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Religious fragmentation, social identity and cooperation: Evidence from an artefactual field experiment in India

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ABSTRACT

We study the role of village-level religious fragmentation on intra- and inter-group cooperation in India. We report on data on two-player prisoners' dilemma and stag hunt experiments played by 516 Hindu and Muslim participants in rural India. Our treatments are the identity of the two players and the degree of village-level religious heterogeneity. In religiously heterogeneous villages, cooperation rates in the prisoners' dilemma, and to a lesser extent the stag hunt game, are higher when subjects of either religion play with a fellow in-group member than when they play with an out-group member or with someone whose identity is unknown. Interestingly, cooperation rates among people of the same religion are significantly lower in homogeneous villages than in fragmented villages in both games.

1. Introduction

Economists have established over the last two decades a negative relationship between social fragmentation (typically defined as a function of the relative size of different social groups in the population) and economic performance, in particular public good provision (Easterly and Levine, 1999; Alesina et al., 1999, 2003; Alesina and La Ferrara, 2005; Banerjee et al., 2005). There are many possible reasons for this negative relationship: different social groups may prefer different types of public goods (Poterba, 1998); restricting economic transactions to within a group may also be useful as it reduces informational asymmetries, and increases the scope for the punishment of transgressors (Greif, 1993; Miguel and Gugerty, 2005). Finally, individuals may prefer to share a public good with those of their own group and/or dislike sharing a public good with people from other social groups (Alesina and La Ferrara, 2005).

We study the effect of village-level religious fragmentation on intra- and inter-group cooperation. We are particularly interested in understanding the role religious identity plays in explaining behavior in two classic cooperation games. These games feature incentive structures relevant to many problems pertaining to development contexts. India is an ideal setting to study our research question, having a longstanding social structure characterized by fragmentation along religious lines, as well as a rigid caste system. Issues such as social exclusion and public good provision (or lack thereof) along religious lines are widely documented (de Hann, 1997; Sen, 2000; Bardhan et al., 2010; Das et al., 2011).[1] We build upon existing household

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[1] This problem even extends to the breakdown of trade across different social groups (Anderson, 2011).

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survey work on religious-based social exclusion in villages in West Bengal, India, and we focus our attention to the problem of religious discrimination among Muslim and Hindu communities in West Bengal.

When reviewing the literature on the effects of ethnic diversity on economic outcomes, Alesina and La Ferrara (2005) identify social identity theory as a means to provide micro-foundations for theoretical explanations as to why fragmentation affects economic performance. Social identity theory argues individuals attach utility to group membership and to the wellbeing of fellow group members to the detriment of outsiders – see Akerlof and Kranton (2000) and Basu (2007) for theoretical analyses of how social identity can affect economic decisions. This paper presents data from an artefactual field experiment examining how social fragmentation can impact cooperation through social identity.

Social identity theory argues that membership of a social group means individuals display a higher concern for the welfare of fellow "in-group" members than outsiders (Tajfel et al., 1971). Experimental evidence from the lab and field supports this inter-group discrimination hypothesis in dictator games (Bernhard et al., 2006; Chen and Li, 2009), distribution games (Klor and Shayo, 2010), and prisoners' dilemma games (Goette et al., 2006; Charness et al., 2007), using both artificial and real social groups. Therefore, individuals should be more likely to cooperate with in-group members, even if doing so incurs them an economic cost, and particularly so if total welfare within the group increases as a result. Conversely, individuals may be less likely to cooperate with outsiders. The net effect is therefore a decline in cooperation as the number of outsiders increases (Smith, 2011).

Alternatively, individuals may only be willing to cooperate on a common enterprise if they believe others are likely to do so as well. In that sense, cooperation can take the guise of a coordination problem. The absence of formal institutions that facilitate coordination could lead to economies not achieving desirable equilibria (see Cooper, 1999 for a review of theory and experimental evidence on coordination games with applications to macroeconomics). While coordination problems are a feature of any economy, they are a crucial issue in many developing countries. In these economies, either property rights are not institutionally assured, or access to legal recourse in case of a dispute may be limited and/or costly (see Posner, 1998 and references therein). In this context, the belief by an economic agent about her counterpart's willingness to abide by an informal agreement is essential for economic activity to take place. In this context, a sense of group identity could help cooperation to the extent that individuals believe fellow in-group members are more likely to cooperate than outsiders (Brewer et al., 1986; Yamagishi and Kiyonari, 2000). Social psychological evidence suggests these expectations are stronger within group boundaries than across group divides (Tanis and Postmes, 2005; Yamagishi et al., 1999).

To study the effect of social fragmentation on cooperation, we consider two classic cooperation games. The first is the prisoners' dilemma, in which cooperation is a strictly dominated strategy for individuals who care only about their own monetary payoff. Either player can unilaterally increase total welfare (at a personal cost) by cooperating. Experimental economists and social psychologists have looked at cooperation in the prisoners' dilemma as a measure of other-regarding preferences: if players care sufficiently for the welfare of their counterpart (or about the sum of payoffs), then it can be a dominant strategy to cooperate. However, if both players display other-regarding preferences, then the prisoners' dilemma in money payoffs can turn into a coordination game in utility payoffs. In that case, the outcome in which both players cooperate is still an equilibrium, but only if both players believe their counterpart will cooperate.[2]

The second game is the stag hunt game, in which two players must decide whether or not to cooperate. While defecting ensures a positive payoff, cooperating only pays off if the other player cooperates as well; otherwise the payoff from cooperation is zero. This means both players cooperating can also be an equilibrium of the game, provided players assign high enough probability to their counterpart doing so. Importantly, and unlike the prisoners' dilemma, a player's own other-regarding preferences play no role in determining behavior in this game, but beliefs about the other player's action do.

We study the effect of religious identity among Hindu and Muslim groups by varying the way our subjects are matched with each other. We implement in-group/in-group treatments where Muslim subjects play with fellow Muslim subjects and Hindu subjects play with fellow Hindu subjects; we also implement in-group/out-group treatments where Hindu subjects play with Muslim subjects. Finally, we have a control treatment where the identity of a subject's match is uncertain. To study the effect of fragmentation, we resort to a quasi-experimental approach. We take religious composition of villages as fixed, based on the village-level survey on religious fragmentation by Das et al. (2011). We select villages in two districts in West Bengal which conform to one of three categories: Muslim-dominated, where over 90% of the population is Muslim; Hindu-dominated, where over 90% of the population is Hindu; and fragmented, where the Muslim and Hindu communities are roughly equal.[3] Our experimental design combines identity treatments with village types to understand how social identity interacts with fragmentation.

We find evidence of in-group favoritism in fragmented villages in the prisoners' dilemma, in that cooperation rates are higher in in-group matches than in both unknown and out-group matches. We find a very similar pattern of results in the stag hunt game, although it is of a smaller magnitude and it is not statistically significant. We find no evidence of out-group

[2] To see this, consider the version of the prisoners' dilemma we propose in Table 1, and consider a utility function of the form proposed by Charness and Rabin (2002): $U_i = \pi_i + \rho_i(\pi_i - \pi_j)r + \sigma_i(\pi_j - \pi_i)s$, where $r=1$ if $\pi_i > \pi_j$ and 0 otherwise; $s=1$ if $\pi_j > \pi_i$ and 0 otherwise and both ρ_i and σ_i are known. If $\rho_i < -1/4$ and $\sigma_i < 1/4$, it is a dominant strategy to cooperate; if $\rho_i > -1/4$ and $\sigma_i < 1/4$, the prisoners' dilemma in money payoffs turns into a coordination game in utility payoffs. See also Fehr and Schmidt (1999) who show that the linear public goods game, of which the prisoners' dilemma is a special case, can have multiple equilibria if players exhibit other-regarding preferences.

[3] Although the Indian census collects village-level data on religious composition, that information is classified and not available to researchers. We use data from Das et al.'s (2011) household survey in West Bengal on religious discrimination to select villages.