



Extending the “rational man” model of human behaviour: seven key principles

Briefing note for the Environment Agency by **nef**



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Published by:

Environment Agency, Rio House, Waterside Drive, Aztec West,
Almondsbury, Bristol, BS32 4UD
Tel: 01454 624400 Fax: 01454 624409
www.environment-agency.gov.uk

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Dissemination Status: Publicly available

Keywords: behavioural economics, bounded rationality,
Economic theory

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New Economics Foundation

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Acknowledgements

This report has been prepared by Emma Dawnay with the help of Hetan Shah at **nef** (the new economics foundation) as part of a project co-sponsored by the Environment Agency. We are very grateful for the input from Tim Jackson (**nef** associate and Professor of Sustainable Development at the University of Surrey); from whose report *Motivating Sustainable Consumption* many of the psychological models were taken. We would also like to thank Ian Christie, Rajat Sood, Perry Walker and Andrea Westall for their helpful comments.

Executive Summary

The aim of this Guide is primarily to be an aid to policy-makers who use economic tools, by providing a summary of the latest thinking from behavioural economics. Although economists and policy-makers are likely to already be familiar with these ideas and be incorporating them into their analysis, we hope by providing this summary in checklist form it will make it easier to take a systematic approach to their inclusion. This Guide should also be helpful to the broader policy-making community by providing a theoretical underpinning for many policy approaches that have up to now been used intuitively.

The standard (neoclassical) economic theory assumes that humans are rational and behave in a way to maximise on their opportunities given their preferences, which are generally exogenously determined. Although this theory does not require that preferences are necessarily self-interested, this assumption tends to be made in its practical policy application. Whilst this “rational man” assumption yields a powerful theoretical tool, economists find it can need supplementing to capture more complex aspects of human nature. This guide aims to bridge the gap between the “standard” neoclassical economist’s view of human behaviour and the views from behavioural economics and psychology that economists already often incorporate into their analysis. It does this by distilling many concepts from the behavioural sciences down to seven key principles. This makes a systematic approach to their inclusion into economic analysis possible: the practitioner can run down the “checklist” and quickly assess which principles (if any) might be appropriate to include in his or her analysis.

The seven principles are:

- 1) **Other people’s behaviour matters:** people do many things by observing others and copying, and people are encouraged to continue to do things when they feel other people approve of their behaviour.
- 2) **Habits are important:** people do many things without consciously thinking about them. These habits are hard to change – even though people might want to change their behaviour, it is not easy for them.
- 3) **People are motivated to ‘do the right thing’:** there are cases where money is de-motivating as it undermines people’s intrinsic motivation, for example you would quickly stop inviting friends to dinner if they insisted on paying you.
- 4) **People’s self-expectations influence how they behave:** they want their actions to be in line with their values and their commitments.
- 5) **People are loss-averse** and hang on to what they consider ‘theirs’.
- 6) **People are bad at computation** when taking decisions: they put undue weight on recent events and too little on far-off ones; they cannot calculate probabilities well and worry too much about unlikely events; and they are strongly influenced on how the problem/information is presented to them.
- 7) **People need to feel involved and effective to make a change:** just giving people the incentives and information is not necessarily enough.

When correctly applied in relevant situations these principles should broaden the analytical framework for policy as well as maximise the impact of policy interventions, and prevent unintended outcomes arising from making decisions based solely on a neoclassical economic analysis.

Contents

	page
1 Introduction	
1.1 Background	1
1.2 Approach	1
1.3 Structure of this Report	2
2 Other people's behaviour matters	
2.1 Introduction	3
2.2 Theory	3
2.3 Examples	5
2.4 Relevance to policy	6
3 Habits are important	
3.1 Introduction	8
3.2 Theory	8
3.3 Examples	10
3.4 Relevance to policy	11
4 People are motivated to 'do the right thing'	
4.1 Introduction	12
4.2 Theory	18
4.3 Examples	13
4.4 Relevance to policy	14
5 People's self expectations influence how they behave	
5.1 Introduction	15
5.2 Theory	15
5.3 Examples	16
5.4 Relevance to policy	16
6 People are loss averse	
6.1 Introduction	17
6.2 Theory	17
6.3 Examples	17
6.4 Relevance to policy	18
7 People are bad at computation	
7.1 Introduction	19
7.2 Theory	20
7.3 Examples	20
7.4 Relevance to policy	21

8	People need to feel involved and effective to make a change	
8.1	Introduction	22
8.2	Theory	22
8.3	Examples	23
8.4	Relevance to policy	24
9	Discussion and future research	25
10	Appendices	27
Appendix 1	Application of the seven principles	
Appendix 2	Further reading	

1 Introduction

1.1 Background

nef (the new economics foundation) was commissioned by The Environment Agency to produce a short research review on behavioural economics and other psychological approaches. These approaches are becoming recognised as increasingly important for policy. For example the Government's new sustainable development strategy launched in March 2005 (*Securing the Future*¹) has an entire chapter devoted to behaviour change and draws upon this kind of approach.

Our research review suggests that whilst the theory behind the principles is relatively well developed and robust, the main gaps in the research into behavioural approaches to economics are around understanding the policy relevance and application of such approaches. Therefore the section on policy relevance is purely indicative. There is a need to build up case studies of these approaches over time and show whether in practice they lead to more effective policy-making than a more economic or indeed intuitive approach.

This Guide forms part of **nef**'s wider programme of work on Theoretical New Economics, which looks at how non-mainstream economic approaches are of relevance to policy-makers. For more information on the programme look at www.neweconomics.org.

1.2 Approach

This review is designed for busy policy-makers, and therefore is put together in the form of a "checklist". We have taken the wide-ranging academic literature in this area and condensed the variety of concepts into seven interrelated principles. We hope that this approach will aid the policy-maker to be able to quickly identify the relevant concepts and incorporate them into his or her work. We have fully referenced the supporting literature thereby enabling the policy-maker to find all source texts if necessary.

The seven principles are:

- Other people's behaviour matters
- Habits are important
- People are motivated to 'do the right thing'
- People's self-expectations influence how they behave
- People are loss-averse
- People are bad at computation
- People need to feel involved and effective to make a change

The principles complement other policy approaches that emerge from mainstream economics.

It is important to note that although most of the work in the literature relates to individuals, it is applicable to small groups, businesses or organisations where there are no formal processes to counteract these behavioural tendencies.

¹ 'Securing the future – UK government sustainable development strategy' launched 5 March 2005
<http://www.sustainable-development.gov.uk/publications/uk-strategy/uk-strategy-2005.htm>

1.3 Structure of this report

In the following sections each of the principles is presented in a uniform way:

- Introduction – an overall introduction to the idea.
- Theory – how mainstream economics would approach this issue, and how a behavioural economics approach can broaden and develop the perspective.
- Examples – specific examples that illustrate the principle.
- Policy relevance – an initial discussion on how the principle might relate to policy.

The final section discusses what the gaps in the research are, and how future research projects might address them.

As part of this project Environment Agency staff applied the seven principles to two policy issues facing the Agency in fifteen-minute brainstorming sessions: fly tipping and the introduction of the Water Framework Directive. The policy suggestions relating to these are included in an appendix, as an indication of how the principles can very quickly aid creative approaches to policy-making.

A second appendix contains information for further reading.

2 Other people's behaviour matters

2.1 Introduction

Much of our behaviour is strongly influenced by other people's behaviour. For example the clothes we wear or whether we haggle when shopping. Social learning is a process by which we subconsciously take in the behaviour of others to learn how to behave. In more complex situations with which we are unfamiliar we consciously watch and learn from the behaviour of others (which is known as 'social proof') – for example when using a new library for the first time. When we must make a conscious decision on how to behave, our sense of social identity is important – we think: how would other people from 'my group' behave in this situation? In situations where there is high social capital (i.e. where there are strong networks between people and a high level of mutual trust), other people's behaviour and our sense of social identity may be extremely important in influencing our behaviour. We are particularly open to influence from people in authority or from people whom we respect or like. The influence of people's behaviour on social norms, which themselves influence yet more people's behaviour gives rise to the ever-evolving system of shifting social norms, which is particularly evident in fashion.

2.2 Theory

The standard economic theory (known as neoclassical economics) stops short of trying to explain where people's preferences come from, so it does not take account of the direct influence of other people's behaviour and social norms. People's preferences are exogenous to the economic model (i.e. they are taken as given and are outside of the model). The theory assumes we independently know what we want and that our preferences are fixed. This standard theory is very good at explaining short-term decision-making (I want a green vegetable and choose beans as they are on special offer) but cannot explain longer-term changes in preferences (I now only choose organic food). Along the same lines the importance of institutions – both formal institutions such as regulations, and informal ones, for example, how people organise markets – and the evolution of the whole economic system are not subjects of neoclassical analysis. This has significant implications for policy design.²

The standard neoclassical model also assumes that people carry out a full rational 'analysis' of all their available options. This requires a lot of brainpower, which can also be considered a scarce resource. Therefore, 'copying' can be thought of as a type of 'procedural rationality':³ it would require too much effort to, for example, look up all the rules when driving in a new country, find out all the fines/punishments for failing to meet the rules, work out the probability of being caught and the possible costs, before deciding how to drive there. Instead we just copy other people, and perhaps adjust our behaviour according to the feedback we receive (if someone hoots when I pull out of a junction, next time I might give way at a similar junction). Procedural rationality is not usually taken into account in neoclassical economics.

In contrast to neoclassical economics, many models from psychology attempt to show how social norms influence us. For a comprehensive review of such models see Tim Jackson's report *Motivating Sustainable Consumption*.⁴ One widely applied theory is the Theory of Reasoned Action developed by Martin Fishbein and Icek Ajzen,⁵ as shown in the figure below.

² Levett R, Christie I, Jacobs M, and Therivel R (2003) *A Better Choice of Choice*, (London, Fabian).

³ Simon H (1957) *Models of Man* (New York, John Wiley).

⁴ Jackson, T (2005) *Motivating Sustainable Consumption* available from the Sustainable Development Research Network at www.sd-research.org.uk.

⁵ Fishbein, M and Ajzen, I (1975) *Belief, Attitude, Intention and Behavior: an introduction to theory and research*, (Reading, MA, Addison-Wesley).

This model has been shown to successfully predict behaviour in many different studies.⁶ Such studies normally use surveys to gather information for each individual on their attitudes, beliefs and the importance of the social norm with respect to some particular behaviour, then to monitor their behaviour over several months (or several months later). A further development was made by Cialdini in which social norms are divided into *descriptive*– what other people actually do (e.g. drive at 85mph on the motorway) and *injunctive* – what people should do (e.g. obey the speed limit of 70mph); which of these norms we respond to will depend on the context in which we find ourselves.⁷

Related topics from the psychology literature include:

- **Social learning:** Psychologist Albert Bandura showed that people learn by observing what others do.⁸ His first experiment showed that kindergarten children were likely to violently attack a 'bobo' doll after having been shown a film of someone attacking a bobo doll. Experiments have been repeated with adults in a wide variety of settings with similar results.
- **Social proof:** Social psychologist Cialdini has shown that we look to others to see how to behave, especially in ambiguous situations, in crises and when others are experts.⁹ He did an experiment of getting some accomplices to stare upwards on a street pavement as if looking at something – other people quickly joined in and a large group stayed long after the accomplices had left.
- **Social identity theory:** Psychologists Tajfel, Billig and Turner have shown that part of our social identity comes from which groups we associate with.¹⁰ We show a strong bias in favour of 'in-group' members, even when groups are arbitrarily formed. Tajfel demonstrated this in an experiment where he assigned people randomly into groups (and everyone saw it was random), but soon people showed a preference for members of their group over other people, even giving rational arguments about how unpleasant and immoral the 'out-group' people were.
- **Key influencers:** psychologists have identified that we are open to influence from people in authority or people we like. When we are influenced by authority (an expert, someone with legitimate power to direct our actions, someone who can either reward or punish us) the effects are less likely to be lasting than when we are influenced by information by someone we like.¹¹ However, care should be taken when using persuasion: knowing that someone is trying to persuade us generally makes us take the opposing view.

⁶ See <http://www-unix.oit.umass.edu/~aizen/publications.html> for links to many applications of the theory of reasoned action and the theory planned behaviour.

⁷ Cialdini R, Kallgren C, Reno R (1991) 'A Focus Theory of Normative Conduct: a theoretical refinement and re-evaluation of the role of norms in human behaviour' in *Advances in experimental social psychology*, 24, 201-234.

⁸ Bandura A (1977) *Social Learning Theory* (Englewood Cliffs, NJ, Prentice Hall).

⁹ Cialdini, R (1993) *Influence: Science and practice* (3rd edn), (New York: HarperCollins).

¹⁰ Tajfel H, Billig M, Bundy R, and Flament C (1971) 'Social categorization and intergroup behaviour' in *European Journal of Social Psychology*, 1:149-77. Tajfel, H, and Turner, J (1986) 'The social identity theory of inter-group behavior' in S. Worchel and L. W. Austin (eds.) *Psychology of Intergroup Relations* (Chicago: Nelson-Hall).

¹¹ Halpern D et al (2004) *Personal Responsibility and Changing Behaviour: the state of knowledge and its implications for public policy*, Cabinet Office publication available at: <http://www.strategy.gov.uk/files/pdf/pr2.pdf>.

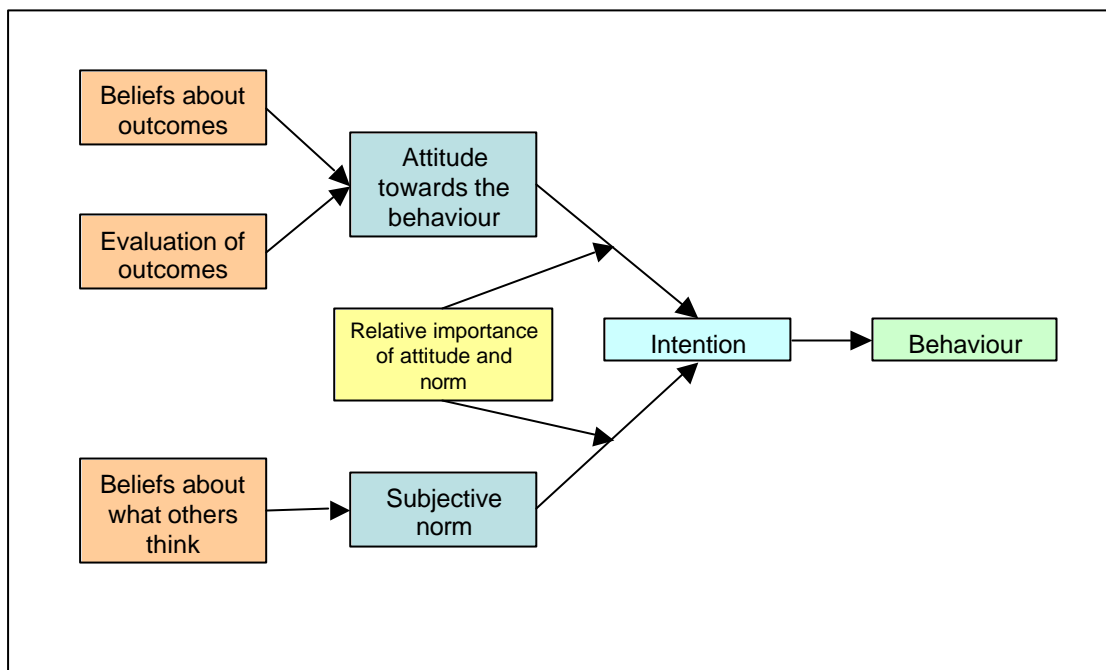


Figure 1: Theory of Reasoned Action (from Tim Jackson⁴)

Economists have looked recently at why social norms are important from an evolutionary point of view, and they have shown that groups are biologically fitter (have more offspring) when social norms are enforced.¹² (See section on “People are motivated to do the right thing”.)

Although they have no independent theories of human behaviour, the ‘new’ disciplines of system dynamics and agent-based modelling in economics can incorporate behavioural traits, and in particular dynamic ‘feedback’ from other people’s behaviour into social norms. In systems with feedback – where the output (the typical way people behave in a particular instance) affects the input (how people choose to behave) – there is no single stable equilibrium (as in neoclassical economics), but temporary equilibria occur which depend on the history of the system. For examples of such modelling see Paul Omerod’s book *Butterfly Economics*.¹³

2.3 Examples

The enforcement of seatbelt wearing is now hardly necessary as it has become a social norm, and for most of us a habit. When the compulsory wearing of seatbelts in cars was introduced in the 1970s there was widespread public resistance. By 2002 when a survey was carried out to assess public support for state intervention about 94 per cent of the people asked supported compulsory wearing of seatbelts.¹⁴

An example of how we look to other people to know how to behave comes from an experiment where people who didn’t know each other were sitting in a waiting room where it was arranged that smoke would pour in through a vent. It was found that the more people sitting in the room,

¹² Fehr E and Fischbacher U (2004) ‘Social norms and human cooperation’ in *Trends in Cognitive Sciences*, vol. 8, no. 4, April 2004.

¹³ Omerod P (1998) *Butterfly Economics* (Faber and Faber).

¹⁴ Halpern (2004) *op cit*.

the less likely was anyone to raise the alarm – the people all just looked at each other to try to work out what to do.¹⁵

The theory of reasoned action has been used to model the uptake of technologies by farmers, and it identifies which communication strategies could potentially speed up the adoption of these strategies.¹⁶ Vets were identified as key influencers in this study, and government officials as amongst the least influential.

A famous example of the influence of authority is an experiment done by Milgram.¹⁷ A doctor told participants to increase the level of electric shocks apparently being applied to a patient – who screamed louder and louder and showed more and more signs of distress as the level of shock was increased. The participants, however, went on increasing the level as directed by the doctor.

A US study concludes that banning smoking in public places has reduced the amount people smoke in private, which is attributed to social proof.¹⁸

Illustrations of the importance of other people's behaviour abound, including fashion, the films we watch, discos, stock market prices and the pursuit of status, which is always socially defined and changes through time.¹⁹

2.4 Relevance to policy

Policy-makers focussing only on neoclassical economical analysis may often devise a system that has an immediate effect; however, this may not last. For example knowing that there is a fine for speeding and a high likelihood of getting caught I will probably drive more slowly – but I will drive just as fast once I realise the chance of being caught is low. However, if policy-makers can change the social norm – perhaps in this case by encouraging us to frown on others who drive dangerously fast with campaigns against dangerous driving – then less enforcement will be needed after the change. In other words policy-makers might want to take preferences as fixed in the short term, but as part of a sustainable intervention they should consider shifting preferences in the medium term.

Once policy-makers have identified the particular behaviour they are trying to change,¹⁷ they can evaluate the role that social norms play in influencing this behaviour. If other people's behaviour plays an important role perhaps this could be leveraged:

- Identify and persuade a small group of key people in the relevant social network to change their behaviour and become ambassadors for change (or by Government itself leading by example.) Malcolm Gladwell describes how small numbers of such people can have a big impact in his book *The Tipping Point*.²⁰ He divides such people into three groups: the Mavens, the Connectors, and the Salesmen. The Mavens are people who have such expert knowledge that you would take their advice if given it (and Mavens enjoy giving it for free). The Connectors have very many connections, so information they have has the potential to be distributed to a large number of people. The Salesmen are people with the power to persuade us to change our behaviour.

¹⁵ Darley J and Latane B (1968) 'Bystander intervention in emergencies: Diffusion of responsibility' in *Journal of Personality and Social Psychology*, 8: 377-383.

¹⁶ Garforth C et al (2003) *Improving the targeting of knowledge and technology transfer in the livestock sector by understanding farmer attitudes and behaviour*, Final report from LINK sustainable Livestock Production Programme, Project LK0647.

¹⁷ Milgram S (1974) *Obedience to authority* (New York: Harper and Row).

¹⁸ Trotter L, Wakefield M, Borland R (Dec 2002) 'Socially cued smoking in bars, nightclubs, and gaming venues: a case for introducing smoke-free policies' in *Tobacco Control*, 11(4):300-4 available at www.tobaccocontrol.com

¹⁹ de Botton A, (2004) *Status Anxiety* (Hamish Hamilton).

²⁰ Gladwell M (2000) *The Tipping Point* (Little Brown and Company).

- Target all members of the relevant group through a short intense campaign.
- Research the trusted and authoritative influencers of the target community. In some cases government may be seen negatively, whilst, for example, the local doctor is seen as a trusted person.

Ideally a 'tipping point' will be reached where the social norm suddenly changes to a new stable level where little outside enforcement is required to maintain it.

In situations where no strong relevant social networks exist and therefore the influence of social norms cannot immediately be leveraged, the possible benefits of creating such groups or networks should be considered. One of the proposals coming out of the brainstorming session on the Water Framework Directive is that groups of farmers in water catchment areas should be formed (see Appendix).

3 Habits are important

3.1 Introduction

When we do something out of habit, we use little or no cognitive effort. Most of us do not spend a long time each morning deliberating on what to eat for breakfast or how to travel to work: such daily routines quickly become ingrained habits. Even when we consciously think about what we do, it can be difficult to change our behaviour. Perhaps I think it is a good idea for people to use public transport, but I don't know where the bus stop is or when the bus runs. I think I should find out, but I don't know how, so I continue using my car. The rewarding feeling – “my journey by car was easy and hassle free” – reinforces my old bad habit.

3.2 Theory

In neoclassical economics the assumption is made that people act rationally to maximise their *utility*, given their particular preferences (utility broadly means happiness or satisfaction, but usually a financial measure is taken as a proxy for this). Doing something out of habit, for example choosing my normal coffee in the usual sized jar when shopping, is outside of neoclassical theory, in which I would do a full analysis of the all the available coffee/jar-size/price options. Habits can, however, be viewed as rational when considering that we have limited cognitive ability – and as such it is a type of procedural rationality along with the influence that social norms have on us, as described in the section *Other people's behaviour matters*.

As in the case of social norms, psychologists have long accepted that the frequency of our past behaviour influences our current behaviour. Triandis has developed a model similar to Fishbein and Ajzen's *Theory of Reasoned Action* that includes habits, called *The Theory of Interpersonal Behaviour*²¹ (see Figure 2), and Bagozzi²² and his colleagues have developed the *Theory of Trying* to explain consumer behaviour which includes both the frequency and recency of past trying/past behaviour (see Figure 3).

Just as neoclassical theory does not really recognise the existence of habits, it does not acknowledge the effort we need to expend in overcoming them. Again, this is addressed by many psychological theories. Jager has found that the strength of a habit (i.e. how difficult it is to change) is generally determined by:²³

- How often the action is repeated (it is more difficult to change something I do daily than something I do annually).
- The strength and frequency of the reinforcing *reward*, and its proximity to the behaviour in question (the reward from smoking a cigarette is immediate and satisfying feeling, thus it is hard to break the habit by thinking of the long-term health incentive).

²¹ Triandis, H (1977) *Interpersonal Behaviour* (Monterey, CA: Brooks/Cole).

²² Bagozzi, R and Warshaw, P (1990) 'Trying to Consume' in *Journal of Consumer Research* 17, 127-140.

²³ Jager, W (2003) 'Breaking Bad Habits: a dynamical perspective on habit formation and change' in L Hendrick, Wander Jager, L Steg (eds), *Human Decision-Making and Environmental Perception – Understanding and Assisting Human Decision-Making in Real Life Settings*, (Libor Amicorum for Charles Vlek, Groningen: University of Groningen).

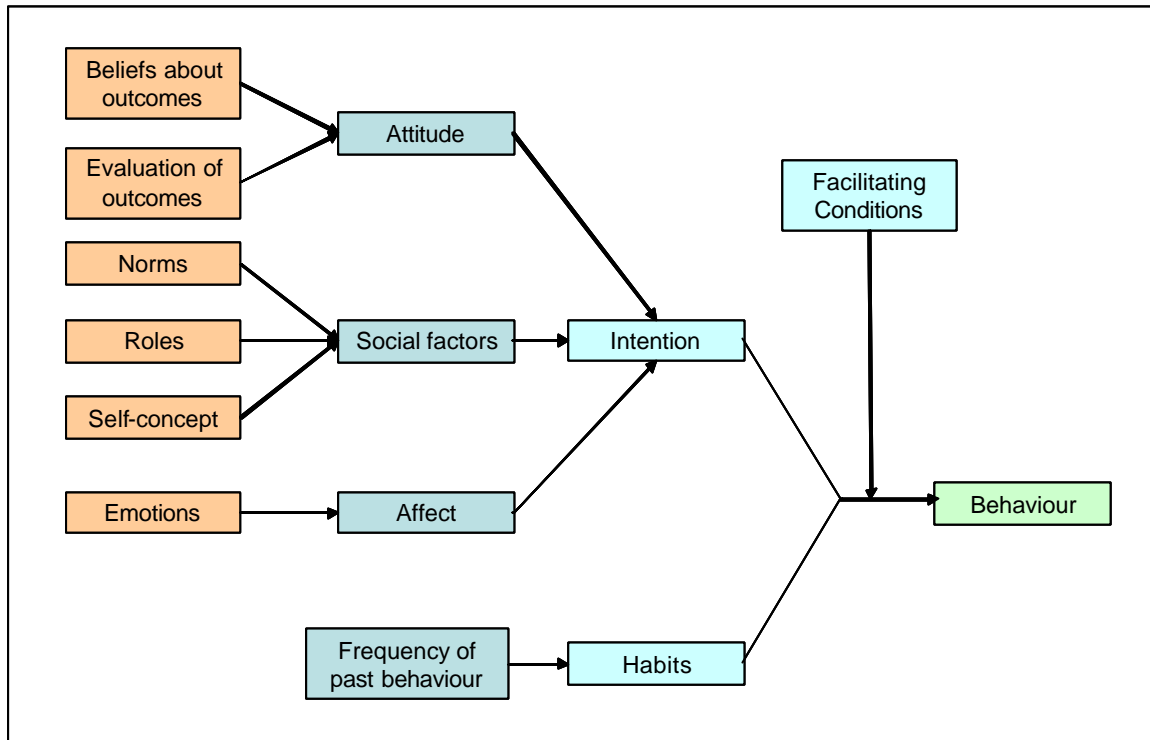


Figure 2: Triandis' *Theory of Interpersonal Behaviour* (From Tim Jackson⁴)

Several psychologists have similar theories on changing habits.²⁴ These generally involve first *unfreezing* the subconscious action and raising it to a conscious level where we can consider the merits of alternative behaviours. This is followed by adopting the new behaviour which, with time, becomes *frozen* as a new habit. We are more likely to think consciously about something (and thus be able to break our habit) when:²⁵

- What we are trying to do is complex.
- The consequences of our decisions/actions are important to us.
- We have enough time, cognitive capacity and knowledge to do so.

To change deeply ingrained habits, a Pavlov-type conditioning can be used to create associations between the desired behaviour and a reward. This is especially effective where the reward can be given immediately after the desired behaviour.²⁶

²⁴ Lewin, K (1951) D. Cartwright (ed.) *Field theory in social science; selected theoretical papers* (New York: Harper & Row). Dahlstrand, U and A Biel (1997) 'Pro-environmental habits: propensity levels in behavioural change' in *Journal of Applied Social Psychology* 27. 588-601.

²⁵ Jackson (2005) *op cit*, p56.

²⁶ Halpern (2004) *op cit*, p18.

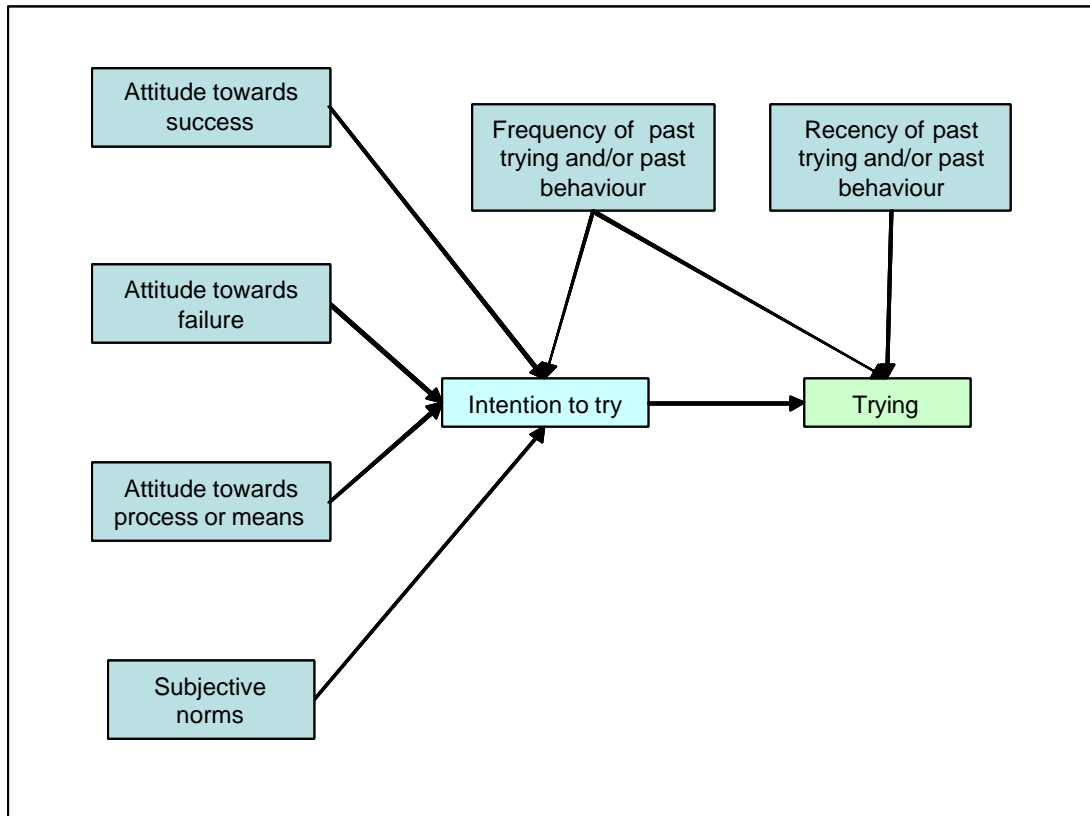


Figure 3: Bagozzi's *Theory of Trying* (from Tim Jackson⁴)

3.3 Examples

Actions such as recycling rather than just throwing everything in the rubbish can become habits. However, when we are used to just throwing things away, it takes a lot of mental effort to think about whether the empty jar in our hand is recyclable or not, and what to do with it if it is. In this case cues such as visible recycling facilities, or being provided with coloured bins, can help remind us to recycle, as well as making it easier to recycle.²⁷

The deregulation of the utilities companies and the increase in choice of supplier was meant to reduce prices through competition. This policy has not been as successful as expected as people have been reluctant to change supplier. It appears that habit is key to people's behaviour here, and the barriers to changing these habits were higher than expected: there is the hassle associated with changing (identifying which new supplier, filling out forms etc) and there is a perceived risk – perhaps the new supplier will not be so reliable. Conversely, the financial gain (which was expected to dominate) is not immediate but comes as a small decrease in future bills.

A habit-changing policy with extremely successful results has been the introduction of a small charge (15p) for plastic shopping bags in Ireland. Since the introduction almost everyone brings their own shopping bags when grocery shopping. Although most people could easily save a little money on their shopping basket by carefully choosing which brands and quantities to buy, most people don't bother (due to habit). However, when they must *explicitly* pay 15p extra for a plastic bag, this acts as a strong incentive (cue) to bring their own bags.

²⁷ Jackson (2005) *op cit.*

3.4 Relevance to policy

When aiming to change people's behaviour, the role habits play should be considered. Are there any habits that are likely to be barriers to behaviour change, and if so, how strong are they likely to be? How can any such habitual behaviours be raised to people's conscious awareness? What incentives (financial and non financial) can people be given to help them change their behaviour, and what feedback can be given to help reinforce the new behaviour and cement it as a new habit? Can this feedback be tailored to occur close in time to the action to maximise this learning effect?

4 People are motivated to ‘do the right thing’

4.1 Introduction

There are many cases where we do things for other people for which we would be insulted if they paid us, for example when we invite friends for a meal. In such cases it is clear that a financial reward would be thoroughly de-motivating to continuing the behaviour. Even in less extreme cases such as doing volunteer work, money can be de-motivating as it detracts from the warm feeling of having done something good.

In cases where we are naturally motivated to ‘do the right thing’ we feel bad and have a guilty conscience when we fail. This guilt can be offset if we receive a punishment (e.g. a fine) because after being punished we feel we have paid for our misdeed and we have a clean conscience. This can result in punishments having counter-productive effects: we continue with our bad behaviour together with accepting the punishment.

People also have an inbuilt sense of fairness. In situations where one person clearly has a stronger bargaining position, very often they will not use this and will split the gain from the transaction 50/50 rather than demanding more for themselves. Our sense of fairness also drives us to punish the wrongdoing of others, even at a personal cost to ourselves.

4.2 Theory

A standard neoclassical analysis would add up the financial costs and benefits, so financial rewards would always be expected to encourage and financial fines would always be expected to discourage. People would also be expected to take advantage of any bargaining position that they had; further, the fact that people are willing to punish the wrongdoing of others at considerable cost to themselves without any obvious benefit cannot be explained by neoclassical theory.

Many economists have turned their attention to the related topic of altruism. Most argue that any altruism is in fact selfishly motivated, as people either expect something in return or some (weird) people have altruistic *preferences*, hence they are maximising their utility (in a broad sense rather than a financial sense) by behaving altruistically. Such people are generally taken as the exception rather than the rule. However, Herbert Simon showed that in societies where people have less than full knowledge and the cognitive ability to analyse it (i.e. people must act with procedural rationality), people with some true altruistic tendencies will be evolutionarily fitter (have more offspring) than people without.²⁸ This is because their tendency to follow social norms gives them a competitive advantage in a society of procedural rationality. Thus we are ‘hardwired’ with some altruistic tendencies and behaving properly or fairly *can* be expected to give us a good feeling (or utility). This is corroborated by research on the evolution of behavioural traits in simulated prisoner’s dilemma games,²⁹ and from direct measurements of activity in the reward centre in people’s brains when they decide whether to punish the

²⁸ Simon, H (1993) ‘Altruism and Economics’ in *The American Economic Review*, Vol 83, No 2, Papers and proceedings of the hundred and fifth annual meeting of the American economics association (May 1993), 156-161.

²⁹ Fehr E and Fischbacher U (2003) ‘The nature of human altruism’ in *Nature* vol 425, 23 Oct 2003 p785.

wrongdoing of others.³⁰ (Here it should be noted that what counts as wrongdoing depends on the social norms in the society.³¹)

Social scientists make the distinction between our intrinsic and extrinsic motivations. Deci, Koestner and Ryan³² define intrinsic motivation as what we have when “activities provide their own inherent reward, so motivation for these activities is not dependent on external rewards”. Hence intrinsic motivations are related to our internal value system, whereas extrinsic motivations are influenced from external incentives such as rewards, tax systems etc. Under this system it is possible for extrinsic motivations to ‘crowd-out’ intrinsic motivations and thus be counter-productive,³³ (see examples in Deci, Koestner and Ryan’s paper). For example financial rewards, the threat of punishment and deadlines can decrease intrinsic motivation.³⁴

Experimental economists have found that fairness often counts for more than a rational neoclassical analysis would indicate in non-repeated experimental games, and that repeated games with the same people builds trust and enhances *fair* behaviour.³⁵ Perceived fairness is also found to be important, and it appears to be considered fair that higher status individuals receive higher-than-expected rewards. People’s willingness to pay for a public good has also been shown to be moderated by fairness³⁶ – people believe that costs should be fairly distributed between the people responsible for the necessity of the public good, and the people who will benefit from it. With higher perceived fairness people are willing to contribute more.

4.3 Examples

In his classic work *The Gift Relationship* published in 1970, Titmuss argues that, contrary to expectations, not only did more people give voluntary blood donations compared to donations made with financial incentives, but also the voluntarily donated blood was of a higher quality.³⁷

When questioned about volunteering, 97 per cent of respondents believed they were fulfilling an important task for society and less than 25 per cent thought that the work should be rewarded financially. This is consistent with *intrinsic motivation* – people feel the task is worth doing for its own sake, rather than for reward, and as such this feeling can be offset by *extrinsic motivations* such as pay, which can reduce the overall incentive. This is corroborated by a study of Swiss volunteers. The average volunteering time was fourteen hours per week but those who were paid did approximately four hours a week *less* volunteering work than unpaid volunteers.³⁸

In a nursery school the result of issuing small fines when parents arrived late to collect their children *increased* the frequency that they arrived late.³⁹ It appears that by making a payment the parents no longer felt guilty about arriving late, and treated the situation as if they were paying for a service.

Businesses, when presented with situations where supply vastly exceeds demand, are expected in economic theory to increase their prices. However, sometimes a sense of fairness

³⁰ Press release from Ernst Fehr, University of Zurich, 26 August 2004
http://www.iew.unizh.ch/home/fehr/science/Press_Release_for_Neural_Basis_of_Alt_Pun.pdf

³¹ Gintis H (2003) ‘The Hitchhiker’s Guide to Altruism: Gene-Culture Coevolution and the Internalization of Norms’ in *Journal of Theoretical Biology* 2003, Vol. 220, 407-418.

³² Deci EL, Ryan RM, Koestner, R (1999) ‘A Meta-Analytic Review of Experiments Examining the Effects of Extrinsic Rewards on Intrinsic Motivation’ in *Psychological Bulletin* 125 (1999) 627-668.

³³ Frey BS and Jegen R (2001) ‘Motivation Crowding Theory: A Survey of Empirical Evidence’ in *Journal of Economic Surveys*, Vol. 15 (5), (2001) pp. 589-611.

³⁴ Carr A (2004) *Positive Psychology* (Hove: Brunner Routledge).

³⁵ Kagel JH and Roth AE (Eds) (1995) *The handbook of experimental economics* (Princeton University Press).

³⁶ Ajzen I, Rosenthal LH, Brown TC (2000) ‘Effects of Perceived Fairness on Willingness to Pay’ in *Journal of Applied Social Psychology* (2000) 30(12): 2439-2450.

³⁷ Titmuss RM (1970) *The Gift Relationship* (London: Allen and Unwin)

³⁸ Frey, BS and Goette, L (1999) *Does Pay Motivate Volunteers?* Working Paper No. 7 (Institute for Empirical Research in Economics, Universität Zürich).

³⁹ Gneezy, U, and A. Rustichini (2001) ‘A Fine is a Price’ in *Journal of Legal Studies*, Vol. XXIX, 1, part 1, 2000, 1-18.

can dominate, though it is not clear whether it is due to businesses doing the right thing or wanting to be seen as doing the right thing (to maintain their reputation). Either way, this sense of fairness can result in behaviour that would not be predicted by neoclassical economics, as exemplified by the oil refinery blockades in 2000. Over the weekend of September 9 a handful of truckers and farmers blockaded all oil refineries stopping all oil tankers re-supplying fuel stations, and people started panic buying and long queues formed by petrol stations. In general garages did not respond by raising prices, and by the end of Monday 90 per cent of petrol stations had sold out of unleaded petrol. Why did they not increase their petrol prices? It seems that the businesses did not want to be seen as taking unfair advantage of their customers. In one case a garage in the Southwest did increase its prices by more than 10 times – but it received extremely bad press for exploitation.

4.4 Relevance to policy

Policy-makers should consider how people perceive the behaviour they are trying to change. If it is normally considered shameful, it might be counter-productive to introduce fines, and if it is normally considered the right thing to do it may be counter-productive to bring in financial rewards. The size of any financial (dis)incentives should also carefully be considered – a big enough fine will be a disincentive, and paying a volunteer a high enough salary may be an incentive. Consideration should also be given to appealing to people's sense of fairness, and conversely care should be taken to not make people feel a policy is unfair, even if it is of overall benefit.

5 People's self expectations influence how they behave

5.1 Introduction

We have expectations about our own behaviour, and perceptions about the expectations other people have about our behaviour. We don't like to feel our actions are out of synch with these expectations or our values or attitudes – it makes us feel uncomfortable. If we find ourselves often doing something that sits uncomfortably with our attitudes, values or expectations of ourselves, then we may well change our *attitudes and values* to justify our actions. However, where we have expressed our beliefs openly, then we are more likely to change our *behaviour* to remain consistent with these expressed beliefs. In this way commitments can be very important: when someone has promised to do something, they are likely to stick to this even without rewards or punishments. Who and how the commitment is made can also have a strong influence: when a whole group with high social capital publicly makes a commitment this is likely to be more influential on the individuals than when an individual by himself/herself makes the commitment. The more public commitments are, the stronger they are, and written commitments are stronger than spoken ones. People who have made a small commitment (for example, signing a petition) appear to change their view of themselves, and if asked a few days later to make a much larger commitment (for example, donating money) are more likely to agree.

5.2 Theory

A standard neoclassical analysis would disregard self-expectations and commitments, as these would be expected to influence our preferences, but preferences are taken as 'given' in this analysis. Promises are irrelevant in neoclassical theory unless they are backed by sanctions.

The psychologist Leon Festinger developed the *cognitive dissonance theory*, which proposes that people feel uncomfortable when they feel a clash or 'dissonance' between their actions and attitudes or values.⁴⁰ Daryl Bem postulated that we infer our attitudes from observing our own behaviour,⁴¹ which means that when our behaviour is out of synch with our attitudes, we may well change our attitudes (rather than our behaviour). Higgins' *self-discrepancy theory* has built on cognitive dissonance theory.⁴² He maintains we have three views of ourselves: actual, ideal and ought-self (how we have a duty to be). We have corresponding perceptions of how we think other people assess these three views of ourselves, thus we have six distinct types of self-concept. Differences between these give rise to different (negative) emotions such as guilt, shame or disappointment.⁴³ It would appear that making commitments, especially publicly, strengthens the feeling of how we should behave, and the shame if we fail to live up to the commitment. A useful guide to using commitments in changing behaviour is given by a psychologist, Doug McKenzie-Mohr.⁴⁴

⁴⁰ Festinger L (1957) *A Theory of Cognitive Dissonance* (Stanford: University of California Press).

⁴¹ Bem, D (1972) 'Self-perception Theory' in Berkowitz, L (ed) *Advances in Experimental Social Psychology* 6 (London: Academic Press, 1-62).

⁴² Higgins, T (1987) 'Self-discrepancy: a theory relating self to affect' in *Psychological Review* 94, 319-340.

⁴³ Jackson (2005) *op cit*.

⁴⁴ McKenzie-Mohr D and Smith, W (1999) *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing* (New Society Publishers). Also see www.csbm.com.

5.3 Examples

A Canadian programme using a combination of public commitments and visible signals was used to establish a strong community composting-norm. Several months later an exceptionally high proportion (80 per cent) of the people originally approached were found to be composting.⁴⁵

In a staged crime, individuals who had agreed to watch over a bag were four times more likely to attempt to prevent a theft as individuals who were aware the bag was being stolen but who made no commitment to watch over it.⁴⁶

When voters in the US were asked one day before an election “Do you expect you will vote or not?” they all agreed and this action appeared to increase the likelihood of them voting by 41 per cent.⁴⁷

5.4 Relevance to policy

Policy-makers should consider whether it could be practical to get people to make commitments, and if so, how to make the commitment as strong as possible. Some examples taken from Doug McKenzie-Mohr's book *Fostering Sustainable Behaviour* include:

- Emphasise written over verbal commitments.
- Ask for public commitments.
- Seek group commitments.
- Actively involve the person.
- Consider cost-effective ways to obtain commitments.
- Use existing points of contact to obtain commitments.
- Help people to view themselves as environmentally concerned.
- Don't use coercion (commitments must be freely volunteered).

For large businesses the threat of externally imposed regulation has, in some cases, precipitated self-imposed voluntary agreements.⁴⁸ Policy-makers could consider whether it would be beneficial to use such tactics more broadly to encourage small businesses (or better still groups of small businesses) to make commitments. Another alternative could be to get business owners to make a written commitment, then to use the threat of naming and shaming those that don't keep the commitment. In particular consideration should be given to 'stepping' commitments from the very easy to the more demanding, thus changing identity and self-expectations in the process. For example small business may be asked to register for free information on how to improve their environmental impacts. They might then be invited to a meeting, and then asked to commit to certain actions.

⁴⁵ McKenzie-Mohr D (2000) 'Promoting Sustainable Behaviour: an introduction to community-based social marketing' in *Journal of Social Issues* 56(3) pp543-554.

⁴⁶ Halpern (2004) *op cit*, p19.

⁴⁷ Greenwald, A, Carnot, C, Beach, R, and Young, B (1987) 'Increasing voting behavior by asking people if they expect to vote' in *Journal of Applied Psychology*, 72, 315-318.

⁴⁸ Khanna M (2001) 'Non-mandatory approaches to environmental protection' in *Journal of Economic Surveys* Vol. 15 No. 3.

6 People are loss averse

6.1 Introduction

People naturally have inbuilt biases:

- They are loss-averse which means they will go out of their way to avoid losses, while at the same time they would not bother to go out of their way to gain something. This can mean people may take large risks to avoid losses whilst at the same time avoiding even small risks to make gains.
- People try to keep something that they consider is 'theirs', even when it is quite arbitrarily given and where the beneficiary's pre-established preferences would indicate that they would prefer to swap it. It is as if as soon as I consider something 'mine', I confer some extra value onto it.

6.2 Theory

In neoclassical theory people are expected to have a preference on risk (i.e. be either risk-takers or risk-avoiders) but it is usually assumed that people are neutral to loss or gain, meaning that the amount of effort I should put into saving £100 of my money should be the same as the amount of effort I would put into gaining £100. Kahneman and Tversky's *Prospect Theory* developed in 1979 shows that this is not the case, and people generally use a relative assessment of losses and gains (rather than considering their total wealth position) and they value losses more than gains.⁴⁹

It is also usually assumed in neoclassical theory that someone's 'willingness-to-pay' is the same as their 'willingness-to-accept'. This means they would sell something they own for just about the same price as they would be willing to buy it if they didn't already own it. The *endowment effect*⁵⁰ shows that this is not the case and in practice it is usual for the selling price or willingness-to-accept to be up to 20 times the buying price or willingness-to-pay.⁵¹

6.3 Examples

An extreme case of loss-aversion is the case of Nick Leeson: after he incurred losses from (illegally) trading from a secret account, he tried to re-coup these losses by taking gambles – and as the losses grew he started taking increasingly large gambles, which ended with the collapse of Barings Bank in London.⁵²

An example of a thought experiment is taken from Richard Layard's book on happiness.⁵³ How much would you need to be paid to mow your neighbour's lawn? How much would you pay your neighbour to mow your lawn? Most people would need to be paid much more to mow someone else's lawn than they would be willing to pay to have their own lawn mowed.

An example of a study in which people were willing to pay only a little to have something (or in this case maintain it) compared to demanding a lot to give it up concerns duck-hunters in the

⁴⁹ Kahneman D and Tversky A (1979) 'Prospect theory: An analysis of decisions under risk' *Econometrica*, 47, 313-327.

⁵⁰ Kahneman D, Knetsch JL, and Thaler RH (1991) 'Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias' in *Journal of Economic Perspectives*, Vol. 5, No. 1 (Winter 1991), pp. 193-206.

⁵¹ Pearce D (2002) *The Role of 'Property Rights' in Determining Economic Values for Environmental Costs and Benefits*, Report to the Environment Agency (2002) http://www.environment-agency.gov.uk/commondata/103599/wtawtp_paper_778397.doc

⁵² BBC Web site: <http://www.bbc.co.uk/crime/caseclosed/nickleeson.shtml>

⁵³ Layard R (2005) *Happiness: Lessons from a New Science* (Penguin Press HC).

US: it was found that they would pay \$247 each to maintain a wetland suitable for ducks, but asked \$1044 to give up the wetland.⁵⁴

In one intriguing experiment students were (randomly) given either pens or money. From observing the subsequent trade, *indifference curves* were generated. Indifference curves plot how much of one good we are willing to give up to get another. An early lesson from neoclassical economics is that they should never intersect. However, the results showed that the group of people who were endowed with pens wanted more dollars per pen than the group endowed with money – and the indifference curves from the two groups intersected.⁵⁵

6.4 Relevance to policy

This is a case where the theory is directly applicable within economic cost-benefit-type analyses that include valuations of non-market goods (such as valuations of pollution damage). Policy-makers have a choice as to whether to use willingness-to-pay or willingness-to-accept, and as these may vary by up to a factor of 20 the outcome of such an analysis may well depend on which value is chosen. David Pearce has written an extremely useful paper addressing this issue.⁵⁶ He proposes that where people reasonably have a 'right' to something that might be taken away from them, the willingness-to-accept value should be used. On the other hand, when people only reasonably have a 'right' to the status quo and an improvement is proposed, then the willingness-to-pay is the correct value to use.

In general, policy-makers should consider the relative incentives given by fines or punishments (including loss of reputation) compared to rewards. A further point is the risks that people are likely to take to avoid a loss can be large, so punishments designed to curb slightly bad behaviour could have the adverse effect of encouraging people to do something much worse to avoid being caught. For example, to avoid being caught with an old bottle of a polluting chemical that is now banned, people might well do something drastic (pour it down the drain) rather than admitting to having it.

A further implication of loss-aversion is in tax collection: taxes taken at source may give less resentment and therefore be easier to introduce than taxes which must be actively paid.

⁵⁴ Kagel JH and Roth AE (1995) p665 in *Experimental Economics* (Princeton University Press).

⁵⁵ Kahneman et al (1991) *op cit*, pp. 193-206.

⁵⁶ Pearce (2002) *op cit*.

7 People are bad at computation

7.1 Introduction

We are naturally very bad at calculating things, especially probabilities, and our choices are strongly influenced by how a problem is presented to us. Our usual internal biases are:

- **Salience:** We overestimate the likelihood of something that we can easily imagine (especially if it would be particularly frightening like a plane crash), something that has given us a short-lived extreme experience or of something we have recently experienced. Likewise we underestimate the likelihood of things that happen relatively often.
- **Discounting:** We often underestimate the importance or relevance of something that might happen in the distant future. Our preferences are inconsistent over time: if asked to do either 5 hours of an unpleasant task today compared with 5½ hours tomorrow we often put off the unpleasant task, however if asked whether we would choose 5 hours in a month's time, or 5½ hours in a month and a day's time we would choose the former. This often manifests itself in people choosing short-term gratification over longer-term rewards leading to policy issues such as obesity or lack of savings for old age.⁵⁷
- **Framing:** If we must make a decision between two actions, we are strongly influenced by how the two possible outcomes are presented to us. If one is dressed up as a loss, and the other as neutral or as a gain then we will avoid the apparent loss – even when the two outcomes are mathematically identical.
- **Defaults:** We are strongly influenced by 'defaults' set for us by authorities, for example when money is transferred into a voluntary pension scheme by default few people choose to opt out, and the pension contributions are much higher than when people have to opt in.⁵⁸ Sunstein and Thaler argue strongly in favour of using this bias when designing policy, which they call "Libertarian Paternalism".⁵⁹
- **Intuition:** We jump quickly to intuitive answers, which can be wrong, even to very simple mathematical questions. Where an outcome is particularly important to us, we are more likely to engage our active conscious thinking to evaluate the situation.
- **Fundamental Attribution Error:** We like to think we have control over situations, so we often assume that when something happens to someone it must be their fault – rather than it being an unfortunate random event.⁶⁰

⁵⁷ O'Donoghue T and Rabin M (2000) 'The economics of immediate gratification' in *Journal of Behavioral Decision Making*, 13(2), 233-250 (2000).

⁵⁸ Madrian B and Shea D (2001) 'The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior' in *Quarterly Journal of Economics* 116: 1149-1525 (2001).

⁵⁹ Sunstein CR, Thaler RH (2003) *Libertarian Paternalism is not an Oxymoron*, Chicago Public Law and Legal Theory Working Paper No 43 (2003)
<http://www.law.uchicago.edu/academics/publiclaw/resources/43.crs.paternalism.pdf>

⁶⁰ Ross, L (1997) 'The intuitive psychologist and his shortcomings: Distortions in the attribution process' in Berkowitz, L (Ed.) *Advances in experimental social psychology* Vol. 10 (New York: Academic Press).

7.2 Theory

Often the necessary calculations are complex and would require lots of time and cognitive effort, thus using heuristics (rules of thumb) to quickly come to an intuitive answer or choosing the default option is a type of “procedural rationality”. A good discussion of these (in particular salience, discounting, framing and intuition) is given in Kahneman’s Nobel Prize lecture.⁶¹ These are not included in standard neoclassical theory, in which the assumption is made that people act rationally and logically, and that they are capable of making the ‘best’ choice, given their preferences.

A thorough review of our preferences regarding time discounting has been made by Frederick, Loewenstein and O’Donoghue.⁶² They show that the discounted utility model used as standard in economics for making valuations at different points in time bears almost no relationship to how people make such valuations. Unfortunately (from the point of view of ease of analysing problems) people use different discount rates depending on their (often competing) psychological motives. In some cases the standard neoclassical theory can be adapted to better describe how people actually behave, for instance by using a non-standard discounting function (typically hyperbolic) which gives more weight to events nearer in time.⁶³

Framing appears to be a particularly powerful psychological effect: we use different heuristics depending on how a problem is framed. A useful review of the use of framing messages to motivate healthy behaviour is given by Rothman and Salovey.⁶⁴

7.3 Examples

An example of a simple mathematical problem where our intuition is often wrong is given in Kahneman’s paper:⁶⁵ “A bat and a ball cost \$1.10 in total. The bat costs \$1 more than the ball. How much does the ball cost?” Most people answer 10 cents, including 50% of Princeton students. This answer is wrong!

An example of framing is given by Redelmeier.⁶⁶ When a risky medical procedure is proposed, people (including doctors) are far more likely to agree to it when it is positively framed:

“of those who have this procedure, 90% are alive after five years”

than when it is framed as a loss:

“of those who have this procedure, 10% are dead after five years”

This shows that how a problem is framed makes a difference: the prospect of a 90 per cent chance of living is better than a 10 per cent chance of dying.

An example of how our time-discounting biases do not conform to theory is that when asked what people would accept to swap \$15 now for a sum in the future, the (median) answers are \$20 in one month, \$50 in one year, or \$100 in ten years.⁶⁷ The standard economic theory would

⁶¹ Kahneman D (2002) *Maps of Bounded Rationality: A Perspective on Intuitive Judgement and Choice*, Nobel Prize Lecture, 8 Dec 2002.

⁶² Frederick S, Loewenstein G, O’Donoghue T, ‘Time discounting and time preference: A critical review’ in *Journal of Economic Literature*, 40(2), 351-401.

⁶³ Laibson D (May 1997) ‘Golden Eggs and Hyperbolic Discounting’ in *Quarterly Journal of Economics* 112, 2:443-477.

⁶⁴ Rothman AJ and Solovey P (1997) ‘Shaping perceptions to motivate healthy behaviour: the role of message framing’ in *Psychological Bulletin* Vol. 121 No. 1, 3-19.

⁶⁵ Kahneman (2002) *op cit*.

⁶⁶ Redelmeier D, Rozin P, Kahneman D (1993) ‘Understanding patients’ decisions: cognitive and emotional perspectives’ in *Journal of the American Medical Association* 72, 73.

⁶⁷ Frederick et al (2002) *op cit*.

predict that if you are happy with \$100 after ten years, then you should be happy with \$18 after one year or \$15.24 after one month.

An interesting example from Rothman and Salovey's paper involves our attitudes to loss-aversion, time-scales and framing with regard to women's behaviour relating to breast self-examination. As detection behaviour can lead to the undesirable knowledge that they have a lump (which can be thought of as a type of loss), the short-term incentive is not to have a test. Of course, taking account of the longer-term outcome and choosing to do detection tests is by far the most rational approach for women who value longevity. Research on messages to promote detection behaviours found that framing the message to emphasise the possible long-term loss (of not doing detection tests) is particularly effective in this case.

7.4 Relevance to policy

Policies that involve financial incentives or disincentives should take account of people's biases and intuition about probabilities, and positively make use of framing effects. For example:

- If punishments are to be used for non-compliance, information published about them should be vividly described to trigger the imagination into thinking 'how horrible' it would be to be punished.
- Immediate losses are stronger incentives than long-term rewards (encouraging young people to clean their teeth is better done by stressing they will be less attractive to the opposite sex now if they don't clean their teeth than by telling them they are more likely to have a full set of healthy teeth when they are old if they do).

It should be noted that framing, which is one of the most powerful of these heuristics for policy-makers, can be applied together with the other six principles. For example a toothpaste advertisement from a few years ago used the slogan "more dentists choose Colgate". This combines *framing* with the principle that *other people's behaviour matters*.

The use of libertarian paternalism devices could be very influential. Default options for individuals could be set to promote the relevant policy (e.g. smaller servings of food in restaurants to counteract obesity). Further, in order to help people counteract the natural tendency to overly discount the future, *small barriers* or what Avner Offer⁶⁸ has called "commitment technologies" can be created or should be preserved. (An example of this is that students find it easier to write an essay with an externally imposed deadline). This might suggest, for example, that people should not be allowed to easily raid their pension funds for present day expenditure.

⁶⁸ Offer A (2004) 'Passions and Interests: Self-Control and Well-being' Chapter 3 from manuscript draft of *Challenge of Affluence*, (Oxford: All Souls College).

8 People need to feel involved and effective to make a change

8.1 Introduction

People hate feeling helpless and out of control and when they have such feelings they feel incapable of doing anything to change the situation. Conversely, when they feel in control, they can be highly motivated to change things for the better. This has implications on information, choice and the importance of participation:

- Information overload: Too much information can lead to a feeling of helplessness and inaction. For example: I care about the planet and climate change, but it is all just so complicated to solve that I don't know where to start – so I will continue behaving as before.
- Too much choice can also have a counter effect. We feel overwhelmed and don't know what to choose, thereby often not making any choice at all. Even when we do choose something we are often dissatisfied, thinking we have probably made the wrong choice.
- A participatory approach to problem solving can be highly motivational and effective in encouraging behaviour change, as well as making people happier

8.2 Theory

In neoclassical theory, people are expected to rationally make the 'best' choices given their preferences, independent of how these choices are presented. Therefore more information and choice are always considered good. Using this theory, policy-makers should ensure that people always have as much information and as many things to choose between as possible, and the process of introducing policy is irrelevant. However, ideas from behavioural economics indicate this is not the right approach.

We know from experimental economics (see examples below) that more choice and more information can be overwhelming and lead to a feeling of helplessness or reduced self-efficacy. In 1977 Bandura,⁶⁹ a psychologist published a theory on how self-efficacy or "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" affects our behaviour. He argues it affects the choices we make, how much effort we put into what we do, how long we persist in a task before giving up and how we feel. Psychologists Ajzen and Madden have developed a model (shown in Figure 4) using this idea called the *Theory of Planned Behaviour*.⁷⁰ This is basically similar to the *Theory of Reasoned Action* (see section on *other people's behaviour*) but it includes a parameter of "perceived behavioural control" which is a measure of self-efficacy. This model has greater predictive capabilities than the *Theory of Reasoned Action*.

Kaplan, a psychologist, has proposed a participatory approach to problem-solving.⁷¹ He suggests that telling people what to do is demotivating (reducing self-efficacy), is likely to encounter resistance and ignores the possibility that the local knowledge people have may yield

⁶⁹ Bandura, A (1977) 'Self-efficacy: Toward a unifying theory of behavioral change' in *Psychological Review*, 84, 191-215. See <http://www.emory.edu/EDUCATION/mfp/self-efficacy.html> for further references.

⁷⁰ Ajzen I, Madden T (1986) 'Predictions of goal-directed behaviour: attitudes, intentions and perceived behavioural control' in *Journal of Experimental Social Psychology* 22, 453-474.

⁷¹ Kaplan S (2000) 'Human nature and environmentally responsible behaviour' in *Journal of Social Issues*, 56(3), 491-508.

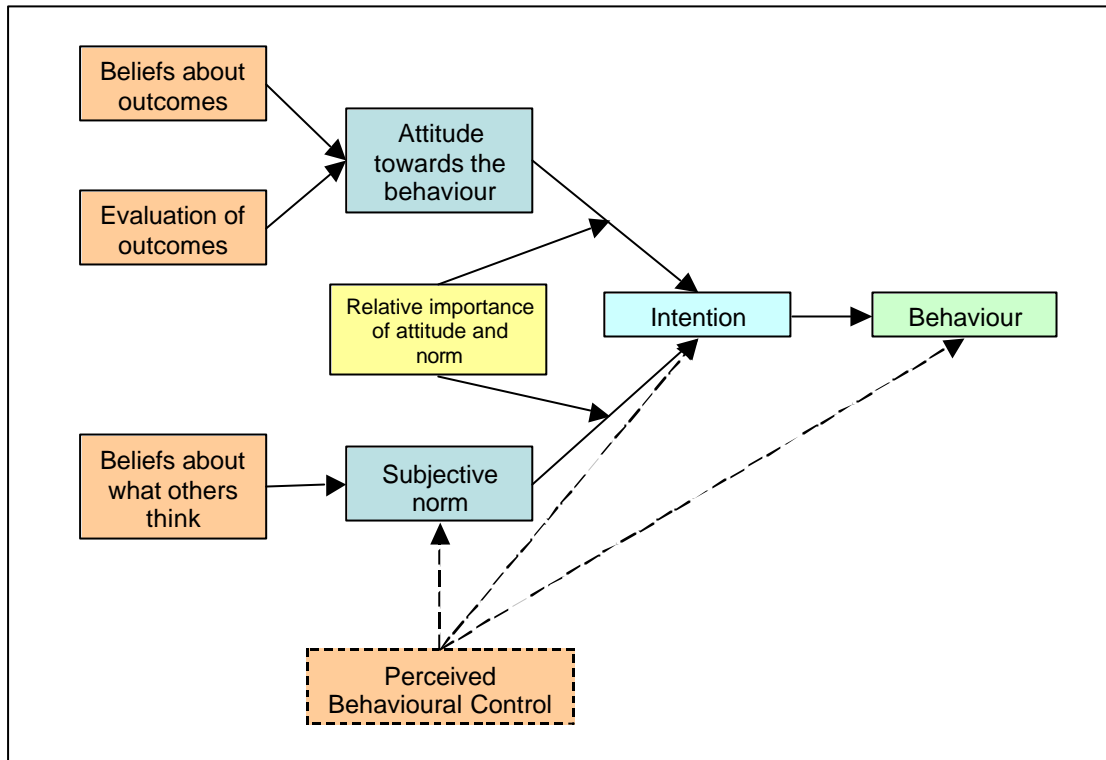


Figure 4: Ajzen and Madden's *Theory of planned behaviour* (from Tim Jackson⁴)

better solutions to a problem. Instead, providing people with “opportunities for understanding, exploration and participation” engages “powerful motivations” for “competence, being needed, making a difference, and forging a better life”. In summary, people’s self-efficacy increases and they are motivated towards implementing the solutions – i.e. changing their behaviour in a desired way.

A final argument for a participatory approach is that it not only improves policy, but it also makes us happier. This is the finding of research comparing Swiss cantons (districts), which differ in the extent to which they use referenda for making major decisions.⁷² Most interesting of all, around two thirds of the well-being effect can be attributed to actual participation itself, and only one third to the improvement in policy as a result of the participation. This was discovered through looking at the well-being of foreigners resident in Switzerland, who get the well-being benefit from the improved decision-making, but not from the participation itself. This implies that an increased ability to participate – both in politics and in the way public services are delivered – may have positive well-being dividends.

8.3 Examples

An experiment was carried out whereby a stall was set up in a supermarket for jam tasting. On one day the stall had twenty-four jams, and on a different day only six jams. Although the stall with more jams attracted more attention (60 per cent of the people passing by stopped, compared with only 40 per cent for the small-selection stall), of the people who stopped only 4 per cent at the stall with the extensive selection subsequently bought a pot, whereas 30 per cent of the people who stopped at the small selection stall went on to buy a pot.⁷³

⁷² Frey, B and Stutzer, A (2002) *Happiness and Economics* (Princeton University Press, Princeton).

⁷³ Iyengar, S and Lepper, M (2000) ‘When choice is demotivating: Can one desire too much of a good thing?’ in *Journal of Personality and Social Psychology*, 79, 995-1006.

Out of a group who expressed they are interested in environmental issues, the most important factor in whether they actually behaved in an environmentally friendly way was “personal control” which was defined as “the extent to which participants felt their actions could benefit the environment”.⁷⁴

The freeing-up of the market for telephone directory enquiries is an example of counter-effective choice. Since the introduction of over 100 new directory enquiry numbers to try to promote competition the use of the service has fallen; this is thought to be due to increased confusion and perception of higher costs, although increased use of internet services is also thought to play a role. Also most residential customers are paying more than they did before (although a quarter of the new numbers offer cheaper services), with no increase in the quality of the service.⁷⁵

8.4 Relevance to policy

Policy-makers should note that, contrary to standard theory, too much information or choice can be counterproductive. They should make sure that the target individuals are not bombarded with information or long manuals of regulations. In particular, policy-makers should beware that people do not necessarily want more choice (as exemplified by the multitude of directory enquiries numbers).

Emphasis should be placed on helping people to believe that they do have it within their power to change their behaviour in a desired way.

Where possible, government should identify problems and encourage groups of people affected by the issue to work together with experts to find solutions. In particular government should build on existing groups and initiatives, rather than creating new processes and structures without buy in.

⁷⁴ Kaplan S (Fall 2000) ‘Human Nature and Environmentally Responsible Behaviour’ in *Journal of Social Sciences*.

⁷⁵ *Directory Enquiries - From 192 to 118* National Audit Office Report 18 March (2005) <http://www.nao.org.uk/pn/04-05/0405211.htm>

9 Discussion and future research

These seven principles have been distilled from the many observed human traits coming from the fields of psychology, behavioural and experimental economics. They have been chosen as they are thought to be the most relevant to policy-makers.

In most cases these principles cannot be used directly as part of any mathematical economics analysis, but highlight situations where this standard analysis might not accurately describe human behaviour and therefore might have unintended consequences when implemented in policy.

The academic research is well developed to support the theory behind the seven principles. There are, however, research gaps around the reality of the application of the principles. These fit around three related areas:

- Consideration of the relevance and materiality of the principle – Relevance (*is one or more of the principles applicable?*) could be left to the judgement of the policy-maker. Materiality (*does the principle make a significant difference?*), however, requires judgement to be informed by more case studies and research.
- Work on the different policy interventions that flow from the principles, and their efficacy – The sections on policy implications in this paper Guide are indicative. The academic research has not focused particularly on the translation of the principles into practice. There is a need for far more systematic work to take place looking at how to best translate the principles into policy, and how to make them most effective. Our research review does suggest, however, that the policy implications could be quite powerful as the behavioural approach provides quite different lines of analysis to the standard economics model.
- Understanding of the interplay between the principles – There is little research on how the principles interact, where they might conflict and how they can be combined to maximum effect.

To bridge the gap identified as to when these principles are relevant and make a significant difference to the outcome of a standard economic analysis (and therefore the policy levers which should be used) we recommend that a systematic study be undertaken relating expected outcomes of different policy approaches to actual outcomes. Where differences arise (either better-than-expected or worse-than-expected), what are they attributed to? Could these have been foreseen taking account the principles from behavioural economics? In which situations does the standard neoclassical analysis give realistic predictions, and in which situations do the principles outlined in this report need to be accounted for? An on-going database could become a powerful tool for the future.

Further relevant work might also be undertaken in the relatively young fields of:

- *System dynamics as applied to economic systems* – where psychological models can be used predictively and the feedback effects from social norms and habits can be included.
- *Complexity theory and agent based modelling* – here individual agents can be given attributes (such as *rational man* attributes, or different degrees of *bounded rational* attributes) and the evolution of the system can be observed as these agents interact with one another. In this way the effect of different parameters and assumptions on this evolution can be ascertained.

It is also possible that relevant lessons may come from other fields concerned with behaviour change such as marketing, which have always operated outside the neoclassical economic framework.

Despite the lack of research on policy application, we would argue that the principles are robust enough for skilled policy-makers to use them in creative ways alongside other more traditional

policy interventions. This is suggested by the fifteen-minute brainstorming sessions on applying the principles to fly tipping and the Water Framework Directive which produced a number of new ideas on how to tackle the issues. Over time we would expect more and more case studies to build up on how to best use the principles from behavioural economics in creating effective policy.

10 Appendices

Appendix 1: Application of the seven principles

The results from two short brainstorming sessions on issues related to the water framework directive and fly tipping are given in the tables below.

10.1 The seven principles applied to the water framework directive

The water framework directive aims to improve water quality using a participatory and transparent decision-making processes.⁷⁶ It sets out a detailed framework for the improved protection and management of water, from source to sea, and requires all inland and coastal waters to reach 'good status' by 2015. The policy issue for The Environment Agency is on how best to implement the Directive.

Ideas coming out of brainstorming	Principles
<p>As there are presently few social relationships between people in different water catchment areas, such groups could be established to increase the social norms in the area, enabling people to feel a sense of connection to the catchment and making it more likely that they will be alert to polluters in the area. One such successful group is the South West Rivers Trust.</p> <p>These catchment-area groups could be involved in the policy process.</p>	<p><i>Other people's behaviour matters</i> has shared social norms as a prerequisite.</p> <p><i>People need to feel involved and effective to make a change</i></p>

⁷⁶ Introduction to the new EU Water Framework Directive <http://europa.eu.int/comm/environment/water/water-framework/overview.html>

Ideas coming out of brainstorming

Farmer's habits with respect to using nitrates need to be changed. The use of nitrates on farms can be particularly harmful to water quality if not applied optimally. Farmers have only one chance a year to do this, and therefore are very cautious and conservative in their behaviour.

Further ideas:

- Need to get farmers to understand the effects they have on water courses.
- Trusted information providers should be used, for example vets.
- Need to play on farmers' self-identity as "guardians of the land" and NOT criminalise them.

Principles

To achieve this, the farmer's habits need to be changed (see principle: *habits are important*). The barriers to changing habits must be considered (probably includes *the principle of loss-aversion*). When considering the motivations which can be given to encourage change, several principles can be used:

- *People are bad at computation* tells us that "framing" and "salience" can help to maximise strength of messages.
- *People need to feel involved and effective to make a change* tells us that too much information can be counterproductive
- *Other people's behaviour matters* suggests we should think about who are the "key influencers"
- *Other people's behaviour matters* combined with the principle: *people can be motivated to "do the right thing"* suggest that a focus on "social identity" is important (e.g. "I belong to the group of guardians of the countryside")

and possibly:

- *People's self-expectations influence how they behave* tells us to use group commitments.

How can/should the Environment Agency change its message from "we have been very successful in cleaning up rivers" to "we need to engage people to make the rivers even cleaner"?

- Probably most easily achieved by including people in the process.
- Influence expectations using transparent monitoring, e.g. community monitoring.

People need to feel involved and effective to make a change.

Supermarkets to use supply change pressure.

This is more a traditional incentive, but it could enforce good water management as being a social norm, following the principle that *other people's behaviour matters*.

10.2 The seven principles applied to the problem of fly-tipping

Fly tipping is the problem of waste being illegally dumped on land. Much of it comes from the building industry where multiple sub-contracting is used, so it is difficult to identify the many small firms who are contracted to remove waste from a building site. From the waste-firms' point of view, they are operating in a cut-throat industry with very tight profit margins where they employ people at very low wages. Here the principle that other peoples' (firms') behaviour matters probably means that if you do not lower your standards to theirs, you will go out of business. If you are threatened with this, the principle of loss-aversion will mean you may take big risks (being caught illegally dumping waste). Trying to use the principle of motivating people to do the right thing will be difficult in this environment. In this case many traditional (financial) incentives may be relevant, for example could the licensed waste site be given the contract to accept the waste, and sub-contract to the lorry drivers to collect it? Ideas related to the seven principles are given below.

Ideas coming out of brainstorming	Principles
<p>Get more information: find out from fly-tippers:</p> <ul style="list-style-type: none"> ▪ What they think happens to the waste ▪ How they chose the site ▪ What's the attitude of the people who employ them ▪ What are the financial incentives/sanctions 	<p><i>Habits are important</i> suggests we should learn about the barriers to change. Obvious barriers may include the accessibility of licensed waste sites (distance and opening times).</p> <p><i>People need to feel involved and effective to make a change</i> suggests there is a case for participatory problem solving.</p>
<p>Make sure government procurement policy is good, e.g ban using people who have fly-tipped, or ensure payment only if waste can be accounted for.</p>	<p><i>Other people's behaviour matters</i> leads to the idea that we might influence large firms to lead by example and this could affect the social norm in general.</p>
<p>Strengthen commitment of larger firms to avoid fly-tipping, using same ideas as above.</p>	<p><i>People's self-expectations influence how they behave</i> tells us that commitments can be powerful. The behaviour of such firms could lead to a change in the social norm following the principle that <i>other people's behaviour matters</i>.</p>
<p>Strengthen licensing regime, for example by having a highly visible logo on lorries.</p>	<p>As well as increasing the perception of being caught as people recognise the lorry is removing waste, this could enhance the expectations that no fly-tipping will take place. For example, the logo could say "Waste removal. We do not illegally dump waste" and have a telephone number (like Eddie Stobart's lorries). This uses the principle <i>people's self-expectations influence how they behave</i>.</p>
<p>Strengthen receptor community's watchfulness. Play on loss aversion, victim stories. Link to existing community initiatives.</p>	<p>This uses a number of the principles: <i>people are loss-averse</i>, "salience" from <i>people are bad at computation</i>, <i>people need to feel involved and effective to make a change</i></p>
<p>Market to small business/individuals about implications</p>	<p>Change social norms - principle <i>other people's behaviour matters</i>. Increase awareness to avoid bad habits – principle <i>habits are important</i>. Use "framing" and "salience" from <i>people are bad at computation</i> to maximise strength of message.</p>
<p>Offenders could be made to explain to victims why they did it.</p>	<p>Strengthen social norms - principle <i>other people's behaviour matters</i>, and use participatory problem solving - principle <i>people need to feel involved and effective to make a change</i>.</p>

Appendix 2: Further reading

Tim Jackson's report *Motivating Sustainable Consumption*⁷⁷ has an extensive survey of models of consumer behaviour and behaviour change, most of which are applicable to a far wider field than sustainable consumption.

David Halpern's report *Personal Responsibility and Changing Behaviour: the state of knowledge and its implications for public policy*⁷⁸ gives theories of behaviour change and examples of where these are being applied to public policy. He argues that: policy outcomes will be much enhanced with the participation of citizens; there are strong moral and political arguments for protecting and enhancing personal responsibility; and that behaviourally based interventions can be significantly more cost effective than traditional service delivery.

Doug McKenzie-Mohr has developed a tool *Community-Based Social Marketing*⁷⁹ to change people's behaviour towards environmentally friendly behaviour. This is underpinned by psychological theories of human behaviour.

Useful texts on bounded rationality include David Kahneman's Nobel Prize lecture *Maps of Bounded Rationality: A Perspective on Intuitive Judgement and Choice*⁸⁰ and *Why Bounded Rationality?* from John Conlisk.⁸¹

Many relevant papers from behavioural economics can be found through Joe Pomykala's website *Behavioural Economics: a crash course*.⁸²

The paper *Libertarian paternalism is not an oxymoron* by Cass Sunstein and Richard Thaler⁸³ references many psychological and behavioural-economic texts to argue that choice should be allowed but the default option should be what the authority thinks is 'best'.

⁷⁷ Jackson (2005) *op cit*.

⁷⁸ Halpern (2004) *op cit*.

⁷⁹ McKenzie-Mohr and Smith (1999) *op cit*.

⁸⁰ Kahneman (2002) *op cit*.

⁸¹ Conlisk J (June 1996) 'Why Bounded Rationality?' in *Journal of Economic Literature* XXXIV pp669-700.

⁸² Pomykala J (2005) *Behavioural Economics: a crash course*, website:
<http://www.altruists.org/static/files/A%20Page%20on%20Behavioural%20Economics.htm>

⁸³ Sunstein and Thaler *op cit*.