When does behavioural economics really matter?

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Summary

Behavioural economics integrates the formal study of psychology, including social psychology, into economics. Its empirical base helps policy makers in understanding how economic actors behave in response to incentives in market transactions and in response to policy interventions.

This paper commences with a short description of how behavioural economics fits into the general discipline of economics. The next section outlines the development of behavioural economics, including its development from considerations of individual psychology into the fields of neurology, social psychology and anthropology. It covers developments in general terms; there are excellent and by now well-known detailed descriptions of the specific findings of behavioural economics. The final section examines seven contemporary public policy issues with suggestions on how behavioural economics may help develop sound policy. In some cases Australian policy advisers are already using the findings of behavioural economics to advantage.

It matters most of the time

In public policy there is nothing novel about behavioural economics, but for a long time it has tended to be ignored in formal texts. Like Molière's Monsieur Jourdain who was surprised to find he had been speaking prose all his life, economists have long been guided by implicit knowledge of behavioural economics, particularly in macroeconomics.

Keynes, for example, understood perfectly the "money illusion" – people's tendency to think of money in nominal rather than real terms – in his solution to unemployment. He also recognized economic motivations apart from those based on rational calculation:

> Most, probably, of our decisions to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as the result of animal spirits – a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities.[1]

The global financial crisis has reminded us once again of the economic role of trust and confidence – social capital attributes which are difficult to incorporate in disembodied models of "rational" decision-making. As John Kenneth Galbraith pointed out, a destructive process of positive feedback can rapidly wipe out trust and therefore the availability of finance.[2]

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1. Keynes, 1936.
2. Galbraith 1975.

Referring to the recent financial crisis George Akerlof and Robert Shiller have described the psychological drivers of economic activity: we cannot understand the economic developments of recent times without psychological insights which go beyond established notions of "rationality".[3]

The origins of behavioural economics will be covered further on. For now, it suffices to place behavioural economics as a complement to what may be called "standard" economics, based on axioms of rationality – "rationality" in its economic sense, described by Joseph Stiglitz in his basic text as meaning:

> . . . that people weigh the costs and benefits of each possibility. This assumption is based on the expectation that individuals and firms will act in a consistent manner, with a reasonably well-defined notion of what they like and what their objectives are, and with a reasonable understanding of how to attain those objectives.[4]

Behavioural economics is an empirical complement to deductive processes based on those assumptions. In any discipline with practical applications – such as public policy – conclusions reached by chains of deductive logic based on those assumptions require the test of falsifiability or refutability, or at least that they be supported by confirmatory evidence.[5]

That is not to dismiss the axioms of rationality, or to make the trivial claim that they are false because some people, some of the time, exhibit "irrational" behaviour. Many of the findings of behavioural economics do, indeed, violate these axioms, but that does not render them useless, any more than Einstein's findings render Newtonian mechanics useless: Newton's mechanics are still quite adequate for almost all practical purposes.

If, in many situations, economic behaviour is clustered in a reasonably tight Gaussian distribution around a "rational" mean, then the predictive validity of the rational model holds, but that does not mean public policy should ignore behaviour on the tails of the distribution. Extreme departures may require policy interventions. For example, most people rationally avoid self-harm, but there will be extreme tails of highly protective and of highly reckless behaviour: the latter may require specific protection.

Behavioural economics is not concerned with such "normal" phenomena; rather it is concerned with *consistent* patterns of behaviour which depart from rational actor models. The mean may be displaced (as when most people under-save for retirement), or the distribution of behaviour may reflect several nodes of behaviour (as when users of credit cards cluster around those who pay in full and those who pay minimum amounts).

In terms of public policy, most such departures from rationality have little or no consequence. In many markets we learn as we go, suffering minor inconveniences or opportunity losses which we may rectify with repeat purchases, as in markets for "experience goods". In other

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3. Akerlof and Shiller 2009.

4. Stiglitz 2003. A more formal description is to express the axioms of rationality in terms of preferences being complete, reflexive and transitive.

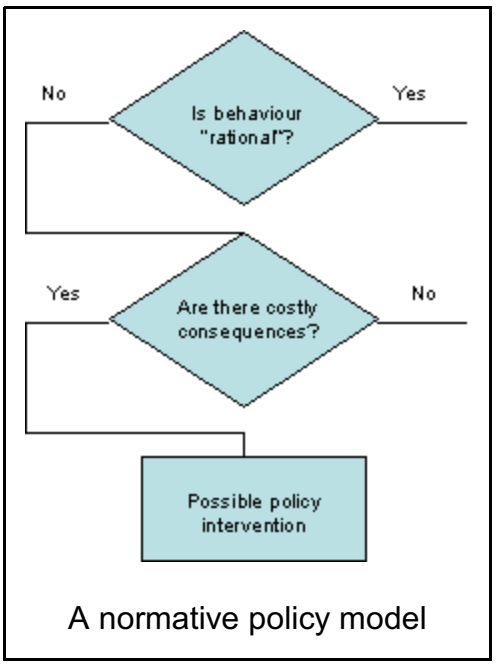
5. It is possible to accommodate "non-rational" behaviour with a set of indifference curves with a quality such as "non-rational utility" on one axis, thus ensuring that *all* behaviour can be modelled by such basic axioms. As elegant as such a construction may be, its limitation is that it is non-falsifiable, and therefore useless as a guide to policy. For a basic description of scientific method as applied to practical disciplines, see Hempel 1966.

situations our departures from rationality may persist, but with minor consequences. For example, most people tend to over-insure for events with minor consequences, but the costs so incurred may not be large.[6]

As a normative principle, public policy makers should be concerned, however, when there are costly consequences of departures from rational behaviour.

Costly consequences may arise because there are substantial amounts at stake, as with the purchase of a house, or when there are substantial delays between purchase and consequences, as with retirement products. In big or "one shot" transactions learning by experience is not practical. Also, as Sendhil Mulainathan and Eldar Shafir remind us, a bad decision by someone who is well-off may pass unnoticed, while that same decision may have severe consequences for someone with limited means.[7]

As a general pattern, costly consequences arise when the "heuristics" (rules-of-thumb) we use to make decisions let us down. Most of the time these heuristics serve us well because they save us search costs, with little loss from making sub-optimal decisions. Without them we would be frozen into indecision, like the savant character in the movie *Rain Man*. But there are situations when they do let us down. The contribution of behavioural economics is to identify common features and patterns in such situations.



A normative policy model

Costly consequences may arise also in public policy interventions which disregard or miscalculate actors' responses to admonitions or incentives. Interventions to correct for market failure do not always work as intended: behavioural insights may help explain such problems and help in the design of more effective or less costly interventions. A selection of policy issues with behavioural relevance is covered in the third part of this paper. But, first, a brief exploration of behavioural economics.

What is behavioural economics?

There was an outburst of interest in behavioural economics following the 2002 award of the Nobel Prize in Economics to Daniel Kahneman. In itself this awakening of interest suggests that academics are influenced by the "availability heuristic", for the discipline tended to lie somewhat unnoticed until the Nobel Prize gave the world a vivid reminder of its existence.

6. The "pseudocertainty" effect leading to over-insurance is described in Kahneman and Tversky 1981. For an empirical study, see Sydnor 2007.

7. Mulainathan and Shafir 2009.

Its psychological basis

Colin Camerer and George Lowenstein, in introducing their book on behavioural economics, claim that "behavioural economics increases the explanatory power of economics by providing it with more realistic psychological foundations".[8] A key defining term is "psychological".

Psychology does not and cannot explain all departures from "rational" economic behaviour. The purest models of rational behaviour assume zero or vanishingly low search and transaction costs, for example. Some would include Simon's model of "bounded rationality" as a behavioural model, but it would not fit Camerer's and Lowenstein's definition, for Simon's model is primarily concerned with search costs: the decision-maker searches until the marginal cost of search equates to the marginal benefit of extra information, which is quite normal economic behaviour.[9] The way in which people interpret information, however, is a matter of behavioural economics with its concern for framing biases and statistical misinterpretations, and even well-informed people do not necessarily use information "rationally".

Similarly, Akerlof's "lemons" model, while describing a market failure often rectified by policy interventions, is mainly about problems in communicating trust.[10] While the technical problem of communicating the quality of complex goods falls into the arena of information economics, the psychology of trust is of concern to behavioural economists.

Game theory also transcends the boundaries between information economics and behavioural economics.[11] Games such as the "ultimatum" and "dictator" games, and "prisoners' dilemma" games, have strong psychological dimensions, particularly in terms of signalling and assumptions about norms of behaviour. They extend behavioural economics beyond considerations of individual psychology into social psychology, for actors' behaviour, particularly in opening rounds of repeated round games, is highly influenced by their assumptions about social norms of behaviour.

A long history

While behavioural economics brings a formal psychological dimension to economics, it would be insulting to the discipline of economics to suggest it has only recently accommodated psychology into theories of decision-making.

For example, in 1739 Hume wrote on what would later become known as "hyperbolic discounting" or "myopia" in decision-making:

> There is no quality in human nature, which causes more fatal errors in our conduct, than that which leads us to prefer whatever is present to the distant and remote.[12]

8. Camerer and Lowenstein in Camerer, Lowenstein and Rabin (eds) 2004.
9. Simon 1957.
10. Akerlof 1970.
11. Camerer 2003.
12. Hume 1739.

More generally, Adam Smith in 1759 referred to the tension between the "indifferent spectator", cool and calculating, and the "fury of his desires."[13] Behavioural economists have identified several more specific behavioural references in Smith's writing, such as loss aversion ("we suffer more ... when we fall from a better to a worse situation, than we ever enjoy when we rise from a worse to a better"), overconfidence ("overweening conceit"), and a concern for fairness in transactions.[14]

Perhaps the Christian invocation "lead us not into temptation" can be seen as an even more ancient recognition of limits on self-control and to what Thomas Schelling refers to as the demand for self-binding or pre-committing mechanisms.[15] Schelling developed his well-known idea of an alarm clock placed away from the bed as a self-control mechanism engaged by the "rational self" at bed time to force the "irrational self" to get up in the morning. In a practical application just such a contract was made available to Australian cellphone customers who were given the option of paying a small fee to block their own access to certain numbers before they went out to get drunk.[16] More common pre-commitments are "Christmas Club" savings, voluntary exclusion from casinos, and upfront payments for gym membership as a means of reducing the marginal financial cost of going to the gym, even if the cost of pain cannot be avoided.[17]

Knowledge of the psychological foundations of consumer behaviour is basic to the discipline of marketing: marketing students and practitioners would find little that is new in behavioural economics. Advertising experts would be out of work if the economists' notion of stable preferences were to hold. The firm that offers a cash back refund rather than a discount is acting in accordance with prospect theory's findings on reference-point dependence. Insurers have long known that people tend to think about loss from a zero base (thus heightening the influence of loss aversion), and that people find it difficult to conceptualize and compare risks with low probability. Advertisers know to appeal to immediate product benefits, while pushing long-term costs into the background.

An empirical approach

Behavioural economics did not introduce empiricism to microeconomics. There is a long history of empiricism in microeconomics, particularly in relation to public policy. For example, public policy has often been concerned with issues of price and income elasticity of taxed commodities such as gasoline and tobacco, and with the effects of incentives such as rebates for health insurance or child care.

Behavioural experiments preceded the formal integration of psychology into economics. The earliest known classroom experiments in what has come to be known as "experimental economics" were conducted at Harvard in 1948 by Edward Chamberlin.[18]

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13. Smith 1759.
14. Ashraf et al 2005.
15. See "The intimate contest for self-command" in Schelling 1984.
16. See http://news.cnet.com/2100-1039_3-5472053.html
17. The pre-payment mechanism, however, does not always work. See DellaVigna and Malmendier 2006.
18. Chamberlin 1948.

One early experimental exposure of conflicts in the axioms of economics was by Maurice Allais, who in 1952 exposed what came to be known as the "Allais Paradox".[19] Faced with the need to choose between bundles of gambles, people did not apply similar choices to gambles with equal outcomes (equal in terms of both payoffs and probability): they were inconsistent in their choices.

Such empirical findings, while interesting and possibly practical, lacked the backing of plausible explanatory mechanisms: they could be described as being based on "narrow inductivism".[20] What behavioural economics has contributed is a plausible psychological explanation for phenomena such as the Allais Paradox: our choices are influenced by the way options are framed, and such framing is more or less likely to trigger our desire for loss-aversion.

Similarly, the well-known coffee mug experiments conducted by Kahneman and his colleagues showed that indifference curves could intersect, another violation of the axioms of economics. Those students who had been given coffee mugs or pens valued them much more highly than those who had the option of buying a mug or a pen.[21] The psychology behind such reluctance to trade is known as the "endowment effect".

Naming a repeated phenomenon does not, in itself, provide an explanation of the mechanisms at work, but there is evidence from the emerging and related field of neuroeconomics that different areas of the brain handle different types of decisions. Kahneman, in his Nobel Prize Lecture, cited evidence that we have two modes of decision-making – System 1 which is "fast, automatic, effortless, associative, and difficult to control or modify", and System 2 which is "slower, serial, effortful, and deliberately controlled ...also relatively flexible and potentially rule-governed."[22]

In a major work of research, pulling together findings from neurology (including decision experiments monitored with brain imaging), Camerer, Lowenstein and Prelec have compiled some preliminary findings of neuroeconomics.[23] Their more significant findings include:

- Our economic behaviours along dimensions such as time preference, risk preference and altruism are domain-specific. Our discount rates may reveal myopia in some domains and even hyperopia in others.[24] For example, one may be highly disciplined in relation to saving, but quite impulsive in relation to diet.
- We may value money in its own right, not just as a medium of exchange to obtain goods and services, thus shedding light on some behavioural biases such as the money illusion and loss aversion, which is higher when money is at stake than when goods or tokens (e.g. frequent flyer points) are at stake. We behave differently in relation to

19. Allais 1953.
20. See Hempel 1966 for an outline of inductivist processes.
21. Kahneman et al 1991.
22. Kahneman 2002.
23. Camerer et al 2005.
24. Hyperopia is revealed in behaviours such as obsessive saving. It generally does not require public policy intervention, for marketers have strong incentives to neutralize it, See, for example, Keinan and Kivetz 2008.

cash and debit cards. This neurological finding aligns with sociologists' findings that money from different sources had different meanings: "mental accounts" have a long social history.[25]

- We seem to distinguish between "wants" and "likes"; an observer cannot necessarily infer what people like from what they want. Wanting is about motivation while liking is about pleasure. (Consider situations where you have not had the motivation to do something which you know would have been enjoyable.)
- Demands on our controlled, cognitive system (what Kahneman refers to as "System 1") can decrease its capacity for decision-making. Salespeople promoting a product can load our mind with minor but complex technical details in order to distract us from more important considerations.[26]
- We use the left hemisphere of our brain to assess probabilities, but the right side of our brain to process logic. That is why we may not see the logical faults in errors resulting from the conjunctive bias.
- In situations where we must decide whether to be trusting or untrusting (e.g. prisoners' dilemma situations), our hormone cycles influence our decisions.
- Even if we strive to avoid stereotyping (e.g. on race or sex), we automatically develop stereotypes through associations of which we have no awareness. This has implications for discrimination in employment.

Neuroeconomics is a developing discipline which, given the resources of the advertising industry, is bound to grow. Academics and policymakers are at risk of being left behind if they fail to integrate it into their studies. Pete Lunn lays down the challenge of neuroeconomics:

> The arrival of "neuroeconomics", the application of the techniques of neuroscience to economic problems, is perhaps the ultimate indication that economists are going to have to deal with the fact that humans are flesh and blood.[27]

For anyone sceptical about neuroeconomics, Kahneman, in his Nobel Lecture, lays down a challenge with Shane Frederick's "bat and ball" experiment:

> A bat and a ball cost $1.10 in total. The bat costs $1 more than the ball. How much does the ball cost?

It suffices to say that most people, including learned economists or journalists reading a conference paper, answer "ten cents". The wrong hemisphere is at work. Sound decision-making often rests not so much on technical skills (anyone can solve the bat and ball experiment with basic algebra or with trial and error) but more on being able to identify the nature of the problem.

It is possible to present many more illustrations of classroom experiments in behavioural economics illustrating biases. Indeed, that was my approach when behavioural economics

25. Zelizer 1989.
26. Shiv and Fedorikhin 1999.
27. Lunn 2008.

was still a novelty, at least in Australia.[28] Few subjects present themselves with such engaging didactic methods, or with ready-made quizzes which can be run for stakes of a glass of beer. By now, there is far more familiarity with these findings of experimental economics. Also, I have become concerned that classroom simulations, engaging as they are, can be seen as "mere games" or curiosities of pop psychology, rather than as models of real-world phenomena.

From the classroom to the market

A persistent criticism of experimental economics is that classroom findings, generally with low stakes and generally conducted on students who are unrepresentative of the population, do not necessarily extend to the population as a whole.

That is a valid criticism, but all social sciences, including economics, suffer from limitations in real-world experimentation: some experimental base is better than none. And classroom experiments can provide hypotheses for testing in real situations.

The discipline of behavioural finance, another branch of behavioural economics, is provided with a number of natural experiments in investor behaviour, many of which mirror the more restricted findings of classroom experiments. Studies in behavioural finance have confirmed behavioural phenomena including loss aversion, short-termism, the endowment effect, the gambler's fallacy (seeing meaning in runs), trading on momentum, naïve diversification, anchoring and adjustment biases, and overconfidence. These studies have revealed such behaviours among investors, advisors and even regulators.[29]

Behavioural finance takes us well into the realm of social psychology. Shiller has examined stock markets as social phenomena, and has found social influences such as fads and fashion influencing investor behaviour.[30] The behavioural phenomenon of overconfidence may, at first, appear to be an individual bias, but in most situations overconfidence relates to comparison with others. In classroom settings participants rate themselves as better drivers/cooks/investors compared with others, and in financial markets the real-world comparison is with other investors and advisors.[31]

One increasingly strong focus of public policy is concerned with what has come to be known as "decision architecture", particularly through use of defaults. Camerer and his colleagues have developed the tantalizing term "libertarian paternalism" to describe choice designs which allow a wise choice to be made with ease (often through easy defaults) but which do not prevent a more considered choice to be made.[32] "Opt out" schemes for organ donation, contributions to pension schemes, and provision of data for health research provide examples

28. See, for example, my 2008 paper presented to the Australian Bankers' Association "You can see a lot by just looking: Understanding human judgement in financial decision-making", available at the Centre for Policy Development www.cpd.org.au
29. For collections of research in behavioural finance, see Thaler (ed) 1993 and 2005.
30. Shiller 1984.
31. For an example of the social dynamics of overconfidence in financial markets, see Kent et al 2005.
32. Camerer et al 2003.

of such choice design. There is ample evidence that defaults work: in the next section of this paper are examples from current Australian public policy.

One reason defaults are effective is that the default is the choice (or non-choice in reality) with the lowest search and transaction costs, but there are almost certainly other reasons, psychological in nature, because the default, by its nature, suggests the existence of a social norm. Richard Thaler and Cass Sunstein provide many examples of the use of defaults and other decision architecture mechanisms, and, while not overlooking transaction and search costs, suggest that psychological factors are strongly at work.[33]

Another social dimension of behaviour, not easily accommodated in rational models but identified by behavioural economists, is envy. Jon Elster distinguishes between weak and strong envy. Weak envy exists when I gain pleasure at seeing you brought down, without any change in my condition. Strong envy exists when I am willing to bear a personal cost to bring you down. Elster also refers to induced envy which occurs when, through conspicuous consumption or other displays, one gains pleasure from making others feel envious.[34] Envy cannot be accommodated within an individual-based decision model.

We tend to think of envy as destructive in that it involves losses (deadweight losses) without offsetting gains, unless one places a high value on *schadenfreude*. But it is not far removed from the phenomenon of "altruistic punishment" described by Ernst Fehr and Simon Gächter.[35] We punish free riders even if doing so imposes costs on the punisher. A narrow interpretation of such behaviour focuses on its costs, but a system-wide view can reveal benefits, in that such behaviour, in encouraging cooperation, brings more resources into useful production, and, as norms of cooperation and trust are established, reduces transaction and enforcement costs.[36] Kenneth Arrow acknowledged the economic value of trust when he wrote:

> Virtually every commercial transaction has within itself an element of trust… it can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence.[37]

Stephen Knack and Philip Keefer confirm Arrow's faith in trust.[38] Their survey of 29 countries with market economies shows that countries with high social capital (generally measured by trust, income equality and civic norms) have high rates of investment and economic growth. It is difficult to imagine a well-functioning market where there is not already a strong society with well-developed values and norms of behaviour.

All of these constructions of economic behaviour have to dispense with the individual choice models of microeconomics, and to see economics in a social context.

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33. Thaler and Sunstein 2008.
34. Elster 1991.
35. Fehr and Gächter 2000, 2002.
36. See, for example, Nowak et al on their "arithmetics of mutual help" (1995), which extends Axelrod's simulation of repeated-round prisoners' dilemma situations (1984).
37. Arrow 1972.
38. Knack and Keefer 1997. They do not state categorically a direction of causality.

The market as a developing social phenomenon

While our tendency to trade and to specialize in activities dates back at least to the neolithic era and probably earlier (consider the ancient trade traditions of indigenous Australians), the market as we now know it is a comparatively recent phenomenon.

There is a rich field of economic anthropology which remains, as yet, largely outside formal university economic curriculums. For almost all of our million years we have lived in small tribes. For most of that time there has been little point in saving or other delayed gratification: stored food would rot or be stolen by other humans or other animals. Therefore much of what we have to do to survive and prosper in markets is not hard-wired. Practices such as deferring gratification or trusting strangers do not come naturally.

Richard Swedberg outlines the social development of markets over time.[39] For a long time tribes would engage in internal sharing complemented by limited trade with outsiders, often in hostile circumstances. Markets have slowly evolved with more internal competition within tribes or societies, and with more formal conventions governing external trade, but right up to very recent times market transactions have been prescribed by strong social norms and have been characterized by high measurement and enforcement costs, and low levels of "outsider" trust.

Mechanisms of enforced competition are particularly modern: the Sherman Act, for example, is only 120 years old. And international rules on trade – the Bretton Woods rules – are only 60 years old.

Karl Polanyi, writing in 1945, pointed out that markets are social creations. Markets have traditionally been embedded within society, subject to society's norms.[40] There are many economic activities which do not easily fit into a definition of "market" transactions. There are complex transfers within extended families, gifts, re-distributions through monetary or in-kind charitable donations, household production and so on, all guided through societal norms. Every society has written and unwritten rules about what can and cannot be traded in markets – sex, votes, child labour, organs, emergency services etc.

Peter Drucker in his major study of General Motors, was one of the first management theorists to point out that corporations are social institutions, extending Ronald Coase's theory of the firm, based on transaction costs, to a more general social model.[41]

It is accepted political wisdom that markets develop as amoral institutions, displacing conventions of sharing, but Camerer has analyzed cross-cultural research on prisoners' dilemma and similar games or trust, suggesting that those societies with more experience of markets (what he calls "market integration") have stronger propensities to trust and to share with one another.[42] Albert Hirschman identified competing influences of markets on social norms: on the one hand markets had a civilizing influence on behaviour, but the norms of capitalism were destructive of morality, undermining motives to behave with prudence,

39. Swedberg 1994.

40. Polanyi 1945.

41. Drucker 1946, Coase 1937.

42. Camerer 2003.

justice and honesty.[43] Later researchers have suggested a curvilinear relationship between the degree of market integration (specifically the degree of competition) and cooperation.[44]

While some economists may see the impersonal, rational market as a natural order, subject only to defined market failures (information, externalities, non-excludabilty etc), it may be premature to declare an end to economic history with the market triumphant. We are still learning how to live with markets. Until recently most people, even in industrialized societies, had no surplus to save and no opportunity to borrow. Mortgages for the "common people" came into being only in the 1920s, and other forms of consumer credit are even newer.[45] We still have a great deal to learn about how consumers behave in financial markets. And even 400 years after the Dutch "tulipmania" the latest financial crisis reminds us that we are still learning that so-called sophisticated investors defy notions of rational expectations.

Markets exist as social phenomena, within a field of informal constraints of social norms and formal constraints of public policy. Those constraint boundaries move inwards or outwards over time; the shape of the field changes and we cannot predict the direction of those changes.

Behavioural economics and public policy

De facto, behavioural economics is established in public policy, even if it is only recently that its influence has been formally acknowledged, and, because of its empirical base, its use is compatible with the practice of evidence-based policy.

I will outline seven areas of public policy where behavioural economics has had an influence, or may have one in the future, moving from the established to the speculative. These are:

- consumer policy;
- retirement saving;
- public goods;
- user charging;
- climate change;
- the poverty of social exclusion;
- mortgage stress and monetary policy.

Such a list covers a huge field, but I will focus on particular aspects in each case.

43. Hirschman 1982.

44. See, for example, Graafland 2009.

45. See Ferguson 2008 for the development of mortgages in the US – a slow process.

1. Consumer policy

Consumer policy is one of the first areas of public policy where behavioural economics has been debated. In 2005 and 2006 the OECD convened two roundtables on consumer policy, dealing mainly (but not exclusively) with the relevance of behavioural economics to consumer policy, with the aim of developing a normative policy framework, and in 2010 the OECD produced a "Consumer policy toolkit".[46]

In 2007 the US Federal Trade Commission (FTC) hosted a conference "Behavioral Economics and Consumer Policy"[47] and later that year Australia's Productivity Commission held a conference on behavioural economics and public policy.[48]

While some of the concern in the OECD roundtables was with information economics (asymmetric information, "lemons" etc) much was about the findings of behavioural economics, particularly consumer biases in market decisions and myopic behaviour in investment.[49]

In these roundtables and conferences there was found to be no sharp boundary between information economics and behavioural economics: for example the phenomena of choice overload, and "confusopoly" which result in consumers making sub-optimal decisions, or, in cases, no decisions at all, have definite behavioural explanations.

Another general finding was that many poor consumer decisions have two dimensions – sophisticated vs naïve (information deficiencies), and disciplined vs undisciplined (subject to succumbing to costly behavioural biases).[50] Sophisticated consumers are adequately informed about the products they are purchasing and about the biases which, if unchecked, may influence their decisions. Disciplined consumers are able to act to overcome any biases (but are not always well-informed). In relation to credit cards, for example:

> A sophisticated and disciplined consumer uses the credit card in the interest-free period, and pays it off before the deadline.
>
> A sophisticated and undisciplined consumer uses the credit card, intending to pay it off, but when the time to do so arrives the bias of myopia comes to play and he or she goes into high-interest debt.
>
> A naïve and undisciplined consumer uses the credit card, perhaps to the limit, without even considering the opportunity to pay it off in the interest-free period.
>
> A naïve and disciplined consumer may refuse to use a credit card at all.

46. OECD 2006, 2007, 2010.
47. http://www.ftc.gov/be/consumerbehavior/
48. Productivity Commission 2008.
49. I have used the term "myopia" to refer to what some economists call "hyperbolic discounting". In fact there is no evidence that consumer discounting follows any neat continuous function. David Laibson (1997) describes the discounting function in terms of a discontinuity – a very high short term rate followed by a more conventional exponential rate, which he calls "quasi hyperbolic discounting".
50. A classification derived from Joshua Gans 2005.

Economists have wondered why, in a market with many players, credit card interest rates have remained so high – in comparison with the mortgage market for example, where risks are no lower but where the benefits of competition have been realized in lower interest rates.

An explanation can be found in behavioural economics. Undisciplined consumers allow credit card providers to maintain high rates, for, at the time of use, they do not consider the impact of interest rates (the sophisticated believe they won't have to pay any interest, and the naïve don't consider the matter at all). There is no point in issuers lowering their rates, because no classes of consumers really care about interest rates (they may care *ex post*, but not *ex ante*), and lower rates would deprive card issuers of profit and may attract more customers who would have difficulty in repaying their balances.[51]

The same phenomenon can be observed in hotel mini-bars: those who succumb to the high prices of mini-bars subsidize those who do not use them. Even though the hotel industry is competitive, hotels do not raise their room prices and reduce their mini-bar prices, for to do so they would lose custom all around, and would lose profits from mini-bars. Xavier Gabaix and David Laibson find many other examples of what they call "shrouded attributes", where the costs of necessary add-ons (e.g. printer cartridges) are not evident at the time of purchase, but where there is no market incentive for firms to change their prices.[52]

In general, as a policy measure, Gabaix and Laibson suggest mandatory "unshrouding" as a means of overcoming at least the information deficiencies in such markets. For example, a printer company could be required to disclose the per-copy cost.

While the distortion of mini-bars and printer cartridges are not the most severe costly consequences, high credit card debt is a serious problem by most criteria. As a policy intervention, education alone, even if effective, will be of benefit to the naïve. At the FTC Commission Conference John Driscoll suggested that through the penalties imposed by late payment fees rather than specific education the naïve do eventually change behaviour, but it takes time, and learning depreciates rapidly.[53] Minimum payments, however, are inadequate to repay debt in any reasonable time, and, because of their anchoring effect, may encourage perpetual debt: their function seems to be to keep outstanding balances on the financial institutions' books as assets, for they indicate that people are still paying something towards their debt.

These roundtables and conferences were not intended to prescribe policy except in a very general way, but in relation to behavioural economics some general ideas emerged:

- Biases affect consumer choice, and there are many systemic departures from the "rational" model.
- Information and behavioural problems are interrelated and cannot always be fully distinguished from each other.
- Consumer empowerment – helping consumers to cope in markets – is to be preferred over consumer protection where possible. For many goods and services (e.g. travel,

51. For a description of how this dynamic sustains a high interest rate, see Ausubel 1991.

52. Gabaix and Laibson 2005.

53. Agarwal et al 2006.

internet transactions, foreign investment in real estate) consumers are directly involved in international markets without the cover of domestic consumer law. Marketing practices, often exploiting behavioural biases, change rapidly; it is therefore very difficult for regulators to maintain relevant and effective consumer protection régimes. Regulators must be nimble, ready to change as marketing changes.

- Interventions to overcome behavioural biases, when used, should be based on the principle of "libertarian paternalism" to use the term coined by Thaler and Sunstein.[54] Such interventions, often subtle, should protect the naïve and the undisciplined, without curtailing the options open to others. Defaults, "nudges" and similar mechanisms, often borrowed from marketing practice, are the preferred policy interventions.
- Many existing practices, such as cooling-off periods, while pre-dating formal behavioural studies, have their basis in behavioural economics.
- Expanding choice and information has diminishing and, in cases, negative returns. While the problems of search costs (e.g. in product disclosure statements) are in the realm of information economics, there are behavioural biases in handling even simple information.

An issue that hovered around these conferences, and which made a few approaches without landing, was the regulation of advertising. Regulators have clear ideas on what constitutes "false" advertising, but the notion of "misleading" advertising is much harder to apply in any practical principles of public policy. The framing biases studied in behavioural economics all result from presentation of statements which are logically true.

More recently the Productivity Commission has released its report into gambling.[55] Its findings reveal a preference for the light hand of libertarian paternalism.

Consistent with the findings of prospect theory, it found many false beliefs about gambling – the powers of positive thinking, lucky numbers and systems and the belief that poker machine payouts are dependent on previous outcomes.[56] In an acknowledgement of the social context of decision-making, it recognized social isolation as a factor contributing to problem gambling. It also accepted the notion of gambling addiction, rejecting the idea that there is such a choice as "rational addiction". Also in confirmation of prospect theory's findings, the Commission found that many people, normally loss-averse, became more loss-tolerant in trying to recover from a loss situation.

Its suggestions are centered on information, advertising controls, pre-commitment options (e.g. self-exclusion) and on behavioural "nudges" such as placement of ATMs away from the immediate vicinity of gambling venues.

54. Thaler and Sunstein 2003.

55. Productivity Commission 2009.

56. For example, a "near miss" in a poker machine encourages people to go on gambling. See Reid 1986.

2. Retirement saving

The behavioural justification for compulsory superannuation (and, in other countries, compulsory social security contributions) is clear. The precise mechanisms to ensure adequate saving need to be guided by wise choice design. The recently released Cooper Review provides a case of public policy supported by strong behavioural principles.[57]

In making its recommendation for *MySuper* the Review has said that "the superannuation system ought to facilitate, but not impose, choice." It has explained its thinking:

> The key tenet of this approach is the concept of 'libertarian paternalism' – the idea that the outcomes experienced by inert or disengaged consumers should have inbuilt settings that most closely suit those consumers' objective needs, as assessed by the expert providers of the product or service in question.

In a finding that comes as no surprise to students of behavioural economists, the Review has said:

> Whatever the actual level of engagement and literacy among members, a regulatory model largely built around detailed disclosure and member choice has not worked for a substantial portion of the member population.

This aligns with research relating to 401K pension plans in the USA.[58] Confronted with a large field of choice, and lengthy product disclosures, people disengage, particularly when the payoffs are distant.

One risk, until now not addressed in superannuation, is what behavioural economists know as "myopic loss aversion", resulting in significant opportunity costs.[59] When there has been a heavy fall in equity returns, as has occurred during the global financial crisis, people's loss aversion is likely to encourage them to switch to more conservative, lower-yielding investments, such as cash or bonds, even though over the long run, (retirement saving is a long run investment) there is a substantial equity premium in shares, and therefore a large opportunity cost in such a switch. Investors may mistake noise for trend, and may not understand the mechanics of equity returns, because the dividend yields on equities, before tax credits and capital gains are taken into account, appear to be much less than the yields on interest-bearing securities. This is a specific instance of the misunderstanding of real and nominal returns, covered below under "mortgage stress and monetary policy"; it is notable that one of the Cooper Review's recommendations (4.12) is that target returns be expressed "as a percentage above CPI".

As one approaches the age of retirement, however, conservatism becomes more rational, particularly if equity prices are above their long-term trend. The Review makes room for such shaping in *MySuper*, when it points out:

> It should also be stressed that while MySuper must have a single investment strategy from the perspective of the member (that is, no choices) it is very much open to the trustee to change the investment profile over time to reflect certain characteristics of members,

57. Cooper Review 2010.

58. Iyengar et al 2003.

59. See Benartzi and Thaler 2005.

including movement according to defined age bands and/or proximity to a target retirement date.

3. Provision of public goods and externalities

The most important "pure" public goods (those which are non-excludable and non-rival) are funded through taxes and appropriation, but there are many instances of public goods being provided voluntarily, either in kind (e.g. "Clean up Australia") or through cash donations. The Productivity Commission has estimated cash donations to the not-for-profit sector to account for five percent of GDP.[60] Unpaid voluntary work is estimated to be between three and five percent of GDP.[61]

While not all of these contributions are for public goods, these figures do show a large pool of resources available for public purposes.

Governments, wishing to encourage forms of civic behaviour, such as engaging in environmental work, helping in schools and museums, and donating to public causes, may be tempted to offer financial incentives for such behaviour, but in so doing may discourage people from volunteering. A long-running issue in behavioural economics is whether specific payment for contributing to such public goods "crowds out" individual donations. While there is some evidence that crowding out does not occur[62], psychologists have long known that extrinsic rewards do tend to crowd out intrinsic motivation.[63] Research by the CSIRO on small-scale environmental contributions supports the theory of "crowding out".[64] Bruno Frey finds strong evidence for crowding out, but acknowledges that there are exceptions.[65]

One of the best-known cases of crowding out is recorded by Uri Gneezy and Aldo Rustichini who conducted a controlled experiment in ten day-care centres in Haifa, Israel. Up to the time of the experiment there had been no fine for a late pickup. The experimenters introduced a fine of ten shekels (in purchasing power equivalent to about $A8.00 at the time) on parents who were late by ten minutes or more. In the minds of parents, the fine became a price for a late pickup. There was now a 'market' for late pickups. A ten shekel price was easier to bear than the guilt and social disapproval of causing inconvenience to the day care staff. As a result the incidence of late pickup worsened.[66]

It is possible that in many situations there is a curvilinear relationship between extrinsic rewards and contributions. Small extrinsic rewards may extinguish intrinsic motivation, but sufficiently large extrinsic rewards may dominate.

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60. The Productivity Commission (2010) estimates donations, mainly household, to have been $3.4 billion in 1999-2000. GDP that year was $664 billion.
61. See ABS "Unpaid Work and the Australian Economy" 1997 (Cat 5240). Estimates of voluntary work vary from $18 billion to $30 billion, with a measured GDP of $549 billion.
62. See Arrow 1972.
63. This is covered in basic psychology texts. For specific and detailed treatment, see Kohn 1993.
64. Reeson 2008.
65. Frey and Jegen 2001.
66. Uri Gneezy and Aldo Rustichini 'A fine is a price' *Journal of Legal Studies*, vol. XXIX (January 2000)

(Any academic who has ever marked a PhD thesis will be familiar with this phenomenon. Rather than asking that the task be done voluntarily, universities offer an insultingly small payment.)

One risk for governments is that when budgetary appropriations are negotiated for environmental or other incentive schemes, payments may be whittled back to the zone where intrinsic motivation is quashed, while payments are insufficiently large to compensate for this loss.

Frey notes that in many countries public sector workers (doctors, teachers) work for lower pay than they could expect in the private sector, because they are motivated to work for the public purpose. This represents a saving in budgetary costs. He warns, however:

> The increasing tendency to closely supervise government employees, and to curtail their discretionary room, has crowded out their work morale, which is consistent with a continuous reduction of private sector wage premiums. [i.e. a reduction in public sector wage discounts]

Another example of the importance of psychology in changing behaviour with economic consequences lies in the framing of campaigns. Governments may want the public to change behaviour with costly private and public consequences – failing to wear seat belts, smoking, practising unsafe sex, littering, wasting energy, eating unhealthy food – to name a few. Campaigns and political speeches need to be carefully framed. A message that carries the message that an undesirable behaviour is widespread runs the risk of "normalizing" such behaviour.[67]

Research by Robert Cialdini and colleagues compared the effectiveness of signage aimed at discouraging people from stealing from Arizona's Petrified Park. Messages that emphasized the extent of the problem had the perverse consequence of normalizing the behaviour, while messages which implied that theft was infrequent and highly disapproved of, were far more effective.[68]

67. I cannot help noticing those oft repeated TV news images of teenagers drinking to excess, and wondering what message they are sending.

68. Cialdini et al 2006.

Similarly, when it comes to encouraging desirable behaviour – exercising, donating to worthy causes, picking up litter – the known actions of other people provide a positive externality in encouraging pro-social behaviour.[69]

Such findings are consistent with known behaviours in repeated prisoners' dilemma situations. If one reasonably expects cooperation by other parties, then a cooperative strategy is optimal; conversely if one reasonably expects non-cooperation, then, perhaps after some experimentation, non-cooperation is the most sensible strategy.[70]

The general message for public policy is that contributions to public goods and positive externalities can be extended (or losses avoided) if the psychology of rewards and other forms of encouragement are taken into account.

4. User charging

Over the last twenty years there have been many new toll roads built in Australia. Toll roads in an otherwise "free" network have problems of deadweight loss, but that issue is easily addressed by consideration of "rational" behaviour. The other problem with toll roads is that most have failed to meet their initial traffic projections. Cost-benefit analysis generally reveals significant private savings in terms of travel time and vehicle wear which are greater than the toll, but many people still choose to drive on congested rat-runs.

One possible explanation is that people who have been used to driving on roads without a charge, and who perceive private firms to be making a profit from toll roads, feel they don't want to participate in an unfair transaction, even if they incur some cost in avoiding the transaction. People drive across town to buy slightly cheaper gasoline, for example. Max Bazerman suggests in such situations we base our travel decisions not only on the absolute saving (a "rational" approach), but also on the percentage saving or avoidance of "rip off".[71] (This is related to the practice of "altruistic punishment".)

A strong finding in behavioural economics is that fairness matters: we value fairness in its own right. Economic models based on the separate development of demand and supply fail to take into account interactions between consumers who value fairness and firms which refrain from unfair activities.[72]

Just as fairness counts in private markets, so too does it count in public policy. Frey and his colleagues refer to the value of "procedural utility": we care not only about outcomes; we care also about the procedures that lead to those outcomes.[73] They point out, for example, that in Swiss cantons (which raise their own revenue) compliance with taxation rules is stronger in those cantons where people feel the taxation authorities treat them with consideration.

69. See, for example, Frey and Meier 2003, Cialdini 2005.

70. For the dynamics of multi-party multi-round prisoners' dilemma games, see Axelrod 1984.

71. Bazerman 1998.

72. See Kahneman, Ketch and Thaler 1986.

73. Frey et al 2003.

Such considerations tend to negate any notion of Pareto optimality based solely on outcomes. A public policy intervention may pass muster on the basis that there are no losers, or that losers have been adequately compensated. But if procedural fairness is disregarded, or if there is a perception of unfairness, the result may be rejection (toll roads), non-compliance (taxation) or sullen compliance where there is no option.

5. Climate change

At the time of writing it is far from clear where Australia is headed in relation to climate change policy. Behavioural economics may give some guide to policy.

It is easy to show that both a carbon tax and a cap-and-trade system carry the same financial incentives for CO_2 abatement. Of course there are practical differences in transaction costs, but there can also be differences in the way people respond to these alternative policy interventions.

A carbon tax is easy to understand: we are conditioned to the notion of taxation to cover negative externalities, even if we don't use such terminology. Carbon trading is much more difficult for people to grasp, for there is an appealing logic in the notion that there is no point in reducing my CO_2 emissions if, as a result of my reduction, someone else can use them. If Australia is to have a cap-and-trade system it will require careful explanation if it is not to violate the principle of perceived procedural fairness.

Another challenge in carbon abatement is to overcome what are revealed to be extremely high discount rates in personal decisions involving energy saving. When high-efficiency mini fluorescent lights and filament lights were both on the market, the return from investing in a high-efficiency light equated to an annual discount rate of around 270 percent.[74] Not even payday lenders have such rates! Yet most people did not make these investments: compulsion was the instrument of policy choice.

Some government schemes to encourage alternative energy use or generation are generous, to put it mildly. State Governments pay up to 60 cents per KWh for electricity from domestic photovoltaic-generated power, which, when combined with Commonwealth credits for small systems, provides a tax-free return on investment in the order of 13 percent.[75] The payments are not indexed, but even so the real annual return is in the order of ten percent.

Another generous scheme was the home insulation program. Much publicity has been given to house fires caused by insulation covering downlights. Any "rational" decision-maker, however, would have replaced high-wattage downlights with energy efficient downlights even before considering insulation; it is a simple operation that can be done by anyone able to disconnect and reconnect electrical wiring, and gives the very high returns referred to above. Yet, as we have learned, many people did not replace their downlights. The Government clearly did not allow for such less than "rational" behaviour.

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74. For a detailed calculation, see my 2009 conference paper "Carbon and Consumers" at http://www.home.netspeed.com.au/mcau/academic/confs/carbon.pdf

75. Based on a 1.5 KW system costing $10 000 net of $6200 Commonwealth support generating 2200 KWh a year at 60 cents per KWh.

It is not clear whether consumers are not doing the necessarily calculations (in which case the problem falls into the realm of information economics) or are gripped by some extreme myopia. The question is worth researching, however, for these are areas where, at first sight, there is a great deal of over-compensation, and some of this compensation is inequitable, for feed-in tariffs are essentially a tax imposed on those who, for whatever reason, cannot install photovoltaic systems, subsidizing those who can, and many subsidies go to "rational" consumers who would have made the energy savings anyway. (Means testing sensibly confines the rebates to those who face a high cost of finance, but it is based on a false notion that myopic behaviour is negatively correlated with income.) The costs of over-compensation are not only budgetary; the home insulation scheme proved to be politically costly as well.

A hint of how energy conservation may work with low budgetary cost is provided by Caildini in his research on social influences.[76] Domestic energy users were asked to rate the importance of reasons for energy conservation. They ranked "because it will save the environment" first, followed by "because it will save me money", followed by "because other people are doing it". When such attitudinal research was cross-checked against research based on revealed preferences, however, the top ranking was found to be "because other people are doing it". Social influences count.

It is possible, therefore, that government programs to encourage people to save energy can focus on obtaining a critical mass to establish a social norm. Some initial subsidy may be necessary to establish the critical mass, but it may be possible to withdraw programs of ongoing subsidies once norms are established.

6. Relieving the stress of poverty – a social context

Poverty alleviation will always depend on big programs – macroeconomic management aimed at full employment, direct social security programs and indirect programs such as education and health care.

But poverty has a social context, and, as Amartya Sen points out, is closely associated with social exclusion.[77] We may have made progress on what Sen calls "active exclusion" based on race or gender, but there remains the difficult problem of "passive exclusion" which involves no deliberate attempt to exclude people from wider society. For passive exclusion the direction of causality is debatable: indeed it may be meaningless to separate the phenomena of passive exclusion and poverty.

One recent development which brings these relationships to our attention has been microfinance. Initially introduced into developing countries, it is now available in Australia, generally for small but necessary domestic goods such as a refrigerator, or for the setup expenses of a microbusinesses.

From a "rational" perspective microfinance works because there is essentially a subsidy on the transaction costs which would normally make such small loans uneconomical. Microfinance also has a social context. People who are excluded from the financial sector are

76. Cialdini 2005.

77. For a short description of Amartya Sen's notion of social exclusion, see his 2000 lecture to the ADB.

generally the same people who are excluded from society generally. Someone who, as a result of a microfinance loan for car repairs or for a computer to work at home, can re-enter the workforce and therefore enjoy the benefits of wider social participation.

It is easy to overlook its social context, and not to be aware of the positive feedback mechanisms which relate social inclusion and an escape from poverty. Historian Niall Ferguson points out that poverty is to do with a lack of access to financial institutions, including a lack of access to competitive credit networks.[78] Mulainathan and Shafir point out the benefits of helping people take the first steps of becoming connected to financial inclusion – a sort of dating service.[79] They also reject the notion of a "culture of poverty" – an idea that the poor have particularly dysfunctional norms of behaviour. They point out that the poor are subject to the same behavioural biases as the rich, but that they have less slack to cope with these errors. If one is well-off, payment of a late fee for missing a due date for an electricity account has little consequence; for someone with low income the same fee may be a large proportion of available reserves, and for someone with a negative or non-existent credit record the fee may trigger other fees such as a re-connection charge.

Treasury Secretary Ken Henry has drawn on the work of Amartya Sen to stress the economic consequences of social exclusion, and, by inference, the benefits of social inclusion.[80] Henry, like Sen, acknowledges the importance of physical alleviation from poverty – food, clothing, mobility – and of the role of human capital, particularly education. He stresses the further needs identified by Sen, often overlooked by economists, "such as the capability to live without shame, the capability to participate in the activities of the community, and the capability of enjoying self-respect".

The mechanisms whereby social inclusion helps alleviate poverty are not always clear. Mulainathan and Shafir point out that the poor are well aware of society's norms, but they know they are unable to abide by them – thus adding to feelings of inadequacy and exclusion. But Ralph Dahrendorf suggests that there may be others who are so isolated that they are untouched by social norms.[81] The short-termism of escapes into the oblivion of excess alcohol consumption and other dangerous drugs, or the temporary buzz of "compensatory consumption" (spending to escape from reality or to support a fragile self-esteem[82]) may be of a different nature from the more common myopia such as credit card debt.

Measures such as income quarantining of welfare payments may or may not alleviate problems of what may euphemistically be called "sub-optimal choices", but they are unlikely to be as effective as policies which develop social inclusion. Such strong paternalism is at odds with other policy interventions, but they as a limited term measure they may help in communities which do not have a long tradition of market transactions.

78. Ferguson 2008.

79. Mulainathan and Shafir 2009.

80. Henry 2007.

81. The writings of Emile Durkheim, Karl Marx and Max Weber are the traditional sources on class and inclusion. For a more contemporary coverage of extreme disconnection see Dahrendorf 1988.

82. Elliot (1994) uses the term "addictive consumption", an extreme form of what is called "compensatory consumption" by advertisers.

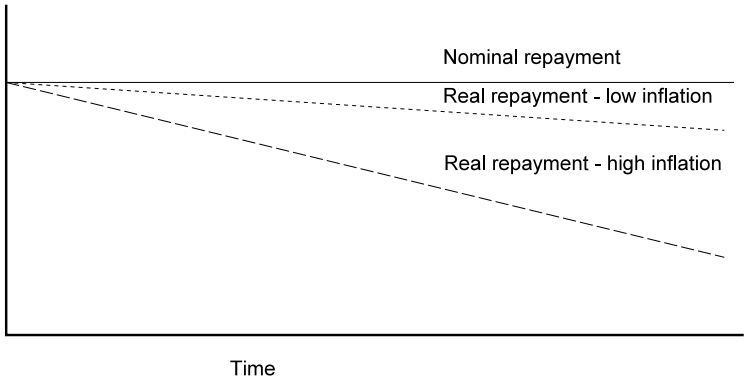
There are no clear immediate public policy prescriptions for changing norms, but for sound policy to be developed there is one impediment to be removed, and that is the notion of some separation between "economic" and "social" policy, as is expressed in constructions such as the "triple bottom line", with the implication that there are tradeoffs between the social, economic and environmental objectives. One manifestation of such thinking is the separation of our public administration into "social" and "economic" portfolios. Ken Henry's statements give some assurance that such thinking is not pervasive, but it is a widespread way of seeing public policy problems. I have seen many submissions from community groups or others on the "left" who call on governments to substitute social objectives for economic objectives, and I have seen the occasional submission or manifesto from the "right" calling for the opposite re-allocation. Have economists themselves contributed to these ways of thinking?

7. Mortgage stress and monetary policy

A combination of consumer biases provides some explanation for mortgage stress. People are likely to become over-committed in their borrowing because of myopia, overconfidence, and the money illusion, particularly in a time of low inflation.

Myopia is likely to lead to decision rules based on immediate affordability of a house, guided by decision rules such as "repayments of X% of disposable income", rather than value-for-money. Teaser rates play into this bias. The behavioural biases of overconfidence and disjunction lead us to push out of our minds the possibilities of illness, unemployment and interest rate rises. (The disjunctive bias leads us away from realizing that any one event can reduce our capacity, so that the combined or "chained" risk is much higher than the individual risks; we underestimate the probability that *at least one* of *n* disabling events will occur.)

The money illusion is most iniquitous in a time of low inflation. In the 1980s in Australia, when inflation was running at about 8 to 10 percent, nominal housing interest rates were between 13 and 17 percent. These imposed a high burden in the early years of a loan, but, to the extent that nominal wages rose with inflation, the burden of debt repayment was quickly lifted, compensating in part for those biases leading to excess borrowing. In more recent times, borrowers have had the benefit of low nominal rates but have not had the benefit of income inflation to ease the burden of repayments. The compensatory mechanism of nominal wage growth is no longer available.



This is not an argument to allow inflation to rise, but it stresses the point that in consumer education it is vital that people come to understand the importance of real interest rates. (Political partisan rhetoric about interest rates, based on nominal rates, does nothing to contribute to people's understanding.) It also reinforces the need for independent "capacity to repay" assessment before banks or other lending institutions issue mortgages.

Conclusion

Behavioural economics, with its extensions into social psychology, neurology and anthropology, integrates a range of formal disciplines into the realm of economics. In this regard economics is no different from other professions, such as engineering and medicine, which draw on a number of basic scientific disciplines and which integrate techniques of inductive and deductive analysis in practical problem-solving.

Economics has always had an empirical base; the argument that behavioural economics undermines "standard" economics is a straw man: no-one ever seriously claimed the existence of *homo economicus*. Behavioural economics brings more explanatory power to this empirical base, and, in so doing, gives more robust guidance for public policy, as we are already witnessing in areas such as gambling and retirement saving. It should also help guide public policy for other issues requiring attention.

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