



Normative conflict and the limits of self-governance in heterogeneous populations[☆]



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ABSTRACT

Mechanisms to overcome social dilemmas provide incentives to maximize efficiency. However, often – such as when agents are heterogeneous – there is a trade-off between efficiency and equality – a *normative conflict* – which is overlooked. Agents' concerns for equality in such instances can limit the ability of mechanisms to promote efficiency. We provide evidence for this from a public good experiment using a simple mechanism allowing individuals to communicate periodically with other group members and reward them for their actions. We show that, in homogeneous populations – where there is no conflict between efficiency and equality – the mechanism permits groups to obtain maximum efficiency. This is not the case in heterogeneous populations despite the fact that individuals could use rewards to resolve the normative conflict. Although almost all heterogeneous groups agree to follow specific contribution rules with positive contributions, most of them either prioritize equality over efficiency or strike a compromise between the two. These findings suggest normative conflict can be difficult to overcome, imposing limits on the ability of heterogeneous populations to reach efficient outcomes through self-governance.

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1. Introduction

Social dilemmas are a topic of continuing interest among economists due to the tension between private and social interest. If this tension is not resolved, outcomes are likely to be inefficient (e.g., Samuelson, 1954). Accordingly, a large array of mechanisms has been proposed to provide incentives for individuals to act in accordance with the social interest (e.g., Laffont, 1987; Myerson, 2008). By 'social interest' most economists mean efficiency; i.e., efficiency is the ultimate normative criterion for evaluating the performance of a given mechanism. In many instances in daily life, however, efficiency is at odds with another normatively appealing rule: equality (e.g., Okun, 1975; Browning and Johnson, 1984). If individuals care strongly about equality as some evidence suggests (e.g., Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000; Charness and Rabin, 2002; Cappelen et al., 2007; Almas et al., 2011; Cooper and Kagel, 2016), the ensuing *normative conflict* may undermine the ability of standard mechanisms to promote efficiency.¹

Despite decades of research on social dilemmas, surprisingly little is known about how severe the tension between efficiency and equality is. This however is an important empirical question as the tension between efficiency and equality arises naturally in many instances such as when individuals derive different benefits from the provision of public goods (e.g., Chen and Plott, 1996; Nikiforakis et al., 2012; Reuben and Riedl, 2013). When some agents enjoy greater benefits from the public good than others, contributions to the public good can increase both efficiency and inequality. This raises the question of how difficult it is to overcome this tension in practice. To what extent can equality concerns undermine the ability of mechanisms to promote efficiency in heterogeneous groups facing social dilemmas?

We address these questions in a laboratory experiment using a variant of the Voluntary Contribution Mechanism (VCM hereafter) for public goods provision as a testing ground. All group members are given the same endowment and must decide how much of it to contribute to a public good. In half of our treatments, we assign higher returns from the public good to some group members than their peers, based on their relative performance in a previous real-effort task. The heterogeneous returns create a stark trade-off between efficiency and equality: when efficiency is maximized, so is the inequality in the earnings of the different players' types. To evaluate the severity of the normative conflict, we compare behavior to that in treatments in which all group members receive the same benefit from the public good. Homogeneity implies that maximizing efficiency simultaneously leads to equality in earnings.

The mechanisms designed to support cooperation in the literature differ greatly. On one end of the spectrum are centralized mechanisms with clearly defined incentives for performance (e.g., Groves and Ledyard, 1977), which are often complex and difficult to implement in practice (e.g., Laffont, 1987; Jackson and Moulin, 1992).² On the other end are decentralized mechanisms without well-defined incentives, which are easy to implement in practice. These typically rely on peer-monitoring, peer-communication and peer-provided material incentives such as rewards (Rockenbach and Milinski, 2006; Sefton et al., 2007; Rand et al., 2009; Sutter et al., 2010) or punishment (e.g., Fehr and Gächter, 2000; Masclet et al., 2003; Nikiforakis, 2008). We chose a simple, decentralized mechanism for our purposes.

Our mechanism allows for communication between group members and rewards at regular intervals. Rewards in our study take the form of monetary transfers from one group member to another.³ In the case of heterogeneous populations, rewards are of prime interest as individuals deriving a larger benefit from the public good can agree to transfer funds to those deriving a smaller benefit to alleviate (or even fully resolve) the normative conflict *ex post*.⁴ To facilitate such agreements, in some treatments, group members are invited periodically to a forum and are given the opportunity to communicate. Communication is anonymous, free form, and non-binding, but it can nonetheless assist groups in reaching an agreement both about how much each member ought to contribute to the public good and who should receive a monetary transfer by whom.⁵ To that end, we explore behavior in control treatments, with reward but no communication opportunities.

¹ A normative conflict is said to arise when multiple normatively appealing rules about how one ought to behave in a given situation coexist and prescribe different actions. For this to happen, these rules must have some properties that appeal to a large fraction of individuals. Considerable evidence suggests that equality and efficiency are such rules. For more general discussions on the topic, see Nikiforakis et al. (2012), and Reuben and Riedl (2013).

² Jackson and Moulin (1992, p.126) write: "The general results are technically impressive, but generally impractical for producing plausible mechanisms". Laffont (1987, p. 567) similarly writes: "... any real application will be made with methods which are crude approximations to the mechanisms obtained here ... considerations such as simplicity and stability to encourage trust, goodwill and cooperation, will have to be taken into account." Recently less complex, centralized mechanisms have been developed, e.g., Andreoni and Gee (2012), Falkinger (1996) and Varian (1994).

³ According to the Merriam-Webster dictionary, "reward" can be defined as the act of giving "money or another kind of payment to someone for something good that has been done" (Merriam-Webster). This definition implies that monetary transfers in our experiment can be thought of as "rewards" so long as they are *conditional* on another person's behavior (e.g., high contribution, honoring a group's agreement). The vast majority of transfers in our experiment appear to fit this definition. We therefore follow the convention in the literature of referring to transfers between group members as rewards. What are some of the analogues of such rewards in daily life? Rand et al. (2009) provide the following examples: helping a friend move furniture, working extra shifts to cover an ill co-worker or being extra helpful to a neighbor who has just bought a low emission car. Of course, rewards can also take the form of actual monetary transfers, e.g., compensating an individual for his/her cost in generating a positive externality.

⁴ Formally, the opportunity to reward implies that an agreement in which all members contribute fully is not only Pareto efficient, but also Kaldor–Hicks efficient. An outcome is said to be Kaldor–Hicks efficient if those that are made better off could potentially compensate those worse off. The compensation does not have to occur.

⁵ As we discuss in the next section, several studies have shown that non-binding communication can promote cooperation. However, with few exceptions (Isaac and Walker, 1988; Hackett et al., 1994; Chan et al., 1999; Tavoni et al., 2011; Dekel et al., 2017), all preceding studies allowing non-binding communication in social dilemmas used homogeneous groups.

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