The advancement of behavioural insights and its challenges for effective policy tool design

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Abstract

Behavioural insights are becoming increasingly popular with policy practitioners. Findings and methods originally provided by cognitive psychology and later behavioural economics have found use in the formulation of public policies. Their most popularised application has emerged under the auspices of Libertarian Paternalism in the form of 'nudging'. Its proponents claim to provide a new instrument to facilitate the formulation of effective and evidence-based policy, taking people's actual behaviour into account from the outset, while preserving their liberty to choose. This paper reviews the origins of Libertarian Paternalism and the behavioural insights it builds on, and takes a critical look at the normative foundations nudging relies on as a policy tool. It also discusses the ongoing efforts to build policy capacity to integrate behavioural insights and experimental methods in the creation of public policy. While behavioural insights offer a powerful tool to re-shape and design new evidence-based policy, designers – and the targets of those policies – should be aware of the distinctly normative basis that many of the most celebrated examples of nudging come with despite their empiric appearance.

Keywords:

Libertarian Paternalism; Nudging; Behavioural Economics; Heuristics and Biases; Policy Effectiveness

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1. Introduction

In designing policy, the behaviour of citizens has commonly been modelled under the assumption of rationality, providing a coherent framework to analyse the effect of policy interventions and to predict their social outcomes. However, the assumption of rationality is being challenged as foundation for the analysis and prediction of behaviour in the social sciences. People tend not to act like *Homines Oeconomici*, but face limitations in their decision-making leading to predictable errors. A large literature empirically explores these errors and the cognitive mechanisms causing them (see e.g. Kahneman and Tversky, 2000, for an overview of the most relevant works). An early example of the integration of its findings into policy-analysis can be found in the establishment of behavioural economics and law, expanding the traditional economic analysis of policy interventions to include the positive findings of behavioural economics. In the currently most popularised application of behavioural research to policy-making, Richard Thaler and Cass Sunstein promote what they call Libertarian Paternalism. As one of the tools available in this approach, they argue for the use of so called 'nudges' to correct the errors in people's choices through alterations to their choice environment and without restricting their freedom to choose (Thaler and Sunstein, 2008). Nudging, and behavioural research more generally, has resonated well with policy-makers. The suggested use of behavioural insights, while not undisputed or free of ethical and technical concerns, promises to provide new and improve upon old instruments for policy-makers to design targeted and effective policies.

Parallel to the emergence of behavioural insights, policy-design studies have been shifting from a focus on rational instrument decisions in abstract or idealised policy-making circumstances towards an appreciation of the contextual and real-life factors surrounding policy-making (Capano and Howlett, 2015). As Bali et al. (this issue) discuss, to achieve design effectiveness, the designers need to be able to anticipate what will happen during policy implementation and the effects of the available and often competing policy instruments to reach the intended policy outcome (see Howlett, 2000, 2005; May, 2012; Öberg et al., 2015). In doing so, the instrumentality of policy interventions may be improved by applying behavioural insights throughout the different stages of the policy-formulation process. However, the emergence of concepts like Libertarian Paternalism and its use of tools such as nudging raise questions on the normative basis of policy interventions, and on the legitimacy of necessary adaptations to existing policy capacity for designing and implementing behaviourally grounded policy.

This review takes a critical look at the use of behavioural insights as a normative base for

the use of policy tools like nudging. Given the diverse streams of literature involved in the debate, it must be stressed that it is selective in nature. It introduces the most debated concepts and shows their relevance for policy design. It also highlights current efforts to increase the policy capacity of governments and bureaucracies to use the empirical methods of behavioural research to re-shape existing policy tools. With the increasing interest of policy-makers, the use of behavioural insights in the design of policy will undoubtedly grow further. It is therefore important to discuss the difficulties that come with the implementation of behavioural insights and methods. In particular, policy-makers – and the targets of those policies – should be aware of the distinctly normative basis that many of the most celebrated examples of nudging come with despite their empiric appearance.

2. The traditional view of behaviour in policy-design

In the broadest definition, public policies are a political actor's main tool to prescribe or alter the behaviour of agents and citizens. They are devised in the context of existing laws, institutional and constitutional boundaries, and other guiding factors such as the encouragement of active citizenship.[1] Policy-design thereby refers to the centrally planned efficient and effective development of policies to reach the goals specified by governments.[2] In those instances when an active design-process is followed, governments have various instruments at their command to implement policies. Their common denominator is a notion of control of collective action to reach specific targets and goals (Bobrow and Dryzek, 1987; Salamon, 2002; Schneider and Ingram, 1990). They are "concrete and specified operational forms of intervention by public authorities" (Bemelmans-Videc et al., 1998, p.4), targeted at either the public at large, parts or sub-groups of society, specific organisations, or foreign targets. The consideration of certain instruments as a valid means thereby depends on the form of governance, ideology, cultural norms, socio-economic differences, and public opinion. The same policy problem can be met with a range of possible instruments and their perceived legitimacy will vary with circumstances (Howlett, 1991, 2005; Klein and Marmor, 2008; Salamon, 2002). At the same time, when trying to anticipate the effectiveness of a policy design, its designers need to be able to understand and predict the functioning of the available instruments in achieving the desired political and

[1] See Page (2006) for a more differentiating discussion of the term 'policy' and its different levels of meaning.

[2] Of course, not all policies can be thought of as a result of conscious design. Many are simply the outcome of ad-hoc decision-making, bargaining, or other 'non-design' processes (Capano and Howlett, 2015; Howlett, 2014). This paper abstracts from these instances to the benefit of a deliberate design-process.

policy outcomes (Bali et al., this issue). In particular for estimating the effects on the latter, the expected reactions and behaviour of the policy targets are crucial.

Ranging from coercive to supportive, various instruments try to influence behaviour differently (Schneider and Ingram, 1990). Regulatory instruments define clear specifications and standards for desired behaviour, consequences in case of non-adherence, and provide a system to enforce those consequences (May, 2012). Inducements encourage or discourage specific behaviour in more context-dependent situations through incentives and sanctions. They are an accepted means to reach goals in areas as varied as the control of firm behaviour all the way to correcting the social behaviour of individuals with regard to safety, health, and well-being. Finally, some instruments influence the ability of people to make decisions. People may face barriers in the form of lack of information, skills, or resources. Knowledge and capacity tools, for instance, "[...] provide information, training, education, and resources to enable individuals, groups, or agencies to make decisions or carry out activities." (Schneider and Ingram, 1990, p.517). The boundaries between the different approaches are, however, not always clear-cut and mixes of different instruments are common.

Importantly, the underlying assumption in using these instruments has traditionally been the rationality of their targets. Rationality may be seen as substantive or procedural (Simon, 1986). Substantive rationality is only concerned with the goal a decision-maker may have and the external environment in which a relevant choice needs to be made. The void between the goal and the external environment is filled with a set of normative rules of choice (Jones, 1999). In this line of thinking, rational choice theory, which can be traced back to Bernoulli (1738/1954) and has been formally axiomatised as expected utility theory (EUT) by Von Neumann and Morgenstern (1947), has been the bedrock of decades of decision modelling in economics and political science.[3] EUT and its descendents take axioms such as complete, reflexive, and transitive preferences as basis for a deductive analysis of the decision-making of self-interested agents.[4] In a critique of this approach Herbert A. Simon (1955; 1957) pointed to the empirical failings of EUT in describing and predicting people's actual behaviour. He introduced the concept of bounded

[3] Views on the emergence of rational choice theory and its implications for the development of economics and political science differ between the disciplines. For a political science focused summary of common rational choice theories see Jones (2001). See Amadae and Bueno de Mesquita (1999) for a review of their development and use.

[4] The concept of the self-interested agent obviously pre-dates EUT, and is often traced back to Adam Smith's self-interested butcher, brewer, and farmer (Smith, 1776/2010, p.9-10) and to the works of John Stuart Mill on political economy. The term 'economic man' and its Latin form *homo oeconomicus* arose in the early nineteenth century as criticism of such an understanding of human interests, see Oxford English Dictionary and Pareto (1906/2014).

rationality, which takes a procedural view on decision-making. People intend to act rationally, but are constrained by internal limitations (like capacity constraints to deal with information, limited predictive ability, and inability to ascribe pay-offs to outcomes) leading them not to optimise their choices as under EUT, but to rely on reasonable approximations of (or as Simon termed it to 'satisfice') their goal. The criticism of rational choice theories as being at odds with actual human decision-making is at heart a negative statement about the former. While the lack of a unifying theory of decision-making without rational choice has remained an important caveat, the recognition of the disengagement between rational choice and actual decision-making has sparked interest in positive research on behaviour.

3. The emergence of behavioural insights

While terms such as behavioural insights, behavioural economics, and nudging have become popularised, it is necessary to provide an overview of their distinct meanings. Their potential applications to policy-making depend on the interpretations given to their findings and to the methodologies they use. To fully appreciate the opportunities behavioural insights offer, it is worthwhile to describe their origins and to highlight where along the way the debate came back to their influence on normative and positive aspects of policy-making, respectively.

Initially, work in (cognitive) psychology identified anomalies in the decision-making of individuals (see Kahneman and Tversky, 2000, for a collection). Early studies uncovered a range of heuristics, or mental short-cuts, people use to arrive at decisions when faced with complex situations or an overload of information. While it is important to note that such heuristics provide an important tool in complex environments and intuition can be "powerful and accurate" (Kahneman, 2003, p. 1450), they can lead to bias. Three classes of biases are particularly relevant. First, people do not handle probabilities very well as demonstrated by, for instance, *anchoring*, *overconfidence*, and *availability* biases (see for instance Tversky and Kahneman, 1974; Kahneman, 1992).[5] Second, people respond differently to the same information depending on how it is presented. A textbook example in the context of decision-making under risk is the presentation of outcomes of a heart surgery. Imagine your doctor tells you either of the following:

[5]The anchoring bias describes people's tendency of overweighting initial (and potentially irrelevant) pieces of information regardless of their probability of occurrence in making (numeric) judgments. Such behaviour has been shown to influence housing prices (Northcraft and Neale, 1987), consumer's willingness to pay for products (Ariely et al., 2003), and salary negotiations (Thorsteinson, 2011). Overconfidence is mostly related with the overestimation of the accuracy of one's own estimates or of one's own performance. It is rooted in a bias in the estimation of subjective probabilities. The availability bias describes people's tendency to overestimate the probability of events for which they can easily recall an example. For instance, the rate of airplane crashes.

> Five years after surgery, 90% of patients are alive.
>
> Five years after surgery, 10% of patients are dead.

Multiple studies have found people to respond substantially more favourably to surgery in the survival frame than in the death frame (see Moxey et al., 2003, for a review). Such *framing* can substantially alter choice behaviour and lead to preference-reversals (Tversky and Kahneman, 1981, 1986, 1992). Third, people tend to make *time-inconsistent choices* by giving too much weight to the present and neglecting future events. They procrastinate, have a tendency towards inertia (to accept the environment in which they are as a fixed given), and show a *status-quo* bias in making risky decisions. Kahneman and Tversky (1979) show that choices are dependent on a (according to Kőszegi and Rabin (2006, 2007) endogenous) reference point against which they are evaluated, and that people feel losses more than gains. The current state then often seems the safer option.[6]

Two outcomes of this line of inquiry must be mentioned here.[7] First, the discovery of heuristics led to a better understanding of the different processes that underlie human decision-making. While intuition and heuristics help us to cope with complex environments in a 'quick and dirty' fashion, and yet allow us to reach good outcomes (Gigerenzer and Gaissmaier, 2011), we are equally capable of targeted and effortful reasoning. This duality has been explored in the psychology literature in two-process theories (Epstein, 1994; Evans and Over, 1996; Sloman, 1996). While differences in classifications exist, the first process is commonly seen as fast, automatic, effortless and emotional, whereas the second is slow, controlled, effortful and rule-governed. They have been termed System 1 and System 2 thinking, respectively (Stanovich and West, 2000). Because this distinction is important in light of the application of behavioural insights, it is worth quoting Daniel Kahneman (2003, p.1451) at length on their original meaning:

> The difference in effort provides the most useful indications of whether a given mental process should be assigned to System 1 or System 2. Because the overall capacity for mental effort is limited, effortful processes tend to disrupt each other, whereas effortless processes neither cause nor suffer much interference when combined with

[6] See Gilovich et al. (2002); Kahneman and Tversky (2000); Loewenstein et al. (2003) for extensive collections and reviews of research further exploring and refining the understanding of these phenomena.

[7] Note that some authors categorise the described and other biases in terms of 'bounded rationality', 'bounded willpower', and 'bounded self-interest' (Jolls et al., 1998). The first two categories roughly mirror the distinctions made above, whereas 'bounded self-interest' captures aspects of altruism, fairness, and reciprocity considerations (see below). Given that particularly the term 'bounded rationality' has been used differently across literatures, I will abstain from its use.

> other tasks. [...] the perceptual system and the intuitive operation of System 1 generate impressions of the attributes of objects of perception and thought. These impressions are not voluntary and need not be verbally explicit. In contrast, judgments are always explicit and intentional, whether or not they are overtly expressed. Thus, System 2 is involved in all judgments, whether they originate in impressions or in deliberate reasoning.

The two-system approach to reasoning, judgement, and decision-making has become a widely accepted and useful tool across disciplines.[8] It has found empirical confirmation in neuroscience, which has shown decision-making to be the outcome of an interaction of two (or more (see e.g. Kurzban, 2010)) processes within the brain. In general, advances in clinical methods have provided new avenues for research on decision-making, moving from analysing the expressed choices of people to the underlying cognitive functions of the brain (De Martino et al., 2006; Camerer et al., 2005; Sanfey et al., 2006; Sanfey and Chang, 2008).[9] I will return to the two-system theory of reasoning below.

Second, the insights and methods of this line of research have been adopted and advanced by behavioural economists.[10] Many behavioural economists concern themselves with relaxing assumptions required for strict interpretations of rational choice, but do not challenge its function as a useful device in creating testable and refutable predictions about people's choices. The integration of, for instance, considerations of fairness (e.g. Blount, 1995; Charness and Rabin, 2002), reciprocity (e.g. Dufwenberg and Kirchsteiger, 2004; Fehr et al., 1998; Fehr and Gächter, 2000; Rabin, 1993), or other-regarding preferences (e.g. Sobel, 2005) leads to the expansion of existing theory within a framework of rationality. Behavioural economics uses a positive approach to the behaviour of individuals. By doing so, "there is nothing inherent in behavioral economics that *requires* one to embrace the neoclassical economic model" (Camerer et al., 2004, p.3 fn2, emphasis in original). Exploring the behavioural basis of decision-making leads to better descriptive accounts that can be parametrised, tested (also against the benchmark of rational

[8] Note that Kahneman's quote specifically refers to judgements. However, the implications are similar for decision-making (Sanfey et al., 2006; Loewenstein and O'Donoghue, 2004).

[9] See Felsen and Reiner (2015) for a specific discussion on the potential role of neuroscience in the debate on nudging.

[10] In a turn of tables, some economists argue that behavioural economics is simply a return to the origins of economic theory after venturing off into the neoclassical world of axiomatic rationality. As Camerer et al. (2004, p.5) put it: "When economics first became identified as a distinct field of study, psychology did not exist as a discipline. Many economists moonlighted as the psychologists of their time. [...] For example, Adam Smith commented [1790/2012, p.192] that 'we suffer more ... when we fall from a better to a worse situation, than we ever enjoy when we rise from a worse to a better.' Loss aversion!"

choice models), and eventually used to build new theory (see e.g. Rabin, 1998). Importantly, the adaptation of psychological methods in economics does not necessarily imply a normative statement on the validity of the use of rational choice models in predicting behaviour. As one proponent of rational choice rightly points out, "[...] in theory-making, descriptive accuracy is purchased at a price, the price being the loss of predictive power" (Posner, 1998, p.1559).

Beside the adoption of methods from other fields, the term *behavioural insights* has been coined to describe an approach taking a broader view integrating findings from other (social) sciences such as neuroscience, sociology, and psychology to the analysis of given economic problems and policy-relevant phenomena.[11]

4. The normative integration of behavioural insights into policy

With the emergence of the heuristics and biases paradigm and its absorption into behavioural economics, it also transpired into policy relevant areas such as behavioural law and economics (BLE). In two seminal articles, Jolls et al. (1998) and Korobkin and Ulen (2000) argue for the integration of the positive analysis of behaviour in the formulation of law. With the application of psychology traditionally restricted to issues such as jury judgements, witness credibility, and cases dealing specifically with people with mental handicaps, they argue that the behavioural approach should be applied to inform the effect and content of law on a broader basis. Notwithstanding strong criticism (often similar to the criticism of behavioural economics) of inadequate empirical bases (see Gigerenzer, 2015, and references therein), lack of predictive accuracy, and a failure to provide a coherent theory (Posner, 1998), BLE has brought forth a large body of research. It includes works on interventions into the marketplace, risk regulation (and the institutional setup responsible for it), the justice system, and the inter-relation between law and social norms (Rachlinski, 2011). On a normative level, especially Jolls et al. (1998) open the debate on whether the susceptibility of people to cognitive biases offers ground for a re-thinking of the role of paternalistic intervention in policy.

Policy-making (most dominantly in the United States) is invariably intertwined with the (partisan) debate between libertarian and paternalistic approaches to government. In a world of rational citizens, where the effects of regulatory and inducement policy instruments can be predicted based on a standard model, the question of paternalism is a question of welfare maxi-

[11] In the same vein, and not surprisingly given the origin of the research agenda, Daniel Kahneman (2013) has recently argued for the use of the term *applied behavioural science*.

mization. Different definitions of paternalism may lead to different results in welfare calculations. Under a weak definition, each affected individual must be better-off after an intervention. Strong definitions only require an increase in welfare on average. Importantly, the decision of the policy designer is one of weighting the normative arguments rather than the empirical basis. In a 'behavioural' world, it is argued, the policy designer needs to consider the actual behaviour of people, biased as it may be. Because of cognitive biases, people may not necessarily choose according to their real preferences. Preference reversals are a good example. If a choice is dependent on the frame, then it cannot be seen as indicative of the individual welfare derived from it. Such a 'market failure' requires the intervention of an external 'planner' to arbitrate inconsistent behaviour or incoherent preferences in favour of social and individual welfare-maximizing choices (Bernheim and Rangel, 2009; Camerer et al., 2003).

In an attempt to offer a 'third way' between the classic libertarian and paternalist arguments, Richard Thaler and Cass Sunstein (2003) have brought forward the concept of Libertarian Paternalism. In their eyes, it combines the preservation of freedom of choice valued by libertarians while simultaneously allowing "[...] for self-conscious efforts, by institutions in the private sector and also by government, to steer people's choices in directions that will improve their lives." (Thaler and Sunstein, 2008, p.5). In their words (Thaler and Sunstein, 2003, p.175)

> [...] a policy counts as 'paternalistic' if it is selected with the goal of influencing the choices of affected parties in a way that will make those parties better off. We intend 'better off' to be measured as objectively as possible, and we clearly do not always equate revealed preference with welfare. That is, we emphasize the possibility that in some cases individuals make inferior choices, choices that they would change if they had complete information, unlimited cognitive abilities, and no lack of willpower.

In the popularisation of the concept in their 2008 book 'Nudge', they abandon the external and objective measurement of welfare and state the paternalistic aspect of Libertarian Paternalism to be legitimised when an intervention will "make choosers better off, as judged by themselves" (Thaler and Sunstein, 2008, p.5).[12] The libertarian aspect of their programme is satisfied as long as the set of choices is not reduced and any intervention is easily reversible.

Within this approach, they argue that behavioural intervention as a means to achieve policy goals, so called 'nudging', can provide a policy tool satisfying both sides. The cornerstone of

[12] See Sugden (2016) for an in-depth discussion of the concept of 'as judged by themselves' and its application by Libertarian Paternalism.

the 'nudge' movement is the recognition and exploitation of 'cognitive biases' in the behaviour of people.[13] Thaler and Sunstein (2003; 2008) suggest that the environment in which people make decisions is never neutral. It provides a choice architecture which always influences people. Whoever is then in the position to alter the environment becomes a choice architect. Thaler and Sunstein (2008) use the, by now famous, cafeteria manager Carolyn to open their book and to demonstrate the idea as follows. Carolyn is responsible for a large number of school cafeterias and for the way food is displayed to the students. She discovers that the way she arranges the different items can have a large effect on the frequency with which they are purchased by the children. She is now torn between different options. Should she simply distribute the items randomly, maximise the cafeterias' profits, sell off the best positions for bribes,[14] try to match the choices the children would have made themselves, or arrange them so that they are best-off, all things considered.[15] Unsurprisingly, though not explicitly having Carolyn choose it, Thaler and Sunstein (2008) suggest the paternalistic option improving the kids' welfare to be the most appealing.[16]

The reliance of Thaler and Sunstein (2008) on their argument that an intervention is acceptable if the outcome is beneficial to the targets 'as judged by themselves' is both appealing as a political argument for policy and potentially contentious for any policy designer (Sugden, 2016). Under the assumption of rationality, people are unitary actors (see Saint-Paul, 2011, for a discussion). To give an oversimplified example in the context of inter-temporal choice: A person may both want to eat healthily to enjoy a long life, and really want to have that second cupcake now. The utility from the future outcome is weighted today according to the individual discount factor

[13] In their introduction of the theme, Thaler and Sunstein (2008) are unfortunately not always cautious about aligning their examples with their definitions, which themselves are not always clear-cut (Hausman and Welch, 2010). For instance, they present the provision of information as a nudge in multiple cases (e.g. improved labelling to communicate the dangers of smoking or the fuel-efficiency of cars). It is not always obvious how such nudges go beyond classic knowledge instruments (see e.g. Gigerenzer, 2015; Rebonato, 2012). The distinctions between different 'kinds' of nudges will not be discussed in this paper. See, however, Baldwin (2014) and Hansen and Jespersen (2013) for categorisations and discussions of nudges according to their impact on the autonomy of the target and their transparency, respectively.

[14] This is an interesting proposition in a world Thaler and Sunstein (2008) construct to show that the intervention itself would be highly effective and argue that governmental choice designers ought to be trusted.

[15] Note that leaving the arrangement as it currently is does not feature as an option. Thaler and Sunstein (2008) argue that any arrangement is taken to have a large effect, and therefore the current display cannot be neutral either.

[16] This starting point for an argument for paternalistic policies is interesting also for discussing an intervention on, of all possible target groups, children's choices. They are probably the least contentious group to argue for paternalistic intervention (as the origin of the word may suggest) and the least appropriate to be steered towards choices that make them 'better off, as judged by themselves' (Thaler and Sunstein, 2008, p.5). For completeness, it should be mentioned that an earlier version of the example features adults as customers (Sunstein and Thaler, 2003). See Rebonato (2012) for a more detailed discussion of this and other examples.

the person applies and the temporal distance (see Frederick et al., 2002, for a review on inter-temporal choice models). This utility is compared to the immediate gratification from having the second cupcake. The observed choice of the person to either have the cupcake or not is the revealed preference indicating the result of this decision-making process. Based on the revealed preferences of people, the externalities their preferences create,[17] and their welfare implications, the question whether (paternalistic) policies should be instituted to increase social welfare is one of analysis and normative considerations. In this case for example by obliging, incentivising, or informing people of the benefits to eating healthily. Behavioural research has shown that people discount future events time-inconsistently and are present-biased (O'Donoghue and Rabin, 1999, 2000), i.e. they discount future events too much and disproportionally tend to prefer immediate gratification over delayed (but larger) benefits (Frederick et al., 2002). The future self comes to regret the decisions of the present self. Thaler and Sunstein argue that people's decisions thus not only create externalities, but also 'internalities'. They see the individual split into two selves along the lines of the two-process theories of reasoning. The automatic and emotional self of System 1, which operates unconsciously, and the self-aware and reflective self of System 2. In their view, the bias-prone System 1 decisions negatively impact (i.e. have internalities for) the reflective System 2, which, given the chance, would have come to non-biased decisions. Importantly, internalities not only occur in an inter-temporal context, but for any biased decision. In their distinction between the two selves, Thaler and Sunstein without an empiric justification go much further than most psychologists, neuroscientists, and behavioural science researchers. The latter generally see the two (or multiple) systems as far less clear-cut and as more interlinked and co-dependent. Thaler and Sunstein argue for the decisions System 2 would have made as guiding the use of nudges to counteract the 'sabotage' through the biases experienced by System 1. Their approach sees the two systems as far more distinct and independent.

A multitude of different nudges in various areas of life have been suggested so far. Two examples may illustrate their general approach: framing social norms and default rules.

Environmental protection is an important topic and energy consumption is a classic example for externalities difficult to regulate through policy. In an experiment to nudge people to reduce their electricity use, private households were sent information on their energy consumption during the preceding weeks. One part of the sample received factual information on their use,

[17] In the case of an unhealthy diet for example the costs of increased health care spendings to treat obesity and related health issues.

a comparison of their usage with that of their neighbours, and information on how to reduce consumption. The other part received the same information with an additional visual stimulus in form of a smiley face (happy if the consumption was below average, sad if it was above) to make the social norm more salient. The factual information led those who were above average to reduce their consumption, but had a boomerang effect for those consuming below average. It signalled that they could use more and still do well in comparison. Including the smiley face eliminated this boomerang effect (Schultz et al., 2007). The effects of such interventions seem to be substantial and comparable to rather high (in one instance an estimated 11-20 percent) short-run price increases (Allcott, 2011). However, they may be ineffective or even backfire if the underlying norms are not shared by the entire target group, as Costa and Kahn (2013) find when political conservatives in the U.S. were nudged to save energy.

Default rules are a good example of the notion that choice architecture is never neutral. Germany and Austria are arguably quite similar in terms of norms and culture. Yet, only about 12 percent of Germans are organ donors, whereas almost 100 percent of Austrians have agreed to have their organs used after their death. The most important influence on the decision whether or not someone volunteers their organs seems to be the default rule. When it is an opt-in scheme and people need to actively consent (even if only by ticking a box), the rate is much lower than it is with presumed consent in an opt-out scheme (Johnson and Goldstein, 2003). One can argue in the case of organs that any effort to change the default may outweigh the benefit, given that one will not be affected by the choice any more when the time comes. However, similar mechanisms have been widely discussed for retirement savings, which one would hope to still be able to enjoy. Saving optimally for retirement is an analytically complex issue. It requires at least an estimation of the remaining lifespan, foresight of the circumstances one expects to be in – including the anticipated income flows and investment opportunities – and changes to one's preferences. The emotional System 1 may find it easy to over-rule the more reflective System 2. Even if an optimal retirement plan exists and can be found (a technically daunting exercise), one also needs the willpower to stick to it. Two striking examples in which nudges can benefit the individual are the initial take-up of a savings plan, and the adjustment of the savings rate over time. Madrian and Shea (2001) show that automatic enrolment for savings plans at U.S. companies drastically increases the participation rate. Employees also tend to remain with the default allocation of funds to different investments. Inversely, Benartzi and Thaler (2007) describe a UK case in which half the employees fail to sign up for an opt-in savings plan that has the full contribution paid by the employer. A missed free lunch, if ever there was one. The

libertarian paternalistic course of action would clearly be to change the default rule to automatic enrolment, but to leave the well informed employee the option to opt-out if they prefer to for any reason. To increase the (retirement) savings rate once an individual has decided to take up a savings plan, Thaler and Benartzi (2004) propose the Save More Tomorrow^{TM} programme. It is designed to help people overcome their lack of willpower by pre-committing to increases in the savings rate with future wage increases. They never see their *nominal* wage go down, but consistently save more. While such pre-commitment achieves the goal of increasing the savings rate, it is disputed whether the exploitation of the common confusion between nominal and real wages is actually in the interest of the nudged individuals as their consumption preferences may be negatively affected (see Rebonato, 2012).

In general, defaults suffer from a range of methodological drawbacks. They may be inefficient because, by the same behavioural biases exploited by the nudges, they tend to be sticky. In the example of retirement savings plans, an individual may get nudged into signing up, but without further intervention the default savings level may not be appropriate for that person. Because the default level used in the scheme reported by Madrian and Shea (2001) was rather low, it stands to reason that the savings rate decreased at least for some participants, reducing the benefit of the intervention.[18] The savings level may also not be adjusted over time when an initial default is chosen due to inertia or lack of willpower. In addition, and true for nudges more generally, for someone who lacks a clear preference on an issue, Thaler and Sunstein's reassurance of leaving the choice set unrestricted is not convincing. When the proposed nudges are indeed as effective as claimed, leaving an opt-out option for the more rational decision-maker will for most people be ineffective. The libertarian paternalistic nudge becomes simply a paternalistic intervention (Mitchell, 2005). As Pete Lunn (2014, p.45) argues in his report to the OECD: "Designing a good policy is made more awkward by the fact that the reasons why defaults are so powerful are not fully understood." Defaults may work because they i) are seen as a recommendation by the authority that determines them, ii) signal the choices of others, iii) help the procrastination or inertia of the chooser, and iv) act as a reference point against which other choices are evaluated. As long as it is not clear which factor drives the behaviour in each specific case, resulting policies may be sub-optimal. One potential solution is mandated choice. Forcing the chooser to make a decision may remove some of the concerns with hidden defaults. While it has been shown that mandated choice brings the number of organ donors closer to the observed rates under

[18] See Mullane and Sheffrin (2012) for a further discussion of the backfiring and ineffectiveness of nudges.

opt-out systems (Behavioural Insights Team, 2011), it can also have detrimental effects when the decision is more complex, as Sweden was unfortunate to discover when it left people the open choice between hundreds of different retirement funds (Thaler and Sunstein, 2008, p.151 ff.).

4.1. Criticisms of nudging

The approach of Libertarian Paternalism is a very distinct form of applying behavioural insights to policy. It relies on the same empirical research as behavioural economics, but takes a much more pro-active role in interpreting the observed biases as a foundation for paternalistic intervention. In particular, it takes them as a mandate to implement policy to reach normatively defined goals through behavioural instruments. As such, it often overlooks the availability and suitability of classic policy tools (Bubb and Pildes, 2014). Many criticisms have been brought forward against nudging, most fiercely by libertarians who do not agree with the claim that Libertarian Paternalism is choice-preserving (e.g. Mitchell, 2005). It is worth highlighting those particularly relevant to the designer's decision to use nudges rather than to rely on established tools.[19]

4.1.1. Two-system thinking revisited

The sharp distinction Thaler and Sunstein (2008) make between System 1 and System 2 allows them to argue that the non-biased choices of System 2 should be adhered to. As in the case of externalities, there are two parties whose concerns may be given different weights. It is in the interest of, say, the industrialist not to pay for the (non-taxed) pollution caused by a factory, but it is in the interest of the neighbours to have a clean environment. In the case of internalities, it is in the interest of System 1 to have that cupcake now, and in the interest of System 2 to enjoy a healthy old age. Instead of applying a case-specific welfare analysis as would be done with externalities, Thaler and Sunstein set the weight for System 1's interests to zero throughout. This approach comes at a price. Under the assumption of rationality, a policy designer can observe the revealed preferences of people. Policy can then be designed in accordance to those preferences as a baseline. Libertarian paternalists do not have this baseline available. Whatever decisions individuals enact may to any degree be a product of the error-prone System 1, which ought not to be taken into account for the formulation of the policy goal. The conflict between the two selves in forming preferences is not solved but replaced by an assumption, which, in perfect circularity, requires System 2 to be (at least close to) the

[19] See Rebonato (2012) for a rather comprehensive overview.

Homo Oeconomicus: Only those preferences should be taken into account that System 2 reaches after being removed from stimuli, having ample time to deliberate, and being able to rationally analyse the options (Rebonato, 2012; Schnellenbach and Schubert, 2015; Whitman and Rizzo, 2015). However, while a nudge moving people towards healthier lifestyles may seem like a good idea, individual welfare may be more dependent on the (emotional) contributions of System 1. As Mitchell (2005, p.1268) argues:

> Many may agree in the abstract that better health is preferable to worse health, but when the choice is framed as enjoying life-shortening but intensely pleasurable vices during ones college days versus abstaining during college to gain a couple of extra boring years at an advanced age, then better health may not look quite as good.

Even if the preferences of the internal *Homo Oeconomicus* are accepted as those that should be followed, it is not clear that they should serve as an argument for paternalism. Similarly, It is not necessarily clear that heuristics (i.e. listening to System 1) necessarily lead to inferior outcomes (Gigerenzer and Brighton, 2009; Gigerenzer and Gaissmaier, 2011). In the initial works of Tversky and Kahneman (1974) heuristics were seen as powerful devices. However, the biases they can invoke have been at the center of attention in academic and popular writing, which in turn have increasingly been labelled as cognitive errors. The now all too common approach to equate heuristics and System 1 thinking with error and sub-optimal decisions overstates the original claims. Alternative accounts of heuristic decision-making see it as less automatic than the two system view would suggest(see Kruglanski and Gigerenzer, 2011), and even as learned behaviour rather than cognitive error (Goldstein and Gigerenzer, 2002; Grüne-Yanoff and Hertwig, 2016).Instead of taking heuristics as a burden, a more fine-grained, context-dependent, and case-by-case analysis may be warranted when designing policy.[20]

4.1.2. The equal incompetence assumption

Thaler and Sunstein (2008) claim nudges to be choice-preserving by leaving people the possibility to opt out or to make their own choices from an essentially unrestricted set of options. If you do not want to save for retirement, you can opt out of the plan. If you do not like the healthy fruit displayed in a convenient spot in the cafeteria, you can go looking for the sweet dessert. Mitchell (2005) argues that the assumption of rationality gets replaced by an assumption

[20]There is an ongoing debate on debiasing as a preferable approach to nudging to maintain freedom of choice and limit paternalistic intervention in response to cognitive biases, see, for instance, Gigerenzer (2015); Mitchell (2005).

of equal incompetence: people need to be seen as systemically 'falling prey' to cognitive biases to justify the actions of a 'planner' to rectify the misled decisions of individuals to increase their (and social) welfare. Empirical research supports the view that not all people are equally rational or irrational. Education, training, and debiasing can substantially reduce the susceptibility to biases.

In the case of the cafeteria, Thaler and Sunstein (2008) suppose that it is generally preferable to live healthily and therefore to have the fruit and not the dessert. Why this norm is superior in terms of individual welfare or necessarily and systematically economically more efficient is left open. Basing a nudge on norms, like eating healthily not to become obese, can cause a conservative bias in policy-making. Social norms tend to stabilise the behaviour of people by inviting peer pressure on deviators. If a social norm is the basis for policy, it levies an 'emotional tax' on those who do not follow it (think e.g. of the negative societal response to obese people or smokers) without generating any form of tax revenue (Glaeser, 2006). The reinforcement of existing, habitual and potentially welfare sub-optimal social norms thus already lowers the welfare of those who dissent by increasing the allowable level of social pressure (Binder, 2014; Schnellenbach, 2012). It may also lower the welfare of the intended target. If a rational decision-maker, based on coherent preferences, has decided to want that dessert, the nudge imposes an additional cost. Thaler and Sunstein (2008) argue that interventions can only be counted as nudges if they are easily reversible. While they seem to be supportive of a cost-benefit analysis of paternalistic intervention proposed by Camerer et al. (2003), they leave unanswered the questions of what constitutes easy reversibility and how small the related cost must be to count as such, particularly if multiple small costs sum up (see Sugden, 2009).

Even if the cost is indeed negligible, the intervention may still have a redistributive effect. Assuming that the supposed social norm is accepted as a viable basis, a nudge may benefit some, but still harm those who rationally have another preference. As discussed above, the goal of libertarian paternalists is to lead people to decisions they would have made if they had the full capacity to decide rationally. Redistribution away from the already rational, while potentially justifiable on moral arguments like fairness, runs counter to both classic and libertarian paternalist notions of welfare maximisation (Mitchell, 2005; Schnellenbach, 2012).

4.1.3. Legal implications of nudges

An important point in the regulation of behaviour in liberal societies is the preservation of the ability of the target to understand, adjust to, and if necessary contest the regulation.

Any restriction of freedom must be justified and should be as mild as possible (Aaken, 2015). While nudging promises to be a mild intervention, it raises concerns about the target's ability to know whether an intervention is taking place, how it works, and what can be done against it. Thaler and Sunstein (2008) object to subliminal messaging and argue for a public disclosure of nudges. However, it is not clear in how much detail a government should disclose its nudging activities. Is it sufficient to inform of the use of nudges generally, should the exact mechanism be disclosed (risking that the nudge becomes ineffective or even backfires), or are other legal safeguards warranted (Bovens, 2009; Mols et al., 2015; Lepenies and Małecka, 2015)? In either case, a nudge is aimed at altering choice behaviour when the target is not extending enough attention, deliberation, and willpower to the decision at hand. In such a context, it is doubtful that the target will heed a nudge (Baldwin, 2014). The effect size of the nudge is also hard to gauge for the target. In the case of coercion or a tax the effect is clear, but what part of not having that second cupcake can be ascribed to a true preference and what part to the nudge? As Aaken (2015, p.94 (footnotes omitted)) argues:

> This is highly problematic and very different from the transparency requirements for state action. It impacts the rule of law to a considerable degree since law, and measures based thereon, must be public and accessible to those targeted or affected by the measure. This is a prerequisite for them to be challengeable in courts: if the individual does not know she is nudged, she cannot challenge the measure.

Finally, many nudges may be enacted administratively (see Alemanno and Spina, 2014). Beyond the difficulty in estimating the existence and effect of a nudge, this is an additional barrier for citizens to hold their government and representatives accountable (Glaeser, 2006).

4.1.4. The ever benevolent planner

One of the most criticised aspects of Libertarian Paternalism is the role of the social planner (e.g. Gigerenzer, 2015; Glaeser, 2006; Sugden, 2008; Rebonato, 2012). Thaler and Sunstein (2008, p.238 f.) acknowledge that choice architects may want to further their own interests. However, they dismiss this problem rather bluntly. Paraphrasing their argument: just because one has problems with a real architect, one does not stop building more houses, but uses incentives and monitoring devices. They focus on the specific case of interest capture by the private sector and possible disclosure requirements for politicians and bureaucrats to circumvent this possibility. They subscribe to the view that electoral control and oversight should ensure policy to be in line with the public's interest. Unfortunately, their argument misses (intentionally or not) some

fundamental problems. Public Choice scholars have for half a century highlighted the restrictions and costs of controlling public agents (e.g. Buchanan and Tullock, 1962). Even if Public Choice had identified a satisfactory monitoring, incentive, and sanctioning scheme, it would likely rest on the assumption that public agents behave rationally (see Schnellenbach and Schubert, 2015, on why voter behaviour does not give much hope for such a scheme). Together with the rise of behavioural insights on the side of citizens, the actual behaviour of politicians and bureaucrats has also moved in the focus of researchers. Policy decisions may, for instance, be subject to framing effects (see e.g. Kuehnhanss et al., 2015, and references therein) and policy makers may exhibit the same biases as ordinary people (see e.g. Linde and Vis, 2016), and research areas such as behavioural public choice (Lucas and Tasić, 2015), behavioural political economy (Schnellenbach and Schubert, 2015), and behavioural public administration (Grimmelikhuijsen et al., 2017) analyse their behaviour.

When a (libertarian) paternalistic policy is enacted based on behavioural insights, the balance between public and private errors must be considered. Glaeser (2006) argues that private citizens are in a better position to overcome biases through feedback and learning mechanisms than public actors, particularly when the latter are the target for private interest capture. Besides limitations on the decision-making of policy designers, classic concerns such as self-serving motives are not decreased. Why, for instance, should a government refrain from using a new policy tool that can be used rather secretively to solidify its position or promote its preferred policies at lower political costs than traditional deliberation and persuasion (see Schubert, 2017, for a discussion)? Finally, even if a policy designer wants to act benevolently, the two-system approach of Thaler and Sunstein (2003, 2008) aims at maximising the target's individual welfare (however defined), not at increasing the utility a rational target would maximise given the chance. The preferences a person holds, whether coherent or biased, are subjectively ordered and the utility a person gets from their fulfilment are impossible for a third party to judge or even presuppose. Without the instrument of revealed preferences, any intervention is down to the whim of the planner and the definition of welfare that is chosen (Mitchell, 2005; Sugden, 2008).

5. Capacity building and the positive integration of behavioural insights into policy

To transpose behavioural insights from the academic study of behaviour into policy-making, the concept and findings need to be taken into the political and administrative process. If they are to be employed in formulating and implementing policy, the responsible organisations and actors require the necessary competences and capabilities - i.e. the policy capacity - to integrate

them in the performance of their functions (see Howlett, 2015; Wu et al., 2015). A policy capacity framework offering useful pointers for analysing ongoing developments is provided by Wu et al. (2015, p.165):

> Competences are categorized into three general types of skills essential for policy success – analytical, operational and political – while policy capabilities are assessed at the individual, organisational and system resource levels.

While anticipating the success of a behavioural insights informed policy is, as discussed above, not necessarily straightforward, the operational and political capacities of administrations have over recent years been expanded across a number of countries.

After the publication of *Nudge*, Richard Thaler and Cass Sunstein brought their concepts into the public administrations in the UK and the US, respectively, strengthening the organisational capabilities for nudging in those countries. Sunstein became advisor to Barack Obama and in 2009 head of the White House Office of Information and Regulatory Affairs (OIRA), an agency with substantial influence on the drafting and implementation of government policies. In terms of political capacity, clear support came from President Obama in form of the 2011 Executive Order No. 13563. In line with the normative suggestions of Libertarian Paternalism, it urges agencies to:

> [...] identify and consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public. These approaches include warnings, appropriate default rules, and disclosure requirements as well as provision of information to the public in a form that is clear and intelligible.

In the 2015 Executive Order 13707, Barack Obama further directs all agencies to apply behavioural insights to the design of their policies. The question of individual and organisational competences is, however, left open. In 2015 the centralised Social and Behavioral Sciences Team (SBST) was established with support of the Executive Office of the President and has since engaged in the empirical testing of policies (Social and Behavioral Sciences Team, 2016).

Taking a slightly different approach, in 2010 the UK coalition government around David Cameron founded the Behavioural Insights Team (BIT or 'Nudge Unit') based in the Cabinet Office. With Richard Thaler on its advisory board, its central goal is close to the normative approach taken in the US: to "find intelligent ways to encourage, support and enable people to make better choices for themselves." (Behavioural Insights Team, 2011, p.4). The BIT has from the start integrated the empirical testing of potential policy interventions as one of its

core functions. It relies heavily on running randomized-control trials (RCTs) to pre-test policy interventions before policy is based on their recommendations. RCTs have become a favourite tool for behavioural insight teams in government to test different policy designs. An RCT requires the random split of a sample population into a treatment and a control group. The treatment group is exposed to a policy intervention (or a nudge), whereas the control is not. For both groups the behaviour of interest is assessed, and conclusions on the effectiveness of the intervention are drawn based on observed differences between the two groups. Examples of successful RCTs include the increasing of on-time tax payments and payments of fines through social norm nudging (e.g. informing people about the tax compliance rate among their neighbours), testing different information methods to encourage debt re-payments (note that information provision is not necessarily a nudge), and a reduction in the amount of unnecessary prescription of antibiotics by doctors through informing them of their peers' behaviour (Haynes et al., 2012; Behavioural Insights Team, 2016). When carried out properly, RCTs provide a strong argument for the (non-)effectiveness of the tested interventions. While also a common methodology in, for instance, medicine, and increasingly in the social sciences, RCTs are not without problems. Even if randomisation is done properly, they can face severe selection problems, statistical inferences may not be straight-forward, and the validity of the findings is easily overestimated (see Deaton, 2010; Deaton and Cartwright, 2016). Gigerenzer (2015) points out that the effectiveness of nudges may also be overstated through a publication bias. Successful RCTs and interventions may gain a disproportionate amount of attention. In its report on behaviour change, the House of Lords' Science and Technology Select Committee (2011) criticized the UK government for overly relying on novel behavioural interventions, even if little tested. The report argues that the empirical testing of behavioural interventions is usually not representative enough of the entire population and that other traditional policy instruments are neglected in the analysis.

Following the lead of the United States and the United Kingdom in bringing nudging into the political sphere and improving the corresponding policy capacity, other countries such as Australia, Canada, Denmark, France, Germany, Saudi Arabia, and Singapore have started to consider and build similar structures. The OECD has also shown interest in behavioural insights (Lunn, 2014).

The European Commission provides a good example of capacity building for integrating behavioural insights into evidence-based policy-making efforts. It began applying behavioural insights in 2009 with the Consumer Rights Directive, limiting the allowable use of default rules by companies in consumer contracts. The directive was followed by a court case against Microsoft

and its default installation of its own proprietary internet browser, demanding consumers be given a mandated choice during installation. Since then, the Commission has set up a framework contract for conducting behavioural studies and the Joint Research Centre of the European Commission (JRC) launched its own Behavioural Insights Unit. It has created a useful taxonomy for the application of behavioural insights to policy (Lourenço et al., 2016, p.6):

> [...a] classification of initiatives according to whether they are behaviourally-tested (i.e. initiatives based on an ad-hoc test, or scaled out after an initial experiment), behaviourally-informed (i.e. initiatives designed explicitly on previously existing behavioural evidence), or behaviourally-aligned (initiatives that, at least a posteriori, can be found to be in line with behavioural evidence).

The same report identifies more than 200 policy initiatives (at least partially) based on behavioural insights in 32 countries.[21] Many of these cases do not drastically alter the regulatory approach, but include a behavioural component that makes an existing policy tool more powerful, such as the above mentioned personalised reminders to pay taxes on time. They do not alter the underlying laws and incentives, but still have positive effects, such as increasing tax revenues at little cost.

To strengthen individual capabilities, the European Commission has, for instance, offered a summer school in behavioural economics for policy-makers and issued guidelines on applying behavioural insights (Van Bavel et al., 2013). Similarly, the UK BIT has developed a guide called 'MINDSPACE' to popularise the most robust behavioural insights among policy makers (Behavioural Insights Team, 2010; Dolan et al., 2012). While the above examples highlight a centralised approach to building policy capacity for behavioural insights, the hiring of behavioural economists throughout administrations (and in particular for market analyses) is becoming more frequent. In some countries, for example Norway and Denmark, non-governmental organisations have also started to actively promote behavioural policy-design (Lunn, 2014).

6. Conclusion

Given the considerable political support, the use of behavioural insights in the design of policy will likely only increase. However, the term comprises a wide range of different practical

[21] See `http://blogs.ec.europa.eu/eupolicylab/portfolios/biap-country_overviews/` for an actively maintained overview.

approaches and different normative starting points. On the one hand, behavioural economics and the use of scientific methods to understand, for instance, consumer behaviour have led to stronger consumer protection in the EU. On the other hand, the use of, in particular, nudges by governments to steer citizens' behaviour towards social goals has met criticisms ranging from the very derivation of its normative justification (Whitman and Rizzo, 2015), to concerns over legal implications and privacy (see Kapsner and Sandfuchs, 2015, for the latter point of critique).

In this context, it is a particular challenge to anticipate the success of policies down the line and respond with design effectiveness. With decision-makers themselves subject to the use of heuristics and their related biases, and with the success of nudges being an empirical question both before and after implementation, pre-empting potential problems and different contexts in policy design is difficult. Nevertheless, designs allowing the degrees of freedom necessary for systematic empirical testing may be effective if sufficient safeguards for issues such as legitimacy and accountability are implemented.

Current developments, however, do not seem to fulfil the latter criterion. While operational capacity building is ongoing and more policy interventions are based on behavioural science results, the options for citizens to know about, engage in, and contest behavioural interventions do not seem to follow suit. Stated as one of the main functions for citizens to be sure that Libertarian Paternalism does not turn into straight paternalism (Thaler and Sunstein, 2008), public oversight has so far been limited to the issuance of often not very detailed reports about RCTs after completion. To the best of my knowledge, nudges and their normative justifications have yet to come under legal scrutiny.

This review has focused on the origins of behavioural insights and their use in policy to steer the behaviour of individuals. An entirely different aspect will be their role in regulating firm behaviour, and in shaping the environment in which firms operate and can make use of behavioural policy interventions (see, for example Barr et al., 2012). Much remains open to debate also on the individual level. While Reisch and Sunstein (2016) report strong support for nudges in some European countries, citizens in, for instance, Denmark and Hungary are more critical. Also among Americans, support differs drastically depending on the type of nudge and the dispositions of individuals (Jung and Mellers, 2016). Separating the normative from the positive aspects of behaviourally informed policy design may substantially facilitate the discussion of their further development. It may also again give more weight to the most fundamental discussion (see e.g. Saint-Paul, 2011), of what notion of individual freedoms and preferences policy ought to be built on in the first place.

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