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Can Social Norms Overcome a Public Good Dilemma?

Experimental Evidence for Stated Consent to Organ Donation

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Overview

- Broad evidence that normative influence and descriptive norms (Bicchieri 2006, Cialdini 1998) increase prosocial behavior:
  - energy-saving (Schultz et al. 2007)
  - abstaining from littering (Cialdini, Reno and Kallgren 1990)
  - abstaining from bribing officials (Corbacho et al. 2016)

- Highly relevant in social dilemma situations where private and collective interests clash, resulting in suboptimal individual and collective outcomes (Dawes 1980)

- I apply the "descriptive norms messaging" approach to a social dilemma of high substantial relevance: the procurement of donor organs and its underlying decision problem, that is, individuals' (not) consenting to post-mortem organ donation.

- Research question: Does exposing individuals to descriptive norm messages regarding the consent rate in the population result in an change in stated consent?

The problem: Donor organ shortage

- Organ shortage a pervasive problem in Western countries

- In the US, every day 22 persons on the waiting list die (U.S. Dept. Of Health & Human Services 2016)

https://optn.transplant.hrsa.gov/
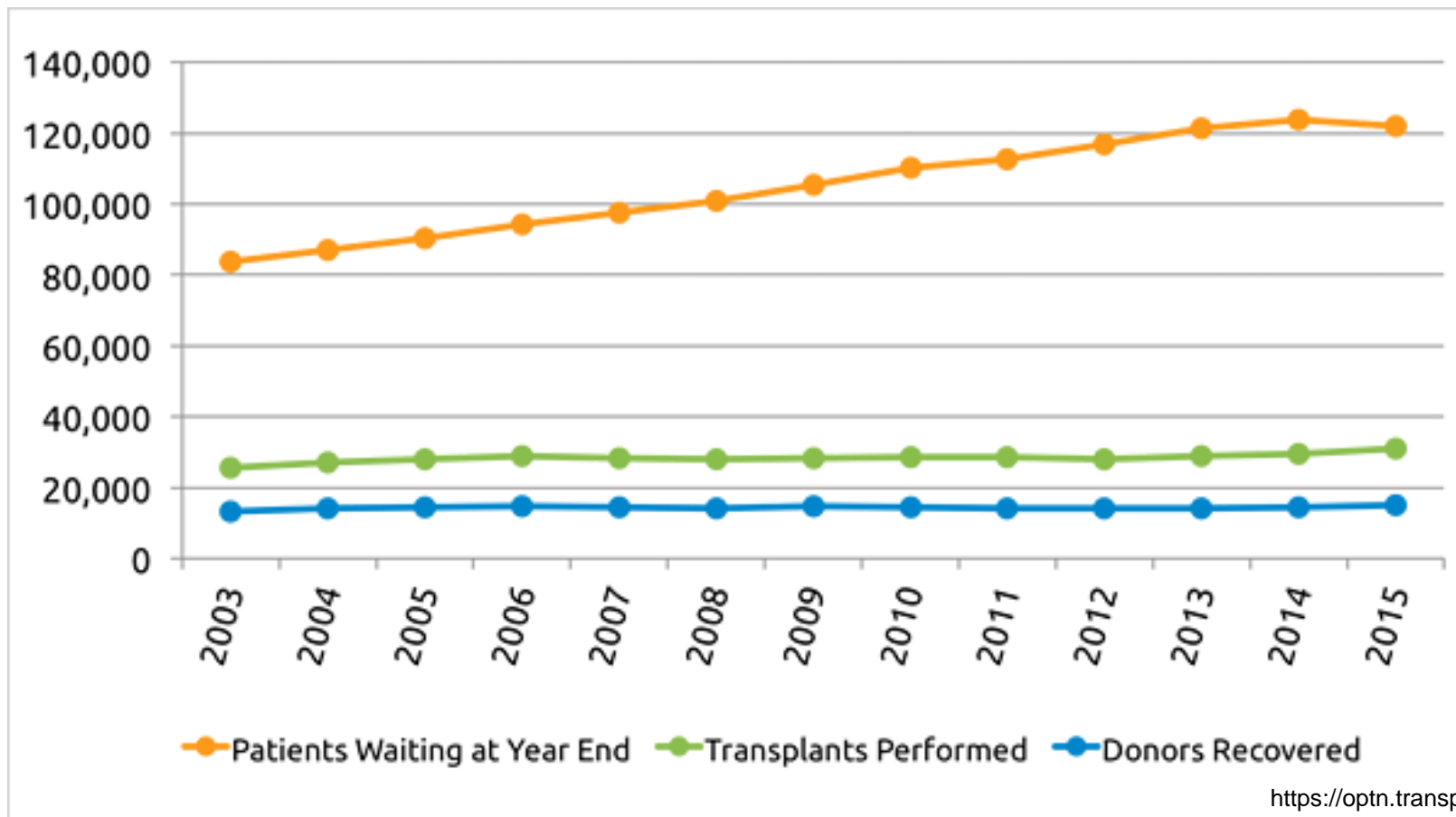
The problem: Donor organ shortage

- Main organ source are «brain dead» patients ("post-mortem donation")

- Therefore, consent rate to post-mortem donation is crucial for organ supply.

- Stated consent is far away from 100% (77% according to one study in Germany, but much less have a donor card or another explicit corresponding statement).

- Also, only about two thirds of potentially qualified brain dead patients actually become organ donors. The rest did not, mainly due to lacking consent. (DSO Germany, 2015)

- Hence, to increase consent rates to post-mortem donation is widely acknowledged as the primary mean to increase the organ supply.

Organ procurement as a social dilemma

- Decision to consent to post-mortem donation or not can be regarded as a public good game situation:

  – contributing, e.g. giving consent,

  – vs. not contributing, e.g. refusing consent.

- Donor organs are a (rival) public good and there is a free-riding incentive:

  – Consenting to donation produces a common benefit.

  – But, it causes private costs:
    - incurring (irrational) fears
    - being forced to think about one's own premature death
    - putting burden on relatives
    - losing the body integrity after death
    - obtaining and filling out a donor card (in opt-in regimes).

- As a result, contributions are below the efficient level, the good is under-supplied ➔ lack of organs, waiting lists, people suffering and dying

How to motivate (more) individuals to become donor?

- Introducing a presumed consent regime (see Johnson and Goldstein 2003)

- Compensation for donors/donors' families

- Prioritization of donors on waiting lists (Israel, "donor clubs" in the US)

- Mandated choice (some US states)

- Most frequent measure: public awareness campaigns

  ➔ could social norm approaches improve such campaigns, increase consent rates, and expand the pool of potential donors?

Social norms and prosocial behavior

- Social norms are informal rules enforced by, often subtle, sanctions or by internalized feelings of guilt: what one ought (not) to do (Hechter and Opp 2001).

- At the individual level, norms exert their influence by way of subjective expectations/beliefs.

- Widespread distinction by Cialdini, Reno and Kallgren (1990) between

  - injunctive norms: beliefs about what people («others») approve or disapprove

  - descriptive norms: beliefs about what people («others») actually do

Sign not to build stone heaps (cairns) in the foreground and completed cairn in the background, Iceland 2015

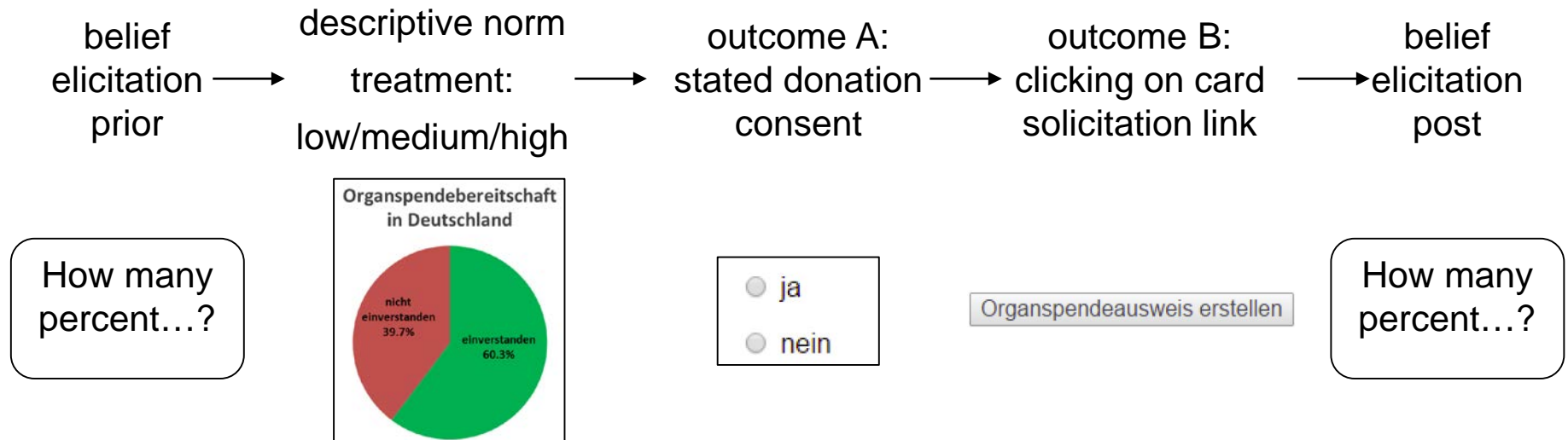# Social norms and prosocial behavior

- Individuals follow social norms out of different motives
  - fear of sanctions
  - conformity/imitation (Sherif 1936)
  - reciprocity or conditional norm following (i.e. Bicchieri and Xiao 2009)

- While some norms are always firm in place, others must be activated first to exert their influence in a particular situation (Bichhieri 2006, Lindenberg and Steg 2007).

- Two main strategies to manipulate behavior using social norms:
  - «focusing» people on a particular norm
  - altering «descriptive norms» by providing individuals with information on the prevalence of a particular behavior

The effect of descriptive norms

- Empirical findings show that descriptive norms can foster prosocial behavior
  - in laboratory experiments (giving in DG, Bicchieri and Xiao 2009)
  - in field experiments (Corbacho et al. 2016, Cialdini and Goldstein 2004)

- Descriptive norms promote prosocial behavior only, if they convey the message that a sufficiently large part of others conform.

- Otherwise, less norm conformity might result (e.g. Diekmann et al. 2015, Keizer et al. 2008)

- Depending on the strength of the descriptive norm message (e.g. different presented prevalence rates), gradually different effects on norm following have been observed (Kormos, Gifford and Brown 2014).

- Heterogeneous treatment effects for
  - under- vs. over-estimators (Diekmann et al. 2013, Rauhut 2013)
  - participants with strong vs. weak (or no) pre-existing preferences on the behavior under question (Stutzer, Goette and Zehnder 2011)
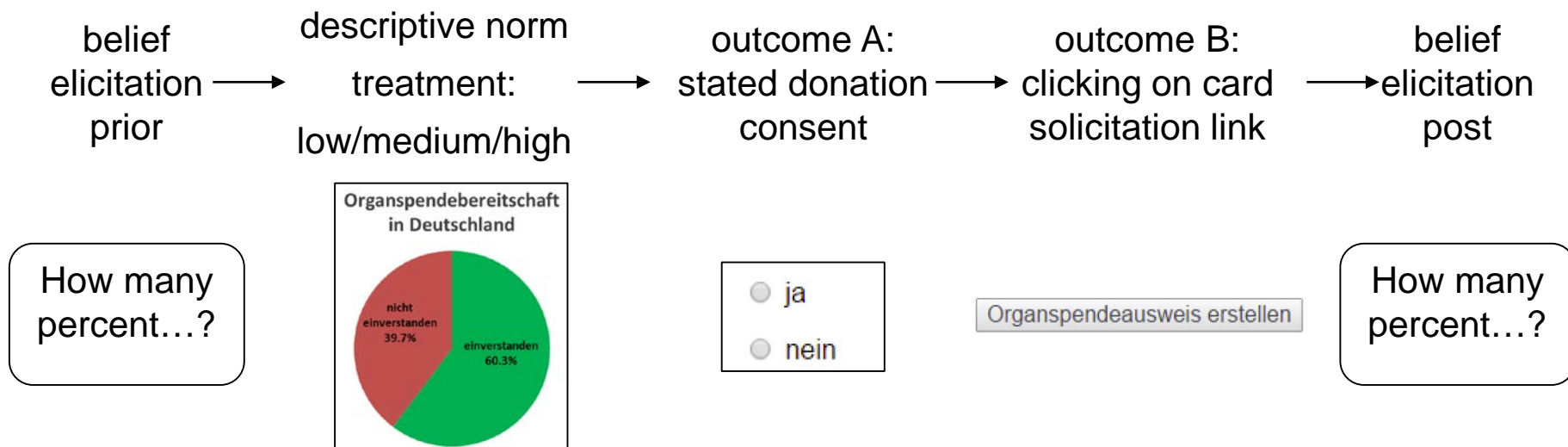
The study: A descriptive norm manipulation experiment

- Subjects: 551 members of a non-representative German online panel

- Outcome measures:
  - stated consent to post-mortem organ donation
  - behavioral measure: clicking on a button opening a donor card solicitation page

- Descriptive norm treatment: Exposure to survey results on the general willingness to donate organs after death

| belief elicitation prior | → | descriptive norm treatment: low/medium/high | → | outcome A: stated donation consent | → | outcome B: clicking on card solicitation link | → | belief elicitation post |

How many percent…?

Organspendebereitschaft in Deutschland

nicht einverstanden 39.7%

einverstanden 60.3%

○ ja

○ nein

Organspendeausweis erstellen

How many percent…?

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nicht einverstanden 39.7%   einverstanden 60.3%

○ ja
○ nein

Organspendeausweis erstellen

How many percent…?

Outcome measures

- Stated consent to post-mortem organ donation
"In general, do you consent to having your organs or tissues donated after your death?" – "yes"/"no"

> Sind Sie grundsätzlich damit einverstanden, dass man Ihnen nach dem Tod Organe und Gewebe entnimmt?
>
> ○ ja
>
> ○ nein

- proxy behavioral measure: clicking on donor card solicitation button
"By clicking on the following button you are forwarded to the webpage of the Federal Health Ministry, where you can directly create a donor card." – "Create a donor card"

> **Sie haben fast alle Fragen beantwortet - herzlichen Dank!**
>
> Wenn Sie auf den folgenden Button klicken, gelangen Sie auf die Homepage der Bundeszentrale für gesundheitliche Aufklärung (BZgA), wo Sie direkt einen Organspendeausweis erstellen können.
>
> [Organspendeausweis erstellen]

Belief elicitation

- Identical format prior and posterior to the treatment (and after outcome measurements):
  "What do you think: What percentage of the people in Germany in general consent to having their organs and tissues donated after their death?"
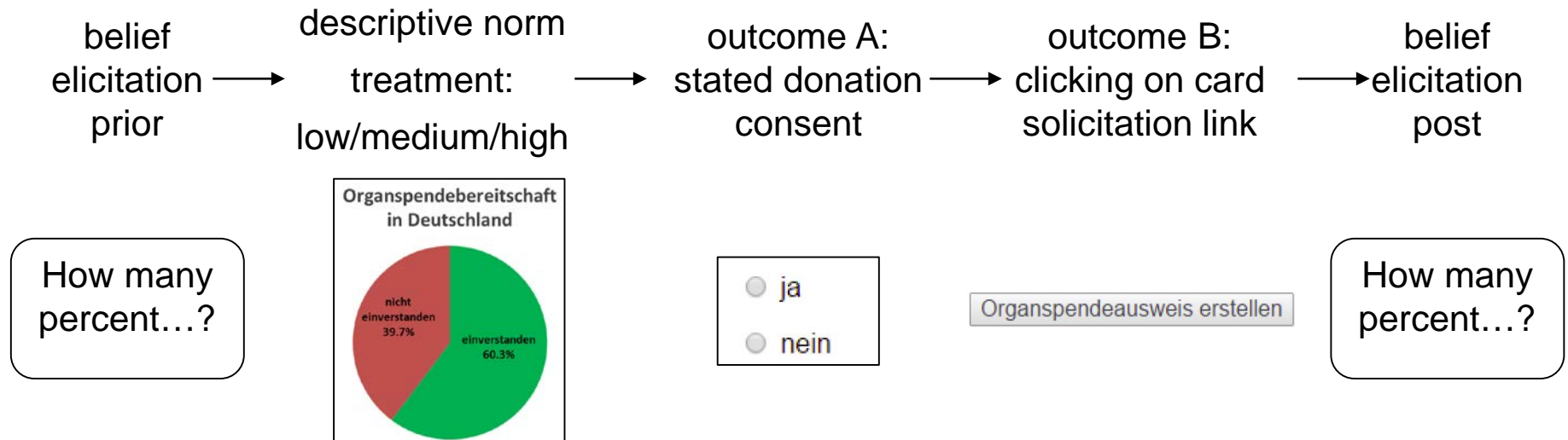
Was denken Sie: Wieviel Prozent der Leute in Deutschland sind grundsätzlich damit einverstanden, dass man ihnen nach dem Tod Organe und Gewebe entnimmt?

[____] %

>>

The study: A descriptive norm manipulation experiment

- Subjects: 551 members of a non-representative German online panel

- Outcome measures:
  - stated consent to post-mortem organ donation
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- **Descriptive norm treatment: Exposure to survey results on the general willingness to donate organs after death**

belief elicitation prior	descriptive norm treatment: low/medium/high	outcome A: stated donation consent	outcome B: clicking on card solicitation link	belief elicitation post

How many percent…?

Organspendebereitschaft in Deutschland

nicht einverstanden 39.7%

einverstanden 60.3%

○ ja

○ nein

Organspendeausweis erstellen

How many percent…?

Social norm treatment: high prevalence condition

«80.4% of the German population consent to donating their organs after death according to a representative survey.»

Eine repräsentative Befragung in ganz Deutschland hat ergeben, dass **80,4% der Bevölkerung damit einverstanden sind, dass man ihnen nach dem Tod Organe und Gewebe entnimmt**:

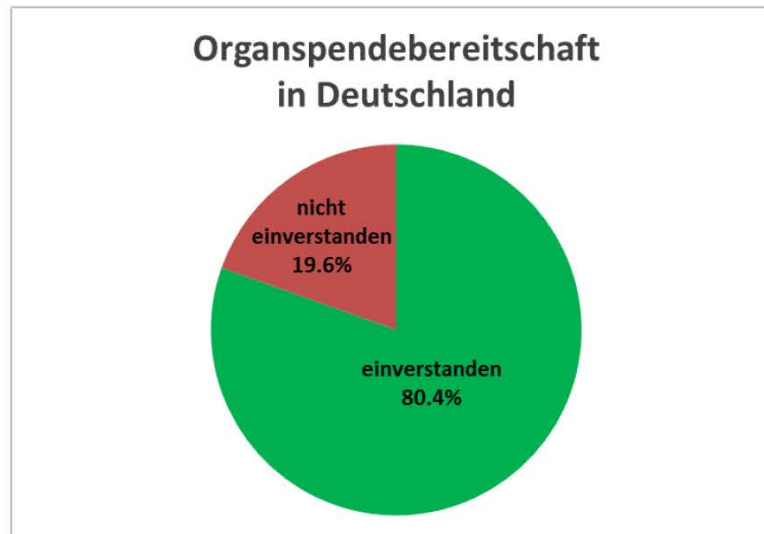## Organspendebereitschaft in Deutschland

nicht einverstanden 19.6%

einverstanden 80.4%

Descriptive norm treatments: low/medium/high prevalence

(a) low
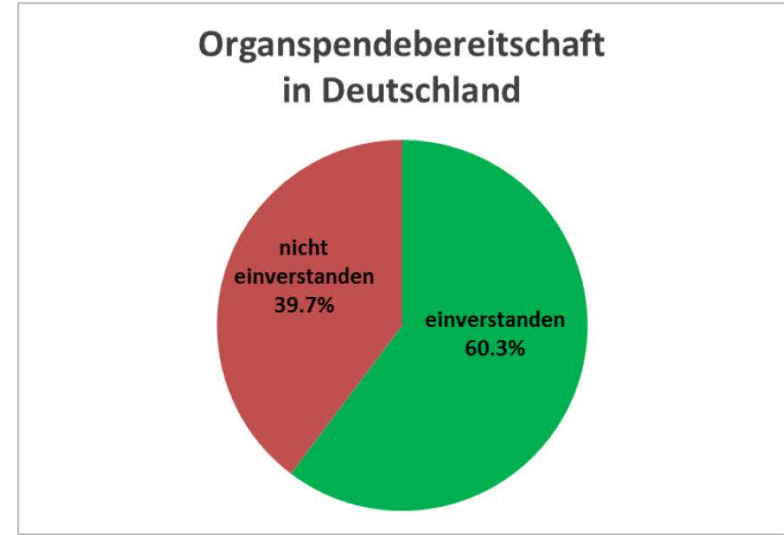
(b) medium

(c) high

Successful belief manipulation
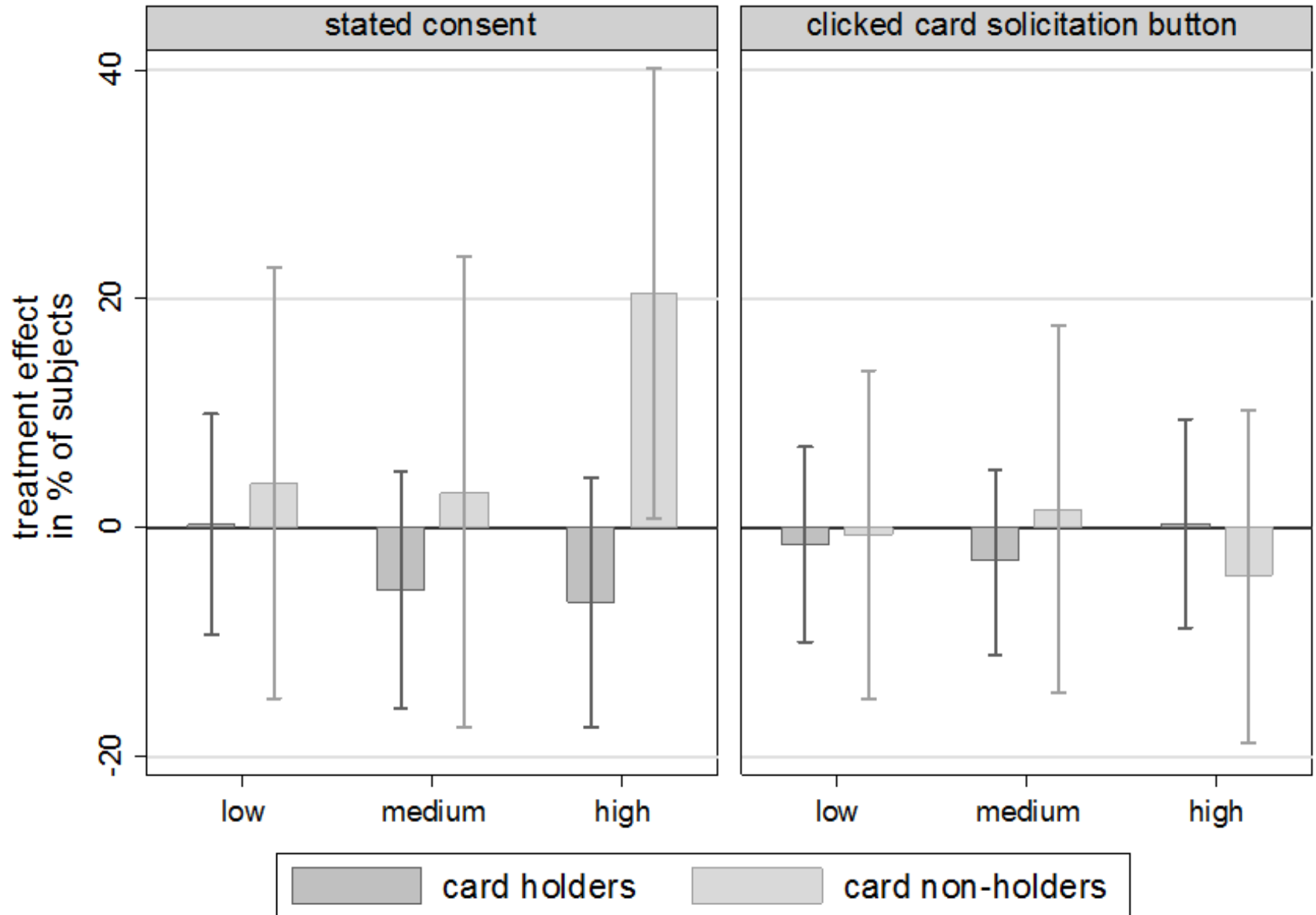Pre- and post-treatment beliefs about general consent rate by treatments
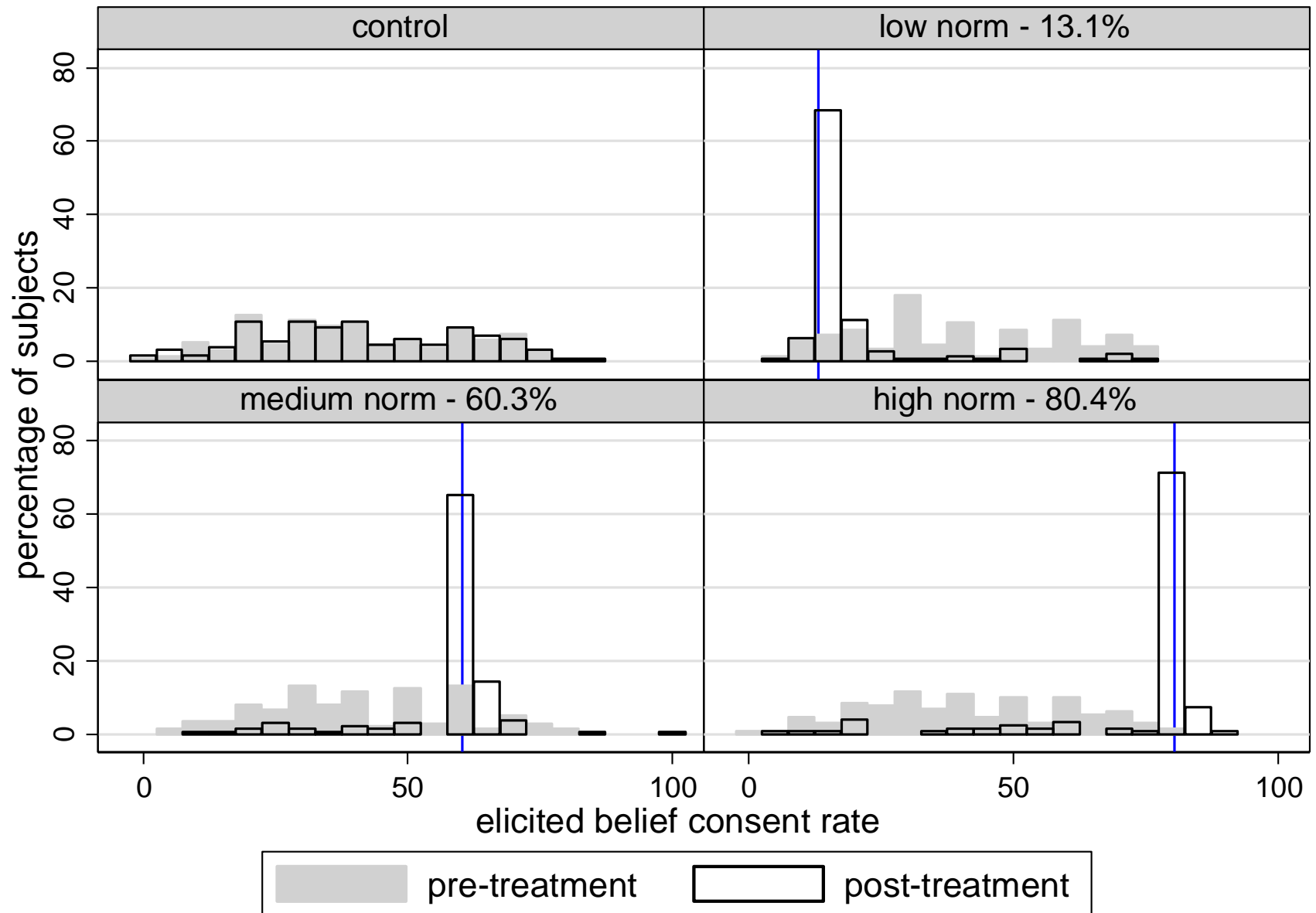
No effect of descriptive norm treatments on the aggregate
Control-group baseline is 73%
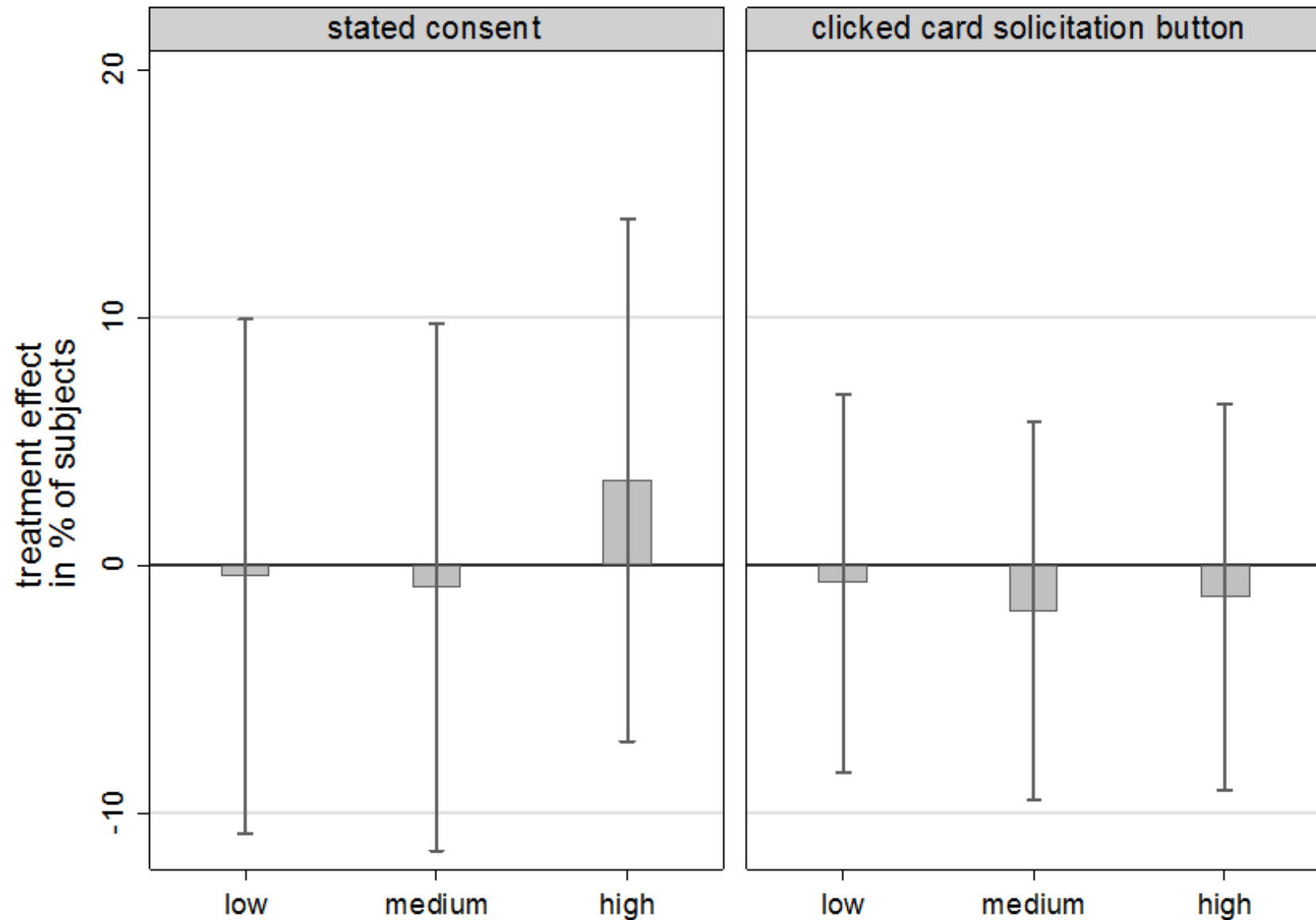
Effect of high treatment only for card non-holders
Control-group baseline card holders 88%, and 47% for the non-holders

Model estimates (OLS, robust SE)

	consenting 1	consenting 2	clicking card button 1	clicking card button 2
low	-0.47	3.85	-0.73	-0.63
	(5.30)	(9.60)	(3.89)	(7.32)
medium	-0.87	3.06	-1.84	1.58
	(5.43)	(10.49)	(3.90)	(8.17)
high	3.43	20.45*	-1.28	-4.26
	(5.38)	(10.04)	(3.99)	(7.41)
card		41.30***		-7.50
		(8.02)		(6.41)
cardXlow		-3.58		-0.85
		(10.79)		(8.52)
cardXmedium		-8.50		-4.59
		(11.74)		(9.16)
cardXhigh		-26.98*		4.61
		(11.47)		(8.74)
_cons	73.13***	46.94***	12.21***	17.02**
	(3.84)	(7.20)	(2.87)	(5.54)
N	549	549	542	542
R^2	0.001	0.136	0.000	0.017

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Conclusions

- A strong descriptive norm message ("80% of the population consents") increased stated consent for subjects without a donor card, whereas card holders remained unaffected.

- Hence, the consent decision contains a interactive element: it matters, what others do.

- However, medium and weak descriptive norm messages showed no effect.

- Considering heterogeneity in social norm treatment effects is important.
  - That card holders, i.e. subjects hat made up their mind regarding organ donation, are unaffected by normative treatments is in line with previous findings (Stutzer et al. 2011)

Conclusions

- To better explain and predict effect differences related to the descriptive norm strength we should think more carefully about the exact mechanism why and the conditions when descriptive norms exert an effect.

  - Only, if subjects do not have strong preferences? Only if the descriptive norm is sufficiently strong? How much is sufficiently?

- Restrictions of this study:

  - Lack of statistical power for some analysis due to the astonishingly high rate of donor card holders of 63%!

  - Results obtained for stated consent not corroborated with the second, unobtrusive behavioral outcome (clicking on card solicitation button). Insufficient power does not allow for any conclusion in this respect.

- Still, the results show that the organ donation consent decision is malleable by subtle normative influence – at least for subgroups of the population.

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Rauhut, Heiko. 2013. "Beliefs about Lying and Spreading of Dishonesty: Undetected Lies and Their Constructive and Destructive Social Dynamics in Dice Experiments." PLoS ONE 8(11):e77878. doi: 10.1371/journal.pone.0077878.

Appendix

Table 1: Observations by experimental condition

	Control	Low norm	Medium norm	High norm	Total
Assigned to treatment	134	150	137	130	551
Elicitation pre-treatment belief	134	150	136	130	550
stated donation consent (outcome measure one)	134	150	137	128	549
clicking on card solicitation button (outcome measure two)	131	148	135	128	542
Elicitation post-treatment belief	129	143	132	124	528

Effects of medium norm treatment by card holders/non-holders and under-/over-estimators
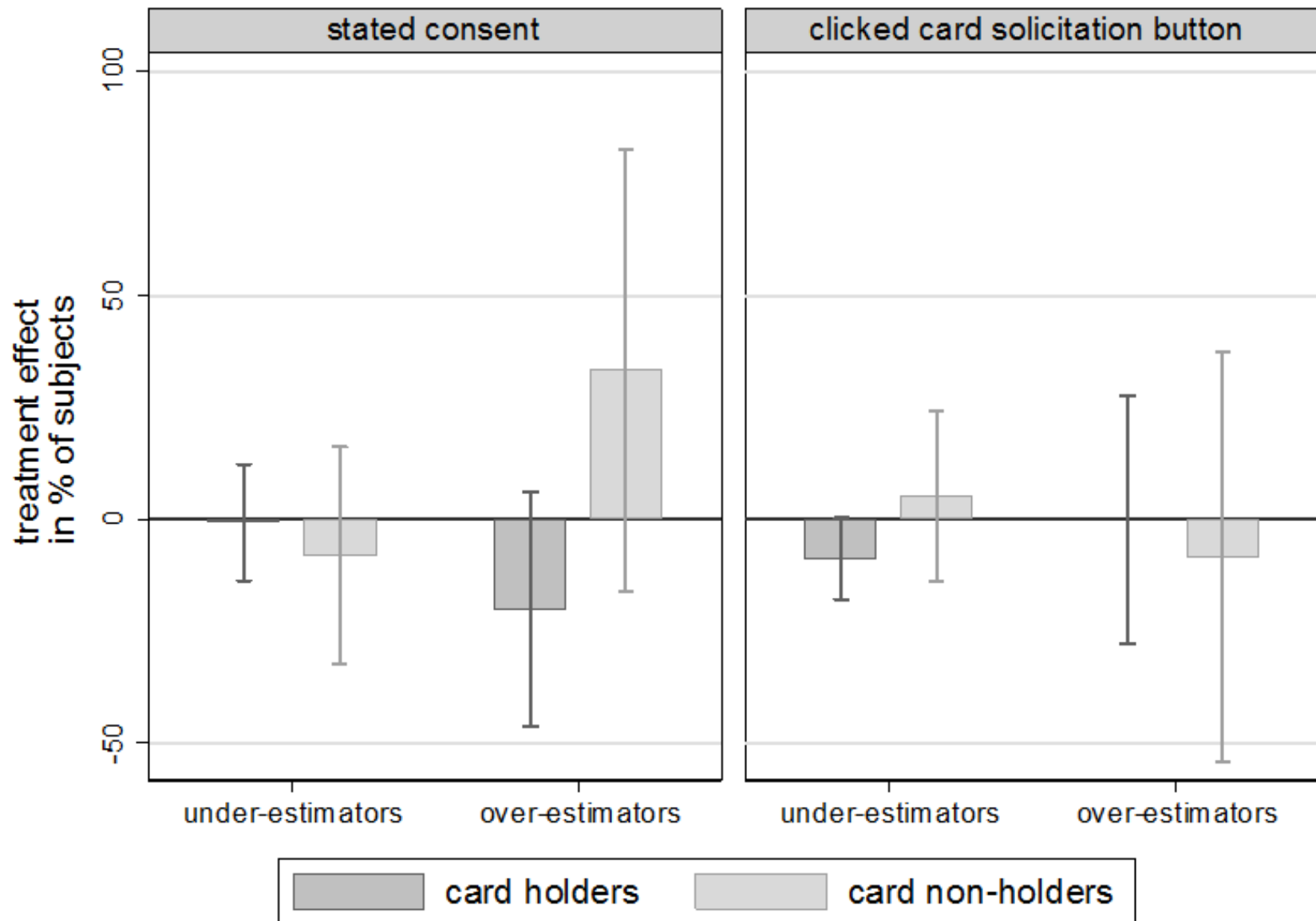
Social norm treatment: low/medium/high condition

Eine repräsentative Befragung in ganz Deutschland hat ergeben, dass **13,1% der Bevölkerung damit einverstanden sind, dass man ihnen nach dem Tod Organe und Gewebe entnimmt**:


(a) low

Social norm treatment: low/medium/high condition

Eine repräsentative Befragung in ganz Deutschland hat ergeben, dass **13,1% der Bevölkerung damit einverstanden sind, dass man ihnen nach dem Tod Organe und Gewebe entnimmt**:

(a) low

Social norm treatment: low/medium/high condition

Eine repräsentative Befragung in ganz Deutschland hat ergeben, dass **60,3% der Bevölkerung damit einverstanden sind, dass man ihnen nach dem Tod Organe und Gewebe entnimmt**:

Organspendebereitschaft in Deutschland

nicht einverstanden 39.7%

einverstanden 60.3%
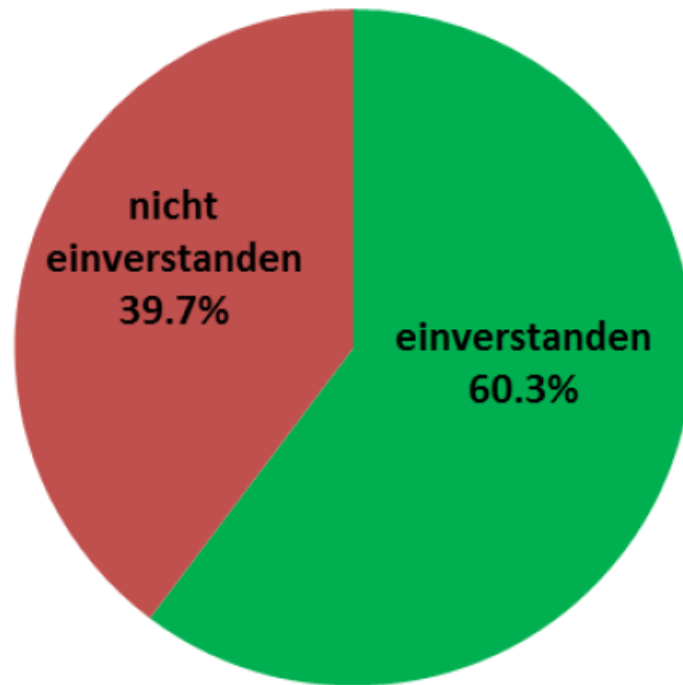
(b) medium

Do defaults save lives? (Johnson & Goldstein 2003)
The effect of opt-out (presumed consent) on post-mortem donation rates

- Opt-out rule (vs. opt-in) is markedly correlated with
  - (registered) consent rates
  - (controlled) donation rates in Europe
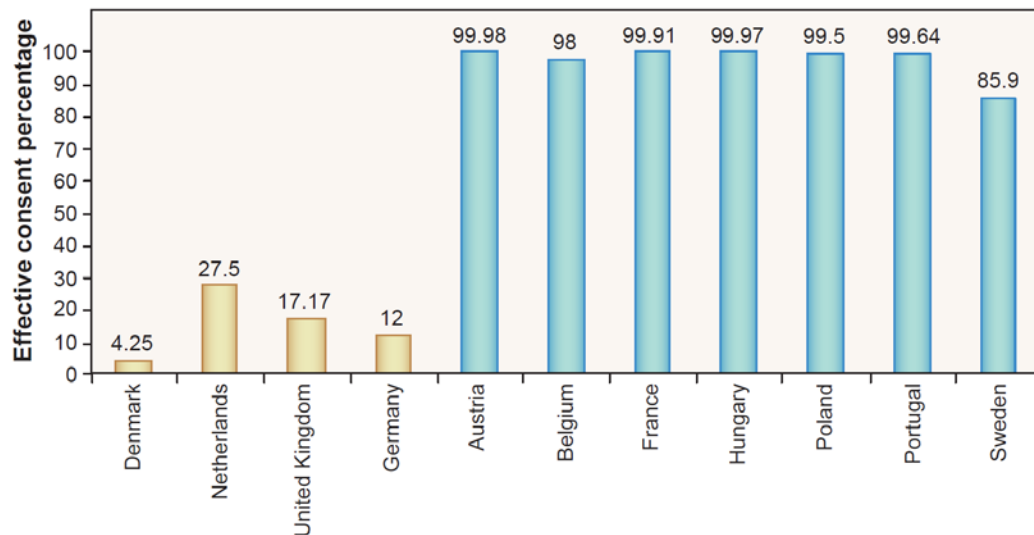
Effective consent rates, by country. Explicit consent (opt-in, gold) and presumed consent (opt-out, blue).
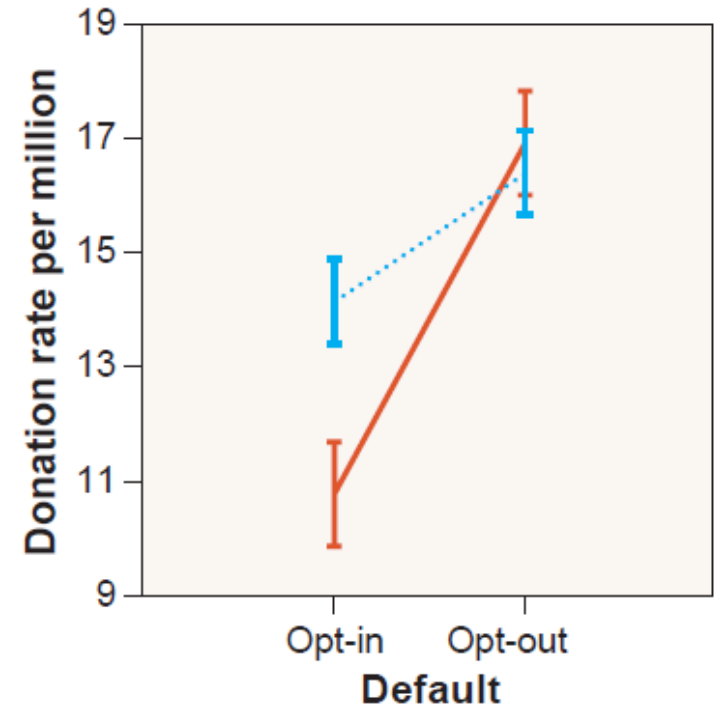
Estimated donation rate, opt-in versus opt-out, as a function of default, 1991–2001. Means ± SEM; this paper, blue; Gimbel *et al.* (5), red.

Active decisions and blood donation (Stutzer et al. 2011)

- Stutzer et al. (2011) used an «active decision» treatment (AD), where subjects were forced to actively make a choice in favour or against blood donation.

- This increased donation rates from 5% to 12% relative to the control group - but only for those with weak preferences regarding blood donation.

- Argument: Valuing a public good and forming a preference is costly – many refrain from this and, therefore, do not contribute. Forcing a valuation overcomes this barrier to contribution.
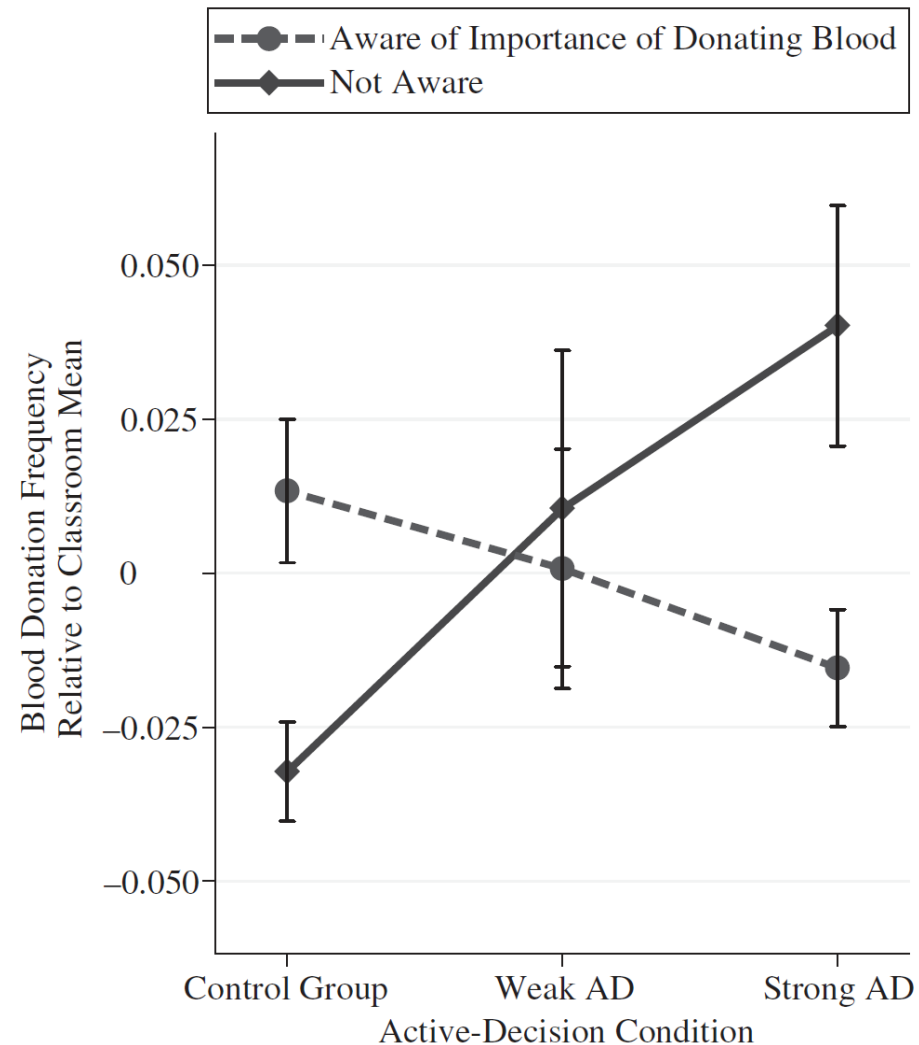
Fig. 1.   *Normalised Donation Rates in the Different Treatments*

Do the right thing: but only if others do so (Bicchieri & Xiao 2009)

«Fair choices» lead to fair choices in the dictator game

- Bicchieri & Xiao 2009 exposed participants prior to a dictator game to selective results from previous sessions: the majority (60%) making fair vs. selfish choices

- Fair choices increased from 30% to 50% after exposure to results of a previous session where the majority made a fair choice (FC) vs. the selfish choice (SC).
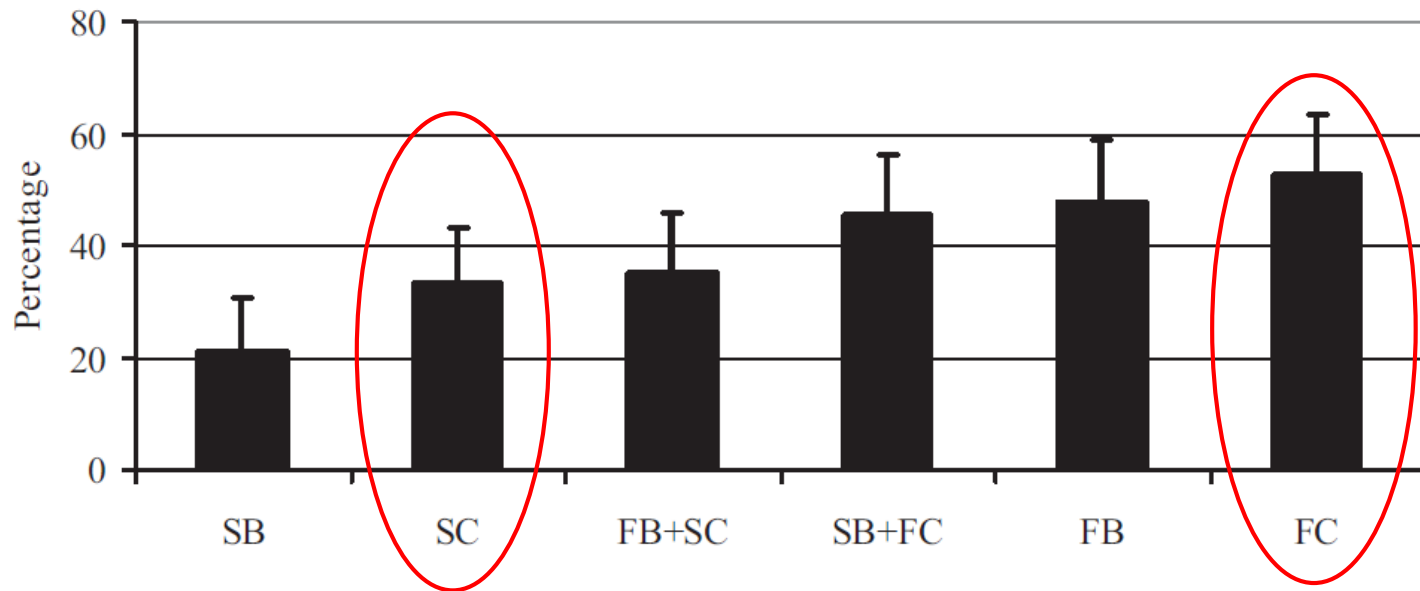

Figure 2. Percentage of dictators who made fair offers in each treatment
SB: Selfish belief, SC: Selfish choice, FB: Fair belief, FC: Fair choice

Table 1. Messages by treatment

Treatment	Message
FB: Fair belief	60% of the dividers who participated in a session of this experiment last year said that dividers should share the amount approximately equally (i.e., choose option C or D (their counterpart gets 40% or more)).
SB: Selfish belief	60% of the dividers who participated in a session of this experiment last year said that dividers should approximately maximize their own earnings (i.e., choose option A or B (their counterpart gets 20% or less)).
FC: Fair choice	60% of the dividers who participated in a session of this experiment last year shared the amount approximately equally (i.e., chose option C or D (their counterpart got 40% or more)).
SC: Selfish choice	60% of the dividers who participated in a session of this experiment last year approximately maximized their own earnings (i.e., chose option A or B (their counterpart got 20% or less)).
FB + SC: Fair belief but selfish choice	60% of the dividers who participated in a session of this experiment last year said that dividers should share the amount approximately equally (i.e., choose option C or D (their counterpart gets 40% or more)). On the other hand, in a different session of this experiment last year, 60% of the dividers approximately maximized their own earnings (i.e., chose option A or B (their counterpart got 20% or less)).
SB+FC: Selfish belief but fair choice	60% of the dividers who participated in a session of this experiment last year said that dividers should approximately maximize their own earnings (i.e., choose option A or B (their counterpart gets 20% or less)). On the other hand, in a different session of this experiment last year, 60% of the dividers shared the amount approximately equally (i.e., chose option C or D (their counterpart got 40% or more)).

Note: The order of the two messages in FB + SC treatment and SB + FC treatment is randomized. It turns out there is not order effect.

The power of social norms (SN)

- How can people be influenced using SN («SN-Marketing», e.g. Schultz 2007)?

  - focusing to a SN (Cialdini, Reno, Kallgren 1990)
  - manipulating individuals beliefs with descriptive norms

- Social norm messaging campaigns:

Lifting the veil of ignorance: the contagiousness of norm violations

- Diekmann, Przepiorka and Rauhut 2015 expose participants of a die-cheating game (Fischbacher & Föllmi-Heusi 2013) to results from previous studies, where the high level of cheating becomes obvious.
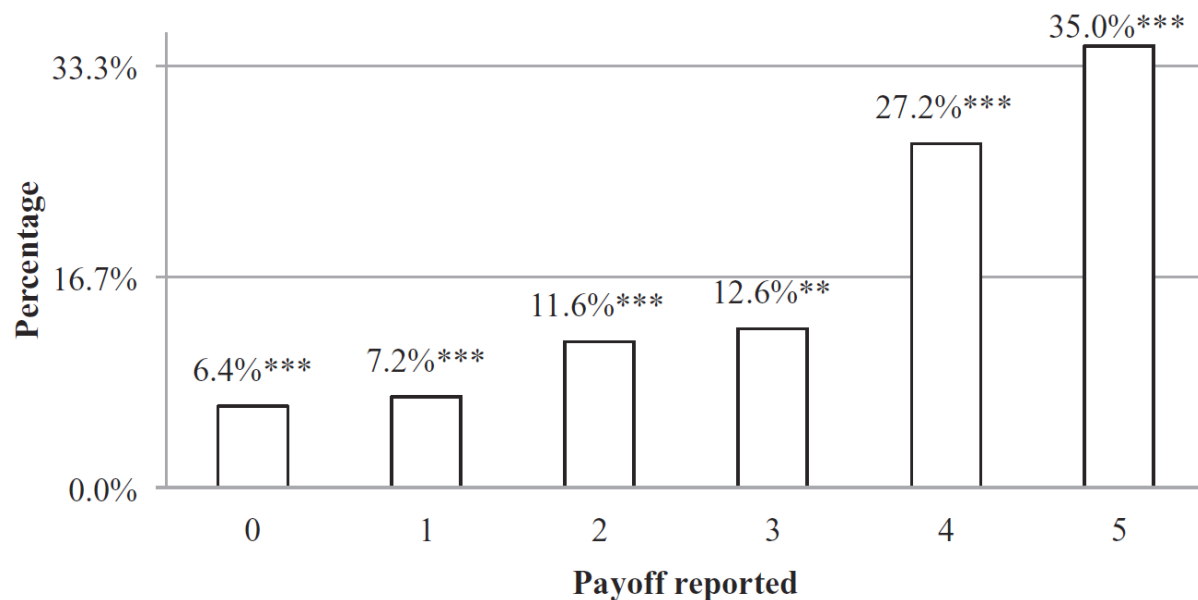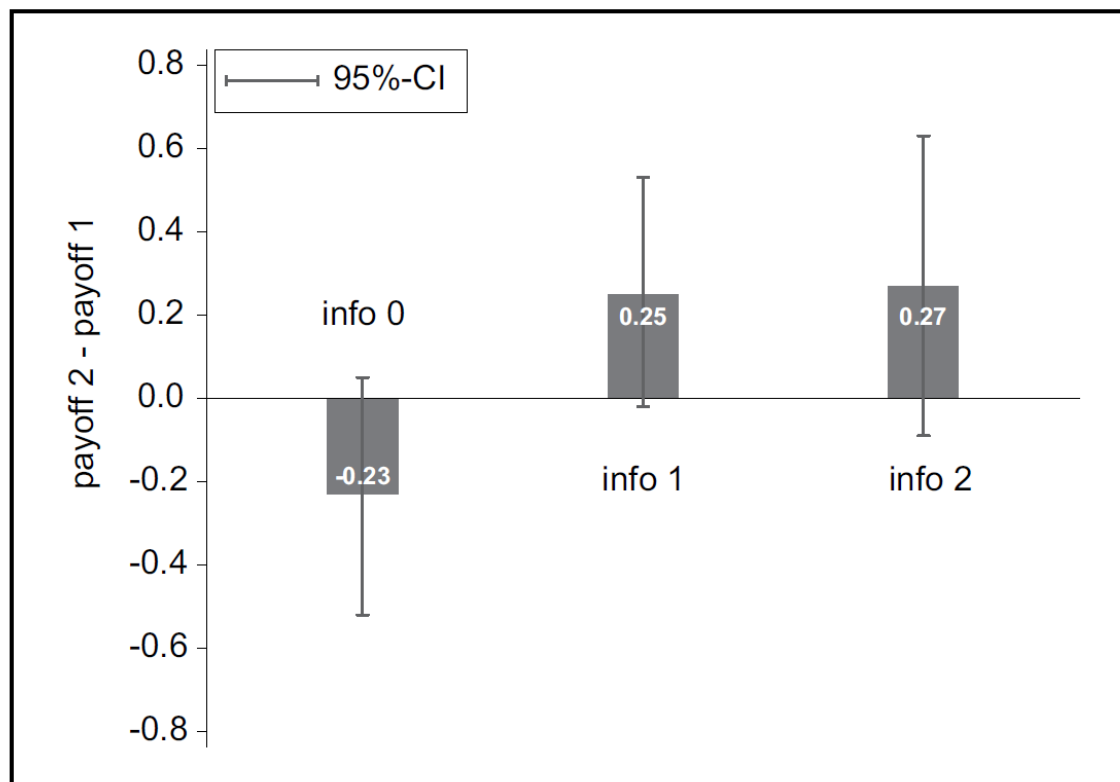

Source: Lewis et al. 2012

Fischbacher & Föllmi-Heusi 2013

Lifting the veil of ignorance: the contagiousness of norm violations

- Their results suggest an increase in cheating between a first and a second round after exposure to results where norm-breaking behavior becomes evident.

info 0: control group

info 1: exposure to results from Fischbacher & Föllmi-Heusi 2003

info 2: exposure to results from round 1

Figure 3. Difference between first and second reported payoffs by experimental condition.

The constructive and destructive dynamic of beliefs

- Rauhut 2015, in a variation, exposed participants of a die-cheating game (Fischbacher & Föllmi-Heusi 2013) to results from previous rounds, and performs separate analyses of «over-» and «under-» estimators of the descriptive norm.

- His results show an increase in cheating for under-estimators, but a decrease in over-estimators between the first and the subsequent rounds after exposure to results from round one, where norm-breaking behavior becomes evident.

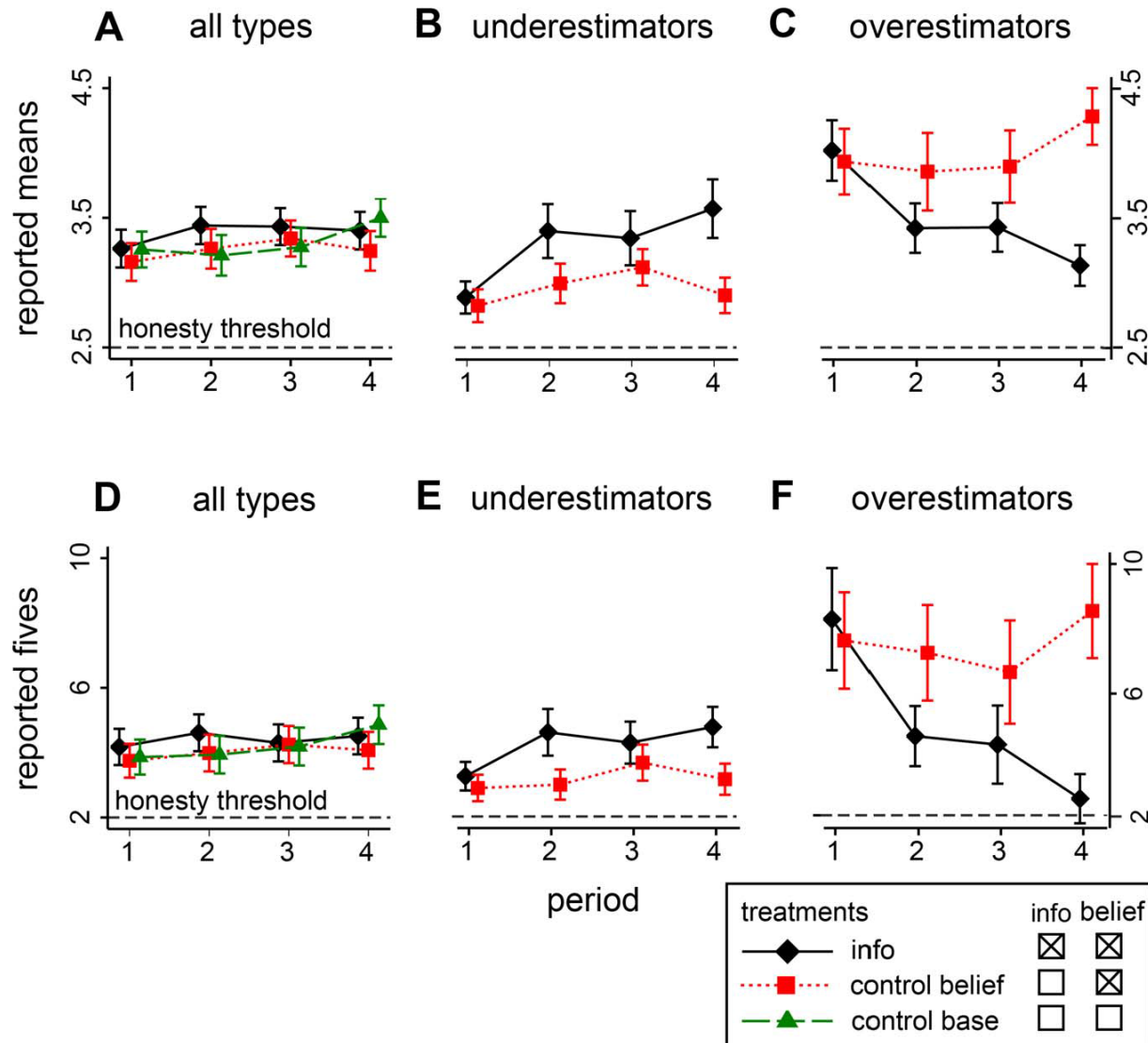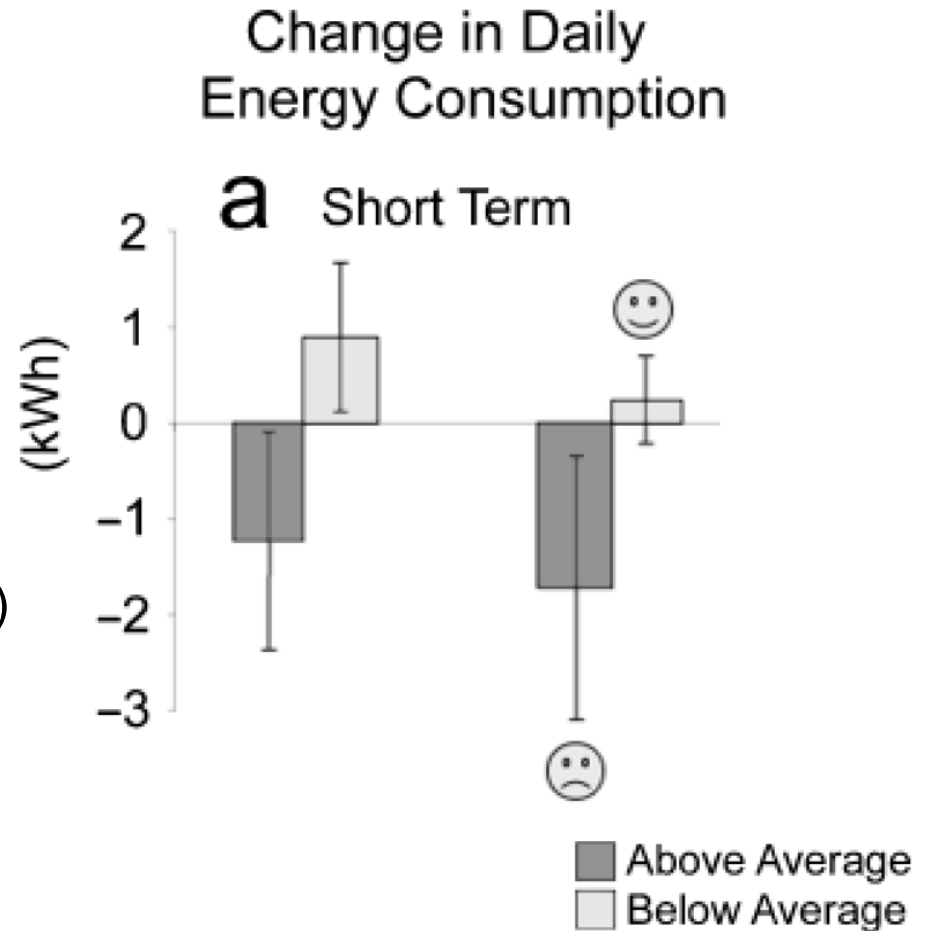# The constructive and destructive dynamic of beliefs

Figure 1. Trend of reported payment claims in means (panels A–C) and fives (panels D–F). Error bars show adjusted 95% confidence intervals such that non-overlapping intervals refer to treatment differences with p≤5% (see Materials and methods for calculations of adjustments). Underestimators hold beliefs below and overestimators above reported claims in their group at respective periods.
doi:10.1371/journal.pone.0077878.g001

Social norms and behavior: "Boomerang effect"?

- Descriptive norm information may in- or decrease a particular behavior – depending on the prior behavior level (Schultz et al. 2007):

  - Above-average energy users decreased consumption

  - Below-average energy users increased their consumption

  - But: emotional feedback (emoticons) made the latter effect disappear

Schultz et al. 2007