EXPLAINING CONDITIONAL COOPERATION IN REPEATED PUBLIC GOODS GAMES

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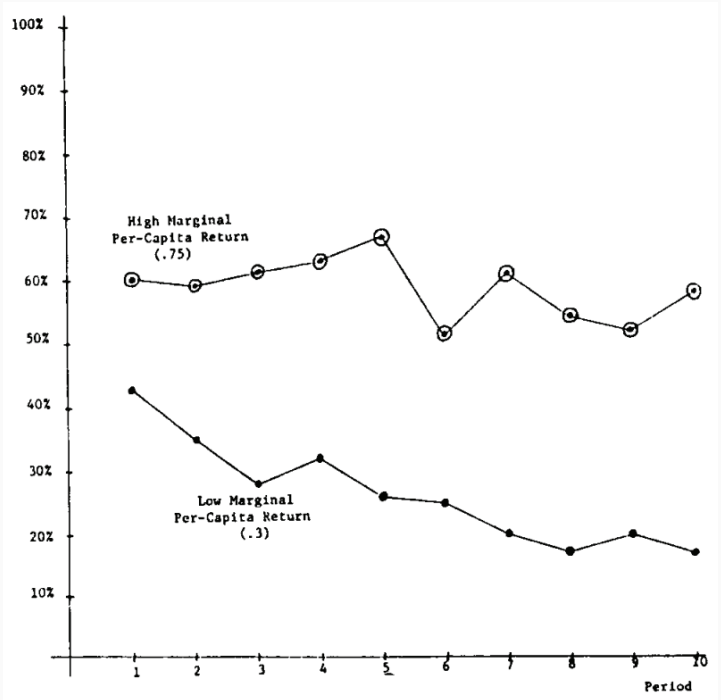
ESA World Meeting 2017

REPEATED LINEAR PUBLIC GOODS GAME

- $u_i(s_i, s_{-i}) = \underbrace{\frac{\alpha}{n}\sum s_j}_{\text{“Group Account”}} + \underbrace{(\omega_i - s_i)}_{\text{“Individual Account”}}$ “MPCR”: $\frac{\alpha}{n} < 1$.
- Isaac Walker & Thomas (1984):



- Current understanding: (Imperfect) Conditional Cooperation (Fischbacher & Gächter 2010, Croson 2007)

MODELING CONDITIONAL COOPERATION

- Beliefs decline along with contributions
- Which is causing which?
- Contributions could decline *because* beliefs are declining...
  - Reciprocity (Rabin 1993, e.g.)
    - I reciprocate expected kindness with kindness
    - $\downarrow$ FOB $\Rightarrow \downarrow$ expected kindness
  - Guilt aversion (Charness & Dufwenberg 2006, e.g.)
    - I feel bad if I don't meet your expectations of me.
    - $\downarrow$ SOB $\Rightarrow \downarrow$ guilt

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Idea: Exogenously manipulate beliefs and see if this affects contributions

DESIGN

EXPERIMENTAL DESIGN

- Groups of 3
  - MPCR=0.6
  - Endowment: $10
  - Contribute $0, $5, or $10 to 'Group Account'
- 10 periods with random re-matching
- Elicitation every period
  - Utilities over strategies
  - FOB of others' utilities
  - SOBs: belief of others' beliefs of my contribution
  - Contribution choice
- Provide data from past experiment (belief manipulation)
  - Opportunity to revise contribution choice

$BR(\cdot)$: PREFERENCES OVER STRATEGIES

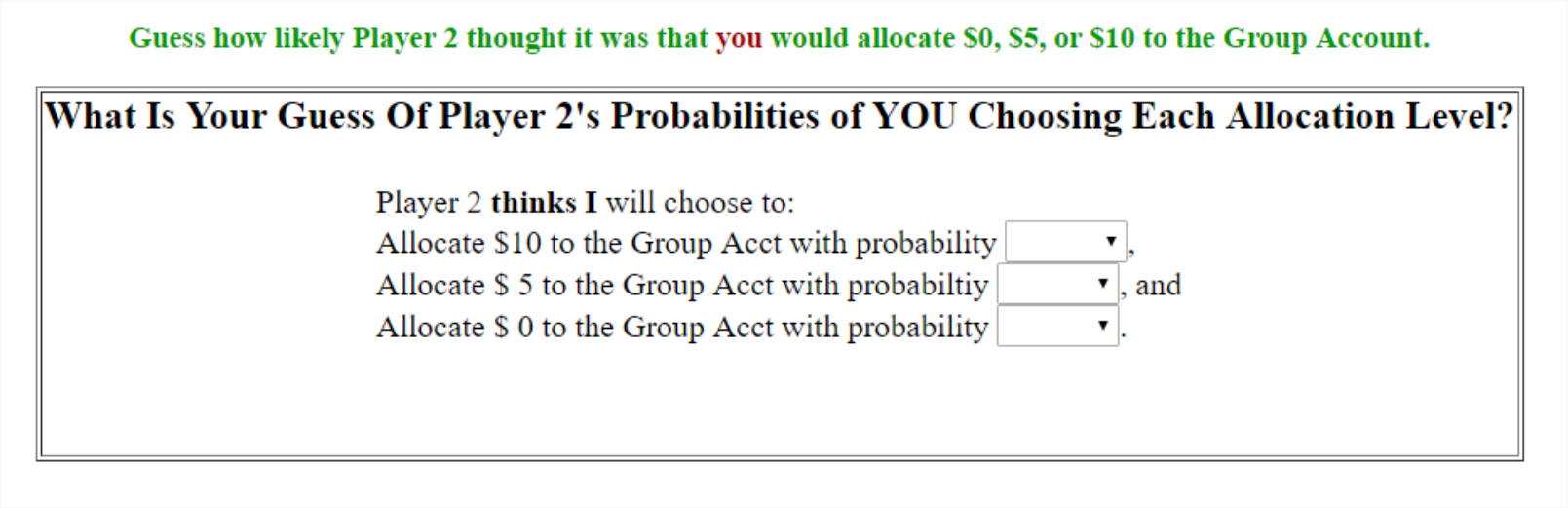
Conditional strategy choices (Fischbacher & Gächter 2010)

How much will you allocate to the Group Acct ***IF*** PLR2 allocates \$0 and PLR3 allocates \$0?		
You allocate \$0.00 PLR2 allocated \$0.00 PLR3 allocated \$0.00	**You allocate \$5.00** PLR2 allocated \$0.00 PLR3 allocated \$0.00	**You allocate \$10.00** PLR2 allocated \$0.00 PLR3 allocated \$0.00

How much will you allocate to the Group Acct ***IF*** PLR2 allocates \$5 and PLR3 allocates \$0?		
You allocate \$0.00 PLR2 allocated \$5.00 PLR3 allocated \$0.00	**You allocate \$5.00** PLR2 allocated \$5.00 PLR3 allocated \$0.00	**You allocate \$10.00** PLR2 allocated \$5.00 PLR3 allocated \$0.00

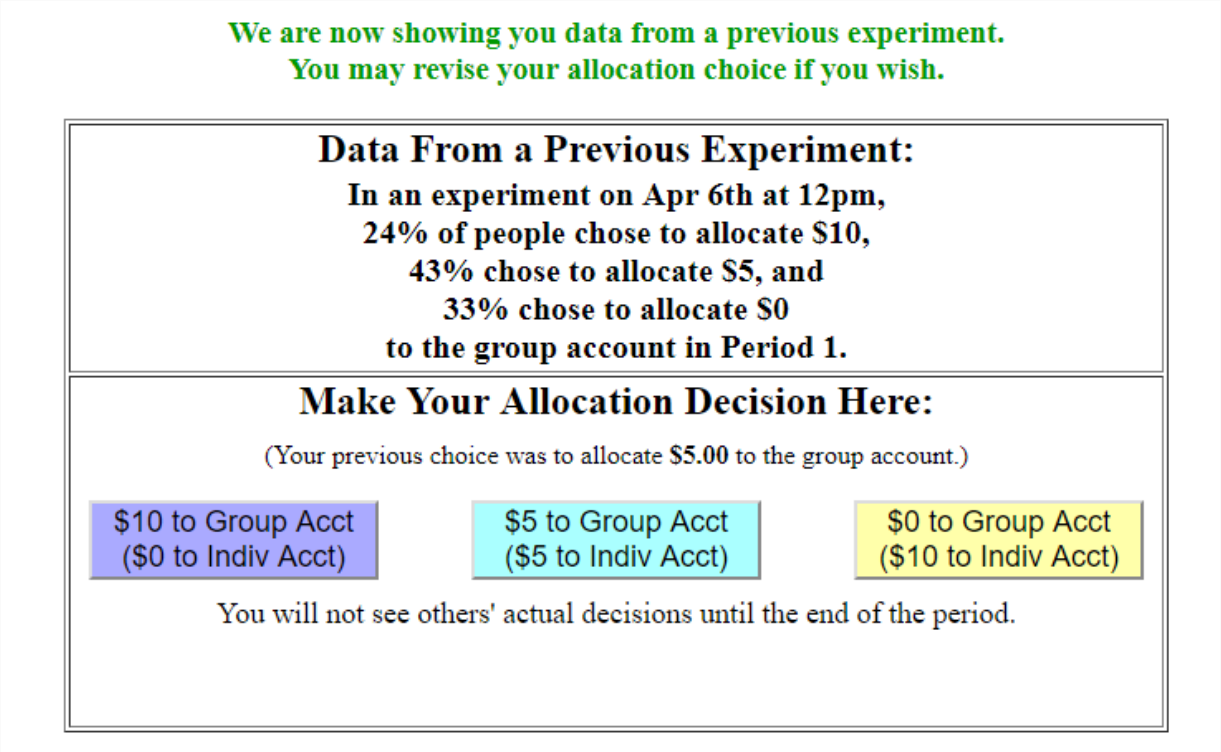
- Also FOB: best guess of opponent's $BR(\cdot)$.
- Actually played out.

SOBS



- Incentivized elicitation

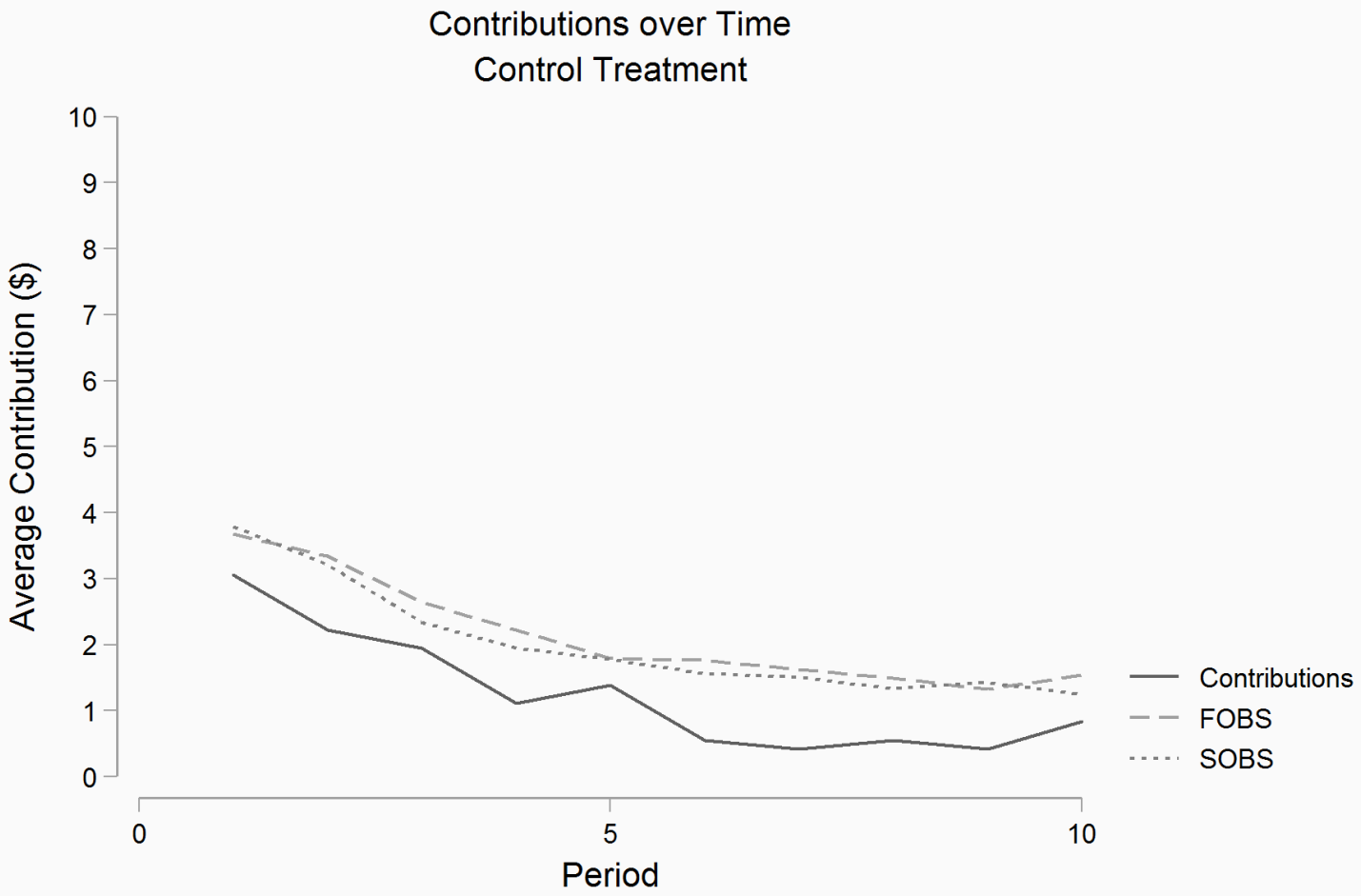
BELIEF MANIPULATION



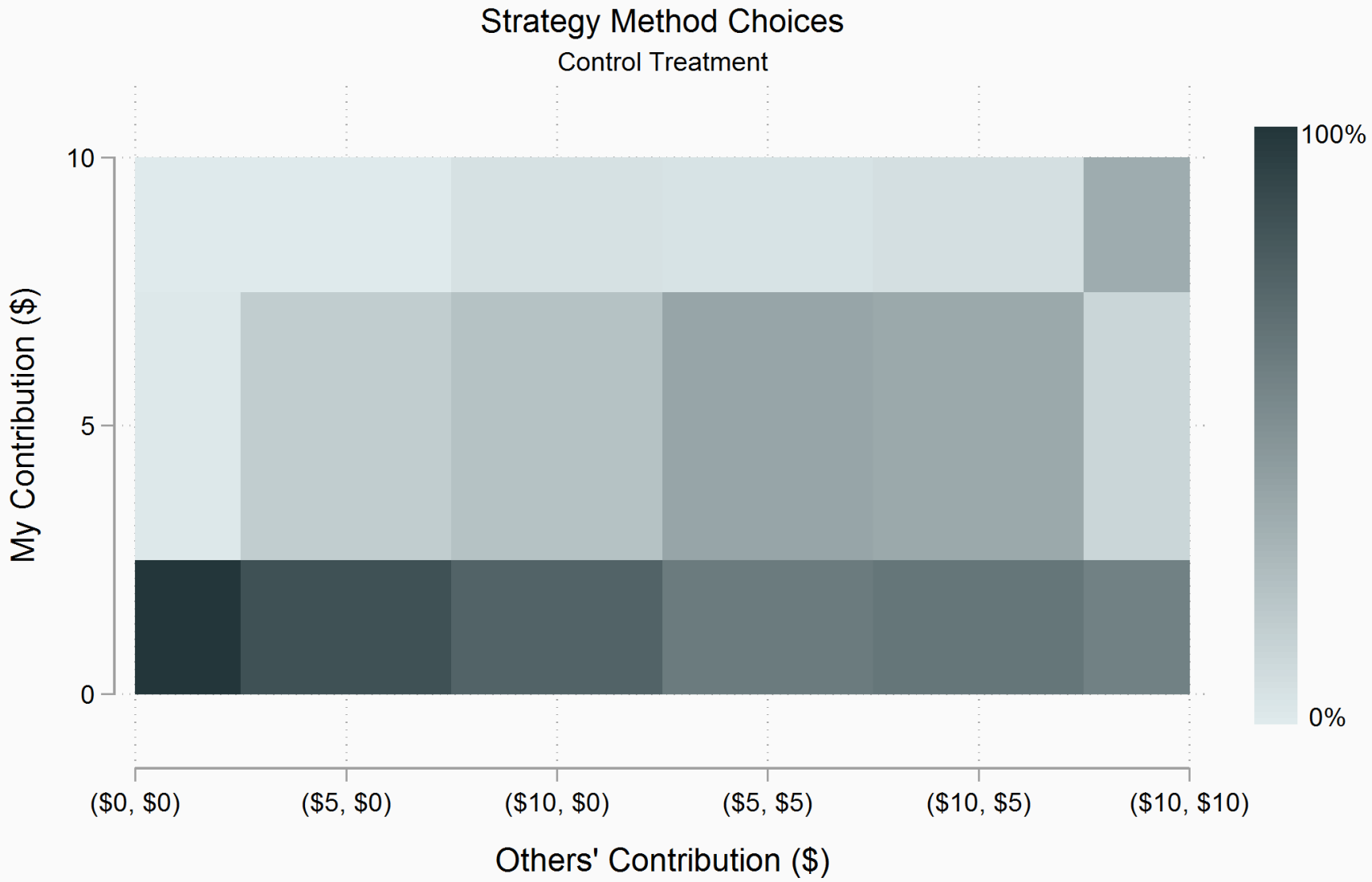
- After making initial contribution decision, give subjects data from previous sessions
  - Past contributions $\Rightarrow$ manipulate FOBs
  - Past FOBs $\Rightarrow$ manipulate SOBs
  - No past data (control) $\Rightarrow$ no manipulation

RESULTS

CONTRIBUTIONS AND BELIEFS: CONTROL

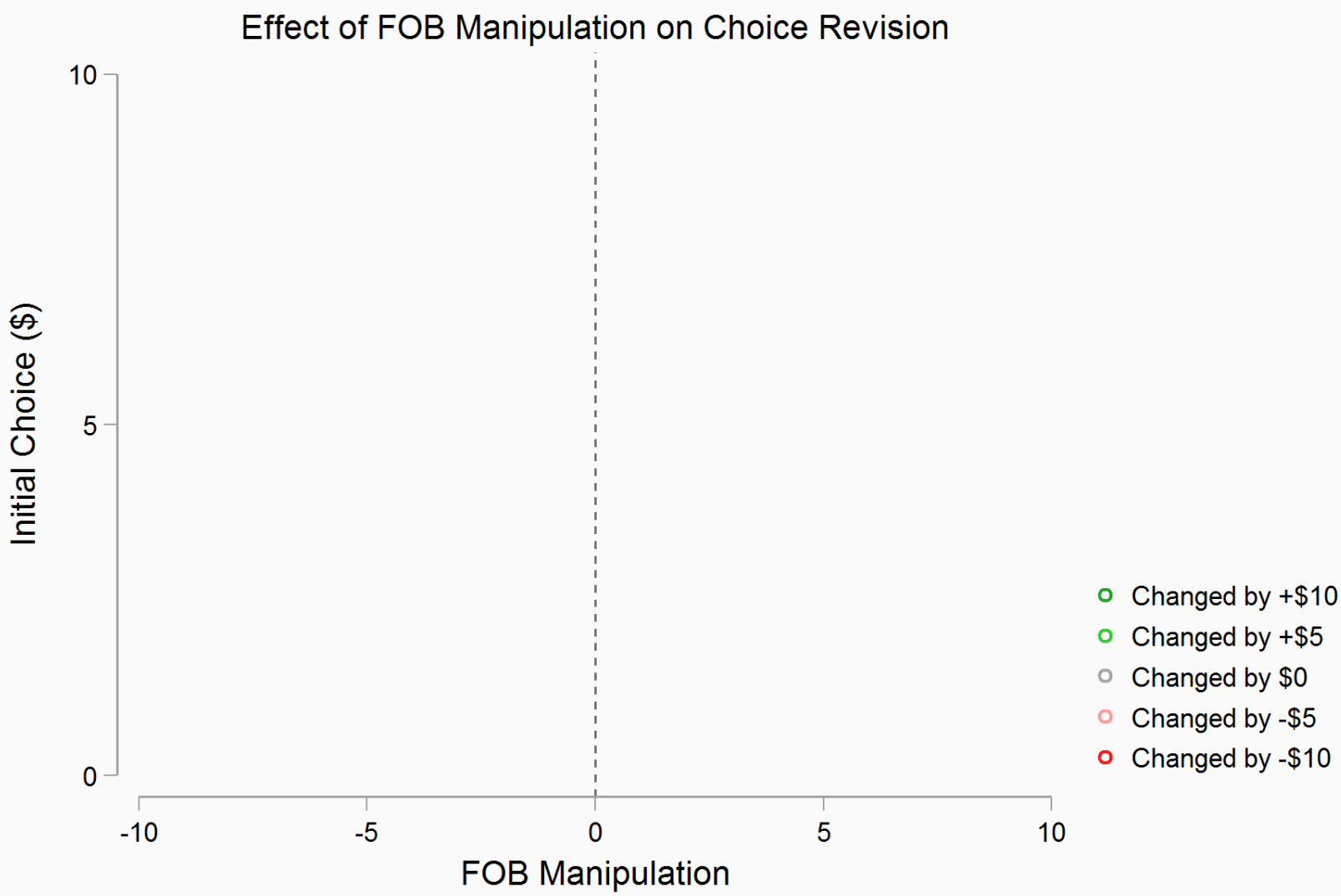


CONDITIONAL COOPERATORS



Do contributions respond to FOBs?

DO CONTRIBUTIONS RESPOND TO FOBS?



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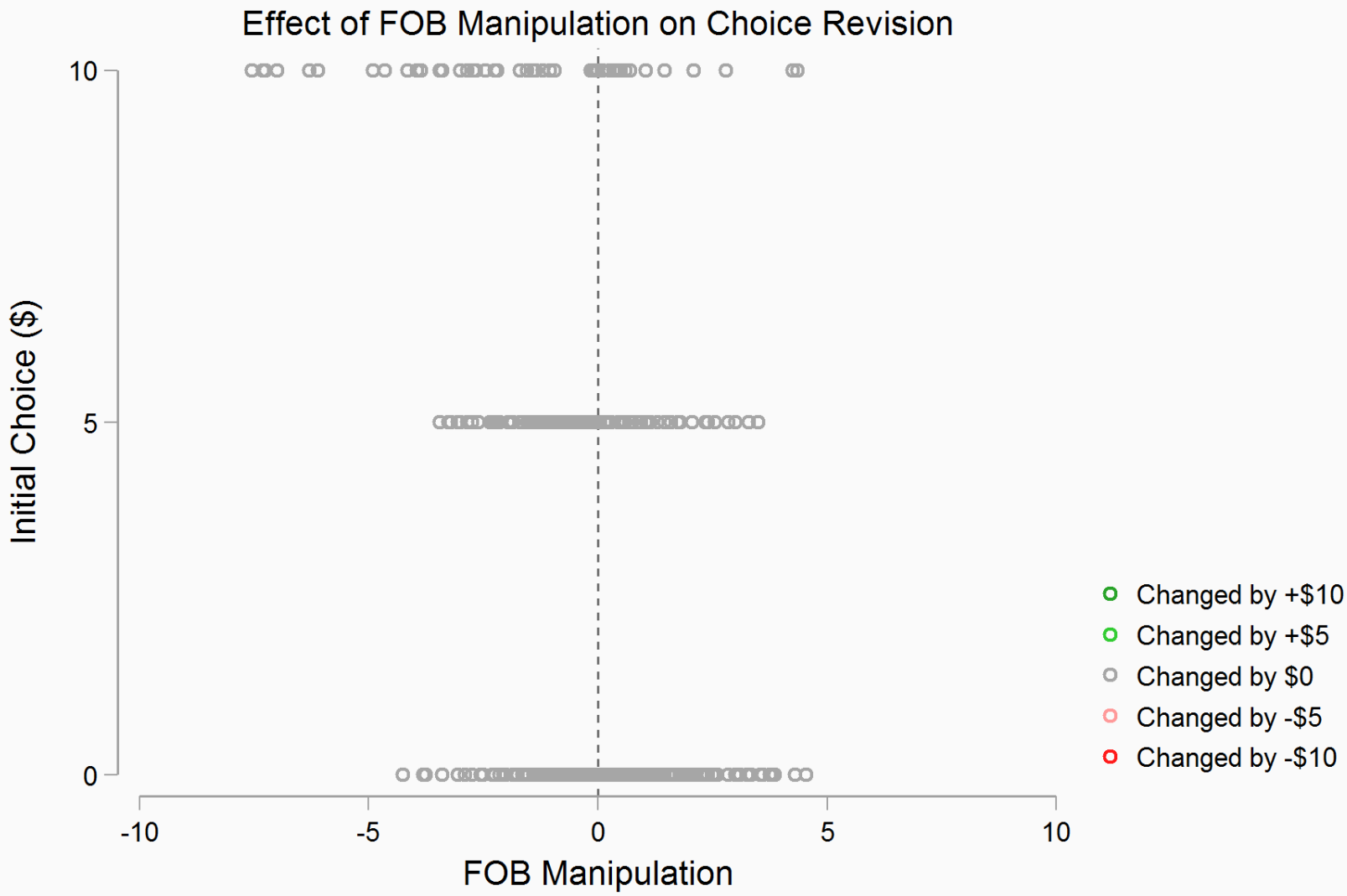

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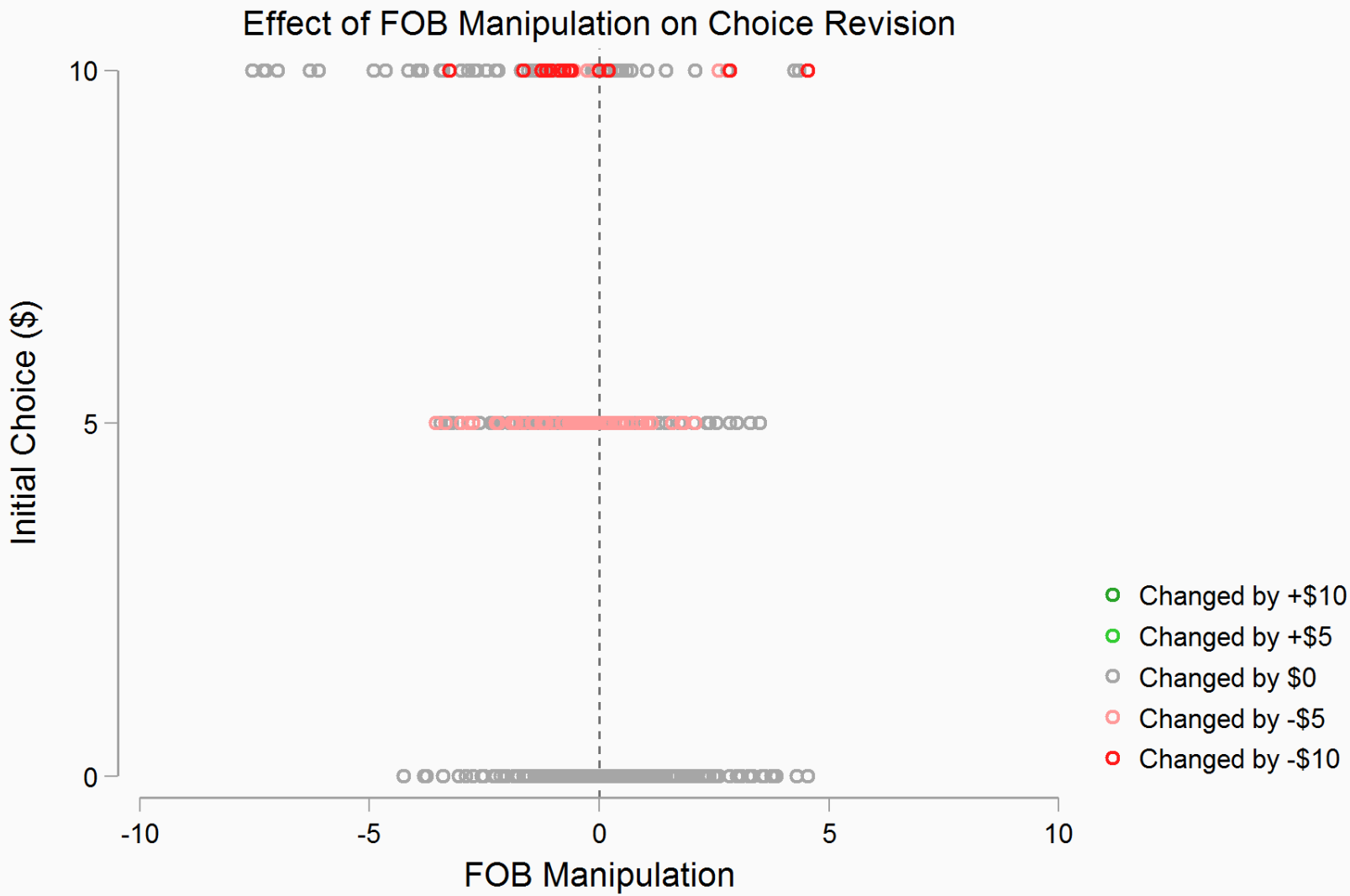

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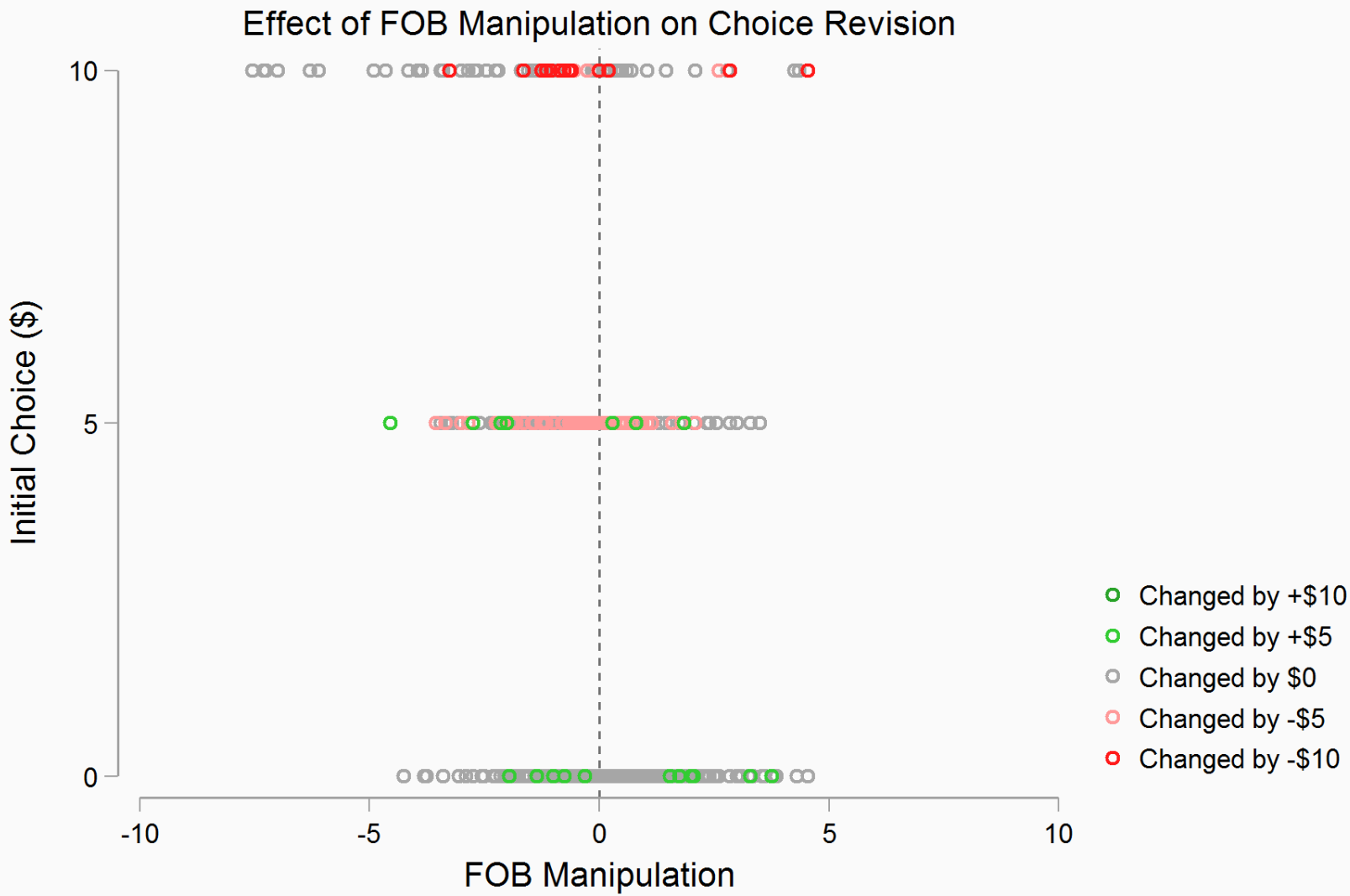


DO CONTRIBUTIONS RESPOND TO FOBS?

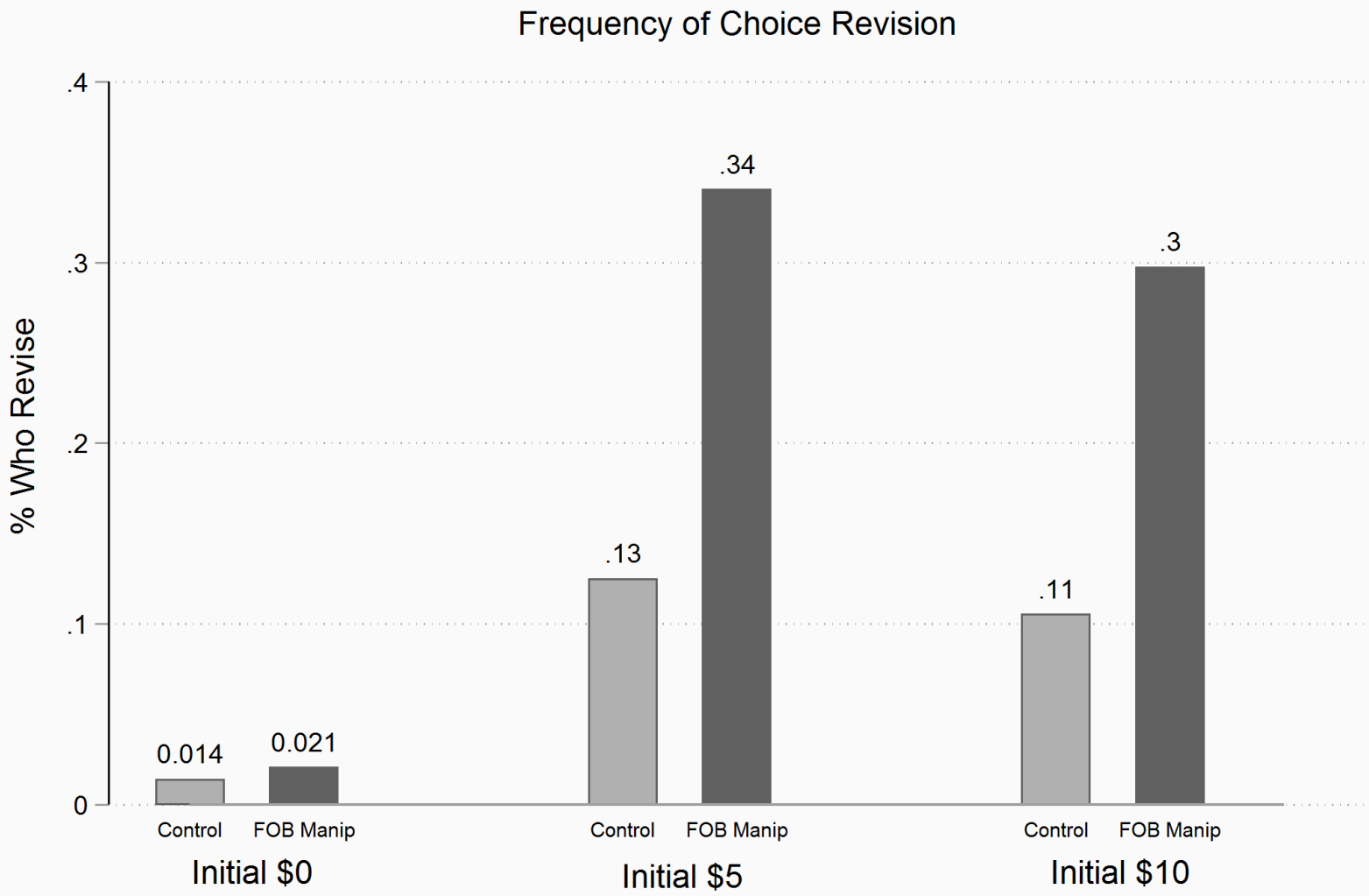
	Change in Contribution
FOB Manipulation	0.0502
	(0.0496)
Unselfish	-0.467**
	(0.231)
Constant	-0.166**
	(0.0681)
Observations	900
Number of Clusters	90

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Conditional Cooperators

DO CONTRIBUTIONS RESPOND TO FOBS?



Manipulation Check

Do contributions respond to SOBs?

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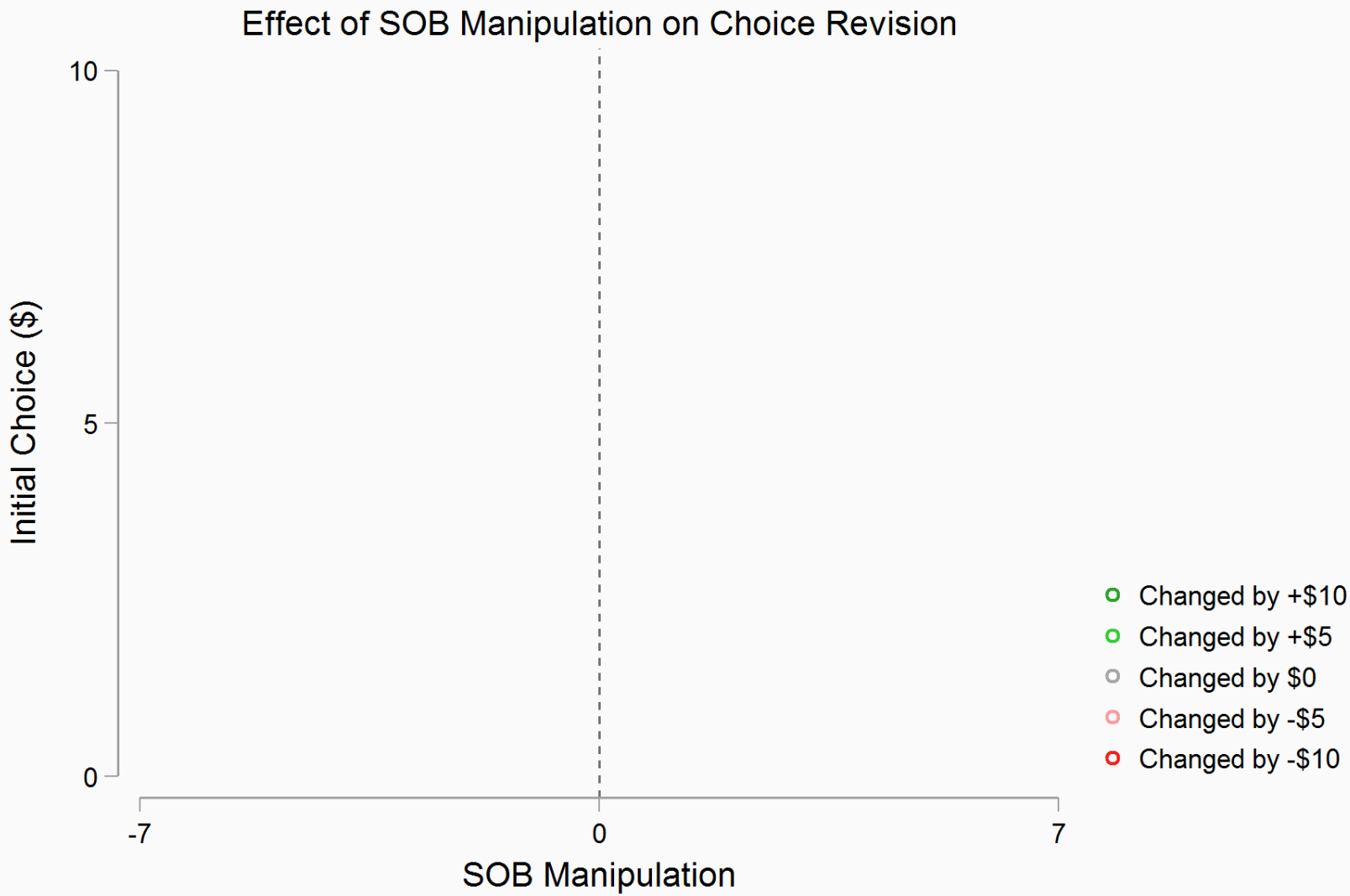

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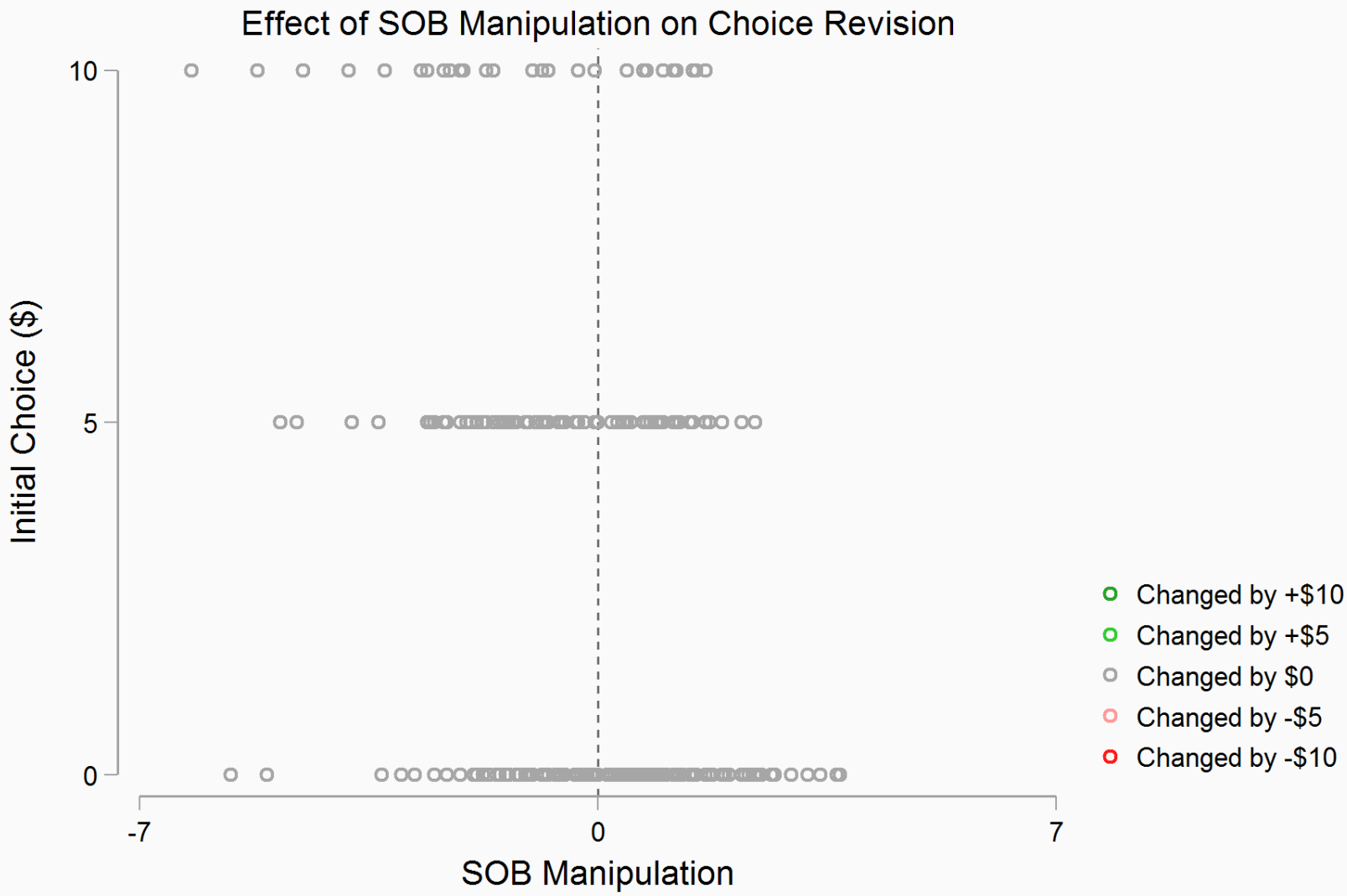

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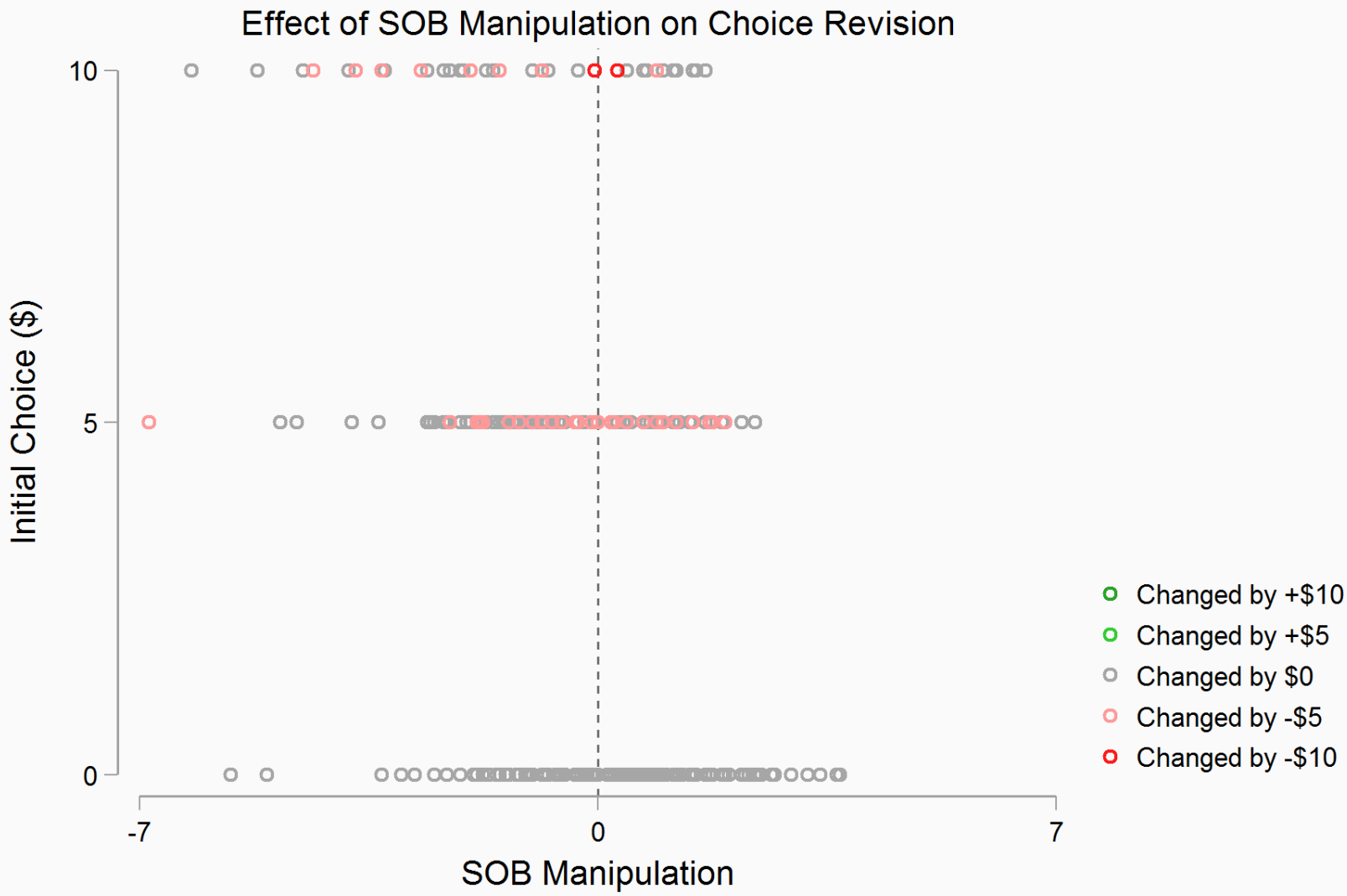

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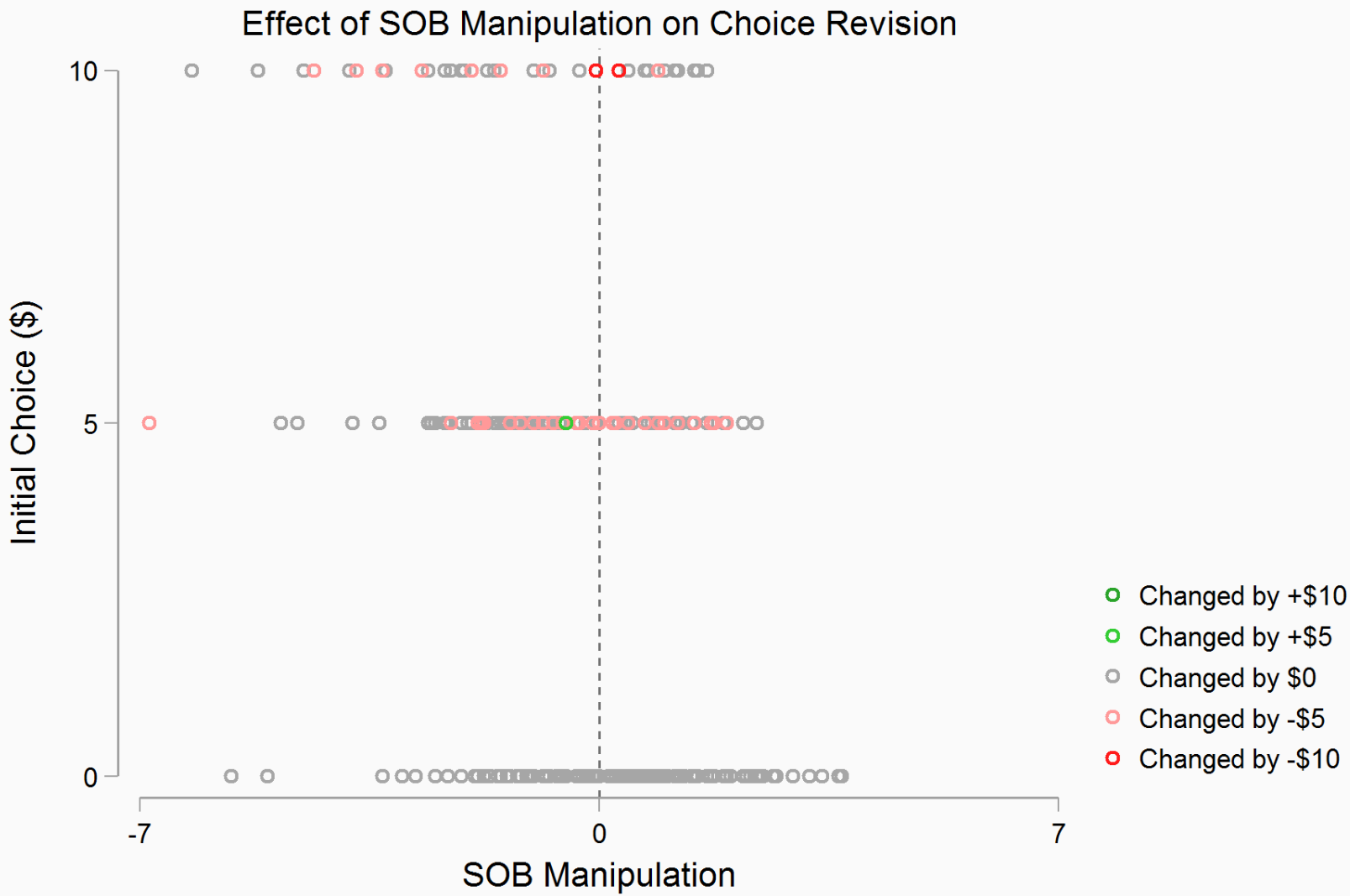


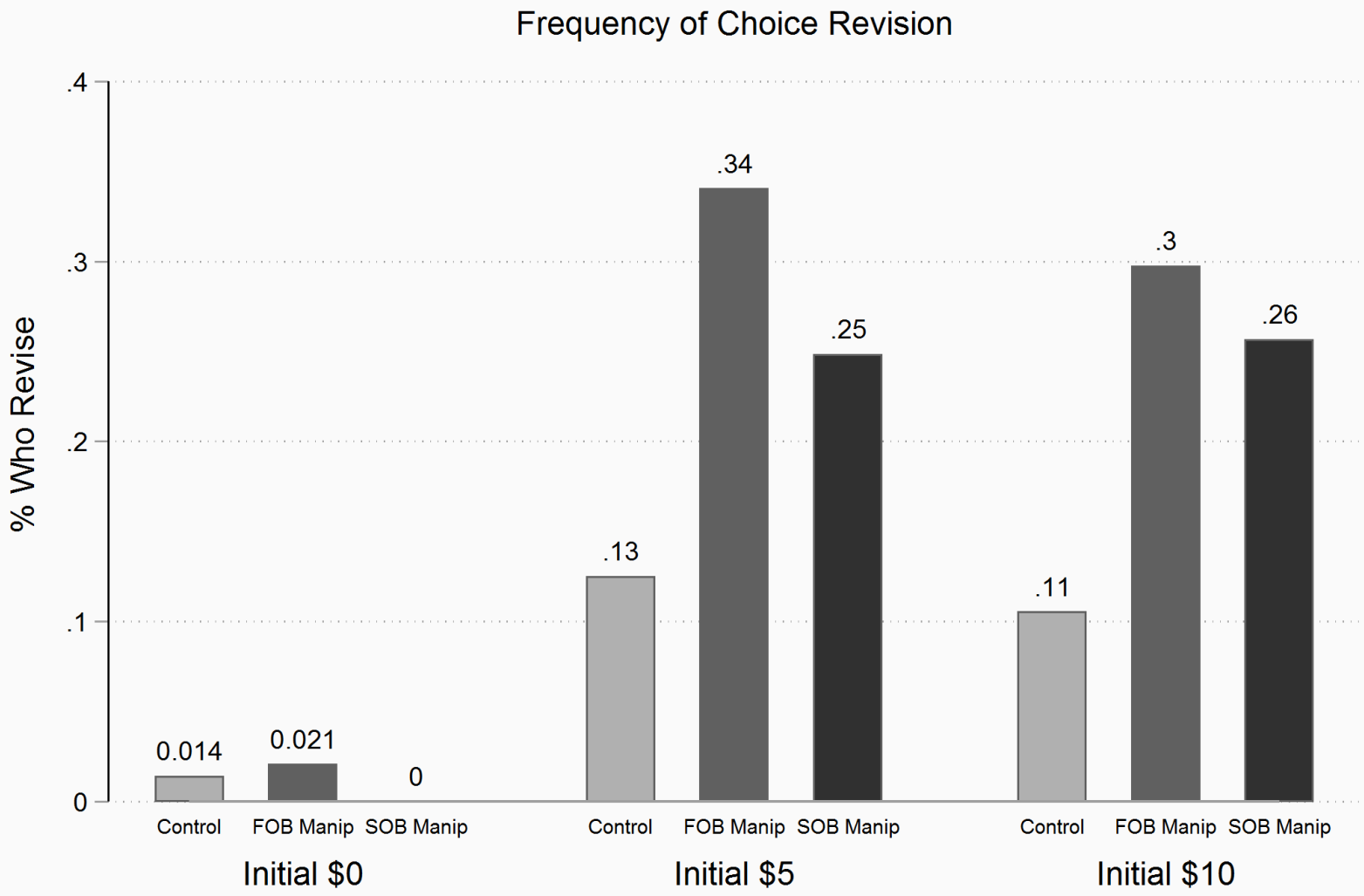
DO CONTRIBUTIONS RESPOND TO SOBS?

	Change in Contribution
SOB Manipulation	0.0967**
	(0.0470)
Unselfish	-0.372**
	(0.141)
Constant	-0.180**
	(0.0728)
Observations	600
Number of Clusters	60

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

DO CONTRIBUTIONS RESPOND TO SOBS?



Manipulation Check

SUMMARY

- Exogenously manipulating both FOBs and SOBs leads to choice revision
  - FOB: inconsistent with current models
  - SOB: consistent with guilt aversion
- Evidence that contributions follow beliefs
- We also consider
  - Models of altruism
  - How preferences change over time
  - Belief formation and evolution
  - History-dependence

DO CONTRIBUTIONS RESPOND TO FOBS?

Perfect Conditional Cooperators:

	Final $10	Final $5	Final $0
Change in FOB of $10	3.598*	-0.375	-0.101
	(1.952)	(0.607)	(0.556)
Change in FOB of $5	0.305	0.273	0.379
	(0.595)	(0.335)	(0.412)
Change in FOB of $0	2.195	-0.569	-0.325
	(1.525)	(0.663)	(0.330)
Constant	-1.768	0.270	-1.048*
	(1.420)	(0.981)	(0.592)
Observations	24	76	134
R-squared	0.316	0.024	0.018

Robust standard errors in parentheses

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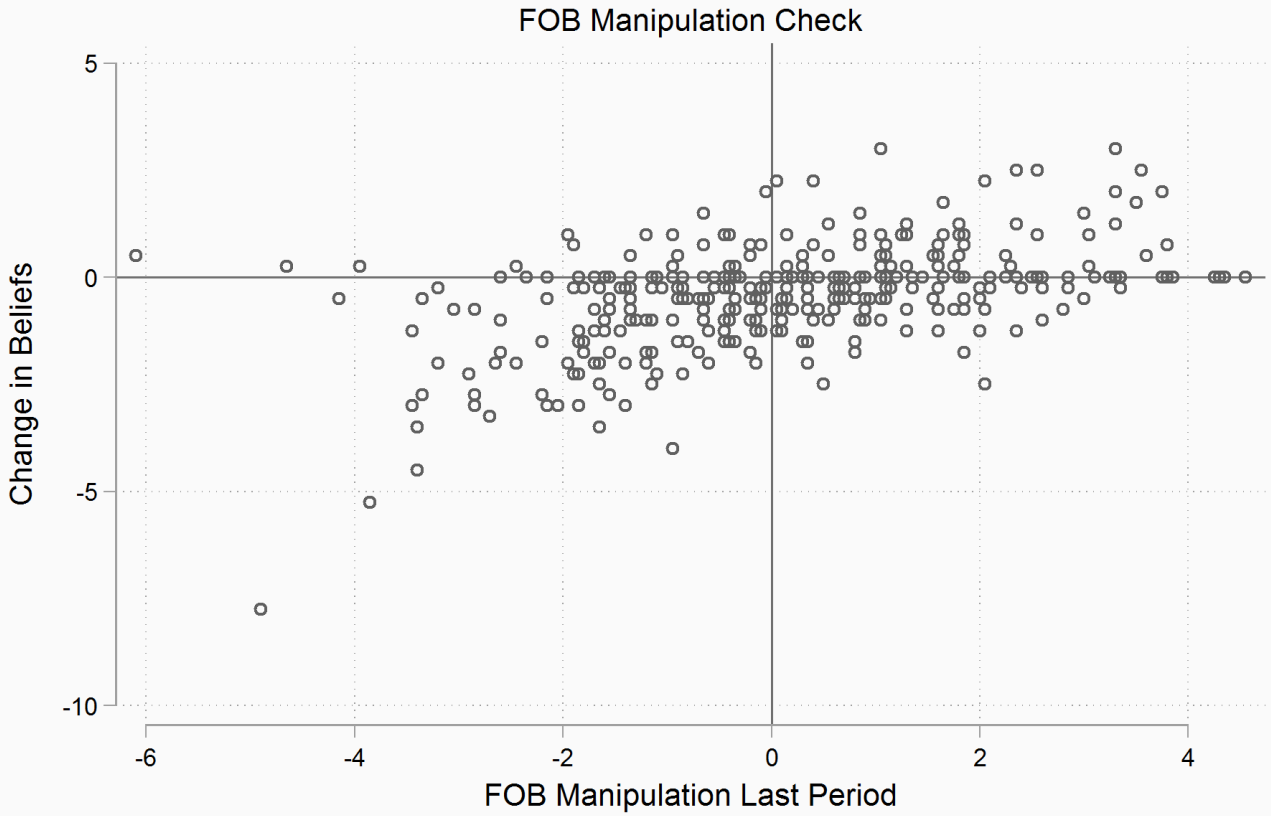
Back

DID PROVIDED INFORMATION CHANGE BELIEFS?



Regression coefficient: 0.346***

Back

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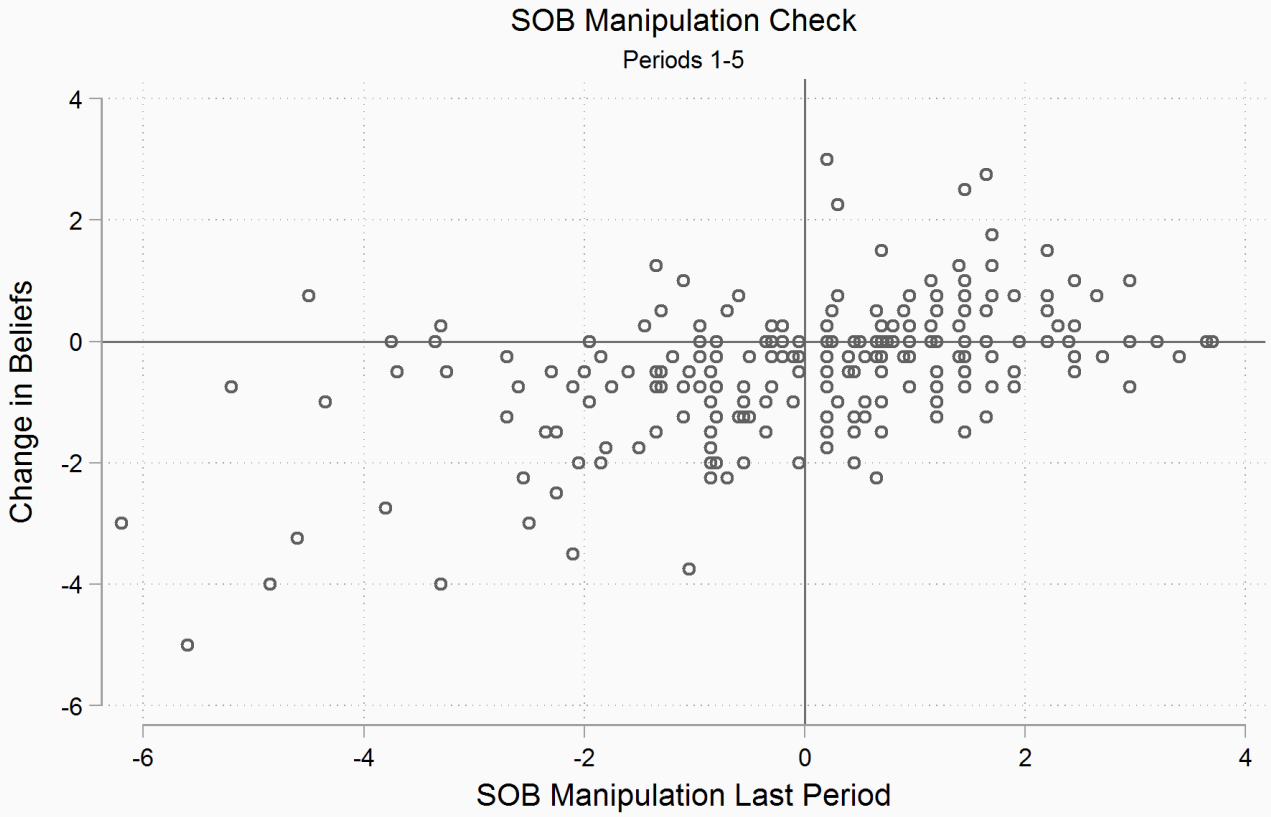

Regression coefficient: 0.306***

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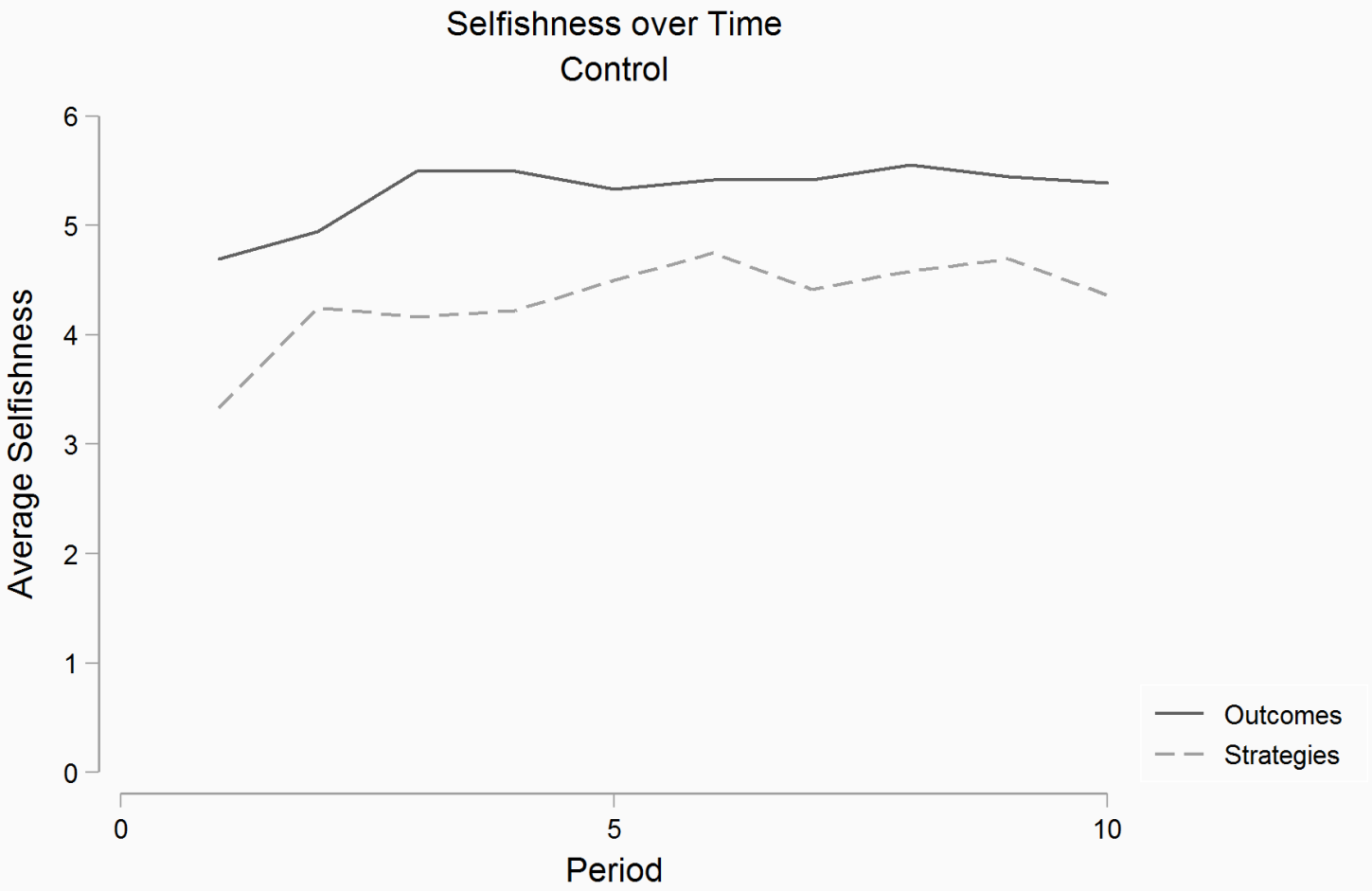
PREFERENCES OVER TIME



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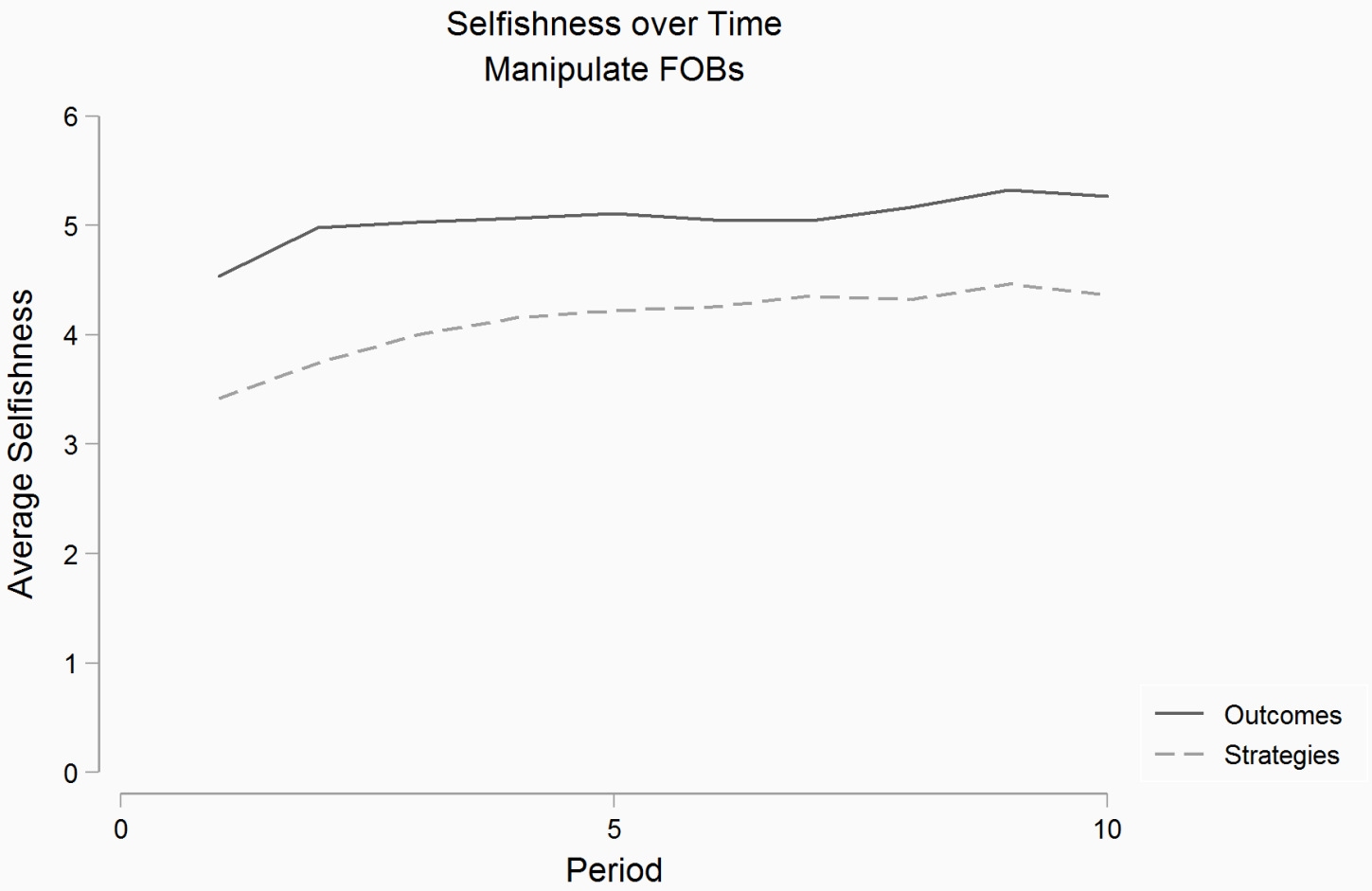

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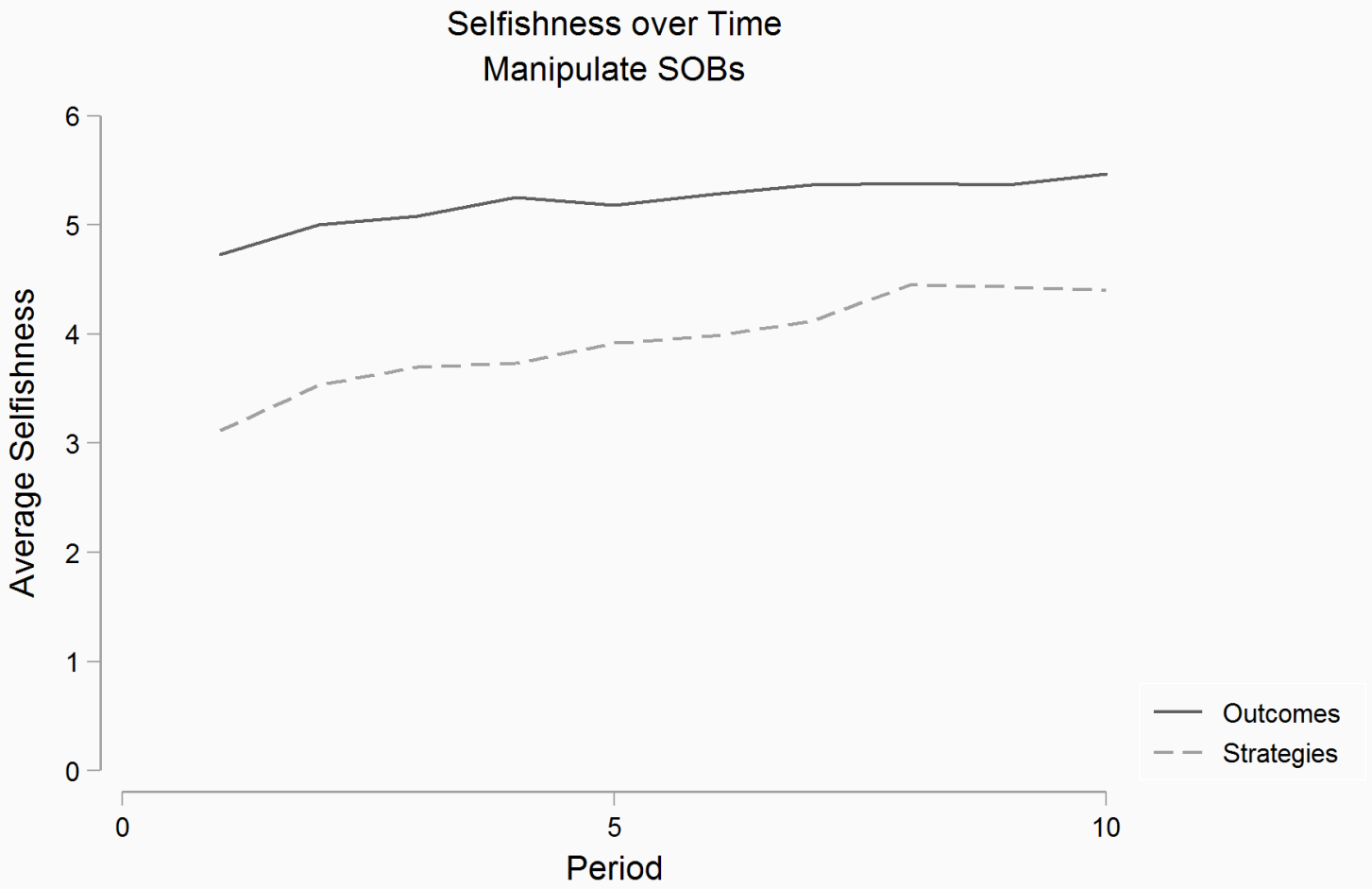

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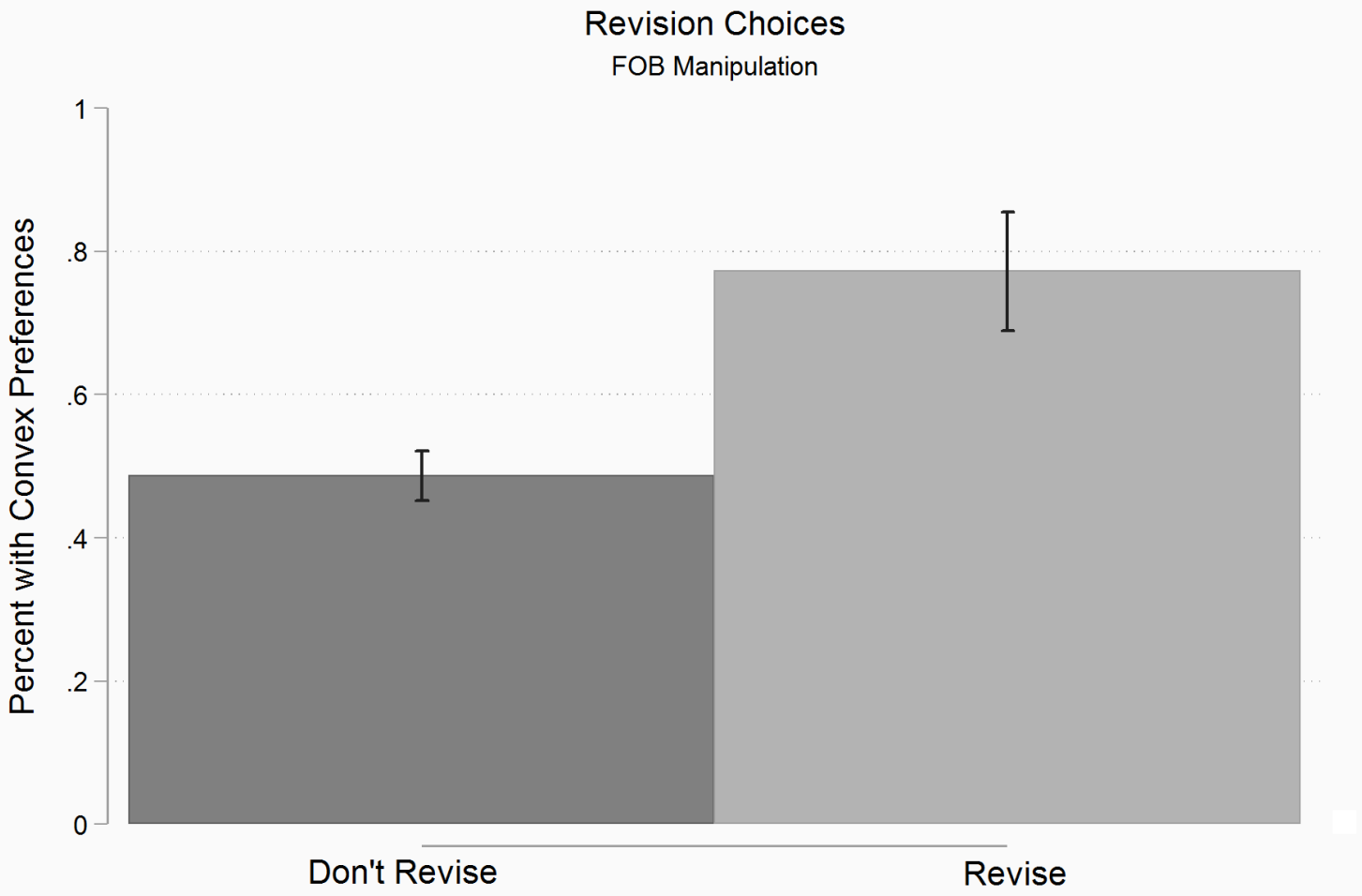

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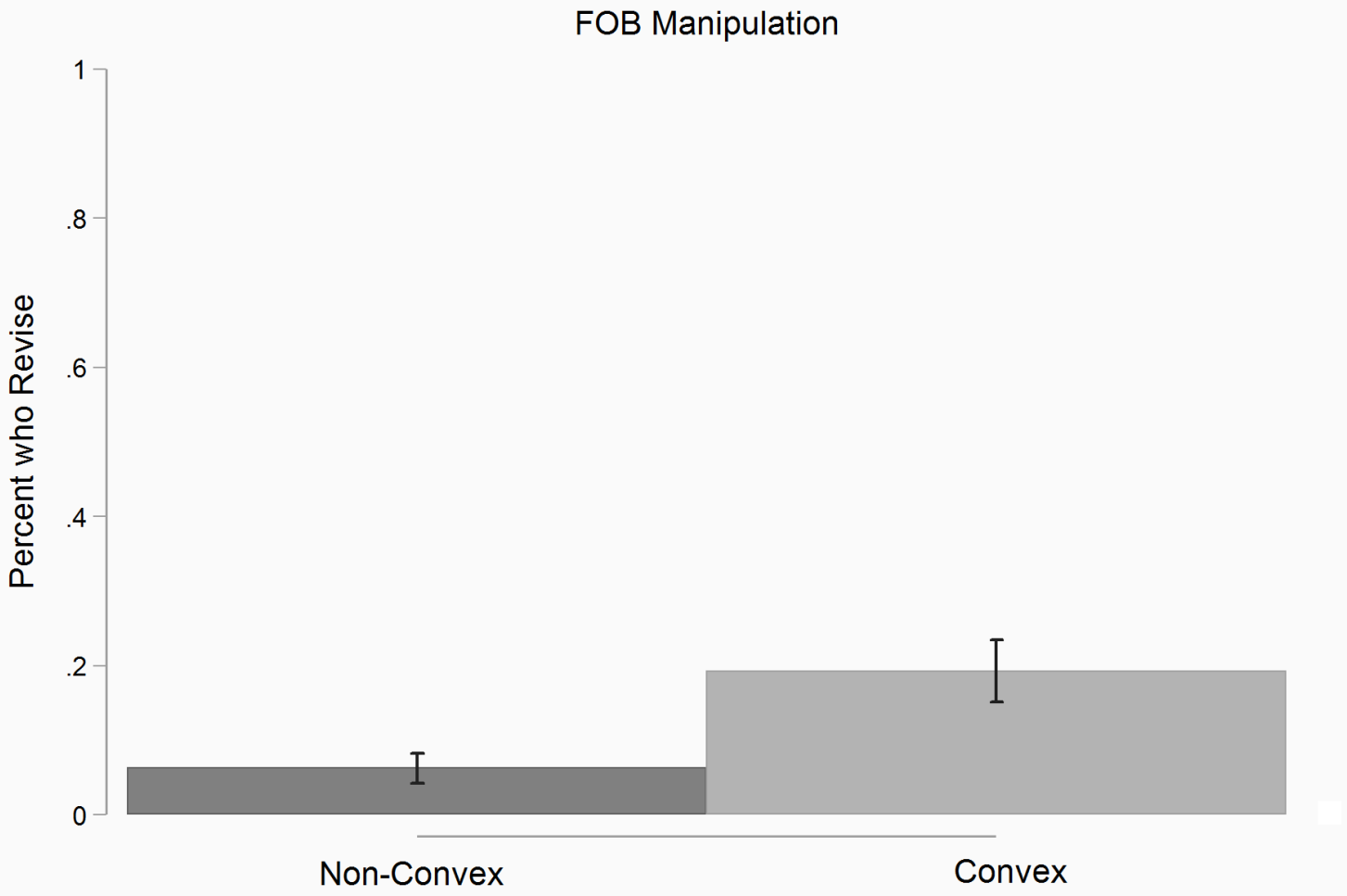

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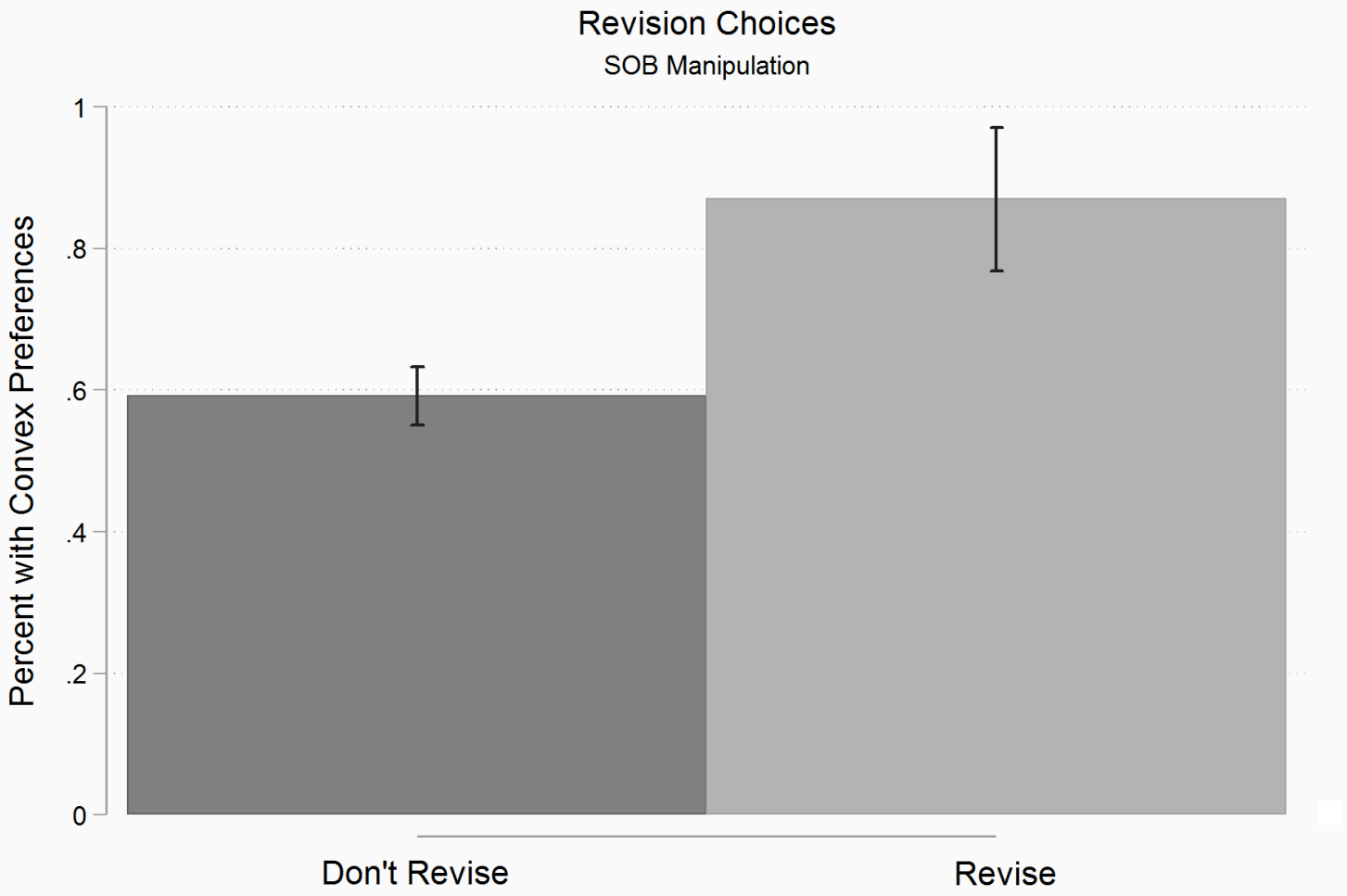
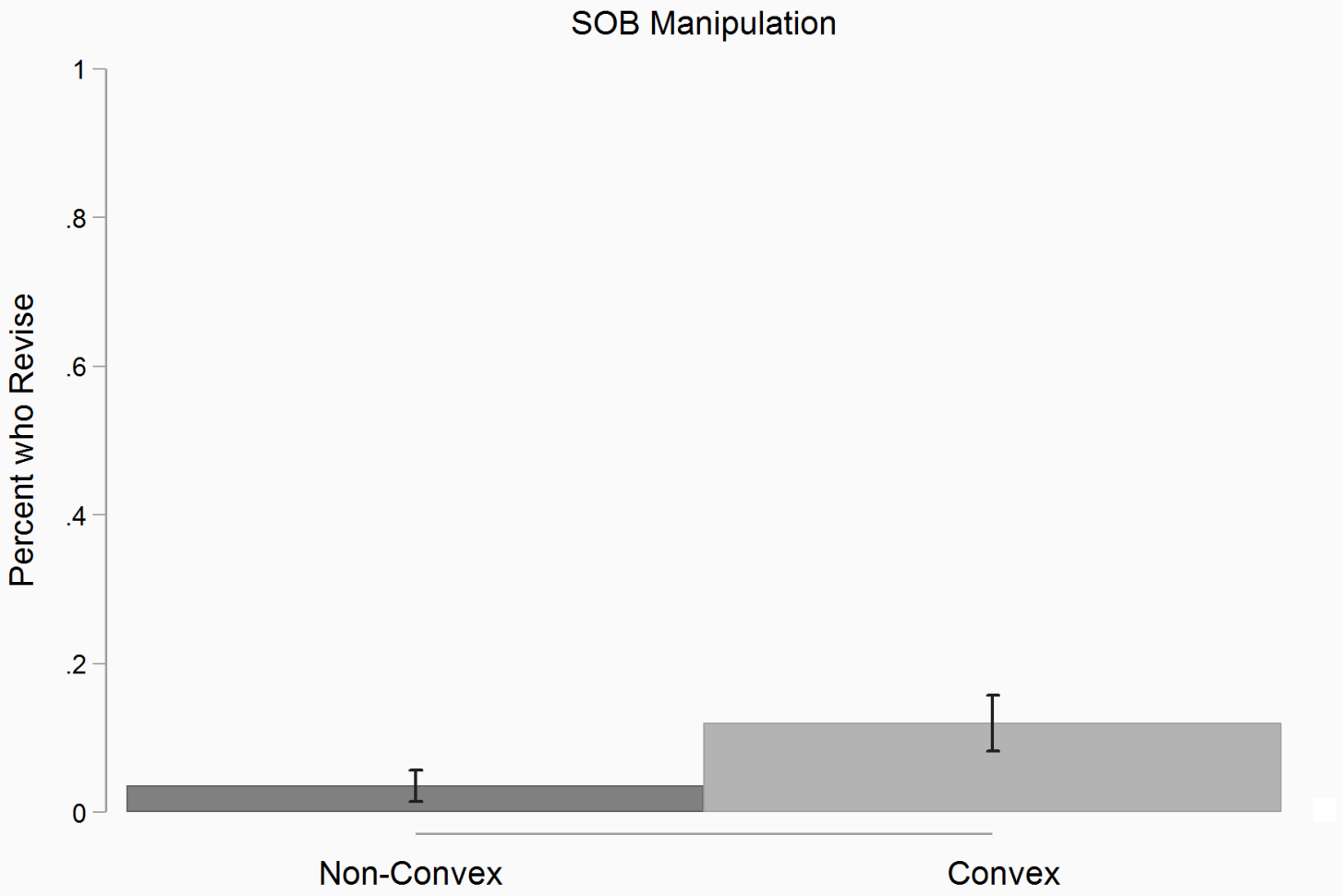
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