Journal of Economic Behavior & Organization 82 (2012) 82–85

Contents lists available at SciVerse ScienceDirect

Journal of Economic Behavior & Organization

journal homepage: www.elsevier.com/locate/jebo

'Hiding behind a small cake' in a newspaper dictator game☆

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ARTICLE INFO

Article history:
Received 12 January 2011
Received in revised form
30 September 2011
Accepted 13 December 2011
Available online 21 December 2011

JEL classification:
D64
C90

Keywords:
Dictator game
Psychological games
Incomplete information
Newspaper experiment

ABSTRACT

We conduct an Internet dictator game experiment in collaboration with the popular German Sunday paper "Welt am Sonntag", employing a wider and more representative subject pool than standard laboratory experiments. Recipients either knew or did not know the size of the cake distributed by the dictator. We find that, in case of incomplete information, some dictators 'hide behind the small cake', supporting the notion that some agents' second-order beliefs directly enter the social utility function.

1. Introduction: 'hiding behind a small cake' in ultimatum and dictator games

A series of prominent incomplete information ultimatum game studies found that proposers often 'pretend to be fair' if the responder does not know that the cake size is large. In a study by Güth et al. (1996), for instance, the cake could take either a small or a large value, and many proposers offered exactly the equal split of the small cake when its realization was large. The authors call this the 'hiding behind a small cake'-effect (see Mitzkewitz and Nagel, 1993, for the first result along these lines, and Güth and Huck, 1997, for related evidence also from a dictator game).

In ultimatum games, such observations could readily be organized by outcome-based models of social preferences, such as Fehr and Schmidt (1999) and Bolton and Ockenfels (2000, Statement 5). The underlying intuition is that with incomplete information about the cake size, the responder cannot be sure about the (un)fairness of a small offer, which is strategically exploited by proposers. However, more recent studies suggest a complementary explanation. In several dictator game experiments, subjects were more selfish if they could conceal or delegate their choices, or if they could stay ignorant about the allocation to the recipient (Dana et al., 2007; Andreoni and Bernheim, 2009; Grossman, 2010a, 2010b; Hamman et al., 2010; Matthey and Regner, 2011). In related experiments, some subjects were willing to pay – in some cases substantial shares of the amount at stake – to entirely avoid the dictator decision (Dana et al., 2006; Broberg et al., 2007; Lazear et al., 2012).

☆ Financial support of the German Science Foundation is gratefully acknowledged. We thank the editorial office of "Die Welt" for the support in conducting this study, the Associate Editor, two referees and several seminar audiences for very useful comments.

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doi:10.1016/j.jebo.2011.12.008

One common principle that seems to connect these studies is that beliefs (and beliefs about others' beliefs) directly enter the utility function: some people seem to like to be perceived as fair (e.g., Andreoni and Bernheim, 2009; Grossman, 2010a), or feel guilty if their behavior falls short of others' expectations (e.g., Battigalli and Dufwenberg, 2007). The framework of psychological games (e.g., Battigalli and Dufwenberg, 2009) allows utilities to be a function of beliefs, and so can capture the idea that subjects may be concerned about others' expectations regarding one's own behavior, or about one's social image as perceived by some audience.[1]

We conduct a large-scale test of the external validity of the 'hiding behind a small cake' strategy, and of belief-dependent preferences in general, with newspaper readers on the Internet.[2] Our experiment excludes all strategic incentives to be fair in standard economic models with or without preferences for outcome fairness (Forsythe et al., 1994). Also, hiding in our experiment could not be explained by (probably flawed) judgment of beliefs: maintaining the illusion of a fair transfer in our setting rather involves manipulating the opponent's belief away from the known true state of the world. Nevertheless, we find that some dictators hide behind the small cake, suggesting that part of the reason for the effect in the incomplete information ultimatum game is that this strategy allows proposers with a large cake to maintain a positive social image and to not disappoint what they think is the recipient's expectation.

2. Experimental design

The experiment was conducted via Internet on the "Welt online" website (www.welt.de), the homepage of a major German daily paper "Die Welt", between 19 July and 2 August 2009. Readers could access the experiment website, read the instructions and enter their decisions at any time during the two weeks period through a link in the business section on "Welt online". Moreover, the online experiment was announced in an article about economic decision-making in the popular Sunday paper "Welt am Sonntag" on 19 July 2009 that included an invitation to participate.[3] Instructions in our experiment were formulated in a neutral way, not unlike what is done in laboratory experiments (a translation of the instructions can be found in Appendix A3).

In our experiment, the cake size to be distributed was either small, C_{small} = 1000 Euros, or large, C_{large} = 3000 Euros, with equal probability. Dictators were always informed about the actual cake size. In our NOINFO treatment, recipients were informed only about the amount dictators gave to them. In the INFO treatment, recipients were also informed about the realized cake size *after* the experiment. The respective information conditions were known to all participants. If dictators were only concerned about consequences, they would not care about what recipients know about the cake size (our null hypothesis). Dictators who care about avoiding guilt or being perceived as fair, however, would tend to hide behind the small cake when recipients are only incompletely informed.

We used the strategy method (Selten, 1967) to collect decisions conditioned on the cake size (large or small) and conditional on being a dictator. After the experiment had ended and all decisions were collected, participants were randomly matched with an anonymous partner and assigned their roles (dictator or recipient). The size of the cake was then randomly determined and payoffs were calculated. One randomly selected pair was paid out; the others were only informed about their role, hypothetical payoffs and – depending on role and treatment – the realized cake size. Altogether 853 participants took part in our experiment, differing widely with respect to age and educational background (see Appendix A1 for descriptive statistics). After the experiment, subjects were asked to participate in a survey, collecting information about demographics, whether the decision task was fully understood, and whether subjects had previously read the article about decision making in the "Welt am Sonntag".

3. Results

On average, dictators give 442 (435) Euros to recipients in the INFO (NOINFO) treatment if the cake is small.[4] If the cake is large, average givings increase substantially to 1238 (1219) Euros in the INFO (NOINFO) treatment.[5] To investigate if there is

[1] The framework has been investigated in a number of laboratory studies. Positive correlations between actions and second-order beliefs have been found, e.g., in the context of trust (Charness and Dufwenberg, 2006) and dilemma games (Dufwenberg et al., 2011). However, it has recently been argued that a direct test of belief-dependent preferences is difficult, as some of these results might be confounded by consensus effects (Ross et al., 1977): a dictator's own preferences might shape her beliefs about recipients' expectations. In that case, the decision of a dictator would be influenced by unconsciously projecting on recipients what she would expect as an appropriate gift. To circumvent consensus effects, Ellingsen et al. (2010) provided decision-makers with the information about expected transfers of recipients in trust and dictator games and found only little correlation between expectations and actual transfers.

[2] A similar approach to broaden the validity of social and boundedly rational behaviors via newspaper experiments has been applied by Güth et al. (2003, 2007) for bargaining games, and Bosch-Domènech et al. (2002; see also the references therein) for Nagel's (1995) guessing game.

[3] The article was also available online on "Welt online" during the time the experiment was conducted. The article was not directly related to our study, and the announcement of the experiment did not include a description of the decision situation.

[4] Throughout the paper, we report the results for the full sample of participants. Results do not change if we restrict our analysis to participants who stated that they fully understood the decision situation (altogether 701, or 82.2 percent of the subjects).

[5] We do not find statistically significant differences between overall distributions of transfers in the two information conditions with two-sided Mann–Whitney *U*-tests. Compared to other dictator game experiments, transfers for both cake sizes are relatively large. This might be explained by the fact that from the perspective of the subjects, the probability of being chosen for payoff was only small, which has been found to increase the generosity of dictators and proposers in ultimatum games (Bolle, 1990; Sefton, 1992; Forsythe et al., 1994). Similarly, subjects' perceptions of fairness might have