

Can Contracts Signal Social Norms?

Experimental Evidence

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PART 1: Introduction

- Authors
- Background
- Organization

Introduction - Authors



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Anastasia Danilov

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 - personnel and behavioural economics
 - unethical behaviour
 - incentives,
 - behaviour in teams



More information:

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Introduction - Authors



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Dirk Sliwka

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 - Behavioral economics
 - Compensation
 - Incentives
 - Management
 - Performance measurement
 - Personnel economics

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Introduction - Background



- Social norms matter for individual behavior
- There is **uncertainty about prevailing norms** in reality
 - New employee: need to gather information about behavior of colleagues
——intrinsic tendency for conformity
 - Owners or managers: have information about observed behavioral patterns and may change incentives using this information respectively.
- Maybe **overlook** the effect of incentives

Introduction - Background



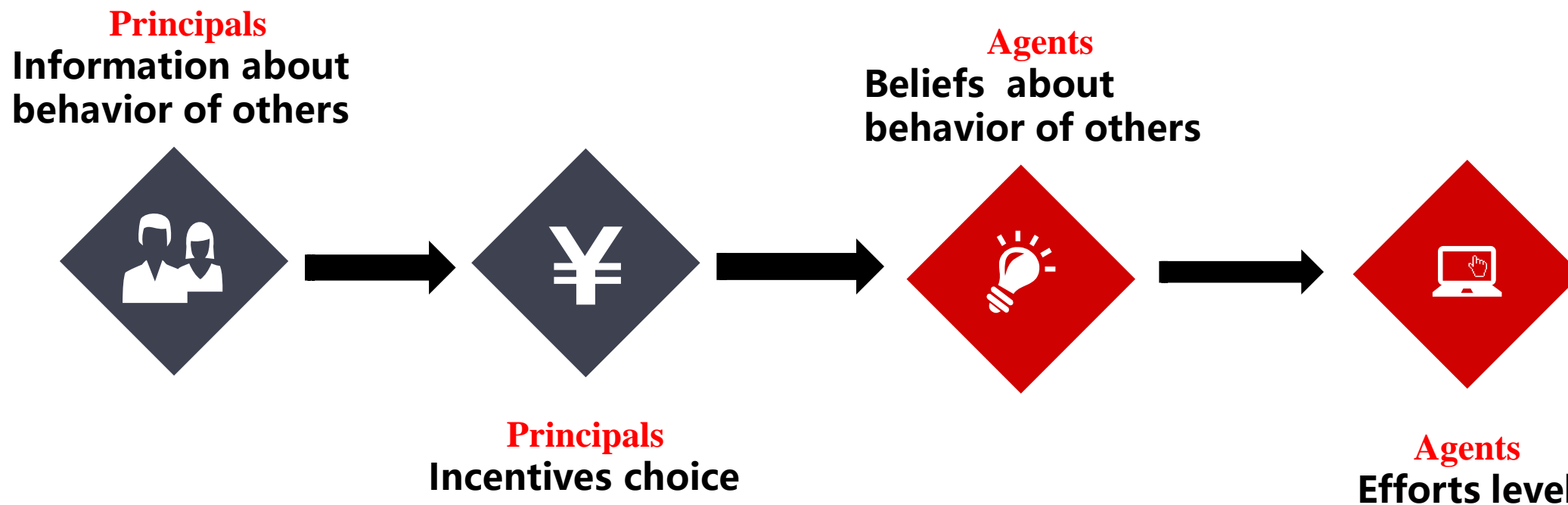
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- Direct effect of incentives v.s. **Indirect effect of incentives**
 - Indirect effect: contract choices may **signal information** about the **actions of other agents** and thus create **indirect effects** on **behavior**.
- Formal economic model has proved this idea
 - *Sliwka(2007), Friebe, and Schnedler (2011), van der Weele (2012) and Bénabou and Tirole (2012)*
- **Conduct lab experiments to explore this idea**

Introduction - Organization



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More information see Sliwka(2007)



PART 2: Experiment

- Design
- Procedure
- Addition

Experiment - Baseline Design



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- Strategy method
- One-shot principal-agent game
- Endowment: 6 Euro
- Randomly matched in pairs
 - Principal (employer)
 - Agent (employee)

Experiment - Baseline Design



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- 雇主选择激励机制
 - Fixed wage (*trust compensation*)
 - Performance-contingent pay (*contingent compensation*)
- 雇员选择努力程度
 - Effort level : e between 0 and 100
 - Private costs $c(e) = e^2/1200$

Experiment - Baseline Design



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• 收益矩阵

	固定工资制	灵活工资制
雇主	$12 * e\% + 0 * (1 - e\%)$	$12 * e\% + 0 * (1 - e\%)$
雇员	$5 - c(e)$	$(5 - \overline{c(e)}) * e\% + 0 * (1 - e\%)$

• 均衡解

- Second - best effort:
 - Trust pay: 0
 - Contingent pay: 30
- First – best effort:
 - Both : 72

Experiment - Baseline Design



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- Treatment variation
 - Baseline treatment
 - Norms treatment

Here are decisions about effort from 10 participants of the last session of this experiment who were in the role of employees:

	Employee 1	Employee 2	Employee 3	Employee 4	Employee 5	Employee 6	Employee 7	Employee 8	Employee 9	Employee 10
Effort under trust compensation	60	34	0	20	69	60	0	18	25	0
Effort under contingent compensation	25	60	31	25	60	70	45	38	10	65

Please note that your assigned employee has never participated in this experiment before. Additionally, he is not informed about the levels of effort of the employees in the previous experiment. He knows, however, that you are informed about these.

Note: The employer has information about the efforts of 10 other employees from the previous experiment. He is participating for the first time. The employer sees the following table where instead of xx, the decisions of the employees from the past experiment are displayed.

	Employee 1	Employee 2	Employee 3	Employee 4	Employee 5	Employee 6	Employee 7	Employee 8	Employee 9	Employee 10
Effort under trust compensation	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Effort under contingent compensation	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx

Experiment - Extended Design



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- 2X2 组间设计

- Costly treatment : additional costs of €2 when choosing the performance-contingent compensation, and the agents are aware of this information

	baseline	norms
costless	1	3
costly	2	4

Experiment - Procedure



- 25 sessions with 20 to 32 subjects each, 691 participants in total
 - A short quiz on the structure of the experiment and the computation of payoffs
 - Decision stage
 - anonymous and no communication was permitted
- the Laboratory for Experimental Research of the University of Cologne
- zTree (Fischbacher, 2007)
- €12.55 earnings on average



PART 3: Results & Mechanism

- Efforts level
- Efforts distribution
- Three premises

Results - Efforts Level

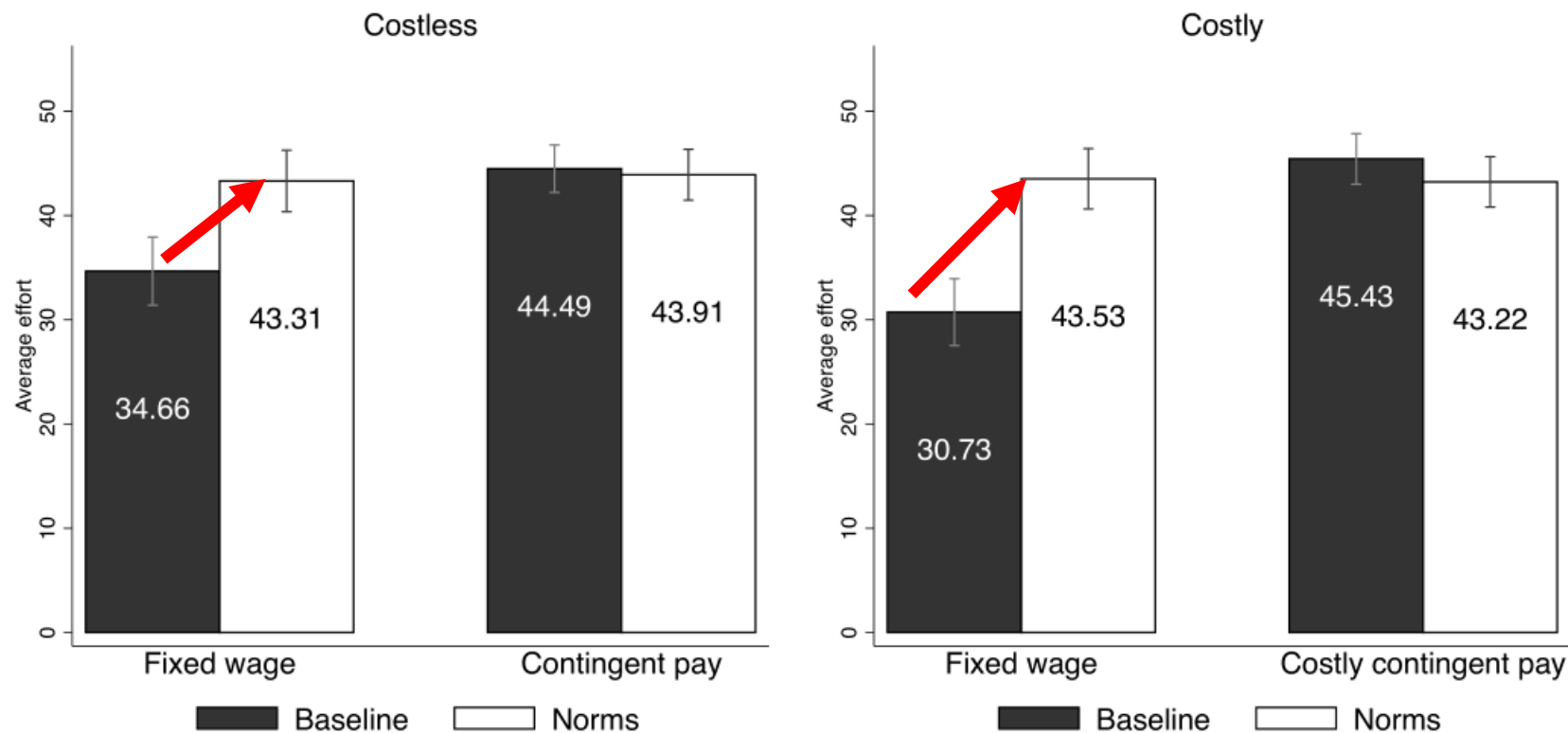


FIGURE 1

Average efforts and standard errors of means

Results - Efforts Level



Regression results: Effect of the Norms intervention on effort

Dependent variable: effort	(1) Costless	(2) Costly	(3) Pooled
Fixed wage	-9.83*** (2.98)	-14.70*** (3.13)	-9.83*** (2.98)
Norms treatment	-0.88 (3.39)	-2.06 (3.42)	-0.57 (3.38)
Fixed wage × Norms treatment	9.22** (4.32)	15.00*** (4.22)	9.22** (4.30)
Costly			0.80 (3.40)
Costly × Fixed wage			-4.88 (4.31)
Costly × Norms treatment			-1.58 (4.85)
Costly × Fixed wage × Norms treatment			5.78 (6.02)
Female	1.58 (3.28)	4.06 (3.41)	2.27 (2.33)
Age	-0.15 (0.42)	0.63 (0.69)	0.10 (0.42)
Constant	47.51*** (10.37)	28.42* (16.45)	41.04*** (10.43)
Observations	370	322	692
R-squared	0.02	0.06	0.04

Results - Efforts Distribution

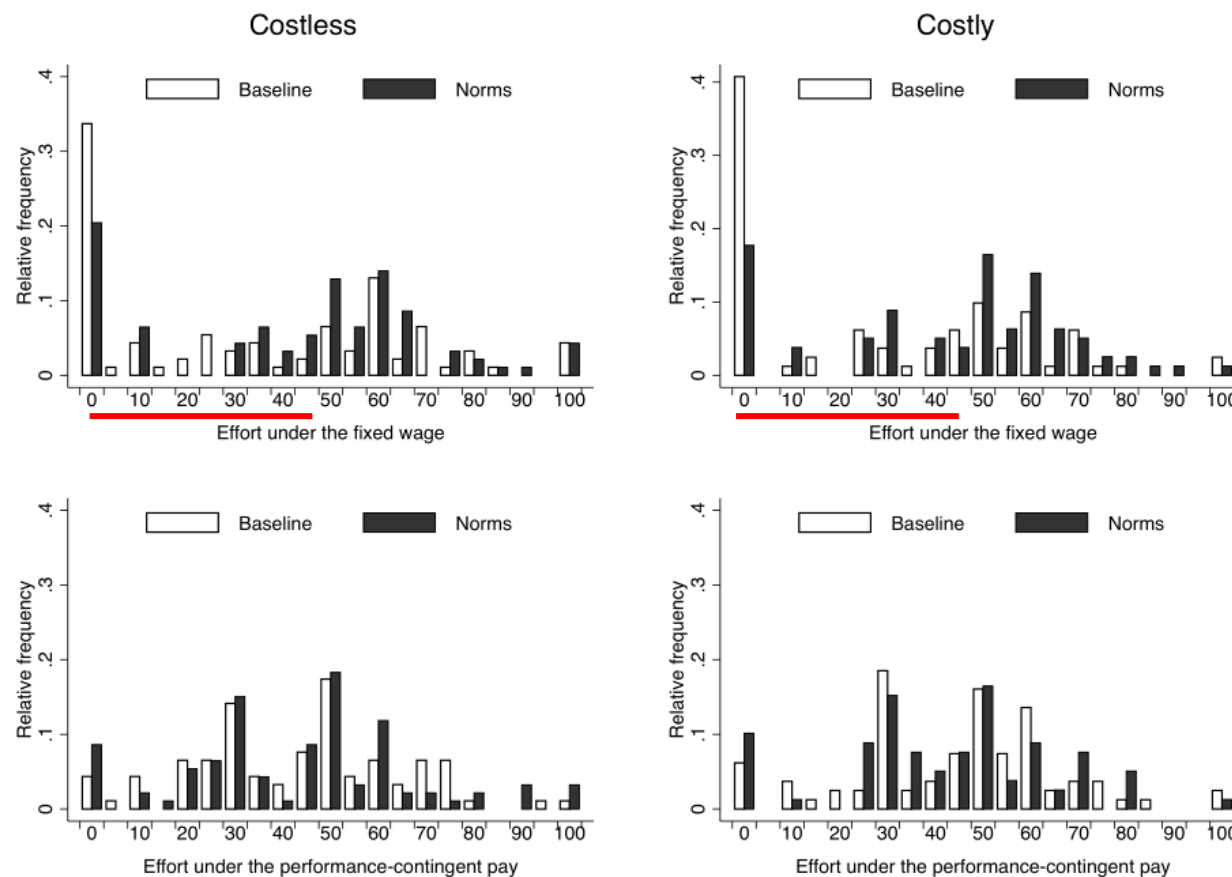
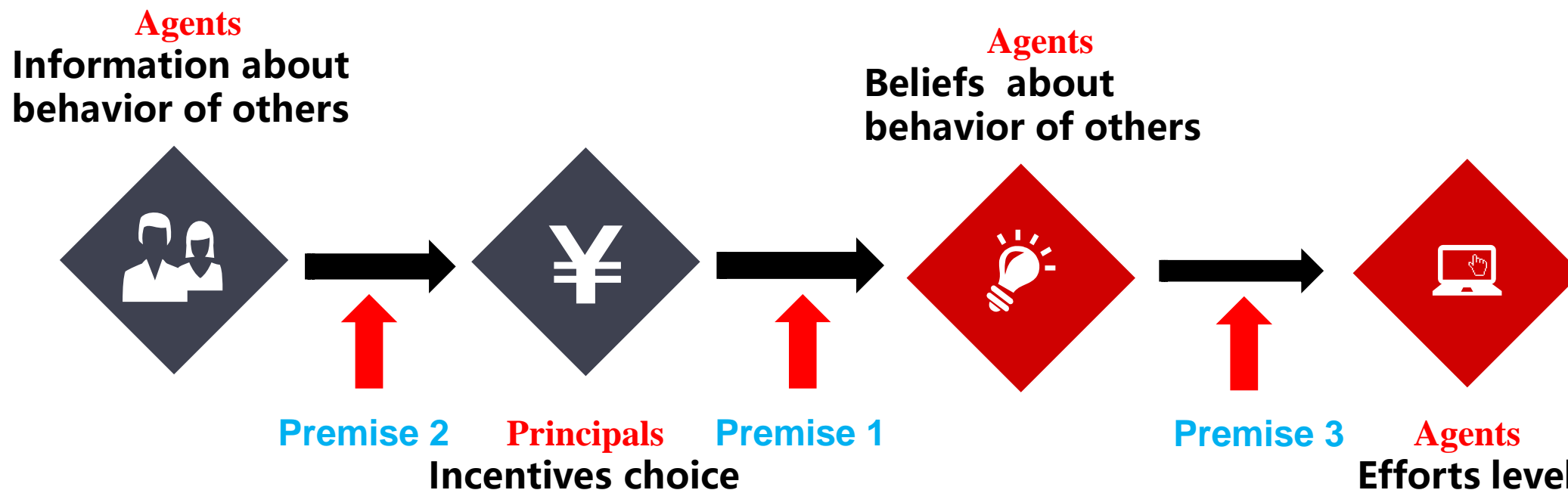


FIGURE 2
Effort distributions

Mechanism - Three Premises



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More information see Sliwka(2007)

Mechanism - Agents' Beliefs



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- Experiment 1: 16 out of the 25 sessions
- Agents' beliefs about the behavior of other agents under both contract types after the decision making stage
 - additional payoff equal to €2 minus €0.01 per unit of the squared deviation between their estimate and the true session mean of efforts

Mechanism - Agents' Beliefs



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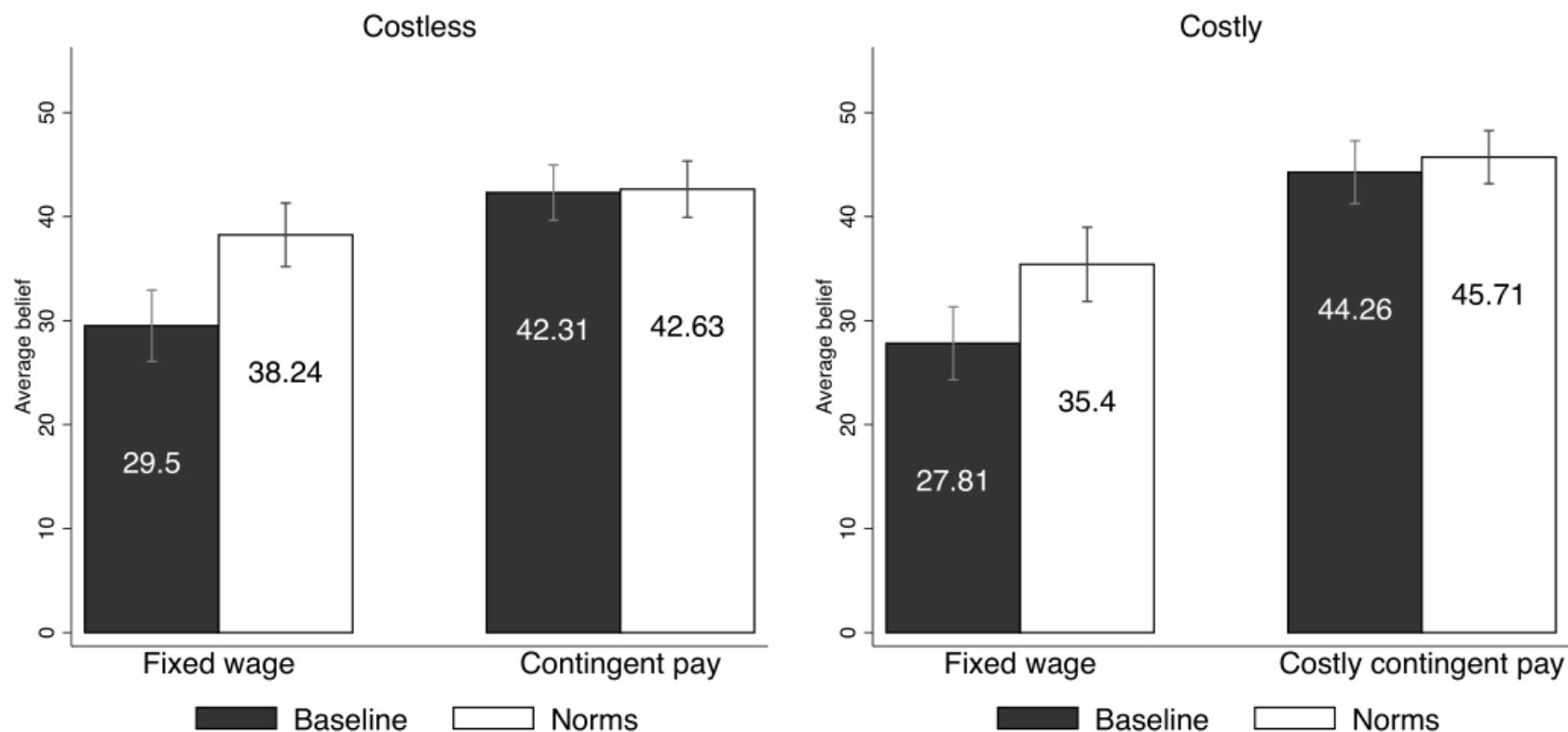


FIGURE 3
Agents' beliefs and standard errors of means

Mechanism - Agents' Beliefs

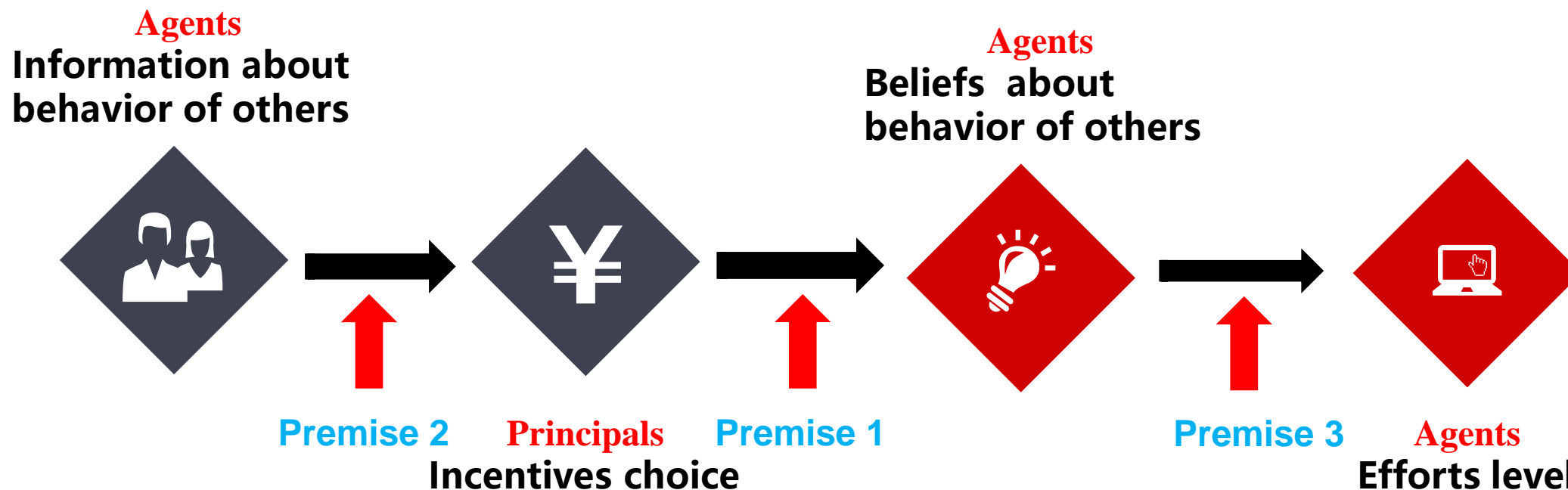


- Experiment 2: separate (online) experiment
- Outside observers received instructions from the Costless Norms treatment
 - *We have randomly drawn one of the prior participants in the role of an employer. This employer has observed contributions of 10 employees from the prior experiment for both the trust and the contingent contract. This employer has chosen the [Treatment Contingent Pay Beliefs] contingent contract / [Treatment Fixed Wage Beliefs] trust wage after having seen the table of the form shown in the above. What is your best estimate about the average effort under the trust contract in the table above? What is your best estimate about the average effort under the contingent contract in the table above?*
- Result: third party beliefs are affected by contract choices

Mechanism - Three Premises



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More information see Sliwka(2007)



- Strategy method in six sessions of the Costly contract choice experiment : a different decision procedure
 - “雇主” 看到五张不同的表格，每张都有上一回合10位 “员工” 在两种薪酬机制下不同的努力水平
 - 其中只有一张表格在上一回合真实发生，但参与者不知晓哪一张是真实的表格
 - 其中两张表格中下 “雇主” 收益在固定工资情形下高于灵活工资，其余三张相反。该信息 “雇主” 无法直接从表格中获取。
- Baseline treatment: “员工” 不知晓 “雇主” 已了解其他 “员工” 过往行为这件事，且 “雇主” 知晓以上信息。
- Norms treatment: “员工” 知晓 “雇主” 已了解其他 “员工” 过往行为这件事，且 “雇主” 知晓以上信息。

Mechanism - Principals' Contract Choice Behavior



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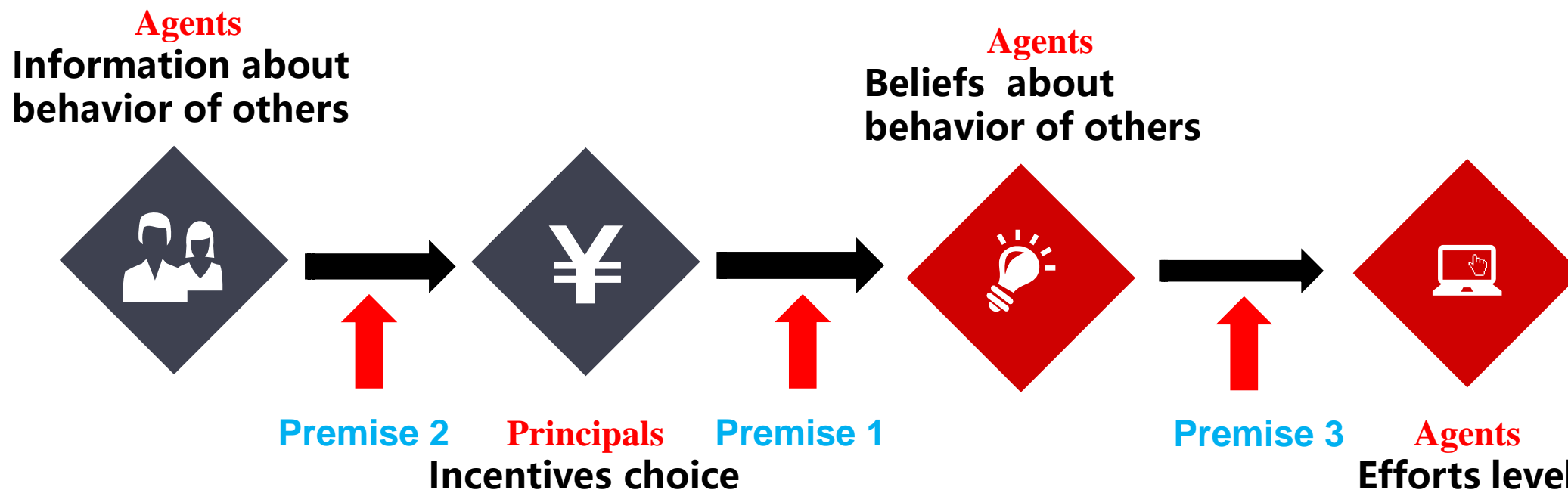
TABLE 2
Principals' contract choice

	(1) - OLS	(2) - Probit (marginal effects)
	Dummy Fixed wage	Pr(Fixed wage = 1)
Norms treatment	-0.07 (0.06)	-0.09 (0.07)
Table rank 1	0.13** (0.05)	0.13*** (0.05)
Table rank 2	0.12** (0.05)	0.12** (0.05)
Table rank 4	-0.43*** (0.06)	-0.41*** (0.05)
Table rank 5	-0.42*** (0.06)	-0.40*** (0.05)
Female	0.05 (0.06)	0.07 (0.07)
Age	0.00 (0.01)	0.00 (0.01)
Constant	0.52** (0.21)	
Observations	460	460
R-squared	0.27	
Pseudo R		0.22

Mechanism - Three Premises



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More information see Sliwka(2007)



Mechanism · Effects of Explicit Norms Disclosure

- similar to our Costless Baseline treatment
 - Difference: agents see a table similar to the one in the Norms treatment with efforts of 10 selected employees from a previous experiment

Here are decisions about effort from 10 participants of the last session of this experiment who were in the role of employees:

	Employee 1	Employee 2	Employee 3	Employee 4	Employee 5	Employee 6	Employee 7	Employee 8	Employee 9	Employee 10
Effort under trust compensation	60	34	0	20	69	60	0	18	25	0
Effort under contingent compensation	25	60	31	25	60	70	45	38	10	65

Please note that your assigned employee has never participated in this experiment before. Additionally, he is not informed about the levels of effort of the employees in the previous experiment. He knows, however, that you are informed about these.

Mechanism · Effects of Explicit Norms Disclosure

- **Selfish Norm** treatment and **Prosocial Norm** treatment agents
 - a sample of 10 selected agents with very high contributions under the fixed wage and the contingent contract respectively

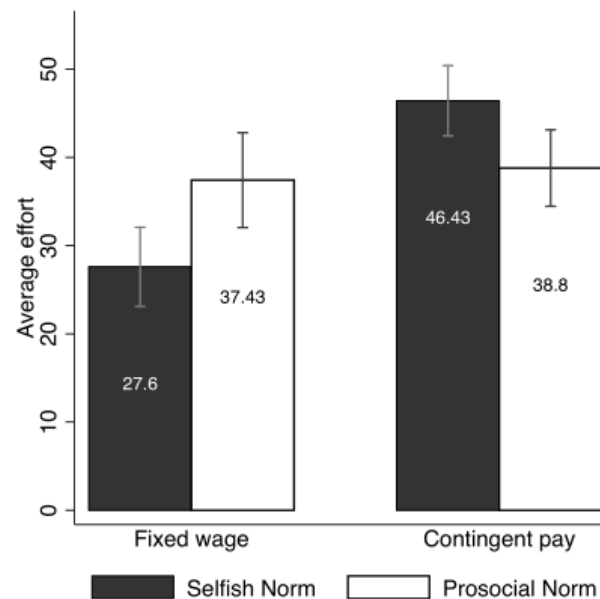


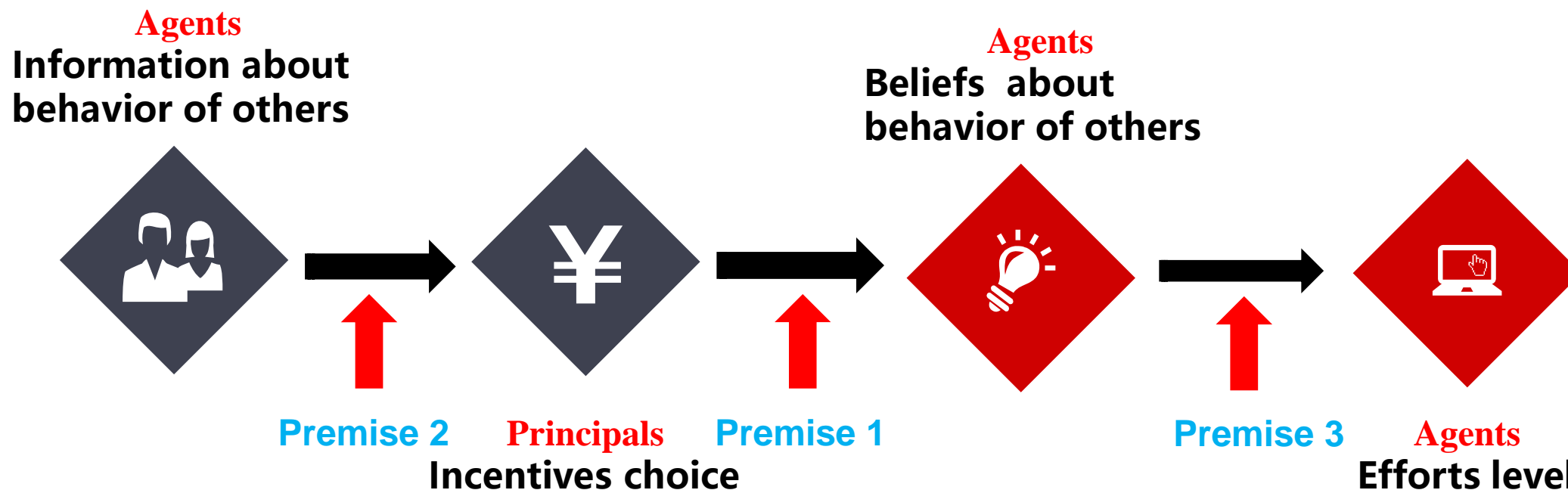
FIGURE 4

Average efforts and standard errors of means in the Explicit Norms Disclosure experiment

Mechanism - Three Premises



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PART 4: Discussion

- Extensions & Thoughts

Discussion: extention & thoughts



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- 激励机制标准设置是否有待改进? --inner validity

	固定工资制	灵活工资制
雇主	$12 * e\% + 0 * (1 - e\%)$	$12 * e\% + 0 * (1 - e\%)$
雇员	$5 - c(e)$	$(5 - c(e)) * e\% + 0 * (1 - e\%)$

- 策略性方法是否能有效模拟现实职场环境? --external validity
- 是否有其他解释渠道?
 - Gift exchange theory
 - Reciprocal preference

Thanks for listening :)

