

Skeleton of the results

(Preliminary and based on the current 6 sessions of data)

Observations:

615 records in total; 390 (26 subjects * 15 periods) for the individual treatment and 225 (15 subjects * 15 periods) for the social treatment

Valid Observations:

592 records (96.3%) in total—dropping those who refuse to provide/ accept work in certain rounds. The following results are based on those 592 observations.

Result 1. Employers are rewarding trustworthiness.

Optimal strategy with risk neutral and self-regarding agents: Base 100, Piece Rate 40

Optimal strategy with average loss averse and self-regarding agents: Base 100, Piece Rate 40

a) Choices on strategies in the social treatment and the individual treatment

| Social Info; total obs: 380 (% is listed below) | | | | Ind Info; total obs: 212 (% is listed below) | | | |
|--|---------------------------|-------------|--------------|---|---------------------------|-------------|--------------|
| | 100 | 200 | >300 | | 100 | 200 | >300 |
| 0 | 17 0.045 | 5 0.013 | 4 0.011 | 0 | 10 0.047 | 1 0.005 | 0 0.000 |
| 10-20 | 14 0.037 | 22 0.058 | 40 0.105 | 10-20 | 18 0.085 | 15 0.071 | 27 0.127 |
| 30 | 22 0.058 | 12 0.032 | 25 0.066 | 30 | 33 0.156 | 2 0.009 | 25 0.118 |
| 40 | 54 0.142 | 25 0.066 | 30 0.079 | 40 | 5 0.024 | 1 0.005 | 27 0.127 |
| 50 | 24 0.063 | 10 0.026 | 33 0.087 | 50 | 7 0.033 | 5 0.024 | 23 0.108 |
| >60 | 22 0.058 | 7 0.018 | 14 0.037 | >60 | 4 0.019 | 1 0.005 | 8 0.038 |
| | 153 0.403 | 81 0.213 | 146 0.384 | | 77 0.363 | 25 0.118 | 110 0.519 |

b) testing aggregate level piece rate against 40 – the optimal strategy under risk neutral and self-regarding agents (clustered at the individual level)

social treatment: (T-test)

piece rate == 40 (mean = 34.9; 95% CI = 29.5-40.3; p-value=0.0645)

individual treatment: (T-test)

piece rate == 40 (mean = 31.0; 95% CI = 24.7-37.3; p-value = 0.0081)

social-individual comparison:

fixed rate (Ranksum test, p-value = 0.4484)

fixed rate (T-test, 270.3 vs 316.9, p-value = 0.3864)

piece rate (Ranksum test, p-value = 0.1758)

piece rate (T-test, 34.9 vs 31.0, p-value = 0.3479)

- c) The overall standard deviation (clustered at the individual level) is larger in the individual treatment (piece rate, fixed rate) ?

fixed rate std (between social and ind treatment) for each employer: P-value = 0.4245

piece rate std (between social and ind treatment) for each employer: P-value = 0.9353

last 5 periods (ranksum):

fixed rate std (between social and ind treatment) for each employer: P-value = 0.0226

piece rate std (between social and ind treatment) for each employer: P-value = 0.4701

last 5 periods (T-test, between social and ind treatment):

fixed rate std for each employer: 44.1 vs 93.5, p-value = 0.0189

piece rate std for each employer: 6.5 vs 9.0, P-value = 0.1847

- d) A test in the individual treatment, where fixed wage is significantly positively correlated with the trustworthiness measure (controlling for CRT, RISK, Period dummy, session dummy, and random effects)

the first 10 periods, marginal effects:

CRT: -20.1; 95% CI = -50.1 – 9.8; p-value = 0.188

RISK (Eckel&Grossman): 19.3; 95% CI = 3.5- 35.1; p-value = 0.017

Trustworthiness: 215.2; 95% CI=51.0-379,4; p-value = 0.010

the last 5 periods, marginal effects:

CRT: -15.8; 95% CI = -40.6 – 8.9; p-value = 0.210

RISK (Eckel&Grossman): 9.01; 95% CI = -15.2- 33.3; p-value = 0.467

Trustworthiness: 255.0; 95% CI=47.2 – 462.7; p-value = 0.016

- e) A test in the individual treatment, where piece rate is significantly negatively correlated with the trustworthiness measure (controlling for CRT, RISK, Period dummy, session dummy and random effects)

the first 10 periods, marginal effects:

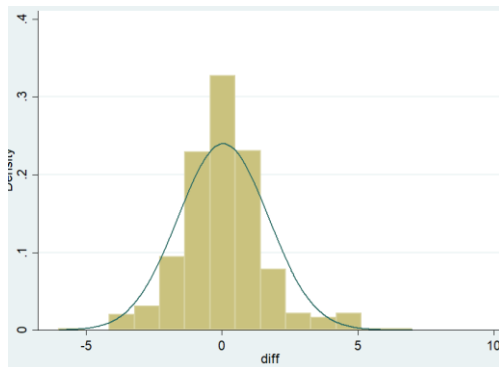
CRT: -0.1; 95% CI = -2.5 – 2.3; p-value = 0.929
 RISK (Eckel&Grossman): -0.83; 95% CI = -2.3 - 0.6; p-value = 0.275
 Trustworthiness: -3.1; 95% CI=-10.8 – 4.5; p-value = 0.418

the last 5 periods, marginal effects:

CRT: 2.2; 95% CI = -1.0 – 5.5; p-value = 0.175
 RISK (Eckel&Grossman): -0.6; 95% CI = -3.2- 1.9; p-value = 0.615
 Trustworthiness: -2.7; 95% CI=-16.1 – 10.7; p-value = 0.695

Result 2. Trustworthy agents put more effort

a) percentage of agents make higher/lower than or about equal to the optimal effort



Note: "diff" represents the difference between real effort and the optimal effort (under risk neutrality)

205 observations with effort > optimal effort (reciprocity possible)

207 observations with effort < optimal effort (risk averse possible)

180 observations with effort == optimal effort

b) In the social info treatment: the effort-trustworthy relationship

impact of trustworthiness on effort, controlling for CRT, RISK, fixed rate, piece rate, time and session dummy, random effects:

trustworthiness: 2.9; 95% CI = 0.4- 5.4; p-value = 0.021

other marginal effects:

fixed rate: 0.00145; 95% CI = 0.0006 – 0.0022; p=0.001

piece rate: 0.075; 95% CI = 0.060 – 0.090; p=0.000

impact of trustworthiness on the difference between effort and optimal effort, controlling for CRT, RISK, fixed rate, piece rate, time and session dummy, random effects:

trustworthiness: 2.9; 95% CI = 0.5- 5.4; p-value = 0.018

other marginal effects:

fixed rate: 0.0015; 95% CI = 0.0007 – 0.0024; p=0.000

c) In the ind info treatment: the effort-trustworthy relationship

impact of trustworthiness on effort, controlling for CRT, RISK, fixed rate, piece rate, time and session dummy, random effects:

trustworthiness: 1.0; 95% CI = -0.14- 2.2; p-value = 0.086

other marginal effects:

fixed rate: 0.00110; 95% CI = 0.0004 – 0.0018; p=0.003

piece rate: 0.058; 95% CI = 0.033 – 0.083; p=0.000

impact of trustworthiness on the difference between effort and optimal effort, controlling for CRT, RISK, fixed rate, piece rate, time and session dummy, random effects:

trustworthiness: 1.3; 95% CI = 0.2- 2.4; p-value = 0.018

other marginal effects:

fixed rate: 0.0007; 95% CI = -0.0002 – 0.0017; p=0.147

Result 3. Agents' preference structure/ Optimal response toward such agents

Recalling the theory, agents have the following preference:

$$\pi^A = w + \beta E(q(e)) + \lambda \cdot I(w \geq k) \cdot \pi^P - 50e^2$$

w is the fixed rate, β is the piece rate, π^P is the principal's payoff.

When $w \geq k$, effort only depends on piece rate: $e^* = \frac{\beta}{10}$

When $w < k$, agents optimal effort also depends on principal's earning: $\hat{e} = \lambda\alpha/10 + (1 - \lambda)\beta/10$

Theoretically, λ can be calculated by comparing the self-regarding effort level, $\beta/10$, and the social optimal effort level, $\alpha/10$: $\hat{\lambda} = (\hat{e} - \beta/10)/(\frac{\alpha-\beta}{10})$

for each individual, we can calculate one λ_i

for each individual, we can evaluate $\text{prob}(w \geq k) = \text{prob}(\hat{e} > e^*)$, therefore some inferences about k can be made.

For social info treatment:

a) the triggering occasion

37.63% of the decisions are associated with higher-than-baseline-effort (effort > $\frac{\beta}{10}$)

on average, the triggering occasion witness 49.4 more fixed rate (95% CI= 3.4- 95.4; p-value = 0.035; controlling for session, period effects, as well as crt and risk)

on average, the triggering occasion witness 7.2 less piece rate (95% CI = -13.9 - -0.62;

p-value = 0.032; controlling for session, period effects, as well as crt and risk)

For the first 5 periods, triggering does not depend on the fixed rate.

For the second 5 periods, triggering depends on the fixed rate (p – value = 0.024, clustered at individual level); the equivalent “K” is 438

For the last 5 periods, triggering depends on the fixed rate (p – value = 0.003, clustered at individual level); the equivalent “K” is 263

b) realized lambda

Median lambda= 0.286, Mean lambda= 0.414, Standard Deviation=0.301 (before clustering)

Median lambda= 0.293, Mean lambda= 0.339, Standard Deviation=0.221, Range = 0.125—0.910 (after clustering)

After clustering, the lambda is positively correlated with trustworthiness (coef = 0.529, 95% CI = -0.043- 1.101, p-value = 0.068)

- Therefore, for a principal facing an average agent in the social information treatment, she would like to use a higher fixed rate (≥ 300) and half of the optimal piece rate (20); and expect a level 4 effort. $(80-20)*4*10-300 = 2100$
- Compared with using 100 fixed rate with 40 piece rate, the previous schedule impose a lower risk and a higher monetary payoff for the principal. $(80-40)*4*10-100 = 1500$

For ind info treatment:

a) the triggering occasion

29.3% of the decisions are associated with higher-than-baseline-effort (effort $> \frac{\beta}{10}$)

No downward trend for the triggering probability.

on average, the triggering occasion witness 81.6 more fixed rate (95% CI= 12.5- 150.7; p-value = 0.021; controlling for session, period effects, as well as crt and risk)

on average, the triggering occasion witness 9.9 less piece rate (95% CI = -17.6 - -2.2; p-value = 0.012; controlling for session, period effects, as well as crt and risk)

for different individuals, after clustering, the trigger rate over each individual is positively correlated with trustworthiness (coef = 0.39, 95% CI = 0.02 – 0.76, p-value = 0.041)

For different individuals, the average trigger rate is 0.284, the median trigger rate is 0.267, the range is from 0.071 to 0.733

For the first 5 periods, triggering does not significantly depend on the fixed rate. (p – value = 0.497)

For the second 5 periods, triggering depends on the fixed rate (p – value = 0.015,

clustered at individual level); the equivalent “K” is 857

For the last 5 periods, triggering does not significantly depend on the fixed rate (p -value = 0.629)

b) realized lambda for each individual

Median lambda 0.244, mean lambda 0.265, std dev 0.120, range = 0.125-0.479 (after clustering)

Insignificant downward trending over time

After clustering, the lambda is not significantly correlated with trustworthiness (coef = 0.072, 95% CI = -0.245- 0.389, p -value = 0.632)

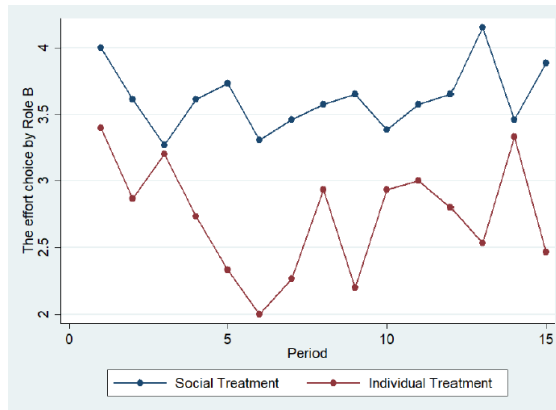
- Therefore, a principal facing an average agent in the ind information treatment needs to use a much higher fixed rate (≥ 900) and it imposes great risk on the seller side.
- Moreover, trustworthiness measure does not provide them with a good approximation of their reciprocity preference in the subsequent game.
- Heterogeneous agents expect to be treated differently, and this affects their threshold K. “Trustworthy” agents feel that they deserve a better treatment.
- Compared with using 100 fixed rate with 40 piece rate, the reciprocity triggering schedule requires 900 fixed rate and 30 piece rate, which gives little incentives (on average) to use it.

Results 4. Principals' inconsistent belief and the welfare performance

Principal's task in this game is much harder: she has to backward induct her optimal fixed rate and piece rate. Compare with such calculation, the individual level trustworthiness measure is much more salient information; and it becomes reasonable that they rely on such information from the beginning.

From result 1, we see that principals reward trustworthiness over all periods. However, in the individual info session, such effort is not sufficient to enable agents' reciprocity.

- a) From the very beginning, agents' effort is significantly lower in the individual information treatment, despite the fact that fixed rate is higher in ind info treatment. (Mean 3.7 vs 2.9; T test P -value 0.038; Ranksum test P -value 0.041)



- b) Lower profit across most of the periods--but not significantly lower given the current sample. Potential effects:
- a. positive information effect (information makes it easier to target and exclude some agents)—trustworthiness correlates with λ
 - b. Negative information effect (biased information leads to biased belief)—trustworthiness does not correlate with K or triggering probability
 ---large K makes it harder to trigger reciprocity
- c) From the exist survey, 4 out of 15 subjects from the ind info treatment switch from high fixed rate to high piece rate.