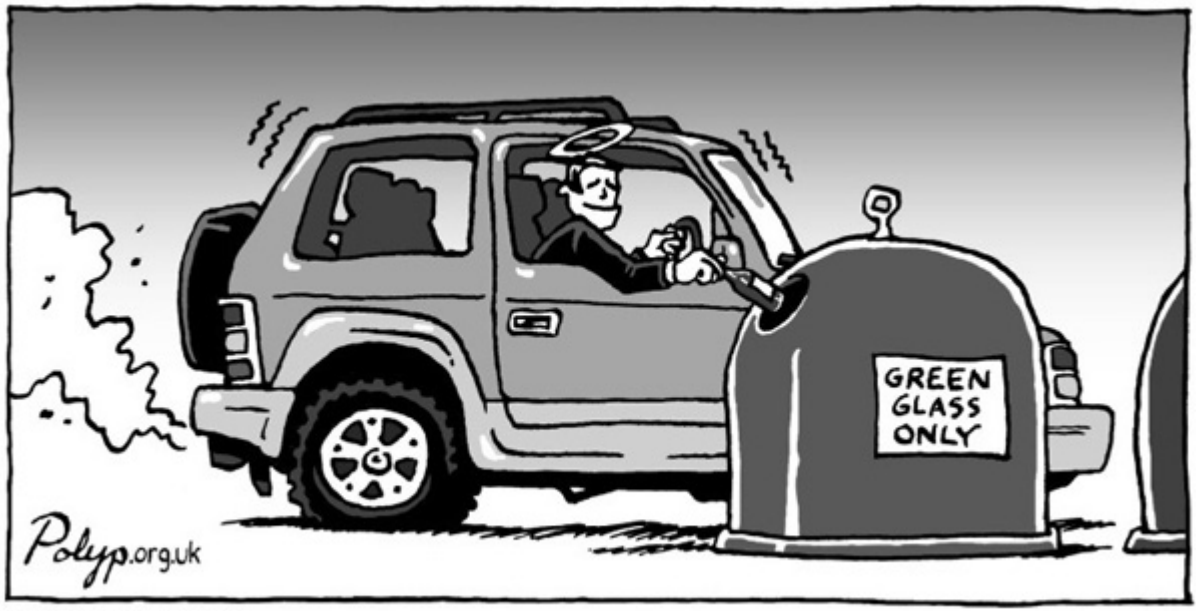
Dodging High-Impact Behavior with Motivated Beliefs?

Frauke Stehr
University of Vienna

December 06, 2023

Motivation



'DOING MY BIT'

Motivation

Other-regarding behavior is widespread:

- 49% of Americans gave to charity in 2018, (Indiana University Lilly Family School of Philanthropy 2021)
- 30% spent time volunteering, (AmeriCorps 2021)
- 89% made an effort to live environmentally friendly in 2019. (Pew Research Center 2019)

However:

- focus is often on behaviors with little impact (Diekmann and Preisendörfer 2003)
- impact beliefs are often biased (Ipsos 2021; Imai et al. 2022; Schulze Tilling 2023)

This paper: How are impact beliefs formed?

How are impact beliefs formed?

This paper: an experiment on motivated cognition

Observation: High impact behaviors are typically more costly (Truelove and Gillis 2018)

Costs of behavior adoption could have **two effects**:

1. Directly affect adoption levels
2. Lead to **motivated impact beliefs**:
   - *Under*-estimation of impact of high cost behaviors
   - *Over*-estimation of impact of low cost behaviors

Ex post rationalization may strengthen such beliefs

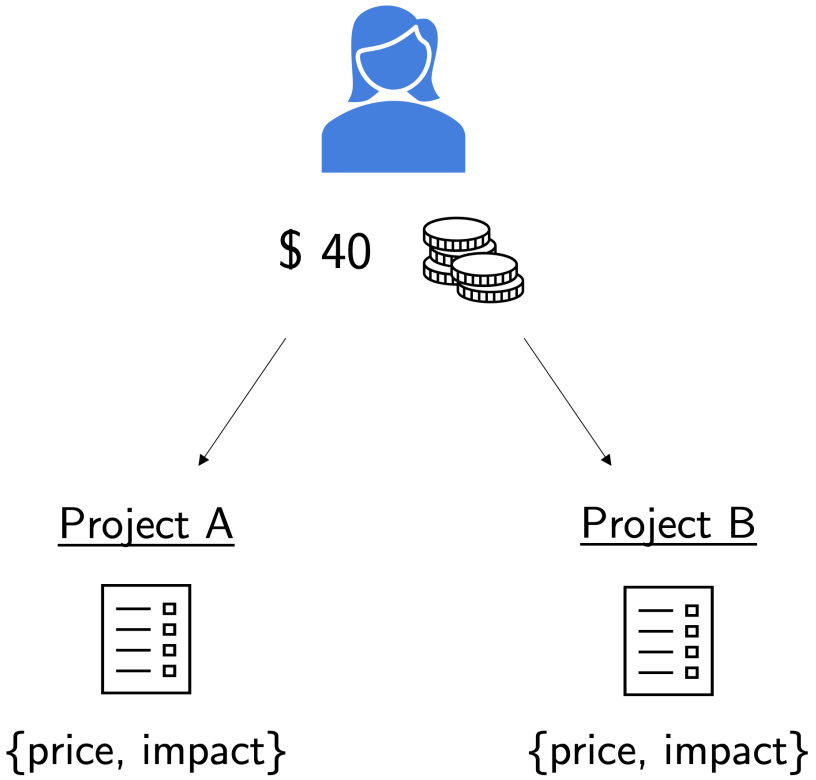
Experimental Design

Experimental Design

The Donation Task

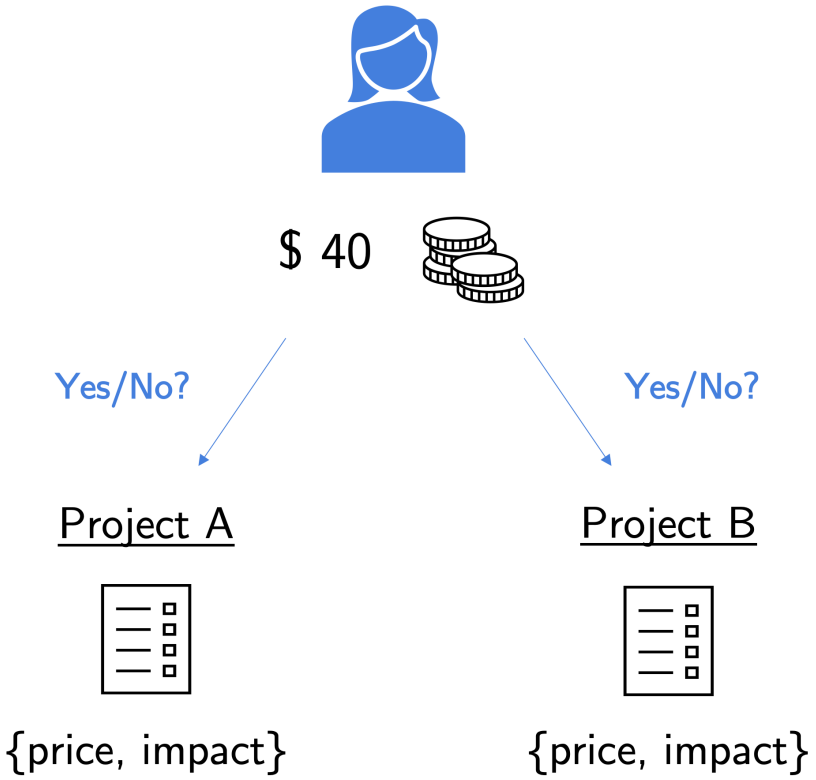
Experimental Design

The Donation Task



Experimental Design

The Donation Task

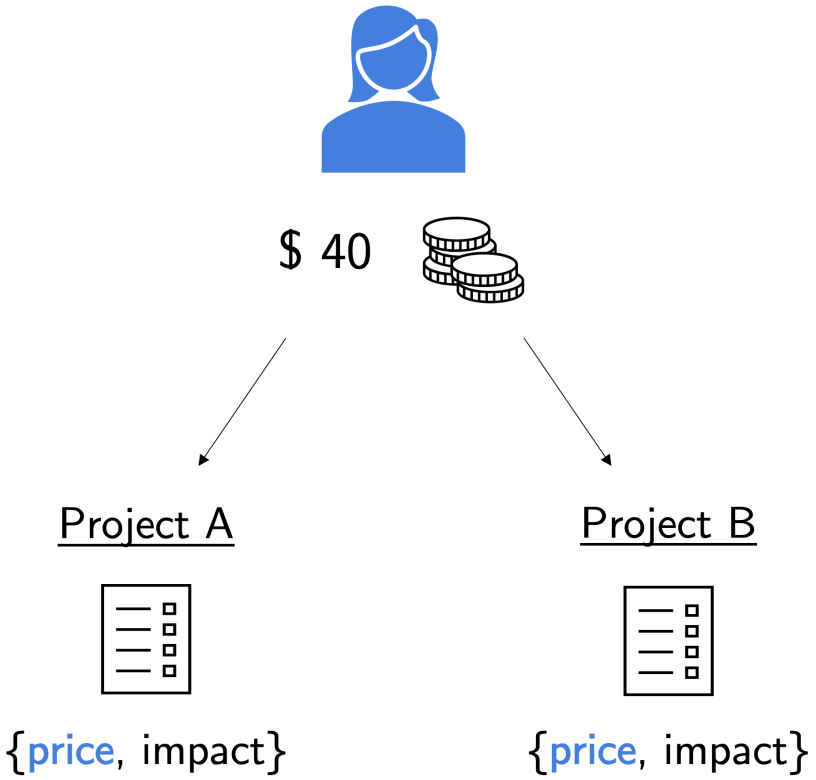


Experimental Design

Incentives

Prices:

- Always known
- Can be \$16 or \$4 (subjects know this)



Experimental Design

Incentives

Prices:

- Always known
- Can be \$16 or \$4 (subjects know this)

Impact:

- Has to be estimated
- Can be 32 or 8 doses (subjects don't know this)

Project A

{price, impact}

Project B

{price, impact}

Experimental Design

Incentives

Prices:

- Always known
- Can be \$16 or \$4 (subjects know this)

Impact:

- Has to be estimated
- Can be 32 or 8 doses (subjects don't know this)

Project A

{price, impact}

Project B

{price, impact}

Price and impact are varied independently

Experimental Design

Incentives

$ 40

Project A

{$4, 8 doses}

Project B

{$16, 32 doses}

Main combination of interest

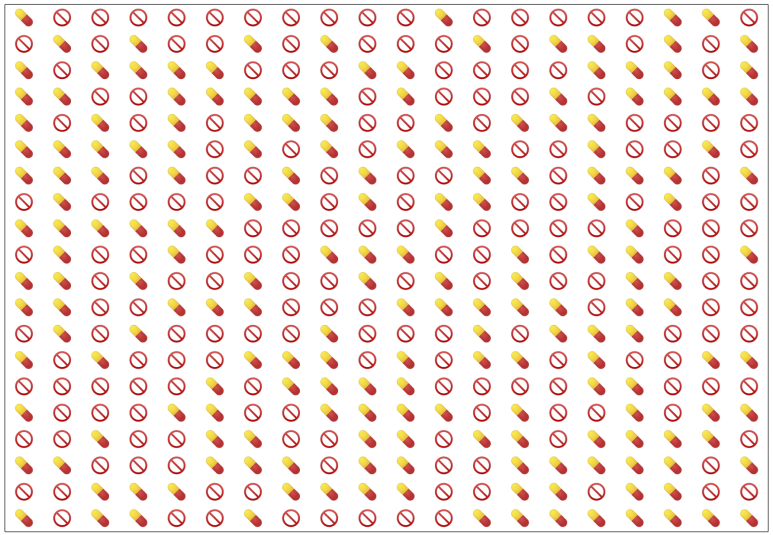
Experimental Design

The Belief Task

- **Impact has to be estimated** from a noisy signal using an attention task
  (Bosch-Rosa, Gietl, and Heinemann 2021; Pace and Weele 2020)
- Subjects always see **prices before** seeing a **signal** (Saccardo and Serra-Garcia 2023)
- Impact **varied independently** from prices across rounds
  → impact cannot be inferred from prices
- Incentives for accuracy: bonus if +/ 10 away from the true impact

Experimental Design

The Signals



10 pill emojis in a matrix = 1 vitamin A dose financed

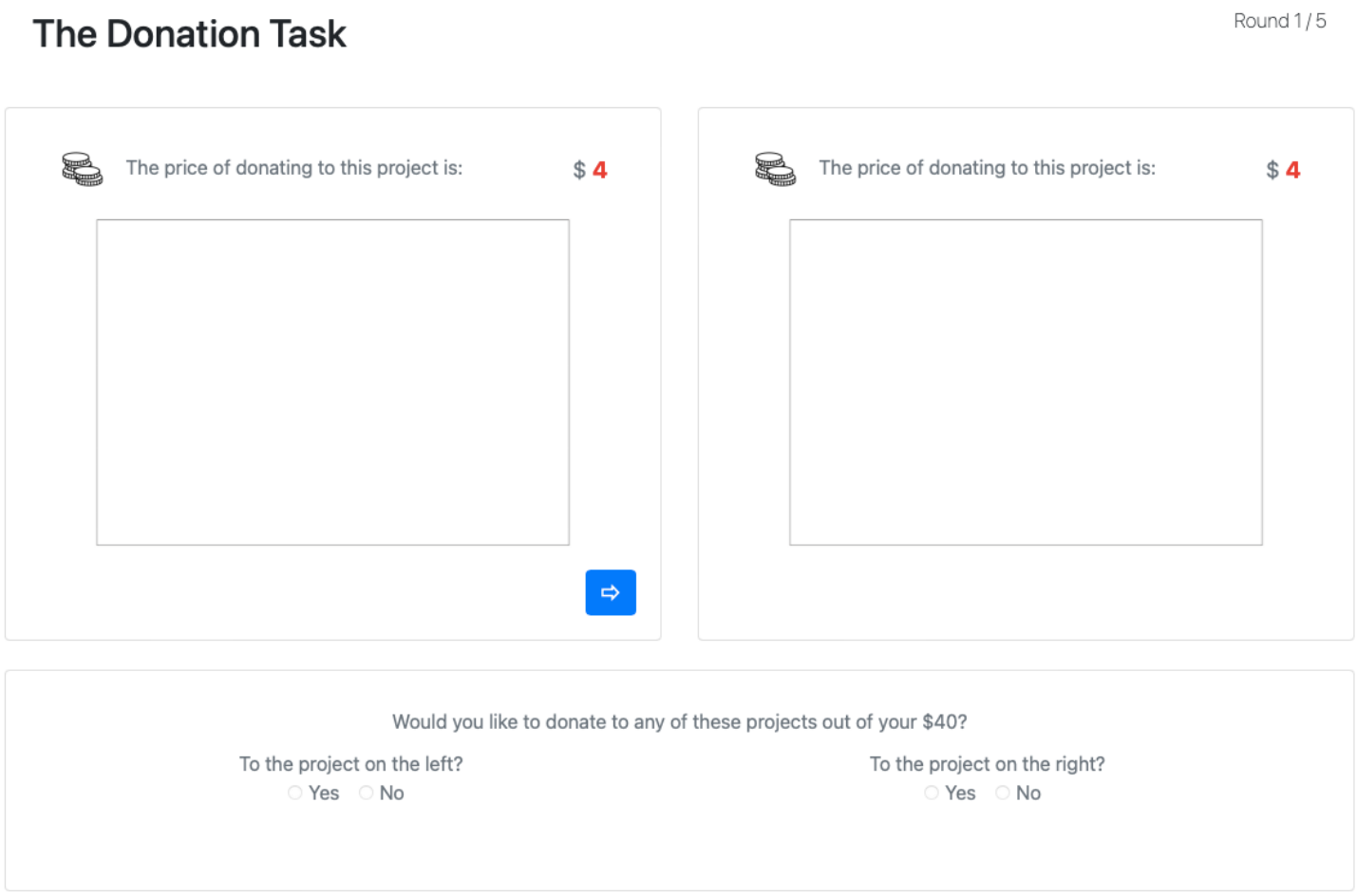
different randomly generated matrices across rounds

Experimental Design

Decision Screen

Experimental Design

Decision Screen



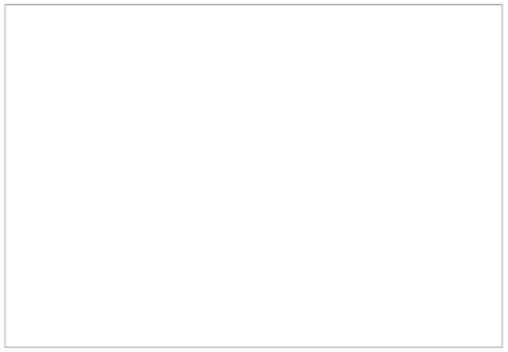
Experimental Design

Decision Screen

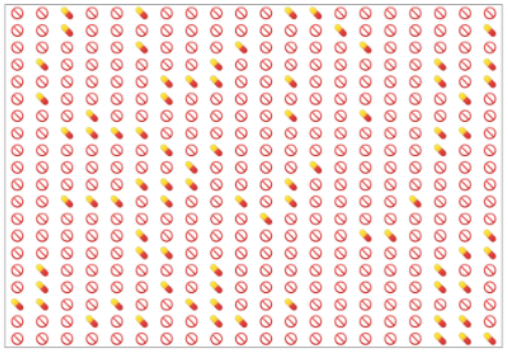
The Donation Task

Round 1 / 5

The price of donating to this project is: $ 4



The price of donating to this project is: $ 4



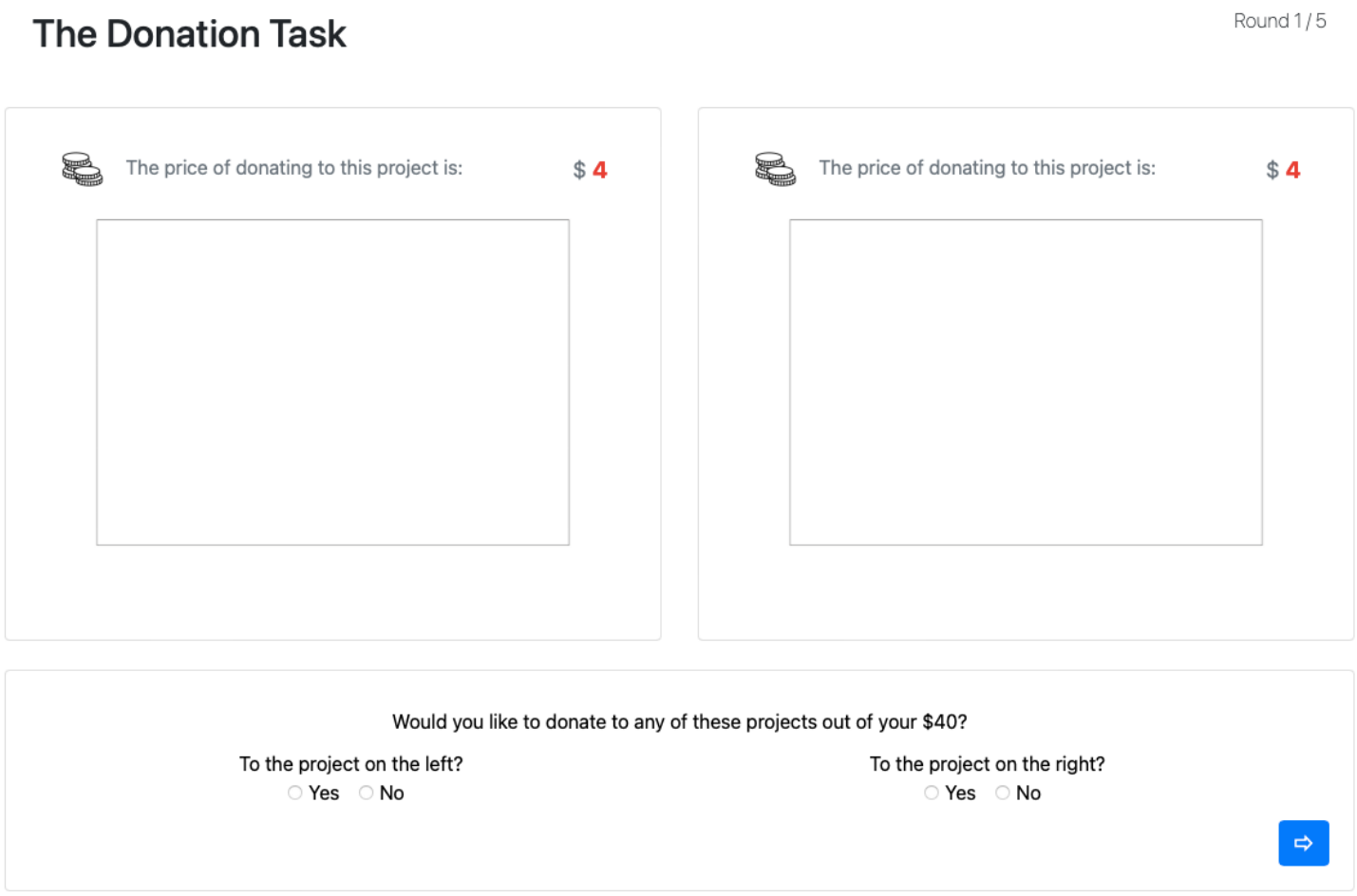
Would you like to donate to any of these projects out of your $40?

To the project on the left?
○ Yes ○ No

To the project on the right?
○ Yes ○ No

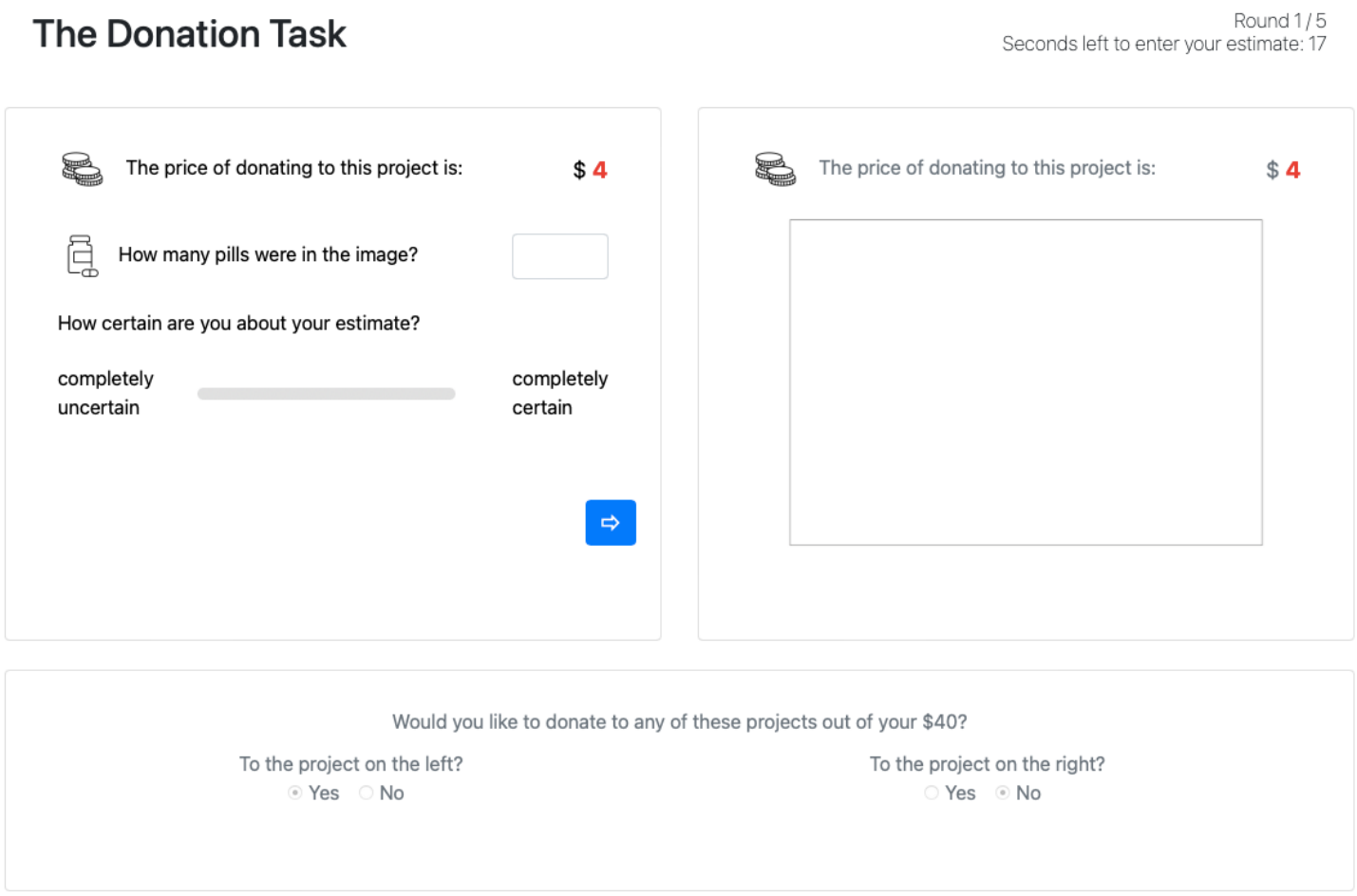
Experimental Design

Decision Screen



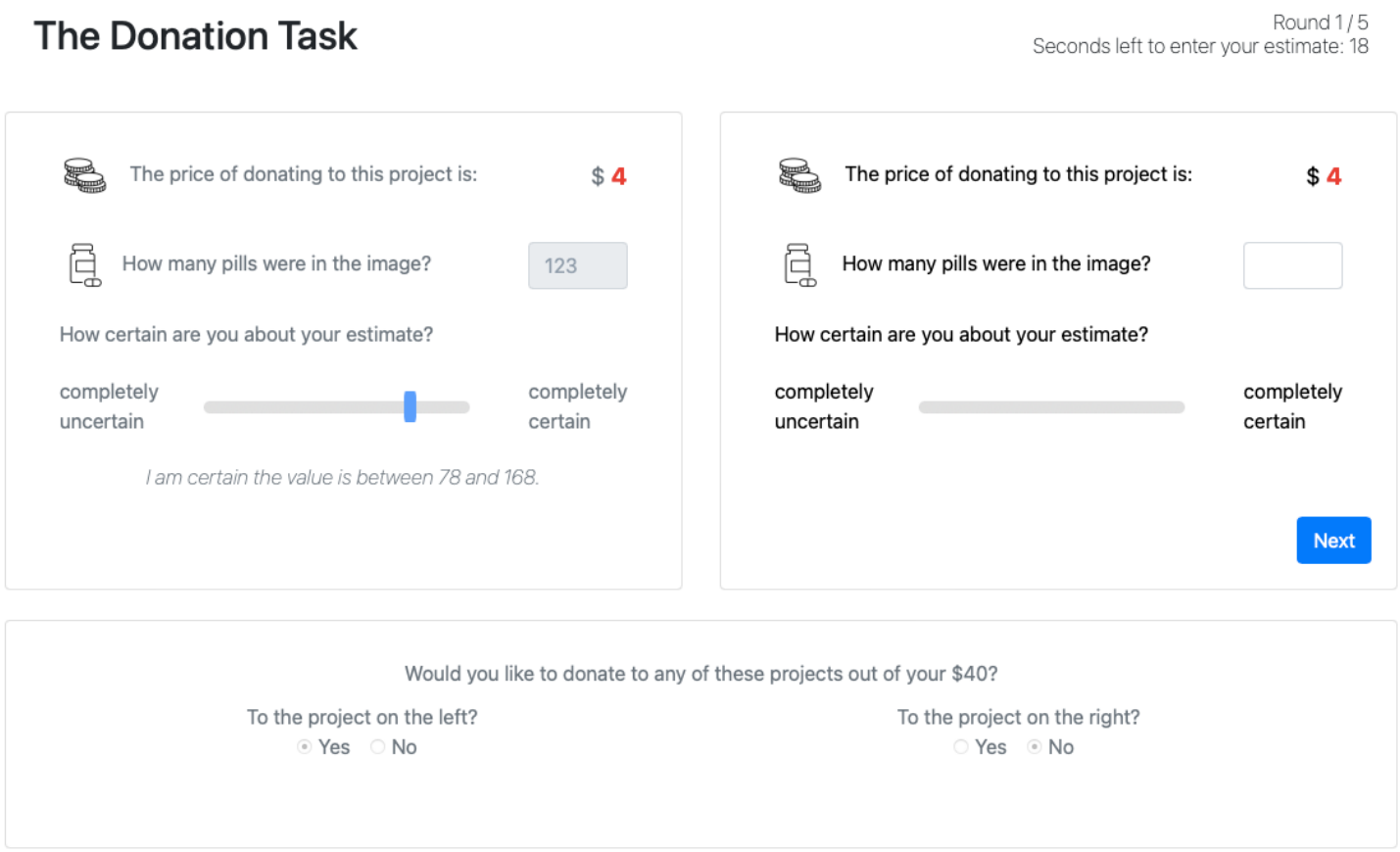
Experimental Design

Decision Screen



Experimental Design

Decision Screen



Treatments & Results

Beliefs

Treatments

3 x 2 design

	Accuracy Bonus (within subject)	
	Low ($2)	High ($20)
ExPost belief elicitation (n=600)	*ExP_LoBonus*	*ExP_HiBonus*
ExAnte belief elicitation (n=300)	*ExA_LoBonus*	*ExA_HiBonus*
No Donation Choice (n=300)	*NoC_LoBonus*	*NoC_HiBonus*

Within each treatment cell: 5 variations of price-impact combinations of projects

Do subjects have biased impact beliefs?

Treatment ExP_LoBonus

	Accuracy Bonus (within subject): Low ($2)	Accuracy Bonus (within subject): High ($20)
ExPost belief elicitation (n=600)	*ExP_LoBonus*	*ExP_HiBonus*
ExAnte belief elicitation (n=300)	*ExA_LoBonus*	*ExA_HiBonus*
No Donation Choice (n=300)	*NoC_LoBonus*	*NoC_HiBonus*

Within each treatment cell: 5 variations of price-impact combinations of projects

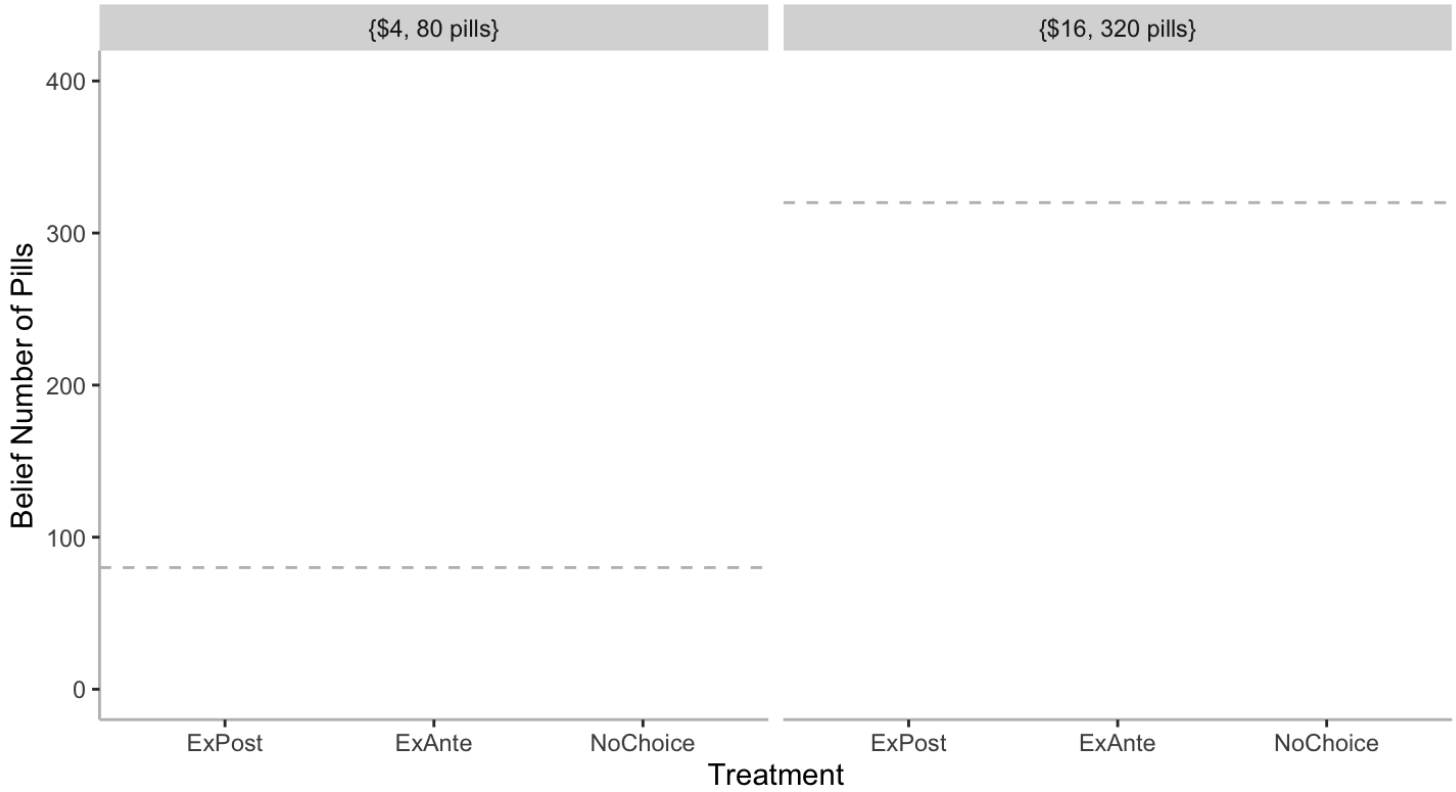
Do subjects have biased impact beliefs?

Treatment ExP_LoBonus

	ExPost
Order of belief elicitation	1) Signals 2) Donation Choice 3) Beliefs
Accuracy bonus	Low ($2)

Do subjects have biased impact beliefs?

Result 1:

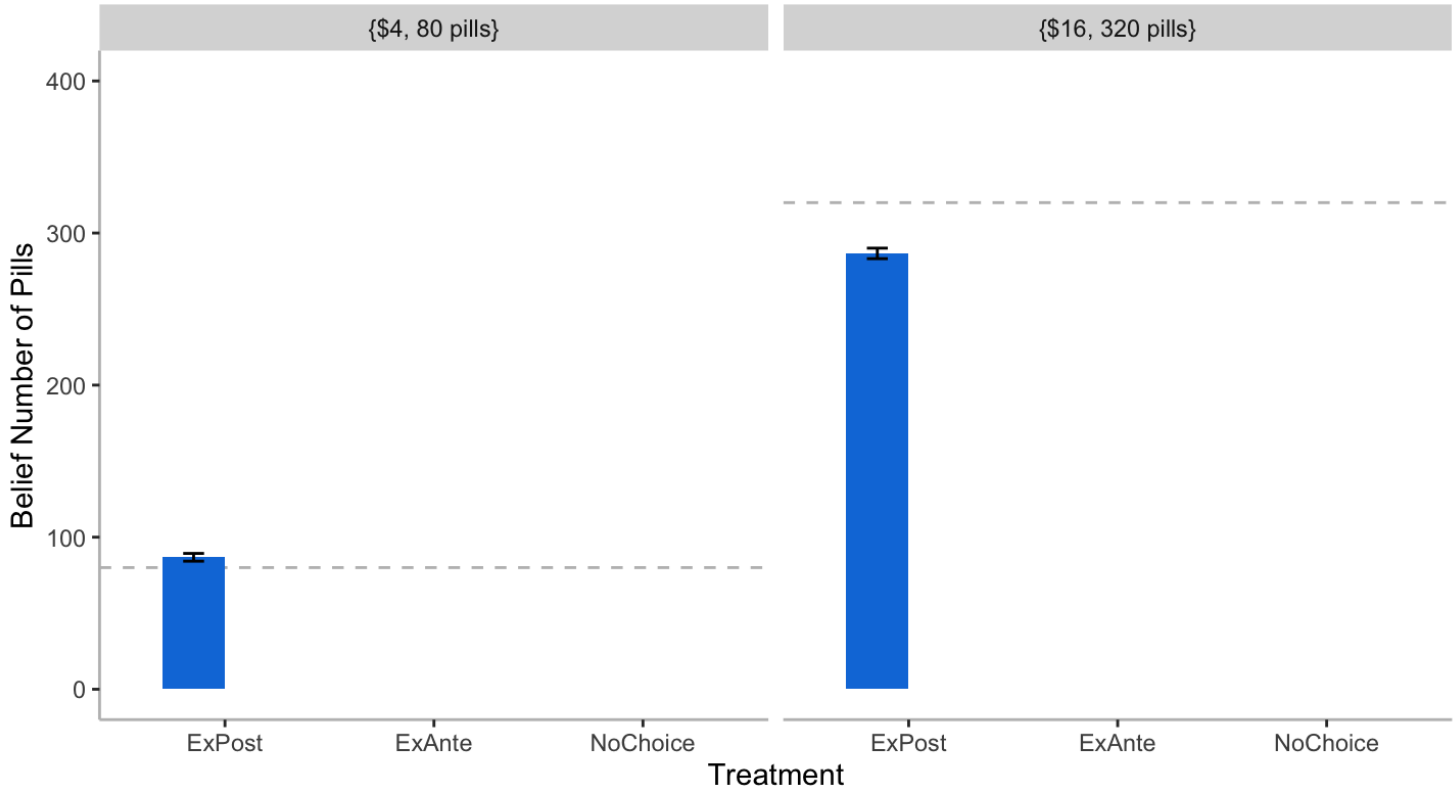


Mean impact beliefs across treatments.

Lighter colors represent data from *LoBonus*, darker colors represent data from *HiBonus*.

Do subjects have biased impact beliefs?

Result 1: Subjects over-estimate low impact and under-estimate high impact



Mean impact beliefs across treatments.

Lighter colors represent data from *LoBonus*, darker colors represent data from *HiBonus*.

Are beliefs *motivatedly* biased?

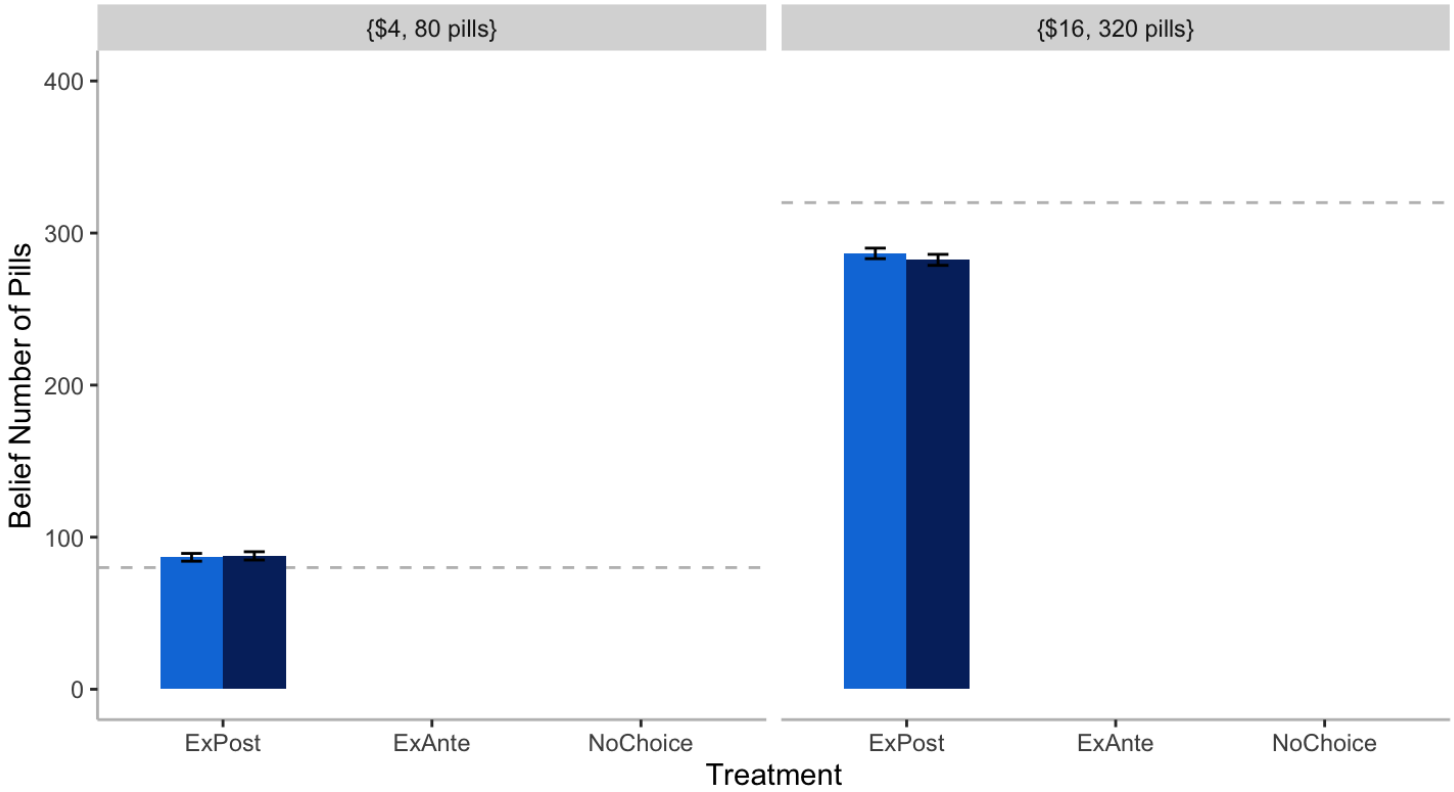
Test 1: higher incentives for accurate beliefs (*LoBonus* vs *HiBonus*)

	Accuracy Bonus (within subject): Low ($2)	Accuracy Bonus (within subject): High ($20)
ExPost belief elicitation (n=600)	*ExP_LoBonus*	*ExP_HiBonus*
ExAnte belief elicitation (n=300)	*ExA_LoBonus*	*ExA_HiBonus*
No Donation Choice (n=300)	*NoC_LoBonus*	*NoC_HiBonus*

Within each treatment cell: 5 variations of price-impact combinations of projects

Are beliefs *motivatedly* biased?

Test 1: No difference by accuracy bonus (*LoBonus* vs *HiBonus*)



Mean impact beliefs across treatments.

Lighter colors represent data from *LoBonus*, darker colors represent data from *HiBonus*.

Are beliefs *motivatedly* biased?

Test 2: exploitation of ex post rationalization? (*ExP* vs *ExA*)

	Accuracy Bonus (within subject)	
	Low ($2)	High ($20)
ExPost belief elicitation (n=600)	*ExP_LoBonus*	*ExP_HiBonus*
ExAnte belief elicitation (n=300)	*ExA_LoBonus*	*ExA_HiBonus*
No Donation Choice (n=300)	*NoC_LoBonus*	*NoC_HiBonus*

Within each treatment cell: 5 variations of price-impact combinations of projects

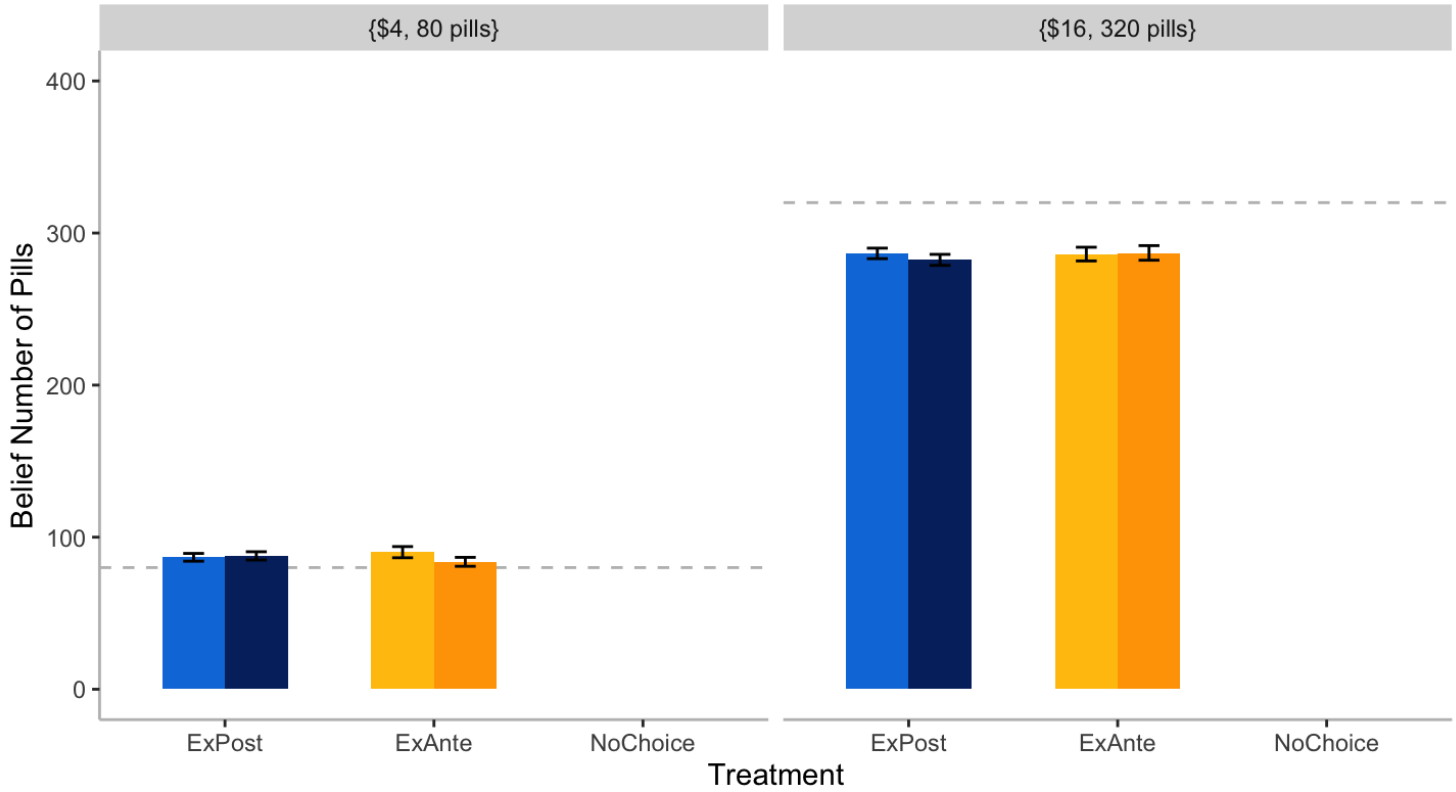
Are beliefs *motivatedly* biased?

Test 2: exploitation of ex post rationalization? (*ExP* vs *ExA*)

	ExPost	***ExAnte***
Order of belief elicitation	1) Signals	1) Signals
	2) Donation Choice	2) Beliefs
	3) Beliefs	3) Donation Choice
Accuracy bonus	Low ($2) and High ($20)	Low ($2) and High ($20)

Are beliefs *motivatedly* biased?

Test 2: No evidence for ex post rationalization (*ExP* vs *ExA*)



Mean impact beliefs across treatments.

Lighter colors represent data from *LoBonus*, darker colors represent data from *HiBonus*.

Are beliefs *motivatedly* biased?

Test 3: removing donation choice (*ExP* vs *NoC*)

	Accuracy Bonus (within subject)	
	Low ($2)	High ($20)
ExPost belief elicitation (n=600)	*ExP_LoBonus*	*ExP_HiBonus*
ExAnte belief elicitation (n=300)	*ExA_LoBonus*	*ExA_HiBonus*
No Donation Choice (n=300)	*NoC_LoBonus*	*NoC_HiBonus*

Within each treatment cell: 5 variations of price-impact combinations of projects

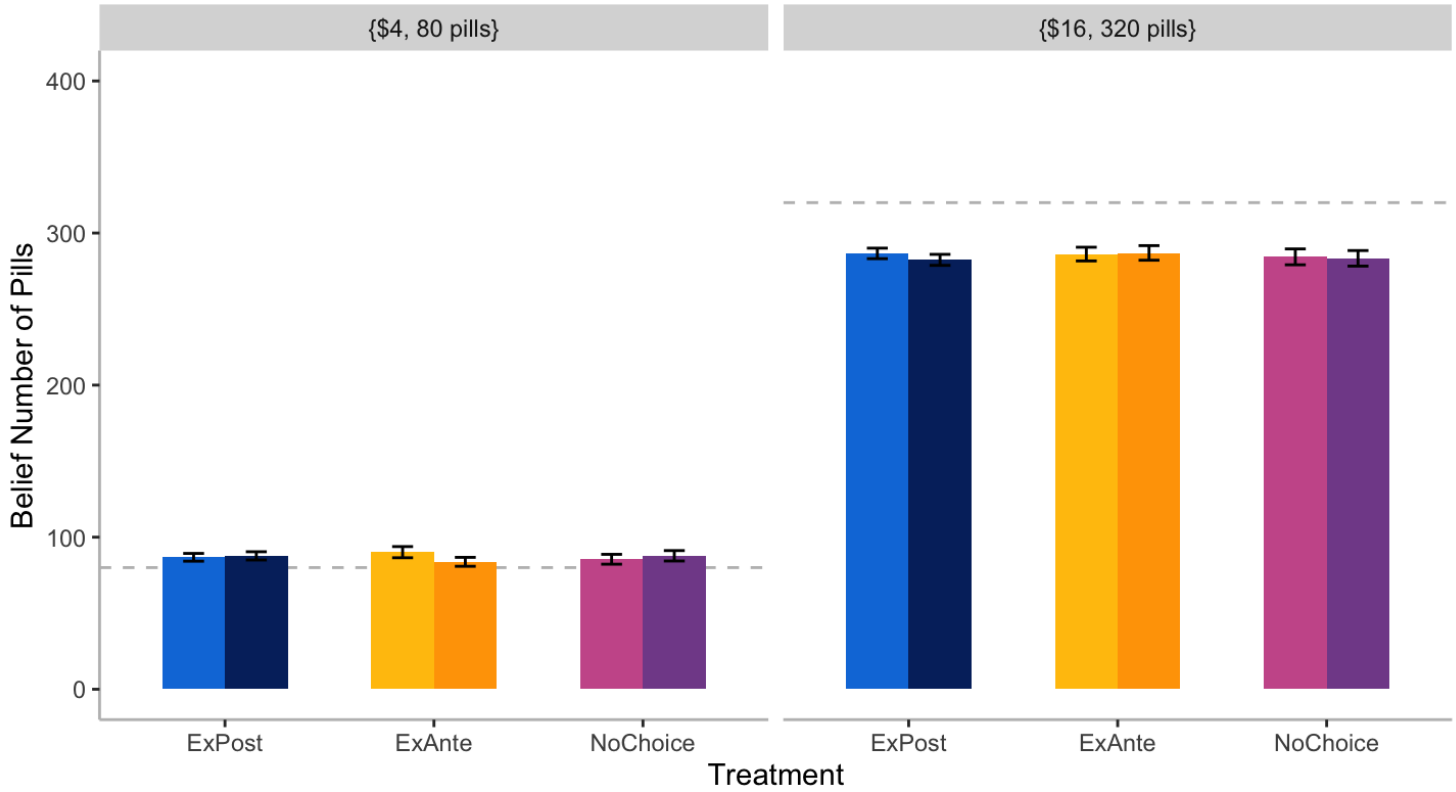
Are beliefs *motivatedly* biased?

Test 3: removing donation choice (*ExP* vs *NoC*)

	ExPost	***NoChoice***
Order of belief elicitation	1) Signals 2) Donation Choice 3) Beliefs	1) Signals 2) Beliefs
Accuracy bonus	Low ($2) and High ($20)	Low ($2) and High ($20)

Are beliefs *motivatedly* biased?

Test 3: no impact of donation choice (*ExP* vs *NoC*)



Mean impact beliefs across treatments.

Lighter colors represent data from *LoBonus*, darker colors represent data from *HiBonus*.

Result 2: No evidence for motivated beliefs

Robustness Checks

- Changing prices of donation? ✘
- Heterogeneous treatment effects by degree of altruism? ✘
- Consistency bias due to within subject design? ✘
- No within subject variation in beliefs? ✘
- No reaction to impact/prices at all? ✘

Discussion

What could explain the null result in motivated beliefs?

- Donation task not perceived as ego-relevant
  → No demand for motivated beliefs

- Difficult to convincingly form motivated belief (supply side)
  e.g., signal structure not ambiguous enough

Conclusion

How do people form beliefs about the impact of donations?

- Subjects *over*-estimate low impact, and *under*-estimate high impact
- Impact beliefs are robust to various changes in incentives
  → **limited role for motivated beliefs**
- In the paper: analysis of donation behavior:
  Simplifying aggregation of impact information before donating in *ExAnte* increases likelihood that subjects **maximize impact** (Toma and Bell 2022)

  → Policy implication: impact information should be easily comparable

Thank you!

References

AmeriCorps, Office of Research and Evaluation. 2021. "Key Findings from the 2019 Current Population Survey: Civic Engagement and Volunteering Supplement." AmeriCorps, Office of Research; Evaluation.

Bosch-Rosa, Ciril, Daniel Gietl, and Frank Heinemann. 2021. "Risk-Taking Under Limited Liability: Quantifying the Role of Motivated Beliefs."

Diekmann, Andreas, and Peter Preisendörfer. 2003. "Green and Greenback: The Behavioral Effects of Environmental Attitudes in Low-Cost and High-Cost Situations." *Rationality and Society* 15 (4): 441–72.

Imai, Taisuke, Davide Pace, Peter Schwardmann, and Joël van der Weele. 2022. "Correcting Consumer Misperceptions about CO2 Emissions." *CESifo Working Paper*, no. 10138.

Indiana University Lilly Family School of Philanthropy. 2021. "The Giving Environment: Understanding Pre-Pandemic Trends in Charitable Giving." https://philanthropy.iupui.edu/news-events/news-item/latest-data-shows-new-low-in-share-of-americans-who-donated-to-charity.html?id=363 [Accessed: 21.Sept 2022].

Ipsos. 2021. "Perils of Perception: Climate Change." https://www.ipsos.com/en/ipsos-perils-perception-climate-change [Accessed: 14. Sept. 2022].

Pace, Davide, and Joël van der Weele. 2020. "Curbing Carbon: An Experiment on Uncertainty and Information about CO2 Emissions." Tinbergen Institute.

Pew Research Center. 2019. "U.s. Public Views on Climate and Energy." https://www.pewresearch.org/science/wp-content/uploads/sites/16/2019/11/PS.11.25.19_climate-energy-FINAL.pdf [Accessed: 20. Sep 2022].

Saccardo, Silvia, and Marta Serra-Garcia. 2023. "Enabling or Limiting Cognitive Flexibility? Evidence of Demand for Moral Commitment." *American Economic Review* 113 (2): 396–429.

Schulze Tilling, Anna. 2023. "Changing Consumption Behavior with Carbon Labels: Causal Evidence on Behavioral Channels and Effectiveness."

Toma, Mattie, and Elizabeth Bell. 2022. "Understanding and Improving Policymakers' Sensitivity to Program Impact."

Truelove, Heather Barnes, and Ashley Jade Gillis. 2018. "Perception of Pro-Environmental Behavior." *Global Environmental Change* 49: 175–85.