Do Leaders Affect Ethical Conduct? An Experimental Study

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Feem Seminar

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Who I am

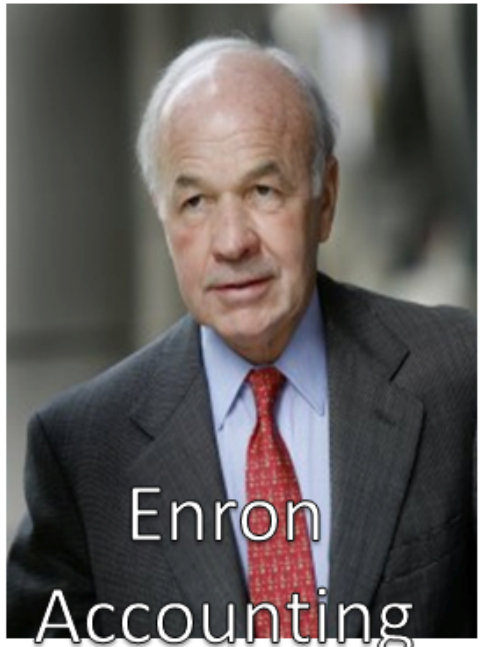
Experience

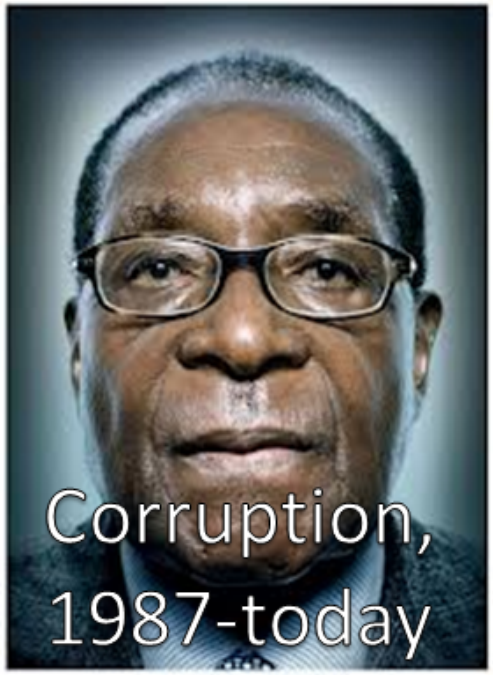
- PhD Economics, Bocconi University
  - Social Norms and Motivation Crowding in Environmental Conservation: Evidence from an Artefactual Field Experiment (Ecol.Ec.)
  - Environmental Degradation and Conservation Among the Rural Poor: A Charitable Contributions Experiment (Ecol.Ec.)
  - Social Status and Influence: Evidence from an Artefactual Field Experiment on Local Public Good Provision (Ecol.Ec.)
- Visiting doctoral researcher, Chair of Behavioral Economics UZH
- Field experience: Kenya, Sierra Leone, Bolivia, Colombia
  - ARV Treatment and Time Allocation to Household Tasks: Evidence from Kenya (Afr.Dev.Rev.)
  - Social Preferences and Environmental quality: Evidence from School Children in Sierra Leone

Research interests

- Social norms and institutions
  - Institutional Quality, Culture and Norms of Cooperation: Experimental Evidence from Italy and Kosovo (JLE)
- Empowerment and collective action
- Leadership and group behavior

Motivation: It starts at the top..





What is the evidence?

- Correlational studies
  - Survey-based assessments of leaders' moral direction and influence (Brown et al. 2005; Mayer et al. 2012)
  - Empirical studies of employees perceptions of leaders and firm outcomes (Detert et al. 2007; Burks and Krupka 2012)
  - Leaders' preferences and group outcomes (Kosfeld and Rustagi 2011; Beekman et al. 2011; Jack and Recalde, 2013; d'Adda, 2012)
- Public good/bad experiments (Moxnes and van der Heijden 2003; Potters et al. 2007; Hamman et al. 2012; Ellman and Pezanis-Christou 2010)
- Efficiency/priorities under varying types of leaders, using natural experiments (Chattopadhyay and Duflo, 2004)

Our study

- Investigate leaders' influence on unethical conduct in a laboratory experiment
- Real choices: personal financial gain vs. honesty and social welfare (Fischbacher and Follmi-Heusi 2013)
- Experimental control valuable in studies of leadership:
  - Exogenously vary presence/absence of leaders
  - Randomize leaders to groups (no selection issues)
  - Activate/deactivate leaders' channels of influence
  - Anonimity

Research questions

1. Do unethical leaders produce unethical groups?
   - Compare groups with "unethical" and "ethical" leaders
     - *Yes: unethical leaders, when active, generate more unethical behavior*

2. How do leaders influence unethical conduct of followers?
   - Vary channels through which leaders can influence groups: incentives and statements
     - *Statements appear to be the more important channel*
   - Analyse incentive and communication strategies used by leaders
     - *(Unethical) leaders use incentives and communication to foster unethical behavior*

Design overview

- Stage 1: individual task (1 period)
  - Personal financial benefit v. honesty and social welfare
  - Measure individuals' tendency to act dishonestly
  - Framing: production task

Stage 1: competitive die roll task

- Individuals compete for a prize (P)
- **Actual** performance in the task determined by privately rolling a fair 6-sided die
- Own and others' **reported** performance in the task (p_i) determines:
  - Share of prize accruing to individual: $s_i = \frac{p_i}{p_1 + \ldots p_i + \ldots p_N}$, N = 20
  - Size of prize P:

$$P = \begin{cases} 1250 & if\ \bar{p} \leq 3.5 \\ 1250 - 300\,(\frac{\sum_{i=1}^{20} p_i}{20} - 3.5) & if\ \bar{p} > 3.5 \end{cases}$$

- Individual payoff $= s_i * P$

Design overview

- Stage 1: individual task (1 period)
  - Personal financial benefit v. honesty and social welfare
  - Measure individuals' tendency to act dishonestly
  - Framing: production task
- Group formation
  - Random allocation of subjects to groups
  - Random allocation of subjects to roles within each group
  - Groups ("firms") consisting of "workers" and leaders ("supervisors")
- Stage 2: group task (10 periods)
  - Workers: same task as in Stage 1, benefits accrue to group
  - Leaders: design varies presence and tools at their disposal

Stage 2: competitive die roll task

- Groups compete for a prize (P)
- **Actual** performance of the group in the task determined by workers' average performance (individual workers privately roll a fair 6-sided die)
- Leaders do not roll die
- Own and other groups' **reported** performance in the task (p_g) determines:
  - Share of prize accruing to group: $s_g = \frac{p_g}{p_1 + \ldots p_i + \ldots p_N}$, N = 5
  - Size of prize P:

$$P = \begin{cases} 1250 & if\ \bar{p} \leq 3.5 \\ 1250 - 300\left(\frac{\sum_{i=1}^{5} p_g}{5} - 3.5\right) & if\ \bar{p} > 3.5 \end{cases}$$

- Group payoff $= s_g * P$

Design overview

- Stage 1: individual task (1 period)
  - Personal financial benefit v. honesty and social welfare
  - Measure individuals' tendency to act dishonestly
  - Framing: production task
- Group formation
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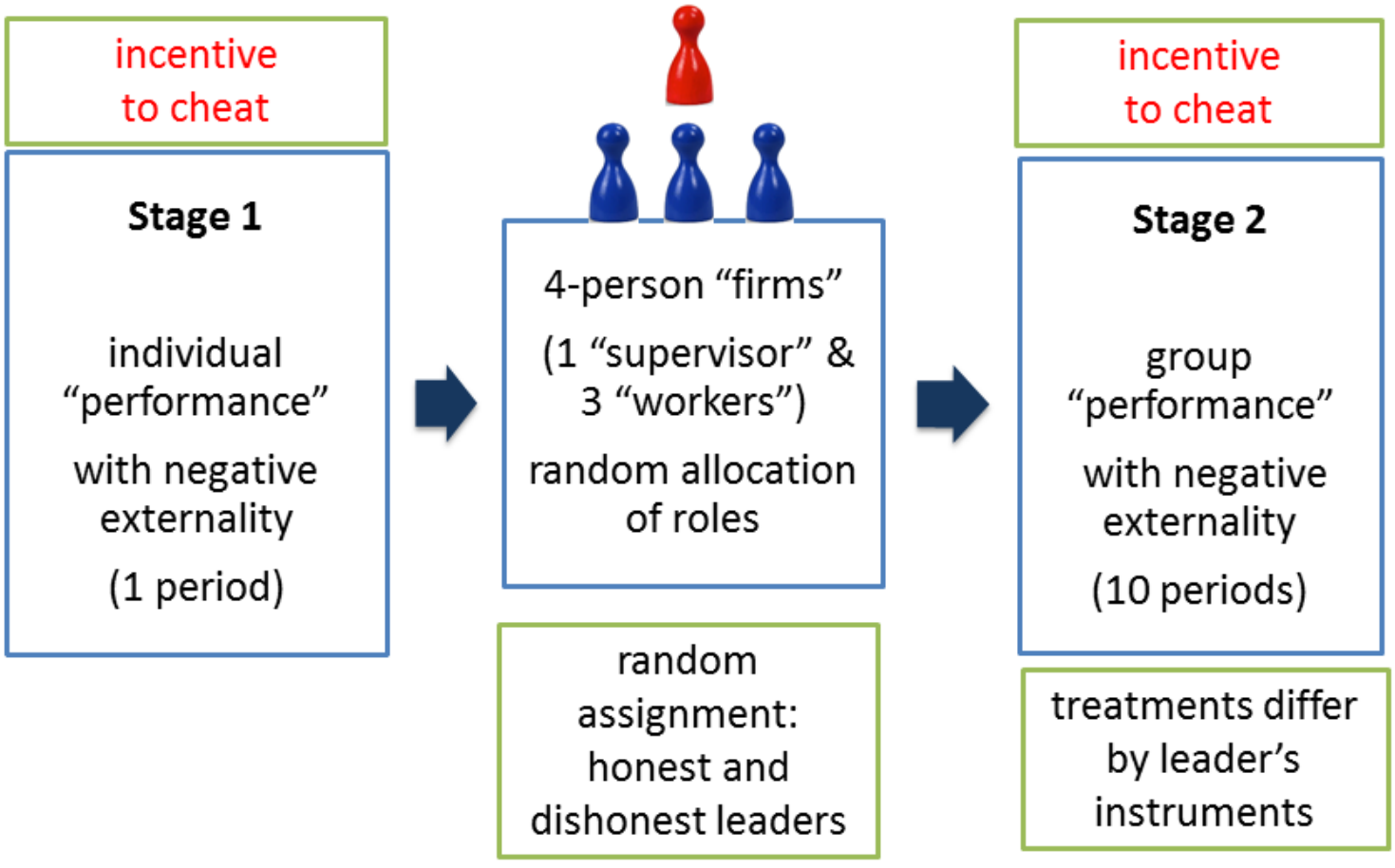
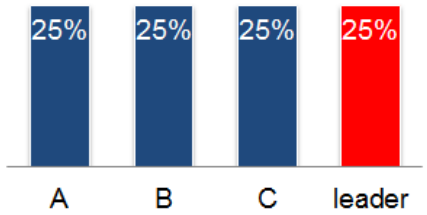
  - Groups ("firms") consisting of "workers" and leaders ("supervisors")
- Stage 2: group task (10 periods)
  - Workers: same task as in Stage 1, benefits accrue to group
  - Leaders: design varies presence and tools at their disposal
- Questionnaires
  - Individual characteristics
  - Perceptions of social norms (Krupka and Weber 2013)

Experimental design

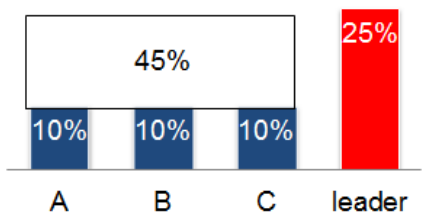


Stage 2: leader conditions

1. Inactive leader
   - No instruments for leaders : only observe reported performance of workers
   - Leaders and worker's payoff:



2. Leader
   - Statements: leaders send messages to workers for 90 sec before workers roll dice in every period of stage 2
   - Incentives: leaders allocate bonus pool (45% of group payoff) among workers; cannot allocate bonus to themselves



3. Leader statements only
4. Leader incentives only

Experimental Design: Feedback

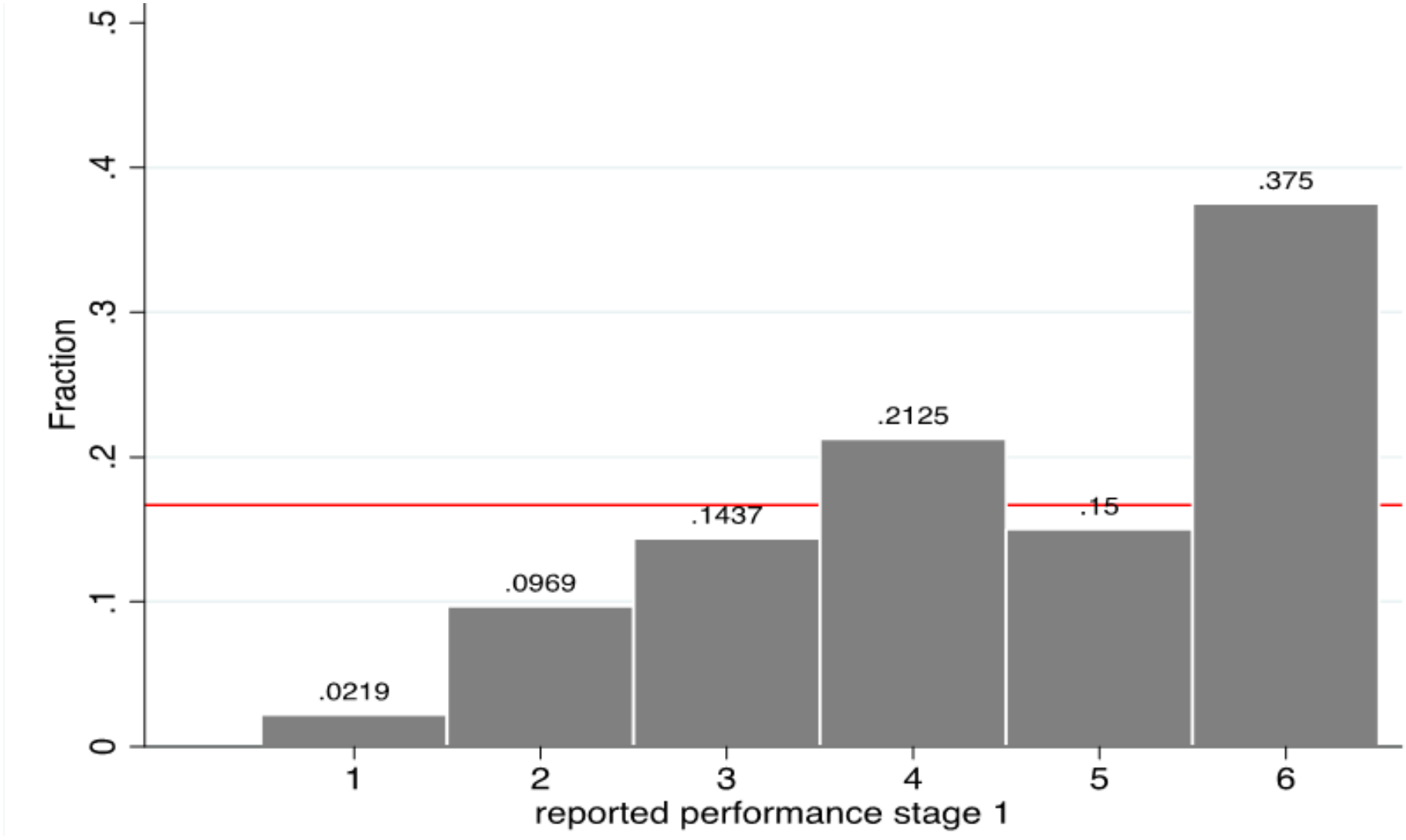
- Stage 1
  - Only average reported performance by all 20 subjects
  - No information on Stage 1 performance of group members or leader
- Stage 2
  - Average reported performance level across groups, average reported performance level of each group, individual reported performance within their group (also of previous periods)
  - Incentive conditions: subjects learn the bonus distribution within their group at end of period

Implementation

- Sessions conducted at Birmingham Experimental Economics Laboratory (BEEL)
- 20 subjects, 5 "firms" per session
  - 4 sessions per condition (16 sessions total)
  - 320 subjects (80 leaders, 240 workers)
- Sessions lasted approximately 90 minutes
- Average payment: 19.94 GBP

Results: Stage 1

Stage 1 performance



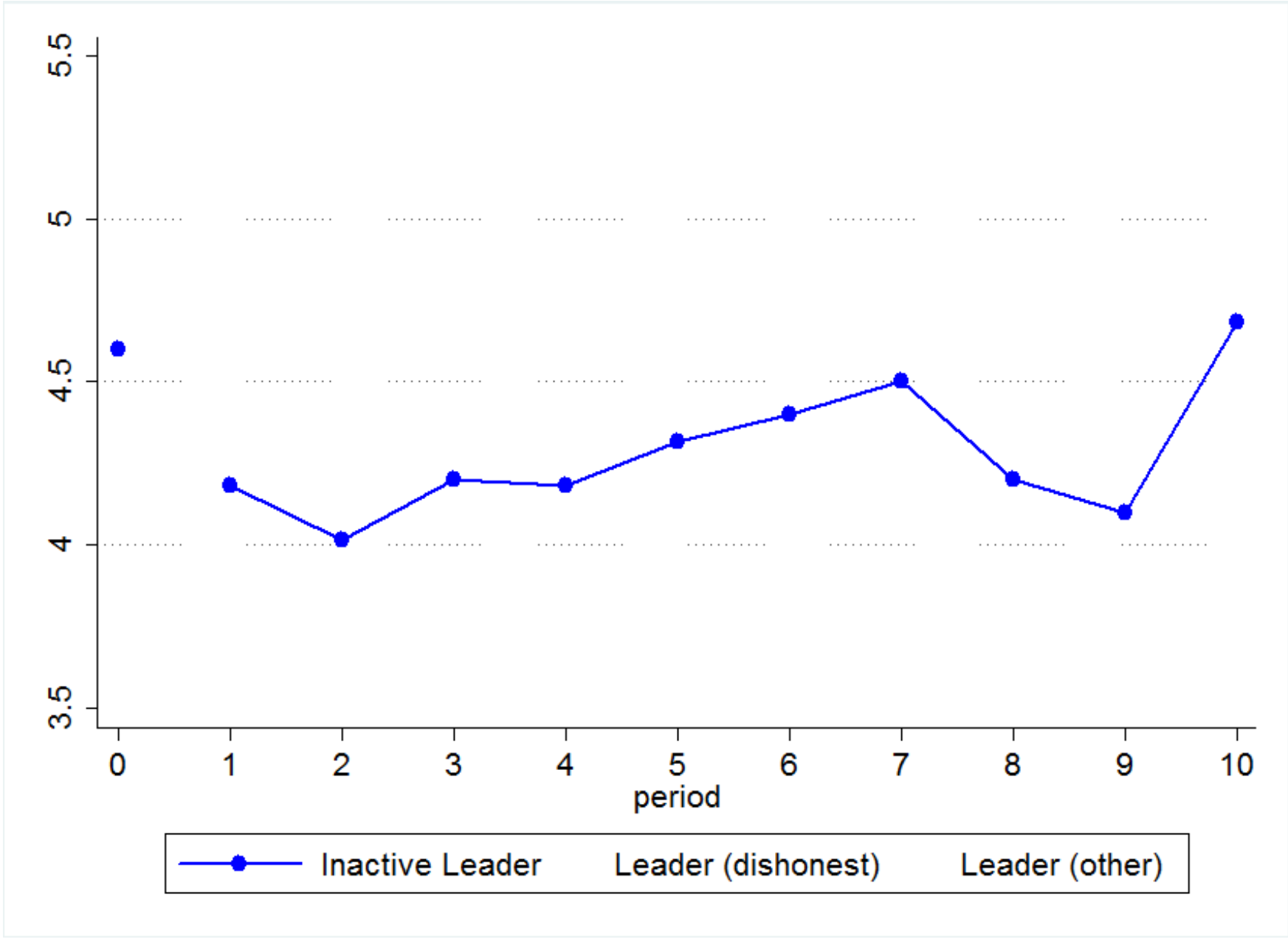
Stage 1 performance

- Evidence of heterogeneous misreporting in individual task
- No significant differences between conditions (Kruskal-Wallis test: p=0.85)
- Slightly higher than in comparable (externality) condition of Fischbacher and Follmi-Heusi (2013): 4.50 vs. 4.18 ($p = 0.1$)
- Significantly higher reported performance by males, economics students, younger subjects and those with low Big 5 conscientiousness score

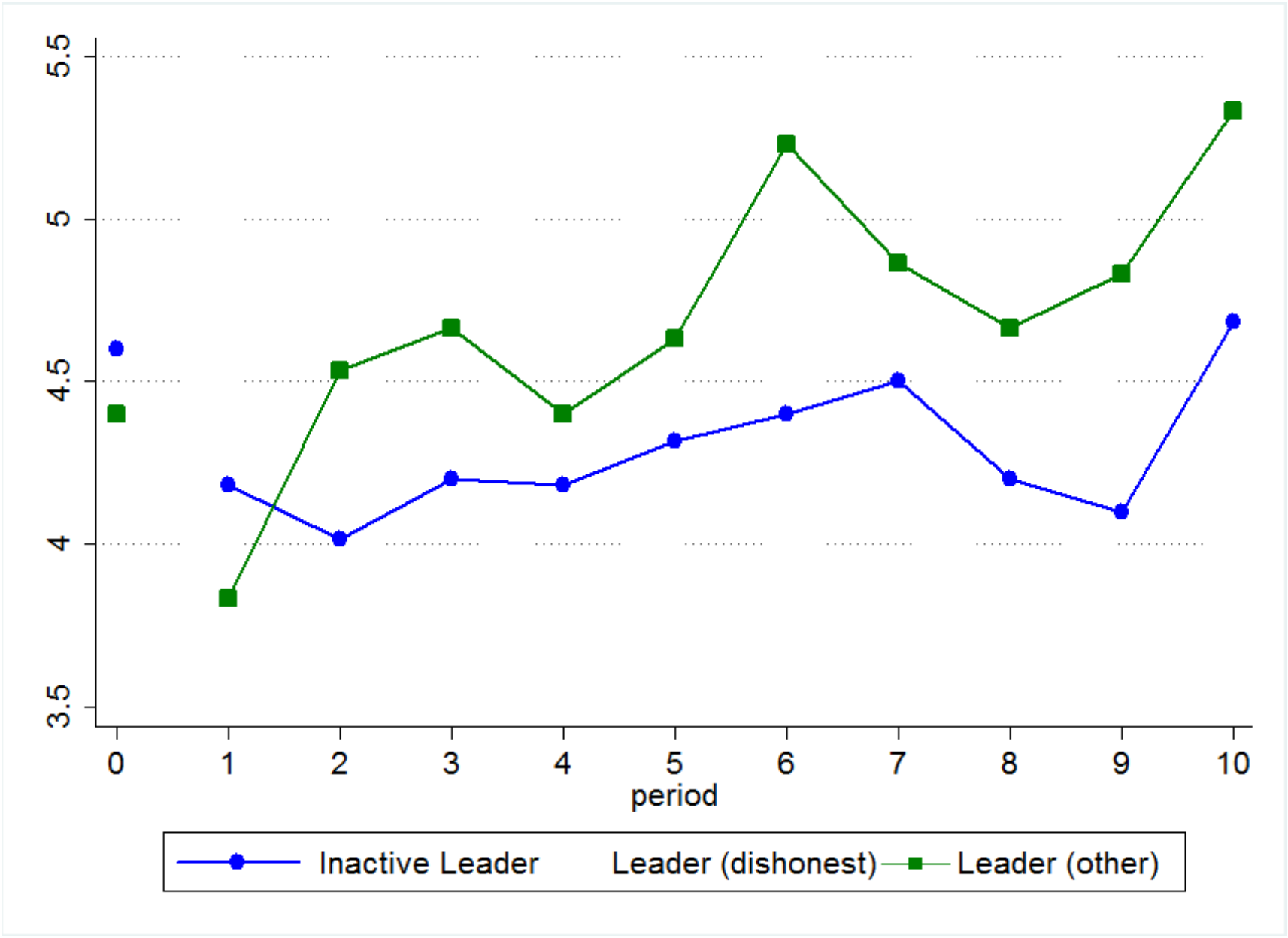
Results: Stage 2

Do unethical leaders produce unethical behavior?

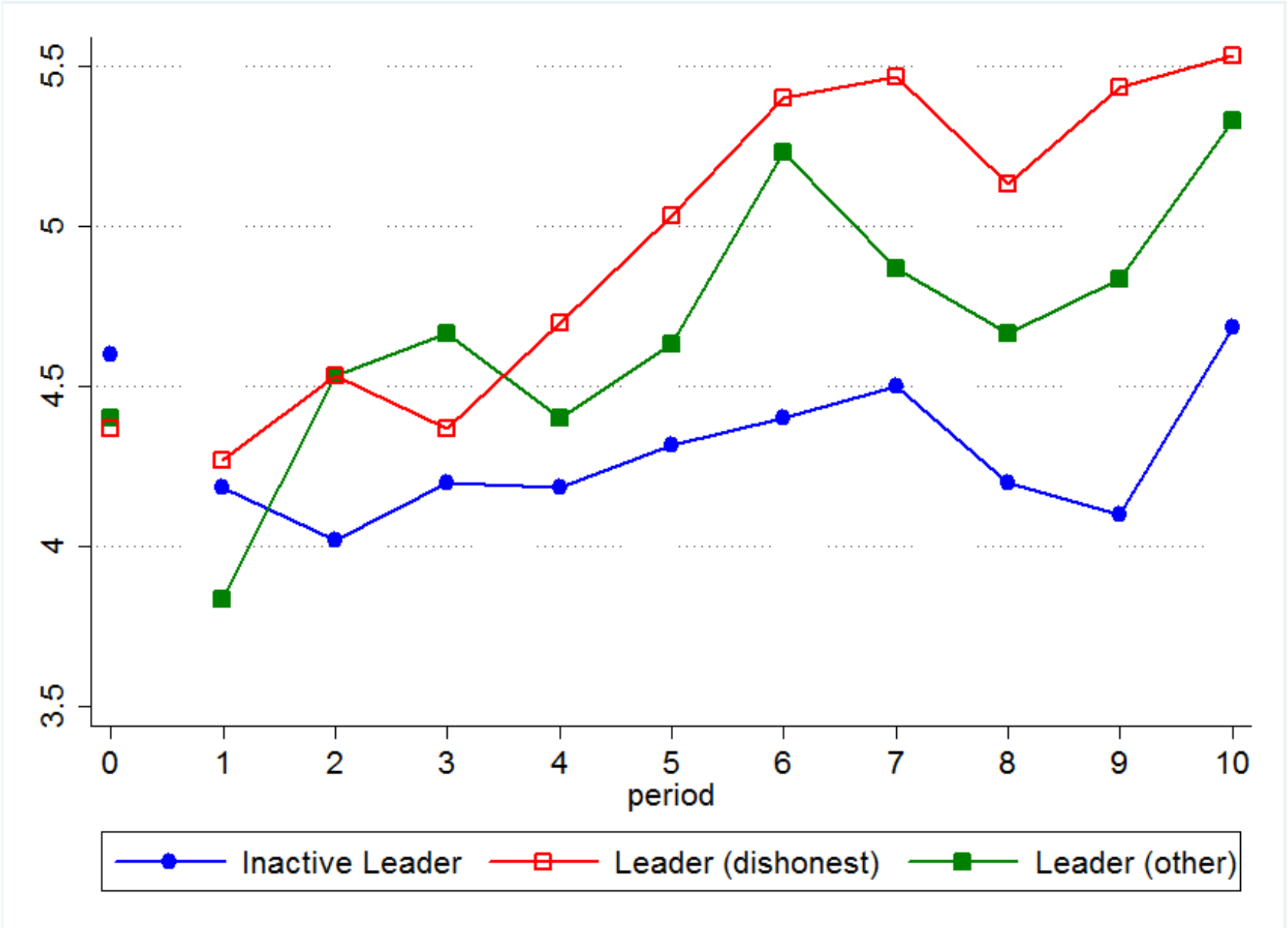
Stage 2 performance over time



Stage 2 performance over time



Stage 2 performance over time



Stage 2 performance

Dependent variable	**Stage 2 performance**		
	(1)	**(2)**	**(3)**
Dishonest leader (Leader's stage 1 perf = 6)	0.681***	-0.264	-1.066
	(0.237)	(0.521)	(0.760)
Active leader	0.503**	0.240	-0.355
	(0.248)	(0.278)	(0.405)
Dishonest leader * Active leader		1.188**	1.537*
		(0.587)	(0.855)
Period	0.138***	0.138***	0.043
	(0.022)	(0.022)	(0.042)
Dishonest leader * Period			0.134
			(0.093)
Active leader* Period			0.104**
			(0.051)
Dishonest leader * Active leader * Period			-0.055
			(0.105)
Stage 1 performance of worker	0.333***	0.347***	0.348***
	(0.071)	(0.071)	(0.071)
Previous period group share of prize	4.592***	4.537***	4.353***
	(1.522)	(1.521)	(1.520)
Previous period prize as share of max prize	-0.898*	-0.897*	-0.600
	(0.527)	(0.527)	(0.538)
Constant	2.183***	2.316***	2.673***
	(0.687)	(0.689)	(0.703)
Number of Obs	2160	2160	2160
Log Likelihood	-3349.883	-3347.837	-3343.169

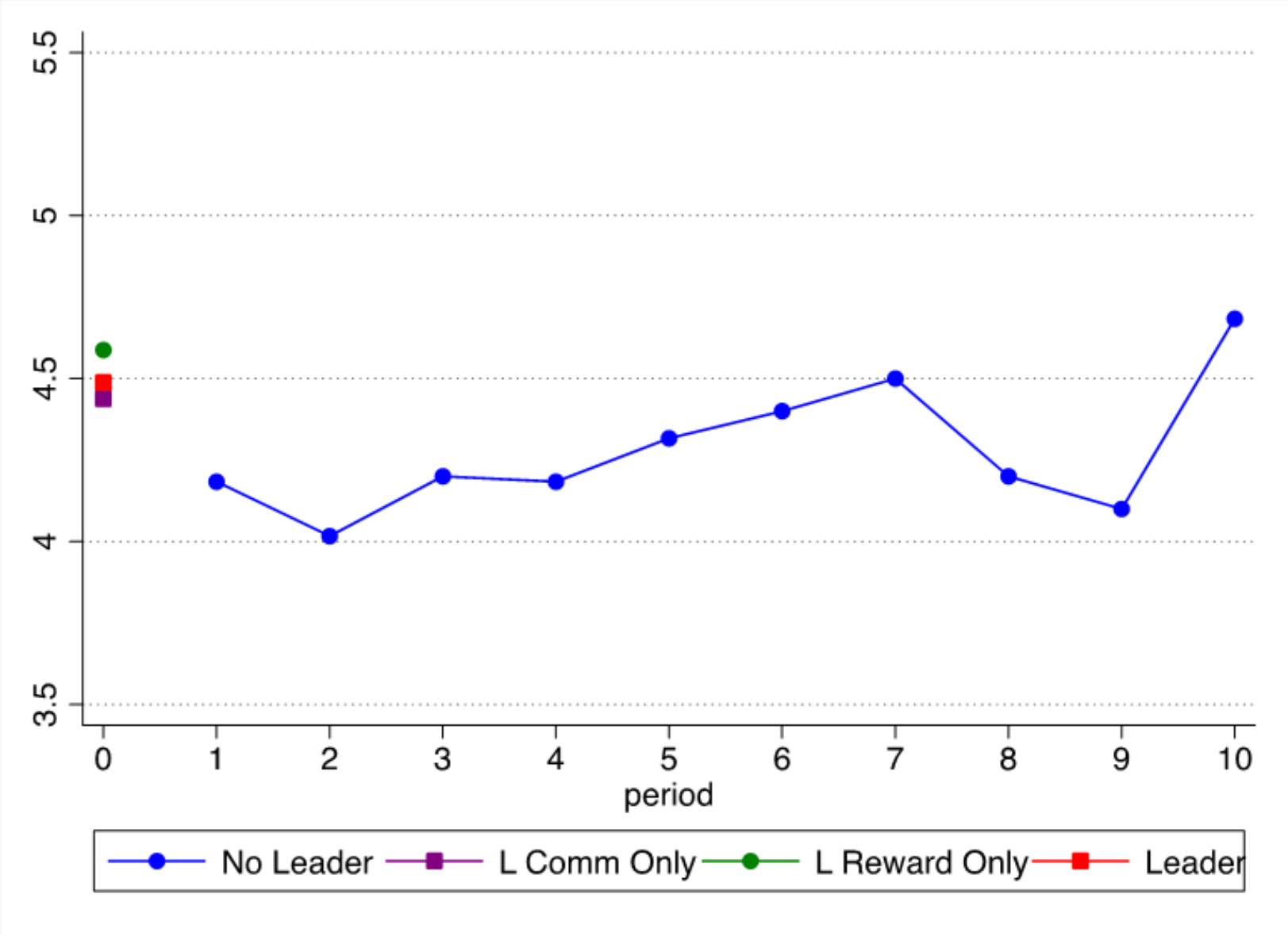
Note: Random effects tobit regression. Standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Results: Stage 2

How do leaders influence unethical conduct of followers?

Stage 2 performance over time

Stage 2 performance over time



Stage 2 performance over time

Stage 2 performance over time

Stage 2 performance over time

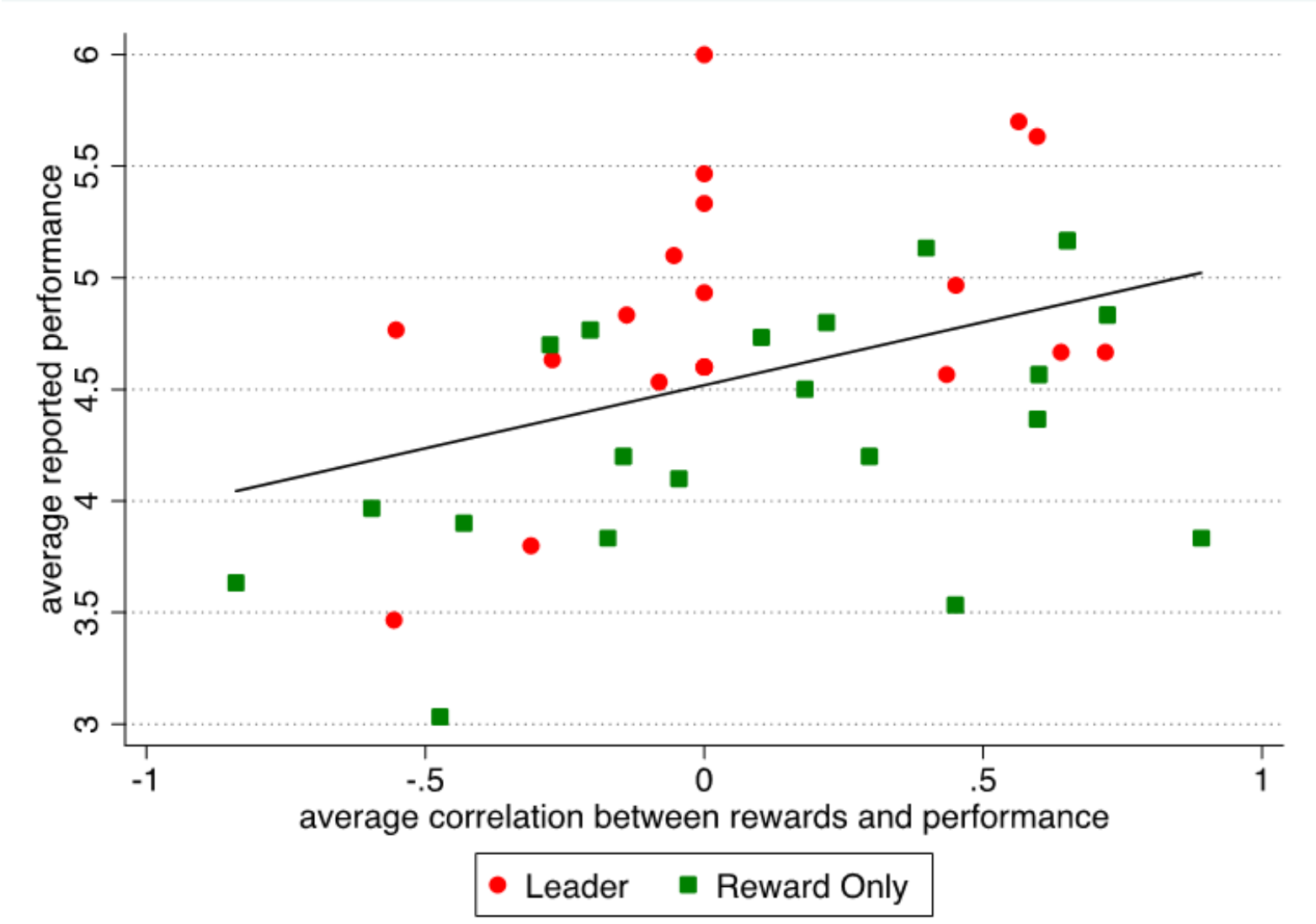
Stage 2 performance over time

Dependent variable	**Stage 2 performance**			
	All leaders		***Dishonest leaders***	
	(1)	**(2)**	**(3)**	**(4)**
Leader statements only	0.750**	0.021	1.477*	0.420
	(0.296)	(0.384)	(0.882)	(1.102)
Leader incentives only	-0.099	-0.303	0.986	1.206
	(0.295)	(0.382)	(0.730)	(0.921)
Leader (statements x incentives)	0.363	0.299	-0.579	-0.799
	(0.419)	(0.543)	(1.058)	(1.332)
Period		0.063**		0.165**
		(0.032)		(0.079)
Leader statements only *Period		0.138***		0.204
		(0.046)		(0.127)
Leader incentives only *Period		0.038		-0.043
		(0.045)		(0.104)
Leader *Period		0.014		0.048
		(0.065)		(0.155)
Stage 1 performance	0.362***	0.362***	0.359**	0.360**
	(0.070)	(0.070)	(0.157)	(0.157)
Constant	3.185***	2.830***	3.039***	2.099**
	(0.381)	(0.419)	(0.958)	(1.054)
Number of Obs	2400	2400	690	690
Log Likelihood	-3806.522	-3753.249	-1014.938	-983.724

Note: Random effects tobit regression. Standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Results: Leader Strategies
Incentives

Leaders strategies: Incentives



Leaders strategies: Incentives

Dependent variable	Stage 2 performance		
	(1)	(2)	(3)
Correlation between bonus and performance up to previous period	1.313***	1.123***	1.006***
	(0.219)	(0.215)	(0.217)
Previous period performance		0.263**	0.036
		(0.130)	(0.143)
Previous period bonus		-0.006	-0.013
		(0.015)	(0.015)
Previous period performance*Bonus		0.002	0.003
		(0.004)	(0.004)
Previous period prize as share of max prize			-2.206***
			(0.667)
Previous period group share of prize			6.036**
			(2.397)
Constant	5.225***	4.025***	5.456***
	(0.149)	(0.566)	(0.853)
Number of Obs	1080	1080	1080
Log likelihood	-1681.76	-1666.83	-1659.97

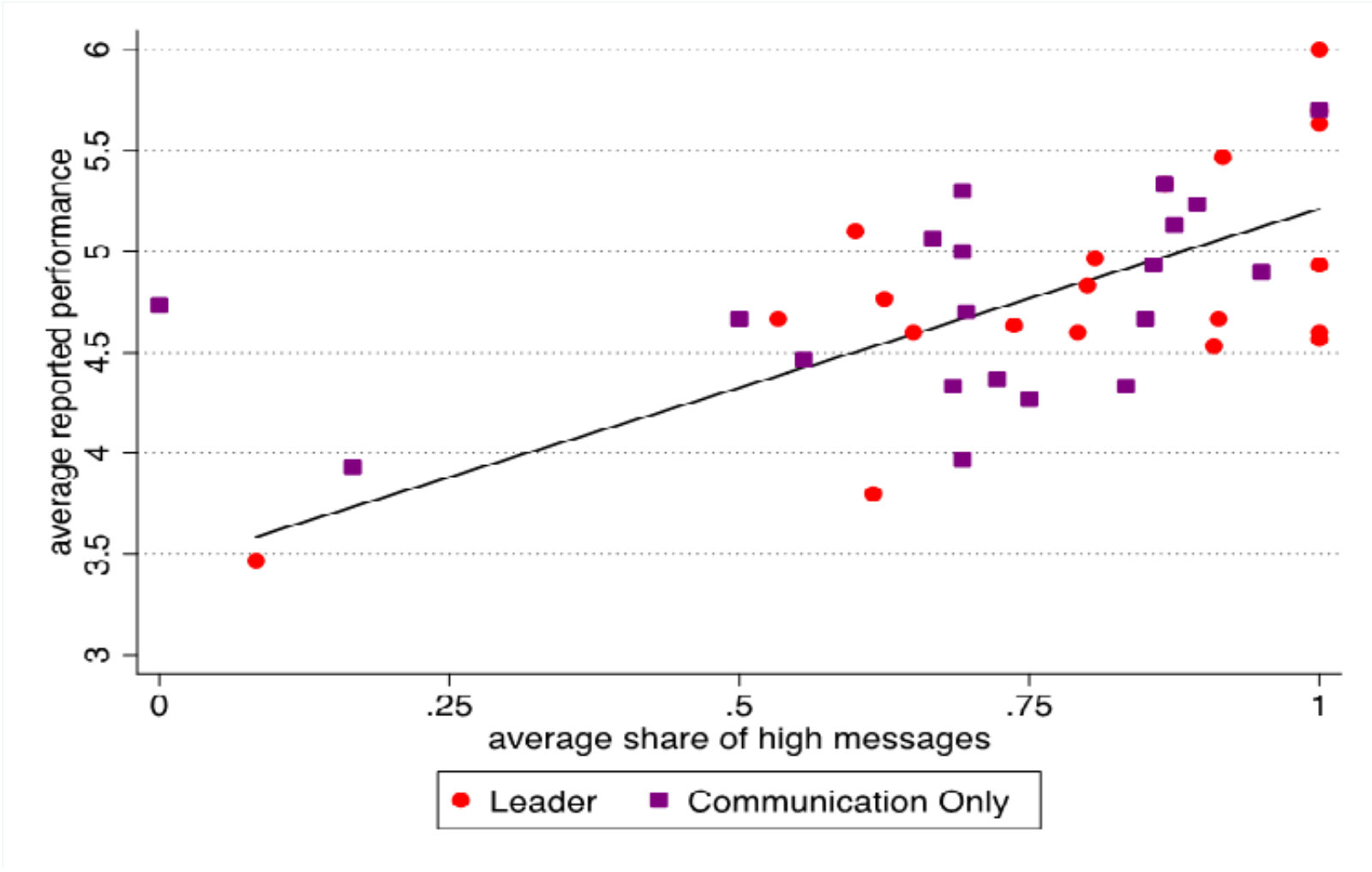
Results: Leader Strategies
Statements

Leaders strategies: Statements

Coding of leaders' statements: 'high' and 'low' messages

- Request to report high or low performance
- Praise for reporting high or low performance
- Promise of bonus for reporting high or low performance
- Direct reference to dishonesty or honesty
- Other categories: reference to prize, reference to other groups, reference to earnings, humor, apology, encouragement, miscellaneous

Leaders strategies: Statements



Leaders strategies: Statements

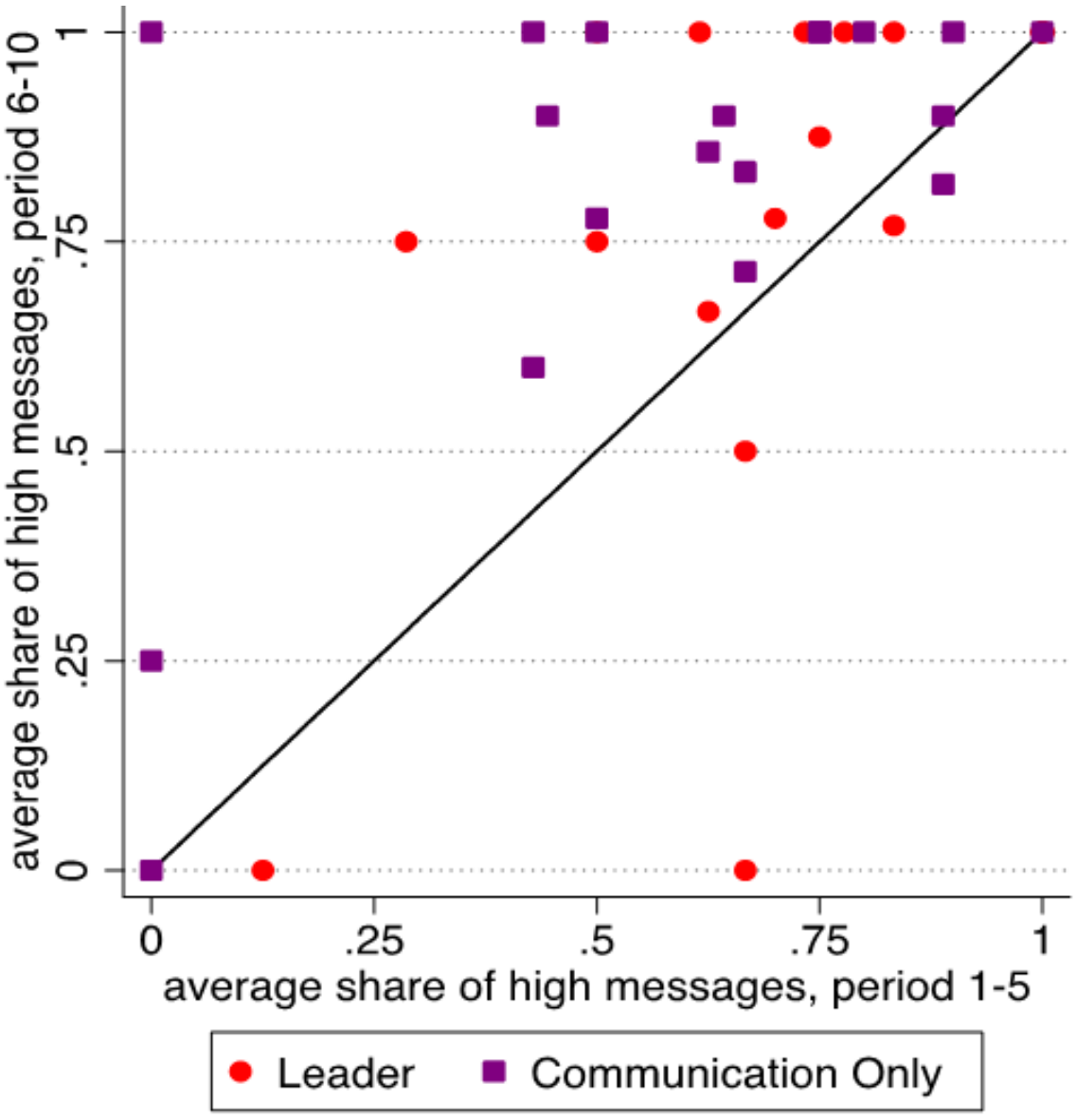
Dependent variable	Stage 2 performance					
	(1)	(2)	(3)	(4)	(5)	(6)
Request high	0.914***				0.588***	0.754***
	(0.191)				(0.217)	(0.285)
Request low	-1.313***				-1.205***	-1.812***
	(0.220)				(0.223)	(0.354)
Praise high		0.039			0.000	-0.335
		(0.227)			(0.219)	(0.302)
Praise low		-0.390			-0.226	-0.197
		(0.359)			(0.340)	(0.475)
Bonus high			0.926***		0.603*	0.343
			(0.352)		(0.328)	(0.339)
Bonus low			-2.975***		-1.994***	-1.672**
			(0.664)		(0.653)	(0.668)
Dishonest				0.628***	0.366*	0.300
				(0.186)	(0.202)	(0.285)
Honest				-0.721***	-0.758***	-1.280***
				(0.272)	(0.263)	(0.371)
Correlation btw bonus and perf up to previous period						0.641
						(0.397)
Previous period performance	0.195**	0.190**	0.260*	0.187**	0.186**	0.286**
	(0.089)	(0.092)	(0.141)	(0.091)	(0.087)	(0.134)
Previous period prize as share of max prize	-1.461*	-2.482***	-1.508	-2.334***	-1.225	0.077
	(0.768)	(0.797)	(1.093)	(0.785)	(0.776)	(1.073)
Previous period group share of prize	2.386	2.410	9.690**	2.539	2.327	9.316**
	(2.876)	(2.994)	(3.992)	(2.946)	(2.875)	(3.825)
Constant	5.142***	6.237***	3.828***	5.932***	5.121***	2.514**
	(0.748)	(0.778)	(1.097)	(0.765)	(0.744)	(1.020)
Number of Obs	1080	1080	540	1080	1080	540
Log Likelihood	-1531.138	-1561.46	-745.21	-1553.351	-1520.996	-717.448

Leaders strategies: Statements

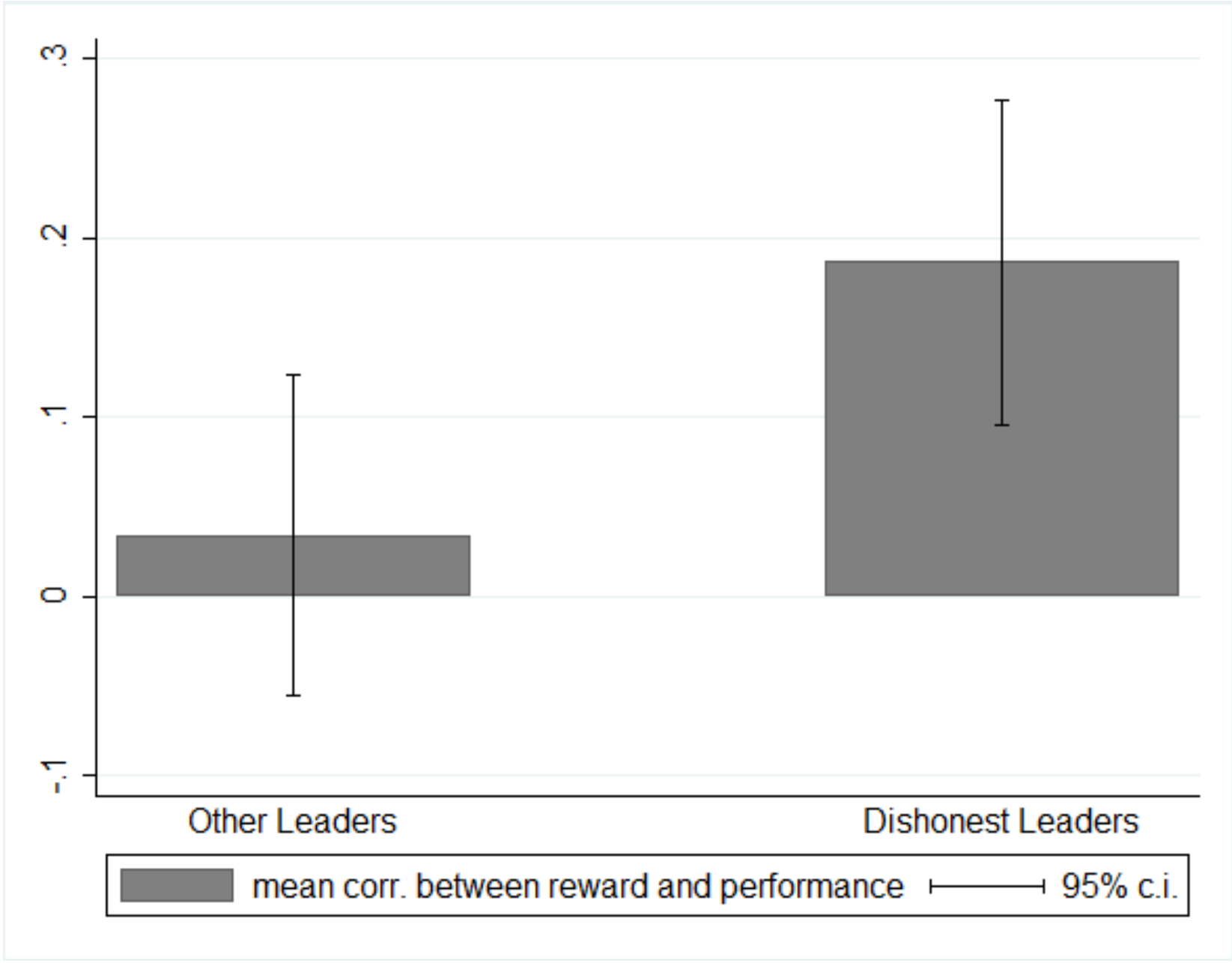
Frequency of 'high' and 'low' messages

- Request to report high (.57) or low (.16) performance
- Praise for reporting high (.16) or low (.05) performance
- Promise of bonus for reporting high (.19) or low (.02) performance
- Direct reference to dishonesty (.39) or honesty (.12)
- Other categories: reference to prize (.42), reference to other groups (.24), reference to earnings (.31), humor (.12), apology (.03), encouragement (.36), miscellaneous (.07)

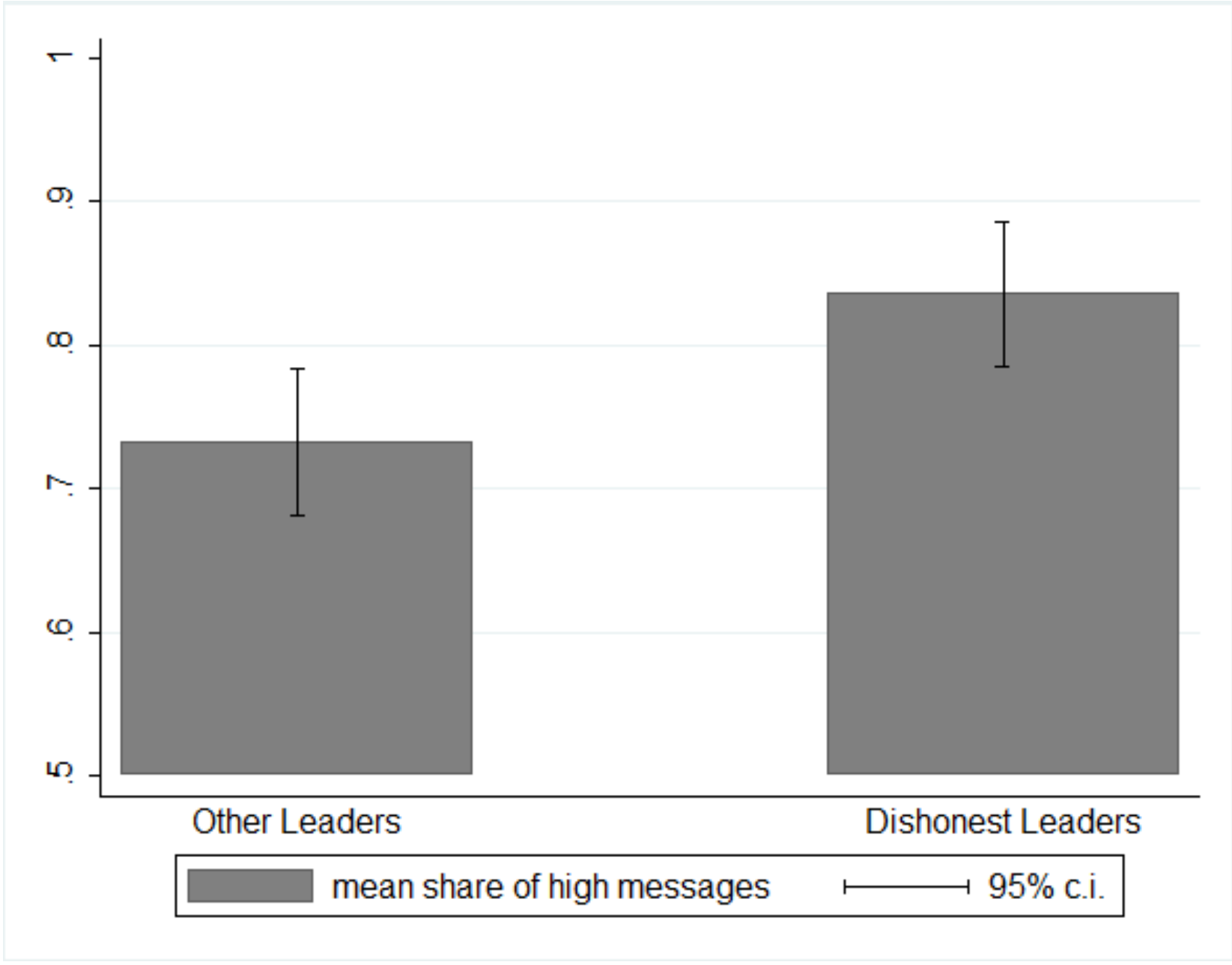
Communication over time



Leaders' type and use of strategies: incentives



Leaders' type and use of strategies: statements



Leaders' type and use of strategies

Dependent variable	**Share of high messages**	**Correlation btw bonus and performance**
	(1)	**(2)**
Dishonest leader	0.113**	0.181
	(0.057)	(0.141)
Period	0.019**	0.013
	(0.008)	(0.017)
Group share of prize[a]	0.296	-1.151
	(0.441)	(1.020)
Prize as share of max prize[a]	-0.180	0.535*
	(0.183)	(0.303)
Constant	0.691***	-0.217
	(0.196)	(0.321)
Number of Obs	290	400
R-squared	0.08	0.01

Note: Random effects linear regression. Robust standard errors in parentheses. [a] Refers to previous period in column 1 (messages are sent at start of period) and to current period in column 2 (bonuses are given at end of period) * significant at 10%; ** significant at 5%; *** significant at 1%

Conclusions

- Leaders influence the unethical conduct of followers
- Less ethical leaders (estimated from Stage 1) tend to employ less ethical strategies and encourage more unethical behavior
- Statements are a more important channel than financial incentives (cf. Brandts and Cooper, 2007; Brandts, Cooper and Weber, 2013)
  - Incentive use has an effect, but weaker
  - Potential exists for communication to yield ethical conduct
  - Leaders tend to employ communication strategies that encourage unethical conduct (over time)

Next steps

- Extensions
  - Exploit influence of positive leaders
  - Differences when leaders are selected
  - Rewards versus sanctions
  - Non-monetary incentives
  - Leaders' characteristics: gender

- Field applications
  - Naturally occurring groups and leaders: farmers' cooperatives, local authorities, sports teams, firms
  - Die roll task in the presence or absence of leaders, correlate with leaders and groups' characteristics, and real world group behavior
  - Selection of positive leaders to deliver conservation messages
  - Possible outcomes: illegal waste disposal, violation of environmental regulations

Leadeship and energy consumption

- Other work on leadership
  - Charismatic leadership increases workers' effort (joint with Antonakis, Weber, Zehnder)
  - Influence of leadership on effort depends on incentive structure (joint with Cooper, Weber)

- Applications to energy consumption
  - Use of charismatic leadership techniques in energy efficiency messages
  - Study of leadership effectiveness depending on type of energy conservation behavior

Appendix

Questionnaires

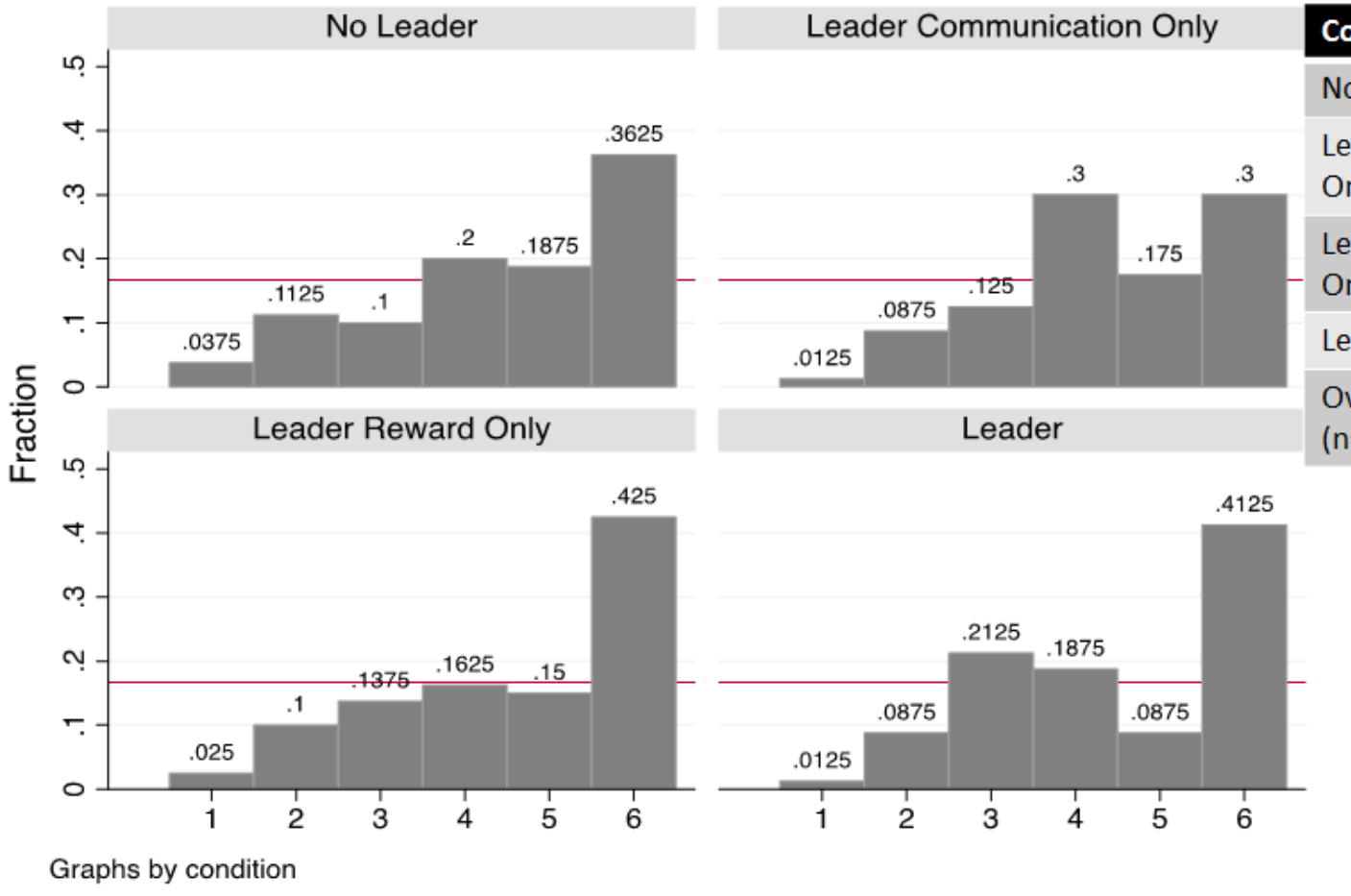
- Incentivized elicitation of social norms (Krupka and Weber, 2013)
  - Rate appropriateness of misreporting performance
  - Payoff if answer matches that of a randomly selected other participant
- Protected Values regarding dishonesty (Gibson, Tanner and Wagner, 2013)
- Big Five (15-item version)
- Machiavellianism (MACH IV)
- Demographic information (e.g., age, gender, field of study)

Stage 1 distribution test

		Reported performance (in percent)						
Condition	**N**	**1**	**2**	**3**	**4**	**5**	**6**	**mean**
No Leader	80	3.8%***	11.3%	10.0%*	20.0%	18.8%	36.3%†††	4.48
Leader	80	1.3%***	8.8%**	21.3%	18.8%	8.8%**	41.3%†††	4.49
Leader Comm. Only	80	1.3%***	8.8%**	12.5%	30.0%†††	17.5%	30.0%†††	4.44
Leader Rewards Only	80	2.5%***	10.0%*	13.8%	16.3%	15.0%	42.5%†††	4.59

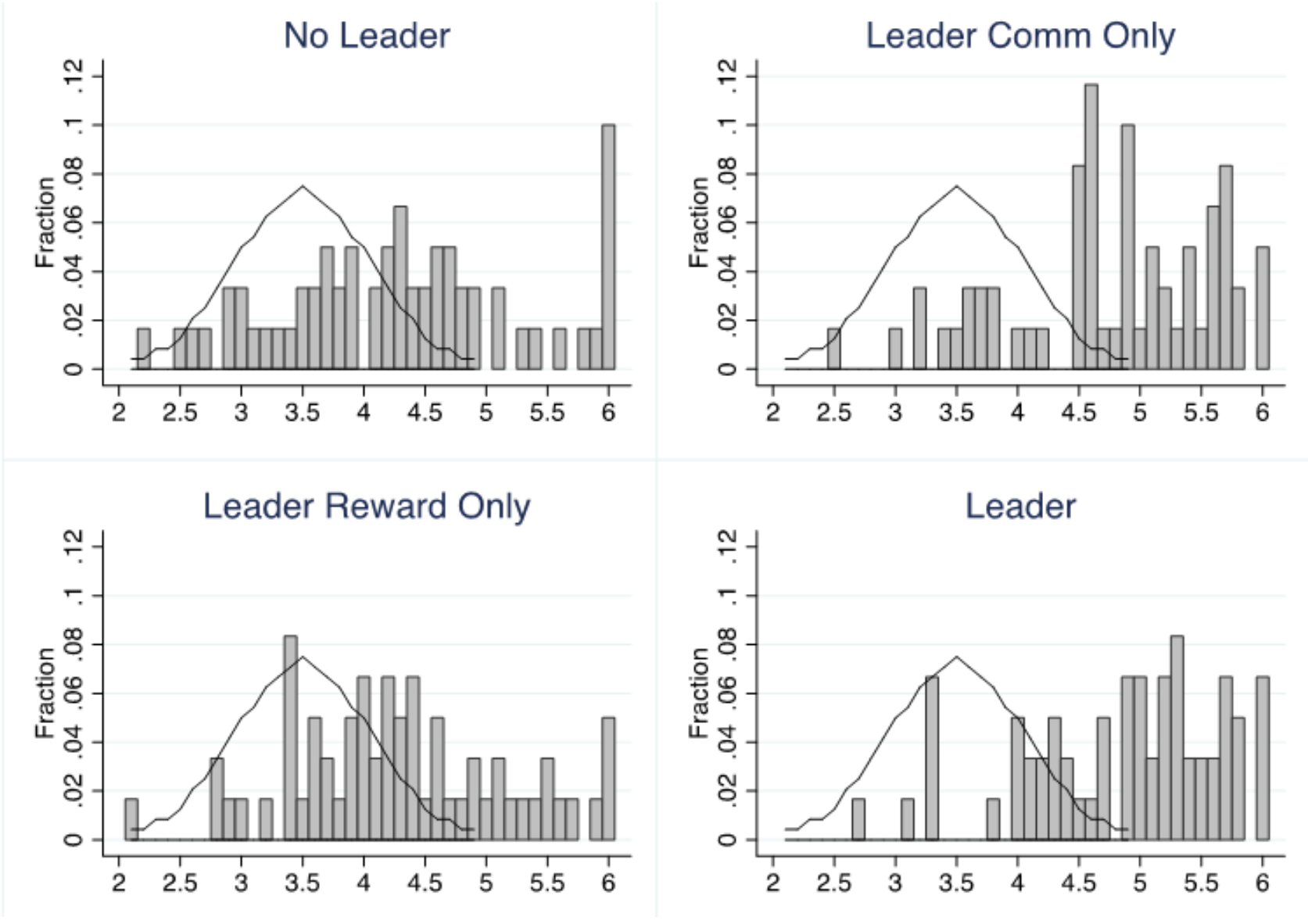
Stars (crosses) refer to significance levels of one-sided binomial probability test that the observed frequency is smaller (larger) than the expected frequency of 16.7%. *(†) 10%-level, **(††) 5%-level, and ***(†††) 1%-level.

Stage 1 performance by condition



Condition	Mean
No Leader	4.48
Leader Comm. Only	4.44
Leader Reward Only	4.59
Leader	4.49
Overall mean (n=320)	4.50

Average Stage 2 performance

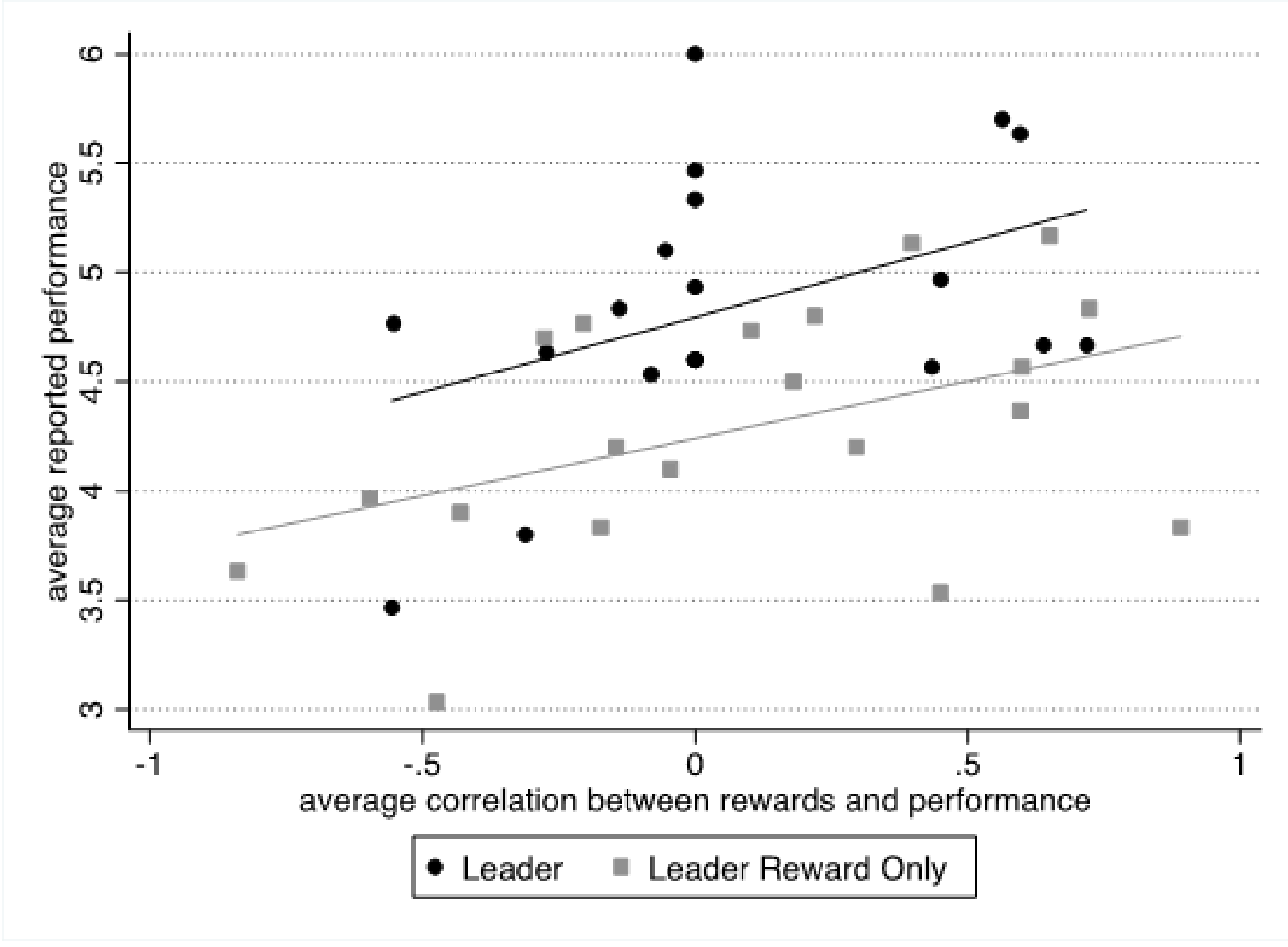


Individual characteristics and performance in stage 1

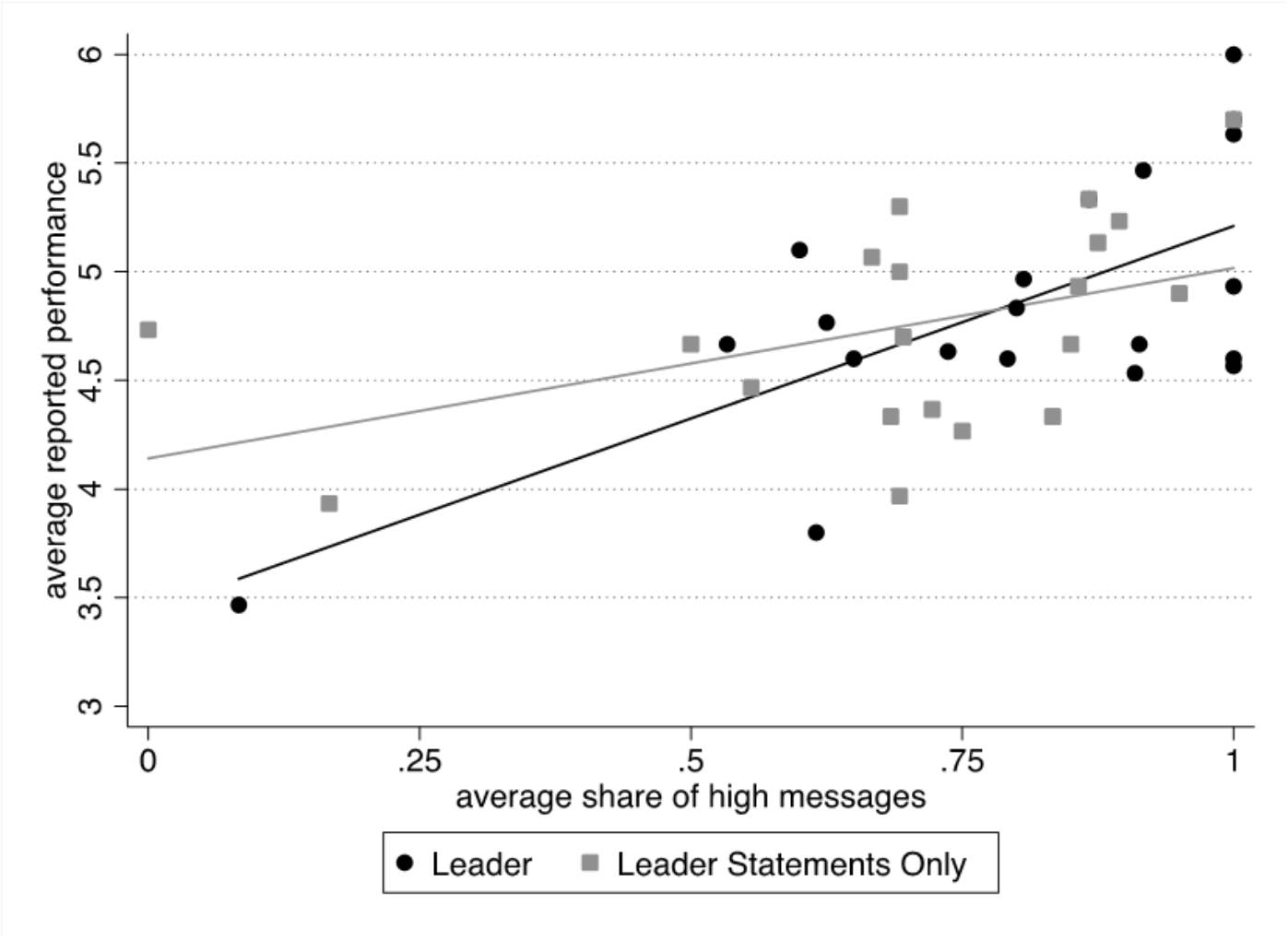
Dependent variable	**Stage 1 performance**
	(1)
Economics student	0.554**
	(0.266)
Male	1.244***
	(0.266)
Age	-0.116***
	(0.032)
Big Five conscientiousness score	0.035**
	(0.015)
Constant	2.125***
	(0.122)
Number of Obs	300
Pseudo R-squared	0.035

Notes: Tobit regression. Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

Leaders strategies: Incentives



Leaders strategies: Statements



Social norms