

When Good Incentives Go Bad

Crowding Out Intrinsic Motivations with Extrinsic Incentives

(This is a draft only – please check with me before quoting. Any feedback, questions or suggestions would be most welcome – andrew.reeson@csiro.au)

People are motivated by many things. Contributing to environmental goods and services therefore involves a range of motivations. Economic and psychological studies are beginning to shed light on how and why such decisions are made. People may be motivated by deeply held values, they may feel good about helping the environment, they may think it is only fair that they do their bit, they may be seeking approval from others, or to encourage others to contribute themselves. These are all considered intrinsic motivations, that is they are largely derived from internal values and preferences. By contrast, extrinsic incentives are provided by others, such as markets or governments.

For public goods, which includes many environmental goods, extrinsic incentives are often lacking, due in part to the absence of property rights and markets. In some instances, intrinsic motivations by themselves may be sufficient to achieve a desired outcome. For instance in Australia voluntary blood donations are generally sufficient to meet demand without the need for any formal incentive scheme. However in many cases intrinsically motivated voluntary contributions are not sufficient to supply efficient quantities of public goods. Policies are required to address these inefficiencies. Policies typically focus on providing extrinsic incentives. These can be in the form of payments for extra supply, or sanctions for not contributing. All things being equal, providing additional incentives should increase people's motivation to contribute to environmental goods and services. However in human decision making, where economics meets psychology, and biology meets social science, all things are not necessarily equal.

Psychology suggests that people are intrinsically motivated when performing an activity improves their self image and gives them a sense of autonomy. This can potentially be undermined by extrinsic incentives. If somebody is being paid to do something, they are less likely to enjoy doing it than if they weren't being paid. They may also feel that they are doing it just for the money, rather than any "warm glow" they may get for helping the community or the environment, or just from doing a job well. And they may feel that they are being controlled by the money, rather than doing it for their own reasons. Similarly a threat of sanctions may also undermine any enjoyment, warm glow or sense of autonomy.

Therefore there is the potential that some incentives may undermine intrinsic motivations. This is particularly likely if people feel that they are being controlled, and that their voluntary efforts are going unrecognised. This is termed crowding out – the extrinsic incentives can crowd out existing intrinsic motivations. Even if the extrinsic incentive scheme is itself effective, it may achieve less than anticipated if it reduces intrinsic motivations. Conversely, incentives may crowd in, or reinforce, intrinsic motivation if they recognise and acknowledge effort without being perceived as controlling.

Crowding can be more easily understood by imagining an example. Cooking dinner for a friend is likely to involve a range of intrinsic motivations and no formal

incentives¹. Personally I am likely to benefit when a friend cooks dinner for me, and I may wish it happened more often. As an economist I may consider that the way to increase the supply of dinners is to increase the price, and so next time I might offer my host \$10. Of course this is unlikely to work². By introducing the formal incentive, I am crowding out the sense of enjoyment and warm glow that my dinner host had, and perhaps implying that I control them, by requiring them to cook dinner when I pay for it. Since \$10 is unlikely to be sufficient payment for an evening's work, I would not be invited back. If I paid \$100 I perhaps would be; while my friend may no longer enjoy cooking for me, the money may be sufficient to make it worthwhile.

As a policymaker I may instead look for incentives that acknowledge and reward their effort, without being perceived as controlling. For instance I may buy flowers or chocolates, or send a card – this has the potential to crowd in rather than crowd out intrinsic motivations, hopefully leading to more dinners. If intrinsic motivations are initially less important, then crowding out is much less of a problem. Paying an extra \$10 in a restaurant is likely to result in a significantly better dinner; buying flowers would probably be less effective.

Clearly there are some instances where crowding out intrinsic motivations can have negative consequences. Intrinsic motivations have been shown to be important in such areas as tax compliance, employment, and volunteer work effort. They are also likely to be significant in environmental management. How can we ever know whether to bring flowers, or offer cash? Many of the lessons of incentive design have been learned through trial and error, which can be a costly and socially damaging process. An alternative is to use controlled experiments to examine how incentives and motivations might interact. Experiments are increasingly being used to incorporate the social and psychological aspects of human decision making into economic theory. Economic experiments typically involve observing how people respond to simulated markets and institutions. The setting can be controlled by the experimenter, enabling alternative policies to be tested and compared. Subjects are paid based on the decisions they make, so observed behaviour is real rather than hypothetical. Experiments can serve as a 'wind tunnel' to gather empirical data on how people respond to proposed market structures, incentives and policies.

We have used experimental economics to examine how intrinsic and extrinsic motivations might interact. We created a scenario in which people had to trade-off narrow self interest against the public good. The optimal outcome for the group occurs if everyone contributes to the public good; however each individual has an incentive to free ride – by not contributing they increase their private income, but at a greater cost to the group. This reflects the dilemmas faced by many decision makers. For instance in a salinity threatened area, a farmer may benefit the group (ie all farmers in that area) by reducing irrigation, but at a personal cost in terms of foregone production.

In our experimental scenario, we found that many people were prepared to make voluntary contributions to the public good, even though it was costly for them to do so. There was much variation among individuals – some made large contributions, some less and some contributed nothing³. Introducing a regulation specifying a

¹ After Frey 2001

² Unless my host is another economist!

³This is also typical of the pattern reported from similar experimental scenarios

minimum level of contribution led, unsurprisingly, to an increase in total contributions. However if that regulation was subsequently revoked, contributions declined sharply, and were significantly below the levels seen before the regulation was introduced⁴. One explanation for this is that being regulated has crowded out some people's intrinsic motivations to contribute.

In another series of experiments we introduced a financial incentive for people to make voluntary contributions. This took the form of a competitive tender, in which participants could name their price for guaranteeing to make a contribution, with funding going to those who offered the lowest prices⁵. Many people were already making costly voluntary contributions, so this scheme should theoretically provide a means of reducing the personal costs of contributing, and perhaps encourage others who were not already contributing to consider doing so. However introducing the competitive financial incentive changed the way people contributed to the public good. Rather than seeking to reduce their costs, the vast majority of people submitted bids that exceeded their costs – they were now seeking to make a profit from contributing, even though many of these same people had initially been doing it for free. Furthermore if their bids were rejected, most people made no voluntary contribution, even if they had previously contributed in the absence of a formal incentive scheme. This strongly suggests that the extrinsic incentives are crowding out intrinsic motivations. As with the regulation, removing the incentive scheme led to a fall in contributions – people did not simply go back to doing what they were doing prior to the incentive. Therefore the effects of crowding may be difficult to reverse.

The effects of crowding will depend on initial levels of intrinsic motivation. If people are not intrinsically motivated to contribute to the public good, then crowding out will not be a problem, and extrinsic incentives should perform as anticipated. However in the presence of intrinsic motivations, as is likely to be the case in most environmental decisions, the dangers of poor incentive design are increased. Weak regulations or small financial payments may give the worst results as they can trigger the negative consequences of crowding while providing only small extrinsic incentives – in our experimental scenario it was possible to actually reduce overall contributions despite paying out additional incentive money.

Intrinsic motivations are difficult to define or measure, but they must be considered, even if only to avoid nasty surprises from new policies. Institutional changes can impact on these motivations in complex ways. Our initial experiments provide evidence that crowding out is a potential problem in incentive design. We hope to extend this work to look at how the effects of crowding out might be mitigated, and how incentives might be designed to strengthen and support, rather than reduce, intrinsic motivations. An exciting aspect of experimental economics is the potential to empirically test how intrinsic and extrinsic motivations combine and interact in a range of settings. Theory and experiment can be used to develop scientifically rigorous guidelines to inform environmental policy design.

⁴ And also significantly lower than in a control group to which the regulation was never introduced

⁵ In order to test for crowding out, our competitive tender was a deliberately 'bad' institution – the budget was small and participants were not provided with any feedback or advice on their bids.