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Analysis

Woodsy the optimal owl: Environmental campaigns, norms, and implications for public goods policy

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ABSTRACT

Norms regarding private provision of a public good (e.g. cutting down on energy use, not littering) can affect the marginal gains from contributing to a public good and therefore people's decisions about contributing to the public good. A model is proposed in which norms of private contributions to a public good can be influenced by public policy, and these norms affect people's self-image, which derives from a comparison of one's own contribution with the norm contribution. In this context, we examine the conditions under which private contributions to a public good are efficient, and the conditions under which policy affecting these norms improves social welfare. We find that (1) a benevolent social planner who fails to account for private provision norms will underprovide the public good, and (2) public policy that attempts to raise the norm contribution of private provision can increase social welfare if the effect of raising the norm does not have an extreme negative effect – either extremely small or extremely large – on peoples' self-image.

1. Introduction

One of the basic principles in public goods theory is that private contributions to a public good are generally inefficient[1] (Samuelson, 1954). The traditional solution to this problem has been for the government to provide most public goods through tax revenue. However, direct provision of the public good through government revenue is not the only way to raise public good levels. Public goods that are funded entirely (or nearly) by private contributions, such as the Red Cross, the Salvation Army, and American Public Broadcasting, continue to exist even though standard economic theory cannot explain the motivation behind such levels of private contributions in large economies (Andreoni, 1990). Andreoni's model of "warm glow" giving, whereby individuals feel good knowing that they are contributing to something they perceive as a good cause, attempts to provide a theoretical explanation of this phenomenon. Bergstrom et al. (1986) agree that in any complete model of contributions to a public good, there must be the possibility that individuals receive a private benefit (e.g. warm glow) from their own contributions.

Brekke et al. (2003) develop a model capable of explaining two empirical phenomena not explained by the warm glow model: why individuals might actually end up contributing less after implementation of economic incentives to increase private contributions (part of a large literature on crowding-out — see Frey and Jengen (2001) for an overview of empirical evidence), and why individuals' private contributions might change if the effectiveness of their contribution was discovered to be less than first thought. In their model, individuals face a penalty in terms of their "image" as socially responsible people the more their contributions deviate from some endogenously determined norm contribution level.[2] Bruvoll and Nyborg (2004) adopt a similar model in which private contribution norms are determined exogenously. Vollan (2008) examines the relationship between regulations, norms, and crowding out in a field experiment. Akerlof and Kranton (2000) argue that identity (image) is key in decision making and, despite being well accepted in the psychological and sociological literature, has not been incorporated adequately in the economics literature.

We lay out implications of norms in public goods policy under the premise that policy-makers can influence private contribution norms through public campaigns (or some other means). For example, in the United States we have had Woodsy Owl's "Give a hoot. Don't pollute." and Smokey the Bear's "Only you can prevent forest fires." television campaigns (both from USDA Forest Service 2007a, 2007b), among others. In our model, norms affect consumer decision-making through consumers' concern for their image as environmentally-responsible people. One reason policy-makers may want to influence norms[3] is to

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[1] Here and elsewhere we refer to Pareto efficiency. A Pareto efficient situation is one in which no one can be made better off without making someone else worse off.

[2] Following Interis (2011), we adopt the convention that a norm is a behavior – in this case contributing a given amount to a public good – that is somewhat prevalent within some group of interest.

[3] A common term used in public policy and political science fields is "moral suasion." However, we use the more general terms "norm-influence," or "influencing norms" as we do not wish to imply that norms are influenced strictly through moral appeals; policy makers could appeal to practical or peer pressure concerns, for example.

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encourage increased private contributions to the public good, as this could be a more efficient way to provide the public good than through traditional taxation and government provision.

In this context, we analytically examine the conditions under which private contributions to a public good are efficient and, using simulation methods, examine the conditions under which policy affecting these norms improves social welfare. We conclude that, consistent with the warm-glow model, the efficient level of a privately provided public good is higher when contributors have a concern for image. We also find that, depending upon people's preferences over a numeraire good, the public good, and image, norm-influencing policy is most likely to improve social welfare when (1) people are relatively less concerned with numeraire consumption, (2) people are relatively more concerned with public good consumption, and (3) when the effect of raising the norm private contribution to the public good does not have an extreme (either small or large) negative effect on peoples' self-image.

Within the literature on norms and public goods provision, there are several papers which investigate the evolution of norms (for example, Haab and McConnell, 2002; Sethi and Somanathan, 1996) and other papers attempting to model how norms affect contributions to a public good (Brekke et al., 2003; Bruvoll and Nyborg, 2004; Cialdini et al., 1990; Ek and Söderholm, 2008), but we know of none attempting to determine the best way to provide a public good, given the policy option of establishing and influencing norms. For this reason, we believe such an analysis could provide valuable insight into public goods policy.

The remainder of this paper is organized as follows: Section 2 briefly discusses the philosophical issue of whether government policy should attempt to influence norms in the first place. Section 3 presents the theoretical model. Section 4 examines efficiency implications of people being concerned about self-image. Section 5 examines welfare implications of policy designed to raise norms of private contributions to public goods. Section 6 concludes.

2. Should Policy Influence Norms?

It is increasingly accepted in economic modeling that individual behavior is at least partially driven by social or moral considerations (see, e.g., Fehr and Fischbacher, 2002; Holländer, 1990; Lindbeck, 1997; Sugden, 1984), and there is some reason to believe that social and moral norms can be established or influenced by the government through various methods (Nyborg, 2003). Nyborg and Rege (2003) argue that data about smoking in private homes is consistent with their hypothesis that government policy helped create social norms of not smoking in the private homes of non-smokers in Norway. Grasmick et al. (1991) hypothesize that an anti-littering campaign in Oklahoma helped deter littering by increasing "shame and embarrassment" associated with littering. McKenzie-Mohr (2000) explains that while the success of campaigns to induce behavioral change has been mixed, the majority of campaigns have also virtually ignored the psychological literature on inducing behavioral change. When campaigns are carried out properly, that is, based on psychological factors and also under a more methodically rigorous process, their probability of success increases (McKenzie-Mohr, 2000; also see Bator and Cialdini, 2000). In this paper, we assume the government can influence norms of private contributions to a public good, but of course, how and if government can actually influence such norms in reality is an important question, which we do not address here. The answer certainly depends upon the situation: what the public good is, what kinds of norms are being influenced, how norms are influenced or established, and so on.

An obvious question the reader might ask is: should policy attempt to influence norms in the first place? Granted, not all campaigns (by which we envision most norms pertinent here to be influenced) are executed by the government. For such private or non-profit campaigns (take, for example, the Energy Hog campaign created by the Alliance to Save Energy, 2009) the question of "should" is less pertinent as this would essentially be arguing whether or not private organizations should be able to advertise in their own interest, which is generally well-accepted in mainstream advertising within limitations. Such advertising may or may not be beneficial to society. On the other hand, elected officials are presumably supposed to act in the interest of general welfare. Potentially, both norm-influence and taxation are tools which could increase social welfare. The main difference is that the former has a psychological or emotional component because campaigns often try to change attitudes. Taxes, on the other hand, go into a pool that is used to finance many things, some of which an individual might favor financing, some of which he might not, but one likely fails to keep track of exactly how his tax dollars are being spent (on a grand scheme that is, albeit one might have interest in a particular expense). Campaigns, however, are closely associated with a specific objective that an individual may or may not agree with, which lends itself more easily to critical thinking on the issue.

Ultimately, the question of government involvement in changing norms is a philosophical one, but we note that it has historical precedence, with varying degrees of success, from Gerald Ford's WIN buttons, to Woodsy Owl, to the U.S. Forest Service's "Get Outdoors" campaign.

3. The Model

The model can be placed in the context of a two-stage game between worker–consumers and the government. In the first stage, the government chooses the allocation of exogenous tax revenue between norm influence and direct public good provision.[4] In the second stage, consumers choose their levels of private contributions to the public good. Brekke et al. (2003) point out that depending upon consumers' perceptions of the ability of tax revenue to provide the public good, they may or may not be willing to make additional contributions to the public good.

The basic model is similar to that of Bruvoll and Nyborg (2004), but whereas they endeavor to show that there is a social cost to raising the norm level of private contribution, our analysis will focus on the effect of norms on the efficient level of private contributions to the public good, and welfare effects resulting from norm-influencing policy.

Consider an economy of H consumers, each of whom has preferences over a numeraire private consumption good, a single, pure public good, and his image as an environmentally responsible person. In this model there is some norm level of private contribution to the public good that is determined, exogenously to the consumer, by government revenue (e.g. through the public campaign). This norm level of contribution is some level of contribution consumers believe they "should" give. More realistically, policy-makers can likely shape, but not entirely determine the norm. If there is interaction between policy and norms, this is another mechanism through which policy might affect motivation to contribute, but because our focus is on how norms affect behavior, not how policy affects norms, we treat the norm as exogenous to the consumer. Image does not depend on observation of the individual's behavior by others, and so can be thought of as "self-image" rather than a "social image".[5]

The model is intended to be a model of consumer motivation to contribute to a generic public good rather than a model of providing a particular public good, but for the sake of illustration, the public good can be thought of as undeveloped land or clean air. The government

[4] We assume the marginal tax rate is taken as given because, for example, it was determined in a previous time period. Alternatively, the tax rate could be made flexible, but since we focus on the static allocation decision, we hold the tax rate fixed.

[5] In other words, not following the norm results in self-sanctioning rather than external sanctioning (see Interis, 2011). Sanctioning is a key aspect of norm perpetuation (Fehr and Fischbacher, 2004). Externally sanctioned norms (see Fehr and Gächter, 2000) will likely have different implications for this model and their study remains an interesting vein of future research.