Lying Out of Obligation:
Cheap Talk in an Ultimatum Game with Outside Obligations

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In response to the pandemic, tech companies offered generous "benefits" to the employees with outside obligations. (NYT, Sept. 5, 2020)

Leave Policy: In March, Facebook offered up to 10 weeks of paid time off for employees if they had to care for a child whose school or day care facility had closed or for an older relative whose nursing home was not open. Google and Microsoft extended similar paid leave to employees.

Freeze on performance ratings: Facebook announced that would not be scoring employees on job performance for the first half of 2020. Every employee would receive bonus amounts usually reserved for very good performance scores.

What happens when employers want to offer higher wages to employees who have higher outside obligations?

The following pre-employment inquiries may be regarded as evidence of **intent to discriminate** when asked in the pre-employment context:

- Whether applicant is pregnant.
- Number and age of children or future child bearing plans.
- Marital status of applicant or whether applicant plans to marry.
- Child care arrangements.
- Employment status of spouse.
- Name of spouse.

These questions **are frequently used to discriminate** against women and may violate Title VII if used to deny or limit employment opportunities.

However, the **lack of information invites opportunities for implicit bias.**

People can also offer (unverified) information *voluntarily* during interviews.

In this study…

- We model the employer/employee roles as proposer/responder in an ultimatum game with a real effort task

- Only the responders face a potential surplus transfer to a third party, which we refer to as *outside obligations*.

- The outside obligations (OO) randomly vary across rounds.

- Conditions are carefully designed to test and control for potential gender bias within negotiations.

In this study...

- We focus primarily on a "cheap talk" setting, where Responders have the opportunity to send an unverified signal to the Proposer regarding the level of outside obligation.

- We also solicit the Proposer's beliefs about the true level of outside obligation after observing the signal.

- In a related study, the outside obligation is either common knowledge (Information/Truth), or no information is provided to Proposers (MPR, 2023).

Research Questions

How does the option to send a cheap talk signal impact negotiations in an Ultimatum game with outside obligations?

- <u>Question 1</u>: When responders can send a cheap talk signal to proposers, what signal do they send, holding the outside obligation constant?

- <u>Question 2</u>: How likely are Proposers to believe the cheap-talk signal, and how does the signal/beliefs affect Proposers' offers?

- <u>Question 3</u>: Is there a gender difference in signals and beliefs, asks and offers?

Renumeration Choice Framework

Ultimatum game

- **with real effort** (García-Gallego et al. (2008, 2012)).
  - The equality of payoffs is the default norm only when endowment is unearned (Barber and English, 2019). If both earn surplus, proportional division is observed.
  - When both earn the endowment, employers post lower offers and employees are more likely to reject a given offer.

- **with wage asks** (Rankin, 2003)
  - Influences employer's beliefs and affects distribution of surplus.
  - Could attempt to signal outside obligations.

- When only the responder earns the endowment, both equity and equality norms suggest that responders should get a more favorable share of the pie and that this share ought to increase with their outside obligations.

Literature on lying/misreporting

- Sometimes men lie more.
  - (Houser et al, 2012; Dreber and Johannesson, 2008;
    Bucciol, Landini and Piovesan, 2013; Azar, Yosef and Bar-Eli, 2013)
- Sometimes women lie more.
  - (DePaulo et al, 1996; Erat and Gneezy, 2012)
- Sometimes men and women lie the same.
  - (Gneezy et al, 2013; Pate, 2018)
- **In this study, we can examine:**
  - Misreporting (over- or under-, by gender, to the same or a different gender).
  - Beliefs about over-reporting (by gender, about the same or a different gender).
  - Whether there are patterns of behavior on any side/from/to either gender.
  - Whether (and how) Proposers act on their beliefs about lying/over-reporting with their offers to Responders.
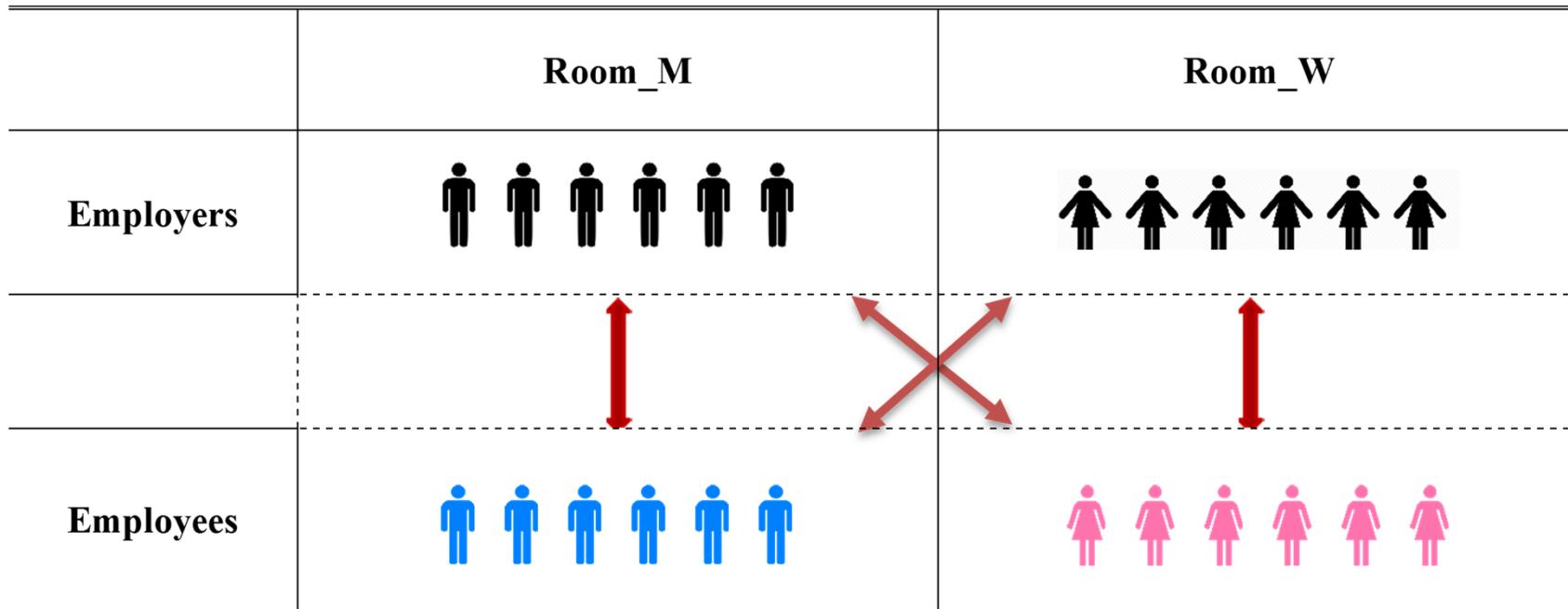
Experimental Design

- Funded by the IFREE Small Grants Program.

- Conducted at TIDE Lab at the University of Alabama using z-Tree.

- 8 sessions, with 24 subjects per session. N = 192.

  - Full sample: 16 sessions with 384 subjects.

- Sessions lasted around 45 minutes.

- Collected data on altruism, risk aversion, and demographics.

- Paid subjects for 3 out of the 12 periods in negotiation game.

- The average earnings were US$22.78.

- At the end of each negotiation period, both players learn their individual period earnings, including the pre- and post- obligation earnings for the Responders.

Experimental Design

- Treatment variables:
  - Obligations varied within session.
  - Gender varied within session.

- Outside obligations vary across 0%, 25%, and 50%, each are equally likely to occur in any round. Neutral wording:

  "The Green player may have an obligation to
  pay a portion of their earnings to a third party."

Experimental Design

12 men & 12 women - Fixed roles

Carefully controlled gender pairing

Perfect Stranger Matching across rounds

Experimental Design

Treatment	Sequence 1 (Periods 1-6)	Sequence 2 (Periods 7-12)	Number of Sessions
No Info*	MM FF	MF FM	2
	MF FM	MM FF	2
Cheap Talk	MM FF	MF FM	4
	MF FM	MM FF	4
Info*	MM FF	MF FM	2
	MF FM	MM FF	2

Experiment Design – Ultimatum game

Round n	Mover	Action
Step 1	Employee	Learns the outside obligation: 0, 25, or 50. Makes a wage ask: $w_a \epsilon [\mathbf{10}, \mathbf{90}]$. Sends a signal: 0, 25, or 50 (*if applicable*).
NO INFORMATION treatment Outside obligation is not revealed to Proposer.	**CHEAP TALK treatment** Outside obligation is not revealed; only non-credible signals.	**INFORMATION treatment** Outside obligation is common knowledge to all.
Step 2	Employer	Learns outside obligation or signal (*if applicable*). Learns the wage ask w_a. Makes a wage offer $w_o \epsilon [\mathbf{10}, \mathbf{90}]$. (Same or different from the wage ask.)
Step 3	Employee	Learns the wage offer w_o. **Accepts** or **rejects** the offer. - If Accept: split is implemented. - If Reject: both receive the minimum earnings.

STEP 3

If Responder accepts the offer

Responder perform the task and surplus earned (@ 100 ED per slider) is divided according to w_o.

If Responder rejects the offer

Responder & Proposer perform the task, and each earn minimum surplus (@ 10 ED per slider). Responders still pay their OO.

Slider Task

Responders were given one minute to complete 15 sliders.

The task was purposefully straightforward to mitigates any concerns or potential quality-related bias from the task. The size of the total pie is not performance-related.

Neither gender has an innate advantage in completing this task, so the perception of differences in competence and ability across genders is not expected as a result of the task.

Data Collected

- 4,608 paired observations across all three treatments.

- 2,304 paired observations in the Cheap Talk treatment.

- In each session, 24 subjects held 144 negotiations: 72 MM/FF and 72 MF/FM.

- Analysis can be done by treatment, by OO (low, medium, high) or by gender (M vs F)

- In cheap talk treatment, primary variables of interest are:

    - Responder's signals and asks

    - Proposer beliefs and offers

    - Offer acceptance rates

    based on level of outside obligation and gender.

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Data Collected: Cheap Talk

|		F	Signal/ Belief	M	Signal/ Belief	Aggregate Signal/Belief	Aggregate Ask/Offer
				Cheap Talk Treatment			
Ask %	No obligation (0)	62.9	26.2	66.5	36.1	31.2	64.7
	Small obligation (25)	65.3	30.2	67.3	36.0	33.1	66.3
	Large obligation (50)	68.7	42.1	70.4	45.8	43.9	69.5
Offer %	No obligation (0)	50.7	28.5	52.5	22.1	25.3	51.6
	Small obligation (25)	51.2	49.5	53.8	47.1	48.3	52.5
	Large obligation (50)	51.3	29.1	53.3	25.3	27.2	52.3
Prob. Accept offer	No obligation (0)	88.4		87.9			88.2
	Small obligation (25)	79.1		87.7			83.4
	Large obligation (50)	78.3		74.8			76.5

Results: Responder Signals
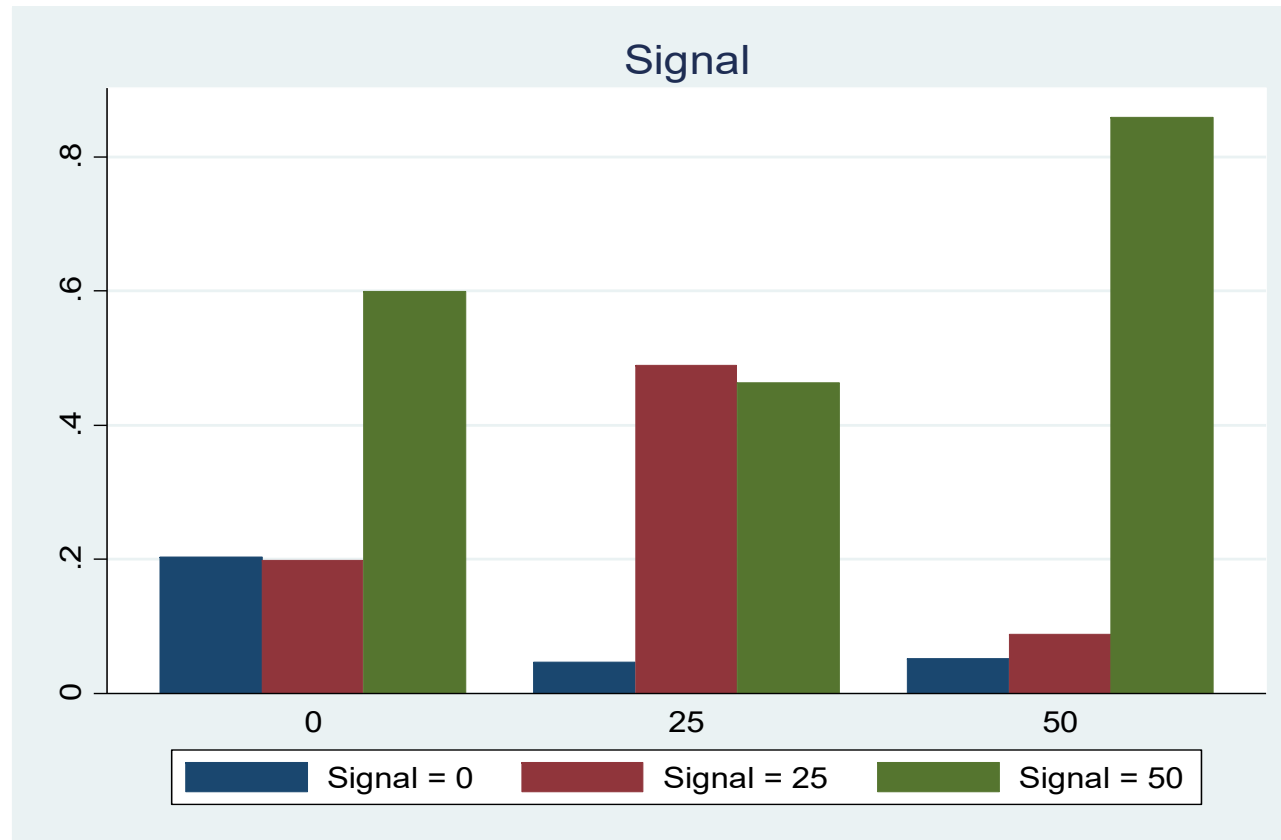
Percentage of responders who signaled 0/25/50 shown by level of outside obligation.

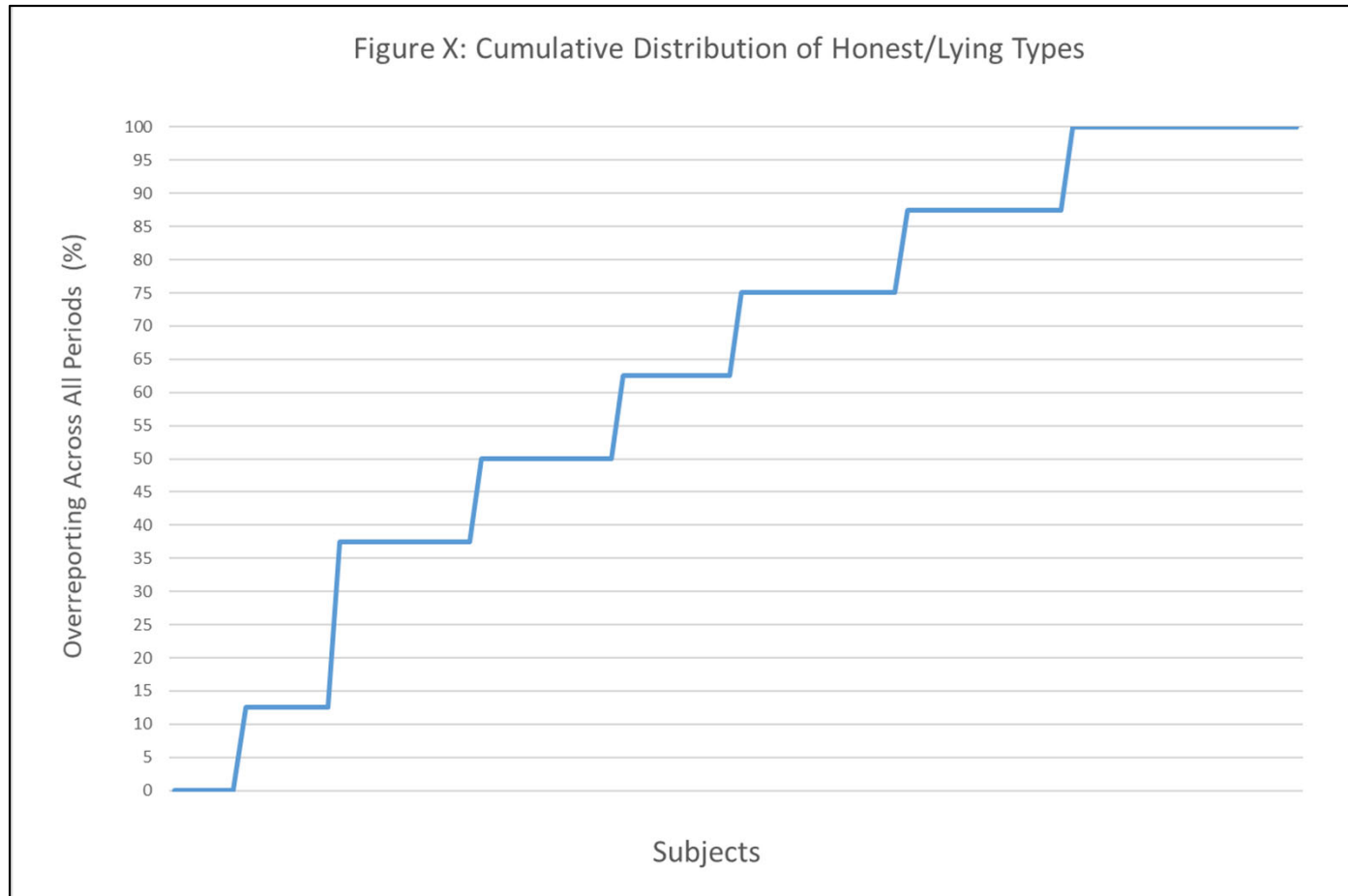# Results: Responders Signal across Gender
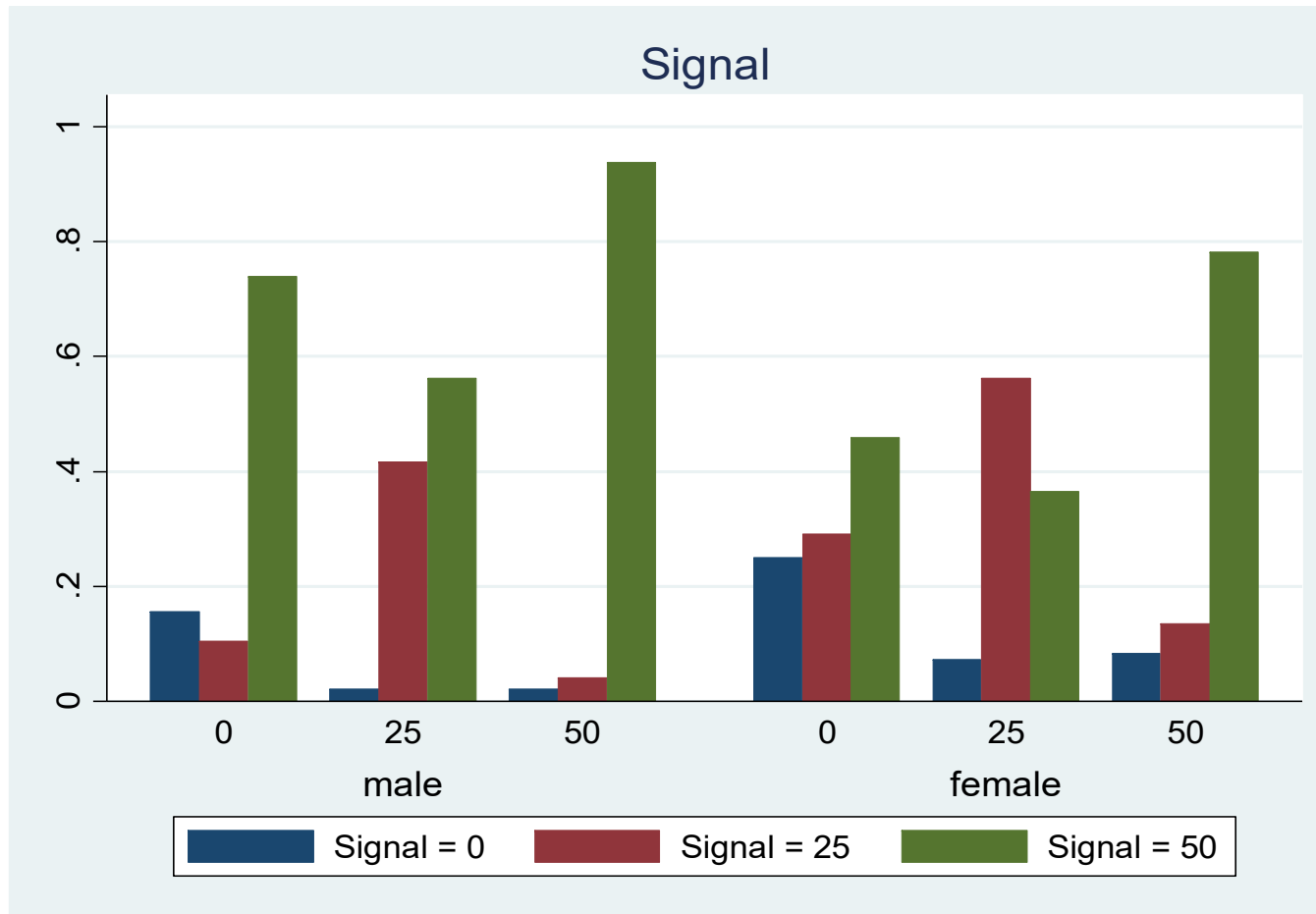
Percentage of responders who signaled 0/25/50, shown by level of obligation, sorted by gender.
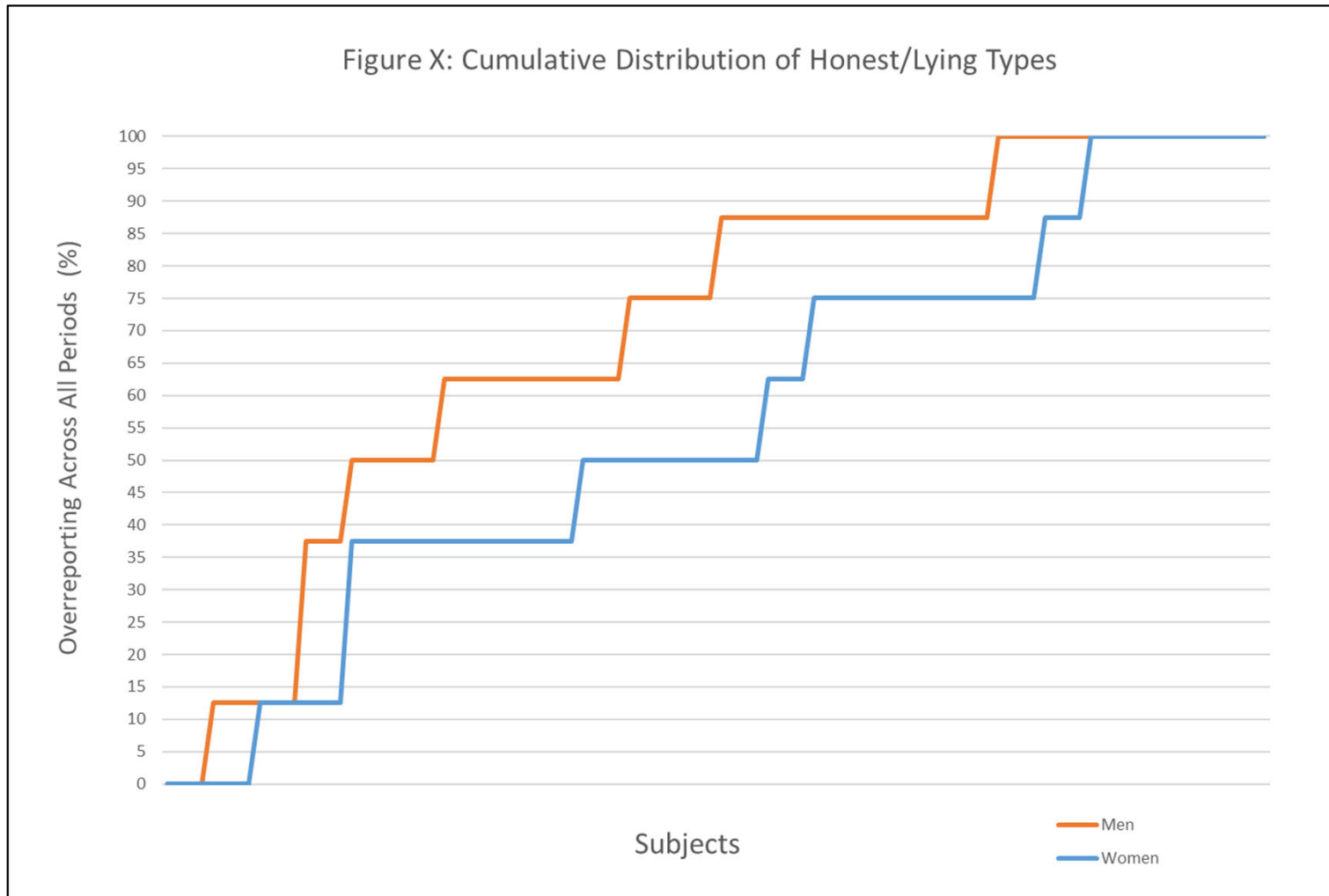
Results: Under Reporting
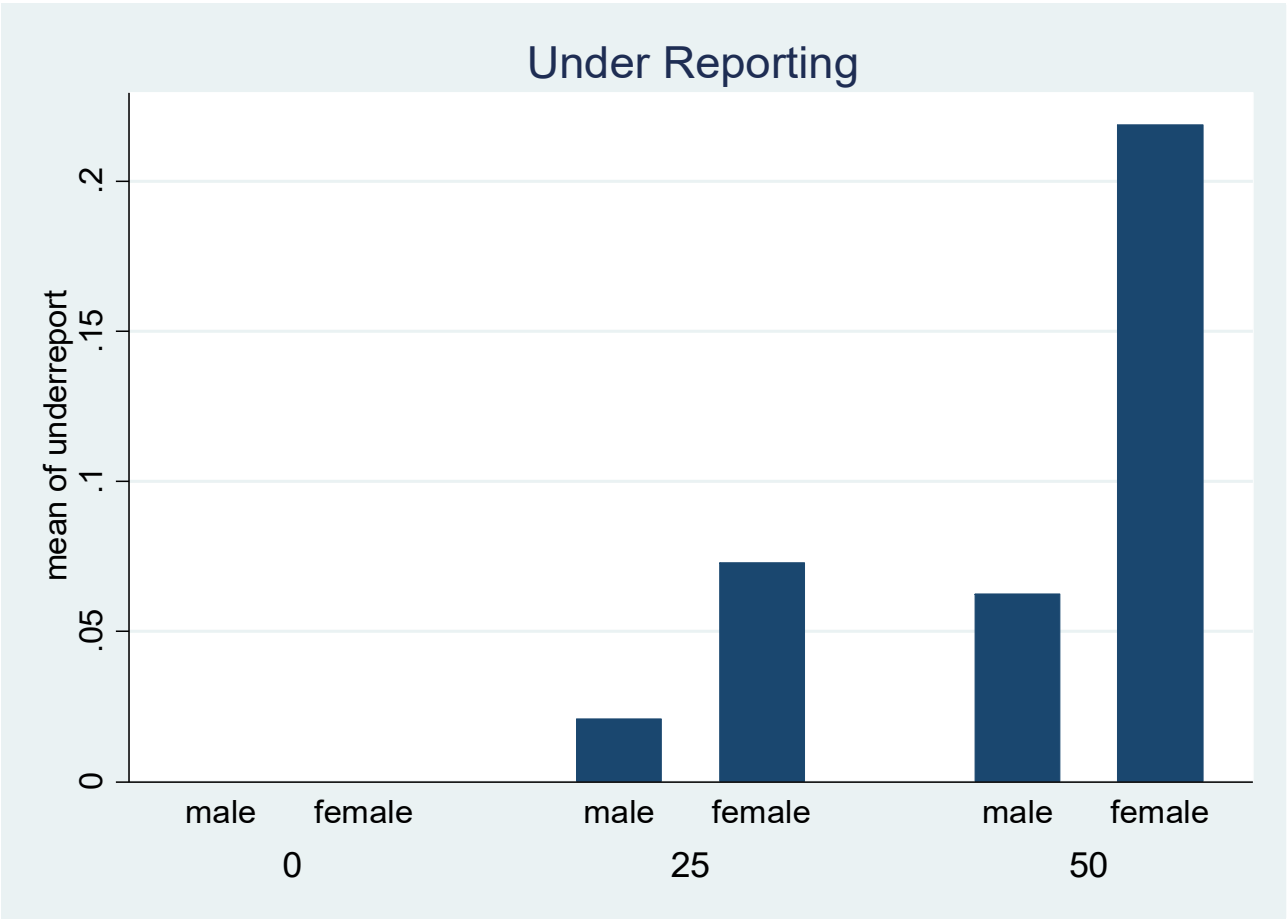
Percentage of responders who under-reported, shown by level of obligation, sorted by gender.
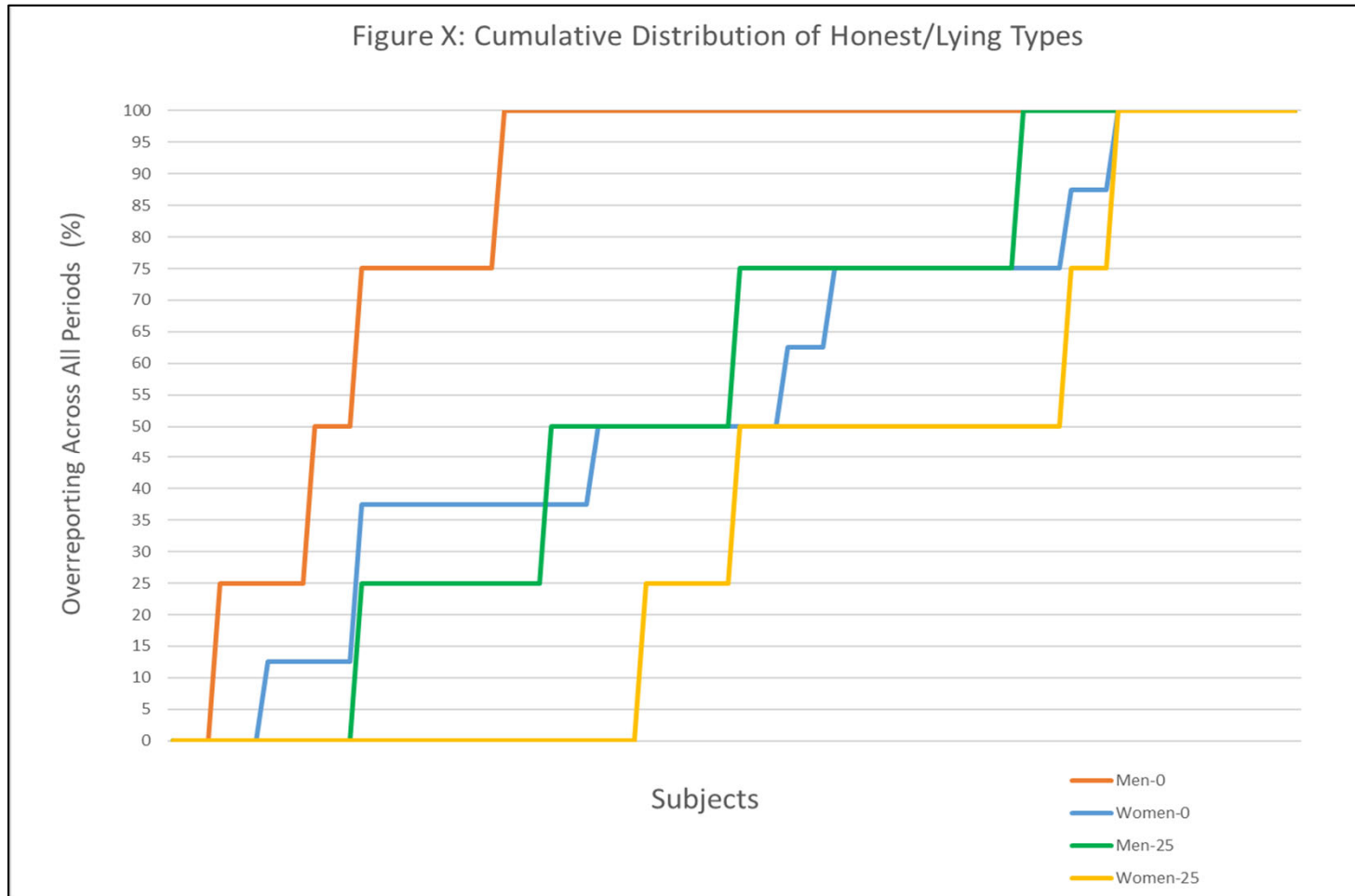
Results: The cumulative distribution of overreporting

Figure X: Cumulative Distribution of Honest/Lying Types

Results: Overreporting across genders

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Figure X: Cumulative Distribution of Honest/Lying Types
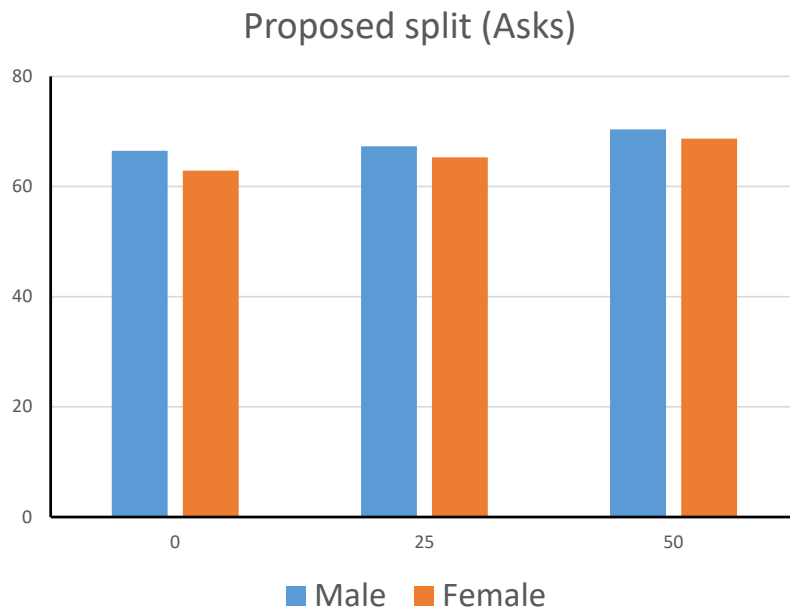
Summary of Findings: Responder Signals

- **Responders frequently over-report the level of outside obligations**
  - Men are more likely to lie than women (70.3 percent vs 55.7 percent for women), when over-reporting is possible.
  - Men over-report to a *greater extent* when possible - signaling 50 (when OO=0) 74% of the time (vs. 46% for women).
- **There is also some under-reporting.**
  - When the obligation is 50, women under-report ~17 percent of the time (vs. 11 percent of the time for men).

Results: Responders' Asks – Cheap Talk Treatment

Proposed split (Asks)

	0	25	50
Male	66.5	67.3	70.4
Female	62.9	65.3	68.7

■ Male ■ Female
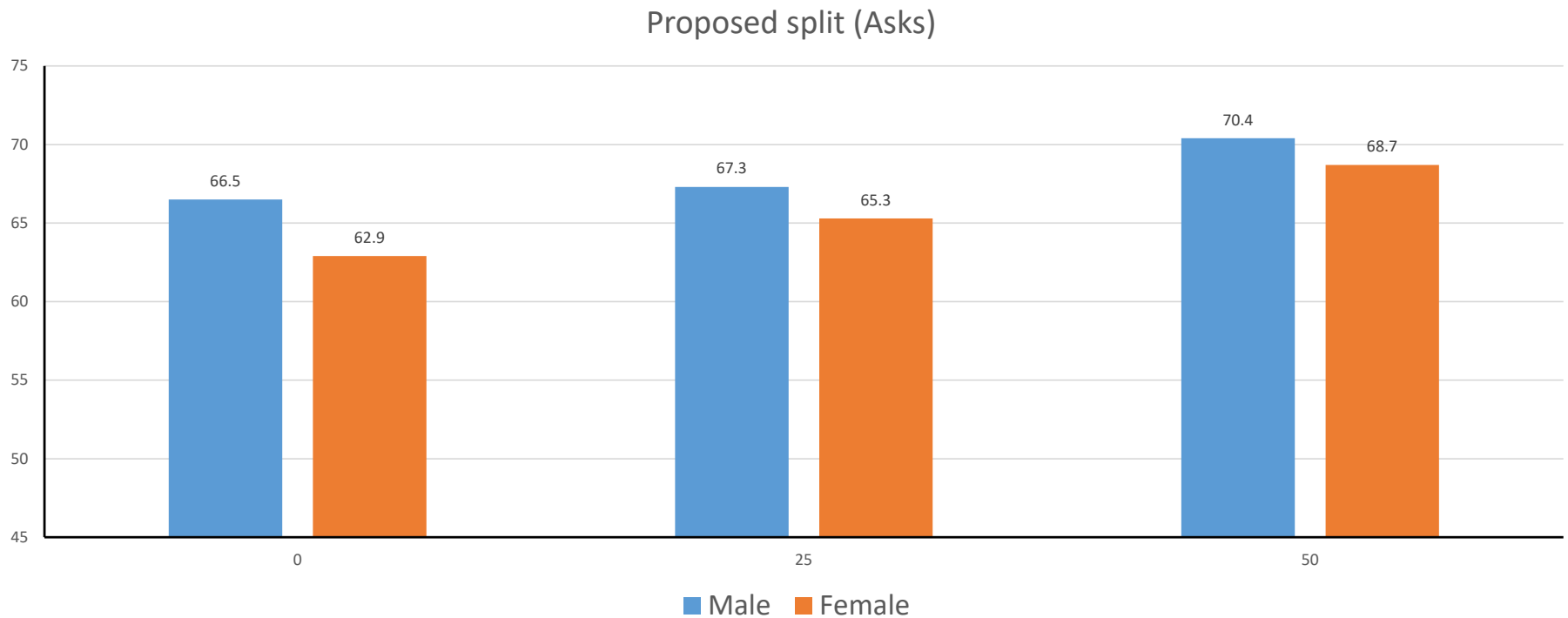
Results: Responders' Ask – Cheap Talk Treatm.

Proposed split (Asks)

In the Cheap talk treatment, the ask by female responders is not different from the ask by male responders for all OO levels.

Counter Split (Offer)

	0	25	50
Male	52.5	53.8	53.3
Female	50.7	51.2	51.3

Male   Female

Research Questions on Offers - Results

How does the revelation of the level of outside obligation impact the offers?

On average, offers do not differ across the outside obligation levels.

Is there a gender difference in offers, holding the outside obligation constant?

No gender difference.

Is there a difference in negotiated outcomes when the negotiations feature mixed genders?

No gender difference.

Results: Asks vs Offers - Cheap Talk treatment

OO = 0	Equal Split = 50:50
OO = 25	Equal Split = 58:42
OO = 50	Equal Split = 67:33

Ask vs Offer

■ Ask ■ Offer

Results: Proposer Beliefs
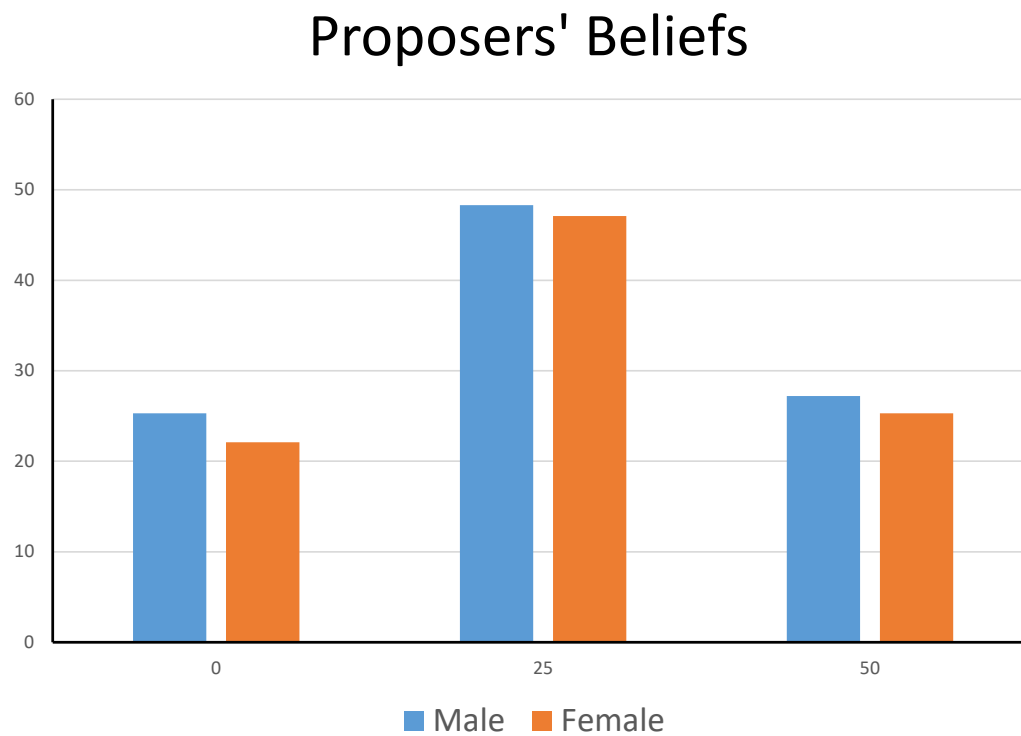
Proposers' Beliefs

Belief about OO	Male %	Female %
0	25.3	22.1
25	48.3	47.1
50	27.2	25.3

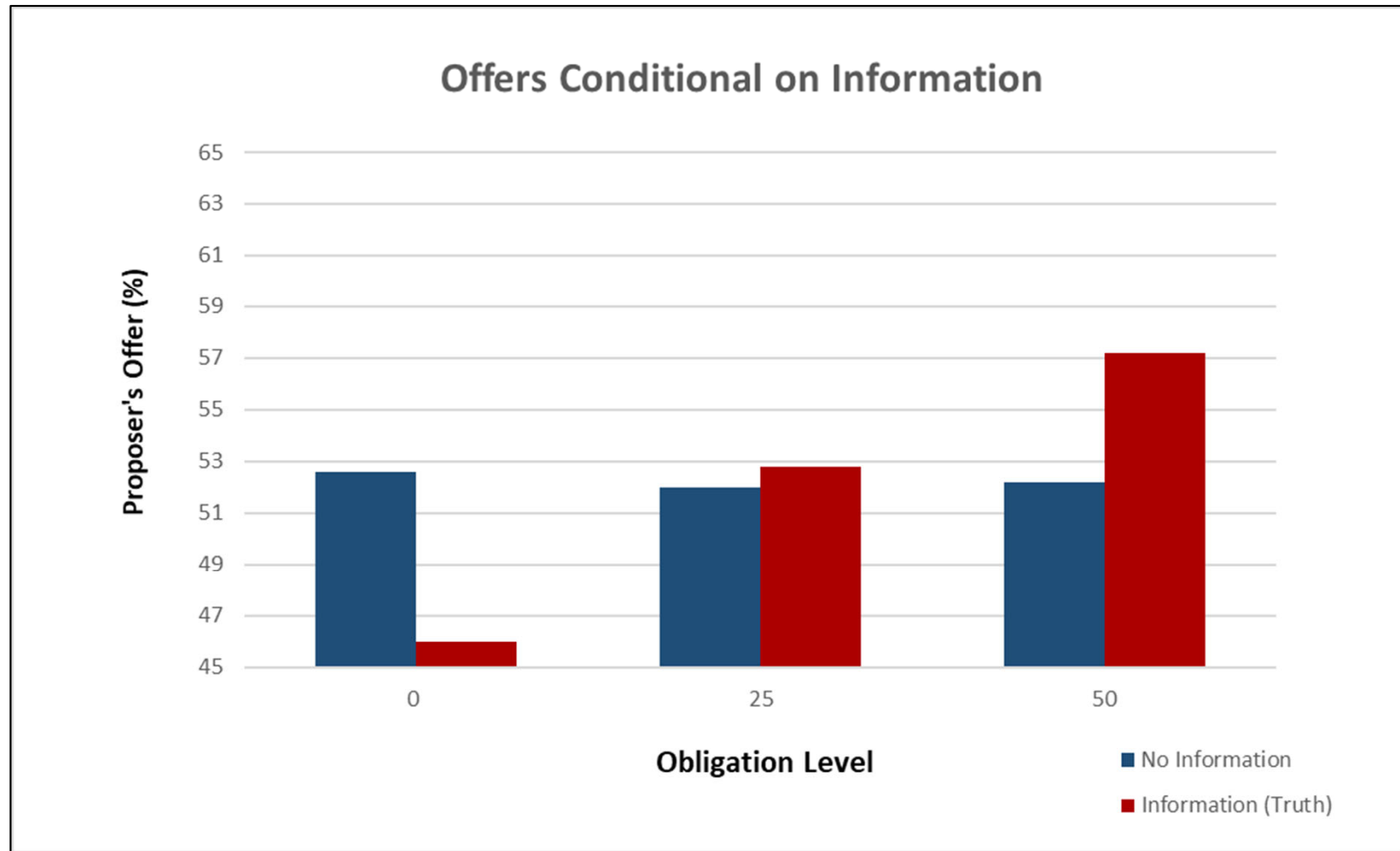# Results: Proposers and their Beliefs
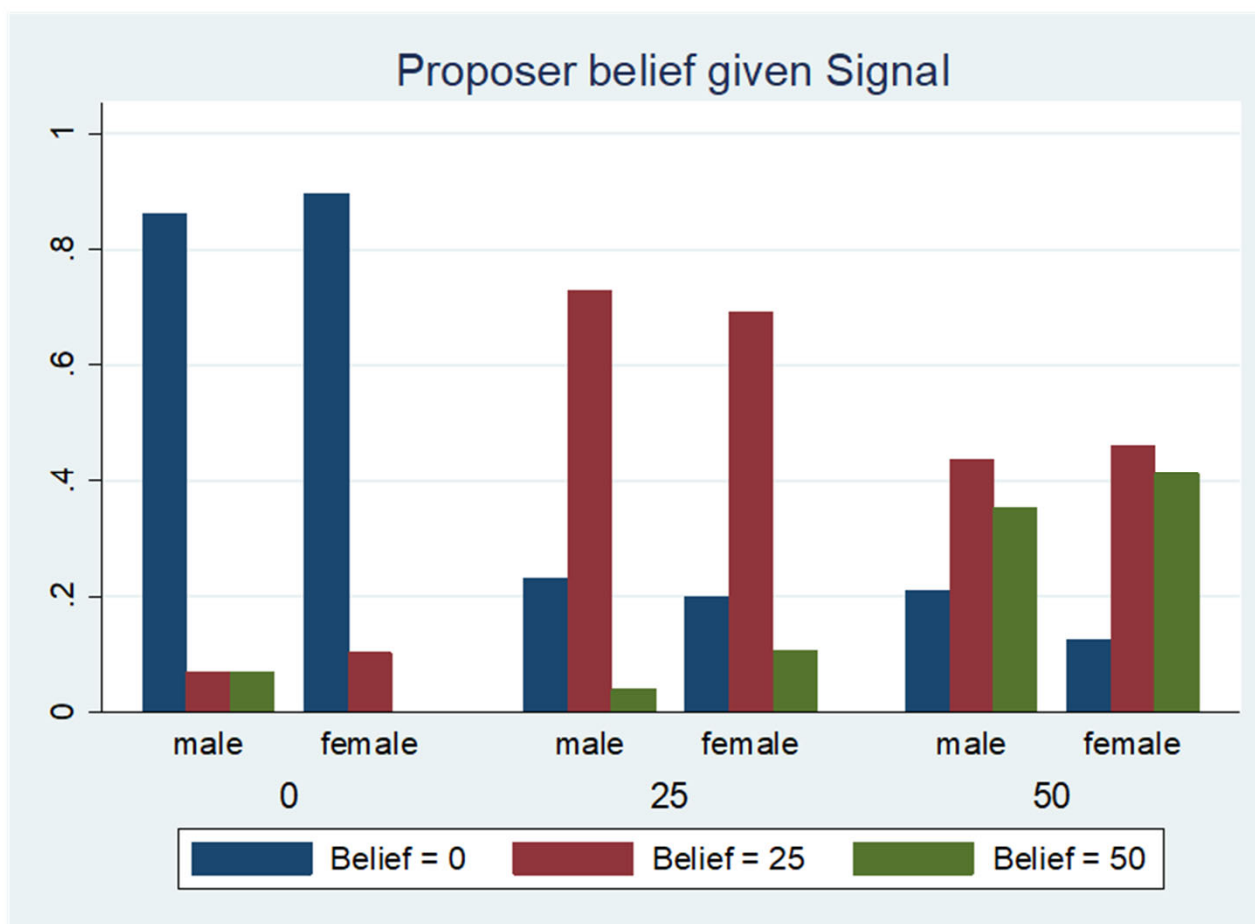
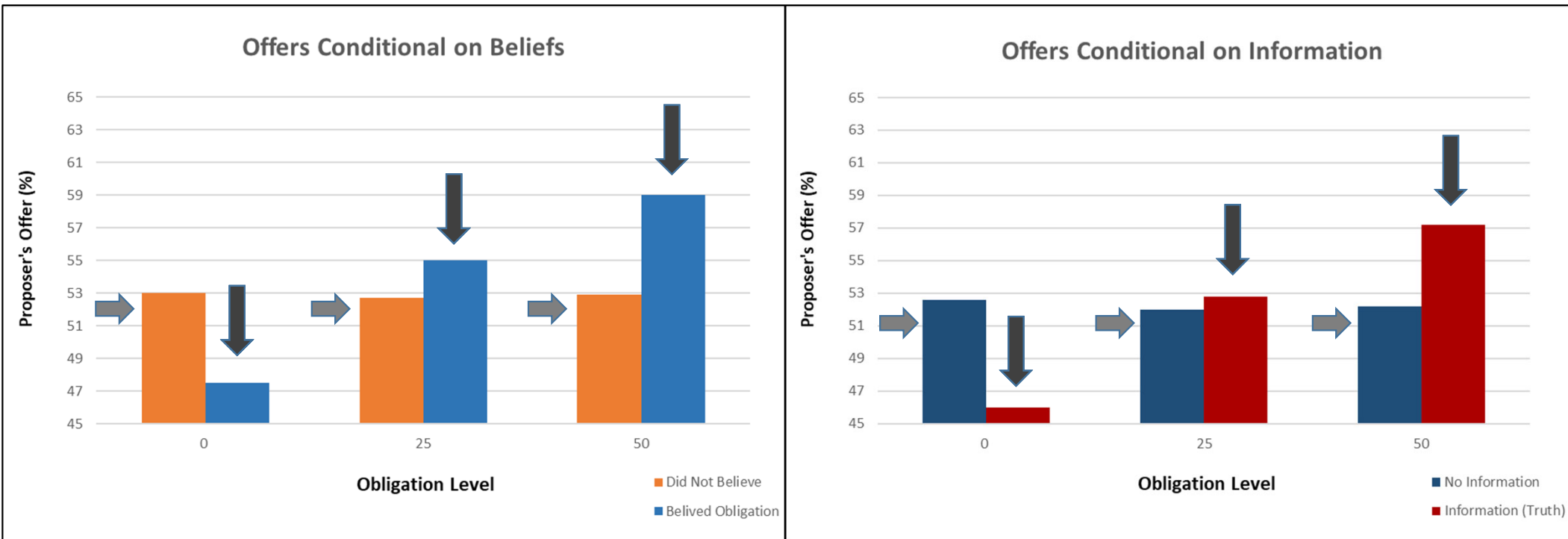**Proposer beliefs about obligations, by Responder signal, by gender.**

Results: Offers conditional on beliefs
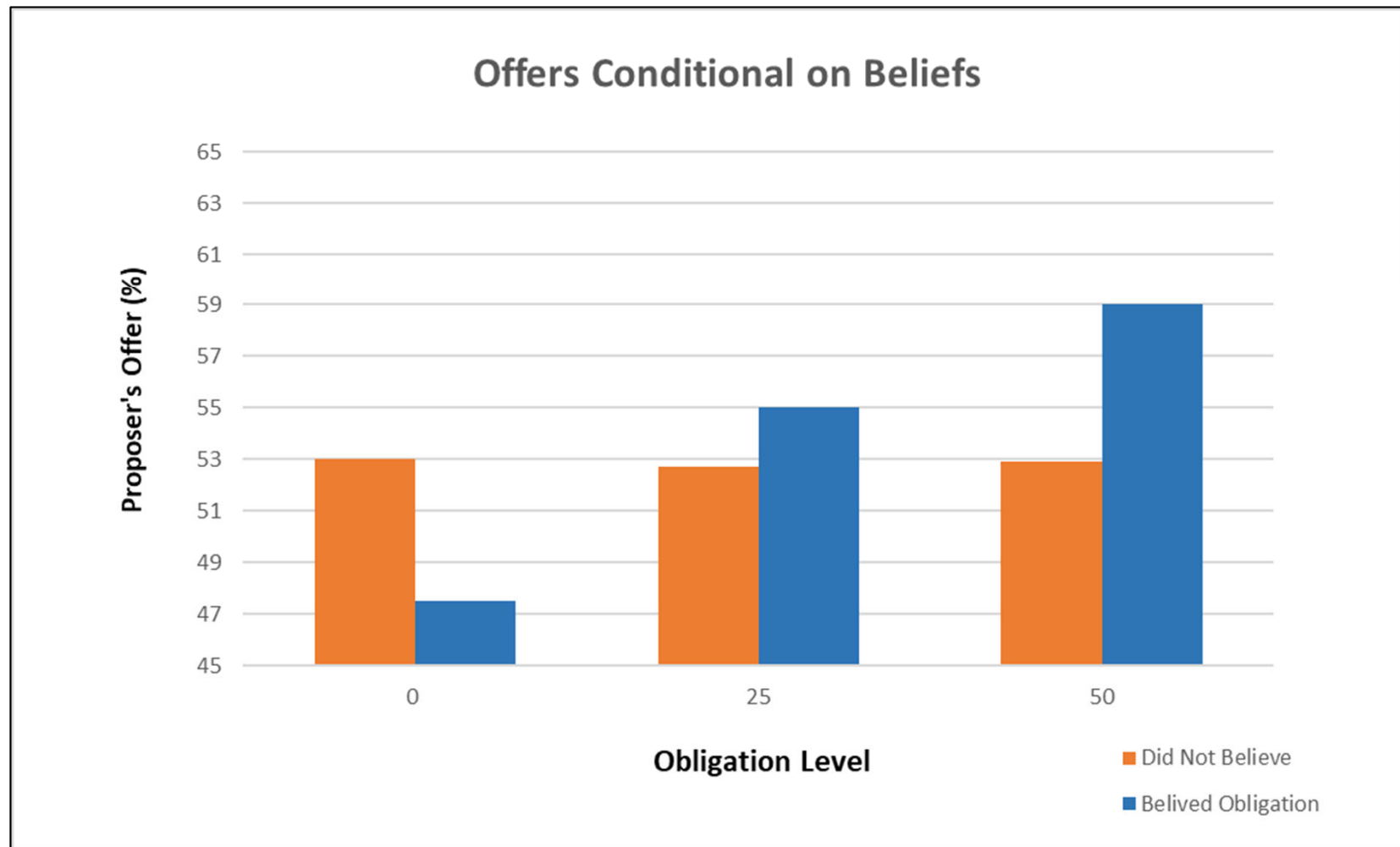
# Results: Compared to Truth or No Information

Results: Cheap Talk vs. Truth or No Information

Summary of Findings: Proposers Beliefs

- Proposers have a wide range of beliefs about the Responder signals.
  - Proposer beliefs are accurate around 42 percent of the time.
  - There are no gender differences in beliefs, accuracy, or likelihood of believing a particular gender.
- Proposers' offers are related to their beliefs (or lack thereof) about the Responder signal.
  - Offers are positively correlated with outside obligation, but only when the Proposer believes the signal.
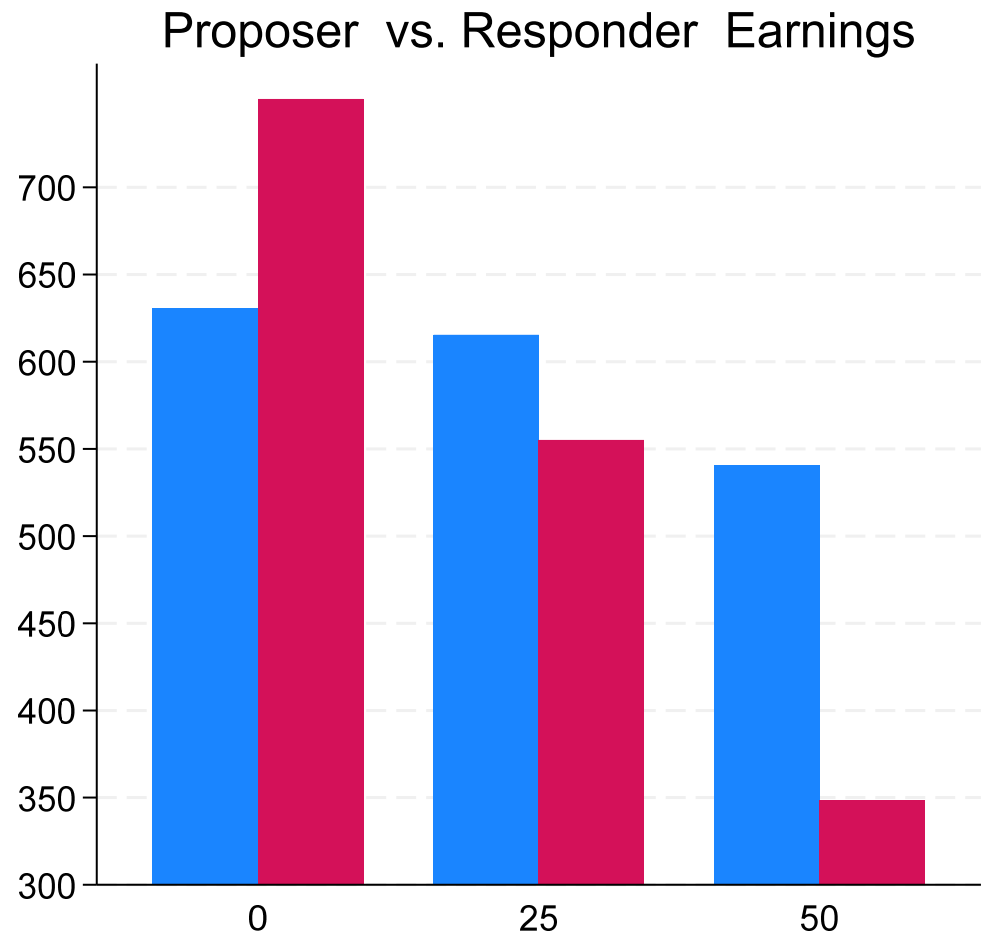
Results: Likelihood of Acceptance
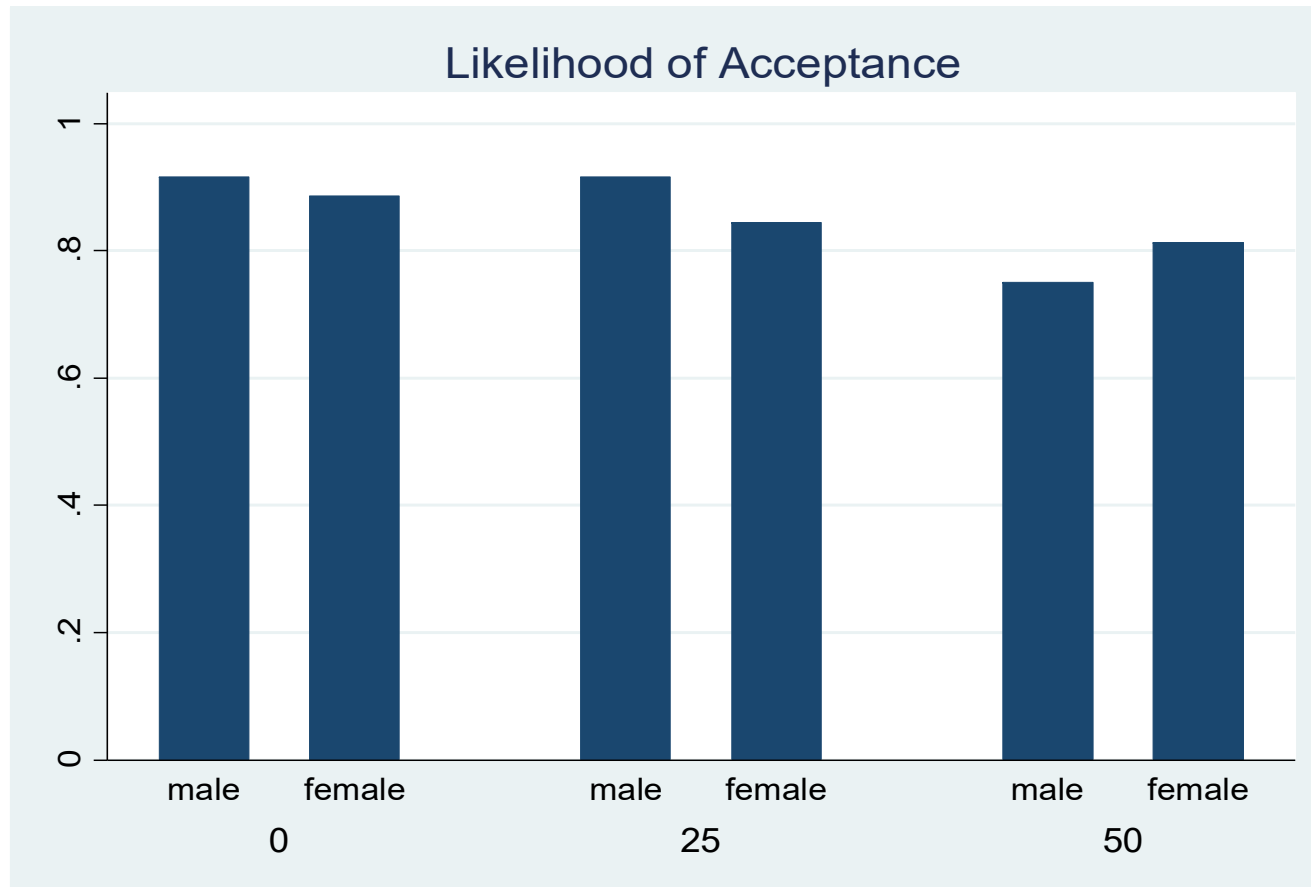
Likelihood of offer being accepted, by obligation amount, by gender

Results: Earnings

	Mean Earnings
Proposer	578
Responder	560

Proposer vs. Responder Earnings

Results: Proposer/Responders Earnings

There is more variance in responders' earnings, as low OO responders earn more at the expenses of high OO responders.

Proposers on average fare the same across all OO levels.

With very simple, neutral task, we find no evidence of gender differences.

In Summary

We model an Ultimatum Game where the Responders face potential surplus transfer (surplus loss/destruction/tax on the Responder side).

Responders could lose 0, 25, or 50 percent of their earnings to a third party.

Responders learn the obligation and send a pre-offer "cheap talk" signal to Proposers, about a suggested split.

Proposers saw the signal and were incentivized to report their (true) belief about the outside obligation.

The experiment was designed in a way to test and control for potential gender bias in each interaction, across both roles, in every session.

In Summary

When given the opportunity, Responders often lie about the level of outside obligation.

Men are more likely to lie (70.3 percent vs 55.7 percent for women).

Men lie to a greater extent when possible (e.g. signal 50 when obligation=0).

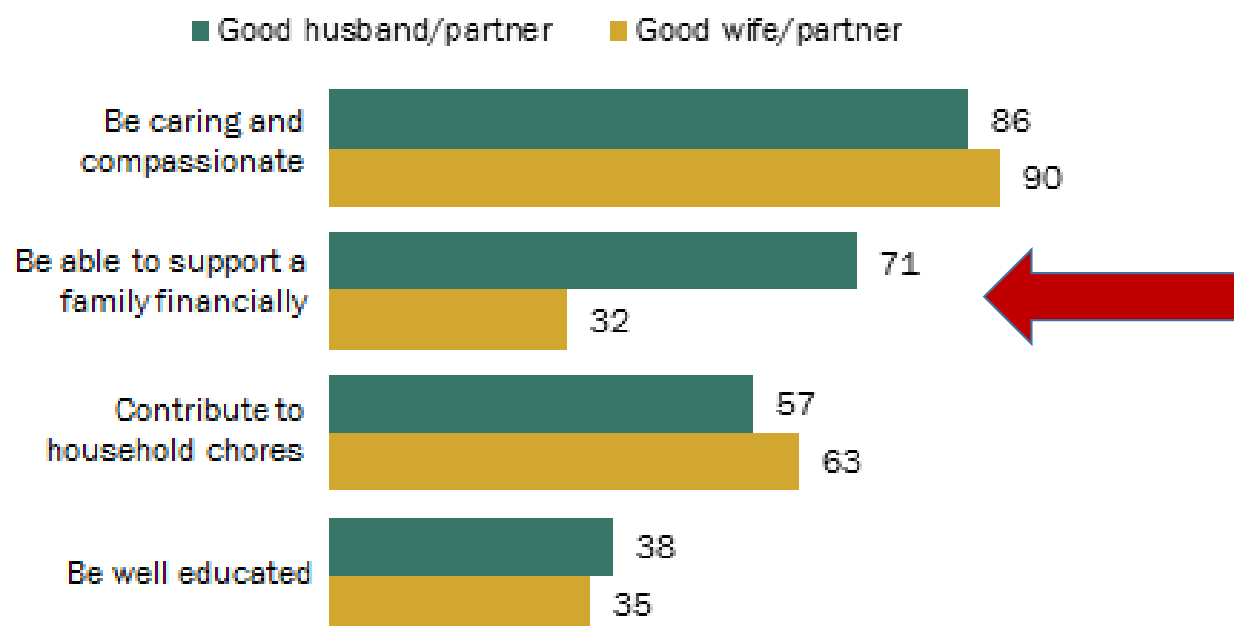**When faced with this situation, Proposers often suspect misreporting.**

Men and women were equally likely to suspect lying (42 percent accuracy).

Proposer offers were correlated with Proposer _beliefs_ about responder's outside obligation.

There is very **little evidence of gender bias** either across or within gender.

Americans say a man should be able to support a family financially but don't say the same about women

% of adults saying it is very important that a man/woman has each trait in order to be a ...

■ Good husband/partner ■ Good wife/partner

Be caring and compassionate
- Good husband/partner: 86
- Good wife/partner: 90

Be able to support a family financially
- Good husband/partner: 71
- Good wife/partner: 32

Contribute to household chores
- Good husband/partner: 57
- Good wife/partner: 63

Be well educated
- Good husband/partner: 38
- Good wife/partner: 35

Could *assumptions* about outside obligations provide an avenue for gender wage bias?

- Although there is no overt gender bias in the negotiations, Proposers make higher offers to Responders when the outside obligation is higher, or when Proposers *believe* the outside obligation is higher.

- If Employers are more likely to assume (via explicit or implicit bias), that a male job candidate is more likely to have "a family to support" or other financial obligations, they will offer higher shares of the surplus (e.g. wages/salary) to men. This can include future expectations.

- Since perceptions about obligations for financial support **vary by gender**, the assumption that women are relatively less likely to have similarly high obligations may explain a portion of the gender wage gap.

Thank you!!

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