Supplementary Information

This document provides supplementary information to the paper "Understanding the Nature of Cooperation Variability" by T. Fosgaard, L. G. Hansen, and E. Wengström.

Selected screenshots can be found at http://www.nek.lu.se/nekewe.

1 DESCRIPTION OF OUR EXPERIMENTAL DATA

In this section, we report the effects of framing on cooperation (measured as the chosen contribution to the public good) and on the indicators of the different underlying causes that we measure in our experiment. Figure SI-1 presents the distributions of contributions for subjects exposed to the give and the take frame. Using the Kolmogorov-Smirnov test, we conclude that the distributions are clearly different (p=0.000) and that the give distribution of contributions exhibits substantially less variance than the take distribution (tested with Levene's robust test statistic for the equality of variances, p=0.0000). There is also a slightly higher mean contribution level in the take treatment (35.51) compared to the give frame (34.75). Despite being small, the difference is significant (p=0.0163, two tailed Mann-Whitney test). Some prior studies of this type of framing find a framing effect in the same direction as we do (E.g. McCusker and Carnevale 1995), but most prior studies report a framing effect on mean contributions in the opposite direction.

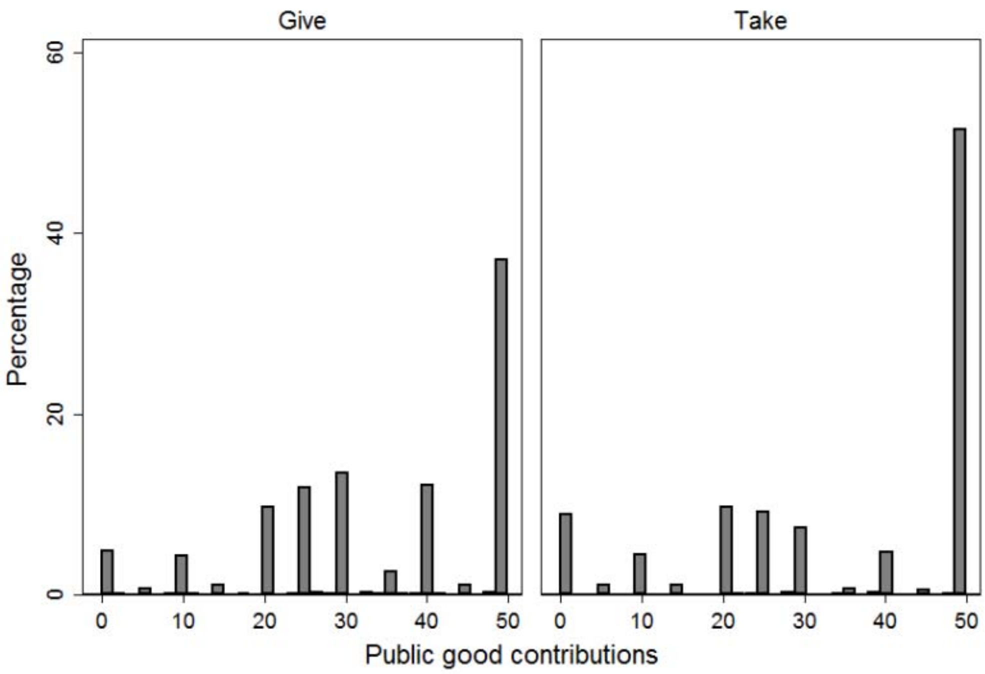

Figure SI-1: Distribution of contributions for each frame

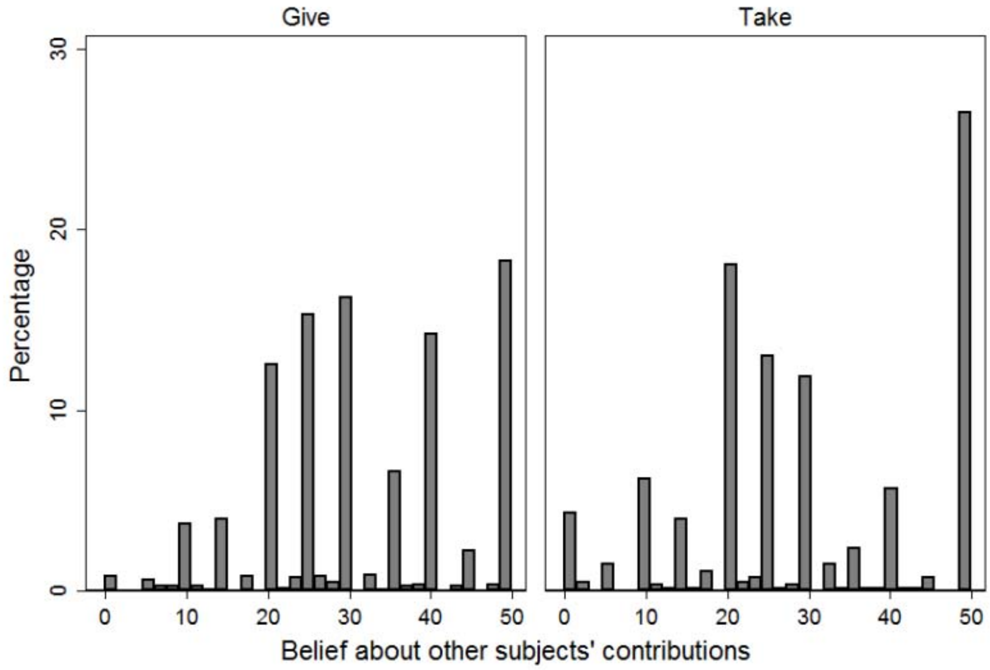

Figure SI-2: Distribution of beliefs for each frame

The subjects' distributions of **beliefs** about what other group members on average contribute are presented in Figure SI-2. These distributions also differ significantly between frames (p=0.000 with the Kolmogorov-Smirnov test), with the give distribution again exhibiting substantially less variance than the take distribution (tested with Levene's robust test statistic for the equality of variances, p=0.0000). The average belief about what others contribute is slightly *lower* in the take treatment (29.79), compared to the give frame (31.81) with the difference being clearly significant (p=0.0009, two tailed Mann-Whitney test). This direction of the framing effect on mean beliefs is also found by, e.g. Dufwenberg *et al.* 2011. Thus, in our experiment, the framing effects on mean beliefs and mean contributions go in opposite directions; going from give to take increases contributions but leads to lower beliefs. In contrast, the direction of the framing effect on the variance is the same for contributions and beliefs, with the take treatment generating a higher variance.

To obtain a summary picture of how framing affects contribution strategies we categorize our subjects into the following three groups (in the spirit of Fischbacher *et al.* 2001):

Conditional cooperators: subjects whose contribution strategies indicate a positive correlation between their own contribution and that of other subjects.[1]

Free riders: Subjects whose contribution strategies indicate a zero contribution irrespective of what others contribute, and

Others: subjects who do not fall into any of the two categories above.

The effect of framing on this categorization of contribution strategies is presented in Table SI-1.

Table SI-1: Distribution of contribution strategies for each treatment

	Give (n=1366)	**Take (n=676)**
Conditional co-operators	68%	56%
Free riders	15%	21%
Others	17%	23%
∑	100%	100%
Pearson's Chi^2(2)	p=0.000	

There is a substantial framing effect with less conditional cooperators in the take than in the give frame. The difference in distributions between frames is highly significant using the Pearson's chi square test (p=0.000).

Table SI-2: Level of misperception for each treatment

	Give (n=1366)	**Take (n=676)**
Misperception	51%	41%
Correct perception	49%	59%
Pearson's Chi2 (1)	p=0.000	

[1] More precisely, our definition is that the contributions are monotonely increasing and the relation between the contribution of the average of other group members' contributions has a positive and significant (at 10 percent level) Spearman rank.

Table SI-2 presents the proportion of subjects who have misperceptions about how to implement the two contribution strategies we ask about. It is clear that a large proportion of subjects have such misperceptions and that there is substantially more misperception in the give frame than in the take frame (p=0.000, Pearson's chi square test).

To sum up, framing has a highly significant effect on both contributions and on our indicators of all three underlying causes or mechanisms through which this framing effect may work. Thus, off hand, it seems as if all three possible mechanisms for transmitting the effect of framing to contributions could be important. To disentangle these and evaluate their relative importance, we estimate the model developed in the paper.

2 DATA FOR THE ESTIMATED MODEL

For each subject in the experiment, we measure the exogenous variable:

Framing variable: a dichotomous variable which indicates the frame the subject received as well as 4 out of the 5 endogenous variables.

***Misperception*:** an indication of whether or not the subject misperceives how to maximize his own or the group's outcome in the public good game (See appendix section 5.4.3 for measurement details).

***Contribution strategy**:* an 11 number conditional contribution table which indicates condition contributions from the strategy version of the public good game (See appendix section 5.4.2 for measurement details).

***Beliefs**:* an integer between 0 and 50 which indicates the point expectation of the average contribution of the other group members (See appendix section 5.4.2 for measurement details).

***Contributions**:* an integer between 0 and 50 which indicates the contribution made in the public good game (See appendix section 5.4.2 for measurement details).

We do not elicit cooperation preferences directly and so we are not able to get a direct estimate of the framing effect on cooperation preferences. In Figure SI-3, the conceptual model from the paper is reproduced with the absent preference elicitation illustrated as a broken box around the cooperation preferences.

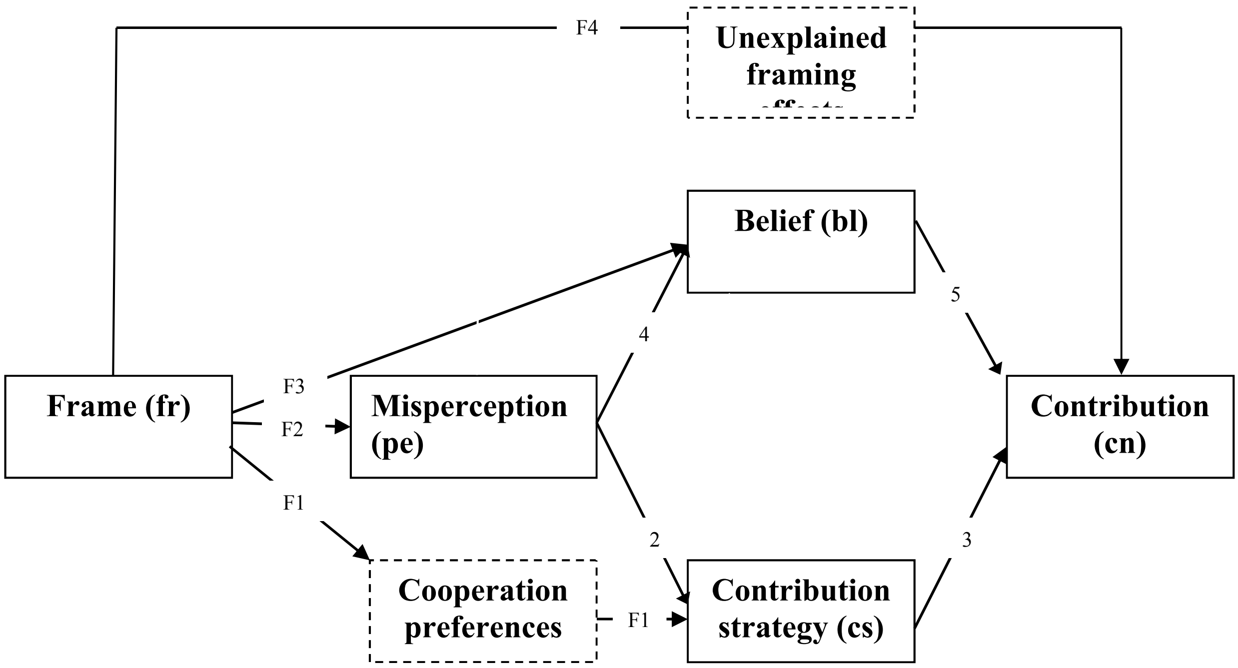

FIGURE SI-3: THE EMPIRICAL MODEL AND ESTIMATED EFFECTS

The figure indicates which endogenous variables are directly affected by the framing variable and other endogenous variables which therefore must be included in our estimation models. By including the framing variable as an explanatory variable for contribution strategy (as indicated in the figure), we are able to obtain an indirect measure of the framing effect on cooperation preferences. By including the framing variable as an explanatory variable for contributions (as indicated in the figure), we are in the same way able to get an indirect measure of any remaining unexplained framing effect on contributions.

We also measure and include the following control variables:

Gender

Age

Cognitive abilities: a number which indicates the test score from the visual part (Group 9 - "Matrices") of the IST 2000 R intelligence test (See appendix section 8 for measurement details).

Agreeableness: a number which indicates the tendency to be pleasant and accommodating in social situations (See appendix section 8 for measurement details).

Conscientiousness: a number which indicates the degree of carefulness, thoroughness, self-organization, deliberation (See appendix section 8 for measurement details).

Extraversion: a number which indicates attitude characterized by concentration of interest on the external object (See appendix section 8 for measurement details).

Neuroticism: a number which indicates the tendency to experience negative emotional states (See appendix section 8 for measurement details).

Openness: a number which indicates active imagination, aesthetic sensitivity, attentiveness to inner feelings, preference for variety, and intellectual curiosity (See appendix section 8 for measurement details).

The table below summarizes the descriptive statistics of our set of control variables (for descriptive statistics of the 4 endogenous variables, please see the paper):

Table SI-3: Summary statistics of control variables

	Give (n=1366)	**Take (n=676)**	Entire sample (n=2042)
Gender	0.49	0.47	0.48
Age	45.77	45.84	45.79
Intelligence	8.73	8.72	8.73
Agreeableness	32.23	32.46	32.31
Conscientiousness	33.04	32.53	32.87
Extroversion	30.41	30.58	30.47
Neuroticism	19.32	19.25	19.3
Openness	27.09	27.12	27.1

All numbers are mean values

3 ESTIMATION OF OUR MODEL

Formally, the empirical specification of our model is the following recursive system:

Misperception: $$pe = g1(fr_{F2}, x, e1) \qquad (1)$$

Contribution strategy: $cs = g2(pe_2, fr_{F1}, x, e2)$ (2)

Belief: $bl = g3(pe_4, fr_{F3}, x, e3)$ (3)

Contribution: $cn = g4(bl_4, cs_3, fr_{F4}, x, e4)$ (4)

Where *fr* is a frame dummy, *x* is a vector of our exogenous control variables and *e1,…e4* are stochastic variables which capture the effects of unobserved exogenous variables. The subscripts to the framing indicator and other endogenous explanatory variables indicate the corresponding causal node in Figure 5.

It has been suggested that, e.g. personality traits are important determinants of behavior in social dilemmas (Borghans et al. 2008). Empirical support for this has been found in a large German survey, where Dohmen et al. (2008) noted that personality traits (measured by the big five personality test) are important explanations for trust and reciprocal attitudes. Thus, such personal characteristics are probably an important explanation of the variation in our endogenous variables between subjects and so they are also an important cause of any correlation between them. Since we have included an extensive battery of control variables including potentially important causes of correlation between equations such as intelligence and personality traits, assuming that the stochastic variables (*e1, e2, e3* and *e4)* are independent does not seem critical. This assumption ensures unbiased estimation and also implies that we can estimate each equation of the recursive system independently.

3.1 MISPERCEPTION (EQUATION 1)

Since misperception is a binary variable, we can estimate the probability of each outcome as a function of the explanatory variables directly using an ordinary probit model, assuming that the stochastic variable *e1* is normally distributed. The framing variable is dichotomous and we assume the standard linear functional form (first order approximation) for explanatory variables i.e.:

$$\Pr\left(pe = 0\right) = \Phi\left(\left[fr, x\right]\beta^{pe}{}'\right)$$

with the following estimation presented in Table SI-4 below.

Table SI-4: Estimation result for misperception

Multi nominel probit model Dependent variable: Misperceiving (=1) or not (=0)	
Treatment (1: give, 0: take)	-0.136***
	(0.0302)
Agreeableness	0.00459
	(0.00535)
Conscientiousness	-0.0112*
	(0.00580)
Extraversion	0.0143***
	(0.00530)
Neuroticism	0.00930*
	(0.00503)
Openness	-0.00642
	(0.00484)
Intelligence	-0.0902***
	(0.0101)
Age	0.000700
	(0.00224)
Sex (1: female, 0: male)	0.0251
	(0.0615)
Constant	0.699*
	(0.377)
Observations	2,042
Wald test	129.7
Probability	0

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

3.2 CONTRIBUTION STRATEGY (EQUATION 2)

When modeling contributions (in equation 4), we follow Fischbacher and Gächter (2010) and use the *preferred contribution* as an explanatory variable. The preferred contribution is the contribution stated in the subject's contribution strategy (*cs*) table which corresponds to his stated belief about others' contributions. In order to do this, we must model the subject's selection of his specific contribution strategy. The problem we face in equation 3 is that the set of possible contribution strategies that a subject can choose from is very large. This makes it infeasible to model the probabilities of choosing each possible strategy directly, e.g. using a multinomial probit model.

Instead we model the probability in two steps. *First* the possible contribution strategies are categorized according to the five contribution strategy types (cs-type)[2]. The probability of choosing a contribution strategy from one of these categories (*cs-type*) can be modeled using a multi-nominal probit (If we again assume that e2 is normally distributed). Conditional on this choice we *then,* in principal, estimate the probability of choosing a *specific* profile within that category (*cs* conditional on *cs-type*), as a function of the subject's explanatory variables. In other words, given the cs-type, the probability that a subject chooses a specific contribution strategy is given by the contribution strategy's proportion of all observed subjects' strategies with the same combination of explanatory variables and cs-type. The probability of choosing a specific profile is then the probability of choosing the relevant category multiplied by the conditional probability of choosing the specific profile within that category, i.e.:

$$\Pr(cs) = \Pr(cs \mid cs\text{-}type = j) * \Pr(cs\text{-}type = j)$$

where

$$\Pr(cs\text{-}type = j) = \Pr\left(V_j = Max(V_1,...,V_n)\right) \;, \quad V_i = \Phi\left(\left[fr, ps, bl, x\right]\beta_i^{cs}{}'\right) \quad \forall i$$

and

$$\Pr(cs \mid cs\text{-}type = j) = \Pr(cs \mid fr, ps, bl, x, cs\text{-}type = j)$$

The first step of the procedure captures all explanatory variable effects under the unrestrictive assumption of normally distributed e2. The first step estimation results are displayed in Table SI-5.

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[2] See Fischbacher *et al.* (2001) for the specific categorization criteria.

Table SI-5: First step estimation of cooperation preferences

Multi nominel probit model Dependent variable: Cooperation preference	Free rider	Unconditional cooperator	Perfect condictional cooperator	Conditional cooperators
Treatment (1: give, 0: take)	-0.0925	-0.231***	-0.283***	-0.224***
	(0.0581)	(0.0703)	(0.0537)	(0.0524)
Misperception	-1.375***	0.193	-0.241**	0.219**
	(0.126)	(0.137)	(0.105)	(0.104)
Agreeableness	0.00294	0.0362***	0.0238**	0.0157*
	(0.0108)	(0.0129)	(0.00976)	(0.00949)
Conscientiousness	0.0109	-0.00681	0.0136	0.00552
	(0.0116)	(0.0138)	(0.0105)	(0.0103)
Extraversion	-0.0281***	-0.0234*	-0.0235**	-0.00977
	(0.0107)	(0.0127)	(0.00972)	(0.00949)
Neuroticism	-0.0202**	-0.0280**	-0.00863	-0.00990
	(0.0100)	(0.0120)	(0.00899)	(0.00886)
Openness	0.00851	0.0132	0.0209**	0.00724
	(0.00976)	(0.0114)	(0.00889)	(0.00873)
Intelligence	0.0529***	0.0287	0.0403**	0.0351**
	(0.0203)	(0.0235)	(0.0181)	(0.0178)
Age	0.00540	0.00810	-0.00741*	-0.00933**
	(0.00450)	(0.00534)	(0.00405)	(0.00396)
Sex (1: female, 0: male)	-0.292**	-0.300**	-0.270**	-0.102
	(0.123)	(0.143)	(0.111)	(0.108)
Constant	0.834	-0.713	0.414	0.790
	(0.750)	(0.895)	(0.678)	(0.664)
Observations	2,042			
Wald	346.4			
Probability	0			

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The second step of the procedure is in principal less restrictive since it allows the estimation of conditional probabilities without making distributional assumptions. The probability is simply the observed rate of the specified contribution strategy out of the entire set of strategies which satisfy the conditioning variables ($fr, ps, bl, x, cs\text{-}type = j$). The procedure also has another substantial advantage. Since we are mainly interested in decomposing the framing effect through simulation, we do not have to actually estimate any second step conditional probabilities for all types of profiles. Instead we can, when simulating, simply allocate profiles by drawing randomly from the observed set of profiles which satisfy the appropriate conditioning variables. In practice, however, the second step procedure requires a sizable number of strategies in each subsample. Thus we end up only being able to allow the framing and perception variables to affect the conditional probabilities of choosing specific profiles. Thus even though we comprehensively model the choice of contribution profile, our model of effects on the variation within each profile categorization is quite basic and only captures the effects of the primary variables of interest. This more basic model of second step probabilities is unavoidable since we want to follow Fischbacher and Gächter (2010) in using predicted contributions as an explanatory variable for contributions.

3.3 BELIEF (EQUATION 3)

Beliefs are, in theory, continuous variables. However, as seen in the data section of the paper, this variable is in practice categorized since almost all subjects report beliefs that are divisible by 5 and with some values attracting a large proportion of reports[3]. This makes it possible for us to estimate a model of the probabilities of these categorized outcomes using a multi-nominal probit (If we again assume that *e3* is normally distributed and the linear functional form for explanatory variables):

$$\Pr\left(bl = j\right) = \Pr\left(V_j = Max(V_1,...,V_n)\right)$$
$$\text{where } V_i = \Phi\left(\left[\ fr, pe, x\right]\beta_i^{bl}\,'\right) \quad \forall i$$

The results of the Beliefs estimations are displayed in Table SI-6.

[3] Prior to estimation, the few observations which were originally not reported in the steps of 5 DKK (around 2% of the observations) were rounded to the nearest 5 DKK. Thus, an observation of 14 was moved to 15, one for 37 to 35 and so on. This re-categorization did not have any noticeable effect on the mean or other moments of distribution of beliefs.

Table SI-6: Estimation results for Beliefs

Multi nominel probit model Dependent variable - Belief about others' contribution	0	5	10	15	20	25	30	35	40	45
Treatment (1: give, 0: take)	0.303***	0.0855	0.00396	-0.0734	0.00522	-0.190***	-0.212***	-0.339***	-0.382***	-0.388***
	(0.0899)	(0.0989)	(0.0648)	(0.0674)	(0.0520)	(0.0527)	(0.0532)	(0.0697)	(0.0603)	(0.103)
Misperception	0.144	0.154	-0.0688	0.119	0.264**	-0.0919	0.0970	0.0496	0.321***	-0.0837
	(0.178)	(0.199)	(0.131)	(0.133)	(0.103)	(0.102)	(0.103)	(0.125)	(0.109)	(0.172)
Agreeableness	-0.0440***	-0.00392	-0.0320***	0.00174	-0.0181*	-0.0195**	-0.0101	-0.00835	0.00912	0.0296*
	(0.0163)	(0.0184)	(0.0120)	(0.0123)	(0.00949)	(0.00938)	(0.00941)	(0.0114)	(0.0102)	(0.0161)
Conscientiousness	0.0326*	-0.00573	0.0105	-0.00833	0.0130	0.000855	0.000794	0.0126	0.00117	-0.0235
	(0.0180)	(0.0192)	(0.0127)	(0.0129)	(0.0102)	(0.0101)	(0.0102)	(0.0124)	(0.0109)	(0.0167)
Extraversion	-0.0215	-0.0372**	-0.00847	-0.0275**	-0.0137	-0.0122	-0.0110	-0.0150	-0.00468	-0.00464
	(0.0157)	(0.0180)	(0.0117)	(0.0119)	(0.00940)	(0.00927)	(0.00938)	(0.0111)	(0.00995)	(0.0151)
Neuroticism	0.0162	-0.0142	0.0128	0.00739	0.00909	0.00250	-0.0141	0.00127	-0.00189	-0.00493
	(0.0147)	(0.0170)	(0.0111)	(0.0113)	(0.00889)	(0.00880)	(0.00894)	(0.0108)	(0.00945)	(0.0149)
Openness	-0.00581	0.00460	-0.0152	-0.0196*	-0.00897	-0.00856	-0.00265	0.00442	-0.0171*	-0.00326
	(0.0146)	(0.0162)	(0.0109)	(0.0112)	(0.00861)	(0.00848)	(0.00851)	(0.0105)	(0.00907)	(0.0139)
Intelligence	-0.00438	0.0586*	-0.00269	0.0240	0.0246	0.0202	0.00547	-0.000951	0.0292	-0.0219
	(0.0305)	(0.0353)	(0.0219)	(0.0230)	(0.0179)	(0.0175)	(0.0178)	(0.0215)	(0.0189)	(0.0293)
Age	0.000996	-0.0207***	-0.00477	-0.0216***	-0.0104***	-0.0127***	-0.0150***	-0.0258***	-0.00924**	-0.0258***
	(0.00673)	(0.00768)	(0.00499)	(0.00506)	(0.00397)	(0.00394)	(0.00398)	(0.00484)	(0.00425)	(0.00659)
Sex (1: female, 0: male)	0.163	0.315	0.311**	0.211	0.481***	0.273**	0.482***	0.242*	0.219*	0.0663
	(0.187)	(0.213)	(0.137)	(0.140)	(0.108)	(0.108)	(0.108)	(0.131)	(0.116)	(0.178)
Constant	-1.324	0.0546	0.360	1.268	0.325	1.630**	1.517**	1.007	0.450	0.771
	(1.135)	(1.264)	(0.824)	(0.839)	(0.674)	(0.663)	(0.668)	(0.810)	(0.718)	(1.125)
Observations	2,042									
wald	297.1									
probability	0									

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

3.4 CONTRIBUTIONS (EQUATION 4)

The core idea of the Fischbacher and Gächter (2010) model is that subjects decide on their contribution by looking up their preferred contribution in their strategy profile for the belief that they have about other group members' contributions. The preferred contribution is the contribution indicated in the subject's contribution strategy for his belief about others' contributions ($pc = f(cs, bl)$). For example, if the subject believes that the other group members on average will contribute 20 DKK and his contribution strategy indicates that his preferred contribution is 15 DKK when others on average contribute 20 DKK, then his predicted contribution will be 15 DKK. To allow for errors they model actual contributions as a linear function of beliefs and *predicted contribution (pc)*. However, contributions are like beliefs categorized since almost all subjects' contributions are divisible by 5. We therefore, in the same way as for beliefs, estimate a model of the probabilities of these categorized outcomes using a multi-nominal probit, assuming that e4 is normally distributed. We include squared belief and predicted contribution variables to avoid making restrictive functional form assumptions about these variables (note that our specifications allow the strictly linear relationship that Fischbacher and Gächter assume). Thus, in sum, we estimate a model of the probabilities of categorized contributions using a multi-nominal probit assuming that *e4* is normally distributed and the linear functional form for other explanatory variables, i.e. :

$$\Pr\left(cn = j\right) = \Pr\left(V_j = Max(V_1,...,V_n)\right)$$
$$\text{where } V_i = \Phi\left(\left[fr, pc, pc^2, bl, bl^2, x\right]\beta_i^{cn}{}'\right) \quad \forall i$$
$$\text{and} \quad pc = f(cs, bl)$$

The estimates are presented in Table SI-7 below.

Table SI-7: Estimates for contribution equation

Multi nominel probit model Dependent variable - Public good contribution:	0	5	10	15	20	25	30	35	40	45
Treatment (1: give, 0: take)	-0.443***	-0.408***	-0.564***	-0.530***	-0.486***	-0.511***	-0.560***	-0.649***	-0.500***	-0.450***
	(0.0858)	(0.139)	(0.0895)	(0.133)	(0.0728)	(0.0704)	(0.0706)	(0.120)	(0.0738)	(0.156)
Belief	-0.125***	0.0349	-0.0605*	0.409**	0.124***	0.190***	0.227***	0.204***	0.346***	0.284**
	(0.0258)	(0.0639)	(0.0329)	(0.161)	(0.0345)	(0.0377)	(0.0403)	(0.0698)	(0.0465)	(0.126)
Belief^2	0.000385	-0.00345*	-0.00130*	-0.0136***	-0.00478***	-0.00553***	-0.00542***	-0.00437***	-0.00597***	-0.00465***
	(0.000473)	(0.00183)	(0.000738)	(0.00450)	(0.000744)	(0.000768)	(0.000730)	(0.00117)	(0.000694)	(0.00180)
Cooperation preference	-0.0517***	-0.0462	0.0303	0.0253	0.00641	0.0208	0.0358***	0.0284	0.000138	0.0385
	(0.0169)	(0.0302)	(0.0187)	(0.0295)	(0.0141)	(0.0135)	(0.0132)	(0.0201)	(0.0131)	(0.0283)
Cooperation preference^2	0.000377	0.000276	-0.00125***	-0.00134	-0.000805**	-0.00106***	-0.00127***	-0.00110**	-0.000377	-0.00118**
	(0.000389)	(0.000810)	(0.000474)	(0.000825)	(0.000338)	(0.000322)	(0.000300)	(0.000465)	(0.000279)	(0.000599)
Agreeableness	-0.0374***	-0.0144	0.00880	-0.0452**	0.0136	-0.00102	0.0148	0.000474	0.00283	0.000648
	(0.0140)	(0.0249)	(0.0149)	(0.0223)	(0.0124)	(0.0119)	(0.0117)	(0.0165)	(0.0118)	(0.0225)
Conscientiousness	0.0240	0.00553	0.0216	0.0254	0.00657	0.0142	0.00685	-0.00474	0.0336***	0.0312
	(0.0157)	(0.0262)	(0.0163)	(0.0243)	(0.0135)	(0.0128)	(0.0127)	(0.0174)	(0.0130)	(0.0242)
Extraversion	0.00266	-0.0510*	0.00819	0.0263	0.0107	-0.0154	0.00851	0.0234	0.0119	0.0141
	(0.0145)	(0.0264)	(0.0147)	(0.0234)	(0.0122)	(0.0117)	(0.0114)	(0.0163)	(0.0114)	(0.0207)
Neuroticism	0.00486	-0.0244	0.0144	0.00694	0.0231*	0.0144	0.00808	0.0304*	0.0284**	0.0461**
	(0.0137)	(0.0245)	(0.0140)	(0.0222)	(0.0118)	(0.0112)	(0.0111)	(0.0155)	(0.0110)	(0.0206)
Openness	-0.0353***	-0.00493	-0.0389***	-0.0254	-0.0320***	-0.00617	-0.0195*	-0.0162	-0.00496	-0.0215
	(0.0136)	(0.0238)	(0.0140)	(0.0220)	(0.0115)	(0.0110)	(0.0107)	(0.0153)	(0.0105)	(0.0201)
Intelligence	-0.0219	-0.0182	-0.0100	-0.0734*	-0.0592***	-0.00944	-0.0191	-0.0439	-0.0169	-0.00338
	(0.0268)	(0.0454)	(0.0277)	(0.0420)	(0.0227)	(0.0218)	(0.0214)	(0.0305)	(0.0216)	(0.0414)
Age	-0.00454	-0.00598	0.00712	-0.00101	0.00953*	0.00821	0.0110**	-0.0114	0.00514	-0.00372
	(0.00598)	(0.0101)	(0.00625)	(0.00950)	(0.00519)	(0.00502)	(0.00493)	(0.00722)	(0.00494)	(0.00969)
Sex (1: female, 0: male)	-0.162	0.204	-0.00845	0.409	0.151	-0.00498	0.262**	0.00834	0.0432	0.0986
	(0.173)	(0.299)	(0.174)	(0.276)	(0.142)	(0.137)	(0.132)	(0.194)	(0.133)	(0.256)
Constant	5.102***	3.696**	1.913*	-1.358	0.547	-0.303	-2.085**	-1.916	-6.120***	-6.813**
	(1.070)	(1.741)	(1.103)	(2.096)	(0.970)	(0.946)	(0.999)	(1.549)	(1.155)	(2.710)
Observations	2,042									
wald	1072									
probability	0									

SUMMARIZING ESTIMATION RESULTS

We see that all four estimated equations are highly significant as are most explanatory variables. To assess the importance of the different explanatory variables, a Wald test for each variable in each equation is summarized in Table SI-8 below.

Table SI-8: Wald tests of explanatory variables

	Equation 1 Contribution	**Equation 2** Belief	**Equation 3** Cooperation preferences	**Equation 4** Misperception
Frame (1: give, 0: take)	0.000	0.000	0.000	0.000
	(102.8)	(116.2)	(35.5)	(20.4)
Misperception		0.007	0.000	
		(24.2)	(215.0)	
Belief	0.000			
	(207.2)			
Belief^2	0.000			
	(213.0)			
Preference (cooperation from :	0.000			
	(37.2)			
Preference^2	0.000			
	(37.4)			
Agreeableness	0.020	0.001	0.013	0.391
	(21.1)	(29.2)	(12.7)	(.7)
Conscientiousness	0.342	0.363	0.466	0.054
	(11.2)	(10.9)	(3.6)	(3.7)
Extroversion	0.123	0.448	0.036	0.007
	(15.3)	(9.9)	(10.3)	(7.2)
Neuroticism	0.105	0.325	0.115	0.064
	(15.8)	(11.4)	(7.4)	(3.4)
Openness	0.073	0.515	0.162	0.185
	(17.1)	(9.2)	(6.5)	(1.8)
Intelligence	0.376	0.487	0.102	0.000
	(10.8)	(9.5)	(7.7)	(79.6)
Age	0.031	0.000	0.000	0.755
	(19.8)	(51.3)	(24.6)	(.1)
Gender (1: female, 0: male)	0.376	0.001	0.037	0.684
	(10.8)	(30.5)	(10.2)	(.2)

The shown numbers are the test probabilities
Chi2 values are presented in the parentheses

Generally, the Wald tests show that the key explanatory variables are significant in all the equations. Some of the controls are not significant in all of the equations, while for others they are only significant in one equation. The patterns we find seem reasonable. Intelligence for instance is not significant for the equations that determine contribution, belief and preference, but is significant for the misperception equation. This seems reasonable since misperception concerns the ability to understand the game for which intelligence is key, whereas the other equations are more about the subjects' behavioral attitude for which the level of intelligence is not necessarily an important explanation.

4 Simulation procedure

To disentangle the different possible causes of the framing effect on public good contributions, we have developed a simulation procedure based on the estimated model. The procedure is graphically presented in the Figure SI-4 below. The procedure has 3 steps, and includes a repeated random draw routine and a bootstrapping procedure that allows us to gauge the precision of our estimated causal decomposition of the framing effect.

Step 1. Using the standard bootstrapping approach (see, e.g. Efron and Tibshirani 1993 or Varian 2005), we randomly select from the original dataset obtained in the experiment, a sample of the same size and distribution between frames *with* replacement. Thus some observations from the original dataset are selected more than once, while others are not selected at all. This selection process mirrors the random sampling variation from a population with a distribution over subjects corresponding to our original sample. This allows us to simulate sampling variation in the estimated parameters we are interested in.

Step 2. For this bootstrapped sample, we estimate our 4 equation probit models as described in section 2.

Step 3. With the estimated coefficients, we then simulate realizations of each of the four endogenous variables for each subject in the sample. In principal we calculate the probability of each possible outcome for a given subject by combining the estimated parameters from the equation in question with the specific subject's values of the exogenous variables for this equation. We then randomly draw a realization among the possible outcomes which reflect the calculated outcome probabilities. Technically we do this in the standard way (Alfnes 2004, Brownstone and Train 1999) by calculating the probit value for each outcome (multiplying the vector of parameters with the vector of subject exogenous variable values and adding a number drawn randomly from a normal distribution) and then selecting the realization with the highest probit value. For each subject, we simulate the outcome for each of the four equations recursively: We first use the estimated parameters for the misperception equation to simulate a realization of the misperception variable for the subject (with her/his specific set of personality traits, intelligence score, gender, age) placed in the given frame. Using the simulated realization of the subject's misperception variable, we then simulate the subject's belief about others' contributions. The subject's contribution strategy is then simulated in basically the same way. First the subject's strategy type is simulated using the estimated multinomial probit parameters. Then the specific profile is selected randomly among the set of observed profiles for subjects of this strategy type and with the same frame and simulated value of the misperception variable. Finally the simulated contribution strategy and belief are combined to find the preferred contribution, which together with the framing variable, beliefs and controls are used to simulate the subject's contribution. This gives us a simulated realization of the contribution for each subject in the sample. We then calculate the *mean* and the *variance* of this distribution.

To study the framing effect, we ask what happens when we move subjects from one frame to another. In order to decompose the total effect into underlying frame effects which work through misperception, beliefs and preferences, we simulate the model five times for a given set of random normal distribution draws:

Baseline simulation Simulate with the frame variable in all equation sets to give,

Simulation a) We only change the framing variable in the misperception equation to take (the difference to the baseline simulation is merely the marginal effect of the framing effect which works through misperception).

Simulation b) We set the framing variable to take in both the misperception and belief equations (the difference to simulation *a* is the marginal effect of the framing effect which works through beliefs).

Simulation c) We set the framing variable to take in the misperception, belief and cooperation strategy equations (the difference to simulation *b* is the marginal effect of the framing effect which works through preferences).

Simulation d) Finally, we change the framing variable to take in all equations (misperception, belief, cooperation strategy and contribution). This gives the simulated total framing effect (the difference to simulation *c* is the marginal effect of any remaining unexplained framing effect which does not work through any of the three explanations suggested in the literature).

When taking the differences between the mean and the variance of these five simulated distributions we get:

A) The framing effect on the mean and variance of the contribution distribution which works through misperception (Simulation *a* minus Baseline simulation).

B) The framing effect on the mean and variance of the contribution distribution which works through beliefs (Simulation *b* minus Simulation *a*).

C) The framing effect on the mean and variance of the contribution distribution which works through preferences (Simulation *c* minus Simulation *b*).

D) The remaining unexplained framing effect on the mean and variance of the contribution distribution (Simulation *d* minus Simulation *c*).

E) The total framing effect on the mean and variance of the contribution distribution (Simulation *d* minus Baseline simulation).

Multiple draws: Step 3 is repeated 25 times, each time with different normal distribution draws, but with the same coefficients and variable values. Then the mean of the 25 sets of simulated decomposed framing effects *A*-*E* are calculated. This is our estimate of the *expected* values of the set of decomposed framing effects *A*-*E* that our simulation model will generate for this particular subject sample.

Bootstrapping: The entire procedure (steps 1, 2 and 3) is repeated 250 times, in order to generate distributions for each decomposed framing effect *A*-*E* reflection sampling variation when sampling from the experiment's subject pool. This allows us to gauge the accuracy (significance) of the estimated set of decomposed framing effects by the standard bootstrapping method (see, e.g. Efron and Tibshirani 1993 or Varian 2005).

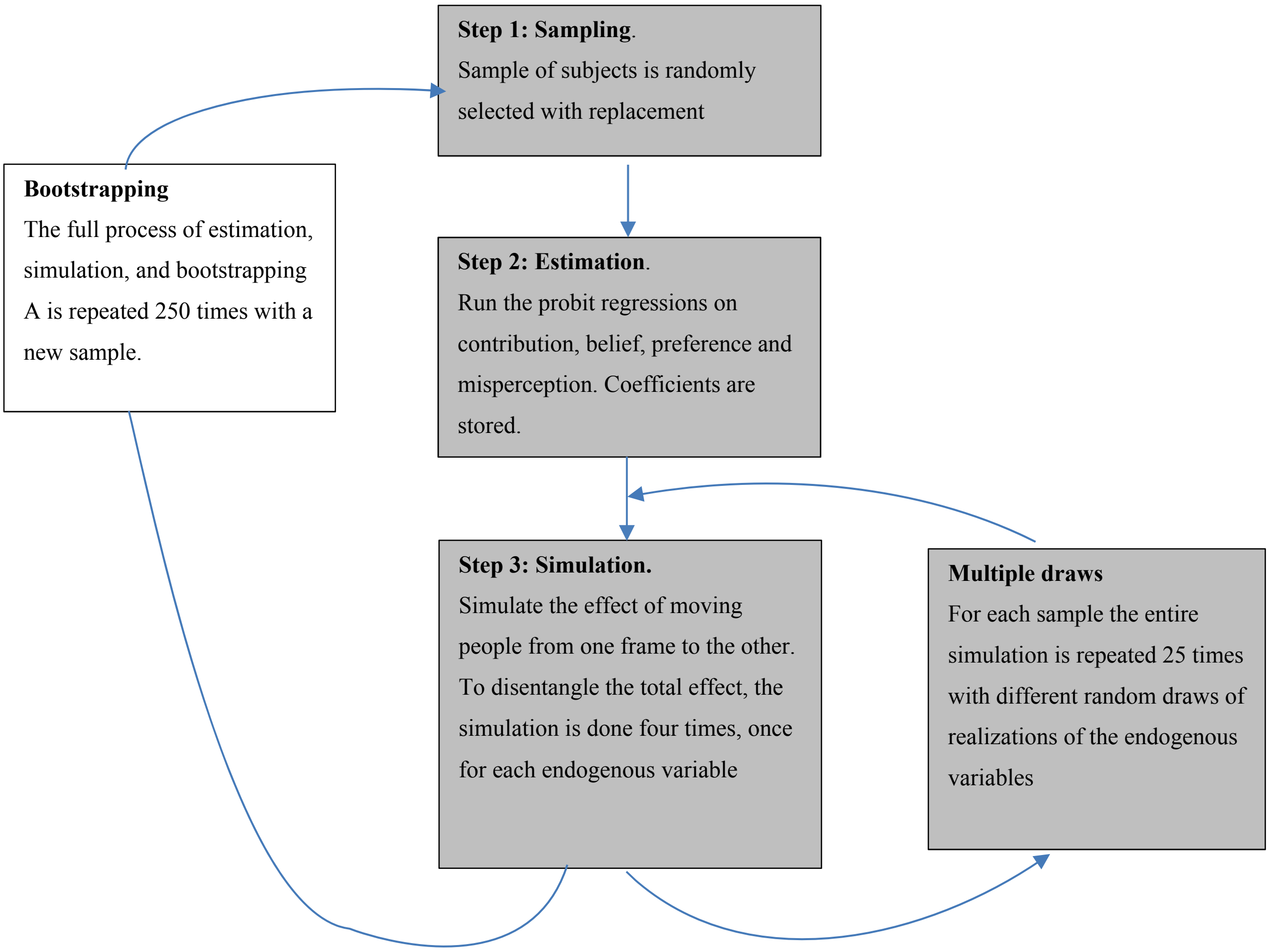

Figure SI-4: An illustration of the simulation procedure

5 TESTING THE ESTIMATED MODEL

Prior to using the simulation model for decomposing the framing effects, we tested its ability to accurately simulate the observed behavior of our subject pool. The table below provides an overview of the 3 sets of test we have undertaken.

Table SI-9: Various tests of the model

	What is tested?	Description	Test	Conclusion
1	Simulated Distributions conditional on observed endogenous explanatory variables	The distributions of observed contributions are compared with the distributions of the corresponding simulated variables using *observed* values of all endogenous explanatory variables in the four model equations.	Pearson's chi2 tests	Distributions do not differ significantly.
2	Simulated Distributions, when equations feed into each other	The distributions of observed contributions are compared with the distributions of the corresponding simulated variables using *simulated* values of all endogenous explanatory variables in the four estimated models. Thus we allow the equations to feed into each other basing predicted values on predicted values from prior parts of the system.	Pearson's chi2 tests	Distributions do not differ significantly
3	Frame swap	The distribution of predicted contributions and beliefs in the give frame for subjects originally in the take frame is compared with observed contributions of subjects in the give frame – and vice versa.	Pearson's chi2 tests	Distributions do not differ significantly

Test 1: *W*e test how well contributions are predicted conditional on observed explanatory variables. We do this by comparing the distributions of contributions observed in the experiment, with the distributions of the contributions simulated by the contribution equation as described above where we use *observed* values of misperception, contribution strategy and beliefs as explanatory variables. We perform 100 simulations for each distribution (using different random draws each time) and each time compare with the observed distribution using Pearson's chi square test. The resulting test score probabilities are graphed below where test scores below the 5% dotted line indicate that the distributions are different at the 5% significance level. None of the 100 *simulation* distributions differed from the observed at a significance level under 0.43.

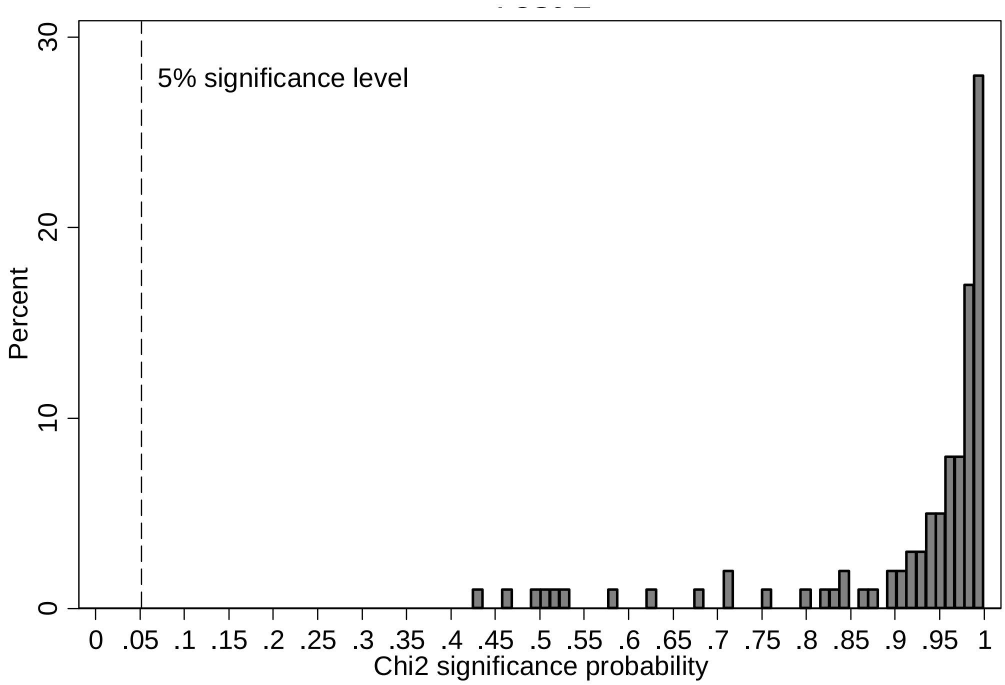

Figure SI-5: Test 1- Comparing actual and estimated distributions

Test 2: *W*e test how well contributions are predicted conditional on simulated explanatory variables. This test is like test 1 except that we do not condition on observed endogenous variables, but on simulated endogenous variables. We do this by comparing the distributions of contributions observed in the experiment, with the distributions of the contributions simulated by the contribution equation as described above where we use simulated values of misperception, contribution strategy and beliefs as explanatory variables (as described above)

We perform 100 simulations of each distribution (using different random draws each time) and each time compare with the observed distribution using Pearson's chi square test. The resulting test score probabilities are graphed below where test scores below the 5% dotted line indicate that the distributions are different at the 5% significance level. None of the 100 simulated distributions differed from the observed at a significance level under 0.39.

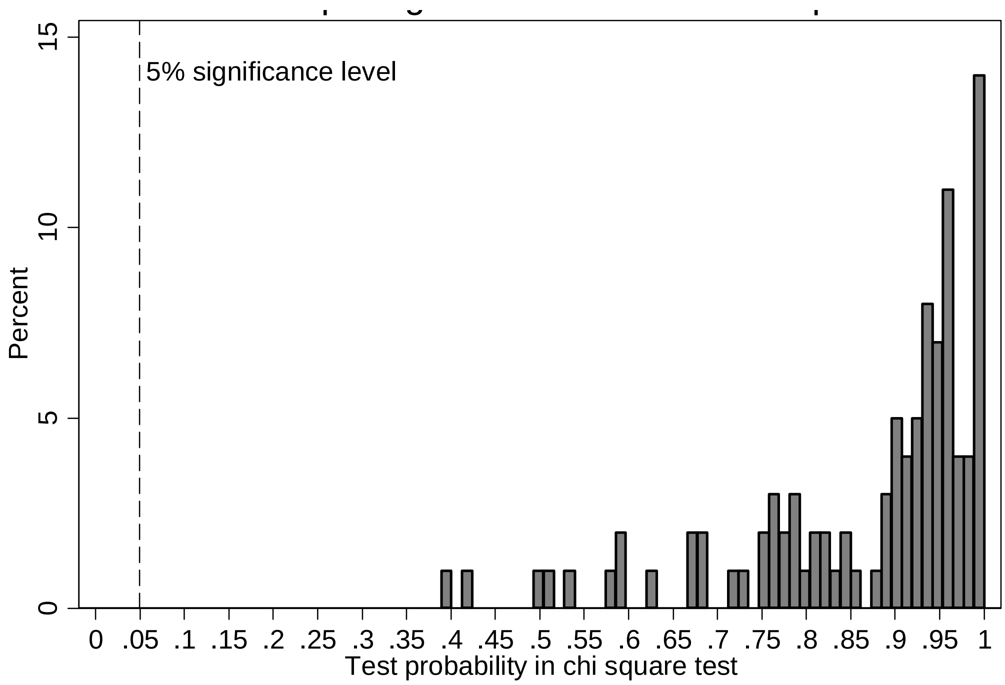

Figure SI-6: Test 2 - Comparing actual and estimated distributions (simulated endogenous variables)

Test 3: generates distributions of simulated contributions for subjects who are moved from their original frame into the alternative frame as described above. Thus we simulate the contributions of subjects originally in the give frame, when their framing variable is changed to take in all equations. We then do the same simulated frame change for all subjects originally in the take frame. These simulated contribution distributions are then compared with the observed contributions of subjects originally in the take and give frames. We perform 100 simulations of the distribution (using different random draws each time) and each time compare with the observed distribution using Pearson's chi square test. The resulting test score probabilities are graphed below where test scores below the 5% dotted line indicate that the distributions are different at the 5% significance level. None of the 100 simulated distributions differed from the observed at a significance level under 0.33.

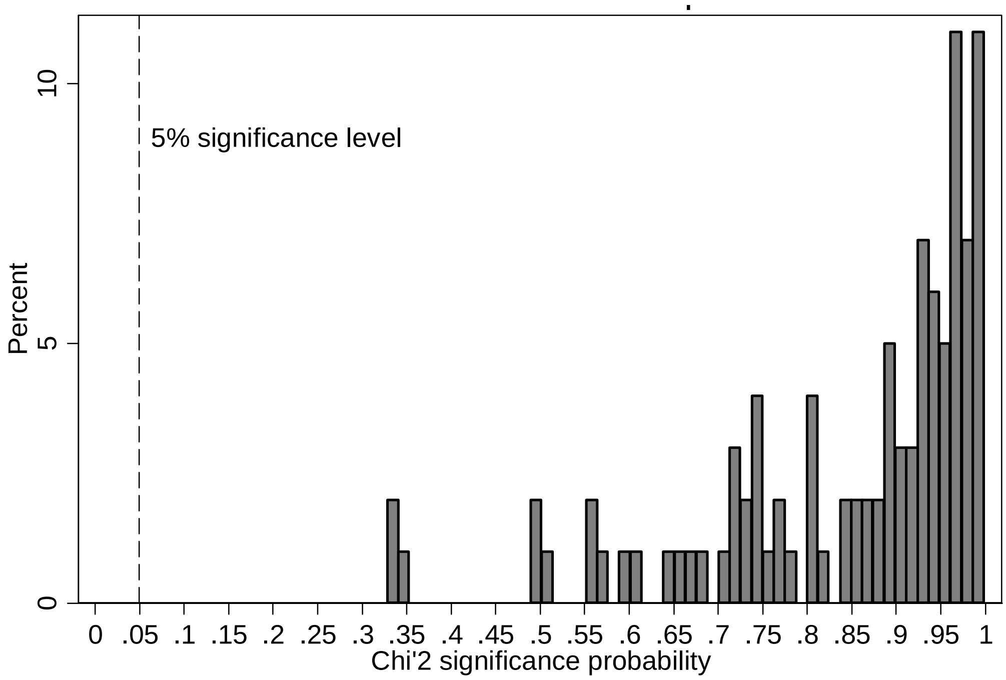

Figure SI-7: Test 3 – Comparing estimated distributions when actual frames are swapped

6 RECRUITMENT AND DESIGN

This section provides details about the recruitment of subjects and the experimental design.

6.1 RECRUITMENT OF SUBJECTS

The participants were recruited as follows:

- Statistics Denmark, the official statistics office in Denmark, randomly selected 40,000 individuals from the Danish population.[4]
- Statistics Denmark prepared invitation letters and envelopes. See section 7 for a picture of the invitation letter. A translation of the invitation letter can also be found in Section 6.

[4] Note that this is not a completely random sample of the Danish population because all inhabitants have the right to refuse to be contacted for research purposes (this rule applies to all research conducted in Denmark when sampling from the Central Person Register). Individuals who have claimed this right are not included in the population from which our sample of 40,000 was drawn. Around 20-25% of people in the age group 20-39 years have claimed this right, while the percentage is much lower in other age groups (5-12%). More information about the issue and the characteristics of people claiming this right is available at (http://www.dst.dk/upload/notat_om_forskerbeskyttelse_2008.pdf). Unfortunately, this material is only available in Danish.

- In total, 22,027 letters were randomly selected out of the 40,000 and sent out to the respondents in two waves on May 15 and May 30, 2008.
- The letters invited subjects to log on to our webpage, www.econ.ku.dk/ilee, using a personal identification number printed in the letter. Subjects had one week to complete the experiment.
- In total, 3,584 subjects logged on to our web page and out of these, 2,291 completed the experiment. We had several treatments and in the current paper, we use 2,042 observations (give and take treatments with incentives and no gifts). See Table SI-10 for details about treatments and how our sample was selected.

6.2 Overview of the experiment

In short, the participants were invited to log on to our web page twice, once during the period in which the experiment was open and once during a feedback period after the experiment was closed. The first time they logged in they participated in two public good games and completed a series of other questionnaires and tests. After the experiment closed, participants were matched together in groups for the public good game and payments were calculated. Participants logged on to our web page again to see the results of their group and provide us with the banking details necessary for distributing the payments.

6.3 Treatments and participation

The experiment had six treatments that varied with respect to the type of invitation letter, incentives and framing. There were three types of invitation letter, namely Standard, Support, and Support Gift. The Standard letter informs subjects that they can make money in the experiment, whereas the Support letters instead tell subjects that they will be contributing to scientific research. See below for a picture of the invitation letter and Section 7 for a translation of the text in the letters. The Support Gift letter also included a small gift (a foam puzzle with logos of the Internet laboratory of experimental economics (iLEE) and the University of Copenhagen printed on it).

Another variation concerned the actual incentives paid out to the subjects. In the Paid treatments, subjects actually received payment irrespective of which invitation letter they received. In the Hypothetical treatments, subjects faced the same instructions throughout the experiment, but the welcome screen included a paragraph making clear that subjects would not actually receive payment and directing them to simply make their decisions as if they would be paid according to the instructions. Of course, only subjects who received the invitation letters Support or Support Gift participated in the Hypothetical treatment.

The third and last variation concerned the framing of the public good game part of the experiment, which was either a Give or a Take frame. Only the instructions for the public good game differed between treatments.

Table SI-9 breaks down the complete target subject pool into treatments. Upon logging in, a random number determined which treatment the subjects were routed to. 2/3 of the subjects who received the standard letter were assigned to the Give-Incentivized treatment and 1/3 to the Take-Incentivized treatment. For the other two letter types, ½ of the subjects were routed to Give-Incentivized and ½ to the Give-Hypothetical.[5]

The current paper only uses data from the Give treatment with incentives and the Take treatment. In addition, we only use subjects who received the standard letter and hence we have a sample with 2,042 (1366+676) subjects (corresponding to highlighted row in Table SI-10).

Table SI-10: Number of letters sent out and number of Subjects in Each Treatment

		Treatment		
	Letters	Give-Incentivized	Give-Hypothetical	Take-Incentivized
Standard	18,027	1,366 (2,027)	-	676 (1,080)
Support	2,000	47 (93)	68 (128)	-
Support Gift	2,000	85 (146)	49 (110)	-
Total	22,027	1,498 (2,266)	117 (238)	676 (1,080)

Note: Figures in the first column refer to the number of letters sent out. Figures in the other columns refer to the number of subjects who completed the experiment for each treatment. Numbers in parenthesis refer to the number of subjects assigned to each experiment.

6.4 DETAILED ACCOUNT OF THE CORE PART OF THE EXPERIMENT

[5] It turned out that the random number generator we used failed to generate a perfectly uniform distribution, which explains why the number of observations does not exactly match our intended division between treatments.

This section describes the core part of the experiment in detail. Screenshots including translated instructions are available at the end of this appendix. Subjects had access to several forms of help to understand the instructions. Throughout the public good game part of the experiment, subjects could go back and read the instructions again at any time. In addition, from each screen, subjects could access a screen-specific help screen which provided further guidance about what to do. Subjects also had access to a profit calculator where they could see for themselves how the earnings of the four members of the group depended on the members' contributions (see Section **Fejl! Henvisningskilde ikke fundet.** for screenshots of the profit calculator in the give and the take frame). Finally, all help screens included a telephone number and an email address through which subjects could obtain further assistance.

6.4.1 Login and information screens

The first screen of the experiment that the subjects were taken to when they entered the URL from the invitation letter was a simple login screen where they had to enter their personal identification code which was printed in the invitation letter. Upon login, subjects saw a welcome screen which provided information about the experiment. They were informed that their participation in the experiment would be valuable to research in economics and were reminded of the importance that the person who participated was the one who was named in the invitation letter. Moreover, they were informed that they could earn money during the experiment (within the range of 8 to 510 DKK, corresponding to approximately 1.6 to 102 USD) and that this is standard procedure in economic experiments. They were also cautioned that they had to complete the experiment to get their money by electronic transfer. All subjects were then informed that the experiment would last approximately 50 minutes. Finally, they were reassured that they would be anonymous.

After answering some questions regarding their socioeconomic background (age, gender and highest completed education), the subjects proceeded to the public good game part of the experiment.

6.4.2 The public good games

Subjects played two variants of the public good game. They first played a standard linear one-shot public good game involving one unconditional contribution choice (referred to as the Standard game). Afterwards they played a public good game using the strategy method which involves an unconditional choice as well as a series of conditional choices (referred to as the Strategy game). Both public good games were framed according to the treatment that the subjects were assigned to.

In both games, there were four members in each group, the endowment was 50 DKK (approximately 10 USD), and the marginal per capita return was 0.5. The subjects were asked to contribute between 0-50 DKK of the private endowment to a common pool. Everything in the pool was then doubled and shared equally between the four subjects in the group. There was no feedback during game play.

Subjects began by reading the instructions for the Standard game. In order to make the rules of the public good game easy to understand, the written instructions were complemented by a series of illustrations made by a professional illustrator.

After viewing the instructions, subjects were required to correctly complete four control questions testing their ability to calculate payoffs in the game. Subjects were allowed as many attempts as necessary, but could not proceed without entering the correct answer to each question. Subjects then made their choice. On the next screen, their beliefs about the average contribution of the other members of their group were elicited. The belief elicitation was incentivised using the quadratic scoring rule. Participants' payments, expressed in DKK, were determined by $10 - 0.004\ d^2 \geq 0$, where d is the difference between the belief and the true value.

Subjects then read the instructions for the strategy method version of the public good game. The strategy method was adapted to the context of the public good game by Fischbacher *et al.* (2001). The idea behind the strategy method is to have subjects report the complete strategy of actions they would like to take in the event of each possible combination of actions that others could take.

After reading the instructions for the Strategy game, subjects first had to make an unconditional choice. This unconditional choice was necessary to determine the outcome of the game. Subjects then had to fill out a conditional contribution table in which they had to decide how much they would like to contribute for each of the 11 average contribution levels of the other group members that are multiples of 5 (0, 5, 10... 45, 50). Our design differs from Fischbacher *et al.* (2001) in this respect. In that paper, the endowment was 20 tokens and all 21 possible integer average contribution levels were included in the conditional contribution table.

The outcome of the Strategy game was determined as follows: One member of the group is randomly selected. For the other three subjects, the second unconditional choice counts as their contribution. The average of their choices is rounded to the nearest multiple of 5, and the contribution of the selected member is then determined by referencing the relevant row of his or her conditional contribution table.

6.4.3 GAME MISPERCEPTION

After the public good games, subjects continued to a test of the relation between income motives and behavior in the public good game. The game perception test was framed according to the treatment that the subjects were assigned to.

After the strategy game, the subjects were asked incentivized control questions to test for misperception. We used the contribution profile setup introduced in the strategy game to ask participants to delineate the contribution profiles of imaginary subjects who either only care about their own payoff, or only care about the payoffs of others.[6] The test consists of six questions. It was emphasized that each question only had one correct answer and that the subjects would earn 5 DDK (≈0.7 €) for each correct answer. The first three questions asked the subject what public good contributions a person, who only cares about their own payoff, would choose if the other subjects, on average, contributed 0 DKK (question 1), 25 DKK (question 2) and 50 DKK (question 3). In the last three questions, the subjects were asked what contribution a person who only cares about the payoff to other group members would choose, when the others on average contributed 0 DKK (question 4), 25 DKK (question 5) and 50 DKK (question 6). We interpret incorrect answers to these questions as an indication that the subject has misperceptions about how to implement the specified goals.

6.4.4 MEASURES OF PERSONALITY

After completion of the game perception test, our subjects were asked to complete a well-established **personality test.** More specifically, we applied a Danish short version of the Big 5 personality test.[7] The test consists of a battery of 60 statements which cover personality traits in five dimensions: agreeableness, conscientiousness, extraversion, neuroticism, and openness.[8] Based on the answers to these statements, each subject is assigned a score for each of the five big 5

[6] We tested the sensitivity of the wording of these questions in a follow-up laboratory experiment, which also used an alternative wording asking subjects directly to state which contributions would maximize their own earnings. The results are discussed in the next section, but it is worth pointing out that the main message of the paper does not appear to depend on the way these questions were phrased.

[7] We used the Danish NEO-PI-R Short Version test, provided to us with the permission of Dansk Psykologisk Forlag (www.dpf.dk).

[8] The Danish NEO-PI-R Short Version consists of five 12-item scales which measure each of the 5 domains. The 12 items for each domain are chosen from the original 48 items (of the full NEO-PI-R test) as follows: for each facet, the two items (out of eight) with the highest correlation with the total factor score are chosen (this is different from the American 60-item version of NEO-PI-R, called NEO-FFI, where the 12 items with the highest correlation with the total factor score are picked, regardless of which facets the single items belong to). In the Danish short version, all facets are therefore represented equally within each domain.

dimensions. A high score for a given trait indicates that this trait is an important part of the subject's personality.

6.4.5 Measure of Cognitive ability

First, the subjects completed the visual IST 2000 R test. This test asks the subjects to solve 20 different logic puzzles. The task in each puzzle is to identify one of five candidate symbols, which would finalize a sequence of pictures constituting a logical graphical string (for a snapshot example, see the appendix). For instance, subjects see three solid square boxes in a row as the logical string. Subjects are asked which of five suggested symbols would logically prolong the presented string. If subjects, for instance, can choose between a triangle, a line, a circle and a squared solid box, the correct answer is to choose the solid box, which is the only logical continuation of the sequence of symbols. The subjects were given 10 minutes to solve as many of the puzzles as possible, and were allowed to jump back and forth between the puzzles as they wished. The assumption is that the higher the number of puzzles solved, the higher the cognitive ability of the participant.

6.4.6 Additional tests

Subjects also performed a number of tasks that we do not use in our analysis, including risk and loss aversion, and cognitive ability scores.

7 The invitation letter

DANMARKS STATISTIK

Name
Address

Kære **Name**

Danmarks Statistik og Internet Laboratoriet for Eksperimentel Økonomi (iLEE) ved Økonomisk Institut på Københavns Universitet inviterer dig hermed til at deltage i et eksperiment vedrørende økonomiske beslutningsprocesser.

Eksperimenter er et vigtigt redskab inden for økonomisk forskning, idet de er med til at skabe en bedre forståelse for, hvordan mennesker træffer økonomiske beslutninger. I sidste ende kan dette være med til at forbedre den førte økonomiske politik. Et økonomisk eksperiment kan tage mange forskellige former – eksempelvis kan det gå ud på, at deltagerne skal købe og sælge varer på et fiktivt marked eller træffe beslutninger om at investere.

For at opnå et repræsentativt billede har Danmarks Statistik udvalgt et stort antal personer fra hele Danmark, som nu får mulighed for at deltage i eksperimentet. Du er blandt de tilfældigt udtrukne. Din deltagelse er naturligvis frivillig, men vi håber meget, at du vil deltage. Der kræves ingen særlig kendskab til hverken økonomi eller computere for at kunne deltage i eksperimentet, og dine beslutninger i eksperimentet bliver behandlet strengt fortroligt og anonymt.

Ved at deltage i eksperimentet får du mulighed for at tjene penge. Vi kan ikke garantere dig, at du vil tjene et bestemt beløb, idet din indtjening vil afhænge af dine egne samt andre deltageres beslutninger. De nærmere regler er beskrevet på hjemmesiden.
For at sikre deltagerne fuld anonymitet logger alle deltagere ind med et tilfældigt udvalgt nummer. Vi laver en række forskellige eksperimenter, og alle deltager derfor ikke i det samme eksperiment. For at se detaljerne i netop dit eksperiment, herunder opgaven, tidsforbrug mv., bedes du snarest muligt logge ind på vores hjemmeside:

www.econ.ku.dk/ilee med dit login nummer: **28.826-6**

Hvis du har problemer med at logge ind eller har yderligere spørgsmål, er du velkommen til at kontakte Økonomisk Institut på e-mail **ilee@econ.ku.dk** eller telefon 35 32 44 09.

Med venlig hilsen og på forhånd tak for din hjælp.

Isak Isaksen
Kontorchef, Danmarks Statistik

Jean-Robert Tyran
Professor, Økonomisk Institut

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7.1 TRANSLATION

Dear [First name]

Statistics Denmark and the Internet Laboratory for Experimental Economy (iLEE) at the Institute of Economics, Copenhagen University, hereby invite you to participate in an experiment on economic decision making.

Experiments are a vital tool in economic research, since they help gain a better understanding of how people make economic decisions. This can ultimately help improve economic policy making. An economic experiment can assume many forms – e.g. the participants could be asked to buy and sell hypothetical goods or make investment decisions.

In order to obtain a representative picture, Statistics Denmark has selected a large number of people from all of Denmark who have been given the opportunity to participate in the experiment. You are among the randomly chosen. Your participation is of course voluntary but we sincerely hope that you participate. No special knowledge of economics or computers is required to participate in the experiment and your decisions during the experiment will be kept strictly confidential and anonymous.

By participating in the experiment you will have the opportunity to earn money. We cannot guarantee that you will earn a specific amount since your earnings will depend on your decisions and the decisions of other participants. The specific rules are described on the web site.

To ensure complete anonymity, all contestants log on with a randomly selected number. We conduct a range of different experiments and therefore not everyone participates in the same experiment. To see the details of your experiment, including the task, duration and so forth, you are requested to log on to our web site at your earliest convenience:

www.econ.ku.dk/ilee with your log in number: [ID number]

If you experience problems logging in or have any further questions, you are welcome to contact us either via email at **ilee@econ.ku.dk** or by phone on 35 32 44 09.

Thanks in advance.

Kind regards,

Isak Isaksen	Jean-Robert Tyran
Kontorchef, Statistics Denmark	Professor, Institute of Economics

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