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Audience effects on anonymous pro-social followership

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ABSTRACT

In an experiment, second-movers anonymously donate more if they *expect* first-movers to donate more, but only increase donations with their first-mover's *actual* donation if there is an audience. Absent a first-mover, subjects are unaffected by the expected donation of first-movers.

1. Introduction

A key to decentralized public good provision comes from individuals' propensity to imitate others. Indeed, a wealth of evidence suggests that individuals are prone to acting more pro-socially when they see others act pro-socially (Frey and Meier, 2004; Rivas and Sutter, 2011; d'Adda et al., 2017). In this letter we study the motivation behind *followership* of pro-social behavior, which is when second-movers' pro-social contributions increase with the observed contributions of first-movers. In particular, we focus on the impact of an audience on followership.

Many explanations of followership share the feature that individuals will follow even when there is no audience. First-movers' contributions may convey information to the second-mover about the welfare impact of contributing (Andreoni, 2006). Individuals may only be concerned about outcomes, such as over the total amount of contributions (Andreoni, 1990) or over inequality aversion (Fehr and Schmidt, 1999). Or individuals may follow out of reciprocity (Fischbacher et al., 2001), although reciprocity is usually thought of in terms of a second-mover directly benefiting a generous first-mover, which we do not allow in our design.

Explanations of pro-sociality that rely on an audience often assume individuals contribute due to reputational concerns (Bénabou and Tirole, 2006; Grossman, 2015). Pro-sociality is not the same as followership, as the latter indicates second-movers contribute little if first-movers contribute little. Nevertheless, a natural explanation for followership extends the reputational logic, positing that individuals value a reputation for conforming.

We provide evidence of followership that is driven by an audience in the absence of reputational concerns, which we interpret as a heuristic to signal conformity.

2. Experimental design

The experimental design is summarized in Fig. 1. The instructions and screenshots can be found in Online Appendix B.

Participants were recruited through the Harvard Decision Science Lab subject pool. They were paid a $5 show up fee. All subjects are endowed with $10 and asked how much they would like to allocate to a charity. The charity was the East Africa Food Crisis Relief Fund of Save the Children. We chose a charity that for subjects was remote geographically and addressed a temporary problem, to rule out behavioral motivations that are indirectly self-interested.

Although some subjects will see others' contributions, the identity of the contributor is anonymous. By separating first-movers into a separate room which started earlier, we were able to keep subjects in the second room anonymous to first-movers. We further assigned subjects an identifier randomly and paid them via numbered lockers in a private room, to keep contributions anonymous.

Before making their contribution, subjects in the second room play a "guessing game", in which they predict how much a first-mover gives if he knows that a second-mover will see the

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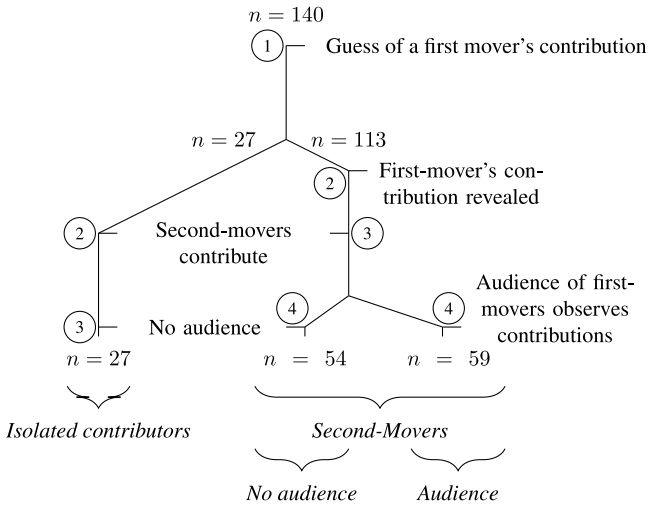

Fig. 1. Timeline.

contribution before making her own contribution. Subjects are told that they are incentivized for accuracy.

Subjects in the second room are randomly assigned to one of three treatments. In the *isolated contributor* condition, the subjects make their allocation decision without observing the contribution of a first-mover beforehand. The other two treatments consisted of *second-movers*, who observe the contribution of a first-mover before making their own. One group of second-movers makes their contribution privately—no subject observes what they contributed. The other group of second-movers knows that their contribution, and that of her assigned first-mover – although not their identities – will be observed by an audience that consists of three first-movers who have no more decisions to make in the experimental session.

3. Results

Summary statistics and tests for balance can be found in Online Appendix A, and the data can be found in Fernández-Duque and Hiscox (2021). Isolated contributors contributed $3.22 on average. Second-movers on average contributed $5 without an audience, and $4.44 with an audience.

Fig. 2 graphically presents the main results of the paper. The graphs plot the contribution of second-movers given the contribution of the first-mover. There are two collections of graphs: the left-hand side and the right hand collections include, respectively, second-movers without and with an audience. Each collection of graphs includes four graphs: the first three consist of each of the terciles of the second-movers' predicted contribution of the first-movers, and the fourth contains the full treatment group. The regression estimates of each treatment group is presented in the first two columns of Table 1, controlling for second-movers' predictions of first-movers' contributions.

Notice that second-movers respond negatively (although insignificantly) to the first-mover's contribution when there is no audience, and respond positively (and significantly) when there is an audience, contributing on average an extra 21 cents for every additional dollar the first-mover contributes. Column 3 of Table 1 shows that these contrasting reactions wash out in the aggregate, and column 4 uses a difference-in-difference specification to show that the difference in reactions between second-movers with and without an audience is statistically significant.

All second-movers respond positively to the predicted contribution of the first-movers. This can be seen in the fitted lines increasing across terciles in Fig. 2, and by the positive and statistically significant *Prediction of First-Mover's Contribution* in the four columns of Table 1. Note that the coefficients are close to 1.

Second-movers give more than isolated contributors in the aggregate, as well as among the top two-thirds of predicted contributions. To see this, note that Fig. 2 includes a horizontal line at 3.22, the average contribution of isolated contributors. This line is below the fitted lines of the second tercile, the third tercile, and the whole subsample for both collection of graphs. A more formal comparison can be seen in the first column of Table 2, which compares the contribution levels of isolated contributors with those of second-movers. Second-movers contribute 1.42 dollars more on average.

Table 2 further shows that isolated contributors' contributions are not positively related with what they expect a first-mover would contribute, as reflected in the insignificant coefficient of column 2. Column 3 of Table 2 further shows through a difference-in-difference specification that the positive relation of second-movers to their expectation of a first-mover's contribution is statistically significantly different for second-movers than for isolated contributors.

4. Discussion

Here we interpret our findings. Second-movers want to contribute what they believe first-movers contribute (perhaps a form of inequality aversion), which is why their expectation of what first-movers contribute correlates with what they themselves contribute. Isolated contributors, in contrast, have no first-movers and therefore do not respond to their expectation of first-movers. Without an audience, the first-mover's actual contribution does not much influence second-movers' beliefs over first-movers' contributions. This seems intuitive, as the first-mover is a single draw, of whom the second-mover knows little.[1] In contrast, we do find followership in the presence of an audience since second-movers are driven to conform.

We posit that reputationless conformity is a heuristic that leads to costly followership in cases in which reputation is not affected, but avoids a bad reputation in situations that falsely appeared to not have reputational stakes. Evidence consistent with this heuristics interpretation comes from experiments showing that individuals act more pro-socially in the presence of cues that bring an audience to mind (such as pictures of eyes), even when their decision is made in private (Ekström, 2012). In contrast to this work, however, what we showed is not that pro-social contributions increase. Rather, followership increases.

Our results suggest that whether sparse social information can affect behavior depends on whether subjects think they are being observed. If individuals do not think they are observed, beliefs over the expected behavior must be changed for first-movers to impact behavior. If behavior appears to be observed, however, changing beliefs is not necessary for affecting behavior: an uninformative first-mover's behavior may affect second-movers' behavior.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

[1] This also explains the contrasting findings of Karlan and List (2020), who find followership when the first-movers are knowledgeable and trustworthy, and those of Bernheim and Exley (2015), who find reputationless followership when there are multiple first-movers. There may be other mechanisms at play in Bernheim and Exley (2015), however, since there are multiple rounds of simultaneous play.

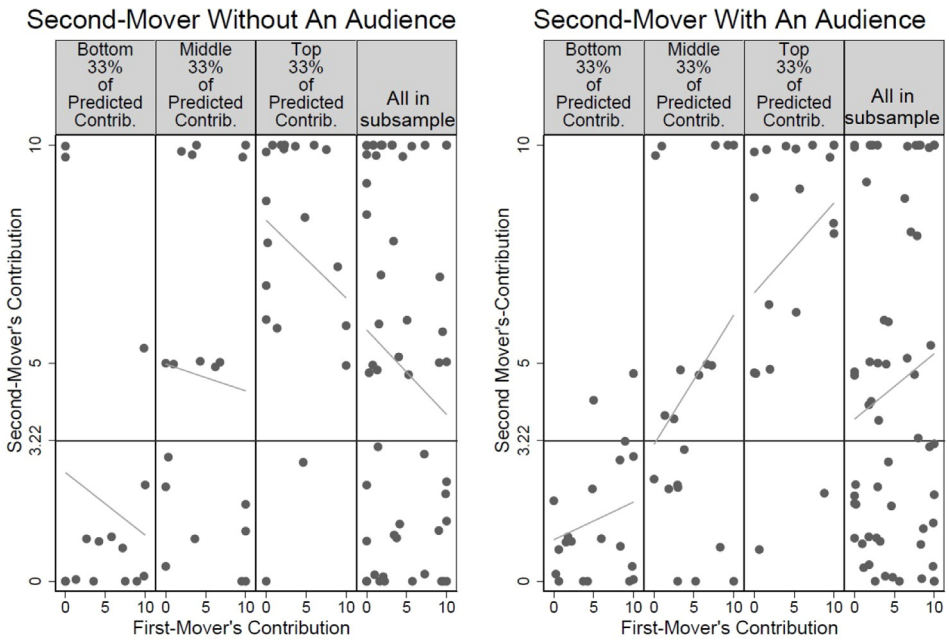

Fig. 2. Slope of The Second-Mover's Contribution Given The First-Mover's Contribution. Horizontal bar at 3.22 is the mean contribution of isolated contributors..

Table 1
There is followership only when there is an audience.

	(1) Contribution	(2) Contribution	(3) Contribution	(4) Contribution
First-Mover's Contribution	−0.144	0.207**	0.0469	−0.136
	(0.143)	(0.101)	(0.0866)	(0.138)
Audience				−1.835*
				(0.955)
First-Mover's Contribution × Audience				0.344**
				(0.169)
Prediction of First-Mover's Contribution	0.756***	0.841***	0.819***	0.813***
	(0.207)	(0.125)	(0.114)	(0.112)
Dep Variable Mean	5	4.441	4.708	4.708
Observations	54	59	113	113
R^2	0.339	0.474	0.375	0.405
Second-Mover Treatment	No Audience	Audience	Both	Both

Results of an OLS regression controlling for age, sex, and whether they finished college. Robust standard errors in parentheses. Only second-movers are included in the regressions, and the last row of the table indicates whether the data is restricted to second-movers with no audience, with an audience, or includes both. ∗ p< .1 ∗∗ p< .05 ∗∗∗ p< .01.

Table 2
Isolated contributors compared with second-movers.

	(1) Contribution	(2) Contribution	(3) Contribution
Second-Mover With An Audience	1.421**		−1.760
	(0.669)		(1.297)
Prediction of First-Mover's Contribution		0.174	0.209
		(0.274)	(0.249)
Audience × Prediction			0.606**
			(0.274)
Dep Variable Mean	4.421	3.222	4.421
Observations	140	27	140
R^2	0.058	0.121	0.357
Treatment groups	All	Isolated Contributor	All

Results of an OLS regression controlling for age, sex, and whether they finished college. Robust standard errors in parentheses. The last row of the table indicates the treatment groups that are included in the regression. ∗ p< .1 ∗∗ p< .05 ∗∗∗ p< .01.

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Appendix A. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.econlet.2021.110268.

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