

Behavioural Economics and Policymaking:
Learning from the Early Adopters

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Abstract: This paper critically examines initial applications of Behavioural Economics (BE) to policymaking. It focuses primarily but not exclusively on what can be learnt from the early adopters of policies inspired by BE, notably America and Britain. BE is defined by its inductive scientific approach to economics, which results in empirical demonstrations that are persuasive to policymakers facing practical problems. The analysis identifies three routes via which BE has influenced policy: (1) the theory of libertarian paternalism (“nudges”), (2) the provision of toolkits for policymakers seeking behavioural change, and (3) the expansion of the skill-set of applied economists (and scientists in related disciplines). The effectiveness of each route is assessed, in terms of the likelihood of successfully integrating scientific advances with policy development. The analysis concludes that route (3) is the only one that can adapt to the ongoing and rapid evolution of what is a young science. Successful policy applications are most likely where there is expert input to policy development and the capacity to engage in applied experimentation and piloting of policy ideas. The implication is that countries, including Ireland, are more likely to reap the benefits of BE if they create an effective interface between applied economists and policymakers.

Keywords: Behavioural Economics; Policy

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1. Introduction

Behavioural Economics (BE) is coming of age. Over the past five to ten years the volume of research in BE has mushroomed; university programmes have added courses on BE; influential popular books on BE have been published; conferences have been held to raise awareness of BE's main findings and to debate their implications; companies have started up with knowledge of BE as their core offering; governments have used BE to guide major policy initiatives; and behavioural economists have been invited to advise on policy and, in some countries, to take up government posts. The question of whether BE has implications for policymakers has been answered by events on the ground – clearly senior policymakers in more than one country are already persuaded that it does. The better question is: how do we get the best out of the scientific advances made by BE?

A common approach to answering this question is to distil the main findings of the now substantial body of BE research into a digestible set of principles and to scan or select policy areas for applications or examples where they might be relevant (e.g. New Economics Foundation, 2005; Dolan et al., 2010; McAuley, 2010; in Ireland, Delaney, 2011). There are also more formal attempts to integrate BE into the theoretical frameworks of public policy analysis (e.g. Bernheim and Rangel, 2009; Congdon, Kling and Mullainathan, 2011). The aim of the present paper is somewhat different. Prominent applications of BE to policy are discussed, in order to establish relevance and to provide useful examples. But the focus is less on policy than on policymaking; less on where BE is influencing policy than on how it is doing so. It is not easy to integrate a fast-moving scientific frontier with the process of policy development and, therefore, the initial efforts of the early adopters of policies based on BE bear scrutiny. Are some routes to influence more effective in integrating the scientific advances of BE into policymaking than others?

Although this question is an important one, few researchers have previously addressed it. The notable exception is Amir et al. (2005), a paper on which thirteen prominent behavioural economists and psychologists collaborated to offer an analysis of how both BE and psychology might increase their influence. Amir et al. addressed a number of potential mechanisms by which the relevant scientific advances might influence public policy. Yet their analysis largely pre-dated the recent acceleration in BE's progress and, with the benefit of hindsight, these authors underestimated the potential for their field(s) to become influential, describing the failure to be so at the time as "painful and frustrating" (p. 444). Times have changed, and rapidly. Six years on, Sendhil Mullainathan, one of the thirteen authors, has been appointed to head the research function of the US Consumer Financial

Protection Bureau (CFPB), the new agency set up in the wake of the financial crisis to strengthen consumer protection in US financial services. On the gap between theory and application, Amir et al. encouraged academics to do more applied research, stating that “policymakers themselves are not going to conduct the research needed to translate these general constructs into specific policies” (p. 447). Yet by 2010 the Behavioural Insights Team at the UK Cabinet Office (hereafter UKBIT) was busying itself organising a range of trials to test policy ideas grounded in behavioural theories. Despite underestimating the potential for rapid progress towards their goal, Amir et al. made important points that inform the analysis below. Indeed, one of their suggestions proved prescient: to have influence psychologists should not to call themselves such, but should instead describe themselves as “behavioural scientists”. The UK Cabinet Office did not choose to establish a “Psychological Insights Team”.

As the above examples suggest, some of the greatest strides towards integrating BE into policymaking have occurred in the USA and the UK. It should be stressed that the relevant literature may contain a bias in this direction and that BE has also made inroads into policy elsewhere. The European Commission is making increasing use of BE in designing consumer protection legislation within the single market (Ciriolo, 2011). Australia’s Productivity Commission has also been active in integrating BE and policymaking, especially in the area of competition and consumer policy (Productivity Commission, 2008a, 2008b). Singapore has long been a pioneer in the area of traffic reduction and has begun to incorporate BE into its systems (Leong and Lew, 2011). Nevertheless, most of the following analysis centres on the places where behavioural science has begun to exert a direct influence at the highest levels of government developments, in America, Britain and, to a lesser extent, at the European Commission. What can we learn from these early adopters?

The analysis offered here begins by defining BE. The definition turns out to be important, both to highlight potential misconceptions and to understand BE’s recent progress. BE is best defined by its scientific method, which also generates the primary source of its persuasiveness: the power of demonstration. Surveying some of the more prominent policy applications developed in early adopting countries, the paper also identifies three routes to influence on policymakers; mechanisms of communication between science and the policymaking process. The first is the popularity of the political philosophy of “libertarian paternalism”, or “Nudge” as it is better known (Thaler and Sunstein, 2008), which has become strongly identified with BE. The second route to influence is via the development of guidance materials for generalist policymakers; lists of key principles derived from BE that are intended to be used as toolkits when constructing policies to change behaviour. Lastly, there is influence through the upskilling of the economics profession, especially applied economists working in government organisations. With the increasing number of influential contributions from BE in high quality academic journals, a growing proportion of economists understands some of the advances being made by BE and the possibilities they offer.

Moreover, trained economists are increasingly likely to have engaged in experimental work, or at least to have been required to interpret experimental output.

What follows therefore combines observations on the fundamental nature of BE with the experience of early policy applications, to assess the relative effectiveness of the three routes to policy influence identified, in terms of how successfully they integrate scientific advances in BE with policy development. Section 2 addresses the non-trivial question of what BE is. Section 3 draws lessons from prominent international policy applications undertaken thus far. Section 4 offers a critique of libertarian paternalism. Section 5 considers the benefits and potential pitfalls of turning the findings of BE into toolkits for policymakers. Section 6 argues that expanding the skill-set of applied economists is likely to be the best way to harness the benefits of the new science. Section 7 summarises the main argument and relates it to Ireland, where behavioural economics has yet to break through.

2. Defining Behavioural Economics

One of the pioneering figures of BE, Daniel Kahneman, notes with some frustration that his work is frequently described as demonstrating that human choices are irrational. It is a description that makes him “often cringe”, because his work reveals only that people “are not well described by the rational-agent model” (Kahneman, 2011, p. 411), not that we possess the negative traits that the word “irrational” connotes. As later examples will show, Kahneman is right: the concept of irrationality does not capture behaviour well and, importantly, this frequent mischaracterisation is misleading from a policy perspective. Yet it arises in part because behavioural economists have failed to coalesce around a clear and uncontested definition of the field. In fact, some proposed definitions do have negative implications for the agents studied. Thaler and Mullainathan’s (2000) entry in the International Encyclopedia of the Social and Behavioral Sciences begins:

“Behavioral Economics is the combination of psychology and economics that investigates what happens in markets in which some of the agents display human limitations and complications.”

The phrase “limitations and complications” has clear negative connotations. This is problematic if some behaviours revealed by BE turn out to be economically advantageous rather than disadvantageous. There are researchers who argue, partly on empirical grounds, that the systematic behaviours uncovered by BE often, perhaps even mostly, produce good outcomes for economic agents (e.g. Gigerenzer, Hertwig and Pachur, 2011), so it is perhaps unwise to imply otherwise by definition. The Oxford English Dictionary is more neutral in defining BE:

“An approach to economic analysis which applies psychological insights into human behaviour to explain economic decisions.”

This definition avoids the negative connotations for agents, yet also stresses the incorporation of psychology into economic analysis. All agree that it is partly the use of psychology that makes BE distinctive, but there are many behavioural economists who do not have backgrounds or expertise in psychology. Shiller (2005, p. 3) adds the key point:

“[BE] is really the application of methods from other social sciences – particularly psychology – to economics.”

Shiller’s focus on method is crucial. For the most part, BE does not apply existing psychological theories to economic problems, although this is occasionally the case. Rather, what distinguishes behavioural economists is their use of an alternative scientific methodology. As students quickly learn, orthodox economics has for many decades now been a primarily deductive exercise. “Results” are deduced from sets of well specified assumptions, usually stemming from rational choice theory, or rational choice theory with one or two “imperfections” or “anomalies” introduced. Deductive models lead, empirical tests follow. Contrastingly, BE, like modern psychology, takes a more inductive approach. The starting position is to assume less about economic behaviour and instead to infer it from systematic and repeated experiment and observation. Observation leads, theory follows. Indeed, this is the methodology behind the paper that arguably began the modern growth in BE, Kahneman and Tversky’s (1979) development of Prospect Theory, which originated in simple laboratory experiments with monetary gambles. Over 30 years on, although many experiments are done in the field as well as the lab (DellaVigna, 2009), BE remains a primarily inductive enterprise. All economists study behaviour; behavioural economists do so inductively.

3. Initial Applications of Behavioural Economics to Policy

This section looks for general lessons from prominent policy areas where BE is already proving influential. It first considers the biggest impact of BE on policy to-date: its application to pension policy. The example underlines the power of demonstrable evidence, even where agreed theory is lacking. This idea, that behavioural demonstrations are behind the progress of BE extends to other examples too.

Poterba (2009) documents the chronology of the relevant policy change towards retirement savings in America. Some US firms began to enrol employees automatically into 401(k) retirement savings plans in the 1990s, requiring them to opt out of the plan rather than to

opt in.¹ This simple switch of default option was tried because firms were under pressure to comply with Internal Revenue Service (IRS) non-discrimination policies and found it difficult to sign up low income workers. The IRS granted approval for opt-out schemes in 1998. Following claims that the switch worked, academics began to study employees' decisions systematically and, in a celebrated paper, Madrian and Shea (2001) showed that changing the default option increased participation by more than 40 percentage points – effectively doubling it. This evidence was intuitive, demonstrable and hence compelling. Furthermore, it seemed to imply that firms, government and employees would all be better served by auto-enrolment, since most workers appeared themselves to believe that they needed to save more for retirement. The US Pension Protection Act of 2006 went on to further incentivise auto-enrolment by offering a “safe harbour” for such schemes from non-discrimination testing.

Note that although the empirical findings are strong, clear and of obvious relevance to policy, the reasons why employees are drawn so strongly towards the default option may not be well understood. The behaviour might be linked to “status quo bias” (Samuelson and Zeckhauser, 1988), which refers to people's instinctive preference for status quo options. It might occur because employees, when facing an uncertain decision, treat the default option as advice or perhaps as an indication of the most popular choice (and hence one they can safely mimic). It might happen because people procrastinate and thus fail to get around to opting in (or opting out). The preference for immediate over future rewards (see Frederick, Loewenstein and O'Donoghue, 2002) might also play a part in initial under-saving. Overall, then, while the observation is reliably established, the theory is less so. Moreover, the results are so striking that academics and policymakers have paid little heed to the violation of a key principle of standard economic analysis, that of revealed preference, whereby individual preferences are inferred from observed behaviour. Auto-enrolment assumes that observed behaviour prior to the policy change does not reflect workers' true preferences.

From a policy perspective, whichever theory most accurately describes reality is largely immaterial. Where firms, employees and government generally agree that increasing enrolment is beneficial, and empirical results demonstrate that auto-enrolment can achieve this, policies to enable and promote such schemes appear an obvious choice. Such policies have now been adopted in a number of other countries, including the UK, Australia and

¹ The 401(k) retirement savings account has its origins in the 1980s and takes its name from the relevant section of the US tax code. In European terms, it amounts to a defined contribution pension plan in which employees generally have a strong say in how and where their savings are invested. The 401(k) has become the most popular form of retirement savings in America.

recently in Ireland.² The development of auto-enrolment policies exemplifies how the inductive methodology of BE can be persuasive to policymakers.

Further study has shown that decisions about saving for retirement are particularly prone to behavioural biases and, therefore, manipulable through the design of schemes. Thaler and Benartzi (2004) have designed a retirement savings scheme that counters behavioural biases, or even harnesses them to workers' advantage. Under "Save More Tomorrow" (SMT), employees commit in advance to contributing to their retirement fund and to increasing contributions when they receive pay increases. SMT's design is based on empirical work showing that people find immediate losses more painful than future losses, especially losses from future gains, because of both our tendency to discount the future steeply and our more general aversion to losses relative to gains of equivalent size. Workers are therefore more willing to commit to contributions in future, especially if no losses are involved. Moreover, with one initial decision, increased contributions became the default option for future decisions. Thaler and Benartzi showed that the SMT scheme increased average employee savings in one firm from 3.5% of salary to 13.6% in under four years. Again, this powerful demonstration has led SMT schemes to be adopted widely, despite ongoing theoretical debate about how and why we discount time and weight losses relative to gains as we do. Similarly, proposals to simplify retirement saving schemes have followed empirical demonstrations that enrolment levels or contributions can fall if employees face too much complexity in portfolio choice (e.g. Iyengar, Huberman and Jiang, 2004; Carroll et al., 2009), while theories of such "choice overload" remain contentious.

The draw of default options is a behavioural phenomenon of striking potency and is, consequently, influencing other policy areas. Johnson and Goldstein (2003) showed that changing the default option regarding public willingness to donate organs for transplant after death could increase donation rates by almost an order of magnitude. This and related behavioural evidence underpinned policy change in Britain, where new applicants for driving licences from August 2011 are required to make an active choice on whether they are willing to be a donor, where previously the default was to be a non-donor and would-be donors had to opt in.³

Pension provision and organ donation are policy areas where a government can aim to change decisions for its citizens' benefit, but recently policymakers have also begun to

² These countries have policies in different stages of development. While Ireland's National Pensions Framework (Department of Social Protection, 2010) states the intention to introduce auto-enrolment, there is presently little detail regarding how this is to be achieved (see Delaney et al., 2012).

³ An "active decision" here means that there is no default. The applicant cannot obtain the licence without taking a decision one way or the other. This system results in levels of willingness to be donors that are close to the opt-out default yet is arguably a preferable system from an ethical standpoint.

recognise the possibility that firms may use the same findings to change decisions for their own benefit. Demonstrations of the power of defaults over consumers inform the new EU Consumer Rights Directive,⁴ which bans commercial websites from signing people up to products or services via pre-ticked boxes. In each of these cases, the influence of BE on policy originated with powerful empirical demonstrations of the large behavioural impacts of defaults, which although not fully understood are compelling.

A second notable aspect of early inroads of BE into policymaking is that the policy areas concerned tend to involve choices under risk with outcomes that materialise over long periods. Such decision environments are prone to particularly strong behavioural effects. Lifestyle choices that affect our health often have this structure, requiring us to trade off current pleasure against long-term health impacts that are uncertain. Strong behavioural biases have been recorded in such choices and policy ideas based on behavioural research have been forthcoming. The key input of BE is again to demonstrate how sensitive individual decisions are to the context in which they are taken; how choices are “framed”. Decisions are affected by subtle cues in the environment, which may signal what is expected of people or how most other people behave, or may simply make some options more salient or prominent.

Interventions aim to alter these cues or counter them in advance through pre-commitment mechanisms. Many are being considered and trialled. The US Department of Agriculture is exploring potential interventions to diet in the US (Just, Mancino and Wansink, 2007). A range of US school and state-level policymakers have adopted policies designed by the Cornell Center for Behavioral Economics in Child Nutrition Programmes.⁵ These include changing default menus and altering the salience or perceived attributes of different food options via the method of presentation. In Britain, health was identified as one of the three priority areas for the UKBIT (Behavioural Insights Team, 2011), which has used BE to design policy trials on ways to reduce smoking and alcohol intake, as well as different prompting systems aimed at reducing the number of missed medical appointments. Behavioural science is prominent in the 2010 White Paper on Public Health in England (Department of Health, 2010), which addresses a range of health behaviours, aiming to both discourage negative behaviours (excess alcohol, smoking, risky sexual behaviours) and encourage positive ones (better nutrition, physical activity). One attraction of these BE findings for policymakers is the possibility of relatively small and cost-effective interventions resulting in quite substantial, beneficial changes in behaviour.

⁴ See <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/675&type=HTML>. Member states have two years from the adoption in October 2011 to implement the directive.

⁵ See <http://ben.dyson.cornell.edu/index.html>

The importance of BE to policy areas where individual decisions require trade-offs between uncertain outcomes over long periods is borne out by other policy areas where BE is making waves. Financial services and environmental policy also involve decisions of this type. In the aftermath of the financial crisis, BE is playing a role in efforts to improve the operation of markets for financial products (see Lunn, 2012, for overview). As well as establishing the CFPB (see Section 1), the Obama administration's proposals for reforming US financial services originally included plans to mandate providers to offer a "plain vanilla" mortgage as a government endorsed default mortgage, following the suggestion of Barr, Mullainathan and Shafir (2008). In the end the proposal was blocked by the US Congress. In the UK, the findings of BE strongly influenced The Turner Review (Turner, 2009) and the subsequent establishment of the Financial Conduct Authority.⁶ The European Commission recently engaged a team of behavioural scientists to conduct experiments to inform EU regulation of the market for retail investment products (European Commission, 2010).

With respect to environmental policy, we are reluctant to purchase energy efficient products or to take energy conservation measures in our homes, even though they would more than pay for themselves in time (see Jackson, 2005, for review). Such low take-up frequently survives substantial subsidies or other incentives. Again, uncertainty surrounding the future benefit, the immediate loss of paying for the product, procrastination and departing from prevailing norms, all may play a part in this behaviour. The UKBIT is experimenting with a range of BE inspired interventions, including frontloading rewards to appeal to consumers' bias towards immediate benefits (e.g. subsidised loft-clearance for households fitting insulation) and schemes that target groups of householders rather than individuals, such that social norms might support rather than hinder take-up (Behavioural Insights Team, 2011).

While individual decisions with uncertain outcomes over long periods are central to policy in areas like health, financial services and the environment, they do not feature in all policy areas where BE is having a substantial impact. There is not yet agreement over the implications of BE for competition and consumer protection policies, but there is an emerging consensus that its findings matter (e.g. Bennett et al., 2010; Garcés, 2010). Consumer responses to the complexity of offerings within a market (e.g. Iyengar and Lepper, 2000), their ability to switch to better products (e.g. Wilson and Waddams Price, 2010), and their failure to consider the full price of multi-attribute products (see Gabaix and Laibson, 2006) all suggest possible consumer detriment and potential regulatory responses that might increase the effectiveness of competition across a range of markets. Meanwhile, some regulators have become keenly aware of the scope for firms to frame prices in a manner that findings from BE show to be detrimental for consumer decision-making (e.g. Office of

⁶ See, for example, the Financial Times of 25 January, 2012, "Watchdog to Protect 'Irrational' Consumers".

Fair Trading, 2010; European Commission, 2010). BE has informed changes to EU regulations with respect to cooling-off periods, nutritional claims and defaults in consumer contracts. Similarly, there is growing evidence from BE that the framing of taxes has impacts on purchase patterns and compliance (e.g. Chetty, Looney and Kroft, 2009; see also Walsh, 2012), which is assisting attempts by the US Senate to simplify the tax code and is informing policy trials in the UK aimed at increasing tax compliance.

The set of policy initiatives and developments outlined in this section is a non-exhaustive overview, but suffices both to illustrate the increased influence of BE in recent years, especially in America and Britain, and to suggest some generalisations regarding how that influence has come about. The most concrete conclusion is that the persuasive power of BE for policymakers is linked to what defines BE, namely the sub-discipline's inductive scientific method, which lends itself to demonstration and is hence persuasive to people facing practical problems. As Amir et al. (2005) pointed out, policymakers are unlikely to take research more seriously if it moves away from economics and towards psychology. It is not out of respect for psychology that BE is exciting the interest of policymakers. Rather, BE's influence stems from growing bodies of scientific evidence about how real people take economic decisions and, perhaps as importantly, the fact that many of the systematic phenomena uncovered are easy to demonstrate and intuitively straightforward to grasp. The influence on policy is derived from the power of demonstration rather than theory, although theory may help scientists to develop demonstrations.⁷ This marks a departure in the contribution of economics to policymaking. The powerful impact of neoclassical economics on policy over recent decades was derived not from empirical evidence but from a coherent, elegant and widely applicable model of market operation. While behavioural economics is leading to the development of new models, none yet parallels the parsimony of neoclassical microeconomics.

Other conclusions may also be drawn, albeit more tentatively. First, policy is probably more likely to be influenced by BE in contexts where people must take decisions with uncertain outcomes that occur over long periods, perhaps because such decisions produce particularly strong behavioural biases. Second, considering the examples above as a whole, policy development following initial BE findings frequently involves setting up further field experiments or pilots, meaning that BE is most likely to be consequential where such experimentation is feasible. Lastly, perhaps obviously, but nonetheless importantly for what follows, BE has had its most concrete effects on policy where findings point to policies that are in the interests of all parties to the decision being influenced. That BE made its biggest

⁷ One notable exception is some theoretical work that introduces better behavioural assumptions into models of imperfect competition (e.g. Gabaix and Laibson, 2006), which is fast gaining traction among policymakers interested in consumer protection. This work incorporates inductive results on consumer decision-making into more traditional deductive equilibrium models, to show how competition may not drive out marketing and pricing practices that are detrimental for consumers.

breakthrough in pensions policy was not an accident: behavioural effects were large; experiments were relatively easy to conduct; and affected parties were often united in wanting to increase employee savings. Once the clear demonstrations existed, firms and policymakers were willing to change systems to match. Not all policy areas are like this.

4. When Push Comes to Shove: Limitations of Nudges

Nudge (Thaler and Sunstein, 2008) is a bestselling book on applying BE to policy that has been read by, and evidently impressed, at least some world leaders. Prior to being elected British Prime Minister, David Cameron read Nudge and enthused about it to the point of asking his shadow cabinet to read it too. Richard Thaler is now an advisor to the UKBIT. Meanwhile, Cass Sunstein was appointed in 2009 to head the Office of Information and Regulatory Affairs at the White House. These events represent an unusually direct influence of new academic ideas and their originators on policy. The influence stems from the seemingly persuasive central argument of Nudge, which in more academic language equates to the political philosophy of “libertarian paternalism” (Sunstein and Thaler, 2003).

Libertarian paternalism sounds like an oxymoron, but it is coherent and deceptively simple. The philosophy dictates that policymakers should avoid limiting choice, but can nevertheless design policies to help people to make more beneficial choices; libertarian in terms of what is permitted, yet paternalistic in determining best outcomes and guiding people towards them. Auto-enrolment pensions and SMT are perfect examples. Workers are left free to choose whatever retirement savings scheme they wish, but the schemes are designed to help them to save more. More specifically, behavioural science is employed to design policies such that the environment in which people take decisions is known empirically to result in a more desirable choice, be that higher saving, more appropriate healthcare plans, avoidance of excessively risky investments, more exercise, less smoking, and so on; all the time without denying freedom of choice. In the jargon, policymakers design the “choice architecture” to “nudge” people towards better choices.

The attractiveness of this approach for policymakers is obvious. Government can achieve some of its aims without risking unpopularity through restricting or dictating behaviour. Furthermore, where it proves possible to change behaviour through a relatively inexpensive “nudge”, this may reduce expenditure on regulations, enforcement or service provision. Libertarian paternalism has informed a number of the Obama administration’s initiatives listed above, but has perhaps been more explicitly endorsed by the UK government and the work of the UKBIT – often referred to as Downing Street’s “Nudge Unit”. In general, it is too early to determine whether the specific applications of libertarian paternalism on which the UKBIT has embarked will prove successful. Some examples are mentioned above and the UKBIT can boast more (see Behavioural Insights Team, 2011), many of which are being piloted in 2011 and 2012. This is a space to be watched, from which successful policy ideas

may emerge, offering lessons for other policy areas and countries. Libertarian paternalism must therefore be given its due: it has proven influential and may generate good ideas.

It is important, however, not to equate a scientific discipline (or, more accurately, a sub-discipline) with a political philosophy that is merely one of many possible ways to exploit the knowledge created. For instance, should the majority of UKBIT's pilot projects prove to be of debatable or marginal benefit, there is a danger that this will be taken to imply that the findings of BE are not sufficiently scientifically robust or economically significant to be of use for policy. This would be to throw out the scientific baby with the bathwater of a short-lived political philosophy. Libertarian paternalism is just one way policymakers might apply BE and its success is, indeed, far from assured. Perhaps the most scientifically informed criticism of UKBIT's work is an investigation conducted by the House of Lords Science and Technology Committee (2011), which scrutinised its policy initiatives and interviewed expert witnesses. Two forceful conclusions emerged: first, many of the empirical findings being relied upon to design policies have yet to be demonstrated at the population level; second, by prioritising libertarian paternalist policies, UKBIT's approach may ignore or dismiss evidence that supports more strident policies.

A central example explored by the Committee is policy to tackle obesity. Expert witnesses with medical and public health backgrounds argue that the sheer speed and scale of the problem demands an urgent and forceful government response. Yet, in line with libertarian paternalism, UKBIT's approach is to avoid proscribing certain marketing activities or taxing high-energy foods, in favour of negotiating "nudges" with the food industry. Obesity is an area where the distinction between the political philosophy of libertarian paternalism and the science that originally inspired it needs to be drawn accurately. Research on BE and food choice (see references in Just et al., 2007) shows that people make time inconsistent decisions, failing to make choices on a daily basis that are consistent with their long-term aims. We find it hard to resist temptation, especially when encumbered with any cognitive load (e.g. a working lunch) or in company. We find nutritional information complex and often perceive portion sizes inaccurately. Making day-to-day food choices that are consistent with a long-term preference not to put on weight is, consequently, a considerable challenge in a modern environment where high-energy food is always available and often aggressively marketed. The challenge for children is even greater. A reasonable, if contestable, interpretation of the evidence BE has offered on this issue is as follows: it is very unlikely that the strong upward trend towards obesity can be halted without radical alterations to the commercial environment that reduce the salience of unhealthy food, make it less convenient and raise its price. Suppose, for argument's sake, this conclusion is correct. Then there would be scope to use BE to enhance the effectiveness of policy. For instance, a tax on high-energy food, variants of which have already been introduced in Denmark and

Finland, could be tied to a behaviourally tested labelling scheme designed to help consumers identify and avoid the highest energy foods more easily.⁸ Naturally, this view of how the findings of BE might help policy to fight obesity implies radical change and would surely be opposed by the food industry, yet it is not an unreasonable reading of current scientific evidence.

The example shows that, despite being initially inspired by BE, the political philosophy of libertarian paternalism can actually run counter to the evidence provided by BE itself. Behavioural evidence might imply that a problem is very unlikely to be solved without radical intervention in individual choice; that a “nudge” will be insufficient and policymakers need to deliver a much more forceful shove. Libertarian paternalism excludes such policies, regardless of benefits implied by empirical evidence.

A second potential difficulty with libertarian paternalism is the premise that policymakers are able to observe and correctly identify mistakes. With respect to pension policy, perhaps they can. A large majority of policymakers and citizens might agree that under-saving is a widespread error of individual judgement, whereby we fail to act in our own best interests. Yet in other policy areas, it is much less clear whether a mistake is being made. As Sugden (2009) points out, the criteria for determining mistakes are not precisely defined by the libertarian paternalist philosophy. Thaler and Sunstein’s (2008) implication seems to be that whenever choice behaviour departs from neoclassical rationality assumptions it constitutes a mistake, which is an empirically questionable stance (Lunn, 2008; Gigerenzer et al., 2011).⁹

A practical example of where the thinking might come unstuck relates to the apparent reluctance of many consumers to switch from more expensive to cheaper providers in various markets, including utilities and financial services, where consumers appear to leave money on the table by failing to opt for the best deals (e.g. Giulietti, Waddams-Price and Waterson, 2005; Woodward, 2008). Such decision-making departs from neoclassical rationality and arguably undermines the effectiveness of competition. A libertarian paternalist policymaker might therefore try to increase switching by, for example, mandating companies to provide information on how to switch when contracts are renewed, or some similar “nudge”. However, suppose that the reason a substantial proportion of people don’t switch providers in these markets is because they don’t trust

⁸ For instance, it would be possible to trial variants of the “traffic light” food labelling system, where red lights signified not only that a product was very high in calories, but also that it was subject to a fat tax. This might increase the effectiveness of both the labelling system, by making it even more salient, and the tax, by making clear which products were subject to higher prices.

⁹ Although this is not explicitly stated in Nudge, it is implied by the way that the decisions of “Humans” (the real people studied by behavioural economists) are continually contrasted with those of “Econs” (hypothetical people who behave like agents in a microeconomics textbook).

themselves to choose better deals. Note that Wilson and Waddams Price (2010) found that even when choosing electricity supplier, a decision involving simple tariff structures compared to most financial services products, over 80% of UK consumers who switched in order to save money failed to make the optimum choice, while 20-32% actually made themselves worse off. People who depart from the orthodox microeconomic model because they know their own limitations are not necessarily making a mistake – not switching many be the wise choice.¹⁰ In markets where consumers don't choose optimally because they are rightly cautious, a policy that nudges them into more switching may have more costs than benefits. In general, how is the policymaker to determine that a mistake is being made and that a “nudge” is justified?

At various points, Thaler and Sunstein (2008) fall back on the view that mistakes might be identified where we are aware of our own shortcomings, such as in the pension example. Accordingly, a “nudge” is justified where, as citizens, we would agree that it is in our own best interests and would be grateful for being “nudged”. Yet how is this to be judged? What size of majority in favour is needed for the “nudge” to be justified? And do we want to rule out the possibility of visionary policies that might initially be unpopular but ultimately win us over through demonstrable results? Finding a “nudge” to change behaviour assumes that mistaken behaviour can be unambiguously identified. In many policy areas, this assumption may be unsound.

The upshot is two practical problems for libertarian paternalism. First, the political philosophy leaves policymakers unclear as to when an intervention aimed at changing behaviour can be justified, perhaps especially where experts and ordinary citizens hold contrasting views. Second, this approach to policymaking may pretty quickly run out of steam. The impact of BE on pension policy benefitted from the high level of agreement among all stakeholders – government, firms and workers could agree that some workers were not saving enough. Where such uncontentious “nudges” can be identified, we might do well to implement them. But in how many other policy areas does such clear agreement exist? Food companies, consumers and health professionals are unlikely to agree about when buying a “family pack” of chocolate bars constitutes a mistake. Policymaking is more frequently about resolving competing claims or enforcing unpopular choices in pursuit of a

¹⁰ Thaler and Sunstein (2008) are aware that in some markets consumers struggle to choose well because of the complexity of the product choice. They propose a system of mandating companies to provide machine readable feedback to customers, i.e. a computer file that customers could download and then upload to a price comparison site or similar, a system they call RECAP. However, the point being made here is broader: how is the policymaker to identify when a mistake is being made? Suppose we adopt RECAP and some people don't use the new system. Would we conclude at that point that they are making a mistake and look to “nudge” them, or might consumers now have another good reason for not using RECAP? How do we decide?

greater good, often in areas where BE has plenty to contribute on what the likely outcome of various policy options might be.

Libertarian paternalism may well produce some innovative and successful policy ideas based on BE. But it is a political philosophy that exploits scientific findings, not a set of policies backed by scientific evidence. As with other branches of economics, BE does not tell policymakers what they should and should not do. Rather it provides a set of tools that policymakers may be able to use to meet whatever ends their own political philosophy dictates.

5. Taxonomies of Tools

Nudge and its philosophy have undoubtedly led to greater understanding and use of BE by policymakers. A number of other popular books and academic articles have also exploited the intuitive and demonstrable nature of BE findings, highlighting the implications of BE for policy (see Section 1 for references), or providing systematic reviews or debates by policy area (e.g. Foote, Goette and Meier, 2009, presents a good series based on US policy). Various think-tanks and state agencies have also produced summaries of BE findings for policymakers, either of a general nature (e.g. New Economics Foundation, 2005) or specific to a policy area (e.g. Bennett et al., 2010). Yet there are significant problems to be overcome if BE findings are to be exploited beneficially. Some of these are common to the incorporation of any area of technical expertise into policymaking, such as communicating the findings to policymakers accurately and ensuring that they are relied upon only in appropriate contexts. However, two difficulties associated with BE are less common and, it is argued here, central to its successful exploitation by policymakers. First, it is a field with very many relevant empirical results and comparatively little overarching theory. Second, the research frontier is progressing at a rapid pace. Both of these properties of BE are inherent. By incorporating the methods of experimental psychology (and related disciplines) into economics, BE is rapidly generating a great number of fruitful empirical findings. But, as in psychology itself, simple, powerful theories are more difficult to come by. Meanwhile, the bulk of research effort continues to add to the list of empirical findings.

These properties of BE mean that communication of its findings to generalist, non-expert policymakers and politicians can be difficult. This section aims to demonstrate this through a brief examination of MINDSPACE (Dolan et al., 2010), a report published in the UK by the Institute for Government and the Cabinet Office. Its primary aim is to put available evidence from behavioural science into a form where it can be used to inform policy across domains. In the authors' words, the idea is to "address the needs of policymakers" by "condensing the relevant evidence into a manageable 'checklist'" (p. 7). The report is also available in the form of a "practical guide" – effectively a manual for using behavioural science to generate policy. MINDSPACE is arguably the most sophisticated attempt yet to spread knowledge

about BE and related research to generalist policymakers, with the aim of influencing policy design.

MINDSPACE is an acronym and is spelled out in Table 1, as described in Dolan et al. (2010). The idea is that the list acts as a mnemonic, where each term relates to the central finding of a different branch of the now very substantial empirical literature on human judgement and decision-making. Policymakers can check against this list to see whether a policy problem might benefit from one of these insights. In this way, non-experts in BE can access the BE toolkit and use the mnemonic as an initial indication as to whether there is likely to be a useful tool somewhere in the kit for tackling whatever task they face.

Table 1: The MINDSPACE acronym, from Dolan et al. (2010)

M essenger	We are heavily influenced by who communicates information.
I ncentives	Our responses to incentives are shaped by predictable mental shortcuts such as strongly avoiding losses
N orms	We are strongly influenced by what others do
D efaults	We “go with the flow” of pre-set options
S alience	Our attention is drawn to what is novel and seems relevant to us
P riming	Our acts are often influenced by sub-conscious cues
A ffect	Our emotional associations can powerfully shape our actions
C ommitments	We seek to be consistent with our public promises, and reciprocate acts
E go	We act in ways that make us feel better about ourselves

The MINDSPACE acronym is a useful way of keeping in mind a range of behavioural results. But it also serves to highlight how very difficult this is to do. For instance, some crucially important findings of BE do not feature in this list. Since Güth, Schmittberger and Schwarze (1982) first published their findings on the Ultimatum Game, it has been understood that people will act against their own best interests to punish people who treat them unfairly. This finding, together with others revealing the limits to firms’ ability to exploit unanticipated shifts in demand (Kahneman, Knetsch and Thaler, 1986) and the tendency to be “inequity averse” (Fehr and Schmidt, 1999), suggest that perceived fairness plays a strong role in people’s willingness to accept apparently beneficial deals, transactions and policies. It is hard to see an empirical or, more broadly, scientific justification for MINDSPACE

effectively omitting these findings, which seem relevant to policymakers seeking to change behaviour. For instance, a policymaker interested in incentivising workers or contractors might conclude on the basis of findings in BE relating to loss aversion that they will respond more to a threat of losses imposed for poor performance than a promise of gains for good performance. But without considering the likely difference in perceived fairness between two such incentive schemes, the policymaker could easily select a less effective scheme.

The point here is less to criticise MINDSPACE, which is a good effort to condense BE into a user-friendly form, than to make a broader point. It is very difficult to summarise for practical purposes an area of scientific research that is both extensive and rapidly evolving. Continuing the example, Dolan et al. (2010) do refer to studies on fairness in the context of the C of MINDSPACE (Commitment), where they state that we have an instinct for reciprocity that “is linked to a desire for fairness that can lead us to act irrationally” (p. 27), citing the Güth et al. (1982) referred to above. This interpretation of the science is highly contestable. Firstly, Ultimatum Game findings show that people perceive unfairness and punish it in situations where no commitment has been made and there is no opportunity for reciprocity. Secondly, is it irrational to make sacrifices to punish unfairness? Is it irrational to sacrifice earnings by working less hard under an incentive scheme you perceive to be unfair? Arguably not. The issue is important, because while the policymaker is warned that we may react badly to perceived unfairness, the description “irrational” suggests that we deserve little sympathy in the event that we do. There is nothing in the scientific findings on fairness that implies such a stance. Note that this can be considered a partly empirical question, which might be tested by looking for an individual-level correlation between the tendency to make sacrifices to punish unfairness and objective measures of the quality of decision-making, though even such a correlation would be open to alternative interpretations. This sort of problem may help to explain Kahneman’s (2011) reaction on seeing his findings described as revealing human “irrationality”. Declaring behaviour to be irrational is a big claim with strong implications. While many popularisations of BE cannot resist making it, the science is much more subtle, and so may be the implications.

For present purposes, the above example is intended to illustrate the difficulty of turning BE into a toolkit for use by generalists. Many important issues in BE are complex and unresolved. Behavioural economists themselves have not reached a shared understanding of which behavioural findings have the strongest impacts on behaviour, nor in what contexts behavioural biases result in benefit or harm. Yet these issues can be pivotal for the policymaker.

MINDSPACE has been produced with the backing of the UK government to promote the use of behavioural science across government. Again, it is too early to evaluate whether policies inspired by this approach will, on balance, produce more successes than failures. But as the argument above aimed to demonstrate, there are dangers in using this approach to

influence policymakers. MINDSPACE might end up supplying policymakers with tools they do not fully understand and which, if handled inexpertly, have the potential to do damage. Such toolkits may be more useful in a diagnostic sense, for alerting policymakers to situations where orthodox economic models are most likely to fail and where they might benefit from seeking advice from behavioural scientists.

6. Exploiting an Evolving Science

Better exploitation of a substantial, largely empirical and rapidly evolving area of science requires government to harness expertise, gaining access to a broad and up-to-date scientific evidence base. With respect to BE, there is an inbuilt advantage: in most developed countries trained economists are already established components of the policymaking machinery. On the downside, many professional economists and, in particular, the senior economists within government and government agencies were trained prior to the establishment of BE as a forceful sub-discipline. For the majority, BE did not form part of their economic education. This can be problematic, because BE can be perceived as threatening by many economists trained in orthodox neoclassical models, the assumptions of which are undermined by the findings of BE. Rabin (1998) termed the attitude of some traditionally trained economists he encountered as one of “aggressive uncuriosity” towards BE. Yet this is changing. Leading journals in economics now routinely publish BE research and good younger economists are attracted to its potential.¹¹ Furthermore, for the most part government economists tend not to be theoretical but applied economists, who routinely encounter the mismatch between abstract theories and complex applied policy problems – a good position from which to approach the complexities of interpreting the implications of BE.

Early evidence of willingness to embrace BE can be seen in the work of the Government Economic Service (GES) in the UK. This professional network in part exists to maintain and enhance the skills of economists in the UK public service. The GES has held events aimed at communicating and debating the relevance of the main findings of BE and has produced a guide on BE for its members: *Behavioural Economics: A Guide for Economists in Government*. There is explicit recognition that BE is an evolving science within which many theoretical and empirical matters remain outstanding. It is understood that “nudges” are just one potential way in which BE can be used, and that BE is relevant for spotting situations in which orthodox economic models are likely to come unstuck, or where other behavioural factors may interact with material economic incentives. The guidance for GES

¹¹ It remains the case that economists can obtain third-level qualifications and even postgraduate qualifications without needing to study even the basics of BE, despite the fact that it strongly implies limits to the applicability of the theories they learn. The extent of recent policy applications outlined in Section 3 adds to the weight of argument that some BE ought to feature in core economics courses.

members extends to advice on how to design and conduct experiments. Less encouragingly, despite the inclination towards BE within the UK government, concerns have been raised about lack of resources devoted to it within the service (House of Lords Science and Technology Committee, 2011).

Although spreading the word about BE through popularisations and guides for generalist policymakers may be useful, the combination of opportunities and complexities that characterises BE means that inculcating it into a network of trained professionals looks a more promising influence on policymaking. This may seem a rather obvious conclusion to draw, that the best way to exploit scientific advances is to stitch scientific expertise into government, yet the conclusion may carry additional importance where scientific advances are partially unresolved and rapidly evolving. Expanding the skills of government economists to cover BE allows the policymaking process to keep pace. Familiarity with the basic findings and concepts of BE may also help government organisations to determine when it would be beneficial to commission applied research to address specific policy problems.

A useful example relates to competition and consumer protection policy, where the interaction of the existing policymaking infrastructure and advances in BE is developing a substantial and influential body of applied research. BE is highly relevant for this policy area, since many of its findings indicate that firms have the potential to exploit consumers and to escape some of the discipline brought by competition. In recent decades, as governments liberalised markets and negotiated some common international policies, the relevant government organisations had already come to rely on trained economists and the exploitation of academic research. This now seems to be proving advantageous for integrating BE into policymaking. In the UK, the Office of Fair Trading has contributed to academic literature on the implications of BE for its field (Bennett et al., 2010), carried out experiments on how consumers respond to door-to-door salespeople and to the framing or advertisement of prices (Office of Fair Trading, 2004; 2010a, 2010b), and commissioned research on how firms' reactions to consumer decision-making biases might affect market outcomes (Huck, Zhou and Duke, 2011). This body of work is informing the design and enforcement of UK consumer protection regulations. America's Federal Trade Commission (FTC) pulled together leading US academics and policymakers in 2007 for a conference on the implications of BE for consumer protection, at which the FTC contributed its own experiments on consumers' mortgage choices (Lacko and Pappalardo, 2007). In 2008, consumer policy was also the focus of the first of two European Commission conferences on BE, hosted by DG Health and Consumers, and consumer behaviour in retail investment services was the subject of the Commission's first applied behavioural study (European Commission, 2010). Ciriolo (2011) documents the widening influence of BE on EU consumer policy and how other EU Directorates-General have also begun to commission applied BE research on consumer behaviour. Financial regulators, such as the Financial Services Authority in the UK, have also contributed to applied BE work on consumer biases in

choosing financial services products (e.g. de Meza, Irlenbusch and Reyniers, 2008). The CFPB in America intends to engage in ongoing applied research to assist in its consumer protection remit. Overall, an impressive body of applied research is building up. It seems very likely that the considerable overlap in this policy area between the economics profession and government, which existed before BE began its rapid expansion, has accelerated the adoption of BE into competition and consumer policy. The process has engaged some of the world's leading BE researchers in applied research aimed at specific policy problems, while encouraging policymakers to experiment and to pilot new measures in a controlled and scientifically informed manner.

The sophistication of this approach to policymaking extends well beyond any given political philosophy and seems unlikely to be matched by generalist policymakers operating from a written guide, however well constructed. This is not to say that popularisations of the ideas of BE are not important – of course they are. The greater the spread of knowledge among generalist policymakers and politicians the more likely it is that they will seek to benefit from the scientific advances that are taking place. But given the complex, disparate nature of its findings and the lack of widely applicable and accepted theories, good use of BE for policymaking is likely to require expert engagement, applied experimentation and piloting. Trained economists who have developed skills in BE seem appropriate for these tasks.

7. Conclusions

BE has undeniably begun to make considerable strides into the world of government and policymaking. It can already count a number of successes, perhaps most notably in the area of pension reform. The influence of BE stems from its inductive method and the power of demonstration: empirical demonstrations are persuasive for those facing practical problems.

Yet when new ideas enter the world of policy and politics, there are dangers aplenty. BE is not a political philosophy and nor does it imply that any one political philosophy is superior. It is a large and expanding set of scientific findings produced by the application of the inductive methods of experimental psychology (and similar disciplines) to economic problems. The findings are connected by some mostly embryonic theories, which presently lack the scope and explanatory power of orthodox neoclassical microeconomics. Scientifically, BE is likely to continue to grow and to produce more systematic insights into human behaviour that have the capacity to inform policymakers about the likely outcome of certain policies and to inspire new policy ideas. The key question is how best to integrate this relatively new and evolving science with the process of policymaking.

Libertarian paternalism is one way to exploit BE and has received an enthusiastic response from some politicians and policymakers, especially in the US and UK. It may ultimately be

seen to produce successful policies. But it is only one perspective on how to use the findings of BE; one that may face limitations. There is a danger that the philosophy biases policymakers away from more strident government action where scientific evidence, including that derived from BE, implies the need for more forceful intervention. Most importantly, “nudges” only make sense where the decisions of citizens can clearly be improved, yet such situations are not easy for policymakers to identify unambiguously.

The findings of BE have been summarised in various forms to assist non-expert policymakers who are seeking to change behaviour. The present analysis concentrates on arguably the most comprehensive of these efforts published to date, MINDSPACE (Dolan et al., 2010). This approach to integrating BE into policymaking is helpful in spreading knowledge and highlighting where orthodox economic approaches to policy might fail. But it is also limited by the difficulty of condensing an already large, still expanding and often scientifically contested field into non-technical form, without potentially worrying distortions or errors. There is no substitute for expertise; cribsheets are a crude way to engage with and exploit it.

Unlike other sub-disciplines of science, BE has the advantage that there exists a professional network within its broader discipline that is, in many countries, already part of the policymaking process. This may well represent the best chance to integrate rapidly evolving science with policymaking effectively. To do so requires that professional economists be open to BE, kept up to date in their expertise, and trained to add experimentation to their skill-set. Even with an informed government economic service, there are times when applied BE research will need to be commissioned from outside government to address specific policy problems.

Given these conclusions, Ireland’s situation is particularly interesting. BE has yet to break through into policymaking in Ireland as it has in other countries, perhaps in part because the relationship between government and the economics profession has tended to be more distant than elsewhere. Much has been written about whether a lack of economic expertise in government contributed to Ireland’s economic crisis.¹² Whatever conclusion one draws on the matter, it is likely at this stage that Ireland will aim to increase the number of economists within the public service and, perhaps, launch a formalised public economic service. Recruiting an economic service from scratch is an opportunity to examine how it is done elsewhere and to complete an assessment of the skills economists require for doing applied policy work. While there are clearly important demands for expertise in a number of areas, perhaps most notably public finance and macroeconomics, the trends identified in this

¹² For contrasting views see, among others, The Irish Times, 10 January, 2009, “Opposition to Civil Service Economists a Costly Error”, and Sunday Independent, 23 May, 2010, “Our Obsession With PhD Economists is Big Mistake”.

paper suggest a public economic service would benefit from expertise in BE. Perhaps more importantly, a good economic service would aim to update the skills of its members. The evidence reviewed here points to a return from training in BE and developing the ability to conduct more experiments and pilots.

Our improved understanding of human behaviour ought to lead to policies that exploit it. This is more likely to come about if the best route is found to integrate that understanding with the decisions taken by governments.

References

- Amir, O., Ariely, D., Cooke, A., Dunning, D., Epley, N., Gneezy, U., Köszegi, B., Lichtenstein, D., Mazar, N., Mullainathan, S., Prelec, D., Shafir, E and Silva, J. (2005). Psychology, behavioural economics, and public policy. *Marketing Letters*, 16, 443-454.
- Barr M.S., Mullainathan, S. and Shafir, E. (2008). Behaviorally informed financial services regulation. Washington DC: New America Foundation.
- Behavioural Insights Team (2011). Annual Update 2010-11. London: Cabinet Office.
- Bennett, M., Fingleton, J., Fletcher, A., Hurley, L. and Ruck, D. (2010). What does behavioural economics mean for competition policy? *Competition Policy International*, 6, 111-137.
- Bernheim, B.D. and Rangel, A. (2009). Beyond revealed preference: choice-theoretic foundations for behavioural welfare economics. *Quarterly Journal of Economics*, 124, 51-104.
- Carroll, J.D., Choi, J.J., Laibson, D., Madrian, B.C. and Metrick, A. (2009). Optimal Defaults and Active Decisions, *Quarterly Journal of Economics*, 124, 1639-1674.
- Chetty, R., Looney, A. and Kroft, K. Forthcoming. Salience and Taxation: Theory and Evidence. *American Economic Review*, 99, 1145-1197.
- Congdon, W.J., Kling, J.R. and Mullainathan, S. (2011). Policy and Choice: public finance through the lens of behavioural economics. Washington DC: Brookings Institution Press.
- Delaney, L. (2011). Behavioural economics and Irish policy: Insights from international experience. Paper presented to the Kenmare Economic Policy Conference 2011. Available at: <http://geary.ucd.ie/econpsych/images/kenmare20th.pdf>
- Delaney, L., Harmon, C., McHale, J. and O'Hara, K. (2012). Automatic for the People – Behavioural Economics and Retirement Income Savings. In preparation.
- DellaVigna, S. (2009). Psychology and Economics: Evidence from the Field. *Journal of Economic Literature*, 47, 315-372.
- De Meza, D., Irlenbusch, B. and Reyniers, D. (2008). Financial Capability: A Behavioural Economics Perspective. London: Financial Services Authority.
- Department of Health (2010). Healthy lives, healthy people: our strategy for public health in England. London: Department of Health.
- Department of Social Protection (2010). National Pensions Framework. Available at: www.nationalpensionsframework.ie
- Dolan, P., Hallsworth, M., Halpern, M King, D. and Vlaev, I. (2010). MINDSPACE: Influencing behaviour through public policy. London: The Cabinet Office/Institute for Government.
- Fehr, E. and Schmidt, K.M. (1999). A theory of fairness, competition, and cooperation. *Quarterly Journal of Economics*, 114, 817–868

- Foot, C.L., Goette, L. and Meier, S. (2009). *Policymaking Insights from Behavioral Economics*. Boston: Federal reserve Bank of Boston.
- Frederick, S., Loewenstein, G. and O'Donoghue, T. (2002). Time discounting and time preference: a critical review. *Journal of Economic Literature*, 40, 351-401.
- Gabaix, X. and Laibson, D. (2006). Shrouded Attributes and Information Suppression in Competitive Markets. *Quarterly Journal of Economics*, 121, 505-540.
- Garcés, E. (2010). The impact of behavioral economics on consumer and competition policies. *Competition Policy International*, 6, 145-152.
- Gigerenzer, G., Hertwig, R. and Pachur, T (2011). *Heuristics: the foundations of adaptive behaviour*. New York: OUP.
- Giulietti, M., Waddams Price, C. and Waterson, M. (2005) Consumer choice and competition policy: a study of UK energy markets, *Economic Journal*, 115, 949-968.
- Güth, W., Schmittberger, R. and Schwarze, B. (1982). An Experimental Analysis of Ultimatum Bargaining, *Journal of Economic Behavior and Organization*, 3, 367-88.
- House of Lords Science and Technology Committee (2011). *Behaviour Change*. Available at: <http://www.parliament.uk/hlbehaviour>
- Huck, S., Zhou, J. and Duke, C. (2011). *Consumer Behavioural Biases in Competition: A Survey*. London: Office of Fair Trading.
- Iyengar, S.S., Huberman, G. and Jiang, W. (2004). How Much Choice Is Too Much? Contributions to 401(k) Retirement Plans. In *Pension Design and Structure: New Lessons from Behavioral Finance*, Mitchell, O.S and Steve Utkus, S. (eds.) Oxford: Oxford University Press, 83–95.
- Iyengar, S.S. and Lepper, M.R. (2000). When choice is demotivating: can one desire too much of a good thing? *Journal of Personality and Social Psychology*, 79, 995–1006.
- Jackson, T. (2005). *Motivating Sustainable Consumption*. Report for the Sustainable Development Research Network, available at: http://www.sd-research.org.uk/wp-content/uploads/motivatingfinal_000.pdf
- Just, D.R., Mancino, L. and Wansink, B. (2007). Could behavioral economics help improve diet quality for nutrition assistance programme participants? *Economic Research Report Number 43*, United States Department of Agriculture.
- Kahneman, D. and Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, vol. 47, pp. 263-291.
- Kahneman, D., Knetsch, J.L. and Thaler, R.H. (1986). Fairness as a Constraint on Profit Seeking: Entitlements in the Market, *American Economic Review*, 76, 728-741.
- Kahneman, D. (2011). *Thinking, Fast and Slow*. New York and London: Penguin.

- Lacko, J.M. and Pappalardo, J.K. (2007). *Improving Consumer Mortgage Disclosures: An Empirical Assessment of Current and Prototype Disclosure Forms*. Washington DC: Federal Trade Commission.
- Leong, W.Y. and Lew, Y.D. (2011). *A Behavioural Perspective to Managing Traffic Congestion in Singapore*. In *Behavioural Economics and Policy Design: Examples from Singapore* (Low, D., ed.). Singapore: World Scientific.
- Lunn, P.D. (2008). *Basic instincts: Human nature and the New Economics*. London: Marshall Cavendish.
- Lunn, P.D. (2012). *Can Policy Improve Financial Decision-Making?* Forthcoming as ESRI Renewal Series, No. 8. Dublin: ESRI.
- Madrian, B.C. and Shea, D.F. (2001). *The power of suggestion: inertia in 401(k) participation and savings behaviour*. *Quarterly Journal of Economics*, 116, 1149-1187.
- McAuley (2010). *When does behavioural economics really matter?* Paper presented to the Australian Economic Forum, August 2010. Available at <http://www.home.netspeed.com.au/mcau/academic/confs/bepolicy.pdf>
- New Economics Foundation (2005). *Behavioural economics: seven lessons for policymakers*. Available at: <http://neweconomics.org/publications/behavioural-economics>
- Office of Fair Trading (2004). *Doorstep Selling: A Report on the Market Study*. London: Office of Fair Trading.
- Office of Fair Trading (2010a). *The Impact of Price Frames on Consumer Decision Making*. London: Office of Fair Trading.
- Office of Fair Trading (2010b). *Advertising of Prices*. London: Office of Fair Trading.
- Plott, C.R. and Zeiler, K. (2007). 'Exchange Asymmetries Incorrectly Interpreted as Evidence of Endowment Effect Theory and Prospect Theory?', *American Economic Review*, vol. 97, pp. 1449-66.
- Poterba, J. (2009). *Behavioral economics and public policy: Reflections on the past and lessons for the future*. In *Policymaking Insights from Behavioral Economics* (Foote, L., Goette, L. and Meier, S., eds.). Boston MA: Federal Reserve Bank of Boston.
- Productivity Commission (2008a). *Behavioural Economics and Public Policy*. Roundtable Proceedings. Canberra: Productivity Commission.
- Productivity Commission (2008b). *Review of Australia's Consumer Policy Framework*. Final Report. Canberra: Productivity Commission.
- Rabin, M. (1998). *Psychology and Economics*. *Journal of Economic Literature*, 36, 11-46.
- Samuelson, W. and Zeckhauser, R. (1988). *Status Quo Bias in Decisions Making*. *Journal of Risk and Uncertainty*, 1, 7-59.
- Shiller, R.J. (2005). *Behavioral economics and institutional innovation*. Cowles Foundation Discussion paper No. 1499, Yale University.

- Sugden, R. (2009). On Nudging: A Review of Nudge: Improving Decisions About Health, Wealth and Happiness by Richard H. Thaler and Cass R. Sunstein. *International Journal of the Economics of Business*, 16, 365-373.
- Sunstein, C.R. and Thaler, R.H. (2003) Libertarian paternalism. *American Economic Review, Papers and Proceedings*, 93, 175–179.
- Thaler, R.H. and Sunstein, C.R. (2008). *Nudge: improving decisions about health, wealth, and happiness*. Yale University Press.
- Turner, J. (2009). *The Turner Review: A Regulatory Response to the Global Banking Crisis*. London: Financial Services Authority.
- Wilson, C.M. and Waddams Price, C. (2010). Do Consumers Switch to the Best Supplier? *Oxford Economics Papers*, 62, 647-668.
- Woodward, S. (2008). *A Study of Closing Costs for FHA Mortgages*. Washington, DC: Department of Housing and Urban Development.

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