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The good of the few: Reciprocal acts and the provision of a public bad

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ABSTRACT

People trade favors when doing so increases efficiency. Will they when it reduces efficiency, such as in political logrolling? We introduce the "Stakeholder Public Bad" game, in which common fund contributions increase one person's earnings (the "Stakeholder") while reducing others' earnings and overall efficiency. The Stakeholder position rotates through all group members or just alternates among two people (making it easier to form a coalition). High Stakeholder rewards provide a lever for reciprocity: if someone contributes when another is Stakeholder, he may be rewarded with a gift when he becomes Stakeholder. Reciprocity is only possible when agents know others' roles and actions, so information provision may be pro- or anti-social. In a laboratory experiment, we combine a rotating or alternating asymmetry in payoffs with varying levels of information provision to examine pro- and anti-social reciprocity. We find that subjects in the Stakeholder role willingly sacrifice social welfare. We also see both anti-social and pro-social favor trading, particularly when coalition-forming is easier. Favor trading does not change the mean level of public bad provision. People who trade favors tend to be less risk averse.

1. Introduction

People must often decide whether to support a policy that has both winners and losers. A defense contract benefits one constituency while incurring large tax-funded expenses; a factory siting decision brings jobs to one area but has broad environmental consequences; an appropriations bill funds wasteful "bridges to nowhere" to the benefit of individual committee members. Further, these groups must often repeat the decision process with different stakeholders for different projects. This structure may give rise to reciprocal behavior: you support my project and I'll support yours. Cohen and Malloy (2014) document this type of reciprocal behavior in United States Senate votes and earmarks. Favor trading may take the form of explicit quid pro quo arrangments as in corruption or nepotism, or people may implicitly expect reciprocation as when pharmaceutical representatives who give gifts to doctors expect (and see) increased prescriptions of their drugs (Wazana, 2000). Existing evidence (Jacobson and Petrie, 2014) shows that favor trading can increase provision of pro-social projects. We investigate whether the same dynamic occurs when a project is anti-social—when the harm it causes within a group exceeds the benefit it generates. If it does, then reciprocity, long championed as a force for good, can be destructive, and so can the information that enables it.

We create a novel model of anti-social favor trading, and test the model using lab experiments. Our "Stakeholder Public Bad" game allows reciprocal behavior in a group's provision of a project with heterogeneous costs and benefits. In each round, each member of a group decides how much to contribute to a common fund. These contributions determine the provision of an efficiency-reducing project in which one member has a stake (i.e., a financial interest) and which reduces other members' payoffs. These projects are like a series of bills or earmarks that each have a proponent who benefits if it passes but have social costs that outweigh those benefits. The Stakeholder role rotates so different group members periodically become the project beneficiary. A two-player coalition can benefit by reciprocally

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"helping" each other but there is no coalition enforcement mechanism. We vary the availability of information necessary for reciprocity and whether the circle of potential reciprocators (those who will be Stakeholder) includes all group members or just a two-person subset of the group (making it easier to form a coalition).

How people behave in such a game depends on their social preferences and whether they expect reciprocation. To explore this behavior, we implement the game in a lab experiment. We find that subjects contribute nearly fully in the role of Stakeholder, even though this is anti-social. Most importantly, people engage in anti-social reciprocation by "helping" the current Stakeholder in hopes of being reciprocally helped in the future and to repay past help. They do this even though average reciprocation is not high enough to make this profitable. However, we also find another avenue of reciprocity: when a pair is nudged into a coalition by shrinking the circle of reciprocity, favor trading also occurs through reduced Stakeholder contributions, and this is pro-social. Finally, we find that people who trade favors in both routes of reciprocity are on average less risk averse, which is consistent with favor-trading being a risky strategy.

Our results show that reciprocal acts need not always increase welfare. Further, since some reciprocal acts are anti-social, and since reciprocity depends on information about people's actions and payoffs, our results also show that information provision can be anti-social.

2. Favor trading in public good and public bad provision

Our study builds on an extensive literature on public goods (useful surveys of which include Chaudhuri, 2011; Ledyard, 1995) that shows that subjects behave far more pro-socially than predicted by models of fully self-interested optimizing behavior. Motives for this cooperation may include fairness (e.g., Marwell and Ames, 1981), altruism (e.g., Dawes, 1980), and conditional cooperation (Gächter, 2007).[3] Many provision institutions have been studied. Most relevant is the linear voluntary contributions mechanism, in which contributions to a common fund have constant returns to each member of a group. We create a novel model, the Stakeholder Public Bad game, built on the voluntary contributions game but modeling public bads instead of public goods and allowing favor trading.

Projects that reduce efficiency have received less attention, in part because many models treat public bads as dual to public goods. For example, one can argue that preferences against (the public bad of) pollution are like preferences for (the public good of) pollution abatement.[4] However, public bads merit direct study because people act differently when a game is framed as public good provision rather than public bad reduction. Schwartz-Shea (1983), Andreoni (1995b), and Sonnemans, Schram, and Offerman (1998) show that people behave more pro-socially in public good than public bad framing.[5] The public bad literature yields other lessons: Barr and Serra (2009,2010) find that culture and the size of social costs affect willingness to contribute to a public bad; work by Moxnes and van der Heijden (2003) and Van der Heijden and Moxnes (2013) shows that a leader can reduce public bad provision; and Pevnitskaya and Ryvkin (2013) find that an environmental frame improves the outcome. The work most closely related to ours is Delaney and Jacobson (2014), which studies contributions to a public good when passive agents bear negative externalities so large that they outweigh the local benefits (so the project is overall anti-social), including a treatment that allows favor trading. They find that greater social distance to injured parties increases public bad provision and that favor trading occurs among beneficiaries of this anti-social setting. Murray, Frijters, and Vorster (2015) approach a similar topic with a different game structure and also find anti-social favor trading emerging in a team production game. Malmendier and Schmidt (2012) also find that gift-giving can cause anti-social reciprocation and propose a model of endogenous formation of social reference groups. Our current study adds to this literature by examining favor trading in support of a public bad when the costs of provision are borne within the group.

The favor trading we study comprizes reciprocal acts rooted in other-regarding preferences and those motivated by strategic self-interest ("intrinsic" and "instrumental" reciprocity, respectively, per Sobel, 2005). Intrinsic reciprocity (as laid out in theories like Cox, Friedman, and Sadiraj, 2008; and Rabin, 1993) has been shown to drive pro-social behavior (e.g., Berg, Dickhaut, and McCabe, 1995; Charness and Rabin, 2002; Cox, 2004; Fehr, Kirchsteiger, and Riedl, 1993). Instrumental reciprocity has also been found to be important (e.g., List, 2006). Per the classifications of Cox and Deck (2005), our model does not allow negative reciprocity (spite) in the sense of punishment of a previous malefactor as studied in work like Abbink, Irlenbusch, and Renner (2000); all reciprocal acts in our model are positive in that they involve reward of a previous benefactor and withholding of that reward.[6] Negative reciprocity can be pro-social when it is used to enforce cooperative norms. In contrast, we show that (positive) reciprocal acts can be socially harmful.

In public good games, reciprocal behavior has largely been studied in the form of conditional cooperation (Gächter, 2007). Information conditions and payoff asymmetries can provide additional leverage for reciprocity. Information alone may increase giving (e.g., Andreoni and Petrie, 2004; Sell and Wilson, 1991). But information can also enable reciprocity: you cannot reciprocate without knowing who has been kind to you (Wilson, 2008).[7] This reciprocity may increase provision. Asymmetric payoffs can also act as levers for favor trading, although they have mostly been used to study responsiveness to returns to self and others (e.g., Goeree, Holt, and Laury, 2002) or leadership (e.g., Brandts, Cooper, and Fatas, 2007; Glöckner et al., 2011), sometimes in the spirit of Olson's (1965) "privileged groups" (Reuben and Riedl, 2009). Other asymmetric return models study behavior when the project has different returns for people with no voice in project provision: "bystanders" in Engel and Rockenbach (2011), future generations in Sherstyuk et al. (2015), and "outsiders" in Delaney and Jacobson (2014). Isaac, Norton, and Pevnitskaya (2013) study projects that are asymmetric (benefit some and hurt others), but give no opportunities for favor trading. Jacobson and Petrie (2014), in a design similar to our study, use asymmetric returns and information to let subjects trade favors in support of a public good. They show that favor trading occurs and other-regarding preference-based reciprocity boosts support of a pro-social common project. We ask whether this will also occur in support of an anti-social common project.

This study contributes to the literature by seeking evidence of reciprocal behavior in project provision when the project is anti-social. In a similar vein, Großer, Reuben, and Tymula (2013) use an influence-peddling game to show reciprocal behavior that subverts the majority's wish for redistribution. Delaney and Jacobson (2014) demonstrate a similar concept but in that study, the costs associated with the project are borne by agents outside the deciding group. In situations we study in this paper, all of the pain caused by project provision is borne by those who are deciding whether to support the

[3] Alternately, others suggest that some contributions are driven by confusion; examples include Andreoni (1995a), Ferraro, Rondeau, and Poe (2003) and Houser and Kurzban (2002).

[4] Shitovitz and Spiegel (2003) show that in general equilibrium, the Nash equilibrium outcome for provision of a public bad differs from that for a public good because provision of a public bad can be unbounded.

[5] The difference between positive and negative framing also relates to findings, like those in DeScioli, Christner, and Kurzban (2011), that anti-social acts of omission occur more frequently and receive less punishment than acts of commission.

[6] "Strong reciprocity" (Fehr, Fischbacher, and Gächter, 2002) comprises both positive and negative reciprocity.

[7] Indirect or generalized reciprocity, as in Nowak and Sigmund (2005), needs no such information, but we are unable to identify this phenomenon in this study.