SUPPLEMENTARY MATERIAL: SPECIAL SUBJECT POOL SESSIONS

The results from the five baseline and five control sessions were different than we had expected. The pattern was idiosyncratic, suggesting that group composition and/or path dependence were determining factors. In particular, we did not observe any session with robust tendencies towards reverse crowding out.

We became convinced that issues of the level of group expectations might be an important additional factor. Because these expectations could be different when home-grown among naturally-occurring groups rather than groups created randomly in the laboratory, we decided to investigate our design with subjects drawn from a naturally occurring intentional community with slightly different incentives to generate strong common values and expectations.

To do this, we recruited enough subjects for two sessions from a campus ministry community of students. The experiments were otherwise conducted as already noted, with the following exception. We announced that at the end of the experiment we would match each person's earnings with a contribution to an orphanage in Guatemala. The chosen campus ministry has been active in supporting the orphanage, and it is likely that every subject in the experiment either had participated in a mission project at the orphanage, knew someone who had participated in a mission project at the orphanage, or had plans to go on a mission project to the orphanage.

We emphasize that we did not tie payments to the orphanage to the provision of the experimental group exchange, but rather to the *total* earnings of the subjects. This is because in these sessions we were not interested in home-grown preferences *per se*; rather, we were interested in home-grown expectations.

If we had tied payments to the orphanage to the provision of only the group good, then we would have substituted the subjects' home-grown preferences for the orphanage for the induced preference structure of our experimental design. Suppose we had found, for example, that contributions to the public good had increased. This could quite logically have been interpreted as deriving from a de facto increase in the "own marginal per capita return" for the public good. But the fact that increases in the MPCR drive behavioral increases in provision of the public good has been known since the 1980s.

Instead, by tying payments to the orphanage to total earnings, at one level the incentive structure of our design is preserved. A subject wanting to provide more of his funds to the orphanage would have to consider the tension between the stage game dominant strategy and the social optimum of full group contributions. But our design had the potential to change the incentive structure of the game in other ways.

Consider the choice of an individual in the stage game. If he increases his contribution to the group exchange by one token, the following happens:

His personal token earnings decrease by .5 tokens
His personal contributions to the orphanage decrease by .5 tokens

At this point, incentives from the contributions to the orphanage exactly mirror those of the incentives in cash from the existing game: there is a tension between individual maximization and group maximization. However, this person should also consider how his additional token affects contributions to the orphanage via other subjects' earnings. Suppose we adopt the natural conjectural variation that this subject believes that the *token allocations of other subjects do not*

change. Then, in addition, this subject should calculate that increasing his contributions to the group exchange by one token increases contributions to the orphanage via others' earnings by a total of 3 tokens.

So, there is a well defined trade-off of a decrease in personal earnings of .5 tokens with an increase in token earnings for the orphanage of 2.5 tokens, assuming that the individual values tokens contributed to the orphanage the same regardless of whether they come from him or from the other individuals.[1] As long as this person values the contributions to the orphanage "enough" the stage game admits a dominant strategy to contribute to the public good.[2] But what could go wrong with this scenario?

One, this dominant strategy in the stage game could fail if an individual does not value contributions to the orphanage "enough."

Two, this dominant strategy in the stage game could fail if individuals value contributions that they make much more than contributions that others make. (This is essentially the same distinction as the "Basic Charity" vs. "Bonus From Winning" preferences in Isaac, Pevnitskaya, and Salmon, *Experimental Economics,* 2010).

Three, there could be unanticipated attributes of the incentives beyond the one-period stage game. Unlike in the standard VCM, subjects in this experiment carry over from period to period a portfolio of their own earnings, their own contributions to the orphanage, and the total contributions to the orphanage. Preferences over these items may not be separable. This may allow for the existence of more complicated equilibria. In a limit, the Nash/Cournot assumption on other subjects' tokens allocation might fail.

Thus, while there is good reason to believe that this design alters incentives towards greater contribution, it is by no means certain and is therefore testable. What we valued in these subjects was not their home-grown preferences for contributions to the orphanage but rather their common expectations that everyone else in the room also had strong reasons to want to maximize the total earnings of the group, and that they had strong reasons to believe that everyone else knew this to be true, and so forth. We believed that all of the conditions of a dominant strategy in the stage game above are likely to be met, and we believed that this was known with something approaching common expectations.[3]

The incentives that we induced in the lab are strong, but they are ones that are may be overlooked (compared with standard models) when economists consider how naturally occurring groups actually make decisions about public goods. When there have been unexpectedly large amounts of cooperation in a standard VCM experiment, research conjectures have centered either on models that essentially retain the concept of the public good as an instrument to individual maximization (reciprocity) or on models that presume that these strangers care about each others' earnings (altruism). What we propose here is a model in which individuals' preferences and expectations are aligned in a way so that everyone recognizes that it is in everyone's interests to provide the public good. While this does not rule out altruism or reciprocity, we believe that it is a distinct social phenomenon.

---

[1] The trade off between a decrease in personal earnings of .5 and an increase in the earnings for the orphanage of 2.5 tokens is rooted in the Stage 1 and VCM portion of the experiment. For the stages with taxation the tradeoff is different for the public good provided through the tax. The trade off is .5 to 1.8 tokens because of the tax efficiency parameter.

[2] Recall that because these are the home grown preferences of the subjects, they need not be additively separable, so "enough" may be a more complex relationship than a ratio of one value to another.

[3] In fact, the Isaac, Pevnitskaya, and Salmon paper used a similar subject pool and conclude that their choices in charity auctions are not well explained by the "See and Be Seen" model.

The results of these two sessions are striking. In the two sessions with the special subject pool and the altered incentives, we observed one each of the two the boundary outcomes: a high-tax outcome and a plausible "reverse crowding out" outcome at high levels of contribution that we had failed to see in the other 10 sessions.[4] In Session 1, the tax system was "crowded out" and replaced by a purely voluntary regime of substantial, stable, although not quite optimal, levels of contribution. In Session 2, on the other hand, the subjects embraced the tax system and ratcheted the tax level up to the full tax regime. (Recall that the assignment of the two groups was made randomly by the computer from the 14 participants). Charts of tokens to the group and of the tax levels are presented below.

Special Subject Pool Session 1

---
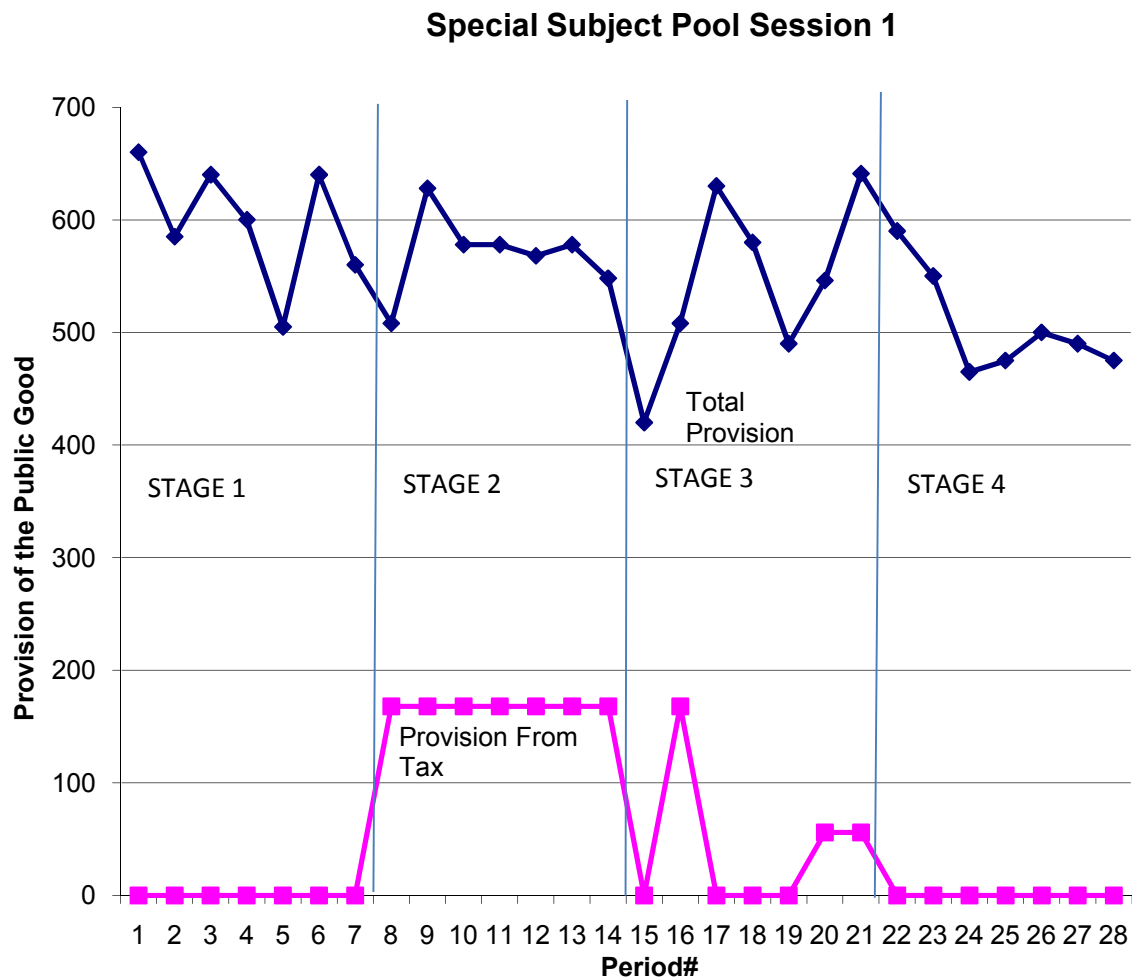
[4] Even at these high levels of provision, the reverse crowding out is not complete according to the average of contributions in Stage 3. However, the two highest levels of contribution following Stage 1 are in Stages 3 and 4, and the levels of contribution in Stages 3 and 4 exceed the average of Stage 2 four times.

Special Subject Pool Session 2