



# Self-signaling and social-signaling in giving<sup>☆</sup>



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## ABSTRACT

Can a Bayesian signaling model explain patterns of giving driven by self-image concern as well as those driven by social-image? I experimentally test the predictions of such a model about how potential givers will respond to a change in the probability that their choice will be implemented. A self-signaler is predicted to respond with increased giving, but he predicted response of a social-signaler is increased giving, no change, or decreased giving depending on the information available to an outside observer. The experiment thus presents a test of the joint, independent and relative effects of social- and self-signaling in giving. The results provide little evidence of self-signaling, but stronger evidence of social-signaling.

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## 1. Introduction

People like to be perceived favorably, by themselves and by others, but some personality attributes that carry a high social value, such as a concern for the well-being of others and fair-mindedness are not directly observable to outsiders and are difficult to introspect. However, our actions offer a window into our personality and tastes. Knowing this, people may distort their behavior to send a positive signal about themselves. Indeed, laboratory (Andreoni and Bernheim, 2009) and field (DellaVigna et al., 2012; Ariely et al., 2009) tests have shown that Bayesian signaling models, in which choices and beliefs about those making them are determined simultaneously in equilibrium, are useful for predicting and explaining patterns of giving driven by social-image concern (e.g., Lazear et al., 2012; Dana et al., 2006; Broberg et al., 2007).

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Self-image is also an important motivator of social behavior (Bem, 1972; Baumeister, 1998) and, because one cannot perfectly introspect or recall the motivation underlying one's own behavior, a person may self-signal so as to manage her impression of herself. Economists and psychologists have argued for the role that self-signaling plays in observed patterns of giving (Murnighan et al., 2001; Dana et al., 2007; Fischbacher and Föllmi-Heusi, 2013) and in maintaining honesty (Mazar et al., 2008). If the sender and receiver roles are viewed as two aspects of a divided self, rather than separate people, Bayesian signaling models can also have a self-signaling interpretation and can be used to explain or predict behavior. In this interpretation, even though one can act upon one's preferences, the part of the self acting as the observer does not have direct access to them and instead must infer them from actions, just like an outside observer would.<sup>1</sup>

However, despite the successful track record of the Bayesian-signaling-game approach to modeling social-image concern, direct evidence of Bayesian self-signaling remains elusive. The evidence from psychology depicts altruistic acts as a consequence of self-image management, but not as the instrument.<sup>2</sup> Partly behind the lack of direct tests of Bayesian self-signaling is the fact that, while it is easy to manipulate the information an external observer has about a person's choice so as to document the resulting change in behavior, one cannot manipulate in the same manner the observability of one's choice to oneself. As a consequence, the existing experimental evidence of self-signaling, discussed in more detail below, is indirect and suggestive, lacking a direct test of the predictions of Bayesian signaling equilibrium.

I conduct a direct experimental test of the hypothesis that a Bayesian signaling model can predict and explain patterns of giving driven by self-image concern, with complementary tests of social-image concern. Participants play a binary dictator game with, in two separate conditions, *High* or *Low* probability that their choice will actually count, instead of being overridden by the computer. Lowering this probability shrinks the expected cost (whether positive or negative) of the giving gesture, but social-preference models based exclusively on outcomes predict that this will not affect the dictator's choice. In contrast, in a signaling model of image concern, presented in Section 2, the same probability change *can* have an impact because the dictator balances the expected material cost of pledging to give against the expected image benefit.

When the dictator's audience can directly observe her action, lowering the probability that it counts affects neither the dictator's ability to influence the signal nor the observer's perception of the quality of the signal. The only impact is to cheapen the outcome-cost of the giving gesture, leading to a higher giving rate in equilibrium. However, if only the outcome is observed, the same change also reduces the dictator's ability to influence the signal she sends, resulting in an unchanged or, if the probability drop is also observable and thus undermines the informational content of the signal, a diminished giving rate.

The experiment, described in Section 3, features *recipients* who have been placed in one of the three information environments described above, in which the dictator's *Choice* is directly observed, only the realized *Outcome* is observed, or both the *Probability & Outcome* are observed. Importantly, the model's predictions about behavior in the experiment hinge on whether the decision-maker is viewed as a social-signaler or a self-signaler. In the case of the former, the predicted response adheres to the aforementioned pattern: increased giving, no change, and decreased giving, respectively.

However, even if the dictator is interpreted as a self-signaler who cannot directly observe her own preferences, she always can directly observe her own actions. So even as I manipulate the recipient's information in the experiment, the self-signaling interpretation of the model regards the dictator as always being in the information condition in which her *Choice* is observable. While the social-signaler's predicted response to a drop in probability varies by experimental information condition, the self-signaler is predicted to be more likely to give across all three. This distinction between the two interpretations of the model is what creates the ability to identify Bayesian self-signaling in giving independently of social signaling, which is the main empirical contribution of this paper.

The test consists of comparing the rate at which dictators commit to giving under *High* versus *Low* probability in the *Outcome* condition. Social-signalers are not predicted to change their behavior at all in response to the probability change, but self-signalers are predicted to respond with a higher giving rate. While the rate of giving does increase slightly, from 20% to 25%, this increase is not statistically significant, despite a very large sample. Furthermore, in the *Probability & Outcome* condition the two forms of signaling are predicted to act in opposition. In this case, the frequency of giving falls significantly, in line with social-signaling and contra self-signaling. Thus, the results do not offer conclusive support for the usefulness of Bayesian signaling models to predict patterns of giving driven by self-image concern.

A second contribution of the paper is a vigorous test of Bayesian social-signaling, which predicts a weak hierarchy of giving rates across the six cells of the  $2 \times 3$  design. While some experimental conditions feature giving rates that conform to the predicted relationships, the data are relatively noisy and one cannot reject the hypothesis that the giving rate is the same across all conditions. That said, in a large subsample chosen to exclude potential "money-maximizers", social-signaling is quite pronounced. Behavior in this sample closely follows the predicted pattern, featuring swings in the giving rate of over 35 percentage-points.

<sup>1</sup> Bodner and Prelec (2003) introduce the dual-self signaling model approach adopted by others such as Benabou and Tirole (2006) and used herein. Benabou and Tirole (2002) justify self-signaling as an attempt to influence the beliefs of a future self who cannot recall the original motivation for the behavior in retrospect.

<sup>2</sup> Carlsmith and Gross (1969) find that feeling guilty about recent harmful behavior can lead subjects to be more compliant with requests for help. Brown and Smart (1991) find that subjects whose self-esteem has been threatened by negative performance feedback on an intellectual task compensate by recruiting positive perceptions of their social qualities, which in turn lead them to behave more prosocially. Shaw et al. (1994) find that people try to avoid feeling empathy because they understand that that it will lead them to make sacrifices in order to help others.

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