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Prosocial behavior and policy spillovers: A multi-activity approach

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ABSTRACT

Observing that people who wish to engage in prosocial behavior are often presented with more than one means to the same end, we develop a model in which agents may contribute to a single public good through a range of different activities. We use this model to make two points. First, noting that effort on one activity has been argued to reduce (moral licensing) as well as increase (moral consistency) effort on other activities, we derive sufficient conditions under which policy to facilitate one activity partially crowds out effort on other activities. Second, we use an example to argue that a given single-activity model may be extended to multiple activities in several alternative ways, and that not all generalizations need reproduce the ideas and results of the original model; in general, careful thinking is needed to determine which multi-activity model is appropriate.

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1. Introduction

Introspection, as well as research on ‘mental accounting’ (Henderson and Peterson, 1992; Thaler, 1999) suggests that people view commonly undertaken prosocial acts as belonging to broad categories. Recycling household waste, buying organic products, and donating to environmental NGOs are all examples of pro-environmental acts; voting, running for local office, or demonstrating are ways to affirm democratic values; and a multitude of charities (for which one may volunteer as well as donate) imply that there are many ways of aiding the less fortunate. In each domain, there is a range of alternatives. By contrast, the vast majority of economic studies on prosocial behavior assume that people may contribute through only a single activity. Beyond explaining *why* people contribute, analyzing *how* people contribute requires a high-resolution model that includes more than one contributing activity. This paper develops such a model.

We focus on the situation where some policy intervention targets one of several prosocial activities. For example, many countries have introduced directed schemes (whether through facilitation, public information or economic incentives) to encourage specific pro-environmental behaviors like recycling, leaving the car at home, or reducing energy use. To better understand such situations, multi-activity models are useful in at least two respects.

First, they allow for analysis of spillovers, that is, policy impacts on activities other than the one targeted. Such effects can be expected to arise whenever the efforts that people spend on a given activity reflect not merely its own characteristics, but those of similarly categorized acts as well. Spillovers can be seen as a manifestation of standard notions of (gross)

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substitutability: as policies alter the relative material incentives to contribute through the targeted activity, demand for other activities shifts up or down.

There are at present a few field studies on spillovers, e.g. on electricity use from a water-conservation campaign (Carlsson et al., 2016; Jacobsen et al., 2012; Lacetera et al., 2012; Tiefenbeck et al., 2013), as well as a small but rapidly growing literature on ‘expenditure substitution’ across charities in response to donation matching or other shocks (Cairns and Slonim, 2011; Ek, 2017b; Filiz-Ozbay and Uler, 2016; Meer, 2017; Null, 2011; Reinstein, 2011). All of these studies estimate whether spillovers (or cross-price effects) are positive or negative, i.e. whether policies produce crowding in or crowding out.¹ While the bulk of the evidence points toward crowding out, exceptions are not uncommon.

In psychology, this fact is reflected in competing theoretical accounts (Dolan and Galizzi, 2015; Merritt et al., 2010). On the one hand, some theories stress consistency across separate decisions (Festinger, 1957; Bem, 1967), suggesting that one prosocial act can spur another. If activity-specific policy does increase effort on the targeted activity, we should then expect crowding in. On the other hand, a literature on ‘moral balancing’ (Blanken et al., 2015; Cain et al., 2005; Sachdeva et al., 2009) argues that people who have just behaved prosocially may feel they have a ‘moral license’ to subsequently relax their moral standards, while people who have just behaved badly may feel obliged to engage in subsequent ‘moral cleansing’ (Ploner and Regner, 2013). Again, if the policy is effective, efforts on other activities should decrease, leading to crowding out.

Importantly, experimental and empirical methods predominate among these prior studies, with formal analysis arguably lagging behind.² Our model represents a first step toward filling that gap. Building on the model of Bruvold and Nyborg (2004), which is itself a simplified version of the one developed by Brekke et al. (2003), we derive sufficient conditions under which activity-specific policy crowds out effort on all other activities. Although slightly limited by the fact that the fully general model can be solved only for the case of two activities, these conditions establish crowding out as the benchmark in many large-scale public-good settings.

A second reason why multi-activity models are useful is that they allow us to re-evaluate previous results from single-activity models. Unlike our multi-activity framework, single-activity models obviously do not include activities that are only indirectly targeted by a policy, and depending on the manner in which this feature is added, results may alter *even with respect to the targeted activity*. This general point should not be too counter-intuitive: for example, compare the impact of a price increase in a single-good utility problem with a situation where we also add a close substitute not affected by the price increase.

Similarly our model, which at first glance seems a straightforward extension of Bruvold and Nyborg (2004) to multiple activities, introduces new issues and accommodates results that are sometimes at odds with the ideas and conclusions of the original paper. However, several plausible ways of extending Bruvold and Nyborg (2004) exist, raising questions concerning which multi-activity model within the overall Brekke et al. (2003) framework is appropriate. We attempt to shed light on the issues involved by outlining some key alternatives.

Like Bruvold and Nyborg (2004) and Brekke et al. (2003), we focus on moral rather than social norms, and our model can be interpreted in terms of ‘duty-orientation’: individuals derive utility from maintaining a positive self-image of themselves as responsible citizens, but also *disutility* from failing to live up to some ‘ideal’ contribution level. Thus prosocial motivation derives from a process of self-image maintenance in which agent’s base their actions partly on the (perceived) characteristics of the public-good production function. Note that it is common for moral-licensing accounts (e.g. Sachdeva et al., 2009) to also appeal to some manner of self-concept maintenance process. We believe our model forms a useful framework for rigorous analysis of such processes, including the formulation of testable hypotheses related to moral balancing.

Compared to theories that emphasize for instance the signaling of one’s prosociality to others (e.g. Andreoni and Bernheim, 2009; Bénabou and Tirole, 2006), the moral-norms approach has the advantage of relative simplicity. Moreover, internalized norms are arguably the main drivers of behavior in many contexts. Common prosocial acts such as waste recycling, anonymous donations, or voting by mail are not readily observable by other people, and any explanation of them in terms of social image will be indirect at best.³

The structure of this paper is as follows. Section 2 outlines our multi-activity extension to the duty-orientation model. Section 3 introduces results on spillovers, first by means of a relatively simple example, and then for the general case. Sections 4 revisits earlier research on government centralization of an activity. Section 5 concludes.

¹ Here, crowding out should not be confused with other uses of the term. First, government provision of public goods may crowd out private contributions (Andreoni, 1990; Nyborg and Rege, 2003), and spending by one charity may crowd out spending by other charities (Ribar and Wilhelm, 2002). Second, material incentives for prosocial behavior may crowd out intrinsic motivation, perversely reducing contributions (Bénabou and Tirole, 2006; Bowles, 2008; Frey and Jegen, 2001). To this we add a third layer of complexity, namely that interventions that target a particular activity may crowd out (or in) effort on other activities.

² A possible exception is a branch of the charitable-giving literature which examines the choice between different *modes* of contributing, i.e. between volunteering and money donations (Andreoni et al., 1996; Brown et al., 2016; Feldman, 2010; Lilley and Slonim, 2014). Our model frames all contributing activities in terms of time spent, so it is not directly comparable to the theoretical analysis contained within these papers, yet the overall focus is similar. For example, volunteering and monetary donations are typically found to be net (if not necessarily gross) substitutes.

³ Variants of the Brekke et al. (2003) moral-motivation model have been applied to corporate social responsibility and labor market screening (Brekke and Nyborg, 2008), hypothetical bias in stated-preference surveys (Johansson-Stenman and Svedsäter, 2012), green consumerism (Nyborg et al., 2006), and households’ recycling efforts (Bruvold and Nyborg, 2004).

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