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Leadership and the voluntary provision of public goods: Field evidence from Bolivia

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ABSTRACT

We conduct a controlled field experiment in 52 communities in rural Bolivia to investigate the effect that local authorities have on voluntary public good provision. In our study, community members pool resources to provide environmental education material for local schools. We find that voluntary contributions increase when democratically elected local authorities lead by example. The results are driven by two factors: (1) authorities, like other individuals, give more when they are called upon to lead than when they give in private, and (2) high leader contributions increase the likelihood that others follow. Both effects are stronger when authorities, as compared to randomly selected community members, lead by example. We explore two underlying sources of leadership influence. First, we provide evidence that the effect of a leader's contribution is not limited to signaling the value of the public good. Second, we examine how leader characteristics affect the likelihood that others follow. Specifically, our study shows that authority influence is driven by a combination of formal leadership status, observable characteristics, and the amount that authorities contribute when they give publicly before others.

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1. Introduction

Leaders play a central role in the resolution of collective action problems. Existing evidence demonstrates that leaders affect growth at the aggregate level (Jones and Olken, 2005) and influence the choice of public goods provided at the local level (Chattopadhyay and Duflo, 2004). Most studies of leadership and public good provision focus on public goods that are provided by the government.² In spite of the importance of voluntary contributions for the resolution of local-level collective action problems, less is known about the effect leaders have on the voluntary provision of public goods. Recent work has shown that leaders can affect voluntary contributions through informal taxation (Olken and Singhal, 2011), sanction enforcement (Grossman and Baldassarri, 2012), and reciprocity (Beekman et al., 2014). This paper examines

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another mechanism by which leaders may affect voluntary contributions to local public goods: leadership by example.

In a voluntary contribution setting, leadership by example arises when individuals make sequential decisions, and the choice made by the first mover (the leader) influences the contributions of others. Substantial theoretical and experimental literature has shown that first movers can affect voluntary contributions in sequential decision settings through free-riding (Varian, 1994), information signaling (Hermalin, 1998, 2007; Vesterlund, 2003; Potters et al., 2005, 2007; Andreoni, 2006), reciprocity (Andreoni et al., 2002; Meidinger and Villeval, 2003; Gächter et al., 2010, 2012) and social status (Kumru and Vesterlund, 2010; Eckel et al., 2010). Due perhaps to the challenge of empirical identification of leadership influence in field settings, no study has examined how the example set by individuals who occupy actual leadership positions affects the voluntary contributions of the groups they lead. Our paper begins to fill this gap in the literature by conducting a randomized field experiment in rural Bolivia that investigates two questions: (1) Can local leaders (authorities) affect voluntary public good provision through their example?, and (2) If so, why? Our experiment examines the effect of leadership on the contributions of both leaders and followers, and provides suggestive evidence on causal mechanisms underlying leadership influence.

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² For example, Chattopadhyay and Duflo (2004) study the effect of female leadership on policy decisions in India; Reinikka and Svensson (2004) investigate the political capture of public education funds in Uganda; Humphreys et al. (2006) study leadership influence on public deliberations about future public resource use in São Tomé and Príncipe; and Besley et al. (2012) analyze political influence in public resource allocation decisions in India.

We implement a controlled field experiment in 52 socially and politically independent communities, each of which has its own elected local authority. In our experiment, a representative sample of community members pool resources to provide environmental education books for the local school. We employ a between-subject design that solicits voluntary contributions in a natural decision setting and compare total contributions when an authority makes an initial public voluntary contributions after observing the authority's choice – to two types of controls: one in which a randomly selected community member makes an initial public contribution and one in which all contributions are private. Two of the three treatments are implemented simultaneously in each community, facilitating the use of fixed effects to address unobservable community-level confounds.

Our results show that local authorities increase average contributions when they lead by example. The effect is unique to authorities; randomly selected individuals have little effect on overall giving when they lead. We decompose treatment effects into leader and follower responses to leadership. Our results show that authorities not only increase their own contributions when they lead by example, they also influence follower contributions. Followers of authorities are more likely to make a low contribution after observing a low leader contribution and more likely to make a high contribution after observing a high leader contribution, relative to contributions in the simultaneous setting. Follower contributions are less strongly influenced by the contributions of randomly selected leaders.

We offer two pieces of suggestive evidence on why leaders affect public good provision in our setting. First, our study is designed to identify information signaling as a mechanism through which leaders influence followers. We exogenously vary whether or not participants receive information about the quality of the public good. Uninformed participants are more responsive than informed participants to the example set by community authorities, but even informed followers adjust their contributions in the direction of the leader's contribution when the authority sets the example. This result suggests that other mechanisms such as social status or reciprocity contribute to the observed influence of authority leaders. Second, we examine the relative importance of the authority's formal leadership position in the community and his or her observable characteristics. In our study, community members randomly selected to lead by example who more closely resemble local authorities have a greater influence over the contribution decisions of followers, i.e. they have the same effect on provision as do authorities in a leadership role. This finding provides suggestive evidence that authorities are influential because of their characteristics, not just the formal position they hold.

Our study is the first to examine how local authorities affect voluntary public good provision without the use of sanctions or coercion and thus makes several contributions to the literature. First, we empirically identify leadership by example as a mechanism through which local authorities can affect real voluntary contributions in a development setting. Second, we show that the leadership influence of local authorities on aggregate provision is explained both by their own contribution and the effect that they have on the contribution decisions of others. Third, we offer novel evidence on one of the most studied channels underlying leadership by example – information signaling – and show that its empirical relevance depends on who is in the leadership role. Finally, we provide suggestive evidence that authorities are influential because of their formal position in the community, their

elevated contributions when placed in a leadership role, and their observable characteristics; traits such as education and wealth, which are correlated with several potential mechanisms of authority influence, matter.

Our study relates to a small but growing number of controlled field studies that examine the relationship between leaders and public good contributions in developing countries. Using public good games in the field, Grossman and Baldassarri (2012) find that individuals elected within the experiment - who are not local authorities - are more effective at sanctioning low voluntary contributions, while Beekman et al. (2014) show that voluntary contributions are lower in communities that have corrupt officials. Kosfeld and Rustagi (forthcoming) study how the sanctioning style of leaders, elicited through a third party punishment game, is correlated with local forest conservation outcomes. More similar to our study, d'Adda (2012) conducts an artefactual field experiment in 8 villages in rural Colombia that investigates how social information interacts with social status, defined endogenously along leadership dimensions, in a repeated voluntary contribution setting. Her results show that high status individuals (leaders elected within the experiment) are more likely to make high contributions and are less influenced by the contribution decisions of others. Our study is unique in this literature in that we study actual authorities, vary leadership exogenously, use a one-shot decision setting in which both leaders and followers can react to leadership, and study voluntary contributions to an actual good that benefits the community.

In trading off the control of the laboratory for the richness of the field, our study makes some compromises. First, in order to investigate both leader and follower responses to leadership, we allow leader contributions to arise endogenously in our experiment. This design feature reveals whether or not authorities take advantage of leadership opportunities, but prevents us from cleanly separating the effect of leader contributions from leader characteristics and leader type when analyzing follower responses. Second, a small number of communities could not comply with treatment randomization for idiosyncratic reasons. Our findings are robust to correcting for any resulting selection bias. Third, like most field studies, our results are specific to a particular setting at a particular point in time. While Bolivia's unique decentralized local governance arrangement allows us to examine the effect of local authorities on voluntary public good provision, other types of leaders may be more influential in other contexts. The fact that we find suggestive evidence that leadership by example operates through multiple channels increases the likelihood that our results are relevant to other settings where different types of opinion leaders exist and where one or more channels of leadership influence are relevant.

The paper proceeds as follows. Section 2 offers a conceptual framework for leadership in voluntary contributions. Section 3 describes the experimental context and design. Section 4 describes the main results, treatment heterogeneities, and robustness checks. Section 5 concludes.

2. Conceptual framework

Early theoretical literature on sequential giving showed that leadership by example is weakly detrimental for voluntary public good provision when information is perfect and individuals are solely motivated by altruism (Varian, 1994). This result emerges because the positive externalities generated by voluntary contributions introduce a free-riding incentive that induces first movers, leaders, to make low initial contributions that force followers to provide the public good. Subsequent theoretical and experimental studies have, in contrast, shown that sequential giving can be beneficial for public good provision. Three primary classes of mechanisms underlie these positive results: (1) information signaling, (2) reciprocity, and (3) social status.

First, models of information signaling have shown that sequential giving can have beneficial effects for voluntary public good provision when the common value of the public good is uncertain. If the leader

³ We refer to the elected local leader as the "authority" to differentiate the leadership role assigned in the experiment from the formal authority position elected local leaders occupy at the community level.

⁴ Environmental education books provided through the experiment are accessible to all community members (non-excludable), but exhibit rivalry. Because contributions exert a positive externality that is non-rival and non-excludable on anyone who cares about the provision of education material in the local school, we consider them a pure public good from the donor's perspective.

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