Collusion and corrruption among the Russian police: an experimental study

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Outline

Experimental studies of corruption

- Corruption is regular abuse of public office for private gains by the public servants.
- In a broader sense, corruption can be viewed as breach of implicit social contract between agents.
- In both cases, corruption can be formalized as a repeated coordination game with two types of equilibria: corrupted (institutional trap) and corruption-free (legal).
- Recent experimental studies of corruption (Abbink e.a., 2002; Abbink, 2006; Alatas e.a., 2009; Barr, 2009; Campos-Ortiz, 2011) aim at revelation of the systematic factors affecting the extent and spread of corruption.

This paper

- is apparently the first experimental study of corruption in Russia — a country where corruption is an issue.

- is apparently the first experimental study of corruption using real police officers of senior middle rank as experimental subjects in the world.

- focuses on incentives for cooperation and courrption within the police itself, i.e. between 'ordinary police officers' (POs) and their 'bosses'.

- contrast behaviour of the police vis. that of ordinary people in two control cohorts (students with and without monetary incentives; civil servants sessions are to be completed).

Overview of results

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3. We obtain indirect evidence of norm-driven behaviour among police officers, which distinguish them from student sample.

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3. We obtain indirect evidence of norm-driven behaviour among police officers, which distinguish them from student sample.

4. Supply of a theoretical interpretation of this finding in terms of common knowledge of corruption norms, concluding thereby that Russian police officers are more prone to corruption than ordinary citizens.

Outline

1. Motivation

2. **Experiment**

3. Results

4. Conclusion

Motivating story

- A single police department has several POs who face tradeoff between low salary and taking bribes at a risk of being caught and prosecuted by their boss (monitor).

- Every officer is to be monitored with rather high probability, but the boss is originally corrupt: a collective bribe from the office of sufficient size decreases dramatically the probability of prosecution unless bribes are outrageously high.

- Replacement of an old boss by another whose honesty is unclear to the POs for a while affects their corruption and cooperation in rising money to bribe him.

- Increased reward of honest POs and penalty for corruption when caught can make honest behaviour the most attractive for a risk-neutral players, but how quickly will POs react to that?

Experimental design: General

- Participants are split into groups of 5 players, knowing they are in partner treatment, but not knowing their partners.
- The game consists of 24 rounds, subdivided into three stages, and all this is common knowledge.
- Remuneration to POs was non-pecuniary (grades for the class), because
  - any real money will legally be treated as bribe (!), and
  - any reasonable experimental honorarium would be taken as mockery (!) by an officer of that rank.
- Subject pool:
  - 45 police officers in the rank of captains to colonels (mean age 38, 9 obs.);
  - 65 students rewarded with real money (mean age 19, mean earning — 416 RuR (about 10 euro), 13 obs);
  - 35 high-school and university students with no rewards (mean age 17, 7 obs).

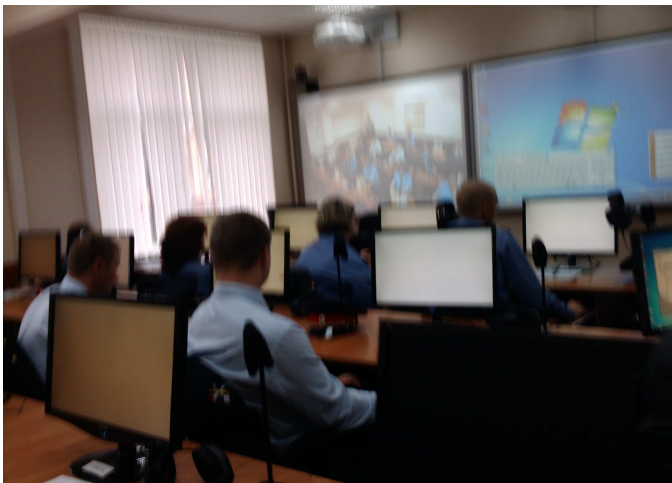# Police subjects: a peculiar audience

Figure: Picture of the police classroom

Experimental design: Stage I

- Each participant (PO) in every round receives income of $w = 100$ and can take additional income (**bribes** from the citizens) b of arbitrary size.
- If the sum of bribes per group is larer than 5000, all players in that group receive 0 for that round.
- POs may be monitored for taking bribes with independent probability π; if monitored, corrupt PO will be detected for sure, ripped off bribes and fined with extra $f = 50$ regardless of the size of the bribe.
- Probability of monitoring is either as high, $\pi = 0.8$, or low, $\pi = 0.1$; the latter takes place if all POs coordinate as a group and **contribute** to the insurance fund at least 500 monetary units (the threshold public good, interpreted as a bribe to the monitors).

Experimental design: Stage I cont'd

- Individual contributions are voluntary, unobserved to the rest of the group and are deduced from one's income (no money-back guarantee rule).

- Decisions are sequential: in one screen, POs decide about bribes, in the next, having observed their total income $(w + b)$, choose contributions to the insurance fund, c. At the end of each round, POs observe own total income, bribe, contribution, sum of contributions in their group, own deductions $f + b$, own net revenue per period and cumulative net own revenue across all rounds.

Experimental design: Stages II and III

Stage 2   POs learn that the fund may or may not be in operation anymore, which event is determined exogenously (new boss is appointed). If the fund is not in operation, the probability of monitoring will be not more than 0.8, all other decisions procedures being the same as above.
In reality, in all these periods (8 again) the monitor was *not* corrupt, and all the contributions were handled back. All other conditions remain the same.

Stage 3   In the last 8 periods, fine for bribery increases to 300 instead of 50, and the wage of anyone not caught increases to 300, over the conditions of stage 2.

Payoffs

Stage 1 symmetric (pro-rata, with $b_i = 1000, c_i = 100$)
equilibrium payoff is:

$$\pi_i^I = 100 + b_i - 0.1(b_i + 50) - c_i = 0.9b_i - 5 = 895$$

and equilibrium strategy is $b_i = 1000, c_i = 100$.

Stage 2 the fund does not work so optimal contribution is
zero, in which case

$$\pi_i^N = 100 + b_i - 0.8(b_i + 50) = 100 + 0.2b_i - 40 = 260$$

which is still better than the default payoff $w = 100$,
so equilibrium strategy is $b_i = 1000, c_i = 0$.

Stage 3 utility of risk-neutral corrupt PO decreases to
$\pi_i^N = 100 + 0.2 \cdot 1000 - 300 = 0 = \pi_i^g$, while the
utility of non-corrupt PO is larger, $\pi_i^0 = 300$, so
equilibrium strategies are $b_i = 0, c_i = 0$.

Procedures

- The game was programmed using Z-tree experimental software (Fischbacher, 2007), with two trial rounds preceding the first stage.

- Written instructions (in Russian) were handled to the participants, adding the respective piece of information prior to every stage.

- Experimental subjects were recruited from among the interns of one of the educational establishments of the Russian Ministry of the Interior (MVD), in officer ranks (captains to colonels) of different police departments.

- Control games were organized using the same design and student subjects.

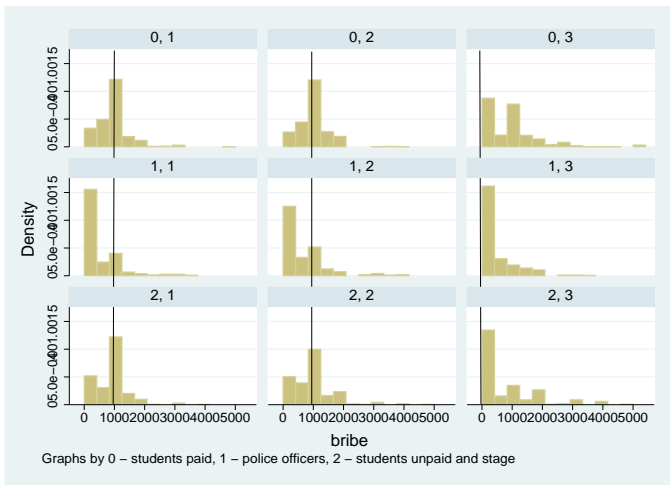# Outline

Aggregate bribes

Figure: Distribution of bribes
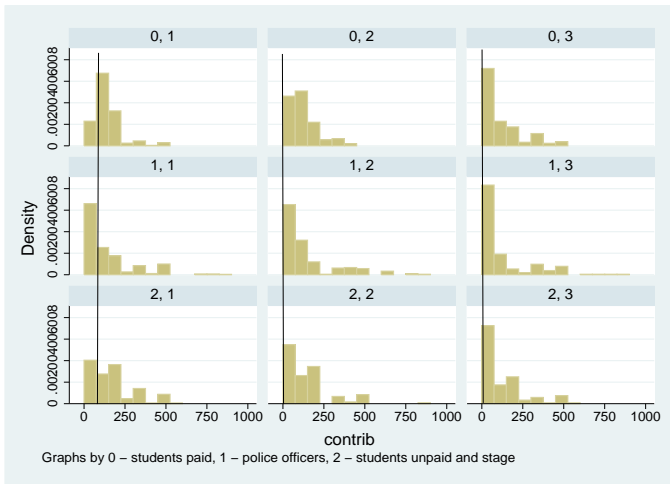
Aggregate contributions

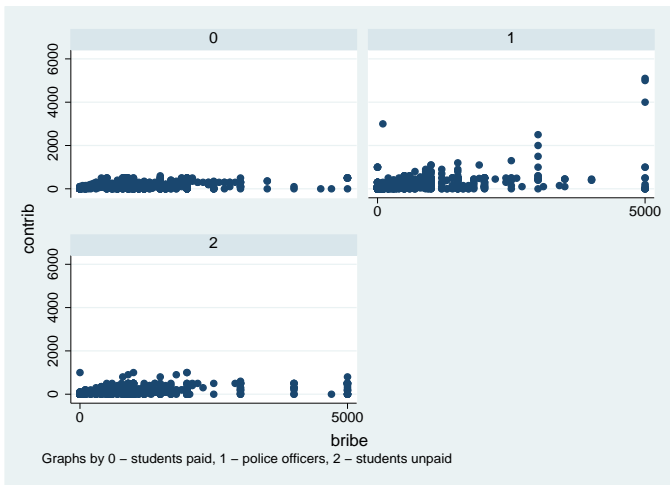Figure: Distribution of contributions

Bribes and contributions

Figure: Scatters of contributions and bribes

Bribes and contributions by groups: Police vs Students

1. Group heterogeneity in bribes is larger among police officers than among students

2. Bribes of about half of POs increase at stage 2, reflecting reaction to increased uncertainty. This is not observed among students.

3. About 1/3 of POs systematically contribute over the *pro rata* proportion of 100, and some of them did provide for the whole group. This is not observed among students.

4. Individually (not as a general sample!), contributions among students depends on bribes, contribution among POs does not.

Norm compliance

Effects of being caught at $t - 1$ on contribution at t

Panel data random effects estimate, control for group effects

Sample	Coef.	StDev	Coef.	StDev	Coef.	StDev
Stage	1		2		3	
Stud.,\$	136.24***	28.17	112.18***	22.38	15.26	10.57
Stud.,	206.21***	38.64	145.28***	33.97	39.46	14.12
Police	183.94**	78.87	106.00	99.25	1.00	18.10

Statistics of decisions

Table:

stats	bribe			contrib		
stages	1	2	3	1	2	3
Students, paid						
N	440	400	400	440	400	400
mean	927.5	979.1	875.4	147.9	114.9	102.8
p50	990	1000	1000	110	100	100
sd	611.7	525.6	914.7	112	93.76	123.2
min	0	0	0	0	0	0
max	5000	4000	4999	504	501	600
Students, unpaid						
N	320	280	250	320	280	250
mean	901.5	1040	891	177.3	119.4	75.83
p50	990	999	105	150	100	0
sd	648	928.9	1283	169.8	162.9	134.1
min	0	0	0	0	0	0
max	5000	5000	5000	1000	1000	600
Police officers						
N	280	240	240	280	240	240
mean	573.3	937.8	534.8	176.3	185.7	109
p50	200	500	200	94.5	75	15
sd	812	1265	764.7	356	489	190.7
min	0	0	0	0	0	0
max	5000	5000	5000	4000	5100	1300

Summary

1. POs do not reveal higher propensity to take bribes in an experiment, but are more readily paying to avoid punishment for bribes.

2. POs learn less quickly thank students, and are farther away from rational strategeis, especially if non-corrupt behaviour becomes optimal.

3. POs are more willing to contribute to public good, even at the expense of being free rided on by their fellow policemen.

4. Some POs seem to respond to larger frequency of checks by increased level of corruption.

Outline

Conclusions and extensions

- Further control by a group of middle-aged civil servants.
- Argument of why norm compliance means corruption
- Comparison of three groups: POs, students with real payoffs, and students with bonuses (to contrast with PO sample).
- Thanks go to many people who facilitate this research: esp. Denis Strebkov, Tatiana Karabchuk, Henrik Egbert, and our police colleagues.

Comments and suggestions are WELCOMED.

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