Behavioral-Based Interventions for Improving Public Policies

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Chapter 1
Rethinking the Origin of the Behavioural Policy Cube With Nudge Plus

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ABSTRACT

This chapter goes beyond classic nudges in introducing public policy practitioners and researchers worldwide to a wide range of behavioural change interventions like boosts, thinks, and nudge pluses. These policy tools, much like their classic nudge counterpart, are libertarian, internality targeting and behaviourally informed policies that lie at the origin of the behavioural policy cube as originally conceived by Oliver. This chapter undertakes a review of these instruments, in systematically and holistically comparing them. Nudge pluses are truly hybrid nudge-think strategies, in that they combine the best features of the reflexive nudges and the more deliberative boosts (or, think) strategies. Going forward, the chapter prescribes the consideration of a wider policy toolkit in directing interventions to tackle societal problems and hopes to break the false synonymity of behavioural based policies with nudge-type interventions only.

INTRODUCTION

Richard Thaler, in his acceptance speech of the *Sveriges Riksbank* (aka *Nobel*) *Prize in Economic Sciences*, acknowledged his award by attributing his success to his discovery of 'the presence of human life in a place not far, far away, where [other] fellow economists thought it did not exist: the economy' (Thaler, 2017). And justifiably so! The introduction of nudges, as popularised by Thaler and Sunstein (2009) through their eponymous book, *Nudges: Improving Decisions about Health, Wealth and Happiness*, has revolutionised the toolkit of a policymaker.

Traditional public policy has largely focused on the prescription of regulatory tools and campaigns. In doing so, it has relied on the false belief of a rational man, often referred to as the *Homo Economicus* in common economic parlance. However, man can often be irrational, as has been rightly noted by scholars

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in economic psychology and behavioural sciences; and, thus, seeking behavioural change in citizens with regulatory policies alone, can often run the risk of undermining consumer autonomy and agency, with such paternalism being publicly opposed. Thus, the tool kit of any policymaker must involve behavioural instruments, like nudges, that steer humans into making welfare improving decisions by tapping into their behavioural biases, while restoring liberty.

Nudges, better understood as a tweak in the choice architecture, are conceptually embedded in the framework of *Libertarian paternalism*; paternalistic in steering individuals to make better decisions for themselves while being libertarian in that they preserve the choice-set (and liberty) of the decision maker; as such, nudges can be conceptualised to be non-coercive interventions that retain all available choice alternatives for the decision-making agents; for instance, making fruits more salient by placing them near checkout tills counts as a nudge. However, banning chocolates does not. Nudges are not mandates or sanctions. Neither do these interventions provide any additional financial or economic incentives to alter behaviour, nor do they provide any additional information to aid decision-making processes relative to what is already available to the agents to begin with. A behavioural change through a nudge is brought about only via amendments to the external environment in which an economic agent functions and makes lifestyle choices. Nudges have been shown to be good value for money as they promise relatively large benefits at small costs to public organisations (Benartzi et al., 2017). Furthermore, they are fairly easy to deliver; for instance, Arno and Thomas (2016), in a systematic review, evaluate that nudges reduce obesity by facilitating a 15 percent increase in the uptake of healthier dietary choices, relative to traditional public policy campaigns and measures. The success of nudges is far-reaching; for instance, they have been shown to help people to save more (Thaler and Benartzi, 2004; Cai, 2019), reconcile citizens' short- and long-term goals (Goldhaber-Fiebert et al., 2010) and generate social welfare benefits by reducing overall energy consumption (Allcott and Kessler, 2019).

Nonetheless, as nudges were extensively prescribed, scholars critiqued their application for a variety of reasons; for example, nudges target citizen's biases and heuristics by modifying the choice environment in which they operate, and as such often leave citizens out of the deliberative process, compromising their ability to own and sustain long-term behavioural changes. A nudge is often deemed to be opaque and manipulative, one that co-opts the internal cognitive processes of individuals and overrides their consent. Interestingly, nudge theorists view an omniscient and benevolent policymaker as a central unit in facilitating any socially beneficial change; however, little do they acknowledge the shortcomings of reality in that the social policy planners, in a behavioural world, are also limited by their cognitive abilities and can be motivated by selfish reasons (a.k.a. be rent seeking). But a nudge is not the only available behavioural strategy in the toolkit of the policymaker; other alternative behavioural-based interventions have been proposed that theoretically commit to overcoming these ethical and moral limitations of nudges.

John et al., (2013, 2019a), for instance, put forward the idea of thinks. Unlike nudges that compromise consumer sovereignty, thinks involve large-scale deliberations that enable citizens to own the process of behavioural reforms. These often include citizen forums, large scale behavioural therapies, et cetera. Thinks can, at best, be thought of as schooling techniques that teach individuals how to be better citizens by enabling a transformation to a 'self-guiding society' (John and Stoker, 2019b). Nonetheless, while thinks are morally superior to nudges, they can be very hard to scale-up and as such might fail cost considerations by policymakers. Closely related to the idea of thinks, Hertwig and Grüne-Yanoff (2015; 2017) and Grüne-Yanoff (2018) recommended updating citizens' 'repertoire of skills' by boosting them. Boosts enable individuals to use mental shortcuts (aka heuristics), smartly and effectively; for instance, improving statistical skills amongst individuals can reduce numerical fallacies. Other examples include

hierarchical decision-making schemes like fast and frugal trees, quick rules, and implementation intention schemes. Boosts differ from thinks in that they do not simply school citizens; they equip them with rules to live a smarter (and, better) life by making fewer mistakes.

Recently, however, John (2018) has attempted to reconcile the idea of facilitating greater citizen reflection within the framework of nudges by proposing the idea of a modified nudge called nudge plus. Nudge plus embeds reflective strategies in classic nudges, and as such theoretically promises persistent and sustainable behavioural changes while respecting the autonomy and agency of citizens. Nudge pluses have been operationalised by Banerjee and John (2020); in that they show that the modification of nudges involves a process of perspective transformation in citizens to effectively change their behaviour. These devices are proposed as a hybrid nudge-think strategy, one that facilitates both types of cognitive processes, fast and slow, in achieving a behavioural change. More recently, Löfgren and Nordblom (2020) and Banerjee (2020a) have put forward positive analyses of decision-making that enable policymakers to effectively choose between nudges, thinks, boosts and nudge pluses in any given choice setting; and, as such, overcome the policy conundrum of choosing a first-best behavioural change intervention, contingent on contextual factors.

This chapter advances the scholarly discourse on nudge theory in behavioural public policy by undertaking a systematic and holistic comparison of these different behavioural interventions along several normative and positive directions. In reviewing the work on these interventions, the chapter will revisit the behavioural policy cube posited by Oliver (2017) and show that while nudges and thinks/ boosts belong to different bootcamps of scholars; nudge pluses share collective features of these tools and as such embody a new way of going forward beyond nudges. In this chapter, I will frequently borrow from Banerjee and John (2020) and Banerjee (2020a) to understand the mechanistic design of nudge pluses and understand their operation. This chapter is motivated to familiarise public policy practitioners with a wide range of alternate behavioural-based interventions beyond nudges and address collective action problems (e.g. climate change) by breaking the false synonymity of behavioural change interventions with nudge-type interventions only.

THE BEHAVIOURAL POLICY CUBE AND ITS ORIGINS

Do public policy practitioners have a choice of tools when faced with a problem? As the ardent reader must have guessed from the introduction, yes, they certainly do. For brevity, let's explore this in more detail. Let's assume that Meera works as an official for the Indian government in the department of social care and health policy. Meera, being a public policy practitioner, as part of her first assignment, is tasked to devise a plan to counter excessive smoking amongst young adults in the country. What can Meera do? Meera knows that she has her traditional policy tools at her disposal; for instance, Meera can initiate social campaigns against smoking. However, smoking is a sticky behaviour and Meera understands that there might be socio-cultural connotations associated with smoking. As such, to effectively change behaviour, she is open to other ideas. What else can Meera rely on?

To begin with, she can target demand side contractions by using shoves; she can either use a price regulation such as the imposition of sin taxes on cigarette consumption, or she can seek a smoking ban (in public areas). These regulatory tools are internality targeting and are informed by behavioural economics in that an alteration of price or quantity will reduce the cigarette demand in the country. Nonetheless, these policies are paternalistic as they do not respect one's autonomy and agency. Contrarily, Meera can

decide to use supply-side contractions, one that targets sellers. An example of such a policy is a budge. A budge, for instance, can prevent sellers from adopting tricks that makes smoking, the societal evil, more lucrative.

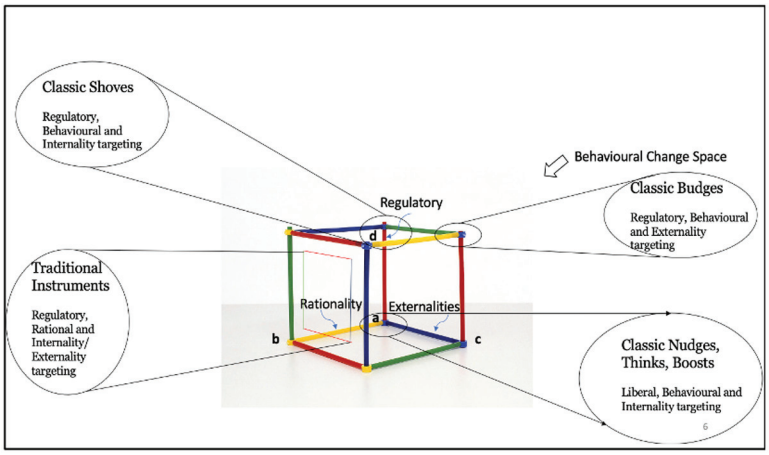
Let's say, however, Meera believes in maintaining consumer sovereignty and wants to rely on behavioural measures that preserve liberty and, in turn, respect the dignity of the consumers. An example of such a behavioural intervention, internality targeting, is a nudge, as discussed before. An example of a nudge in this case is to label cigarette packs to make the smoking risk more salient to consumers. Other examples include reducing the length of cigarettes, although, such a policy would need mandates regulating suppliers to begin with. Alternatively, there could be other behavioural measures as well. Take, for instance, thinks and boosts. Meera can decide to use educative strategies to school young adults about the harms of smoking (e.g. a think) or help them learn quick rules to quit smoking (e.g. boosts) as they do in a rehabilitation centre.

Thus, for every policy challenge, there are a range of available alternatives, that a public policy practitioner like Meera can choose from. Oliver, in *the Origins of Behavioural Public Policy (2017a)*, puts forward an economic framework that helps us in understanding the different legislative tools available to us when faced with a policy challenge. This economic framework, conceptualised as a policy cube by Oliver, is shown in Figure 1. The policy cube encapsulates three core features of the 'libertarian paternalism' framework; namely if an intervention or policy tool is informed by the standard axiomatic assumptions of rational man theory or by insights from behavioural theories, if it is internality or externality targeting, and if it is regulatory or libertarian in nature (Oliver, 2017b). These three features are represented by three main axes of the policy cube namely ***ab***, ***ac*** and ***ad*** respectively as indicated in Figure 1. Movement along a particular axis embodies a particular notion that explains the underlying characteristics of the policy intervention. Consider, for instance, the ***ab*** axis. Movement along this axis, towards the origin, indicates that a policy is informed by insights from behavioural economics rather than being driven by a rational economic model. Similarly, as one moves along ***ac***, towards policies centred at the origin, one is essentially devising policies that are internality targeting rather than being externality focussed. Finally, a movement along ***ad***, towards the origin once again, indicates the libertarian nature of the policy. As such, when a policy maker is centred at the origin ***a*** of this policy cube, he/ she essentially chooses policies that are behaviourally designed, target citizens' internalities and are libertarian in nature.

In Meera's world, these can be easily thought of as nudges, thinks and boosts. Similarly, one can also represent shoves and budges on this policy cube. As defined by Oliver, budges will lie at the edge ***e*** of this policy cube such that they are regulatory and externality targeting yet behaviourally designed. Meera's idea to regulate cigarette sellers would be a budge. Contrarily, the shoves would lie at the corner *d*, such that they are regulatory and internality targeting yet behaviourally designed in nature. Meera's idea of imposing a sin tax would therefore lie in this corner. Finally, all tools facing the ***fbgh*** plane of the policy cube are informed by standard rational man economic theory and hence could be thought of as traditional public policy tools.

In the exposition of the remaining chapter as it follows, it is important to reiterate that I will abstract from the general study of this policy cube and will only focus on the origin of this policy cube i.e. I will unpack the tools that lie at this origin. In doing so, I aim to review and evaluate their features and characteristics while comparing them relative to each other. The latter half of the chapter introduces nudge plus in this origin against nudges, thinks and boosts and undertakes a systematic and holistic review of these behavioural based interventions.

Figure 1. The behavioural policy cube



Classic Nudges

The term *nudge* describes the basic form of behavioural intervention as was set out by Thaler and Sunstein in their eponymous book. The definition of nudge, much cited, "is 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. To count as a mere nudge, the intervention must be easy and cheap to avoid." (Thaler and Sunstein p.6, 2009). Thaler and Sunstein in their original conceptualisation include at least seven different examples of nudging; these include defaults, campaigns, commitments, information mechanisms, transactional shortcuts, improved design strategies and warnings and reminders. Nudges require changing the choice architecture of rules and procedures that, in part, are controlled by governments and other agencies through their command of bureaucratic and legal processes which affect the eventual choices of citizens. However, as nudges were increasingly scrutinised and evaluated over time, scholars pointed out several discrepancies that blurred the classification of what counts as a mere nudge; for instance, Hausman and Welch (2010) and Selinger and Whyte (2012) showed that many earlier examples used by Thaler and Sunstein often did not conform to their ideas of a conventional nudge, and as such these interventions could at best be considered as examples of 'fuzzy' nudges (see Selinger and Whyte, pp 127-128, 2011). Even further, Hansen (2013) classified nudges into four different kinds typified by their distinction of epistemic transparency of the nudge and the system of cognition it worked on. In a similar vein, Baldwin (2014) highlighted the different degrees of nudging. Going forward, to simplify this discussion for readers, I abstract from this scholarly debate on the definition of nudges; in that I adopt Thaler and Sunstein's definition whereby an intervention is considered to be a nudge *if and only if* it modifies the choice architecture keeping all other incentives and information unchanged in the decision context for the economic agent.

Nudges draw on twenty-five years of research in behavioural economics that sought to find the origins of human behaviour in the psychological process to modify a simple rational cost calculation using the Heuristics and Biases (HB) approach. The HB paradigm aligns itself with the view that given our cognitive limitations, we, humans, abide by certain short-cuts (aka heuristics) to reduce our cognitive burden, and as a result often run into multiple biases; for instance, availability or salience bias in that

we tend to make decisions based on what's familiar to us. Nonetheless, the limited cognitive bandwidth of human beings implies that traditional state policy tools, ones that require a high degree of cognitive capacity, such as legal regulation and taxes/fines, are bound to falter. Often, prescribing such policies can cause governments to draw the flak of being called a nanny-state. Classic nudges were argued to be easy to introduce as they do not depend on heavy cognitive processes. As such, it was assumed that individuals will like these kinds of interventions because they help people to get to where they want to go and maintain their autonomy to reject the nudge if they do not want to go along with it.

Nudges promise to retain a faith in rational human action as a desirable state of affairs but acknowledge that people need help to come to decisions that approximate to the process. Nonetheless, they have been criticised to 'work in the dark' and manipulate individuals by making some choices more salient than others (Bovens, 2009; Hausman and Welch, 2010). Whilst Sunstein (2016, 2017) has sought to defend nudges on the account of consent validation, in that, people who get nudged agree with the nudge thereafter; advances in nudge theory have shown that the public palatability of nudges is conditional on its overtness and goals (Reisch and Sunstein, 2016). In line with this, nudges have been recently classified into system (or, type) 1 and 2 nudges. A system 1 nudge is purely automatic in its action, for example a fly in the urinal or an opt-out default; while a system 2 nudge is largely reflective, often dubbed as educative nudges. This bifurcation of nudges gradually paved the way for think strategies that are largely deliberative and, hence, actively involve citizens in the decision-making process.

Thinks

Nudges often fail to sustain the behaviour change achieved. While cost-effective, nudges lack persistence and their effects fade out over time. Recently, Sunstein (2017), in trying to explain why defaults fail, hints that people with strong antecedent preferences can reject a default, while those that have weak or in-transition preferences might be influenced by it. However, this raises concerns for the application of nudges, such that when the policy maker introduces a rent-seeking intervention, it might not be welfare improving for the agent. Nonetheless, in the world of nudges, citizens can avoid being manipulated only if they are watchful of these interventions.

Thinks can help in overcoming these limitations. In democratic theory, a think may be seen as a good for its own sake while more recent applications tie the use of these mechanisms to desirable policy outputs and outcomes and the best decision-making procedures to get to them (Fung and Fung 2004). Examples include citizen juries, deliberative polls, and extended consultation, all forms of citizen governance (John 2009a; 2009b). Such procedures for making public policy are more legitimate if people participate in the actual decision; they may be more effective as they require people to understand the nature of the policy challenge, which might not be delivered by nudges alone.

Thinks, unfortunately, often mentally drain out citizens given their large cognitive demands (John et al., 2013; 2019), and hence are often impracticable for effective interventions. Closely tied to the think is the competing idea of a boost, introduced by Hertwig and Grüne-Yanoff, which embodies easy-to-deliver educative strategies.

Boosts

The *boost* is a class of behavioural policies that seeks to improve the decision-making power (or competence) of an agent. Boosts differ from other behavioural instruments as they are solely directed to

increase cognitive capacity only. As Hertwig and Grune-Yanoff put it, the goal of boosts is to 'improve people's competence to make their own choices and to make it easier for people to exercise their own agency by fostering existing competences or instilling new ones' (2017, p 2). Due to their nature, boosts are based on an alternative psychological theory that discusses why humans depart from fully rational behaviour and show how to improve their decision-making process by upgrading their 'repertoire of decision-making skills' (the adaptive toolbox).

Although Hertwig (2017, p 144) acknowledges that boosts are very similar to think strategies, a subtle difference between the two lies in their conceptual rationales. It is noteworthy that boosts go beyond regular schooling mechanisms, unlike most pure thinks which cause self-reflection through learning. However, in practice it might be very hard to tell them apart. A good example of boosts is an uncertainty management rule to interpret advice given to patients as to how to make good choices, such as over treatments that might vary in the likely outcomes. People find it very hard to understand these probabilities, as Kahneman and Tversky (1982) found in their experiments. But with some training, individual capacity can be increased to make better decisions, hence the idea of calling such interventions boosts.

Rather than being just another device to improve rationality, boosts are based on a different assessment of cognition than nudges. Boosts rely on the idea that people are intuitive and frugal in their use of the minds, and, therefore, interventions need to be targeted to make best use of the common sense that people have innately. With a bit of guidance, people can be taught to be Bayesians, for example. Boosts work within the prism of the Simple Heuristics (SH) approach i.e. agents, given their cognitive burden, choose shortcuts which are often cognitively beneficial but could go wrong at times. However, such biases are not systematic and certainly not always tied to the heuristics. Thus, instead of getting rid of all heuristics, this approach believes in making such heuristics smarter and intuitive to avoid those occasional mistakes. The heuristics work best when the agent's cognitive skill set and their external environment work in tandem, besides being recognizable to the agent i.e. when ecological rationality is reached.

However, boosts assume that all agents have the motivation and competence to benefit from the improved decision-making processes resulting from the boosting mechanism. This is very different to the classic nudge which assumes a 'somewhat mindless, passive decision maker' (Thaler and Sunstein p.36, 2009). More importantly, while the proponents of classic nudge theory view economic agents as 'cognitive cripples', boosts make a sharp departure from this thought process by believing that by changing the environment, or their cognitive skills and abilities (competency), an agent will make better decisions (Grüne-Yanoff and Hertwig 2016). Grune-Yanoff and Hertwig classify them recently into two broad categories: short-term and long-term boosts.

Short-term boosts seek to improve the competence of agents in a specific context or dimension. Contrarily, long term boosts improve the general cognitive ability of the agent, equipping him/her with a unique skill set that can applied in any decision-making context; for instance, consider the uncertainty management rule in the form of recognition heuristic that often gives rise to the 'less is more' effect (Gigerenzer, Todd, and Group 2000). If an American student, who has never been to the United Kingdom, is asked to pick between London or Gloucester as the more populous city, and is told to go by his/her 'gut feeling', the first choice that comes to mind is London since an individual knows less about one of the options, and therefore the obvious choice. This is what Kahneman and Frederick (2002) refer to as the heuristic being 'deliberately adopted by System 2', and it is possible that this rule yields correct answers in a majority.

Short term boosts are hard to tell apart from the educative nudges put forward by Sunstein (2019) such as labelling, warnings, advertisements, and so on. Long-term boosts, on the other hand, are broadly

classified into three categories: literacy boosts, those that improve the probabilistic/statistical numeracy of the agent; uncertainty management boosts, those that help in decision making under unpredictable/uncertain conditions; and motivational boosts, which helps the agent in overcoming behavioural barriers. Different variants of these boosts have been tested in varied settings; for instance, literacy skills have been shown to improve financial decision making (Drexler, Fischer, and Schoar 2014), and quick food rules have helped people in making healthy food choices (Pollan and Kalman 2013).

Nudge Plus

To make deliberative strategies more effective, John and Stoker proposed the idea of nudge plus—a modified nudge that embeds reflection as part of the nudge. Nudge Pluses were recently operationalised by Banerjee and John. As they write, "nudge plus refers to an intervention that has a reflective strategy embedded into the design of the nudge. It can be delivered either as a one-part device in which the classic nudge and the reflective plus are intrinsically combined, or as a two-part device whereby the classic nudge is extrinsically combined with a deliberative instrument that prompts individual reflection on the nudge. Examples include an active mechanism design (e.g. a pledge) or information-signalling combined with an opt-out default" (Banerjee and John, p3, 2020). Both the nudge and the reflective plus are complementary to each other and central in the functioning of the tool.

Nudge pluses are unique in that they are based on a hybrid interaction of cognitive processes; while nudges can be purely automatic (system 1) or reflective (system 2), and thinks are only purely deliberative, a nudge plus combines automatic and reflective thinking by placing the nudge close to the plus either simultaneously or sequentially. Banerjee and John outline several working examples of nudge pluses; these include dual-self pledge devices, GPS enabled devices fitted with AI technology assistants, and other classic nudges (like defaults or labels) combined with information or commitment pluses. While many nudges already have the potential of reflection built in them, the authors clarify that for an instrument to be typified as a nudge plus, it must involve an active reflective trigger.

Whilst a nudge plus promises greater autonomy and agency for citizens, they cannot always guarantee greater effectiveness. Banerjee (2020a) theorises this to be an efficiency-agency trade-off that researchers are yet to empirically validate. Nonetheless, such a positive analysis informs policymakers, who when faced with a policy conundrum to choose from their behavioural toolkit, can make the first-best choice according to the contextual information at hand. This includes the gains of reflection, defined as a 'modification in one's subjective probability' by engaging in the process of attentive thinking, and the importance of the decision-making task as judged by its decision utility; for instance, a two-part nudge plus is theorised to work effectively by increasing the anticipated decision utility only when the policymaker believes that the individual stands to make positive gains of reflection for a marginally unimportant decision-making task.

In the end, it is hard to avoid concluding that the debate about nudge plus and by implication nudge, think and boost turns on a model of cognition to work out what is going on when people are making choices. In the next section, I undertake a systematic comparison of these instruments along nine different dimensions, namely, the psychological paradigm it follows, the cognitive interplay it embodies, the opacity of the instrument, the reversibility of its effects and associated autonomy for the agent, the bias awareness and control it endows citizens with, its relevance to the social planner's information about end goals and benevolence, and lastly the motivation and competence required of the citizen for the uptake of the instrument.

COMPARING NUDGE, BOOST AND NUDGE PLUS

Having reviewed the different behavioural strategies available to the policymaker, how do these differ relative to one another? Table 1 compares them and situates them within the different accounts of cognition which explains their rationales. In doing so, the chapter shows that the way forward is to accept the argument that nudge pluses are based on a more sophisticated account of cognition; in that nudge pluses are truly hybrid policies which combine the best features of reflexive strategies like nudges and reflective ones like thinks or boosts.

To begin with, nudges, boosts and consequently nudge pluses are based on different psychological paradigms. While nudges follow the Heuristics and Biases (HB) paradigm, boosts follow a Simple Heuristics (SH) approach. Although both these approaches begin with heuristics as their cognitive foundation, they differ in their conceptual foundations in justifying our bounded rationality and their associated failures. The proponents of HB presume that all biases are systematic, and that they are usually generalizable across the population in a way that a bias will arise when there is a heuristic that is adopted; contrarily, those motivated by SH deny this by acknowledging that humans follow short cuts, and that they might make wrong decisions at times, but this is not at all systematic. The SH approach believes that there remains no need to co-opt citizens' heuristics, and that their decision making can be improved by simply enlarging citizens' adaptive toolbox. Given that classic nudges and boosts belong to these two different psychological paradigms, it can be easily anticipated that their proposed mechanism differs even if they lead to the same behavioural outcome; for a starting point of this discussion see Hertwig and Grune-Yanoff (2016; 2017) as the authors contrast nudges and boosts along several dimensions.

In terms of adhering to a psychological paradigm, there is good reason to believe that nudge plus is closely aligned to the heuristics and biases approach. Primarily, nudge plus remains an extension of the classic nudge and builds on it by embedding reflective strategies as the plus component. Nudge pluses rest on the coherence of dual process theories which, in essence, are denied by the proponents of the SH program who believe in the malleability of brain processes. This brings me to my next point of difference, the interplay of cognitive processes that define the functioning of these instruments. Research in social cognitive psychology has often classified cognitive processes into two different types: a slow system that is reflective, often dubbed as System 2; and a fast system that is reflexive and intuitive, often dubbed as System 1. As Evans (2007) write, these cognitive processes can interact either simultaneously or sequentially as dictated by the 'parallel competitive' or 'default interventionist' accounts of dual process theories. In the parallel-competitive account, both system 1 and 2 cognition are in a constant tussle with each other in that there is no pre-defined role for a system when faced with a conflict. On the contrary, the default interventionist account is defined by one of the two cognitive systems assuming the role of the rectifier. Nudges closely resemble the latter in that system 2 corrects for the biases in system 1 when faced with a conflict. To steer individuals to make better decisions, nudges make this process easier by tapping into these behavioural biases.

Boosts, on the other hand, differ from nudges in that they are based on a singular, unified cognitive process theory. According to its proponents, both cognitive systems co-exist and function simultaneously, sharing multiple common characteristics, making it hard to have a clearer distinction between them. Banerjee and John (2020) situate nudge pluses closer to the dual processes view. Nonetheless, they posit that nudge plus is based on a hybrid account of cognition, in that it is possible to trigger both simultaneous and sequential operation of the cognitive systems in administering these devices. According to the authors, nudge pluses are rationalised by a sophisticated hybrid model of cognition where the interplay

of the cognitive systems is at best context dependant on the type of behavioural change problem that the policymaker is facing (2020). This leads me on to the third distinction between these interventions, their effectiveness in sustaining a behavioural change, and the way in which they do so.

In thinking about these interventions, we know of classic nudges to effectively change an agent's behaviour (means paternalism), while boosts bring about such a change by improving upon the competences of the agent. In this context, nudge pluses work by changing behaviour as well, but the change is effected twice; first when the nudge is administered and the volitional biases are taken advantage of, and second when the agent is given the autonomy to reflect on the nudge and decide on reinstating the behavioural change induced by it. In doing so, nudge pluses essentially lead citizens down the path of 'perspective transformation' (Banerjee and John, 2020) which entails a process of updating one's beliefs and perspectives when faced with a reflective stimulus. An individual, for instance, when signs a dual-self pledge engages in a feedback loop that helps them to constantly update their perspectives (Banerjee, 2020b). While boosts promise persistent behavioural changes as well, they can differ from nudge plus in their cost-effectiveness and the associated cognitive burden imposed on the subject. However, which works best remains mostly an empirical exercise, and in theory both nudge pluses and boosts can offer persistent behavioural changes unlike classic nudge effects that might eventually wear off.

Interestingly, Banerjee and John (2020) put forward a mechanistic scheme to outline the functional differences amongst these instruments. To explain this, let's consider an example. Consider the characters Joanna and Roma. Joanna has recently finished her presentation for her firm in the city centre and has been visited by her friend Roma, who also happens to be a vegan. Joanna and Roma are now looking to find dinner at a restaurant nearby. The question is, how would they decide on a place, cuisine and a particular meal type? And in this decision-making process, how would a policymaker effectively alter their behaviour, if need be. As it turns, all of this depends, as Banerjee and John write, on a range of factors. One, for instance, includes the dispositional (or, agent specific) traits like one's preferences. Others include situational factors, like contextual cues and information, and the choice construct. Contingent on these factors, Joanna and Roma reduce their choice to a few alternatives which have underlying properties, before finally choosing their meal. In this world of decision making, the authors posit that nudges work by altering the choice construct only. Boosts work by changing the search rules, while regulatory tools (like shoves) work by altering the property set. Finally, nudge plus works by adding on to the nudges, changes in either the dispositional traits or by adding on more contextual cues to the problem at hand (Banerjee and John, 2020).

From their mechanistic scheme, it is clear that these behavioural tools work towards the same goal, but their underlying causal processes are varied. Once effected, it must be noted that both the nudge pluses and the boosts restore the autonomy of the agent and are transparent in their functioning. However, with the nudge plus, some concern must be exercised yet again. While the classic nudge component is opaque and bypasses agency consent, it is only the plus that brings on board such openness. The degree of reflection, however, depends on the magnitude of the plus; thus, the stronger the plus, the greater is the autonomy and transparency of the instrument. This is crucial for two reasons; first, there is trade-off between transparency, autonomy and cognitive burden, and finding an optimal trade-off is necessary, and second, boosts (or, thinks) do not work in all situations, just the same way that classic nudges fail to achieve persistent outcomes.

With greater transparency brought on with a plus in the nudge plus, an agent is made conscious of their biases that systematically repeat with the heuristics i.e. they undergo perspective transformation. In case the policy maker is rent-seeking or blinded by his own biases, any agent who has been administered

with a plus can opt-out of the intervention. While with nudges, only watchful agents can block changes that are deemed unsatisfactory; the reflective element in the nudge plus takes away this cognitive demand for being watchful. Think of the commitment device. A person signs up for the gym membership after they have been given an educative nudge (information regarding the pros and cons of regular exercise). A variant involves the same commitment device but now with an active prompt that asks them to reflect on their future goals. As people sign up for the commitment device and once they are prompted reflect on their future-self, they examine the validity of this commitment weighing all the pros and cons that they have been recently made aware of.

Now let us assume that the policy maker (in this case the dietician) went wrong in prescribing to them a two-week contract nudge when participants actually needed more. As they commit to the exercise for the wrong period, since the habit formation process is already in place, and if individuals are now prompted to reflect on their choices well enough, they might as well continue as long as they feel it's required, or in worst cases reject the commitment device at the first instance indicating that the policy maker has clearly gone wrong. Note in this case, the first response of continuing with the incorrect exercising regime will be successful only if the agent is motivated enough to act on his reflection. This redirects us to the same policy-theory coherence dilemma that was raised in Hertwig and Grune-Yanoff (2017) earlier i.e. nudge pluses also have conditionalities imposed on them for their success[1].

Thus, while nudges reduce autonomy and agency[2], boosts and thinks promise complete autonomy. Nudge plus policies take after the latter in that combining the nudge with the reflective plus offers greater transparency and agency for the decision-maker. Furthermore, in a behavioural world, if the policymaker suffers from cognitive limitations, the prescription of nudges can be welfare-reducing. However, nudge pluses, akin to boosts and thinks, circumvent this concern by allowing individuals to own their process of behaviour change and decide for themselves. In a way, in the world of nudge pluses, the policymaker can be error-prone at times, but that will not lead to doomsday. All of this, however, is contingent on the motivation and competence of the individual, and therefore, nudge pluses place higher cognitive burden than their corresponding nudges.

CONCLUSION

This chapter has introduced public policy practitioners to a range of behavioural interventions that exist in the scholarly literature yet are often left out on in real life policy prescriptions. The origin of the Oliver's behavioural policy cube is far richer than it has been acknowledged for; it certainly extends beyond nudges to include other softer interventions like thinks, boosts and consequently nudge pluses. In enlarging the standard toolkit of the policymakers, this chapter by no means prescribes an imminent substitution of nudges by the alternatives discussed.

Scholarly evidence, sufficiently documented over the last decade, has shown that nudges can work effectively in a variety of settings, and therefore must be retained. Nonetheless, when they fail, other alternatives could have been considered to begin with. As Löfgren and Nordblom (2020) and Banerjee (2020a) theorise in their positive analyses, the choice between these instruments are often contextually dependant, and hence there is a need to break the false synonymity of behavioural based interventions with nudge-type interventions only in enabling policymakers to choose the first-best policy depending on the task at hand.

Table 1. Conceptual Underpinnings of different behavioural policies

Dimension	Classic Nudge	Nudge Plus	Boosts
Psychological Paradigm	Heuristics and Biases	Heuristics and Biases	Simple Heuristics
Cognitive Structure	Dual Process Theory	Dual Process Theory	Malleable cognitive structure
Reversibility	Reversible	Persistent effects	Persistent effects
Opacity	Usually opaque	Transparent with the plus element	Completely transparent
Autonomy	Reduced autonomy and agency	Autonomy comes with the plus element	Complete autonomy
Bias Awareness and Control	No Awareness and Control	Control given with the plus element	Agent is aware and in control of the biases
Social Planner's information about end goals and benevolence	Social planner is assumed to be benevolent and aware of end goals	Social planner must be aware of end goals, but decision is left to the agent. Can be rent seeking	No need for social planner to be aware of the goals. Social planner can be rent seeking
Cognitive error of Social planner	Must not be error prone	Can be error prone	Can be error prone
Motivation and competence of decision maker	Not required. The decision maker is a cognitive cripple	The decision maker must be competent and motivated to act.	The decision maker must be competent and motivated to act.

Note: Columns 1 and 3 as adopted from Hertwig and Grune-Yanoff (Table 1, p16, 2016; Table 1, p2, 2017)

In holistically comparing nudge pluses relative to classic nudges and boosts/ thinks, it is clear that nudge plus is a hybrid strategy that combines the best features of these instruments. A nudge plus closely resembles the classic nudge in that it builds on the heuristics and biases psychological paradigm whereby it relies on the dual process theory of cognition. However, nudge plus is more sophisticated than a simple parallel competitive or default interventionist account. As Banerjee and John (2020) posit, nudge pluses are designed to be hybrid nudge-think strategies that are built on an interactive cognition model, where systems 1 and 2 can be either activated simultaneously or sequentially depending on the context of application.

Furthermore, they go beyond nudges in mimicking boosts and thinks such that they offer greater transparency and respect the autonomy, agency and sovereignty of the decision-makers. Since a nudge plus equips agents to own the process of behaviour change, they, in turn, theoretically promise to lead to persistent effects that do not fade away quickly as is seen with some of the classic nudge applications. An additional benefit of having such inbuilt reflection is the minimisation of an unrealistic expectation from the social planner, who in a behavioural world, can also be error-prone and hence, is not always required to know of the end goals of all citizens. Nonetheless, just like thinks and boosts, nudge pluses require citizens to be goal-oriented, conscientious and motivated to undergo the process of perspective transformation in effecting behavioural change.

Hopefully, in times to come, we will see a greater uptake of these behavioural based policies by public policy practitioners and researchers; for it is only with greater empirical applications that we can sufficiently claim to go beyond nudges with boosts, thinks and nudge pluses.

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KEY TERMS AND DEFINITION

Behavioural Policy Cube: The policy cube encapsulates three core features of the 'libertarian paternalism' framework; namely if an intervention or policy tool is informed by the standard axiomatic assumptions of rational man theory or by insights from behavioural theories, if it is internality or externality targeting, and if it is regulatory or libertarian in nature (Oliver, 2017b).

Boost: A boost improves the competency of a decision-maker by enriching his or her repertoire of skills and decision tools and/or by restructuring the environment such that existing skills and tools can be more effectively applied (Grüne-Yanoff & Hertwig, 2016).

Nudge: A nudge 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 (Thaler & Sunstein, 2009).

Nudge Plus: Nudge plus refers to an intervention that has a reflective strategy embedded into the design of the nudge. It can be delivered either as a one-part device in which the classic nudge and the reflective plus are intrinsically combined, or as a two-part device whereby the classic nudge is extrinsi-

cally combined with a deliberative instrument that prompts individual reflection on the nudge. (Banerjee & John, 2020).

Think: A think is a schooling strategy that involves large-scale deliberations to enable citizens to own the process of behavioural reforms. These often include citizen forums and large-scale behavioural therapies.

ENDNOTES

1 Banerjee and John (2020) cite two necessary and one sufficient condition for the uptake of nudge pluses.

2 Nudges preserve choice set; however, they make some options more salient than the other, leading to claims of being manipulative.