-Analysis of Correspondence Tests 1990–2015' (2016) 42 Journal of Ethnic and Migration Studies 1115.

against migrants and other minority groups, as measured by callback rates for initial interviews.[129] An analysis of a number of European experiments on anonymising job applications predominantly shows that anonymising job applications can reduce discrimination, provided discrimination exists in the first place.[130] It is worth noting that, in some limited instances, anonymising job applications can have the opposite, and therefore detrimental, effect on migrant candidates' job prospects. For example, an experiment conducted by the French public employment service in 2010 and 2011 involving about 1,000 firms in eight labour markers found, contrary to the researchers' expectations, that migrants fared worse in callback rates with anonymous job applications than they did with standard applications.[131] As such, the effectiveness of reducing discrimination through anonymising job applications is context and jurisdiction-specific and, as attractive as such a policy instrument may seem to be, it ought to be treated with caution, and with the benefit of pre-testing.

Informed by this research, in 2016, the UK Behavioural Insights Team, through its product development wing, BI Ventures, developed a behaviourally-informed recruitment platform called *Applied* to de-bias hiring decisions that may work against minority groups, including immigrants.[132] The software deconstructs the traditional recruitment process to ensure it is more sensitive to diversity to reduce the likelihood that hiring managers, in their initial sifting exercise, are affected by the demographic characteristics of the names of applicants, and to help reshape how assessors focus on candidates' skills rather than their profile and academic and professional background.

Applied conducted its own non-peer-reviewed study on whether its platform was more effective at identifying more suitable candidates at the initial candidate sifting stage versus a sifting exercise undertaken by reviewing ordinary CVs.[133] The dependent variable here was the scores candidates obtained in later stages of the interview process. The *Applied* platform did a better job at predicting who would perform well at subsequent interviews than a review of ordinary CVs did. Candidates who scored better on *Applied* also had a high score in in-person interviews. But there was no discernable correlation between initial ratings of

[129] Annabelle Krause, Ulf Rinne and Klaus F Zimmermann, 'Anonymous Job Applications in Europe' (2012) 1 IZA Journal of European Labor Studies 5.
[130] ibid 18.
[131] Luc Behaghel, Bruno Crépon and Thomas Le Barbanchon, 'Unintended Effects of Anonymous Résumés' (2015) 7 American Economic Journal: Applied Economics 1.
[132] Behavioural Insights Team, 'Applied: BIT's First Behavioural Product' (*Behavioural Insights Team Blog*, 21 February 2017) <https://www.bi.team/blogs/applied-bits-first-behavioural-product/> accessed 19 November 2021. See further, 'Applied' <beapplied.com> accessed 10 December 2021.
[133] Kate Glazebrook and Janna Ter Meer, 'Can We Predict Applicant Performance without Requiring CVs? Putting Applied to the Test — Part 1' (*medium.com*, 21 September 2016) <https://medium.com/finding-needles-in-haystacks/putting-applied-to-the-test-part-1-9f1ad6379e9e> accessed 10 December 2021.

ordinary CVs in the CV sifting exercise and their performance in in-person interviews. Having an impressive CV was not a good predictor of being successful in the later stages of the recruitment exercise. This data suggests that a behaviourally-informed recruitment platform can lead to more objective assessments of candidates' potential.

Another factor related to improving recruitment outcomes is to improve diversity in the pool of candidates who apply for a job in the first place. Aside from recruiters' in-group bias and discrimination, another factor may be minority candidates own self-perpetuation of negative recruitment outcomes through a phenomenon called *stereotype threat*: the risk of confirming, as self-characteristic, a negative stereotype about one's own group.[134] For example, Henry observes a version of this phenomenon in an interview study of a group of midwives and nurses who trained in Ghana and worked for the National Health Service in the UK who, owing to institutional barriers in promotion processes among other factors, tend to withdraw from their careers more than other workers do.[135]

Drawing from the literature on stereotype threat, the Behavioural Insights Team conducted an RCT to investigate ways to increase minority applicants to the UK police force.[136] For the experimental group, the researchers redesigned the wording of an email inviting applicants to participate in an online situational judgment test, an important step in the recruitment assessment process. The revised language primed recipients to be more positive about their participation in the test, to help them reflect on their values, and to consider their presence in a police force in which their social identity may be underrepresented. This treatment correlated with a 50% increase in the probability of minority applicants passing the test, with no effect on white applicants.[137] The intervention appeared to close the racial gap without changing the actual recruitment exercise.

While these studies do not speak directly to immigration policy, nevertheless, the behavioural interventions described above may transfer to the design of immigration policies in particular contexts.

[134] Claude M Steele and Joshua Aronson, 'Stereotype Threat and the Intellectual Test Performance of African Americans.' (1995) 69 Journal of Personality and Social Psychology 797.
[135] Leroi Henry, 'Institutionalized Disadvantage: Older Ghanaian Nurses' and Midwives' Reflections on Career Progression and Stagnation in the NHS' (2007) 16 Journal of Clinical Nursing 2196.
[136] Elizabeth Linos, Joanne Reinhard and Simon Ruda, 'Levelling the Playing Field in Police Recruitment: Evidence from a Field Experiment on Test Performance' (2017) 95 Public Administration 943.
[137] ibid 951.

2.1.4 POTENTIAL OF BEHAVIOURAL ECONOMICS IN OTHER AREAS OF IMMIGRATION AND INTEGRATION POLICY

Other researchers consider potential avenues for the application of behavioural economics research to immigration policy. Benton and her colleagues suggest that behavioural interventions could be adapted to improve integration and social cohesion outcomes under three broad themes: community cohesion, narrowing inequalities between immigrant groups and the broader population and addressing low take-up of public services, voter registration and citizenship.[138]

As regards fostering greater community cohesion, Benton and her colleagues highlight initiatives, mainly targeted at young people, designed to reduce prejudice and discrimination by increasing meaningful social interactions between members of different groups.[139] They note a robust body of research, including a meta-analysis, that demonstrates that increased contact between groups tends to reduce conflict and improve integration.[140] Again, while this research does not directly address immigration policy, it may potentially transfer to policy development in this area.

Other researchers point to the importance of education as central to successful integration. Behaviourally-tested policy initiatives to improve immigrants' access to education and their propensity to apply for educational opportunities have also been flagged as a potential avenue.[141]

2.2 Domestic, sexual and gender-based violence

The application of behavioural economics to policies tackling domestic abuse (the term used here to cover domestic, sexual and gender-based violence and abuse and intimate partner violence) must be understood in light of the particular context in which domestic abuse is perpetrated, and the significant challenges that policy-makers and victim support services face in minimising rates of domestic abuse and providing supports for victims. For example, the negative consequences of domestic abuse are wide-ranging, felt at individual, familial and societal levels. At an individual level, domestic abuse leads to long-term trauma that can impact victims physically, psychologically and emotionally, necessitating a holistic approach to treatment typically involving a broad range of professional expertise. At a

[138] Meghan Benton, 'Applying Behavioral Insights to Support Immigrant Integration and Social Cohesion' (Migration Policy Institute Europe 2018) 1.
[139] ibid 6.
[140] Thomas F Pettigrew and Linda R Tropp, 'A Meta-Analytic Test of Intergroup Contact Theory.' (2006) 90 Journal of personality and social psychology 751.
[141] Jet G Sanders and others, 'Applying Behavioural Science to Refugee Integration', *Responsibility for Refugee and Migrant Integration* (De Gruyter 2019).

familial level, domestic abuse may negatively impact the lives of children, leading to a range of issues including but not limited to developmental delay, emotional and behavioural difficulties and issues with respect to schooling. At a societal level, there is a range of service providers who are involved with prevention and support services including courts services, policing, social services and healthcare. Difficulties can therefore arise with respect to assessing the impact of domestic abuse, tracking victims' recovery and at a fundamental level, simply ascertaining what the true extent of this issue is.

A further facet of domestic abuse is that, by its nature, it is often hidden and, as a consequence, the real impact of abuse for victims and others is also hidden. For example, it is estimated that approximately 75% of victims of domestic abuse suffer from post-traumatic stress disorder.[142] There is also a range of negative consequences for children who witness domestic abuse. Children are significantly more likely to be diagnosed with depression and anxiety, to present with physical injuries, to be held back regarding academic attainment and to have a criminal record.[143] However, such issues are not often directly attributed to domestic abuse and the real impact of abuse can therefore be difficult to assess. Most significantly, domestic abuse is under-reported and many victims do not seek professional help. Where criminal proceedings are initiated, levels of compliance also tend to be low. For example, the New South Wales Government report that on average, 18% of defendants fail to appear for scheduled court appearances.[144]

Providing supports for victims of domestic abuse is, of course, a central pillar of policy development in this area, and various behavioural interventions have been designed to facilitate victims availing of such services and to improve their effectiveness. In tandem, in order to ensure that levels of domestic abuse are minimised, it is also important to work with perpetrators to ensure preventive measures are employed where possible and to encourage rehabilitation. Again, behavioural interventions have been designed and implemented in this regard. With respect to both the victims and the perpetrators of domestic abuse, it is also important that judicial systems work efficiently to ensure cases are processed quickly and compliance with court orders is maximised.

[142] Giulia Ferrari and others, 'Domestic Violence and Mental Health: A Cross-Sectional Survey of Women Seeking Help from Domestic Violence Support Services' (2014) 7 Global health action 25519.
[143] Jane EM Callaghan and others, 'Beyond "Witnessing": Children's Experiences of Coercive Control in Domestic Violence and Abuse' (2018) 33 Journal of interpersonal violence 1551.
[144] NSW Behavioural Insights Unit, 'Improving Domestic Violence Court Attendance' (2 April 2018) <https://www.nsw.gov.au/behavioural-insights-unit/blog/improving-domestic-violence-court-attendance> accessed 19 November 2021.

2.2.1 WHAT IS THE BEST WAY TO EMPLOY BEHAVIOURAL ECONOMICS TO PREVENT DOMESTIC ABUSE AND SUPPORT VICTIMS?

A comprehensive literature review on the use of behavioural economics and behavioural interventions to prevent and combat violence against women was conducted by the Joint Research Centre of the European Union (JRC) in 2016.[145] The JRC made four high-level recommendations based on the review's findings:

1. Initiatives should be designed to encourage or discourage a specific behaviour in a well-defined target group.
2. Initiatives should be designed using appropriate behavioural interventions.
3. In order to ensure that initiatives have the intended effects on the target audience, pretesting is crucial.
4. It is essential to set specific, measurable, attainable, realistic and timely objectives, and to evaluate them.

With respect to the first of the four points listed above, it is important to remember that for maximal impact, a rounded approach is required whereby not only victims and perpetrators of abuse are targeted but also, family members, professionals (e.g. healthcare workers, police officers, legal professionals), bystanders and the general public. Targeted interventions can also be developed for specific cohorts. For example, an educational programme for young people may act as a preventive measure through the promotion of gender equality and challenging negative gender role stereotypes.

Educational and rehabilitation programmes for perpetrators are also useful. For example, perpetrators may internalise prevailing cultural social norms where domestic abuse or violence against women generally is tolerated. There is also abundant research evidence that has demonstrated the impact that the portrayal of violence in the media can have on the attitudes and behaviours of both children and adults. For a variety of reasons, including representation in the media and prevailing social norms, perpetrators may feel overconfident that acts of violence will go unpunished.[146] Wilson and Daly describe an extreme version of the impact that social influence can have, whereby even though an individual believes that violence against women is morally wrong and may have no inherent drive to engage in aggressive behaviour, they may succumb to 'young male syndrome'

[145] Sara Rafael Rodrigues Vieira De Almeida and others, 'Insights from Behavioural Sciences to Prevent and Combat Violence against Women. Literature Review' (Publications Office of the European Union 2016) LB-NA-28235-EN-C (print),LB-NA-28235-EN-N (online).
[146] Liz Kelly, Jo Lovett and Linda Regan, 'A Gap or a Chasm?' [2005] Home Office Research, Development and Statistics Directorate.

whereby peer pressure and social influence may push them to do so.[147] Such findings – that speak to the behaviours of victims and perpetrators – indicate the potential for behavioural interventions to challenge the causes and consequences of domestic abuse.

Once target groups have been specified, particular behavioural interventions may then be employed to bring about desired behaviour changes. For example, a general principle governing much of our behaviours is the tendency towards what social psychologists refer to as 'cognitive miserliness i.e. our natural preference to opt for the simplest solution to a given problem over a solution that is perceived to be more labour-intensive (cognitively or otherwise). Therefore, designing nudges that make it easier for people to adopt a required behaviour is a simple, yet effective means to induce behaviour change. Social referents may also be employed as behavioural interventions. Depending on context, figures of authority, celebrities or individuals that command respect may act as role models or advocate for a given cause or action.

Pre-testing is crucial when it comes to designing behavioural interventions for a number of reasons. For example, the role models or authority figures that are most likely to be respected and listened to will vary from one social group to another. Similarly, the best way to frame a message and the best language to use to communicate a message will vary depending on the target audience, so assessing the impact and in particular, any perceived issues that a given audience may have with respect to a behavioural intervention is crucial. With respect to framing messages (how messages are presented), it is vital to avoid making what is referred to as Cialdini's 'big mistake', whereby the behaviour that is being targeted is presented as being relatively common which creates the opposite effect to the one intended by reinforcing the idea that rather than being a behaviour that should be challenged, it is something that should be accepted as 'normal'.[148] Similarly, Almeida and colleagues caution that one should think carefully about the use of emotions as a vehicle for behaviour change.[149] For example, they state that whilst inducing moderate levels of fear of punishment in perpetrators of violence against women can result in a decrease in violent behaviour, inducing high levels of fear can have what they refer to as a 'boomerang effect' whereby perpetrators are motivated to avoid the intense fear or guilt caused by focusing on

[147] Margo Wilson and Martin Daly, 'Competitiveness, Risk Taking, and Violence: The Young Male Syndrome' (1985) 6 Ethology and Sociobiology 59.
[148] Robert B Cialdini and Melanie R Trost, 'Social Influence: Social Norms, Conformity and Compliance.' in Daniel Todd Gilbert, Susan T Fiske and Gardner Lindzey (eds), *The handbook of social psychology*, vols 1–2 (4th edn, McGraw-Hill 1998).
[149] Rafael Rodrigues Vieira De Almeida and others (n 145).

them and therefore completely dismiss them or convince themselves that they will not be caught, thereby, in fact, resulting in an increase in violent behaviour.

Finally, Heise reminds us that “different constellations of factors and pathways could converge to cause abuse under different circumstances” highlighting the importance of carefully planning and assessing behavioural interventions and ensuring that they are culturally appropriate.[150] In this regard Almeida and colleagues state “[p]retesting and piloting initiatives before deploying them, along with systematically evaluating their impact, is crucial in order to implement initiatives that work, while pulling the plug on initiatives that are ineffective or even counterproductive.”[151]

While ethical considerations are important for designing all research studies, they are particularly so when research involves vulnerable participants and matters of particular sensitivity such as the context of addressing domestic abuse. While certain ethical principles apply ubiquitously – informed consent, the right to withdraw from a study without penalty, and confidentiality – further measures are appropriate in this context to safeguard the wellbeing and rights of research participants, including engaging experts to advise on the development of such studies, and engaging with participants directly to ensure that they are consulted at various stages of the research process, to ensure their voices are heard and any concerns are addressed.

Related to this, the concept of 'rolling consent' is also important when working with vulnerable populations. Consent ought to be sought at the outset of a study in a manner readily understandable to participants, and repeatedly sought throughout the study with participants reminded that they are free to withdraw without penalty at any stage. It is also standard practice to have relevant support services on call, for participants to be referred to if required.

2.2.2 BEHAVIOURAL INTERVENTIONS TO REDUCE DOMESTIC ABUSE AND PREVENT RE-OFFENDING

In Bengaluru, India, Hartmann and her colleagues tested a one-month pilot programme designed to reduce hazardous alcohol consumption as a means of reducing domestic abuse. The programme combined elements of behavioural economics and cognitive behavioural therapy (CBT), a form of psychotherapy that integrates theories of cognition and learning with treatment techniques derived from cognitive therapy and behaviour

[150] Lori Heise, ‘What Works to Prevent Partner Violence? An Evidence Overview’ (STRIVE Research Consortium, London School of Hygiene and Tropical Medicine 2011) Working Paper, STRIVE Research Consortium 7.
[151] Rafael Rodrigues Vieira De Almeida and others (n 145) 34.

therapy.[152] Sixty couples participated in the study and were paid for their involvement. The couples were randomly assigned to one of three conditions; a control group where a flat fee for participation in the study was paid on the condition that male partners take a breathalyser test every second day over the course of the study; an 'incentives' group where male partners were paid the same flat fee but were required to take two breathalyser tests daily with bonus payments being made for negative test results; and, an 'incentives plus CBT' group where in addition to the conditions set for the incentives group, weekly CBT sessions were provided which covered topics such as alcohol abuse and communication and where homework was assigned including the creation of daily 'trust contracts'.

Results showed that alcohol intake reduced for all three groups, demonstrating that incentives alone acted as an inducement. However, there was a greater reduction in alcohol consumption for both of the intervention groups with the greatest reduction being seen in the incentives plus CBT group. An adapted version of the Indian Family Violence and Control Scale (IFVCS), a culturally-tailored scale for measuring domestic abuse in India, was employed to measure the incidence of domestic abuse.[153] Results revealed that there was a statistically significant reduction in levels of violence for both intervention groups with the greatest reduction observed in the 'incentives plus CBT' group. Notably, the reduction in violent behaviour was still evident four months after the intervention had ended.

In 2015, the government of New South Wales, Australia identified reducing domestic abuse reoffending as a top policy priority and established the *Reducing Domestic Violence Reoffending Programme*, a comprehensive, multi-agency programme informed by behavioural insights. The programme included a public information and advocacy website (https://www.dvnsw.org.au/), a men's behaviour change (anger management) programme, an electronic monitoring system to ensure that offenders maintain distance from victims, cognitive behavioural therapy programmes, a dedicated support programme for men of Aboriginal descent, and a drug trial, the first of its kind, that assesses the efficacy of prescribing antidepressants (on a voluntary basis) to curb aggressive behaviours.

As part of this programme, the NSW Behavioural Insights Unit conducted an RCT in collaboration with New South Wales' Department of Justice to test an intervention designed to increase levels of criminal defendants' compliance with court orders in domestic abuse criminal trials.[154] Over 4,000 defendants in criminal trials were randomly assigned to a control

[152] Definition from dictionary of the American Psychological Association, https://dictionary.apa.org/
[153] Ameeta S Kalokhe and others, 'The Development and Validation of the Indian Family Violence and Control Scale' (2016) 11 PLOS ONE e0148120.
[154] NSW Behavioural Insights Unit (n 144).

or experimental group. The experimental group was sent an SMS text reminder the day before they were due to appear in court and the control group did not. This cost-effective strategy resulted in a relative 23% decrease in the non-attendance rate for those who received the reminder text compared to defendants who did not. There were also indirect benefits including increased efficiency and cost-saving for the courts service and decreased levels of stress for victims.

Research and analysis as to the overall effectiveness of the programme are ongoing. For instance, an evaluation of a behavioural initiative called 'What's Your Plan' will soon be published. This initiative is designed to tackle the proportionately higher rate that men of Aboriginal descent breach court orders relating to domestic abuse compared to other perpetrators.[155]

2.2.3 ENCOURAGING BYSTANDER ACTION

The Behavioural Insights Team, in conjunction with the United Nations Development Programme country teams in Georgia and South Africa, designed and tested behavioural interventions in both countries to try to encourage bystanders to domestic abuse to report it and support victims. To assess the problem, the researchers conducted interviews with stakeholders and survivors and site visits with service providers and reviewed data on domestic abuse in both jurisdictions. Following this initial analysis, the researchers developed a behavioural intervention in the form of a series of advertisements targeted at over 100,000 Facebook users living in Georgia or South Africa. They designed the messaging and content of the advertisements cognisant of social norms in each jurisdiction and factoring in behavioural barriers that may prevent bystanders from acting such as: i) reframing the perception of helplessness that bystanders may have, ii) improving knowledge gaps regarding the availability of support services, and iii) inducing plans and commitments for bystanders to act in a timely manner.

Different versions of the advertisements were tested and engagement was measured by assessing the click rate for these advertisements as compared to the average click rate for Facebook adverts. The rate of engagement was considerably higher than average (30% - 100% higher depending on the advert in question). However, whilst there was no difference in the engagement rate for the adverts in South Africa, in Georgia, there was a clear preference for an advert containing a reference to challenging social norms combined with an offer of support: *'Only a minority of Georgians think you should stay quiet if you know of someone being mistreated by their partner. Learn what you can say or do to support them.'*

[155] Suzanne Poynton and others, 'Breach Rate of Apprehended Domestic Violence Orders in NSW' (2016).

The results of this study highlight the importance of tailoring supports and interventions to accommodate the needs and social norms of specific populations.

2.3 Policing, community safety and penal policy

This section addresses the application of behavioural economics and behavioural insights to policing, community safety and reducing and preventing crime, and penal policy. Compared to other areas of justice policy addressed in this Review, there is a relatively rich body of literature on the topic, offering both theoretical perspectives and empirical evidence on behavioural interventions that have helped to reduce and prevent crime. One dominant theme is the application of nudge theory to prevent or deter criminal activity in the first place. Sometimes the target of interventions is potential victims of crime, whereas other interventions are targeted at potential perpetrators of crime. In the latter instance, interventions tend to be geared toward preventing low-level offending and reducing reoffending, particularly among younger age groups.

Behavioural economics research has also infiltrated penal policy, but only to a limited degree, in areas such as changing how alternative sentences to prison are presented to judges, improving uptake rates of prison education programmes and improving information disseminated to prisoners when they are about to be released.

2.3.1 USING BEHAVIOURAL ECONOMICS TO UNDERSTAND CRIMINAL BEHAVIOUR

At a broad, theoretical level, researchers have considered how behavioural economics theories and concepts can help to explain criminal offenders' decision-making.[156] Economic modelling of criminals' decision-making has a rich tradition. In 1968, Nobel laureate Gary S. Becker proposed an influential economic model for the choices that criminals make: the effectiveness of a law or regulation as a deterrent to bad behaviour is equal to the perception of the expected cost of being caught.[157] This application of rational choice theory to criminals' decision-making has been influential in the development of criminology. However, behavioural economics concepts such as prospect theory and heuristics and cognitive

[156] Greg Pogarsky, Sean Patrick Roche and Justin T Pickett, 'Offender Decision-Making in Criminology: Contributions from Behavioral Economics' (2018) 1 Annual Review of Criminology 379; Greg Pogarsky and Shaina Herman, 'Nudging and the Choice Architecture of Offending Decisions' (2019) 18 Criminology & Public Policy 823; Paul H Robinson and John M Darley, 'Does Criminal Law Deter? A Behavioural Science Investigation' (2004) 24 Oxford Journal of Legal Studies 173.
[157] Gary S Becker, 'Crime and Punishment: An Economic Approach', *The economic dimensions of crime* (Springer 1968).

biases have gained more traction in recent years,[158] challenging the theory that criminals choose to commit crimes based on rational considerations.[159]

Reflecting on "crime as choice" and why offenders decide to commit crimes through the lens of behavioural economics theories can help to parse out how offenders weigh up the perceived costs, risks and benefits associated with committing a crime.[160] In turn, this can help to develop behaviourally-informed criminal legislation, sentencing policy, and behaviourally-informed communication to potential perpetrators and victims, particularly to help raise the perceived risks of committing the crime (for example, perceived risk of arrest).

Pogarsky, Roche and Pickett review how behavioural economics has helped to refine theories of criminal offenders' choices. For instance, they point to applications of prospect theory to help understand offenders' decisions. A tenet of prospect theory is that when faced with a risky choice leading to gains, individuals are risk-averse, whereas faced with a risky choice leading to losses, individuals are more risk-seeking. Understanding the application of prospect theory to offenders' decision-making may have consequences for sentencing policy. For instance, Bushway and Owens found that where there were larger divergences between a threatened sentence and the actual (lower) sentence meted out, this correlated with a higher likelihood that the criminal would re-offend.[161] The results suggested that large discrepancies between a criminal justice system's "bark" and "bite" may make imprisonment less effective at reducing crime.

Pogarsky, Roche and Pickett also draw upon the *dual-system thinking* model – the distinction between 'system 1' thinking (intuitive, automatic and fast thinking) and 'system 2' thinking (conscious, deliberative and slow) – to help understand criminal behaviour. In a series of experiments, Pogarsky investigated and demonstrated how perceptions of risks associated with criminal behaviour such as the likelihood of arrest were skewed by various heuristic-based cognitive errors.[162]

Aside from a broader understanding of criminal behaviours, behavioural economics concepts, particularly choice architecture and nudge theory, have formed the basis of

[158] Theodore Wilson, 'The Promise of Behavioral Economics for Understanding Decision-Making in the Court' (2019) 18 Criminology & Public Policy 785, 787.
[159] Steven Klepper and Daniel Nagin, 'The Deterrent Effect of Perceived Certainty and Severity of Punishment Revisited' (1989) 27 Criminology 721.
[160] Pogarsky, Roche and Pickett (n 156) 396.
[161] Shawn D Bushway and Emily G Owens, 'Framing Punishment: Incarceration, Recommended Sentences, and Recidivism' (2013) 56 The Journal of Law and Economics 301.
[162] Greg Pogarsky, Sean Patrick Roche and Justin T Pickett, 'Heuristics and Biases, Rational Choice, and Sanction Perceptions' (2017) 55 Criminology 85.

several interventions designed to reduce or prevent criminal activity. These nudges either target potential offenders or potential victims of crime. Some examples are presented below.

2.3.2 CHOICE ARCHITECTURE AND NUDGES FOR POTENTIAL OFFENDERS

Criminal justice systems try to deter criminal behaviour through threatening and publicising punishments to underscore that crime is risky, costly and ought to be avoided.[163] While criminologists have often pursued ways and means to manipulate environments to reduce opportunities for crime – a field known as 'situational crime prevention'[164] – behavioural researchers pay heed to deterrence ultimately being a perceptual phenomenon,[165] and that would-be criminals are prone to cognitive error in weighing up a decision to commit a crime or not. Many scholars have argued,[166] and some have demonstrated evidence through experiments,[167] that criminal decision-making is often intuitive, and heuristics may influence perceptions of the risk of sanction. If perceptions of risk of being caught influence crime decisions, then using behavioural nudges to elevate risk perception can become a "key lever for crime policy."[168] Such nudges are based on a recognition that the would-be offender's decision-making is often flawed.

Examples:

Researchers in the UK installed signs at three locations which had experienced high levels of bicycle theft on a university campus.[169] The signs had a large pair of eyes, to trigger the sense of surveillance, along with the message "Cycle thieves: we are watching you." Other areas of the same campus were used as control locations. Reported thefts were monitored for 12 months before and after the signs' installation. Bicycle thefts decreased by 62% at the

[163] Pogarsky and Herman (n 156) 825.
[164] RVG Clarke, *Crime Prevention Studies: Volume 1* (Criminal Justice Press Monsey, NY 1993); RVG Clarke, 'Situational Crime Prevention: Successful Case Studies. New York: Harrow and Heston. Cohen, J., & Ludwig, J.(2003). Policing Gun Crimes' [1997] Evaluating gun policy: Effects on crime and violence 217.
[165] Daniel S Nagin, 'Criminal Deterrence Research at the Outset of the Twenty-First Century' (1998) 23 Crime and Justice: A Review of Research 1, 5.
[166] Eric Johnson and John Payne, 'The Decision to Commit a Crime: An Information-Processing Analysis', *The Reasoning Criminal: Rational Choice Perspectives on Offending* (Transaction Publishers 1986); Pamela Lattimore and Ann Witte, 'Models of Decision Making under Uncertainty: The Criminal Choice', *The Reasoning Criminal: Rational Choice Perspectives on Offending* (Transaction Publishers 1986); Justin T Pickett and Shawn D Bushway, 'Dispositional Sources of Sanction Perceptions: Emotionality, Cognitive Style, Intolerance of Ambiguity, and Self-Efficacy.' (2015) 39 Law and Human Behavior 624; Pogarsky, Roche and Pickett (n 156).
[167] Pogarsky, Roche and Pickett (n 162); Kyle J Thomas, Benjamin C Hamilton and Thomas A Loughran, 'Testing the Transitivity of Reported Risk Perceptions: Evidence of Coherent Arbitrariness' (2018) 56 Criminology 59.
[168] ibid; citing Daniel S Nagin, 'Criminal Deterrence Research at the Outset of the Twenty-First Century' (1998) 23 Crime and Justice: A Review of Research 1; Daniel S Nagin, 'Deterrence: A Review of the Evidence by a Criminologist for Economists' (2013) 5 Annual Review of Economics 83.
[169] Daniel Nettle, Kenneth Nott and Melissa Bateson, '"Cycle Thieves, We Are Watching You": Impact of a Simple Signage Intervention against Bicycle Theft' (2012) 7 PLOS ONE e51738.

locations where the signs were installed, but increased by 65% in the control locations, suggesting that while the signs were effective, they may have simply displaced offending to locations with no signs. The researchers, reflecting on this finding, speculated that offenders may have perceived that moving out of sight of the signs was a sufficient response and that blanket application of the intervention at bicycle racks throughout the campus may improve results. More generally, the researchers noted that displacement – criminal activity moving from one location to another – has sometimes been raised as a limitation of location-based interventions (or situational crime prevention measures) such as the one tested in their study.[170]

Other researchers have assessed the extent to which situational crime prevention measures displace or diffuse crime.[171] Guerette and Bowers' systematic review of one hundred evaluations of situational crime prevention interventions indicated that the displacement of crime to another location was the "exception rather than the rule,"[172] occurring in around one-quarter of evaluations of interventions reviewed, with no evidence of displacement in about half of interventions, and the remaining quarter of them enjoying the opposite of displacement, a diffusion of benefit (that is, a reduction in offences) beyond the target location of the intervention. Moreover, where displacement did occur, on average it tended to be less than the gains achieved by the situational intervention. Their review's findings, they concluded, "erode suppositions about the inevitability of crime displacement" that had been suggested in earlier literature.[173]

In South Africa, Ideas42, a non-profit behavioural science consulting firm, collaborated with the Western Cape Government, the regional authority responsible for the Western Cape province of South Africa, on a project designed to reduce violent crime in Cape Town. The researchers identified that the vast majority of crimes occurred on Friday and Saturday evenings, and the majority of victims were aged between 16 to 26. They identified that young people tended to stick to a limited number of activities at the weekend, leading them to go to undesirable or unsafe locations which could lead to them either becoming the victims of crime or participating in criminal activity.

The researchers designed a mobile-based app, called the Safety Tool, to help young people choose safe weekend evening activity options. A month-long RCT revealed that those in the

[170] Thomas Gabor, 'Crime Displacement and Situational Prevention: Toward the Development of Some Principles' (1990) 32 Canadian Journal of Criminology 41.
[171] Rob T Guerette and Kate J Bowers, 'Assessing the Extent of Crime Displacement and Diffusion of Benefits: A Review of Situational Crime Prevention Evaluations' (2009) 47 Criminology 1331.
[172] ibid 1357.
[173] ibid 1358.

treatment condition who used the app were half as likely to participate in unsafe activities as the control group were, and were half as likely to experience violence than the control group. Although the results were impressive, a limitation of the study was its relatively small sample size: 156 participants divided into the treatment or control conditions.

2.3.3 CHOICE ARCHITECTURE AND NUDGES FOR PENAL POLICY

Some researchers have used behavioural economics theory and concepts, particularly nudge theory and choice architecture, to help explain and analyse penal policy and to suggest ways to improve policy-making within prisons to decrease recidivism rates when prisoners are released. There is a notable absence in the literature of any pre-testing of behavioural interventions in this context.

Researchers conceive of penal policy-makers as choice architects, presenting a range of non-custodial sentencing options to judges who make choices in how criminals ought to be sentenced. Tata notes that "[t]he general thrust of policy has been to dissuade judges from passing prison sentences in relatively less serious cases,"[174] and observes a "long tradition of sentencing and probation literature" that proposes that "if judicial sentencers are provided with high-quality information relevant to sentencing then they will make correspondingly less use of custody."[175] As such, the quality of information about non-custodial sentences presented to judges and the manner in which policy-makers present that information may be the difference between judges deciding to use a non-custodial sentence option. Tata identifies pre-sentence reports as a tool that helps judges "to contextualise the offence by individualising and humanising the offender in the eyes of the sentencing judge. This, in turn, should, it is hoped, help to dissuade the sentencing judge from imposing a custodial sentence."[176] Tata argues that pre-sentence reports can therefore be seen as an antecedent to 'nudge' policy approaches.[177] In a similar vein, Marder notes that sentencing guidelines in the US are effectively choice architecture that could be used to nudge judges into greater use of non-custodial sentences.[178]

Other behavioural economics researchers have considered how nudge theory and choice architecture can help to improve the effectiveness of policies within prisons, including

[174] Cyrus Tata, 'Reducing Prison Sentencing Through Pre-Sentence Reports? Why the Quasi-Market Logic of 'Selling Alternatives to Custody'Fails' (2018) 57 The Howard Journal of Crime and Justice 472, 473.
[175] ibid 474.
[176] ibid 473–474.
[177] Tata (n 174).
[178] Ian D Marder and Jose Pina-Sánchez, 'Nudge the Judge? Theorizing the Interaction between Heuristics, Sentencing Guidelines and Sentence Clustering' [2018] Criminology & Criminal Justice 1748895818818869, 12.

improving uptake of educational programmes offered within prisons, and how best to provide information to inmates about re-entry into their communities upon their release.

Studies repeatedly demonstrate that prisoners who engage in educational programmes in prisons can reduce recidivism rates, primarily by increasing post-release employment.[179] Erickson considers how prison policies can be designed using nudge theory to encourage better participation rates in education programmes, with a view to reducing recidivism in the long term.[180] For example, she suggests that default nudges could be introduced in educational programmes whereby inmates could be automatically enrolled in classes, with the option to opt out. This, Erickson contends, may significantly increase participation in such education programmes.[181]

Another area of prison policy that researchers have considered through the lens of behavioural economics is simplifying and structuring information given to prisoners about re-entering their communities when they are about to be released. The US Federal Bureau of Prisons prepared a "pre-release" handbook for inmates coming to the end of their custodial sentence. This handbook is structured around three checklists: "things to do before your release," "things to do immediately after your return," and "things to do to rebuild."[182] This streamlined, structured handbook disaggregates and isolates key steps and tasks for the newly-released ex-prisoner. Pogarsky and Herman describe the design of this handbook as being informed by choice architecture, providing simplification nudges that help to make prosocial behaviour for newly-released ex-prisoners less cognitively effortful, and note that other handbooks have since been designed adopting this technique.[183]

Despite academic consideration of choice architecture and nudge theory in these different contexts of penal policy, there appear to be no studies directly testing behavioural interventions.[184]

[179] Lois M Davis and others, *Evaluating the Effectiveness of Correctional Education: A Meta-Analysis of Programs That Provide Education to Incarcerated Adults* (Rand Corporation 2013).
[180] Laura Erickson, 'Reducing Recidivism through Correctional Education: The Roles of Neoclassical and Behavioral Economics' [2018] Policy Perspectives 22.
[181] ibid 26.
[182] US Federal Bureau of Prisons, *Reentering Your Community: A Handbook* (2016).
[183] Pogarsky and Herman (n 156) 830–831.
[184] One pre-tested behavioural intervention peripherally relates to prison policy – an information-based intervention to increase incarcerated parents' requests for modifying the level of child support they must provide while in prison. Asaph Glosser, Dan Cullinan and Emmi Obara, 'Simplify, Notify, Modify: Using Behavioral Insights to Increase Incarcerated Parents' Requests for Child Support Modifications' (US Office of Planning, Research and Evaluation 2016) 43.

2.3.4 CHOICE ARCHITECTURE AND NUDGES FOR POTENTIAL VICTIMS

Nudges are sometimes targeted at potential victims of crime to try to alter their behaviour to take preventative measures against potential crimes such as bicycle theft, burglary and cybercrime.

In a pilot study of an intervention designed to decrease theft of items from unlocked vehicles in England, Roach and his colleagues distributed leaflets to residents in two treatment areas encouraging potential victims of theft from cars to lock their cars.[185] The leaflets contained statements such as "More than a 1/3 of thefts from vehicles in your area involved unlocked cars. WHY? Because it's EASY." In both areas, the distribution of leaflets correlated with a reduction in the percentage of thefts from insecure vehicles (33% and 25% respectively) in the three- to four-month period after the leaflet drops.[186]

In a similar vein, two studies – one in the UK and one in Belgium – designed and tested interventions to improve cyclists' locking behaviour to reduce the opportunities for bicycle theft. Sidebottom and colleagues designed an intervention to encourage secure bike locking practices at bicycle parking facilities in London and Brighton to reduce the likelihood of bike theft.[187] The researchers placed stickers on bicycle racks with illustrations on how to lock bicycles securely to reduce the number of easy opportunities for bike theft. The intervention revealed statistically significant increases in better locking technique and statistically significant reductions in bad locking practices in the treatment group. Results were replicated in a later study at five additional locations.

In Antwerp, Belgium, Sas and others followed the same method but expanded on Sidebottom and colleagues' study by designing two different types of messages at bike locking sites.[188] The first intervention was an injunctive social norm in the form of a sticker adhered to bicycle parking rails with images of both a poorly secured and a well-secured bicycle with corresponding red dissatisfied smiley emotions or green satisfied smiley emoticons, and the second, a poster beside bicycle parking rails with a *descriptive* social norm which included a visual sign of a well-secured bicycle and the message "80% of UA-students fix wheel and frame … to prevent theft." The aim of both interventions was to

[185] Jason Roach and others, 'Nudging down Theft from Insecure Vehicles. A Pilot Study' (2017) 19 International Journal of Police Science & Management 31.
[186] ibid 35.
[187] Aiden Sidebottom, Adam Thorpe and Shane D Johnson, 'Using Targeted Publicity to Reduce Opportunities for Bicycle Theft: A Demonstration and Replication' (2009) 6 European Journal of Criminology 267.
[188] Marlies Sas and others, 'Nudging as a Crime Prevention Strategy: The Use of Nudges to Improve Cyclists' Locking Behavior and Reduce the Opportunities for Bicycle Theft' [2021] Security Journal <https://doi.org/10.1057/s41284-021-00285-3>.

stimulate ‘system 2’ thinking among cyclists to get them to think consciously about their locking practices and the potential risk of bicycle theft. The interventions were implemented cumulatively: first, the sticker intervention, and then the poster intervention alongside the sticker intervention.

The nudges led to a small but statistically significant improvement in good locking practices. The researchers distinguished between poor, acceptable and good locking practices for the purposes of a follow-up observational study. After the sticker intervention, a small increase in good locking practices of 4.1% was observed. After the second intervention, a further increase of 2.8% in acceptable locking behaviour was observed, compared with the first intervention, combining to give an overall improvement in good locking practices of 6.9%.[189]

In short follow-up surveys, 77.7% of cyclists indicated that they had noticed the sticker, while 59% of cyclists (n = 82) indicated being aware of the poster, and 84.9% (n = 118) had noticed the sticker and/or the poster. However, only 11.5% reported that the sticker had an impact on their locking practices, while only 7.2% reported that the poster had an impact on their locking practices.[190] The researchers were surprised by this particular result. The aim of the interventions was to stimulate bike users to think consciously about their locking practices and the risks of bike theft (i.e. to encourage ‘system 2’ thinking in the *dual-system thinking* model). However, although locking practices improved, only a very small number of people reported that the interventions had actually made them think twice about the way they locked their bike. One explanation is that the interventions may have served more as an unconscious, ‘system 1’ nudge, rather than the intended mechanism: to induce ‘system 2’ thinking.

One study tested the effectiveness of different messages directed at individuals and small businesses to take preventative measures against cybercrime. The Behavioural Economics Team Australia partnered with the Australian Cyber Security Centre to try to improve the impact of cybersecurity advice. The researchers devised and tested behaviourally-informed advice in three different formats: plain text, a visually engaging infographic and an interactive quiz question about cybersecurity. The advice was framed to harness various behavioural phenomena; for instance, by highlighting the financial and non-financial costs of poor cybersecurity, the researchers hypothesised that this may make people and businesses more likely to take action to prevent cybercrime because of *loss aversion*.[191] Overall, the

[189] ibid 11–12.
[190] ibid 14.
[191] See further, Amos Tversky and Daniel Kahneman, ‘Loss Aversion in Riskless Choice: A Reference-Dependent Model’ (1991) 106 The quarterly journal of economics 1039.

messages had some, but fairly limited, positive effects. Advice aimed at small businesses strengthened their intentions to back up data by the exact same amount of 6% across all three formats – plain text, infographic and interactive quiz. Advice aimed at small businesses aimed at strengthening their intentions to update software had varying, positive effects. The plain text format achieved a 10% strengthening of intention, compared to 9% for the infographic and 4% for the interactive quiz.[192] The researchers noted their surprise that the plain text messages performed just as well in one study, and even better in the other, than the other more visually engaging infographic format and the more interactive quiz format did, reflecting "the fundamental importance of clear, compelling, and jargon-free advice, whatever the topic."[193]

Notably, as part of the same study, equivalent interventions testing the efficacy of advice in different formats to improve cyber-security behaviours targeted at individuals rather than small businesses had no positive effects whatsoever.

Researchers in the UK worked with Durham Police to introduce behavioural insights to reduce burglary among the student population on the twelve most burgled streets in Durham.[194] The researchers developed a face-to-face survey completed by Police Cadets to gather data on residents' knowledge of burglary rates in their area and about their common security thinking and behaviours. The researchers found that residents' (primarily students') awareness levels as to the relative prevalence of burglary were limited – for instance, 53.1% of residents indicated that they were not aware that they lived in a 'high-burglary area'[195] – and that taking part in the survey had made participants think more about security and burglary prevention behaviour (78.7%).[196] Although the level of burglaries also reduced during and soon after the survey period, there was not enough data for the researchers to draw a definitive causative link between survey participation and the reduction in burglary rates. The researchers noted, however, that while the finding may have been as a result of extraneous variables, it was at least equally plausible that the survey had a positive effect of making participants think more about crime and crime prevention.[197]

[192] Behavioural Economics Team of the Australian Government, 'Password123: Applying Behavioural Insights to Cyber Security Advice' (2021) 17 <https://behaviouraleconomics.pmc.gov.au/sites/default/files/projects/password123-report.pdf> accessed 13 December 2021.
[193] ibid.
[194] Jason Roach and others, 'Reducing Student Burglary Victimisation Using the Nudge Approach' (2020) 22 Crime Prevention and Community Safety 364.
[195] ibid 374.
[196] ibid 375.
[197] ibid 377.

2.3.5 USING BEHAVIOURAL ECONOMICS TO IMPROVE POLICE RECRUITMENT STRATEGIES

Researchers have explored how behavioural insights can improve police recruitment strategies and recruitment outcomes in the US and, in particular, improve diversity in police forces. In conjunction with the What Works Cities Initiative, the US division of the Behavioral Insights Team engaged with 21 police departments to run randomised controlled trials that tested out different strategies for recruitment to police forces. In their report, *Behavioral Insights for Building the Police Force of Tomorrow*, the Behavioral Insights Team identified three insights based on three themes that can help to improve recruitment outcomes: i) tapping into new sources of potential candidates' *motivations* for joining the police, ii) removing complexities and inefficiencies in the *processes* to become a police officer, and iii) casting the net of recruitment *outreach strategies* wider, beyond specific neighbourhoods and colleges that are traditionally targeted by police forces.[198]

For instance, in terms of candidates' *motivations*, the Behavioral Insights Team identified that messages to potential recruits about career opportunities, salary and benefits were particularly successful – messages that went beyond the traditional motivations epitomised by the tagline "to protect and to serve." Economic, financial and career progression motives emerged as critical factors for potential applicants, less so than community-building motivations. Messages emphasising competitive salary and the benefits of a career in law enforcement were four and a half times more effective in getting someone to apply or take the police exam than in the control group or messages that promoted the community-building aspects and motivations of joining the police force. Of course, this is a jurisdiction-specific result, but the key takeaway is that traditional assumptions about motivations to join police forces may be incorrect, and testing different messages may lead to better recruitment outcomes.

2.4 Court systems and access to justice

The application of behavioural economics to the issues of access to justice and the operation of court systems is relatively underdeveloped. In particular, research studies designing and testing behavioural interventions geared towards improving outcomes in court systems are uncommon. More frequently, researchers take a theoretical approach, seeking to explain how and why inefficiencies or suboptimal outcomes may occur in court systems through the prism of behavioural economics theory and concepts.

[198] Joanna Weill and others, 'Behavioral Insights for Building the Police Force for Tomorrow' (Behavioral Insights Team 2019).

Bearing in mind the relative dearth of empirical and experimental literature in this area of justice policy compared to other areas, this section accounts for the handful of studies where behavioural interventions have been tested in court systems, and details research that analyses inefficiencies and poor outcomes through the lens of behavioural economics.

To briefly introduce some of the main themes: behavioural insights teams, government departments and other state agencies have sometimes used behavioural insights to tackle issues within court systems by a) encouraging uptake of mediation as an alternative to going to trial before a court, b) improving compliance rates with summonses to appear in court, and c) improving how users interact and engage online dispute resolution services and online courts. Training and education programmes for judges in some jurisdictions have also integrated behavioural economics research to help judges reflect on their decision-making on the bench.

As for literature specifically considering and applying behavioural economics concepts to *access to justice* issues – for instance, considering an individual's right to appear in court, and to access affordable or free legal representation – there appears to be a notable absence of literature *directly* addressing this topic.[199] This is perhaps surprising because it would seem to be an area that, at face value, could benefit from behavioural economics research; in particular, on how best to deliver legal information and information about court processes, and to investigate barriers to accessing legal advice and free legal aid.

The next section considers the literature on the application of behavioural economics in how users initially engage with court systems and their decision-making over which mode of dispute resolution to avail of.

2.4.1 GOING TO COURT

Researchers suggest that social and cognitive biases can affect litigants' behaviour and that they do not make the most optimally rational choices as their case progresses through the legal system.[200] In particular, some suggest that biases can sometimes affect litigants' decision to pursue a full trial in court, rather than settle at an earlier stage or go to

[199] Definitions of access to justice, and its parameters, vary. The origins of access to justice stem from its narrowest conception in liberal 18th and 19th century states, referring to an individual's right to appear in court. From the 1960s onwards, definitions of access to justice broadly focused on the right to legal representation to those who could not afford it. Broader, more recent conceptions emphasise access to legal information and help for all in society regardless of demographic factors. Alberta Civil Liberties Research Centre, 'What Is Access to Justice? Five Different Ways of Considering Access to Justice' <https://www.aclrc.com/what-is-access-to-justice> accessed 25 August 2021.

[200] Jennifer Kirkpatrick Robbennolt, 'Litigation and Settlement', *Handbook of Behavioral Economics and the Law* (Oxford University Press 2014).

mediation.[201] Legal representatives' biases may also have a bearing on their clients' sub-optimal decisions to go to trial rather than pursue alternative options.[202] For example, overconfidence bias on the part of both litigants and their lawyers in the strength of their case may lead to a poor choice to go all the way through with the court process.

Empirical research corroborates these theoretical claims. One study from the US demonstrated how plaintiffs often make an economically disadvantageous decision to go to trial rather than settle at an earlier stage. One study reviewing Californian case law found that plaintiffs involved in over 40,000 civil cases in California would have fared better 60% of the time if they had accepted the last offer from the defence rather than going to trial, with an average loss of over $40,000, exclusive of litigation costs.[203]

Some researchers consider how cognitive biases may affect litigants' representatives' decisions to refuse participation in mediation, and instead to go all the way to judgment. Watkins identifies three biases that may lead to parties selecting court over mediation, even when the latter may be a better and more economical option.[204] First, *availability bias*: because court and adjudication are culturally pervasive and what appears most 'available' to parties, they may opt for it. Second, Watkins suggests that parties may choose court and adjudication – the default option – because of *status quo bias*. Mediation is perceived as an *alternative* dispute resolution method, and many may automatically, and sometimes irrationally, choose adjudication over mediation as a consequence. Finally, Watkins suggests that parties involved in disputes may be overconfident about their prospects. The data from Kiser and colleagues' study supports the suggestion that litigants may suffer from *overconfidence error*, appearing to be unrealistically optimistic about their chances of winning. Such overconfidence may spur parties to choose adjudication over mediation.

Building on this premise, Watkins draws upon nudge theory and choice architecture, arguing that mediation should be made a default dispute resolution procedure for certain types of dispute. Those who devise court-annexed mediation programmes are effectively choice architects, and where mediation replaces adjudication as the default dispute resolution

[201] Daniel Watkins, 'A Nudge to Mediate: How Adjustments in Choice Architecture Can Lead to Better Dispute Resolution Decisions' (2010) 4 American Journal of Mediation 19.
[202] Andrew J Wistrich and Jeffrey J Rachlinski, 'How Lawyers' Intuitions Prolong Litigation' (2012) 86 Southern California Law Review 571.
[203] Randall L Kiser, Martin A Asher and Blakeley B McShane, 'Let's Not Make a Deal: An Empirical Study of Decision Making in Unsuccessful Settlement Negotiations' (2008) 5 Journal of Empirical Legal Studies 551.
[204] That said, mediation should not be perceived as a panacea that is necessarily suitable for all disputes. There may be areas of law where mediation is better suited than others. Mr Chief Justice Frank Clarke identified commercial and family law as areas that may particularly benefit from mediation: although they are "curiously disparate," they are areas "where people have to get on." Mr Chief Justice Frank Clarke, closing remarks for day one at the Chief Justice's Working Group Access to Justice Conference, 1 October 2021.

method, this may fix biases and errors that parties may make when deciding between mediation and adjudication.

Charmaine Yun Ning Yap argues that a broader cohort are all potential choice architects when it comes to designing choices to nudge disputants towards mediation: governments, mediation service providers, mediation accreditation institutes, mediators, mediation advocates and academics.[205] She suggests several behaviourally-informed techniques to encourage uptake of mediation. To help people better map the outcome of their choice to go to court or mediation, she suggests presenting information in practical, non-technical terms, including "before and after" scenarios regarding how a person may feel about their dispute in the present, and how people who use mediation emerge after the process. Specific information about average timeframes, costs involved and success rates could be provided, to help users make informed choices and simplify the cost-benefit analysis for parties choosing between dispute resolution methods. Yap further suggests that the opportunity to avail of mediation could be made available at multiple points during the litigation process to allow parties to change course as the costs of litigation become more evident. Yap points to an example of this from the Singapore Mediation Centre which sends out notifications about the option of mediation at the end of pleadings and around the date of the pre-trial conference, increasing the salience of mediation as an avenue to resolve the dispute. From a terminology standpoint, Yap suggests replacing the terminology of "alternative dispute resolution" with "appropriate dispute resolution" to prevent the implicit suggestion that litigation is the primary, or even superior mode of dispute resolution.

Ali uses nudge theory to examine the consequences, in terms of quality and efficiency, of mediation within civil justice systems.[206] Ali compares different civil justice systems where users are either encouraged to pursue voluntary mediation (a light nudge) or are mandated by a court to pursue it (a more robust nudge). Across twelve regions, light nudges such as voluntary court mediation programmes are, on average, more efficient and less discriminatory than systems with more robust nudges towards mediation are, while different nudges do not have any significant bearing on the quality of civil justice, effective enforcement, accessibility and affordability, impartiality or overall effectiveness. However, the small sample set and jurisdictional nuances are almost certainly at play in this analysis.

[205] Charmaine Yun Ning Yap, 'What's in a Nudge? How Choice Architecture Surrounding Dispute Resolution Options Can Increase Uptake of Mediation', *Contemporary Issues in Mediation* (WORLD SCIENTIFIC 2019) <https://doi.org/10.1142/9789811209123_0001> accessed 22 June 2021.
[206] Shahla F Ali, 'Nudging Civil Justice: Examining Voluntary and Mandatory Court Mediation User Experience in Twelves Regions' (2017) 19 Cardozo Journal of Conflict Resolution 269.

Nevertheless, the findings tally with socio-legal scholars' assessment of a quasi-compulsory pilot mediation programme introduced in the UK and compared against voluntary mediation programmes: that facilitation and encouragement combined with appropriate pressure are likely to be more effective and possibly more efficient than blanket coercion to mediate.[207] However, the evaluation of pilot schemes in individual jurisdictions does not necessarily detract from Watkin's assessment of behavioural economics principles in this context: switching the default mode of dispute resolution to mediation may incentivise users to take up mediation, and that may bring benefits as a result.

Although all of the above research provides useful reflections on how behavioural economics is useful for explaining and analysing litigants' decisions during the court process, what is notably absent from the literature are studies that trial behaviourally-informed interventions geared toward encouraging mediation over court.

2.4.2 APPEARING IN COURT

One major source of inefficiency within many court systems is litigants' failure to appear in court, even when they are legally compelled to attend. Two studies have investigated and tested how behavioural economics concepts can improve court appearance rates.

In a study published in *Science* in 2020, Fishbane and her colleagues looked to reduce the number of court dates missed by defendants accused of low-level offences in New York City, by conducting two large-scale field experiments to evaluate interventions to make defendants more aware of court information.[208] In one study, the researchers redesigned the NYC court summons form to improve appearance rates. The researchers compared appearance rates when defendants were issued the existing summons form against rates when defendants were issued with a revised form. For the revised form, the researchers concentrated on its layout and content, to make the most relevant information more salient, making it easier for people to respond appropriately. The researchers moved the court date and time nearer to the top of the form, indicated the court location more clearly and highlighted the consequences of missing court in bold typeface. The introduction of the redesigned form correlated with reduced failures to appear in court by 13%. This correlated with laboratory experiments which tested how quickly people could identify, and how well

[207] Genn and colleagues, reflecting on the introduction of a quasi-compulsory mediation programmed in the UK, concluded that "[f]acilitation and encouragement together with selective and appropriate pressure are likely to be more effective and possibly more efficient than blanket coercion to mediate", Hazel Genn and others, 'Twisting Arms: Court Referred and Court Linked Mediation under Judicial Pressure' (2007) 1 Ministry of Justice Research Series.
[208] Alissa Fishbane, Aurelie Ouss and Anuj K Shah, 'Behavioral Nudges Reduce Failure to Appear for Court' (2020) 370 Science.

they could remember, court information on the old and new forms. People who saw the new forms identified court information more quickly, and recalled it more accurately.

In the second study, the researchers tested the effect of different text message reminders on court appearance rates. These text message reminders were designed to mitigate behavioural barriers which may lead to people being more likely to miss court dates. The researchers compared four conditions: no text message reminder, a message sent to defendants seven days before the scheduled court date, three days before and one day before. The researchers also varied the content of the text messages to better identify what information was most effective at reducing failures to appear. Some text messages highlighted the consequences of missing a court appearance, while other text messages prompted the recipient to make a plan to attend court, including marking their calendars, setting an alarm and looking up directions. Other text messages included a combination of highlighting consequences and prompting plan-making. Receiving any text message reduced rates of failing to appear by 21%. The text messages highlighting consequences, and those that combined highlighting consequences and plan-making, were the most effective, resulting in 23.5% and 26.1% relative reductions respectively. The researchers concluded that the effectiveness of the text message reminders suggested that a proportion of defendants missed court because they lacked basic information about their appearance.

Chivers and Barnes conducted a similar study in the UK, sending defendants “nudge” text message reminders the day before their due court date.[209] However, they found no statistically significant effect of text messages on attendance at court. However, this result appeared to be largely a by-product of a large number of the phone numbers in the sample set of defendants in both the control and experimental groups being invalid (uncontactable) or confirmed as not being valid by the defendant. This assessment of the accuracy of the phone numbers necessarily had to be conducted *after* the due court dates had passed, so as not to compromise the integrity of the study by introducing an uncontrolled variable into the randomised groups in the experiment. A reanalysis of the data limited to a sub-sample of defendants with accurate phone numbers found that text messages had produced a promising but non-statistically significant boost in court attendance rates, leaving open the possibility that such text messages could have a positive impact on court attendance rates.

As for improving victims' and witnesses' attendance at court, a UK study by Cumberbatch and Barnes found that text messages sent to victims or witnesses two to three days before

[209] Ben Chivers and Geoffrey Barnes, ‘Sorry, Wrong Number: Tracking Court Attendance Targeting Through Testing a “Nudge” Text’ (2018) 2 Cambridge Journal of Evidence-Based Policing 4.

their scheduled court appearance failed to have any significant difference on appearance rates.[210] Monnington-Taylor and her colleagues designed an intervention using behavioural insights to improve attendance rates of civilian witnesses and victims in English criminal courts.[211] They teamed up with witness care officers at the West Midlands Police Care Unit, who were responsible for communicating with victims and witnesses. The intervention involved a three-pronged approach: (1) a new conversation guide that witness care officers could refer to when they communicated with witnesses and victims that they needed to attend court; (2) a redesigned 'warning letter' confirming the details of court proceedings and helping them to plan their attendance; and (3) a new reminder call and text message issued one week before the court date. Although there was a slight increase in attendance at court compared with the control group, the difference was not statistically different. However, the gap in outcomes tended to be greater for a subgroup, victims in domestic violence cases (one of the groups that is least likely to attend court). The researchers concluded that a limitation of their study was a smaller-than-expected sample set, and suggested that further studies may be able to detect significant effects, particularly within sub-groups of victims and witnesses if samples sizes were larger.

2.4.3 COURT ENFORCEMENT AND FINE COLLECTION

The collection of court fines is a large, ongoing challenge for court systems in many jurisdictions. Two studies have tested interventions to improve compliance with fine payment.

In the UK, the Behavioural Insights Team conducted a trial alongside Her Majesty's Courts and Tribunals Service (HMCTS) to test whether sending different text messages would induce a sample of people in the southeast of England to pay outstanding court fines.[212] The different text messages were a) a general, simple text message, b) a personalised message where the defaulter was addressed by name, c) a text message where the amount owed was mentioned, and d) a text message where both the defaulter was addressed by name and the amount owed was mentioned. The text messages appeared to have the desired effect. In the 'no text' condition, the average payment was £4.46. By contrast, the most successful text message – b) a personalised message where the defaulter was addressed

[210] Jonathan R Cumberbatch and Geoffrey C Barnes, 'This Nudge Was Not Enough: A Randomised Trial of Text Message Reminders of Court Dates to Victims and Witnesses' (2018) 2 Cambridge Journal of Evidence-Based Policing 35.
[211] Evie Monnington-Taylor and others, 'Testimony at Court: A Randomised Controlled Trial Investigating the Art and Science of Persuading Witnesses and Victims to Attend Trial' (2019) 8 Crime Science 10.
[212] Laura C Haynes and others, 'Collection of Delinquent Fines: An Adaptive Randomized Trial to Assess the Effectiveness of Alternative Text Messages' (2013) 32 Journal of Policy Analysis and Management 718.

by name – corresponded with an average payment of £12.87, a near tripling of the average amount paid in fines. In the wake of the trial, the HMCTS adopted this text treatment as part of its standard operating procedure.

In the York region of Ontario, Canada, the Ontario Behavioural Insights Unit reformatted court fine notices issued to defaulters in three different ways and tested their effectiveness against the existing court fine notice.[213] All three versions were reformatted based on behavioural insights. The three versions differed in that the first version did not include a nudge statement; a second version included a nudge statement in red text about the consequences of failing to pay framed as a *social norm* statement, and a third version included a nudge statement in red text about the consequences of failing to pay framed as a *loss aversion* statement. The behaviourally-formatted notice with the loss aversion statement was the most successful, significantly accelerating fine payment by twelve days, and increasing fine collection amounts by 11% compared to the pre-existing fine notice.

2.4.4 ONLINE COURTS

Justice systems have started to introduce online courts and tribunals as a means of improving efficiency in court systems and improving access to justice, particularly for lay litigants.[214] Commentators note that the guiding premise of online courts is that information technology and innovative procedural design can improve the accessibility, efficiency and effectiveness of court systems.[215] They are envisaged as being particularly useful for litigants who do not have familiarity with courts. Sela considers online courts as digital choice environments. The digital choice architecture – the choices made in designing these online courts – have a significant bearing on how litigants, particularly lay litigants, will self-navigate their way through the process and, in turn, influence their decision-making. "Whether purposefully or inadvertently," Sela notes, "the design of digital environments often steers their users' behavior."[216] As such, the potential for cognitive biases to negatively affect litigants' decision-making during the court process and the use of nudge theory ought to be carefully considered in how the online court digital environment is designed to ensure fairness and accessibility.

[213] Ontario Behavioural Insights Unit, 'Behavioural Insights in Ontario - Update Report 2018' (2018) 13–14.
[214] Shannon Salter, 'Online Dispute Resolution and Justice System Integration: British Columbia's Civil Resolution Tribunal' (2017) 34 Windsor Yearbook of Access to Justice/Recueil annuel de Windsor d'accès à la justice 112; Maximilian A Bulinski and JJ Prescott, 'Online Case Resolution Systems: Enhancing Access, Fairness, Accuracy, and Efficiency' (2015) 21 Michelin Journal of Race & Law 205.
[215] Ayelet Sela, 'E-Nudging Justice: The Role of Digital Choice Architecture in Online Courts' (2019) 2019 Journal of Dispute Resolution 127, 128.
[216] ibid.

Sela highlights studies that demonstrate that people are particularly prone to making fast, automated, deficient decisions on computer interfaces in particular and that the effect is accentuated if the decision is made on a smartphone. Digital interfaces also make it easy to add choices. While choice can promote self-determination during the court process, too much choice can be bad – *choice overload*. Visual layout can also have a bearing: where options are made available on-screen can affect choices. This heightened susceptibility to the influence of biases and heuristics in online decision-making, choice overload, and the negative effects of poor visual layout ought to be combatted with user interface features that carefully integrate digital nudges. Sela suggests ways to combat some of these potential pitfalls including inducing deliberation through a horizontal presentation of options, the effective use of fonts, using colourfulness and visual complexity to nudge usability and trustworthiness, and by making the platform more personalised. Sela further notes the importance of testing and evaluating different design choices in the digital choice architecture of online courts through experiments and RCTs, to ensure the user's experience is as optimal as possible, and that the online court provides the efficiencies and effects that it promises to deliver.

2.4.5 JUDICIAL TRAINING ON HEURISTICS AND COGNITIVE BIASES

There is a growing body of research that demonstrates judges' susceptibility to heuristical reasoning and cognitive bias in their judicial decision-making.[217] In jurisdictions such as the US, Canada and Slovenia, judicial training and education programmes integrate short-format laboratory experiments using vignettes of hypothetical legal cases to consider judges' possible behavioural errors in decision-making.

For instance, in one laboratory experiment designed to test for judges' susceptibility to the anchoring effect – the tendency to be drawn to initial values when making a numerical judgement even where that initial value may be irrelevant or unrealistic – German judges were asked to hand down a sentence in a hypothetical criminal law case. They were told to roll dice and to take whatever value emerged as the recommended sentence length of the prosecutor. Even though they knew it to be a game of chance, and even though all judges heard the same set of case facts, the number appearing on the dice affected sentencing outcomes considerably.[218] In another experiment, US administrative judges were asked to decide on a hypothetical employment discrimination claim. In the experimental group, the claimant referred to an outlandish amount of compensation awarded in a case similar to hers

[217] Barry (n 51) ch 2.
[218] Birte Englich, Thomas Mussweiler and Fritz Strack, 'Playing Dice with Criminal Sentences: The Influence of Irrelevant Anchors on Experts' Judicial Decision Making' (2006) 32 Personality and Social Psychology Bulletin 188.

that she had recently seen on a court reality TV show. This irrelevant anchor had a sizable effect, raising the amount of compensation the judges were prepared to award relative to those in the control group who did not hear about the compensation awarded on the court reality TV show.[219] Other experiments demonstrate similar effects in judicial decision-making caused by heuristics and cognitive biases, although not always.[220]

Judicial training and education programmes that use laboratory experiments like these can help to facilitate judges' self-reflections in a controlled, low-stakes environment on the important non-legal factors that may affect their day-to-day decision-making on the bench.

2.4.6 CONCLUSIONS ON COURT SYSTEMS AND ACCESS TO JUSTICE

The examples above demonstrate how behavioural insights can improve the delivery of court services, resulting in efficiencies and better outcomes both for the service providers and litigants. In particular, interventions based on nudge theory have helped to improve the uptake of mediation and increased adherence in court attendance and the payment of fines issued by courts. Furthermore, judicial training and education programmes can be improved by integrating behavioural insights. That said, the literature remains underdeveloped relative to other areas of justice policy.

2.5 Innovation and climate action

This section outlines research about applying behavioural insights to reduce carbon footprint within the justice sector and about initiatives taken by public sector organisations to tackle climate change. It also briefly explains research that suggests a causative effect between climate change and justice outcomes, specifically criminal activity.

As for justice actors' integration of behavioural insights to reduce carbon footprint, one example of a programme designed to address the climate emergency within the justice sector is Dubai Police's Zero Carbon Police Force initiative.[221] The programme, which won a UN Global Climate Action Award in 2017, is designed with a clearly-defined goal: to become the first carbon-neutral police force in the world. Apart from investment in green police equipment and infrastructure, an integral part of the programme is to embed behaviourally-informed change within the force to increase awareness about carbon emissions and how to

[219] Chris Guthrie, Jeffrey J Rachlinski and Andrew J Wistrich, 'The" Hidden Judiciary": An Empirical Examination of Executive Branch Justice' [2009] Duke Law Journal 1477.
[220] For instance, evidence for the impact of hindsight bias on judicial-decision making is mixed. Barry (n 51) s 2.1.2 Hindsight bias.
[221] United Nations Framework Convention on Climate Change, 'Zero Carbon Police Force | United Arab Emirates' (*UNFCCC*, 2021) <https://unfccc.int/climate-action/momentum-for-change/climate-neutral-now/zero-carbon-police-force> accessed 22 November 2021.

reduce them within the force's work. The force appointed 'Climate Champions,' a group of individuals within the police force who are responsible for spreading awareness and driving implementation across the police force's 22,000+ workforce. In tandem, the force engaged in a knowledge-sharing public campaign, including public exhibitions, awareness-raising sessions, certified training, and higher education along with voluntary guidance and mentoring programs.[222] The programme was designed in such a way that it can be scaled up as a best-practice model for other public sector bodies to employ.

Other research at the intersection of the climate emergency, behaviour, and the justice sector suggests a causative link between climate change and crime levels. Patterns of increased levels of violent crimes committed in hotter weather and other extreme weather conditions are pervasive across many parts of the world, including Mexico,[223] sub-Saharan Africa,[224] Taiwan,[225] the United States,[226] Finland,[227] and Spain.[228] These studies form part of the rapidly growing literature on the link between climate and human conflict. A 2013 meta-analysis of 60 of the most rigorous quantitative studies demonstrated that deviations from normal precipitation and mild temperatures systematically increase the risk of conflict, often substantially.[229] Importantly, the authors of this meta-analysis noted that while the body of existing research that they drew upon had successfully established a causal relationship between climate and conflict, there were numerous competing theories to explain the linkages between the climate and human conflict and, cumulatively, the literature was "unable to fully explain the mechanisms."[230] However, studies have honed in on the association between increases in temperature with increased levels of particular types of crime. Studies have found that domestic violence[231] and violent crimes such as assault or

[222] ibid.
[223] Ceren Baysan and others, 'Non-Economic Factors in Violence: Evidence from Organized Crime, Suicides and Climate in Mexico' (2019) 168 Journal of Economic Behavior & Organization 434.
[224] John O'Loughlin, Andrew M Linke and Frank DW Witmer, 'Effects of Temperature and Precipitation Variability on the Risk of Violence in Sub-Saharan Africa, 1980–2012' (2014) 111 Proceedings of the National Academy of Sciences 16712.
[225] Chin-Hsien Yu and others, 'Relationships between Typhoons, Climate and Crime Rates in Taiwan' (2017) 89 Natural Hazards 871.
[226] Richard P Michael and Doris Zumpe, 'Annual Rhythms in Human Violence and Sexual Aggression in the United States and the Role of Temperature' (1983) 30 Social Biology 263.
[227] Jari Tiihonen and others, 'The Association of Ambient Temperature and Violent Crime' (2017) 7 Scientific Reports 6543.
[228] Belén Sanz-Barbero and others, 'Heat Wave and the Risk of Intimate Partner Violence' (2018) 644 Science of The Total Environment 413.
[229] Hsiang Solomon M., Burke Marshall, and Miguel Edward, 'Quantifying the Influence of Climate on Human Conflict' (2013) 341 Science 1235367. For a detailed consideration of how the studies were identified as being the "most rigorous", and for consideration of how confounding variables were accounted for, see ibid 1–6.
[230] Hsiang Solomon M., Burke Marshall, and Miguel Edward (n 229) 12.
[231] A Auliciems and L DiBartolo, 'Domestic Violence in a Subtropical Environment: Police Calls and Weather in Brisbane' (1995) 39 International Journal of Biometeorology 34; David Card and Gordon B Dahl, 'Family Violence and Football: The Effect of Unexpected Emotional Cues on Violent Behavior*' (2011) 126 The Quarterly Journal of Economics 103.

rape[232] are more likely if ambient temperatures are higher. However, such studies are, of course, conducted in specific jurisdictions and should not be treated as being generally representative of trends in other jurisdictions.

Other studies employ statistical models to predict how climate change is likely to affect crime rates in the future. Ranson ran such a predictive model on crime rates in the United States based on a 'middle-of-the-road' climate change scenario that data from the Intergovernmental Panel on Climate Change presented.[233] Ranson first correlated the prevalence of criminal activity with changes in weather patterns in nearly 3,000 US counties over the past 30 years, identifying a robust statistical relationship between historical weather patterns and criminal activity. He then used this data to predict a causative effect between the 'middle-of-the-road' climate change scenario and significantly higher levels of serious crime through to the end of the 21st century. The model predicted that between 2010 and 2099, there will be an additional 22,000 murders, 180,000 cases of rape, 1.2 million aggravated assaults, 2.3 million simple assaults, 260,000 robberies, 1.3 million burglaries, 2.2 million cases of larceny, and 580,000 cases of vehicle theft, as a result of climate change. A notable limitation of the estimates is that such modelling cannot take into account longer-term adaptation mechanisms; for instance, the likelihood that law enforcement agencies will respond with increased policing activities, and people in areas particularly affected by climate change taking measures to modify their behaviour to avoid becoming victims of crime.[234] As such, the predicted crime figures attributable to climate change should be viewed as an upper bound on the potential impacts of climate change on crime in the US.[235] Nevertheless, such modelling has significant policy implications for medium- to long-term consideration of how best to allocate police resources and personnel, and for other actors in the criminal justice system.

[232] Ellen G Cohn and James Rotton, 'Assault as a Function of Time and Temperature: A Moderator-Variable Time-Series Analysis.' (1997) 72 Journal of Personality and Social Psychology 1322; James Rotton and Ellen G Cohn, 'Violence Is a Curvilinear Function of Temperature in Dallas: A Replication.' (2000) 78 Journal of Personality and Social Psychology 1074; Brad J Bushman, Morgan C Wang and Craig A Anderson, 'Is the Curve Relating Temperature to Aggression Linear or Curvilinear? Assaults and Temperature in Minneapolis Reexamined' (2005) 89 Journal of Personality and Social Psychology 62; Craig A Anderson, Brad J Bushman and Ralph W Groom, 'Hot Years and Serious and Deadly Assault: Empirical Tests of the Heat Hypothesis.' (1997) 73 Journal of Personality and Social Psychology 1213; Craig A Anderson and others, 'Temperature and Aggression' (2000) 32 Advances in Experimental Social Psychology 63; Brian Jacob, Lars Lefgren and Enrico Moretti, 'The Dynamics of Criminal Behavior Evidence from Weather Shocks' (2007) 42 Journal of Human Resources 489; Matthew Ranson, 'Crime, Weather, and Climate Change' (2014) 67 Journal of Environmental Economics and Management 274.
[233] Ranson (n 232).
[234] ibid 287–288.
[235] ibid 288.

2.5.1 BEHAVIOURALLY-INFORMED SUSTAINABILITY INITIATIVES WITHIN PUBLIC ORGANISATIONS

Public sector bodies are expected to demonstrate pro-environmental behaviours, and individual public servants operating within them are expected to be "good stewards of … environmental resources consumed in a public organization's day-to-day operations."[236] Researchers have analysed 'green' behaviour in workplaces (public and private) to improve environmental outcomes from a broad range of disciplinary perspectives: environmental psychology,[237] environmental studies[238] and human resources management[239] to name three. Behavioural economics has also had a role to play in contributing to improving sustainability in public sector organisations.

In Ireland, the Sustainable Energy Authority of Ireland (SEAI) identify behavioural change as a driver of improving energy efficiency within public sector organisations.[240] Some examples of improving energy efficiency within the Irish public sector through behavioural change include the establishment of three Estates Energy Bureaus within the Health Service Executive (HSE) covering the East, West and South regions. Each Bureau is resourced with energy officers who work at HSE sites to reduce energy usage through, among other means, behavioural change. The SEAI reported that in 2019 the HSE identified savings of almost 7% in participating locations through energy management, awareness, and behavioural change alone, before any capital investment; the equivalent saving of 12 GWh, €1,329,000 or 3,170,000 kg of avoided CO2 emissions.[241] Another example of a behaviourally-informed initiative in Ireland is NUI Galway's Green Campus programme. The University believes it is achieving up to 2% energy savings per year through behavioural change alone.[242] At a micro level, and to give just one example of one simple initiative, University College Cork installed cup washers on campus that boosted reusable cup use by 20%.[243]

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[236] Justin M Stritch and Robert K Christensen, 'Going Green in Public Organizations: Linking Organizational Commitment and Public Service Motives to Public Employees' Workplace Eco-Initiatives' (2016) 46 The American Review of Public Administration 337, 337.
[237] Yuhei Inoue and Priscila Alfaro-Barrantes, 'Pro-Environmental Behavior in the Workplace: A Review of Empirical Studies and Directions for Future Research' (2015) 120 Business and Society Review 137.
[238] Virginie Francoeur and others, 'The Measurement of Green Workplace Behaviors: A Systematic Review' (2021) 34 Organization & Environment 18.
[239] Julie Rayner and Damian Morgan, 'An Empirical Study of "Green" Workplace Behaviours: Ability, Motivation and Opportunity' (2018) 56 Asia Pacific Journal of Human Resources 56.
[240] Sustainable Energy Authority of Ireland, 'Annual Report 2020 on Public Sector Energy Efficiency Performance' (Sustainable Energy Authority of Ireland 2020) 2 <https://www.seai.ie/publications/Public-Sector-Annual-Report-2020.pdf> accessed 10 December 2021.
[241] ibid 18.
[242] ibid 19.
[243] United Nations Environment Programme, GRID-Arendal and Behavioural Insights Team, *The Little Book of Green Nudges: 40 Nudges to Spark Sustainable Behaviour on Campus* (2020) 13.

At a broader inter-government department level, in the UK the Behavioural Insights Team introduced comparative consumption data on different government departments' energy use to engender a sense of competition between departments. Through a combination of this initiative and changing default energy settings in government buildings, energy use was reduced by 13.8% in one year alone between 2010 and 2011.[244]

Certification programmes for green workplaces awarded on the basis of meeting pre-determined sustainability targets can also foster a sense of competition. Such programmes serve as a pro-social nudge for other workplaces, or indeed, units operating within the same organisation.[245] To give one example, the University of California, Davis' Office of Sustainability awards "Green Workplace" certification to faculties, individual staff members and student groups. Applicants apply to the Office of Sustainability which assesses what pre-determined sustainability goals the applicant must meet to be awarded certification. Certification is available not only to offices operating on campus but also to "green" home offices and "green" study spaces.[246] The effectiveness of this programme is borne out in the results that each individual unit achieves through participating in the programme. For example, a large on-campus administrative building achieved a 33% decline in electricity use on weekdays, a 66% reduction in general waste and a 98% diversion rate of paper through the programme.[247]

[244] Cabinet Office Behavioural Insights Team, 'Behavioural Insights Team Annual Update 2010-11' (Cabinet Office Behavioural Insights Team 2011) 14 <https://casaa.org/wp-content/uploads/Behaviour-Change-Insight-Team-Annual-Update_acc.pdf> accessed 10 December 2021.
[245] United Nations Environment Programme, GRID-Arendal and Behavioural Insights Team (n 243) 22–23.
[246] UC Davis, 'Green Workplace Program' (2021) <https://sustainability.ucdavis.edu/get-involved/green-workplace> accessed 10 December 2021.
[247] ibid.

Conclusions

When compared to other areas of public policy such as health, sustainability and consumer choice, justice policy remains relatively uncharted territory for behavioural economists. However, that is changing rapidly and there is now an increasingly impressive body of research that harnesses the power of behavioural economics to improve justice policy design and outcomes. There has been considerable growth in the number of studies applying behavioural economics to areas of justice policy, particularly within the last five years. It seems inevitable that within the next decade, there will be a much richer body of literature for policy-makers and actors within the justice system to draw from.

Where behavioural interventions have been tested and applied to justice policy, they tend to involve pre-testing a nudge to improve justice outcomes, either by targeting how citizens engage with services operating within justice systems or by changing citizens' or justice actors' behaviours to reduce or mitigate harmful outcomes.

To briefly synopsise the current state of the literature, the areas of justice policy in which behavioural interventions are most prevalent are perhaps crime prevention and tackling domestic, sexual and gender-based violence. In both areas, policy-makers have worked alongside researchers to test behavioural interventions to improve justice outcomes or to improve how citizens engage with services within these areas. Initiatives including pre-testing behavioural interventions to improve court attendance and compliance with court orders, to encourage citizens to take crime-preventative measures, to reduce criminal behaviour and to improve domestic abuse victims' engagement with support services have all enjoyed success. Some of these initiatives have been rolled out on a broader scale to the general population. Behavioural economics research has infiltrated penal policy, but only to a limited degree. Researchers suggest that the application of choice architecture and nudge theory could lead to better outcomes in penal policy.

In the area of immigration and integration, commentators have noted the strong potential for behaviourally-informed initiatives to have a positive effect on how asylum seekers and migrants engage with state-provided services and to foster greater integration within their host country and communities. However, as matters stand, there is only a handful of studies directly pre-testing behavioural interventions in this area. It is undoubtedly an area of justice policy that could be well served by further behavioural economics research. For instance, employing behavioural economics theory or concepts to directly encourage immigrants to enter the labour market and to simplify processes to enter the workforce, or studies about

improving asylum application processes are just two research opportunities that could be explored.

As regards innovation and climate action, this Review highlights some behaviourally-informed initiatives in other public organisations to tackle climate change. These initiatives have potential transferability for justice agencies and actors to improve sustainability in their day-to-day operations.

Aside from the varying degrees to which behavioural economics research has helped to shape and implement policy in the justice sector, and its considerable potential to inform justice policies in Ireland, a key takeaway of this Review is that policy-makers in the justice sector ought to thoroughly consider their approach to integrating behavioural economics theory and concepts into their policy development. This includes a consideration of ethical issues, the use of appropriate methodologies, and reflecting on best practices when applying behavioural economics to policy design.

Where behavioural interventions have enjoyed success in a particular jurisdiction, that result should not be viewed as generalisable: the same result is not guaranteed elsewhere. Pre-testing an equivalent behavioural intervention in the target jurisdiction is key to ensuring the best possible chance that the policy will be successful in the medium- to long-term. As described in further detail above: effective integration of behavioural economics to improve policy requires a series of steps:

- defining the problem and identifying its scope based on reliable data and observation,
- diagnosing the mechanisms and behaviours that may be causing the problem as closely as possible with the available data and observation,
- devising behavioural interventions designed to tackle the specific mechanisms and behaviours identified,
- pre-testing the behavioural intervention using an appropriate mode such as an RCT or a laboratory experiment, or a combination of both, and
- if the initial pre-tested intervention presents positive results, implement the behavioural intervention at an appropriate scale.

Given the sensitive nature of implementing justice policies, and the often profound impact that new or revised policies can have on people's lives, policy-makers ought to carefully consider the ethics of how they design and pre-test interventions. In this regard, policy-makers ought to be particularly cognisant of the ethical debates around choice architecture

and nudge theory, to be open and transparent in policy testing and design, and to engage stakeholders (both within and beyond government) as well as those affected by the policy problem at all stages of the policy design, pre-testing and implementation phases.

Finally, to return to a theme of Part 1 of this Review, although behavioural economics and behavioural interventions have proven to offer low-cost and effective ways of improving policy outcomes in several areas of justice policy, behavioural economics is not a panacea for policy problems, nor should it be viewed as a tool to be relied upon in isolation. Behavioural economics and behavioural interventions ought to be considered as complementary to other disciplines. For instance, cost-benefit analyses of policy interventions, and the use of econometrics and data science techniques and modelling also have important roles to play in policy design, implementation and review, both independently and in their own right, and to complement behaviourally-informed and behaviourally-tested policy initiatives.

References and Appendices

Appendix A

Behavioural Economics (General)

Behavioural Public Policy

Canadian Journal of Behavioural Science

Current Opinion in Behavioral Sciences

Journal of Behavioral & Experimental Economics

Journal of Behavioral Decision Making

Journal of Behavioural Medicine

Journal of Personality and Social Psychology

Psychological Science

The Journal of Applied Behavioral Science

Journals at the intersection of law, criminology and behavioural economics

American Law and Economics Review

Annual Review of Law and Social Science

Journal of Accounting, Economics and Law- A Convivium

Journal of Empirical Legal Studies

Journal Of Police And Criminal Psychology

Justice System Journal

Law and Human Behavior

Legal Studies

Psychology, Crime & Law

Psychology, Public Policy and Law

European Journal of Social Work

Journals at the intersection of economics, behavioural economics and public policy

American Economic Journal: Economic Policy

American Economic Review

American Journal of Economics

Applied Economics

Cambridge Journal of Economics

Economic Policy

IMF Economic Review

Journal of Contemporary Accounting and Economics

Journal of Economic Behaviour and Organisation

Journal of Economic History (Behavioural Economics)

Journal of Economic Literature

Journal of Labour Economics

Journal of Law and Economics

Journal of Public Economics

Journal of the History of Economic Thought

Review of Economic Studies

European Journal of Social Policy

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