Incentivizing Team Performance in Non-Routine Analytical Tasks - Evidence from a Field Experiment

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Jobs in the industrial age...



Jobs today...



Properties of (many) modern tasks

Many modern tasks...

- require cognitive effort and complex problem solving
- are performed in teams
- are performed by "intrinsically" motivated workers who self-select into specific tasks

Examples: Strategy/management consultants, top executives, the Bay area (e.g. facebook, Apple, Google, Tesla...)

Non-routine analytical and interpersonal tasks in the US

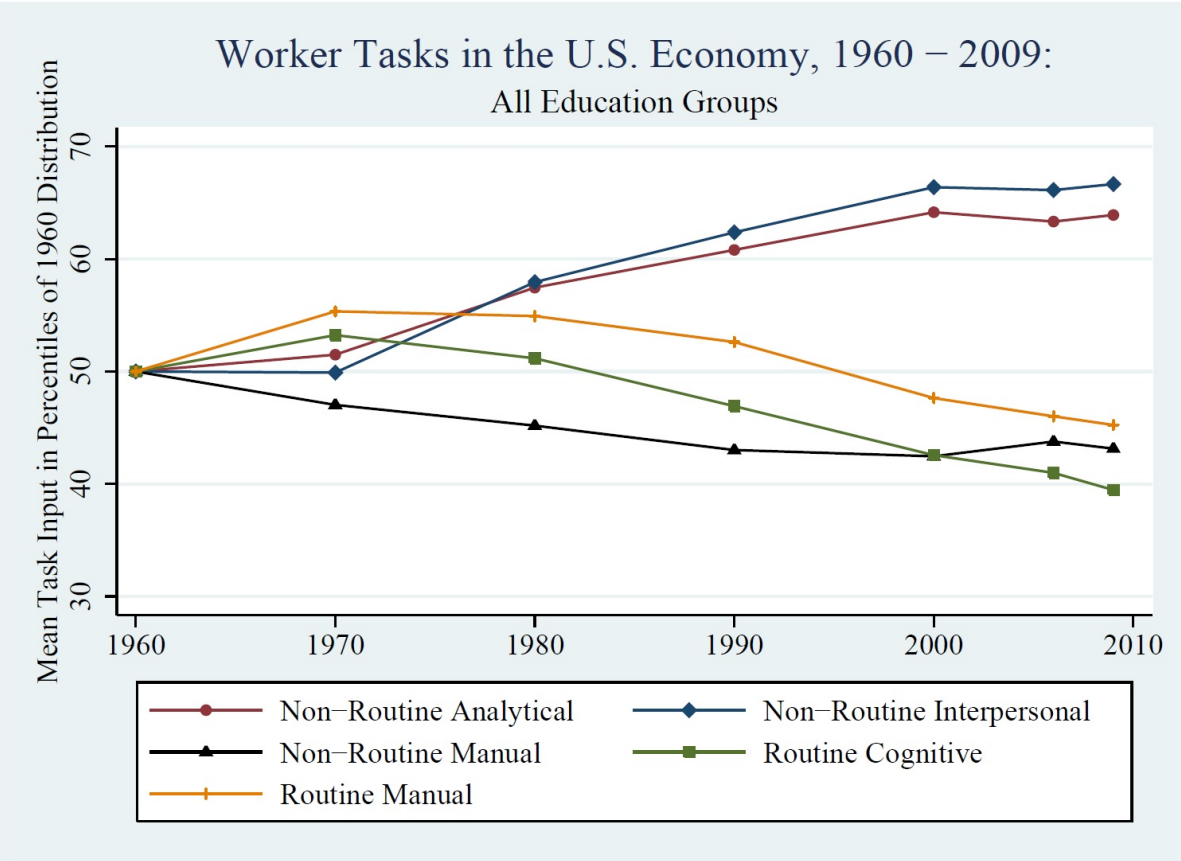


Figure 2. Replication and Extension of ALM Figure 1: 1960 - 2009

Source: Autor and Price (2013)

Figure uses Dictionary of Occupational Titles (DOT) task measures paired to employment data from Census and Population Survey (CPS). Data is aggregated by year: 1,120 industry-gender-education cells. Each cell is assigned a value corresponding to its rank in the 1960 distribution of task input (calculated across the 1,120). Plotted values depict the employment-weighted mean of each assigned percentile in the indicated year.

Literature

Despite their prevalence, we know little about incentive effects in non-routine team tasks.

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Field work has focused mainly on routine and individual tasks:

- Erev et al. (1993): Fruit pickers
- Shearer (2004): Tree planters
- Bandiera et al. (2005, 2007, 2009, 2013), Englmaier et al. (2016), Jayaraman et al. (2016): Farm workers
- Barankay (2012): Furniture salespeople
- Hossain & List (2012): Manufacturing workers
- Delgaauw et al.(2015), Friebel et al. (2017): Retail chains

▸ Lab experiments on creativity, incentives for teachers and employees' ideas

Our contribution

Large scale field experiment to study the effects of *incentives* on *team performance* in a setting that resembles the properties of an analytical and jointly solved non-routine task:

Team work, complex problem solving and cognitive effort

Motivation

Experimental Design

Results

Main result: Bonus incentives and performance

Further results

Framing: Gains vs. Losses

Reference points (thresholds) vs. money

Student sample: Robustness and Team Organization

Bonus Incentives and Exploration

Conclusion

Experimental design and procedures

Requirements for the experimental setting

We were looking for a setting in which...

- a large number of (motivated) teams works on a non-routine task
- the task is solved jointly and involves complex problem solving, cognitive effort, analytical and creative thinking
- the task allows for an objective, quantitative measurement of performance

Experimental design and procedures

Our cooperation partner

Our partner is *ExitTheRoom* (ETR), a provider of *real-life escape games* with locations in Germany, Austria, Hungary and Saudi-Arabia.

- In Real-life escape games, participants try to complete a challenge within a given time limit.
- Teams try to 'escape' from a room (e.g. by finding a door code) or solve some other task (e.g. defuse a fictitious bomb).
- To achieve their goal, they have to find clues, combine information, think out of the box, and make unusual use of objects.

Experimental design and procedures

Real-life escape games



Source: http://boredinvancouver.com/listing/escape-game-room-experience-vancouver/

Experimental design and procedures

The setting

We conduct the field experiment with customers of *ETR* at their Munich location.

- Participants pay €79-119 for a group of usually 2-6 people.
- Participants have up to 60 minutes to escape one of three distinct rooms.
- If participants get stuck, they can request up to five free hints from ETR staff.

Experimental design and procedures

The setting





Teams are highly motivated to solve the task quickly.

- Teams proudly write their remaining times at the wall in the entrance area
- Teams never know whether their solution is correct without trying

Experimental design and procedures

Main treatments

We implement two main treatments:

- *Control*: No bonus paid to subjects.
- *Bonus incentive (45mins)*: If subjects manage to escape the room in less than 45 minutes, they receive a €50 bonus (for the team).

Experimental design and procedures

Data collection - Main Treatments

Main treatments

- 2250 Regular ETR customers (487 groups)
- Data collection from Nov to Dec '15 and Jan to May '17
- Randomization on daily basis:
  - *Control (238 groups)*, *Incentive45* (249 groups)

Experimental design and procedures

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Additionally, we run

- Treatment variations with ETR customers to study the importance of different bonus components
  (January to May '17, 235 groups i.e. 1058 participants)

Experimental design and procedures

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Additionally, we run

- Treatment variations with ETR customers to study the importance of different bonus components
  (January to May '17, 235 groups i.e. 1058 participants)
- A framed field experiment with 804 student subjects (268 groups) (from February to June 2016 and February to March 2017)

▸ Task perception ▸ Sample Balance

Motivation

Experimental Design

Results

Main result: Bonus incentives and performance

Further results

Framing: Gains vs. Losses

Reference points (thresholds) vs. money

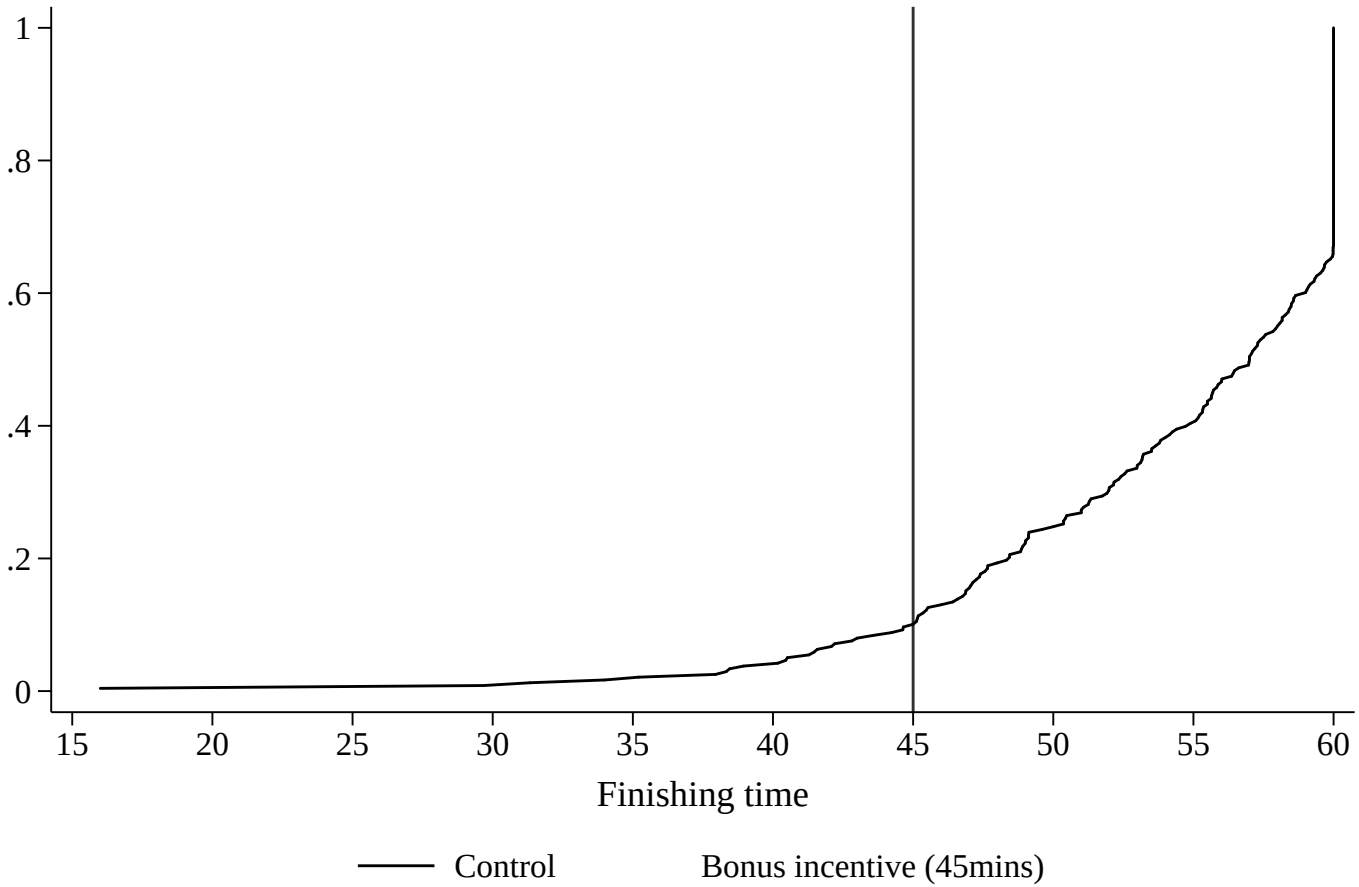
Student sample: Robustness and Team Organization

Bonus Incentives and Exploration

Conclusion

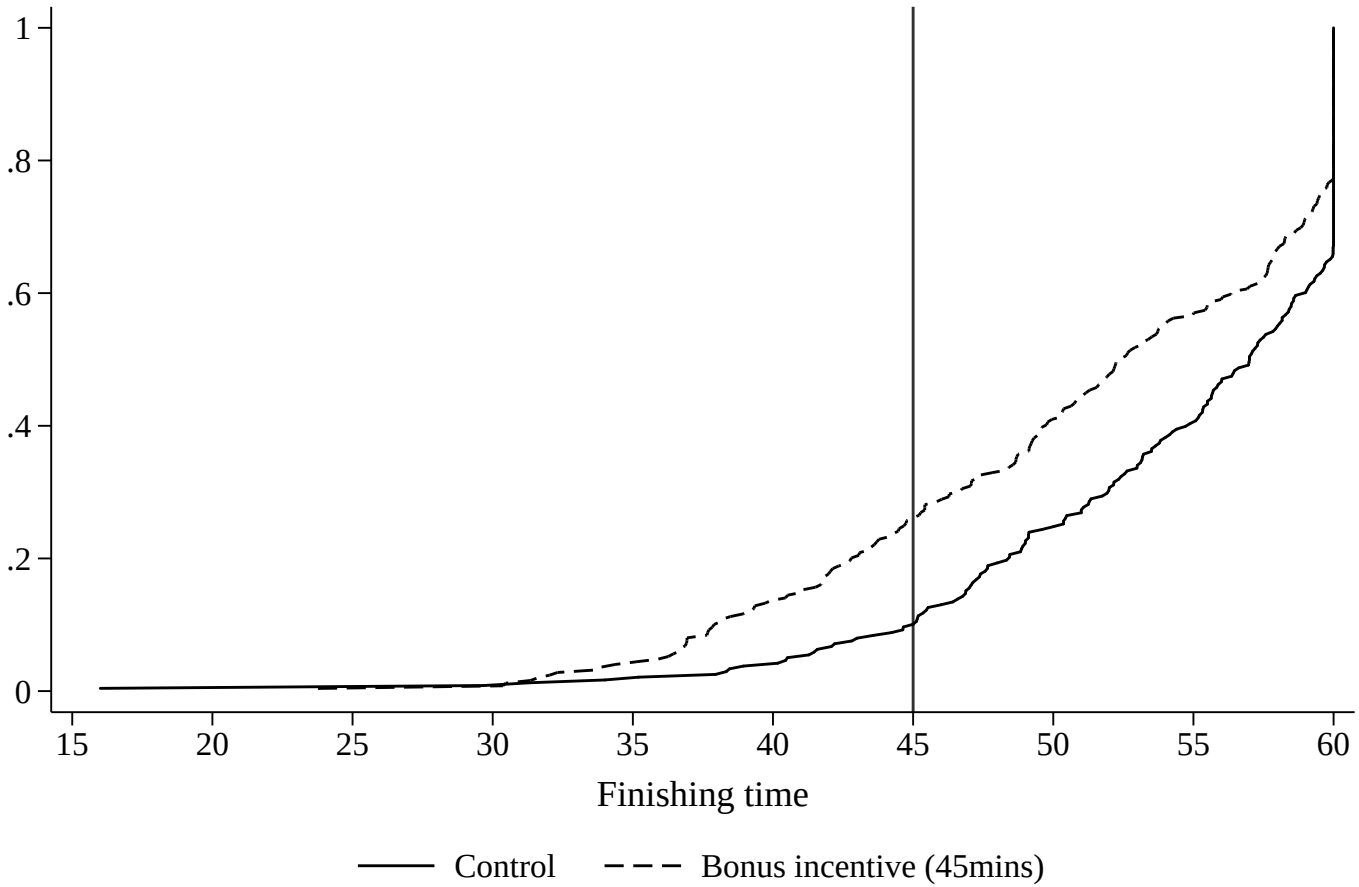
Main result

CDF of finishing time



Main result

CDF of finishing time



Main Result

Regression analyses: Game solved in less than 45 minutes

	Probit: Solved in less than 45 minutes			
	(1)	(2)	(3)	(4)
Bonus incentives (45 minutes)	0.661***	0.715***	0.841***	0.709***
	(0.141)	(0.151)	(0.170)	(0.268)
Constant	-1.301***	-3.267***	-3.121***	-7.662***
	(0.112)	(0.542)	(0.637)	(0.948)
Control Variables	No	Yes	Yes	Yes
Staff Fixed Effects	No	No	Yes	Yes
Week Fixed Effects	No	No	No	Yes
Observations	487	487	487	487

Coefficients from Probit regressions of whether a team solved the game within 45 minutes on our treatment indicator (with *Control* as base category). Control variables added from column (2) onwards include group size (number of team members), share of males in a team, a dummy whether someone in the team has been to an Escape Game before, median age of the team, a dummy whether all group members speak German and a dummy for private teams (opposed to company team building events). Staff fixed effects control for the employees of *ExitTheRoom* present onsite. Robust standard errors reported in parentheses, with $^{*} = p < .10$, $^{**} = p < .05$ and $^{***} = p < .01$.

▸ Remaining time ▸ Proportional Hazard Model

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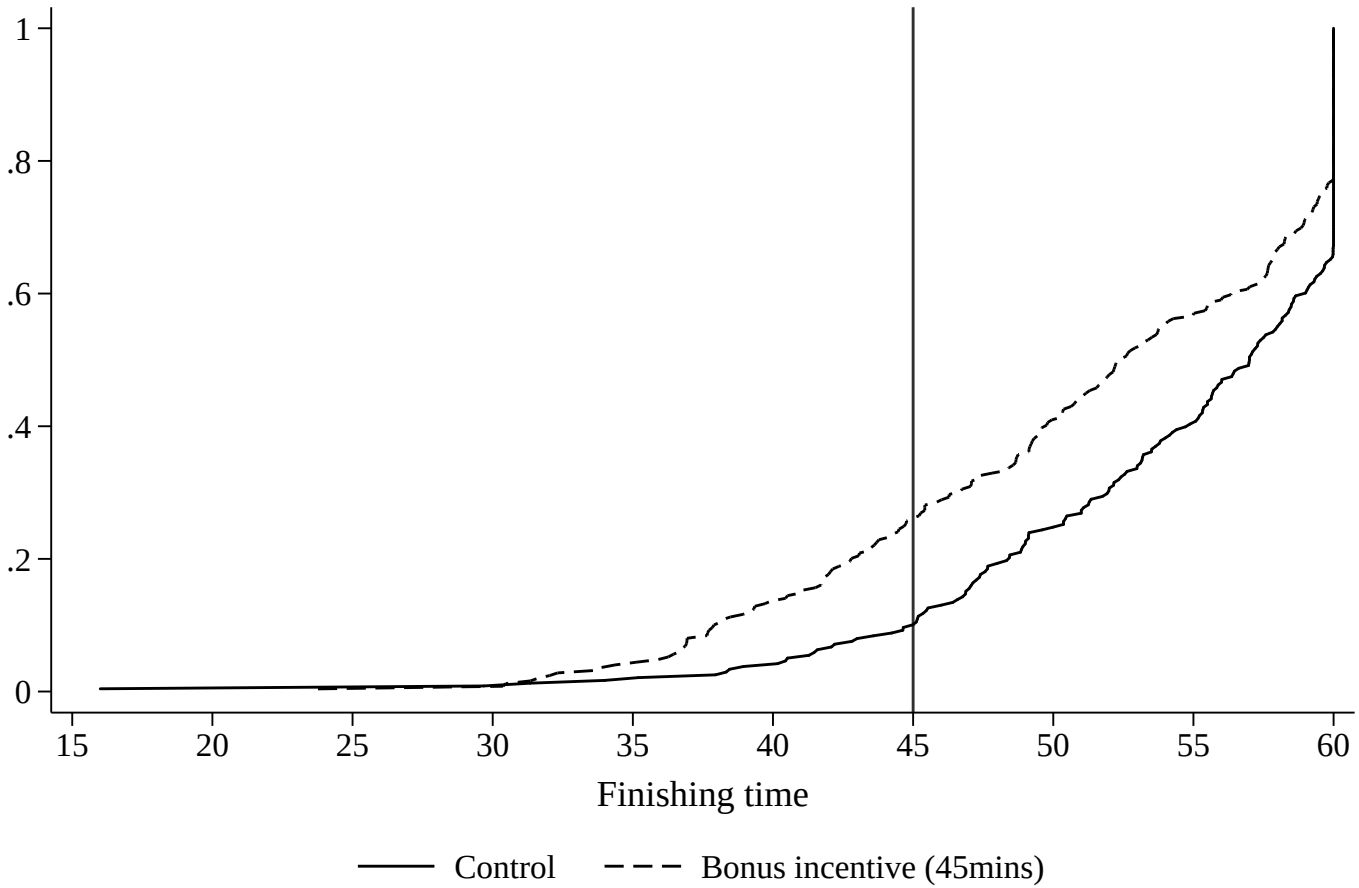
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Bonus Incentives and Exploration

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Framing: Gains vs. Losses

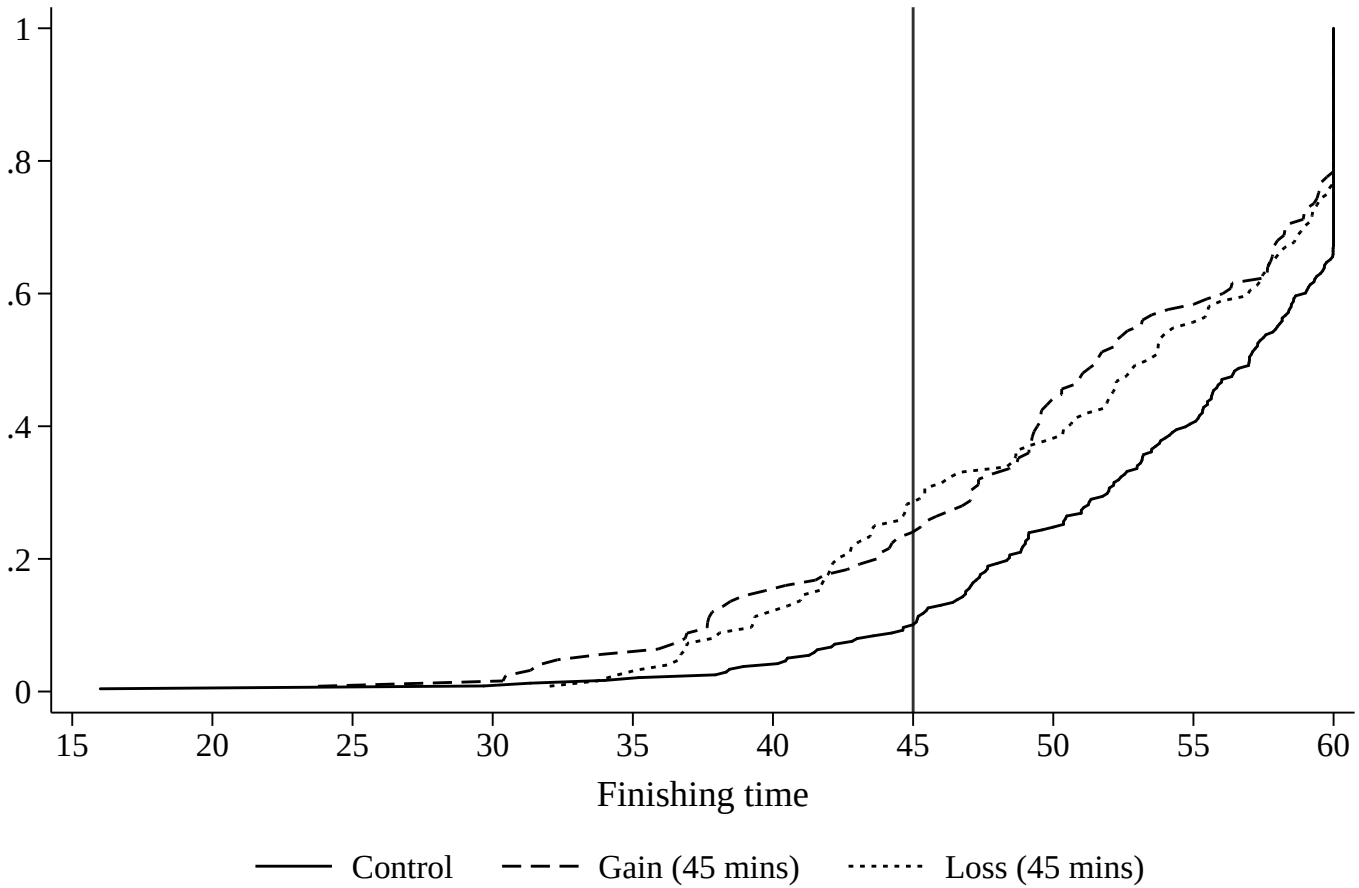
CDF of finishing time



▸ Test statistics

Framing: Gains vs. Losses

CDF of finishing time



▸ Test statistics

Motivation

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  - Framing: Gains vs. Losses
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Goal vs. money

Procedural Details

From Jan to May '17 we additionally ran treatments to study whether bonuses work due to thresholds (45mins) or money (50 euros)

- *Reference Point* (n=147): "In order for you to judge what constitutes a good performance in terms of remaining time: If you make it in 45 minutes or less, this is a very good result!"

Goal vs. money

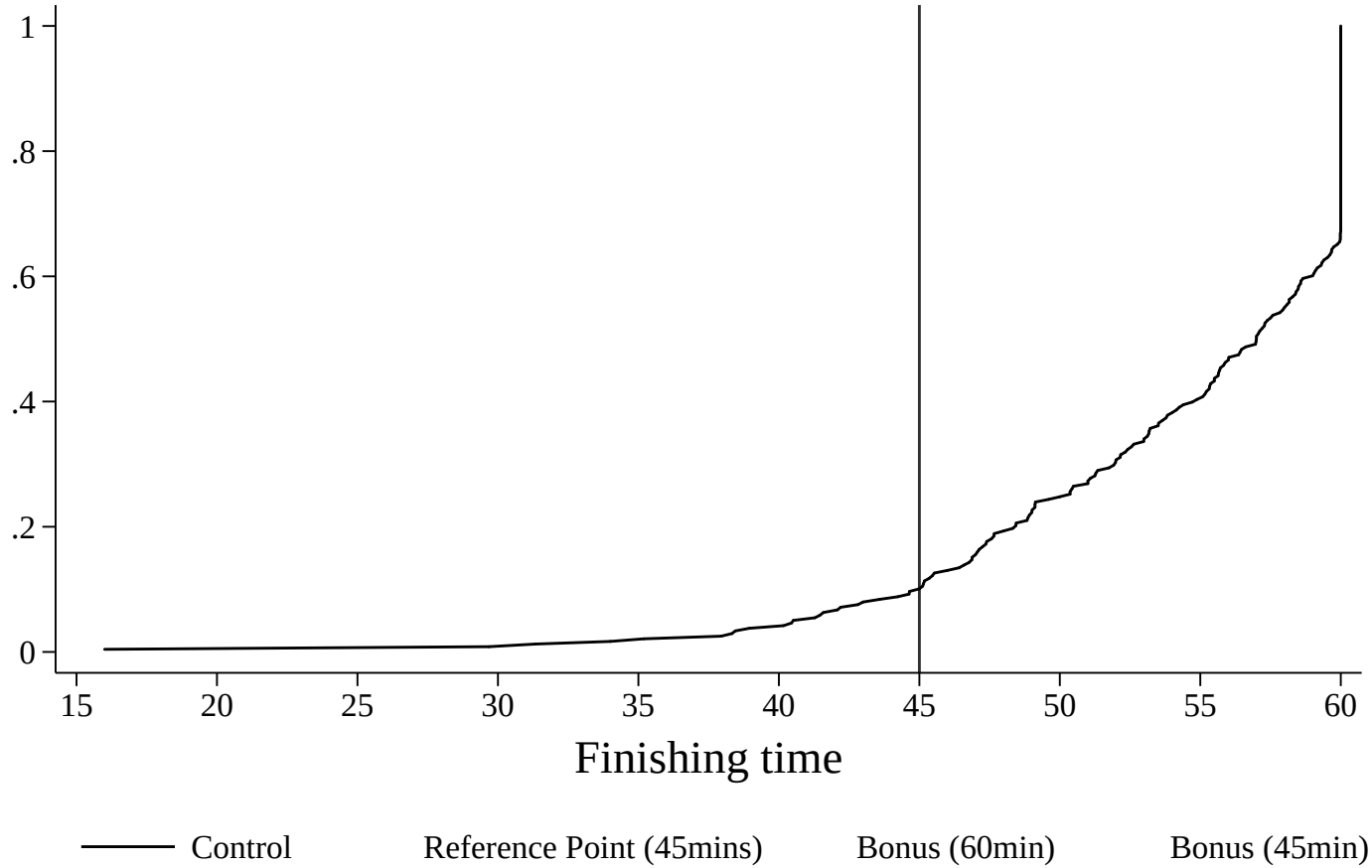
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- *Reference Point* (n=147): "In order for you to judge what constitutes a good performance in terms of remaining time: If you make it in 45 minutes or less, this is a very good result!"
- *Incentive60* (n=88): Bonus (again framed as gain or loss) for solving task in 60mins

Results

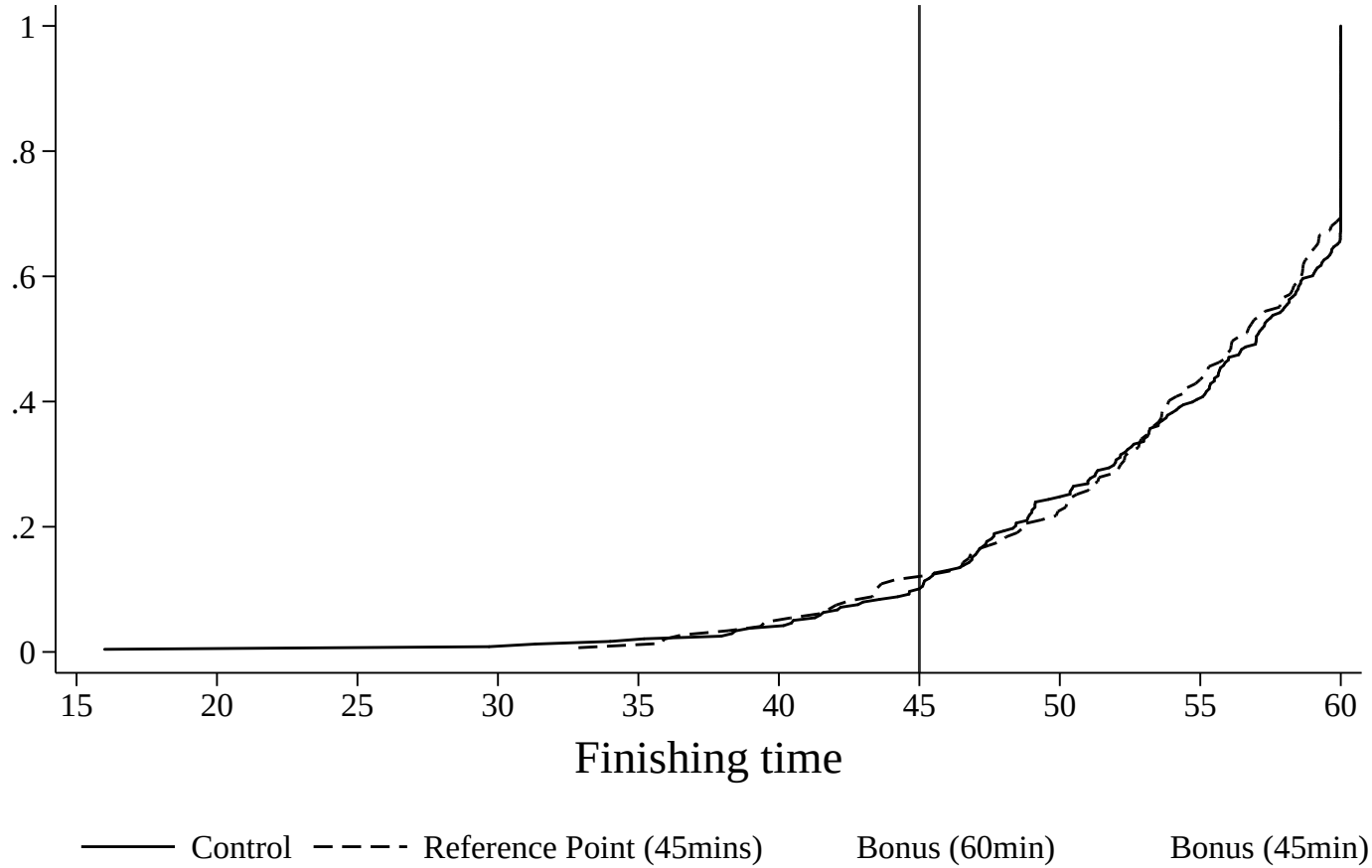
Goal vs. money



”In order for you to judge what constitutes a good performance in terms of remaining time: If you make it in 45 minutes or less, this is a very good result!”

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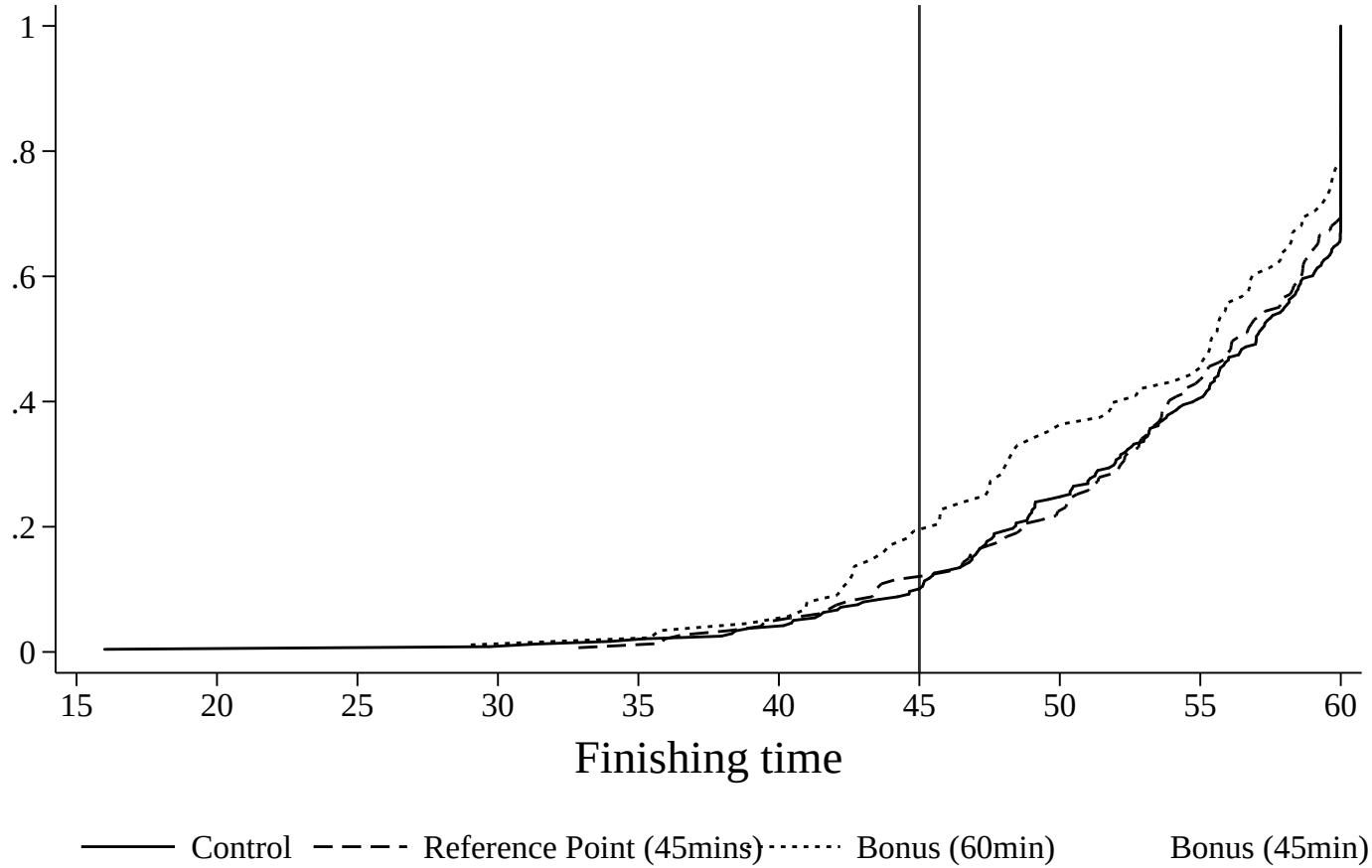
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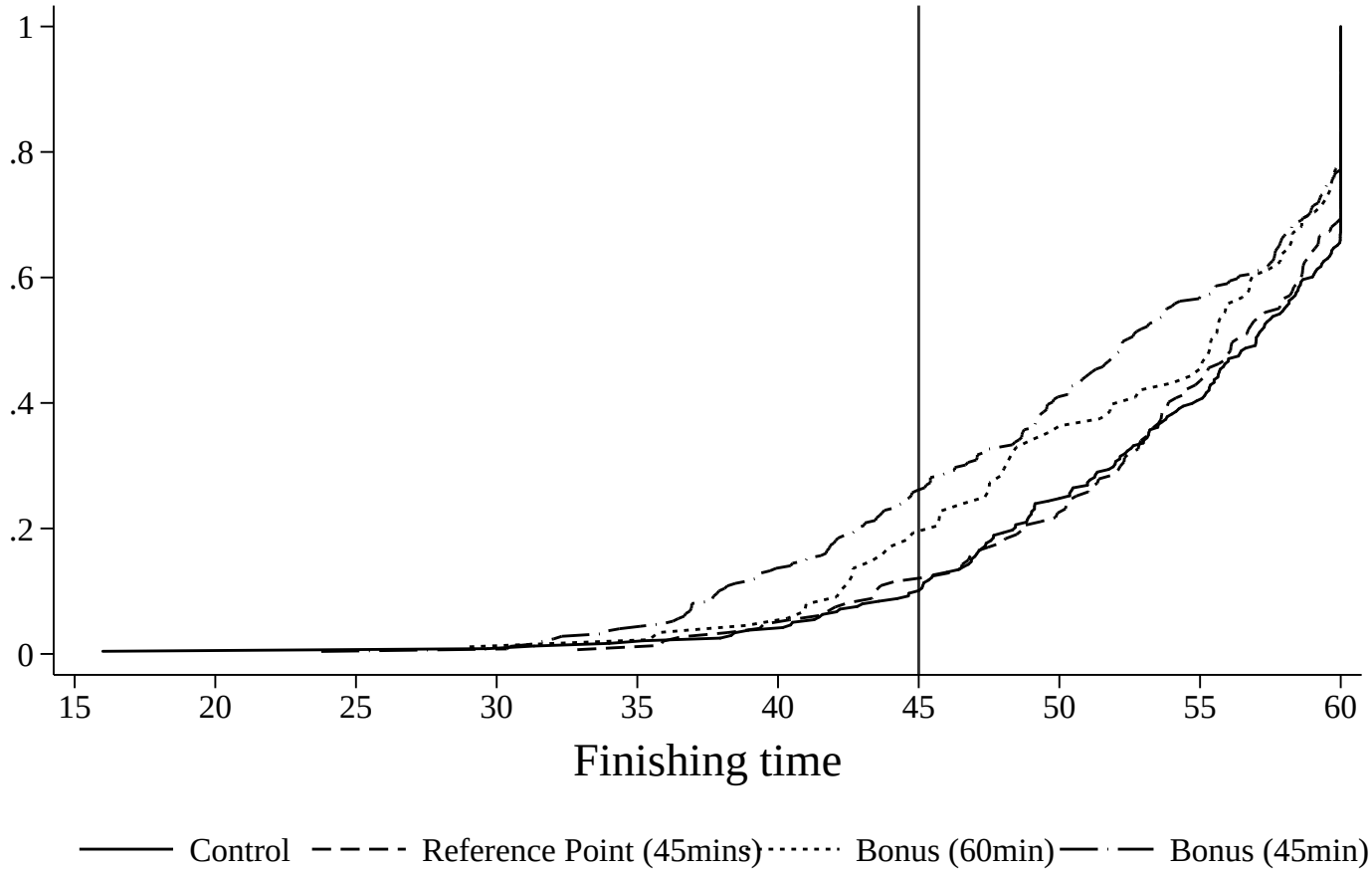
Goal vs. money



”In order for you to judge what constitutes a good performance in terms of remaining time: If you make it in 45 minutes or less, this is a very good result!”

Results

Goal vs. money



”In order for you to judge what constitutes a good performance in terms of remaining time: If you make it in 45 minutes or less, this is a very good result!”

▸ Solved in 45mins regression ▸ Remaining time regression

Results so far...

Our results show that bonuses work for endogenously formed teams who chose to perform the non-routine task.

- Framing of bonus is of minor importance in our setting.
- Reward component of bonus incentive causes the performance increase.
- Incentive effect does not significantly interact with observable group characteristics (not shown in presentation).

... and now:

- Do bonus incentives increase performance also for teams who are exogenously formed and confronted with the task?
- Do incentives affect team organization?

Motivation

Experimental Design

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- Main result: Bonus incentives and performance
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Conclusion

Robustness and heterogeneous reactions to incentives

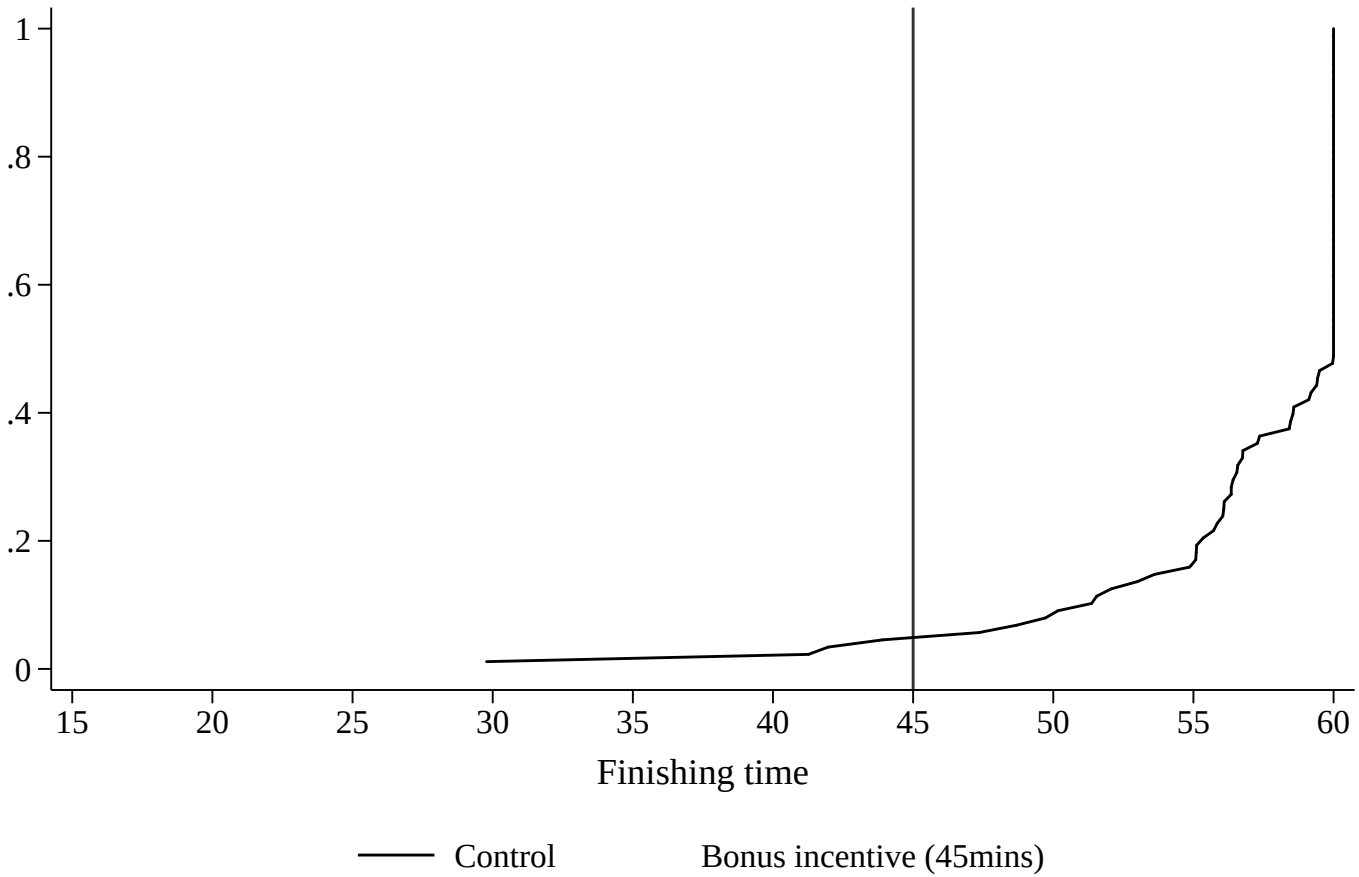
Replication of main treatments (*Gain45*, *Loss45* and *Control*) with student participants (268 groups, i.e. 804 individuals)

1. Participants are invited to the local econ lab
   (invitation does not contain information about escape game)
2. In the lab, we elicit personal characteristics and socioeconomic background using surveys and experimental tasks (30mins)
3. Participants are brought to ETR (6mins walk) and randomly allocated into groups of three to perform the task at ETR
4. After the task, participants answer a survey on behavior and team organization and receive payments

▸ Sample Balance

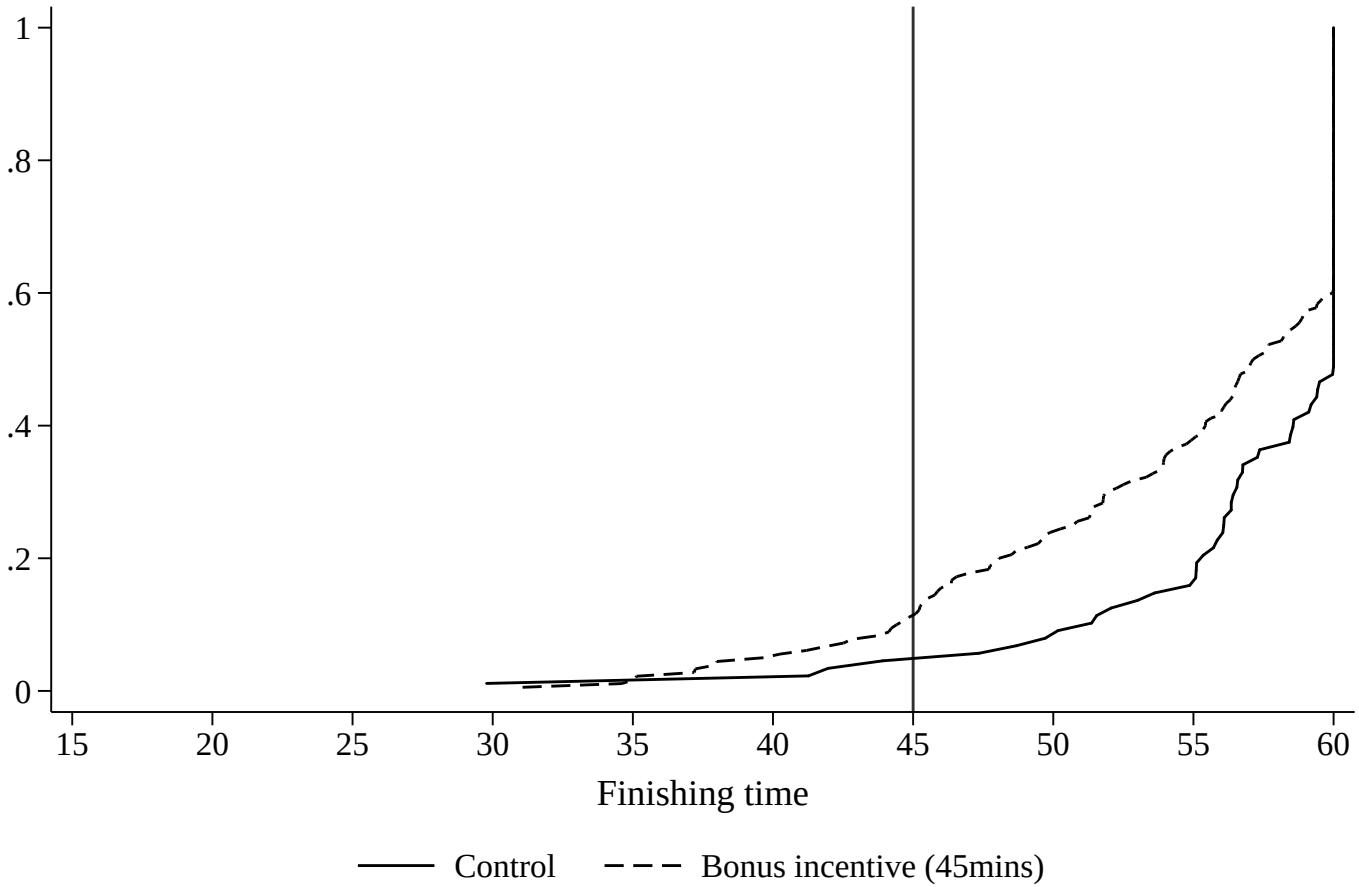
Results (Student participants)

CDF of finishing time



Results (Student participants)

CDF of finishing time



▸ Compare ▸ Gain vs. loss ▸ Test statistics

▸ Solved in 45 regression ▸ Remaining time regression

Robustness and Team Organization

Results

- Bonus incentives do increase performance also for teams who are exogenously formed and confronted with the task
- Treatment effect is fairly robust for differently composed teams
- Ex-post surveys suggest potential effect on team organization: teams tend to demand and observe more leadership when facing incentives

▸ Survey responses

Motivation

Experimental Design

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Bonus Incentives and Exploration

We saw that bonus incentives increase performance. Finally, we investigate exploration behavior.

- Do bonus incentives reduce teams' willigness to explore original solutions?

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- Do bonus incentives reduce teams' willigness to explore original solutions?

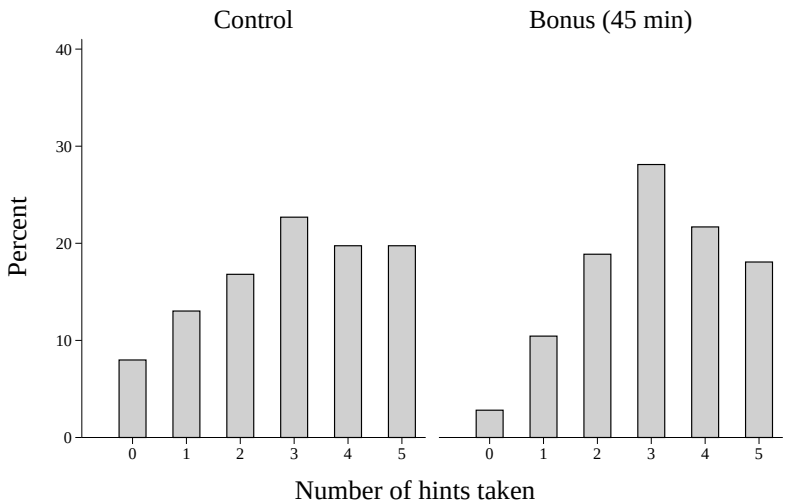
We use hints as an indication of teams' unwillingness to explore and compare reactions to incentives by

- endogenously formed teams who chose to perform the non-routine task
- exogenously formed teams who were confronted with the task

Results

Number of hints (across time)

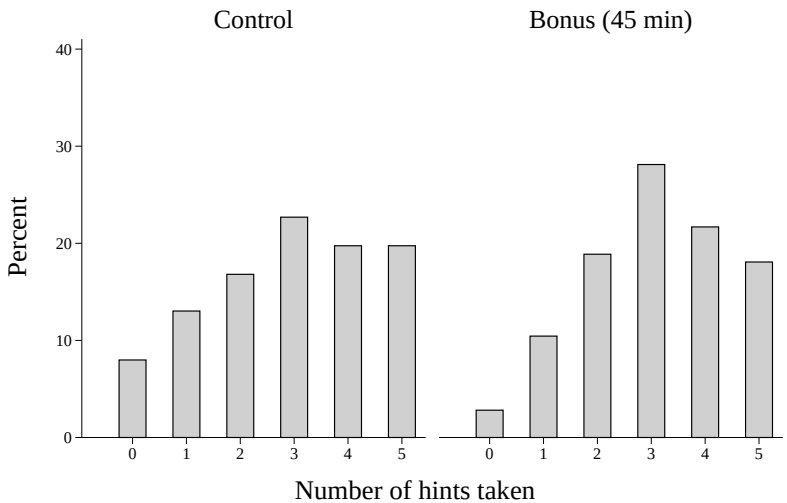
Customer sample



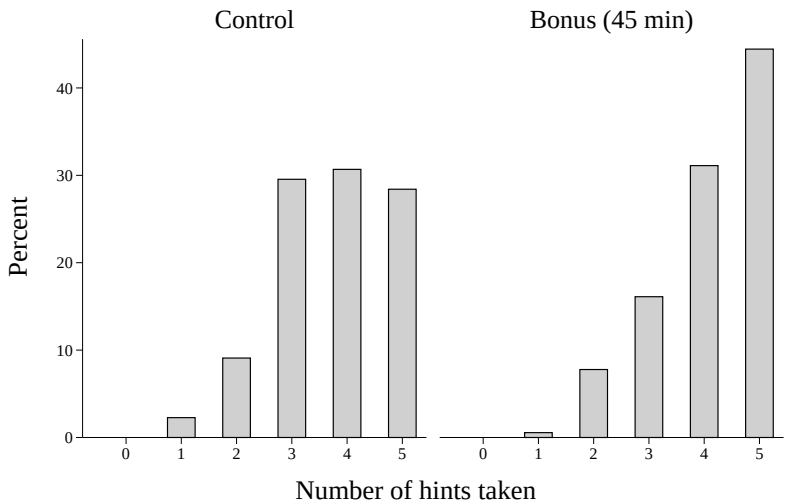
Results

Number of hints (across time)

Customer sample



Student sample

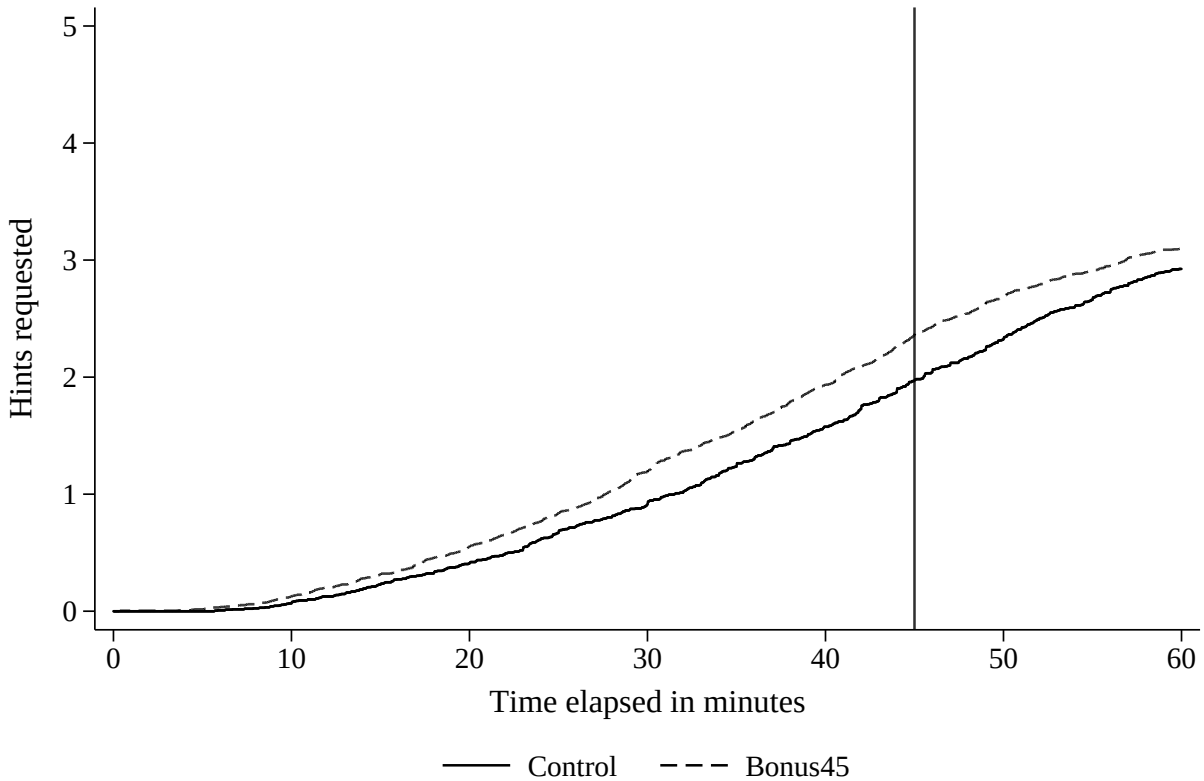


Teams we confronted with the task ask for more hints when facing bonus incentives!

▸ Regression analysis

Results

Mean number of hints (across time) - ETR customer sample

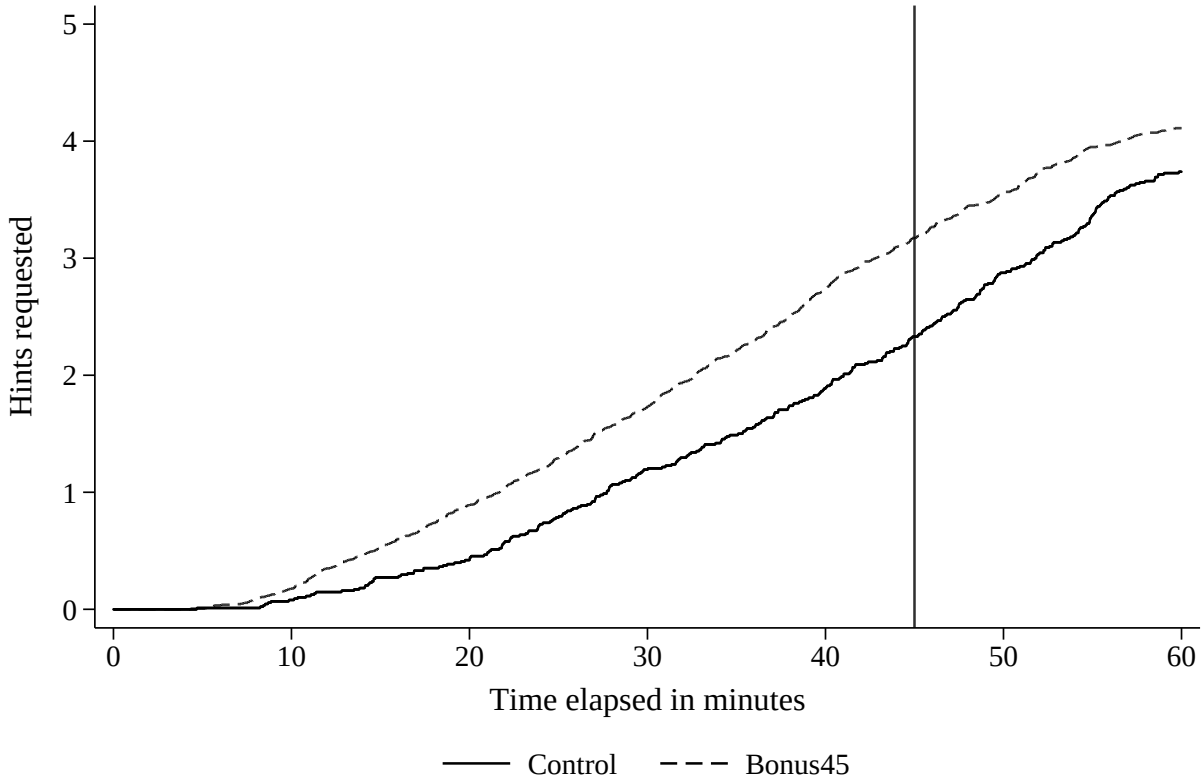


Back

Exploration behavior is not strongly affected for teams who chose to perform the task themselves

Results

Mean number of hints (across time) -Student sample



Teams whom we confronted with the task seem to cut corners to some degree when facing bonus incentives!

Back

Team organization, behavior and perceptions

Follow-up questionnaire - First set of questions ($n = 804$)

	Control	*Incentives*	*p-val*
"The team was very stressed."	3.57		
"One person was dominant in leading the team."	2.60		
"I was dominant in leading the team."	2.64		
"We wrote down all numbers we found."	5.64		
"We first searched for clues before combining them."	4.58		
"We exchanged many ideas in the team."	5.87		
"When we got stuck we let as many team members try as possible."	5.43		
"The team was very motivated."	6.14		
"We communicated a lot."	5.78		
"All team members exerted effort."	6.23		
"Our notes were helpful in finding the solution."	5.50		
"I was able to present all my ideas to the group."	5.95		
"We were well coordinated in the group."	5.73		
"I was to concentrated on my own part."	2.88		
"We made our decisions collectively."	5.51		
"I would like to do a similar task again."	6.30		
"Our individual skills complemented well."	5.65		
"The mood in our team was good."	6.30		
"All team members contributed equally."	5.97		

Team organization, behavior and perceptions

Follow-up questionnaire - First set of questions ($n = 804$)

	Control	*Incentives*	*p-val*
"The team was very stressed."	3.57	4.13***	<0.01
"One person was dominant in leading the team."	2.60	2.86**	0.03
"We wrote down all numbers we found."	5.64	5.50**	0.04
"I was dominant in leading the team."	2.64	2.87**	0.05
"We first searched for clues before combining them."	4.58	4.39	0.11
"We exchanged many ideas in the team."	5.87	5.74	0.12
"When we got stuck we let as many team members try as possible."	5.43	5.28	0.14
"The team was very motivated."	6.14	6.26	0.22
"We communicated a lot."	5.78	5.88	0.23
"All team members exerted effort."	6.23	6.37	0.24
"Our notes were helpful in finding the solution."	5.50	5.43	0.41
"I was able to present all my ideas to the group."	5.95	5.93	0.41
"We were well coordinated in the group."	5.73	5.80	0.61
"I was to concentrated on my own part."	2.88	2.83	0.76
"We made our decisions collectively."	5.51	5.58	0.87
"I would like to do a similar task again."	6.30	6.28	0.88
"Our individual skills complemented well."	5.65	5.68	0.89
"The mood in our team was good."	6.30	6.36	0.93
"All team members contributed equally."	5.97	6.00	0.96

Team organization, behavior and perceptions

Follow-up questionnaire

Second set of questions (based on Högl and Gemünden, 2001) ($n = 375$)

	Control	*Incentives*	*p-val*
"How much did you wish somebody would take leadership?"	2.67	3.32***	<0.01
"How well lead was the team?"	3.85	4.21**	0.04
"How much did you think about the problems?"	6.00	5.79	0.11
"How much did you follow ideas ' that were not promising?"	5.02	4.79	0.17
"How much team spirit evolved?"	5.54	5.80	0.17
"How much coordination of individual" tasks and joint strategy?"	3.28	3.51	0.18
"How much exploitation of individual potential?"	5.14	4.94	0.22
"How much helping when somebody stuck?"	5.70	5.58	0.22
"How much did you search the room for solutions?"	6.31	6.22	0.51
"How much exertion of effort by all members?"	5.98	5.96	0.60
"How much communication about procedures?"	5.30	5.35	0.88
"How much accepting help of others?"	5.80	5.85	0.89

Back

Conclusion

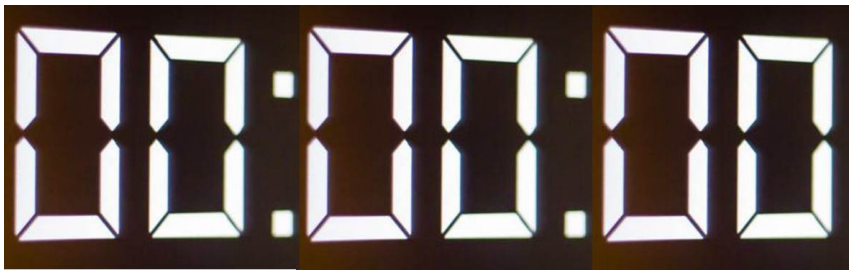
Bonus incentives increase performance in non-routine team task

- Loss frame does not outperform gain frame
- Monetary component is the main driver of bonus effect (not reference performance)

Positive performance effect involves

- stress, demand for leadership and dominant team members
- less exploration in particular if teams have not chosen to perform the task

Thank you!



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Literature

Work that (at least partially) relates to non-routine team tasks is scarce

Laboratory experiments on creativity

- Ramm et al. (2013); Bradler et al. (2014); Charness and Grieco (2014); Laske and Schroeder (2016); Erat and Gneezy (2016).

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Field experiments on teacher performance

- Muralidharan and Sundararaman (2011); Fryer et al. (2012)

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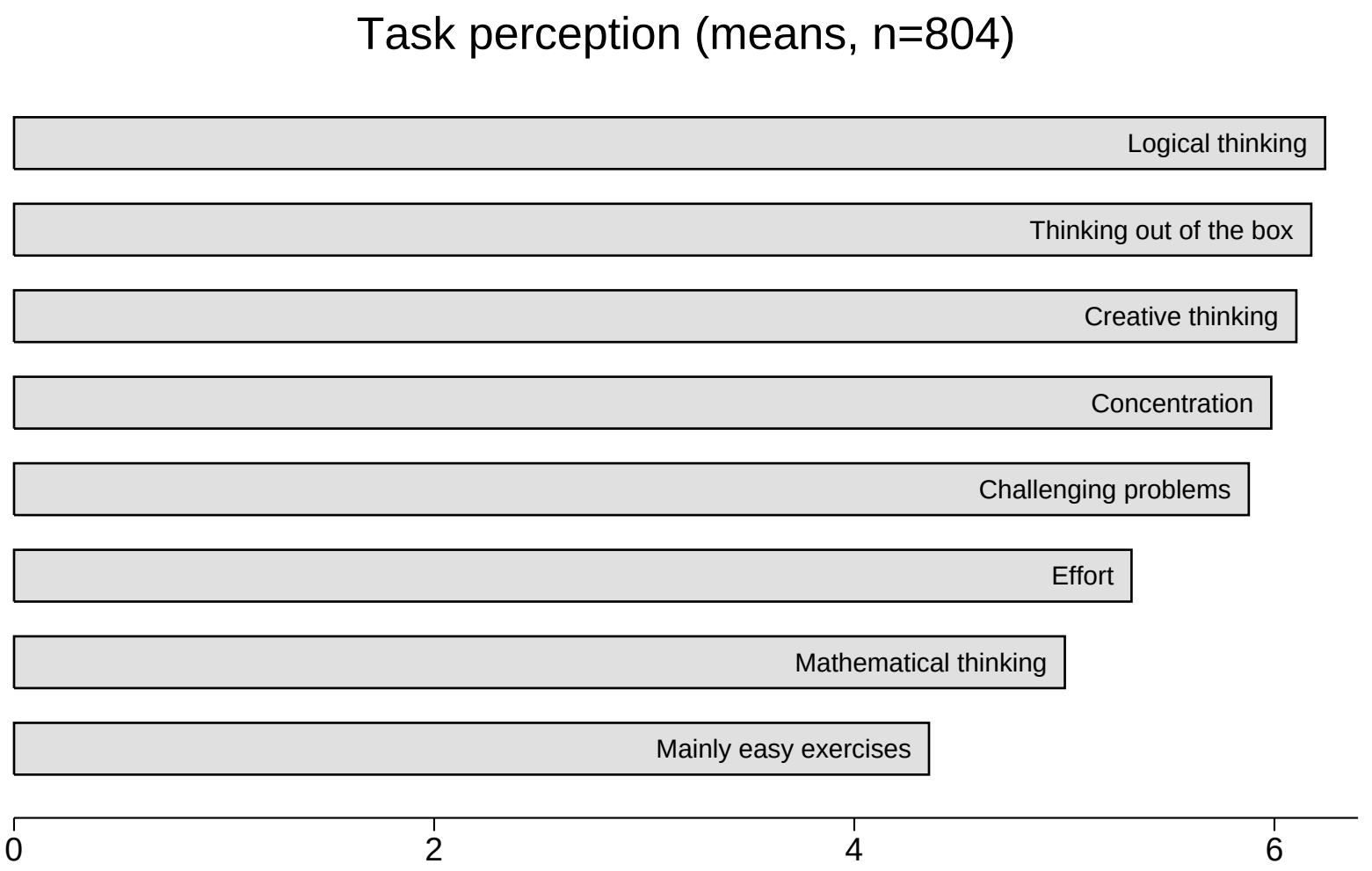
Field experiment on creation of ideas

- Gibbs et al. (2014)

back

The Setting

Perception of task (measured on 7-point Likert scale)



Back

Main Result

Randomization check - Field

	Control (n=238)	*Bonus (45mins) (n=249)*
Share males	.52 (.29) [0,1]	.51 (.29) [0,1]
Group size	4.52 (1.18) [2,7]	4.71 (1.05) [2,8]
Experience	.48 (.50) [0,1]	.48 (.50) [0,1]
Private	.69 (.46) [0,1]	.63 (.48) [0,1]
English speaking	.12 (.32) [0,1]	.08 (.28) [0,1]
Age category $\in$ {18-25;26-35;36-50;51+}	{0.29;0.45;0.21;0.05}	{0.18;0.42;0.33;0.07}***

All variables except age category on group level. Standard deviations and minimum and maximum values for group variables in parentheses; (std.err.)[min, max]. Age category displays fractions of participants in the respective age category on the individual level. Stars indicate significant differences to *Control* (using χ^2-tests (for frequencies) and Mann-Whitney tests (for distributions), with $^{*} = p < .10$, $^{**} = p < .05$ and $^{***} = p < .01$.

▸ Back

Framing: Gains vs. Losses

Main outcome variables

	Control	*Bonus45 (pooled)*	*Gain45*	*Loss45*
fraction of teams solving task in 45 mins	.10	.26***	.24***	.28***
fraction of teams solving task in 60 mins	.67	.77**	.78**	.77*
mean remaining time (in sec)	345	530***	548***	512***
mean remaining time (in sec) if solved	515	688***	707***	669***

This table summarizes key variables and their differences across our three treatments *Control*, *Gain45*, and *Loss45* and the pooled bonus incentive treatments. Stars indicate significant differences from *Control* (using Fisher's exact test for frequencies and Mann-Whitney tests for distributions), with $^{*} = p < .10$, $^{**} = p < .05$ and $^{***} = p < .01$.

▸ Back ▸ BackGL

Main Result

Regression analyses: Remaining time in seconds

	GLM: Remaining time in seconds			
	(1)	(2)	(3)	(4)
Bonus incentives (45 minutes)	0.432***	0.447***	0.406***	0.257
	(0.100)	(0.098)	(0.109)	(0.174)
Constant	5.842***	4.041***	4.251***	3.803***
	(0.079)	(0.355)	(0.404)	(0.482)
Control Variables	No	Yes	Yes	Yes
Staff Fixed Effects	No	No	Yes	Yes
Week Fixed Effects	No	No	No	Yes
Observations	487	487	487	487

Coefficients from a generalized linear model regression with a log link of the remaining time on our treatment indicator (with *Control* as base category). Control variables added from column (2) onwards include group size (number of team members), share of males in a team, a dummy whether someone in the team has been to an Escape Game before, median age of the team, a dummy whether all group members speak German and a dummy for private teams (opposed to company team building events). Staff fixed effects control for the employees of *ExitTheRoom* present onsite. Robust standard errors reported in parentheses, with * $= p <$ .10, ** $= p <$ .05 and *** $= p <$ .01.

▸ Back

Main Result

Proportional hazard model

	Cox Proportional Hazard Model: Finishing the Game					
	First 45 minutes (1)-(3)			Last 15 minutes (4)-(6)		
	(1)	(2)	(3)	(4)	(5)	(6)
Bonus45 (pooled)	2.853***	2.947***	2.914***	1.178	1.250*	0.841
	(0.680)	(0.718)	(1.371)	(0.145)	(0.165)	(0.214)
χ^2 prop. haz. assumption	0.11	8.56	44.59	0.04	7.94	42.23
Degrees of freedom	1	9	45	1	9	46
Control Variables	No	Yes	Yes	No	Yes	Yes
Staff Fixed Effects	No	No	Yes	No	No	Yes
Week Fixed Effects	No	No	Yes	No	No	Yes
Observations	487	487	487	487	487	487

Hazard ratios from a Cox proportional hazard regression of time elapsed until a team has completed the task on our treatment indicator *Bonus45*. Control variables, as before. Robust standard errors reported in parentheses, with $^{*} = p < .10$, $^{**} = p < .05$ and $^{***} = p < .01$.

back

Results: All treatments

Regression analyses: Game solved in less than 45 minutes

Probit: Solved in less than 45 minutes	(1)	(2)	(3)	(4)
Bonus (pooled, 45min)	0.661***	0.708***	0.746***	0.731***
	(0.141)	(0.150)	(0.162)	(0.163)
Bonus (pooled, 60min)	0.435**	0.458**	0.475**	0.481**
	(0.190)	(0.199)	(0.211)	(0.212)
Reference Point (45min)	0.104	0.102	0.051	0.107
	(0.176)	(0.183)	(0.203)	(0.204)
Constant	-1.301***	-3.242***	-3.080***	531.187
	(0.112)	(0.468)	(0.546)	(458.493)
Control Variables	No	Yes	Yes	Yes
Staff Fixed Effects	No	No	Yes	Yes
Week Fixed Effects	No	No	No	Yes
Observations	722	722	722	722

Coefficients from Probit regressions of whether a team solved the task within 45 minutes on our treatment indicators *Bonus (pooled, 45min)*, *Bonus (pooled, 60min)* and *Reference Point (45min)* with *Control* being the base category). Control variables added from column (2) onwards include group size (number of team members), share of males in a team, a dummy whether someone in the team has been to an Escape Game before, dummies for median age category of the team, a dummy whether all group members speak German and a dummy for private teams (opposed to company team building events). Staff fixed effects in column (3) and (4) control for the employees of *ExitTheRoom* present onsite. Column (4) includes week fixed effects (all models include the full sample, including weeks that perfectly predict failure to receive the bonus). Robust standard errors reported in parentheses, and $^{*} = p < .10$, $^{**} = p < .05$ and $^{***} = p < .01$.

Back

Results: All treatments

Regression analyses: Remaining time

GLM: Remaining time	(1)	(2)	(3)	(4)
Bonus (pooled, 45min)	0.432***	0.436***	0.376***	0.244
	(0.100)	(0.097)	(0.106)	(0.150)
Bonus (pooled, 60min)	0.233*	0.267**	0.392***	0.449**
	(0.135)	(0.120)	(0.127)	(0.185)
Reference Point (45min)	0.002	-0.001	0.102	0.131
	(0.123)	(0.118)	(0.128)	(0.149)
Constant	5.842***	4.044***	4.225***	3.713***
	(0.079)	(0.296)	(0.342)	(0.417)
Control Variables	No	Yes	Yes	Yes
Staff Fixed Effects	No	No	Yes	Yes
Week Fixed Effects	No	No	No	Yes
Observations	722	722	722	722

Coefficients from a generalized linear model regression with a log link of the remaining time on our treatment indicators (with *Control* being the base category). Control variables added from column (2) onwards include group size (number of team members), share of males in a team, a dummy whether someone in the team has been to an Escape Game before, dummies for median age category of the team, a dummy whether all group members speak German and a dummy for private teams (opposed to company team building events). Staff fixed effects in column (3) and (4) control for the employees of *ExitTheRoom* present onsite. Column (4) includes week fixed effects. Robust standard errors reported in parentheses, and $^{*} = p < .10$, $^{**} = p < .05$ and $^{***} = p < .01$.

▸ Back

Further results

Randomization Check - Student Sample

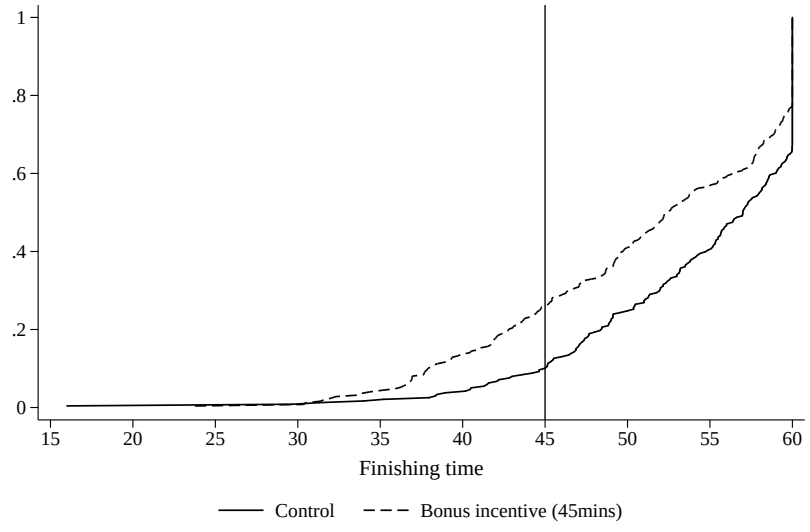
	average (a)	min	max	a in Control	a in Gain	a in Loss	Diff
Observations	268	-	-	88	90	90	-
Age	23.6	18.3	37	23.2	22.9	23	-
Share male(s)	0.44	0	1	0.46	0.39	0.47	GL*
Intrinsic motivation	6.8	2	14.3	6.75	6.70	6.93	-
Loss aversion	1.68	0.91	2.75	1.70	1.68	1.65	-
Risk taking	3.92	1.66	5.66	3.89	3.94	3.96	-
Total creativity points	222	102	487	226	216	223	-
Experience ETR	0.05	0	0.67	0.05	0.04	0.05	-
Experience EG	0.14	0	1	0.14	0.11	0.17	GL*
School GPA	1.97	1.13	2.90	2.01	2.00	1.92	-
Political Attitude	3.49	2	6	3.50	3.45	3.53	-
Available Income	425	167	1833	407	407	461	CL*, GL*

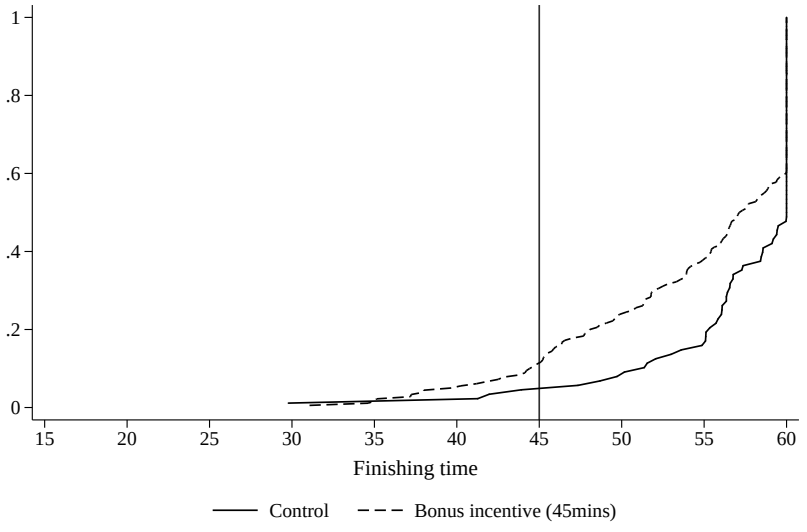
Stars indicate significant differences between control and gain (CG), control and loss (CL) and gain and loss (GL) using Mann-Whitney-Tests for distributions, with * $= p < .10$, ** $= p < .05$ and *** $= p < .01$.

Back

Results (Lab & Field Subjects)

CDF - Comparison (left panel: Field participants, right panel: Lab subjects)

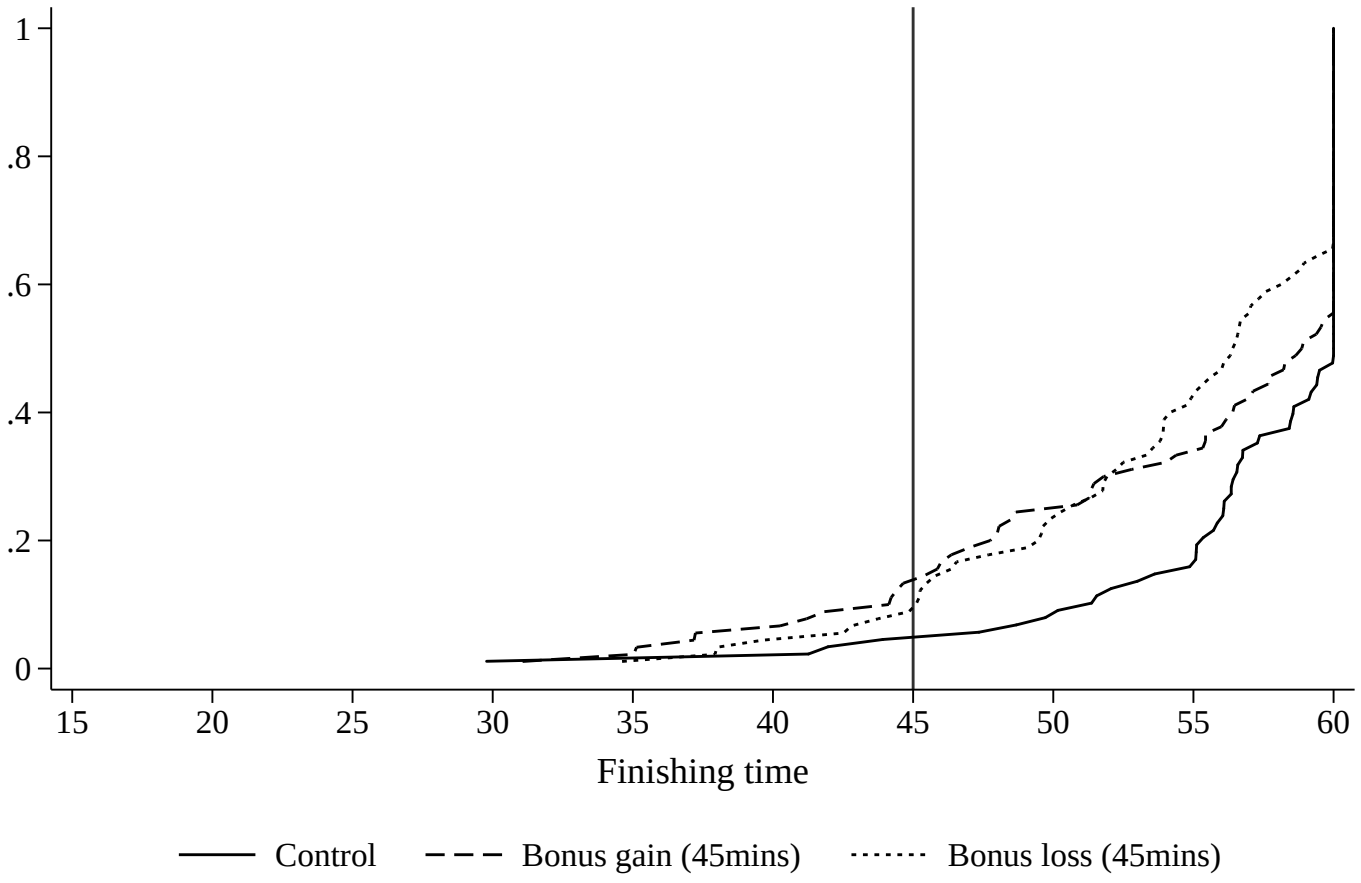




▸ Back

Results (Student participants)

CDF of finishing time



Back

Results

Main outcome variables - Student Sample

	Control	*Bonus incentives (pooled)*	*Gain45*	*Loss45*
fraction of teams solving task in 45 mins	0.05	0.11^{*}	0.13^{**}	0.09
fraction of teams solving task in 60 mins	0.48	0.60^{*}	0.54	0.65^{**}
mean remaining time (in sec)	169.90	327.97^{***}	334.67^{*}	321.28^{***}
mean remaining time (in sec) if solved	355.98	546.62^{***}	590.10^{**}	510.50^{***}

This table summarizes key variables and their differences across our three treatments *Control*, *Gain45*, *Loss45*, and *Bonus incentives (pooled)* treatments. Stars indicate significant differences from *Control* (using χ^2-test for frequencies and Mann-Whitney tests for distributions), with $^{*} = p < .10$, $^{**} = p < .05$ and $^{***} = p < .01$. P-values of non-parametric comparisons between *Gain45* and *Loss45* are larger than 0.10 for all four performance measures.

▸ Back

Results (Student participants)

Regression analyses (pooled): Remaining time

GLM: Remaining time	(1)	(2)	(3)	(4)
Bonus incentives (45 minutes)	0.894*	0.877*	0.830	0.981*
	(0.533)	(0.532)	(0.542)	(0.550)
Constant	-3.091***	-3.258	-2.584	-18.737***
	(0.489)	(2.006)	(2.336)	(2.300)
Control Variables	No	Yes	Yes	Yes
Staff Fixed Effects	No	No	Yes	Yes
Week Fixed Effects	No	No	No	Yes
Observations	268	268	268	268

Coefficients from a generalized linear model regression with a log link of the remaining time on our treatment indicators (with *Control* being the base category).Control variables added from column (2) onwards include share of males in a team, a dummy whether someone in the team has been to an Escape Game before and average age of the team. Staff fixed effects control for the employees of *ExitTheRoom* present onsite. Robust standard errors reported in parentheses, with * $= p < .10$, ** $= p < .05$ and *** $= p < .01$.

▸ Back

Results (Student participants)

Regression analyses (OLS): Number of hints taken (in customer and student sample)

	OLS: Number of hints requested							
	Field experiment (1)-(4)				Framed Field Experiment (5)-(8)			
	within 60 minutes		within 45 minutes		within 60 minutes		within 45 minutes	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bonus45 (pooled)	0.172	0.098	0.387***	0.172	0.372***	0.361***	0.843***	0.817***
	(0.132)	(0.221)	(0.107)	(0.192)	(0.133)	(0.134)	(0.126)	(0.124)
Constant	2.924***	0.506	1.971***	-0.596	3.739***	5.449***	2.330***	3.698***
	(0.100)	(1.228)	(0.079)	(1.080)	(0.111)	(1.032)	(0.099)	(1.027)
Control Variables	No	Yes	No	Yes	No	Yes	No	Yes
Staff Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Week Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Observations	487	487	487	487	268	268	268	268

Coefficients from OLS regressions of the number of hints requested within 60 minutes or 45 minutes regressed on our treatment indicator *Bonus45*. Controls and fixed effects identical to previous tables. Robust standard errors reported in parentheses, and $^{*} = p < .10$, $^{**} = p < .05$ and $^{***} = p < .01$.

▸ Back ▸ Hints across time

Main Result

Regression analyses (all treatments): Game solved in less than 45 minutes

	Probit: Solved in less than 45 minutes			
	(1)	(2)	(3)	(4)
Bonus45 (pooled)	0.661***	0.708***	0.746***	0.512**
	(0.141)	(0.150)	(0.162)	(0.224)
Bonus60 (pooled)	0.435**	0.458**	0.475**	0.602**
	(0.190)	(0.199)	(0.211)	(0.282)
Reference Point	0.104	0.102	0.051	0.096
	(0.176)	(0.183)	(0.203)	(0.246)
Constant	-1.301***	-3.242***	-3.080***	-3.294***
	(0.112)	(0.468)	(0.546)	(0.934)
Control Variables	No	Yes	Yes	Yes
Staff Fixed Effects	No	No	Yes	Yes
Week Fixed Effects	No	No	No	Yes
Observations	722	722	722	722

Coefficients from Probit regressions of whether a team solved the task within 45 minutes on our treatment indicators *Bonus45*, *Bonus60* and *Reference Point* with *Control* being the base category. Control variables added from column (2) onwards include group size (number of team members), share of males in a team, a dummy whether someone in the team has been to an Escape Game before, median age of the team, a dummy whether all group members speak German and a dummy for private teams (opposed to company team building events). Robust standard errors reported in parentheses, and $^{*} = p < .10$, $^{**} = p < .05$ and $^{***} = p < .01$.

Back

Results (Student participants)

Regression analyses (pooled): Solved in less than 45 minutes

Probit: Solved in less than 45 minutes	(1)	(2)	(3)	(4)
Bonus incentives (45 minutes)	0.470*	0.463*	0.516*	0.605**
	(0.264)	(0.266)	(0.272)	(0.299)
Constant	-1.691***	-1.766	-1.540	-6.160***
	(0.233)	(1.094)	(1.305)	(1.342)
Control Variables	No	Yes	Yes	Yes
Staff Fixed Effects	No	No	Yes	Yes
Week Fixed Effects	No	No	No	Yes
Observations	268	268	268	268

Coefficients from Probit regressions of whether a team solved the game within 45 minutes on our treatment indicator (with *Control* as base category). Control variables added from column (2) onwards include share of males in a team, a dummy whether someone in the team has been to an Escape Game before and average age of the team. Staff fixed effects control for the employees of *ExitTheRoom* present onsite. Robust standard errors reported in parentheses, and $^{*} = p < .10$, $^{**} = p < .05$ and $^{***} = p < .01$.

▸ Back