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Nudging the obese: a UK–US consideration

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Abstract: Over recent years, nudge policies have become increasingly popular (if somewhat confused) internationally. This article attempts to clarify what a nudge entails, and critically summarises some of the nudge policies that have been proposed to motivate weight loss in the United Kingdom and the United States. Despite the fact that most of the evidence on nudge-related policy has so far been produced in the United States, and that the leading nudge champions are American, the United Kingdom, at least with respect to considering policy interventions of this kind at the national level, appears to be relatively advanced. That said, nudge interventions remain of marginal practical import everywhere, and are never going to solve completely the obesity problem. Nonetheless, even a marginal effect may extend and improve many lives, a result that would satisfy most behavioural economists.

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Introduction

Over the last several years, 'nudge' policies to motivate behaviour change have formed a topical subject for debate internationally, and perhaps particularly in the United Kingdom and the United States. The term, nudge, was popularised by Richard Thaler and Cass Sunstein in their 2008 applied behavioural economics book, and was intended to signify a type of policy intervention informed by a philosophy that they called libertarian paternalism (see also Sunstein and Thaler, 2003). Other forms of 'soft' paternalism closely mirror libertarian paternalism – for example, asymmetric paternalism, proposed by Camerer *et al.* (2003). Unfortunately, in the recent nudge debate, which has quite vociferous supporters and opponents, the essential features of (let us call it) libertarian paternalism have been to some extent lost.

There is thus a need, we feel, to restate these essential features, as outlined in Thaler and Sunstein (2008). In terms of the broad parameters of the approach,

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'paternalism' is modified by 'libertarianism' so as to mean 'liberty preserving'; i.e., no obstacle should be placed in the way of those who wish to exercise their freedom. It is only paternalistic in the sense that it aims to target those who would, according to their own deliberative judgements, consider themselves better off if they changed their current behaviours, but, due perhaps to habit formation and/or to bounds on their rationality, find it difficult to do so. Hence, the 'soft' paternalism label.

In addition to not forbidding any options that would otherwise be available, nudges only count as such if they do not significantly change economic incentives for the choosers. Thus, if a financial incentive is used to change behaviour, it must be negligible in size, and any intervention must be easy and inexpensive to avoid. Therefore, bans, for instance, do not count as nudges, not least because they also undermine liberty (if whatever is now banned was once not). However, making a product more difficult to purchase, by placing it on a back corner shelf, for instance, may count as a nudge (providing that this intervention is informed by some notion of behavioural economics), because something has to be on the back corner shelf and that location does not prevent anyone from purchasing the product.

Sunstein and Thaler (2003) acknowledge that 'there is a thin line between non-libertarian paternalists and libertarian paternalists'. They point out that 'in its most cautious forms, libertarian paternalism imposes trivial costs'. This language suggests that there are less cautious forms of libertarian paternalism. Any use of the word trivial also highlights the imprecise borders of libertarian paternalism. Thaler and Sunstein contend that a three-day waiting period to finalise divorce is trivial enough to count as libertarian paternalism, but clearly a year-long period is not. However, since, at the margin, no clear line separates trivial waiting periods from non-trivial ones, it will inevitably often be a judgement call as to whether a behavioural intervention qualifies as a nudge, or approaches being something more like a shove.

The libertarian paternalistic approach to influencing policy hones in on affecting choice via the differential framing of contexts, and here its more micro-level features can be understood. Namely, the standard neoclassical *homo-economicus* way of explaining human decision making is relaxed, and the findings of behavioural economics are used to inform the design of policy interventions.[1] By using such findings appertaining to how humans actually do behave, rather than assuming, often erroneously, that people are economically rational utility maximising agents, it is felt that behaviour change interventions can be designed to have a more significant effect than they otherwise might.

Another layer of complexity is added to libertarian paternalism by there being no universally accepted definition of behavioural economics (Heukelom, 2012).

1 Any implied disciplinary imperialism is unintended. We recognise and acknowledge that what are now regarded as the principal findings of behavioural economics were uncovered over many decades by economists and psychologists.

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There is no unified behavioural economic theory at present, and thus behavioural economics can perhaps best be thought of as a set of observations that show that people, in very specific ways, often systematically, and therefore seemingly deliberately, violate the set of assumptions that underlie the neoclassical model. Space constraints prevent a full description of all behavioural economic findings, but it is perhaps beneficial to summarise those that will be further alluded to later in this article.

Loss aversion is the common finding that losses loom larger than gains, to a degree that cannot be explained by the neoclassical economic model. For instance, for many a loss of, say, £50 will cause pain that is likely to be more than double the magnitude of the joy felt when winning £50. Related to this, reference points matter. In standard economic theory, it is assumed that the carriers of value are final 'assets', but empirical observation has discovered that people often care more about what they gain or lose around what they already have, rather than what they end up with. People also tend to overweigh small probabilities, which may explain why individuals often concurrently demonstrate risk seeking (e.g. buying lottery tickets) and risk averse (e.g. purchasing insurance) behaviours, a finding that has proved perplexing for many mainstream economists. Finally, for here, people place a large weight on the immediate moment compared with the future, a finding that has been given various terms including 'hyperbolic discounting' and 'present bias', and while there is nothing in core neoclassical economic theory that says that people must discount the future exponentially at a constant rate (Camerer and Loewenstein, 2003), this is the commonly accepted practice in applied analyses.

All of the above-stated findings, although not always observed, are frequently evident in people's decision-making processes. Since the findings are intrinsic to psychological processes, it can be contended that they can potentially be exploited by carefully designing contexts to help people reach decisions that their reflective selves might desire. For example, if an obese person states categorically that he would like to lose weight and yet fails to achieve this objective because, owing to present bias, he places too much emphasis on the short-term pleasures of eating doughnuts and neglects the long-term consequences of this action, then it may be possible to redesign the context within which that person faces their food-related choices so as help him meet his considered goals.[2] Context, in nudge parlance, is known as 'choice architecture', and is in itself unavoidable, since facing some kind of context is inevitable. Private companies have learned to use nudges, without explicitly recognising them as such, for their own ends for decades – for example, extended warranties on consumer goods, which, rationally, should hardly ever be bought, feed on the fact that people overweigh the small probability that their refrigerator/stereo/washing machine will break down one to three years from the

2 Uncovering people's reflective preferences is, however, a significant challenge. For instance, a person, when asked to reflect on what they prefer, may give an answer that he thinks his interviewer wants to hear.

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point of purchase. The nudge agenda is intended as a way in which public and private organisations working for the public good can use the findings of behavioural economics to similarly change the choice architecture, but in the hope that this will genuinely benefit the people choosing (with benefit judged by *their* – the people's – deliberative selves).[3]

Clearly, the policy domain over which nudges can be applied is vast – indeed, all aspects of public and private policy are within scope. In this short article, we will focus on just one aspect of health policy – the topical emphasis on tackling obesity. As alluded to above, the nudge debate is complex and confused, with many policies proposed as nudges not conforming to the original requirements of the approach, summarised above. In short, these requirements are that the intervention should:

(i) be liberty preserving;
(ii) not significantly change economic incentives;
(iii) not involve overt methods of persuasion;
(iv) redesign the choice context according to the findings of behavioural economics.

Of course, if an intervention is effective, then that is often a good thing regardless of its theoretical underpinnings, but greater clarity in the conceptualisation of these interventions is required, because if an effective 'nudge' is informed by standard economic theory rather than behavioural economics, then it is not, technically, a nudge at all, and the standard approach is thus being unfairly maligned. This would also, in consequence, bode ill for longer term understanding and acceptability of behavioural economic policy as a disciplinary approach. To try to aid, if only to a small extent, greater understanding in this area, we will, in the following two sections, critically summarise some of the proposed nudge policies associated with promoting weight loss in the United Kingdom and the United States, respectively. It is important to note, though, that in this article we are not focusing primarily on the effectiveness of each of the particular interventions. In the final section, we will draw some conclusions on the basis of our analysis of the experiences in the two countries.

Nudges to promote weight loss: the United Kingdom

As aforementioned, most of the world's leading behavioural economists live in the United States, but in terms of applying insights from this discipline to government policy initiatives, the United Kingdom is currently at the forefront internationally. Probably, owing to the anti-regulatory emphasis of the nudge agenda, the approach has thus far been particularly popular among Conservatives, the dominant party in the UK's coalition government. Indeed, even before becoming

3 The private sector often uses nudge-like interventions to get people to do what their rational selves would reject; libertarian paternalism calls for policy interventions that motivate people to do what their rational selves would embrace.

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Prime Minister, David Cameron gave his colleagues a reading list in the summer of 2008, at the top of which he placed Thaler and Sunstein's *Nudge*. On being elected, Cameron established a small but high profile Behavioural Insights Team (colloquially known as the 'Nudge Unit') at the heart of his government (but which has since become more peripheral), to which Thaler was appointed as an official advisor.[4]

The Nudge Unit has released a number of reports on methods and applications, with the latter relating to such areas as personal energy (e.g. electricity, fuel) saving, reducing tax fraud, error and debt in the public sector, and health (Behavioural Insights Team, 2010). The health report covers interventions associated with encouraging smoking cessation, increasing organ donation rates, improving cleanliness in restaurants and motivating weight loss (i.e. healthier eating and exercise). There are many other bodies, at national and local and public and private sector levels, that are attempting to promote nudge-style initiatives, but owing to space constraints, we will focus on those associated with weight loss that the Nudge Unit has itself advocated.

The Nudge Unit places quite a strong emphasis on the use of financial and non-financial incentives to tackle obesity. In terms of simply paying people if they meet a pre-defined target weight loss, quite apart from there being hardly any evidence that such an intervention works in any sustained sense (Oliver and Brown, 2012), some would argue that this cannot be defined as a nudge since it is not specifically informed by behavioural economics; moreover, if the payment is large enough, it may also significantly change economic incentives. It is, in short, a tool informed by the relative price mechanism of standard economic theory. Similarly, 'charging' people in the form of, for example, a fat tax – i.e. a surcharge on food that is high in fat – might be expected to influence behaviour in accordance with standard economic theory, because raising the price of such food would cause rational consumers to be less likely to purchase these products. However, some might counter that behavioural economic insights establish the need for such a tax. After all, neoclassical economic theory has been used to argue that the word overweight is a misnomer, because eating and exercise habits, being rational, lead people to maximise their utility. Behavioural economics, with its emphasis on unconscious choice, myopic decision making and limited willpower, purports that people eat unhealthy foods despite such behaviour contravening their underlying preferences and harming their best interests. Therefore, a fat tax may leverage traditional incentives to overcome people's irrational tendencies to otherwise consume more energy-dense food than they might deliberatively prefer.

Regardless of whether interventions such as fat taxes are examples of behavioural economic-informed policy, some methods of implementing financial incentives can take advantage of behavioural economic insights. For example, a

4 At the time of writing (September 2013), the Obama Administration is taking steps towards establishing a Nudge Unit of its own (see, for example, http://www.iwf.org/blog/2791834/).

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financial payment mechanism could be modified such that anyone who wishes to be voluntary enrolled in the intervention has to agree to pay a small amount of money, retrievable if they meet, say, their target weight loss during a specified time period. This mechanism is known as a 'deposit contract', and may motivate people more than a standard payment if they are keen to avoid the loss of their deposits (and is hence informed by loss aversion). If the deposit remains small, the intervention meets all of the requirements of a nudge. The Nudge Unit explicitly proposed this mechanism to motivate smoking cessation, and therefore presumably it is also being considered in the financial incentive initiatives associated with weight loss; generally, the evidence regarding the effectiveness of deposit contracts has not been particularly auspicious (Oliver and Brown, 2012), although they have rarely been properly evaluated.

Other incentives are proposed extensively throughout the report. For example, the Nudge Unit has formed a partnership with LazyTown, a public–private initiative that has been operating nationally in Iceland since 1996, in which young children sign an 'energy contract' with their parents that rewards them for eating healthily, going to bed early and being active. Following the introduction of LazyTown, childhood levels of obesity in Iceland started to fall. The LazyTown initiative appears to preserve liberty, can avoid significant economic incentives and does not have to involve overly overt methods of persuasion (although, depending on the actions of individual parents, all three of these requirements could be compromised), but is it informed by behavioural economics? It is possible to argue that LazyTown too is simple economics, but given that it is intended to engage children via feelings of enjoyment, it may to some extent feed into notions of present bias – i.e., activities that are normally, in the moment, unpleasant for children are, through the incentive, made more attractive. Thus, the choice architecture is designed to give children a sense of achievement (e.g. meeting the terms of the contract), and even a simple relabelling of options (e.g. classifying fruit as 'sports candy') might engage children and thus improve effectiveness. If this argument is accepted, the LazyTown initiative can perhaps be classified as a nudge.

The Nudge Unit extends the idea of encouraging exercise by reshaping the choice architecture such that more active daily routines are enjoyable in the moment by referring to the concept of 'piano stairs' – i.e., embedding sensors in stairs to encourage people to avoid elevators and make music with their feet (an experiment in Sweden can be viewed at http://www.youtube.com/watch?v=2lXh2n0aPyw, and something similar in France can be found at http://vimeo.com/29416289). These types of initiatives, which have been informed by what is now known as 'fun theory' (which is, as suggested, the concept of exploiting present bias to beneficial ends), have not been tested for their sustained effect, and can be quite fairly criticised as gimmicks. They do, however, satisfy the definition of a nudge, and underlying them is a serious point. That is, by making healthier lifestyles more enjoyable (or at least less unenjoyable), policy makers (and others,

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including parents) may be able to some extent tackle one of the most challenging public health problems of our time.

In the Nudge Unit's report, an additional series of proposals in relation to food intake also appeal to incentives in some sense by providing people or organisations with visual prompts to encourage behaviour change. These prompts potentially serve to alter the reference point that people attach to good behaviour by increasing the salience of relevant information. An established example of this practice is the 'five a day' campaign, which has worked to feed into the public's consciousness that they ought to eat at least five portions of fruit/vegetables each day, and anything less than that is, in a sense, a 'loss'. The reference point, which is probably higher than most people assumed before the campaign started, may well have motivated many to eat more of these types of food, and thus if it is accepted that the campaign was not an overt form of persuasion, it was a classic nudge (although it predates the current popularity of the nudge approach).

Perhaps, as an attempt at further manipulating reference points to promote healthier eating, the UK government announced in 2011 that restaurants be required to include calorie counts on their menus. However, calorie counts of this type have generally not shown significant effectiveness (Loewenstein *et al.*, 2012), possibly because they do not generate a strong enough signal, either in the way the information is presented, or in providing a clear simple reference point. Traffic light signals on the other hand, in which, for example, high-fat foods are given a red signal (a 'loss' against healthy living) and fruit, for example, is given a green signal, have demonstrated stronger effectiveness (House of Lords, 2011), but the food industry, including cheese and chocolate producers, has thus far, through various means, successfully campaigned against the use of these types of measures. Nonetheless, given that it is quite covert and that people can ignore it if they wish, it would seem that food labelling can be classified as a nudge, so long as it provides a clear reference point against which gains and losses are assessed and that any regulatory aspect of this intervention is overlooked.

A final initiative aimed at healthier eating considered in the Nudge Unit's health report is for yellow tape to be placed across supermarket trolleys so as to designate a part of the trolley that consumers might reserve for fruit and vegetables. In this, the Unit was informed by a US pilot project that showed that the measure prompts consumers to buy more of these items. Whether consumers then go on to eat more fruits and vegetables is a moot point, but if the yellow line serves as a reference point of sorts, then the measure can at least be categorised as a nudge.

Overall, in informing its' policy proposals, the Nudge Unit has implicitly referred to the manipulation of reference points, loss aversion and present bias. Some of the proposals are arguably not nudges, as originally defined, and instead seem to be straightforward financial incentives. Others, with some stretch of the imagination, can be considered nudges, while still others are clear examples of nudge interventions. Most are in the pilot stage, and therefore, in general, we cannot yet assess their effectiveness, although, as aforementioned, assessing their

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effectiveness is not the primary objective of this article. We can state with some confidence, however, that these policies are not on their own going to reverse the trend towards higher rates of obesity in the United Kingdom. Most behavioural economists would never claim that these policies could have such an effect (Loewenstein *et al.*, 2012); their hope instead is that behavioural economic-informed interventions might help at the margin, as a component of a broader policy – which would also include, where appropriate, clear economic incentives, regulation and bans – to tackle the problems that contemporary societies face.

Nudges to promote weight loss: the United States

Although the United States has among the world's highest obesity rates, it nevertheless lags behind the United Kingdom in implementing nudge-related policies to combat the problem. Local and federal efforts are under way, but the difference between these efforts nicely illustrates how poorly many experts understand the concept of what qualifies as a nudge. For example, New York City has been a leader in implementing anti-obesity policies. Several years ahead of the federal government, the city started to require calorie information in chain restaurants, a policy that can, as aforementioned, arguably be thought of as a nudge (if we overlook the fact that its implementation probably requires regulation and that it might not provide a clear enough reference point) depending on how this information is presented. New York City has also taken less libertarian measures. For instance, the city banned the use of trans fats in its restaurants (Angell *et al.*, 2012). Also, in 2012, the mayor of New York City proposed a ban on sugary soft drinks larger than 16 ounces. In the *Huffington Post*, Kevin Hansen (2012) from New York University described this policy as an example of a nudge: 'the proposed New York policy does not stop individuals from drinking 32 ounces of the sugary beverage. Instead, it forces them to buy it in two instalments'. But that by the same logic, albeit to a slightly greater extreme, the trans fat ban does not stop people from buying restaurant food cooked in these oils, but just forces them to cross over to New Jersey to a restaurant that still uses such ingredients. If the idea of nudges expands to include things like bans on large sodas, there is a danger that the approach will be incorrectly linked together with more extreme paternalistic measures.

In comparison with the efforts under way in New York City, federal efforts in the United States to combat obesity have been less extreme. The major emphasis of each federal action has been to better inform consumers about the choices they face. Sunstein and Thaler (2003) believe that informational campaigns ought to be framed according to the findings of behavioural economics so as to improve their effect, and they recognise the paternalistic aspect to this: 'to the extent that those who design information strategies are taking account of how people think and are attempting to steer people in desirable directions, their efforts will inevitably have a paternalistic dimension'. Along these lines, the US government

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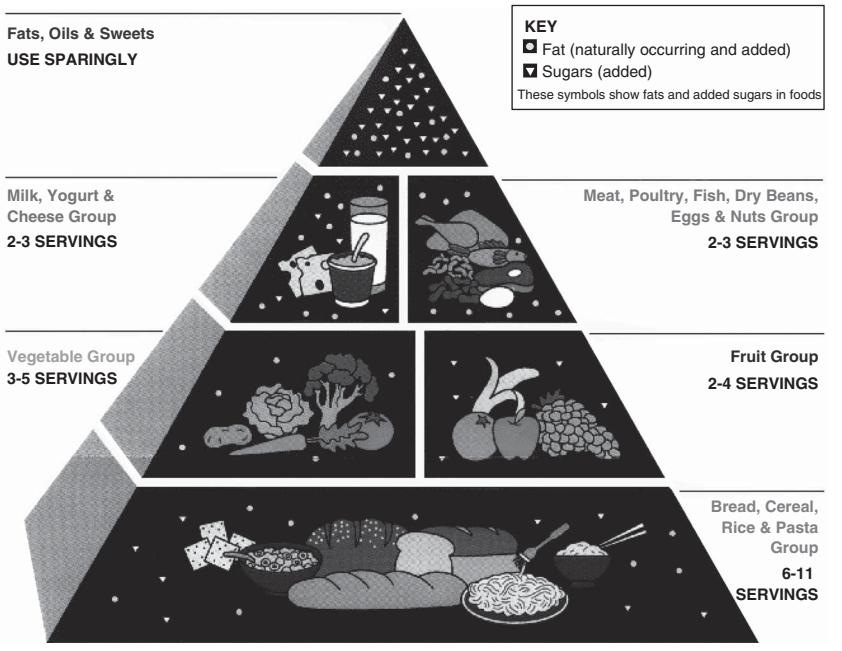


Figure 1. Food pyramid

has changed the way it informs American citizens about healthy eating habits, in an attempt to get people to eat better food. Previously, the Department of Agriculture focused its educational efforts on what it called a food pyramid. In an early version of this pyramid (see Figure 1), the message was intended to encourage people to eat more fruits, vegetables and whole grains, but the graphic design of the pyramid was a pedagogical failure, leaving most people confused about the message being communicated. The design of the pyramid made it difficult to tell whether the top of the picture illustrated the best food to eat, and the sheer amount of information crammed into the graphic left people without an easy take-home message. A revised version of the pyramid was also a communicative mess, with a bewildering array of colours and lines that left people understandably confused.

In place of these pyramids, the Department of Agriculture is now promoting a simpler graphic (see Figure 2). This initiative informs people that half their plate should be filled with fruits or vegetables. The message is simple, offers clear reference points and is easy to remember. It is too early to tell, however, whether this initiative will have any effect on people's eating habits. Information, no matter how carefully it is framed, can only go so far when it is forced to compete with industry-funded persuasion campaigns.

Following New York City's lead, the US federal government has also been working to move people towards healthier eating habits by mandating that chain

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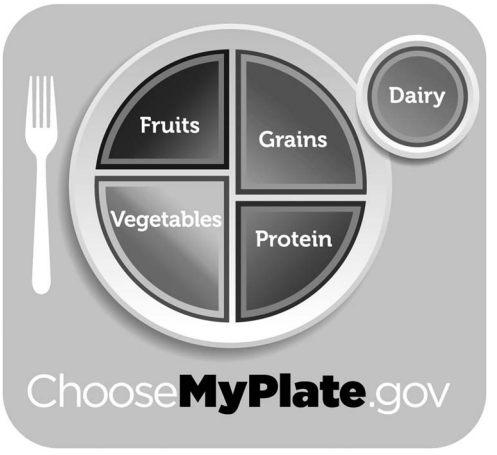


Figure 2. ChooseMyPlate graphic

restaurants make calorie count information available to consumers. Put simply, any establishment with 20 or more stores that sells food to consumers will soon be required to make such information readily available at the point of purchase. This mandate has yet to go into effect, and many aspects of its implementation are controversial. For example, pizza chains contend that posting calorie information is burdensome for their businesses. They point out that while a Big Mac is a Big Mac, and therefore reporting the number of calories in such a meal can be done easily, the same cannot be said for a large pizza. With an uncountable number of pizza possibilities, the companies contend that posting calorie counts is infeasible.

This problem can potentially be overcome by posting, as required by US law, the range of calories associated with a given food item. A burrito at a popular Mexican restaurant, for instance, ranges from 400 to 1200 calories, depending on whether the customer puts only beans and rice in their tortilla or, instead, adds a myriad of other ingredients. The federal mandate requires restaurants to inform customers about the range of possible calories, but still it is not easy to predict how consumers will respond to such information. Even under the strong assumption that a carefully designed presentation of calorific content can significantly impact on consumer choice, could we expect consumers to accurately estimate the number of calories in their meals when told that their burrito contains something between 400 and 1200 calories? If not, then such legislation might amount to little more than burdensome regulation.

In addition, the companies point out that most people who order large pizzas do not eat the entire pizza by themselves. The number of calories in a large pizza might dwarf those in a hamburger, but that does not necessarily mean that the typical consumer who orders a large pizza will consume more calories than one

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who orders a hamburger. Thus, calorific information potentially puts pizza restaurants at a competitive disadvantage with their hamburger counterparts.

Other types of companies are also pushing back against the federal legislation. For example, cinemas, airlines, bowling alleys and hotel chains argue that they are not primarily in the food business, and thus should not be included in the calorie count mandate. Nonetheless, the federal law, if it goes into effect, will require that these businesses also provide such information, so long as they are part of establishments that have 20 or more branches. These ongoing battles in the United States over calorie count information provide some insight into the challenges of crafting legislation that promotes (what some may define as) nudges. Mandating that food establishments provide customers with calorie count information appears to be a gentle nudge if, contentiously, the anti-regulatory requirement of a nudge applies only to the individual consumers (and not to the food outlets), because merely informing consumers about important aspects of their food choices does not force them into any given action. Nonetheless, the demands of the legislation upon the food industry, although at face value slight, are sufficient enough to provoke their fierce resistance. In this they have been supported by the Republican Party, who have vilified the idea of even gentle nudges and would therefore very actively oppose more assertive actions.

Discussion

Since the 1970s in both the United Kingdom and the United States, public policy makers have attached great importance to the notion of personal responsibility in policy formation, at the expense, to some extent, of what may be classified as government 'interference' (e.g. regulation, bans and welfare), at least according to the rhetoric. This probably arose for multiple reasons; for example, as a response to increasingly vocal, wealthier and more informed populations that may prefer a more consumerist (and less paternalistic) approach to public policy, to the stagflation of the 1970s that provoked some politicians to call for smaller government (and brought others that already held this ideological position to power) and undermined, at that time, a more Keynesian interventionist approach to policy, and to perhaps a greater suspicion of whether politicians always do 'the right thing', due in part to the greater voice within the citizenry and to the end of the headier days of post-war economic expansion. Concurrently, over this time period, mainstream – in particular, monetarist – economists, with their emphasis on improving efficiency via the free market, and with a faith in human actors as fully rational men and women (and thus in the benefits of promoting personal responsibility), saw their influence over public policy grow on both sides of the Atlantic.

Interestingly, the rise in the policy influence of neoclassical economists occurred over the same time period that saw behavioural economics become a more accepted subfield of economics. As will now be clear, behavioural economists and

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psychologists have demonstrated empirically that people's decisions are not always rational in the strict *homo-economicus* sense of the term, but it is only over very recent years that behavioural economic insights have been applied to practical policy concerns, principally in the form of the nudge agenda. There are a number of possible reasons for the contemporary popularity of the nudge approach. For instance, Thaler and Sunstein have been active and effective in marketing their ideas, and politicians looking for cheap, non-regulatory methods to change behaviour have been receptive to them. Moreover, the 2008 financial crisis somewhat dented the credibility of the standard, neoclassical economic approach (at least in the short term), and there was a window of receptivity to alternative economic ideas. Behavioural economics, in terms of policy applications, has thus far been to some extent captured by those who continue to place an emphasis on personal responsibility. Philosophically, there is not too much that separates standard and behavioural economics: both approaches accept that the concept of rationality – i.e., that there are choices that people could make that they would deliberatively recognise as 'optimal' for them – exists, but behavioural economics recognises that people often fail to make these choices.

Since nudge adherents consequently believe that people often need to be helped to make the 'right' choices, they in turn advocate libertarian paternalism, a term that for people across the ideological spectrum has been provocative. There are those in the United Kingdom and the United States (and everywhere else) who distrust any notion of paternalism, even in its soft forms, and who thus favour the more libertarian approach of free choice without government manipulation of the choice architecture. Paternalists, on the other hand, would favour the stricter regulation and bans that the nudge approach does not allow (although as this article has demonstrated, many interventions that are advocated as nudges do, confusingly, involve the regulation of someone). However, nudge advocates do not have a monopoly over the use of behavioural economics, and one does not need to be a strict paternalist to favour the use of behavioural economic-informed regulation in some circumstances. For example, if it is assumed that one function of government is to regulate those whose actions would otherwise cause harms to others, it could be contended (in relation to tackling obesity) that the marketing activities of the food and drinks industries ought to be curtailed, even if, as has been detailed in relation to the United Kingdom and the United States, such regulation is met with fierce resistance. It is likely, for instance, that these industries are implicitly aware of the human tendency towards present bias, and use sales and marketing techniques to persuade people to buy more of their products than they want, and indeed, than is good for them. In essence, in the search for higher profits, these private sector interests are deliberately causing harm to others, and therefore present bias, if recognised by government as a factor causing error in human judgement, could be used to strengthen the justification for regulating, without further directly regulating the personal lifestyle behaviours of the citizenry themselves.

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More generally, the *tête-à-tête* between libertarians, paternalists and libertarian paternalists has perhaps created more heat than light. It could reasonably be contended that the actual practical scope and impact of nudge policies has been slight, sometimes a little gimmicky, and occasionally confused. Nudge policy is unlikely ever to solve the obesity problem. Sunstein and Thaler (2003) recognised that some public problems might need to be addressed with stronger paternalistic measures when they wrote that 'nothing we have said denies the possibility that in some circumstances it can be advisable to impose significant costs on those who reject the proposed course of action, or even to deny freedom of choice altogether'. Indeed, altering the behavioural patterns of citizens to reduce obesity levels may be particularly tricky, because contemporary societies have evolved to the point where a heavier population is perhaps hard to avoid. Behaviour associated with, for example, work patterns (active vs sedentary), transport, food and a host of other factors affect a person's weight. Changing the choice architecture to address this may require a fundamental alteration in the way people live their lives, with possibly no real hope of substantial success at the population level *without* regulation. Although we must avoid exaggerated claims, this may, however, send an overly pessimistic message regarding the obesity-related nudge agenda. Although the effectiveness of the aforementioned nudge interventions in the United Kingdom and United States is, to date, largely unproven, and their *sustained* effect is certainly unknown, in time they may well help at the margin and might improve and extend a great many lives.

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