Contributing to Public Goods Inside Organizations: Field Experimental Evidence

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Introduction

The provision of public goods inside organizations

- Organization members are asked to perform activities that benefit everyone with little or no direct compensation for the worker
- Classic examples: teamwork, innovation
- An undersupply problem:
  - Contractual incentives backfire (multi-tasking, low experimentation)
  - Voluntary contributions have free riding problem

Fostering contributions with internal contests

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- Our goal: compare these two explanations, understanding potential trade-offs

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- **Task**: participate in internal contest to select innovation projects to improve the organization
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- **Motivations**:
  - Being awarded a "small" prize
  - Opportunity to improve the organization

Main findings

- Small prizes (an iPad mini) $\rightsquigarrow$ strong effect on participation of mission motivated employees
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- Distribution of quality of proposals is not affected by prizes
- All else equal, women respond more than men to a call framed as an opportunity to provide better care to their patients

Experimental design

The context of the experiment

The Massachusetts General Hospital Heart Center

- Serves thousands of patients
- 35000 square feet of office space for research
- Very busy environment. No incentives for PG

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  - 50% Nurses
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- Gender separation: Nurses: 90% women / Doctors: 70% men
- Income differences large across the professions (US BLS)

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- Announced via series of personalized emails
  - Content was randomized

Four treatments

"Dear Heart Center team member, Submit your ideas to . . .

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- Framing mission-oriented goals
  3. ... improve patient care (PCARE)

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- Framing mission-oriented goals
  3. ... improve patient care (PCARE)
  4. ... improve the workplace (WPLACE)

Additional implementation features

- Website of the contest
  - No leaderboards, no feedback
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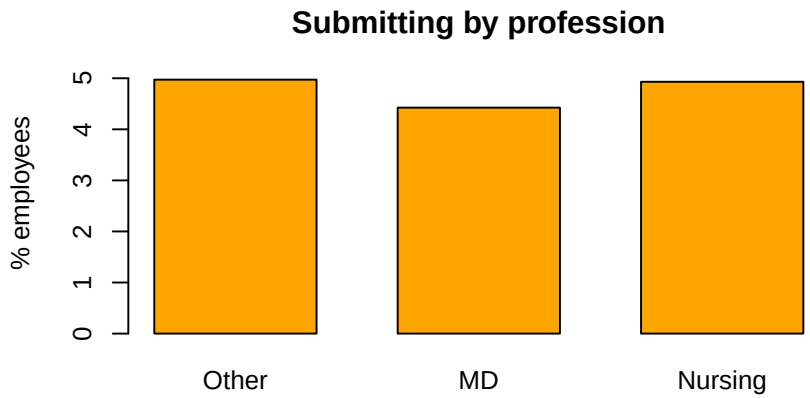
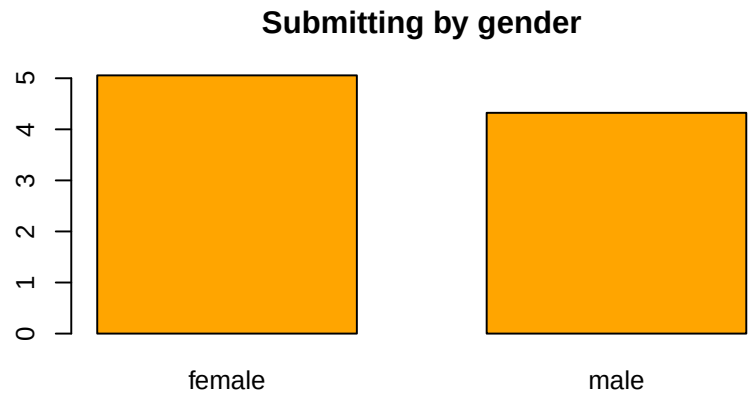
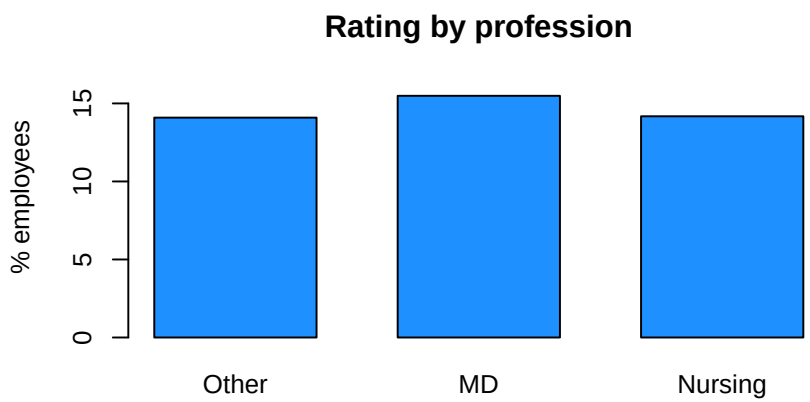
- Good statistical power Cohen (1992) (> 300 per treatment)
- Possible interference for $i \neq j$
  - Assignment Z_j affects Y_j affects Y_i
    - No feedback during the contest
  - Assignment Z_j affects Y_i
    - Competition does not incentivize communication
    - "bias" towards no effect

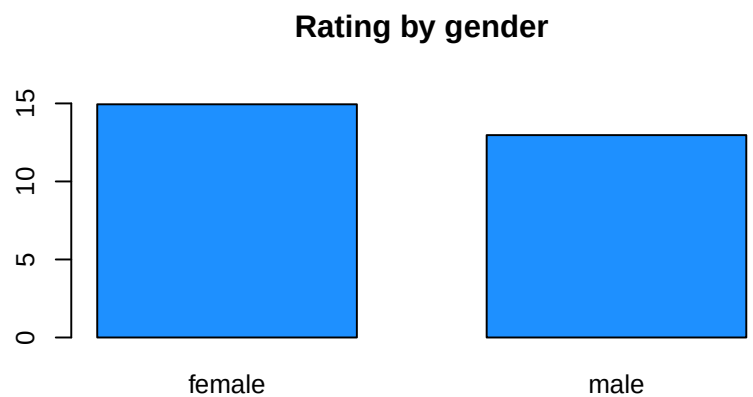
Results

Overview of participation in the contest



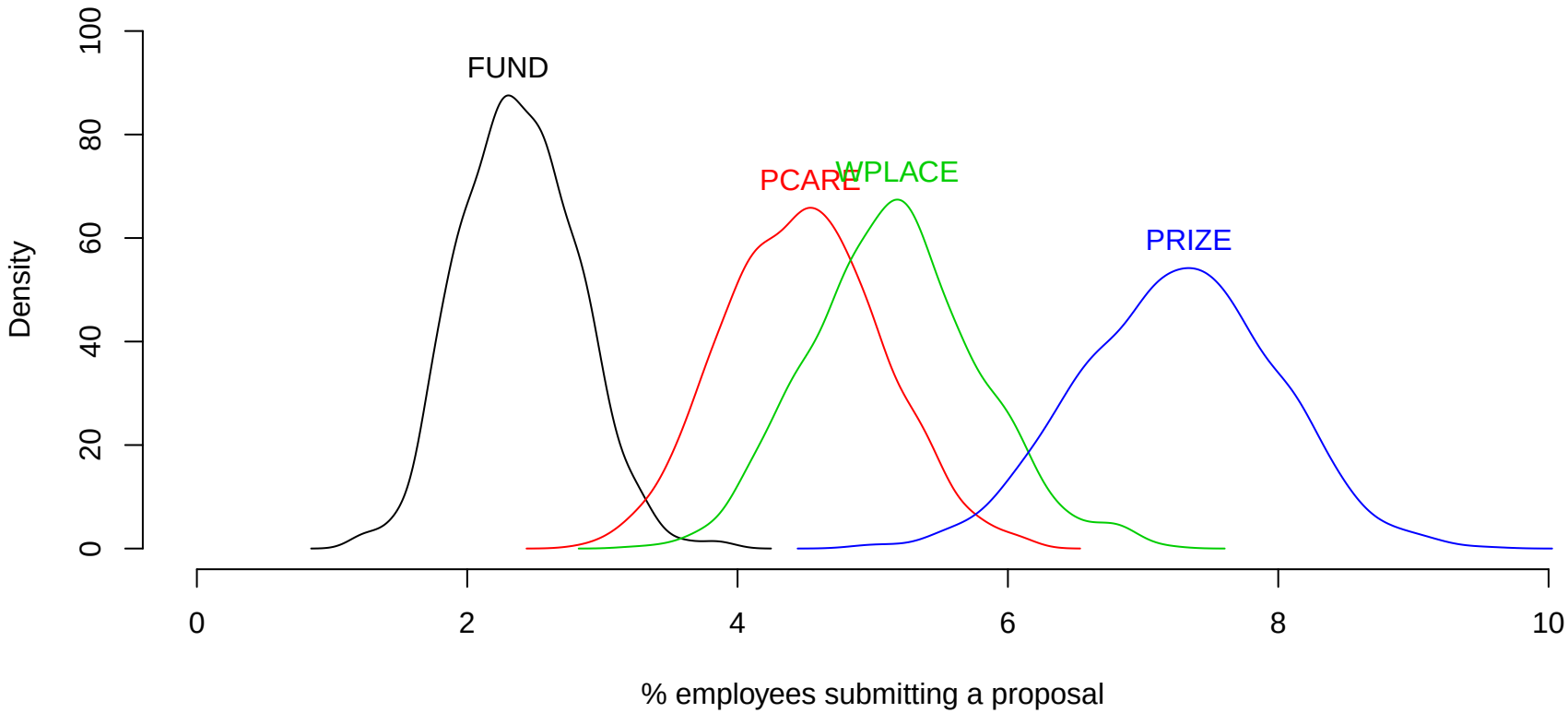






Strong positive (negative) effect of PRIZE (FUND)

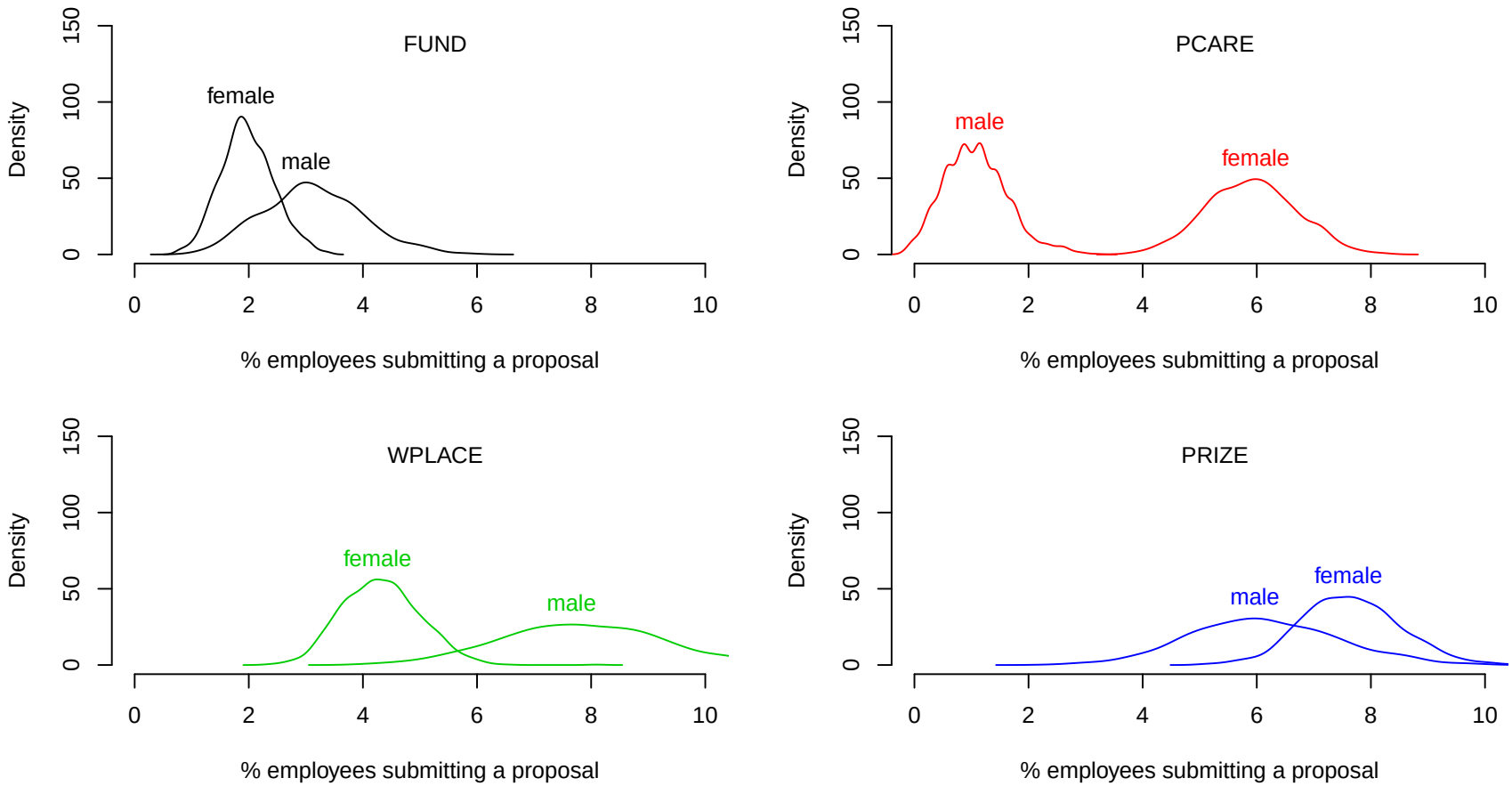
$$y_i \sim \text{Bernulli}(g(\tau_i + X_i\beta))$$



X's: the gender, profession, and fixed office location (yes/no)

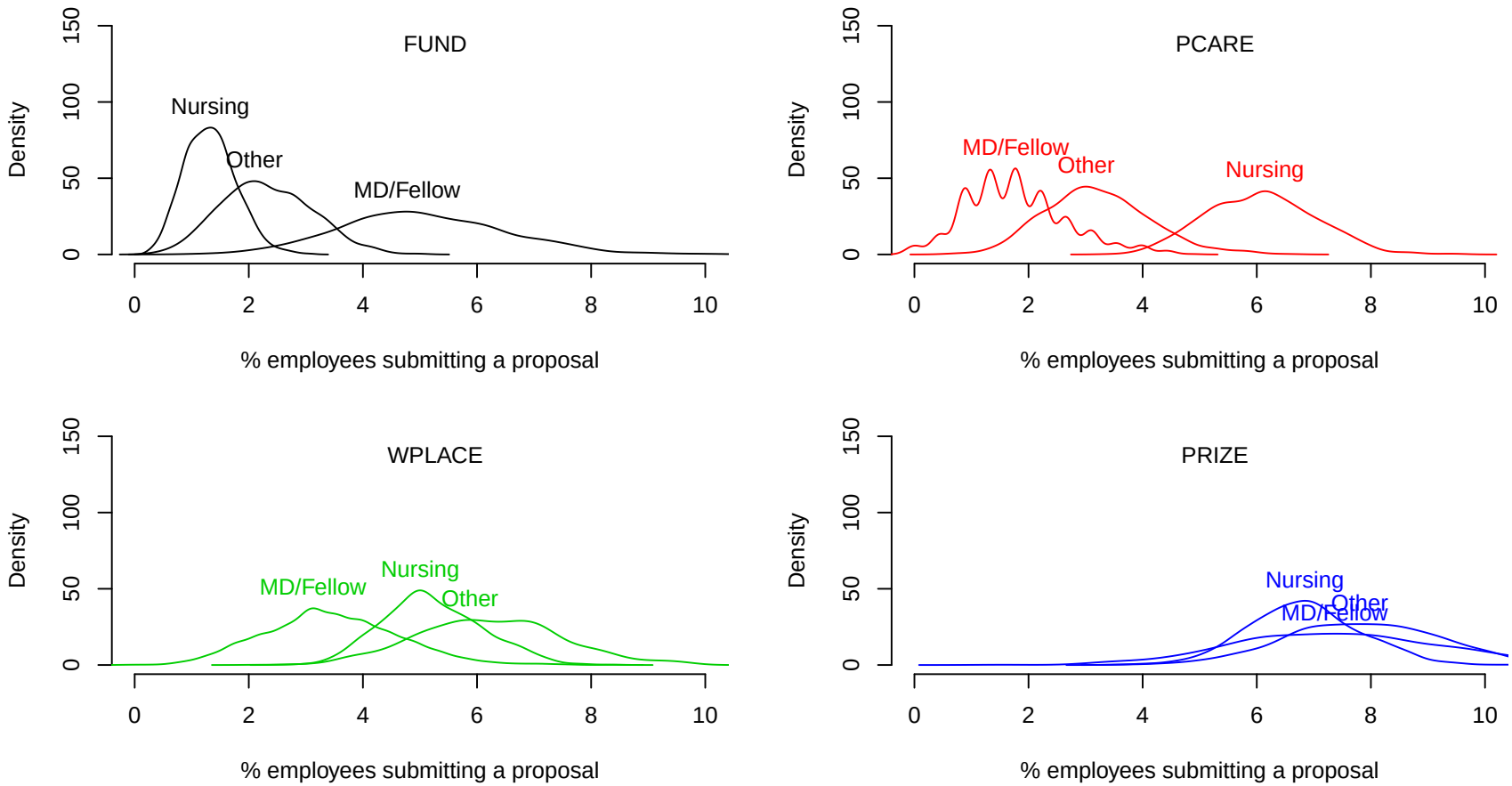
Women respond more than men in the PCARE group

$$y_{i,\text{gender}} \sim \text{Bernulli}(g(\tau_{i,\text{gender}} + X_i\beta))$$

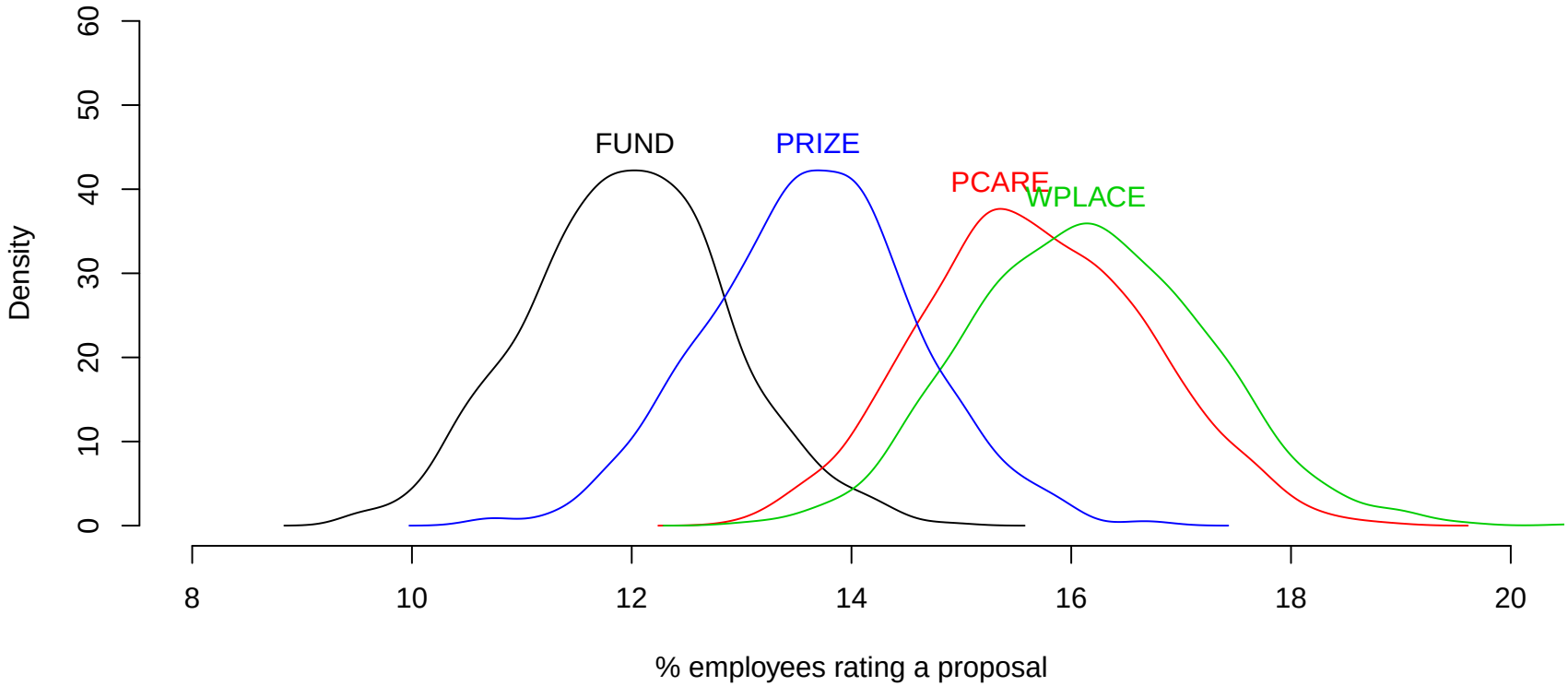


No "income" effects in the PRIZE group

$$y_{i,\text{prof}} \sim \text{Bernulli}(g(\tau_{i,\text{prof}} + X_i\beta))$$



No differences in rating submissions



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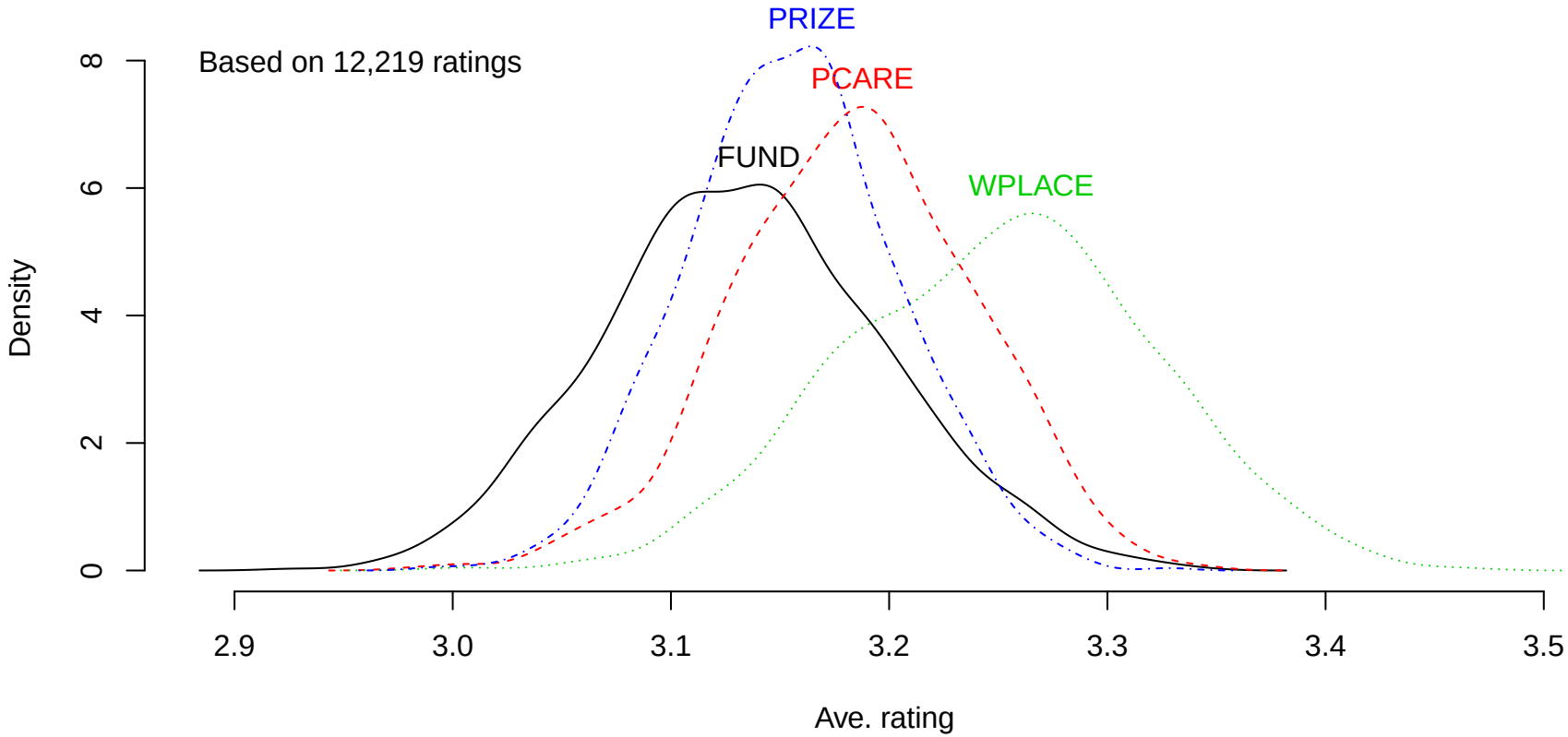
No difference in the distribution of quality



- Same no-difference result for other content:
  - individual rating, number of proposals, wordcount, areas of focus

To recap the results

- PRIZE strong positive effect on participation
  - No "income" effects & prize appears small
  - $\rightsquigarrow$ complementarity between prizes and social preferences (as in Morgan 2000)
  - Calibrate a model of PG to estimate magnitudine of social preferences (~25% costs)

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  - cheap talk $\rightsquigarrow$ no effect $\rightsquigarrow$ NO!
  - OR informative $\rightsquigarrow$ more work in implementation phase $\rightsquigarrow$ higher free-riding incentives $\rightsquigarrow$ YES!

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- Gender differences in PCARE $\rightsquigarrow$ mission preferences may differ between motivated agents

Conclusions

Summing up

- The nature of the prize matters
  - Not just compensation for effort
  - Small prizes mitigate free riding incentives as in Morgan (2000)
  - No quality vs participation trade-off
- Communication is important
  - The way the contest is announced can increase participation
  - It can also generate gender differences

- Questions?
- Comments?
- Thoughts?
- Discussion

Extras

Web announcement

If you've noticed something about patient experience, employee satisfaction, workplace efficiency, or anything that could be improved; if you've had an inspiration about a new way to safeguard health; or if you simply have a cost-saving idea, then now is the time to share your idea.

Personalized email

Dear Heart Center team member,

[TREATMENT HERE]

The Ether Dome Challenge is your chance to submit ideas on how to improve the MGH Corrigan Minehan Heart Center, patient care and satisfaction, workplace efficiency and cost. All Heart Center Staff are eligible to submit ideas online. We encourage you to submit as many ideas as you have: no ideas are too big or too small!

Submissions will be reviewed and judged in two rounds, first by the Heart Center staff via crowd-voting, and then by an expert panel. Winning ideas will be eligible for project implementation funding in the Fall of 2014!

The random assignment

	Random assignment:		
	Employees	%	Paragraph
PRIZE	312	25	Submit your ideas to win an Apple iPad mini.
FUND	308	25	Submit your ideas to win project funding up to $20,000 to turn your ideas into actions.
PCARE	310	25	Submit your ideas to improve patient care at the Heart Center.
WPLACE	307	25	Submit your ideas to improve the workplace at the Heart Center.
Total	1237	100	

Submissions' areas of focus

	% proposals	Proposals
Information and access	20	23
Patient support	20	23
Care Coordination	18	20
Staff workflow	16	18
Workplace	15	17
Quality and safety	9	10
Surgical tools and support to research	2	2
Total	100	113

Pairwise differences

	Diff	CI (2.5%)	CI (97.5%)	P-value	Adj. P-value
FUND (women) vs. FUND (men)	-1.2	-5.3	2.3	0.576	0.588
PCARE (women) vs. PCARE (men)	5.0	1.0	8.7	0.014	0.056
WPLACE (women) vs. WPLACE (men)	-3.8	-10.8	1.6	0.212	0.424
PRIZE (women) vs. PRIZE (men)	1.6	-4.7	7.5	0.588	0.588

Probability of Submitting

	Dependent variable:				
	$SUBMIT_{ij}$				
	(1)	(2)	(3)	(4)	(5)
treatmentPRIZE	2.53**	2.53**	2.52**	2.46**	2.45**
	(1.21)	(1.21)	(1.21)	(1.21)	(1.21)
treatmentWPLACE	0.37	0.37	0.35	0.38	0.30
	(1.09)	(1.09)	(1.10)	(1.09)	(1.10)
treatmentFUND	−2.57***	−2.57***	−2.55***	−2.49***	−2.38***
	(0.86)	(0.86)	(0.85)	(0.86)	(0.85)
jobNursing		0.14			1.85
		(0.82)			(1.23)
jobMD/Fellow		−0.31			−1.14
		(1.03)			(1.24)
genderMale			−0.54		−0.42
			(1.33)		(1.64)
officeYes				2.79**	4.56***
				(1.20)	(1.60)
Constant	4.84***	4.78***	5.00***	3.35***	1.97
	(0.61)	(0.66)	(0.73)	(0.75)	(1.25)
Observations	1,237	1,237	1,237	1,237	1,237
Log Likelihood	150.63	150.67	150.71	153.25	155.15
Akaike Inf. Crit.	−293.26	−289.35	−291.42	−296.49	−294.29

Probability of submitting X Gender

	Dependent variable:		
	$SUBMIT_{ij}$		
	(1)	(2)	(3)
PRIZE × female	2.99*	2.95*	2.84
	(1.68)	(1.79)	(1.78)
PCARE × female	1.25	1.21	1.08
	(1.57)	(1.61)	(1.61)
FUND × female	−2.91***	−2.95**	−2.79**
	(1.06)	(1.20)	(1.19)
WPLACE × female	−0.49	−0.52	−0.62
	(1.35)	(1.44)	(1.43)
PRIZE × male	1.37	1.42	1.40
	(2.44)	(2.51)	(2.50)
PCARE × male	−3.75***	−3.72***	−3.64***
	(1.15)	(1.16)	(1.16)
FUND × male	−1.67	−1.65	−1.48
	(1.70)	(1.65)	(1.66)
gender	yes	yes	yes
job		yes	yes
office			yes
Observations	1,237	1,237	1,237
Log Likelihood	−153.55	−153.57	−157.91

References

Besley, Timothy, and Maitreesh Ghatak. 2005. "Competition and Incentives with Motivated Agents." *The American Economic Review* 95 (3). American Economic Association: 616–36.

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