ELSEVIER

Journal of Economic Behavior & Organization 68 (2008) 273–281

JOURNAL OF Economic Behavior & Organization

www.elsevier.com/locate/econbase

Institutions, motivations and public goods: An experimental test of motivational crowding

Andrew F. Reeson [a,*], John G. Tisdell [b]

[a] CSIRO Sustainable Ecosystems, GPO Box 284, Canberra 2601, Australia
[b] Griffith University, Nathan, Brisbane 4111, Australia

Received 9 May 2006; received in revised form 3 April 2008; accepted 3 April 2008
Available online 12 April 2008

Abstract

Contributions to public goods can be motivated by intrinsic factors such as warm glow altruism and fairness, as well as extrinsic incentives such as sanctions and payments. However, psychological studies suggest that formal extrinsic incentives may crowd out intrinsic motivations. In an experimental study of individual contributions to a public good we find that suasion crowded in voluntary contributions, while an extrinsic incentive in the form of a regulation led to crowding out. This has implications for the design of public policy where ranges of motivations are present.

JEL classification: C91; D02; A13

Keywords: Experimental economics; Crowding out; Public goods; Intrinsic motivation; Suasion

1. Introduction

When faced with contributing to the provision of a public good, an individual's Nash strategy is to contribute nothing if the private costs of contributing exceed the private benefit from that extra contribution. However, observational and empirical evidence shows that many people systematically deviate from this theoretical prediction by making costly voluntary contributions. For instance, people donate to charity, help strangers and spend time and money improving the environment. Such behaviour is also apparent in economic experiments, where many participants are prepared to forego some personal income in order to increase the income obtained by others.

There are range of factors which could motivate people to contribute to a public good. They may be acting out of deeply held social beliefs (pure altruism), or they may get a 'warm glow' (Andreoni, 1989; Pérez-Martí and Tomás, 2004) and improved self-image from contributing. Many people are strongly motivated by concerns for fairness, valuing outcomes they consider as fair even if it is apparently costly to them (see, for example, Berg et al., 1995; Fehr and Schmidt, 1999; Falk et al., 2003). If it is considered 'fair' to contribute to a public good, perhaps because others are also doing so, then many people will be prepared to make voluntary contributions. Experiments show that many individuals respond positively to the positive actions of others (Berg et al.). Conversely, if others are considered to be acting unfairly, an individual may respond negatively (Güth et al., 1982). Another motivating factor is social approval

* Corresponding author. Tel.: +61 2 6242 1640; fax: +61 2 6242 1705.
E-mail addresses: andrew.reeson@csiro.au (A.F. Reeson), j.tisdell@griffith.edu.au (J.G. Tisdell).

0167-2681/$ – see front matter © 2008 Elsevier B.V. All rights reserved.
doi:10.1016/j.jebo.2008.04.002

(Kopelman et al., 2002). Some people want to be seen to be doing the 'right' thing, particularly by people they know (Gächter and Fehr, 1999).

One incentive to contribute to a public good may be that it encourages others to reciprocate. People can also be motivated to contribute by more formal incentives. Payments may be used to subsidise contributions, or regulations to mandate a minimum contribution. Such incentives are extrinsic; that is, they are dependent on external rewards or sanctions, as opposed to intrinsic incentives that are inherent to an individual (Deci, 1971). Pure altruism or warm glow motivations would be considered intrinsic, while social approval and reciprocity could be considered as intermediate between intrinsic and extrinsic. The different bases for these motivations means that they may be differentially impacted by institutions.

Cognitive evaluation theory suggests that intrinsic motivation consists of two elements (Deci and Ryan, 1985). The most important is an individual's sense of autonomy; people are more satisfied if they perceive they are doing an activity for their own reasons rather than being controlled externally. The second element is a need to feel competent at an activity. Extrinsic rewards can be interpreted as controlling behaviour, reducing an individual's sense of autonomy and, therefore, decreasing intrinsic motivation (Deci). Monetary rewards are considered especially controlling (Frey, 2001). However, this may be offset to some extent if a reward is also seen as acknowledging competence at an activity. A meta-analysis of the psychology literature indicates that paying an external reward tends to reduce an individual's intrinsic motivation, while positive feedback (typically 'verbal rewards') increases it (Deci et al., 1999). These concepts, the intrinsic motivation being crowded out by the extrinsic motivation, are known as motivational crowding.

Attributional approaches provide a different, although not necessarily mutually exclusive, psychological mechanism for motivational crowding. Where a reward is offered, people may attribute their behaviour to the reward and come to believe that the task is not inherently worthwhile (Lepper et al., 1973). Individuals have a self-image which is shaped by their actions. Pro-social behaviour can lead to an improvement of an individual's self image. However, if an extrinsic reward is introduced, it will no longer be clear whether the behaviour is being performed as a 'good deed' or for a reward. This reduces the self-image enhancing value of the activity. An individual's desire for approval from others can be affected in a similar way. Performing a pro-social activity without reward is clearly identifiable as altruism. However, once a reward is attached, this is no longer the case; individuals driven solely by the reward may become associated with the activity, reducing the reputational advantage gained by altruists (Benabou and Tirole, 2006).

These theories suggest that formal institutions have the potential to crowd out intrinsically motivated contributions toward a public good (Frey and Oberholzer-Gee, 1997). They can be seen as controlling, reducing autonomy, and negating any 'good deed' aspect of contributing. Introducing a regulation requiring people to contribute to a public good may lead to the perception that intrinsically motivated contributions are unacknowledged or that contributions are made only to avoid sanctions. Alternatively, a regulation may enhance cooperation if it leads people to believe that others will also cooperate. Gneezy and Rustichini (2000) demonstrated the potential negative effects of regulations in a field experiment in which a group of day care centres introduced a small fine for parents who arrived late to collect their children. Initially, parents are likely to have been intrinsically motivated by social norms to arrive on time, but the fine appeared to crowd these out, resulting in the incidence of late arrivals doubling. After the regulation was removed, the rate of late arrivals remained at the higher level, suggesting that the effects of crowding out may be difficult to reverse (Gneezy and Rustichini, 2000).

Our study extends the work of Frey and Oberholzer-Gee (1997) and Gneezy and Rustichini (2000) by tracking individual behaviour as institutions are changed. We test the effects of the introduction of an informal institution (moral suasion) and a formal institution (a regulation) on contributions to a public good. As well as testing for evidence of institutional crowding, our experiments also examine how individuals respond as institutions change. In the absence of communication or formal institutions, it is unlikely that participants will be able to solve the public good dilemma completely and maximise their collective income. Our interest was in how voluntary contributions to collective income are affected by institutions. Does being reminded of the nature of the trade-off strengthen or weaken motivations to contribute? Does being regulated affect voluntary contributions? Based on the theoretical and empirical evidence for crowding, our hypothesis is that experience of a formal regulation will crowd out voluntary contributions to a public good. Following the introduction of a regulation we question whether subjects who were contributing more than the original minimum now contribute more than the regulated minimum contribution. We also question whether those who were making large voluntary contributions continue to do so drop down to