To Bribe or Not To Bribe…

An Extension to Lambsdorff & Frank (2007) – Corruption Game

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Abstract

This paper analyses the circumstances which may play a role in making a corrupt decision. The original experiment conducted by Lambsdorff and Frank in 2007 was enlarged by a new decision point. In a game played by a public servant and a firm in a bidding process the firm in this variation of the game can additionally abstain from bribing. This reduced the opportunistic behavior of public servants. Also gender effects were detected. Women play less corruptly as being a firm, but more opportunistically as public servant. In addition thereto academic major was found to influence the strategic decision. Economists tend to play more profit-maximizing than moral. This effect dilutes once controlled for gender. The last element to be studied was the timing of decision-making. The decision to refrain from bribing took much longer than to engage in bribery. This may be due that moral consideration, which only can be checked incorporating the whole context, take more time than pure numerical calculation on a profit-maximizing strategy.

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1. Introduction – To Bribe or Not To Bribe…

...this is the question, a person has to ask faced with this crucial decision. Several motivations and personal background may play an important role in the decision process on the basis of gender, academic major and cultural background. Also the counterpart in the corrupt deal has to ask himself whether to reciprocate the corrupt approach or not. This decision building process is based on the same three factors as mentioned above.

In order to fight corrupt temptations people involved in anticorruption have to know about these factors, too. Basing anticorruption efforts on a bottom-up approach like the invisible foot (Lambsdorff, 2007) requires a deep knowledge about the circumstances and the human behavior in this situations. Therefore I conducted a laboratory experiment based on an experiment by Lambsdorff and Frank (2007).

The main aim was to learn more about the influence of academic major on a corrupt deal as well as to reassert the gender effect which determines behavior in a corruption game. In addition thereto this experiment should reveal how the behavior of the corrupt counterpart changes depending on the explicitness of the corrupt offer including the possibility to abstain from bribing. Last but not least a new surrounding condition, the time needed for corrupt or honest behavior, should be asserted.

2. Previous literature

Relying on experimental investigations to assert the effects of corruption is an approach already used in research work to look at corrupt behavior in a more systematic way than just observing corruption via case studies and questioning. In order to study corruption effects a range of different games emerged. I mainly focused on the work of Lambsdorff and Frank (2007) and their game about corrupt exchange. It was designed in the following way. A firm alpha makes a payment to a public servant in order to win a public contract. The firm alpha can label this payment as gift or bribe (gift- vs. bribe-framing). The payment is submitted to the public servant who has three possibilities to decide on. First, he can do whistle-blowing and denounce the firm's corrupt approach. The firm alpha is penalized and the public servant gets a bonus. Second, the public servant can give the contract to firm beta, which would execute the contract in a better way. This case would lead to the decision of firma alpha to do whistle-blowing or not. In case of whistle-blowing firm alpha is penalized and the public servant looses the paid bribe. If firm alpha does not take revenge for not getting the contract, the public servant can keep the whole bribe and firm alpha keeps only the rest of its initial endowment. The third case is that the public servant reciprocates the bribe and gives the contract to firma alpha. This would lead in the case that the firma alpha decides subsequently to abstain from whistle-blowing to firma alpha winning a large amount for the contract and to the public servant sharing his bribe with others to enforce the corrupt arrangement. Firm alpha

still has, after a successful corrupt deal, the possibility to do whistle-blowing and both would be penalized and get no payoff. In addition thereto all actions beside a successful corrupt deal would lead to a benefit for society, a positive externality, which was modeled as a donation to Medecins sans Frontiers. The game was played with around 180 students from the University of Passau and Clausthal. Lambsdorff and Frank (2007) showed that the framing was crucial and caused more heavy retaliation in the case of bribes being paid. Furthermore, differences in gender were described. Women engaged more in opportunism than men, but men were more willing to retaliate for this behavior.

3. Experimental design

As a starting point for modeling a corrupt transaction the previously described model by Lambsdorff and Frank (2007) was chosen. The payoffs were not modified in order to keep the two models comparable. Firms were endowed with 25€, from which they could pay a bribe of 20€. Fines were set at 5€ for the firm, so that in case of detection the firm would get a payoff of 0€. The public servants bonus was set to be 2€ and in case of detection the bribe would be confiscated leaving him with a payoff of 0€, too. The firms profit from getting the contract was set to 35€ and the part of the bribe, which the public servant has to share to enforce the deal, was set to be 10€. The externality on the society amounts to 8€ paid as donation. In contrast to Lambsdorff and Frank (2007) all these payoffs were only paid hypothetically due to the reason that the conductor is a student[1].

According to Prof. Graf Lambsdorff largest concerns on the game focused on the problem that firms have to be corrupt and cannot abstain from bribery. Therefore I modified the experiment. The crucial change was to add a new decision point for the firm - to bribe or to abstain from bribing. The latter would lead to a small payoff of 2€ for the firm, which was caused by the absence of other orders. The decision for the 2€-payoff was to render the corrupt transaction more attractive. This new decision branch introduced the possibility for the firm to play honestly upfront. In the original game, this was only possible by doing whistle-blowing after the public servant did not.

In order not to render the game to complicate the gift-bribe-framing, which could be decided on in Lambsdorff and Frank (2007) was eliminated in the new game. This means, if money is paid to the public servant, it is always declared as a bribe. The game tree in extensive form is depicted in figure 1. The payoffs are announced in the following wording {payoff firm; payoff public servant}[2].

[1] See section 6 on limitations.
[2] In the figure are also shown percentage numbers. These are for displaying the results and are mentioned later in the result section.

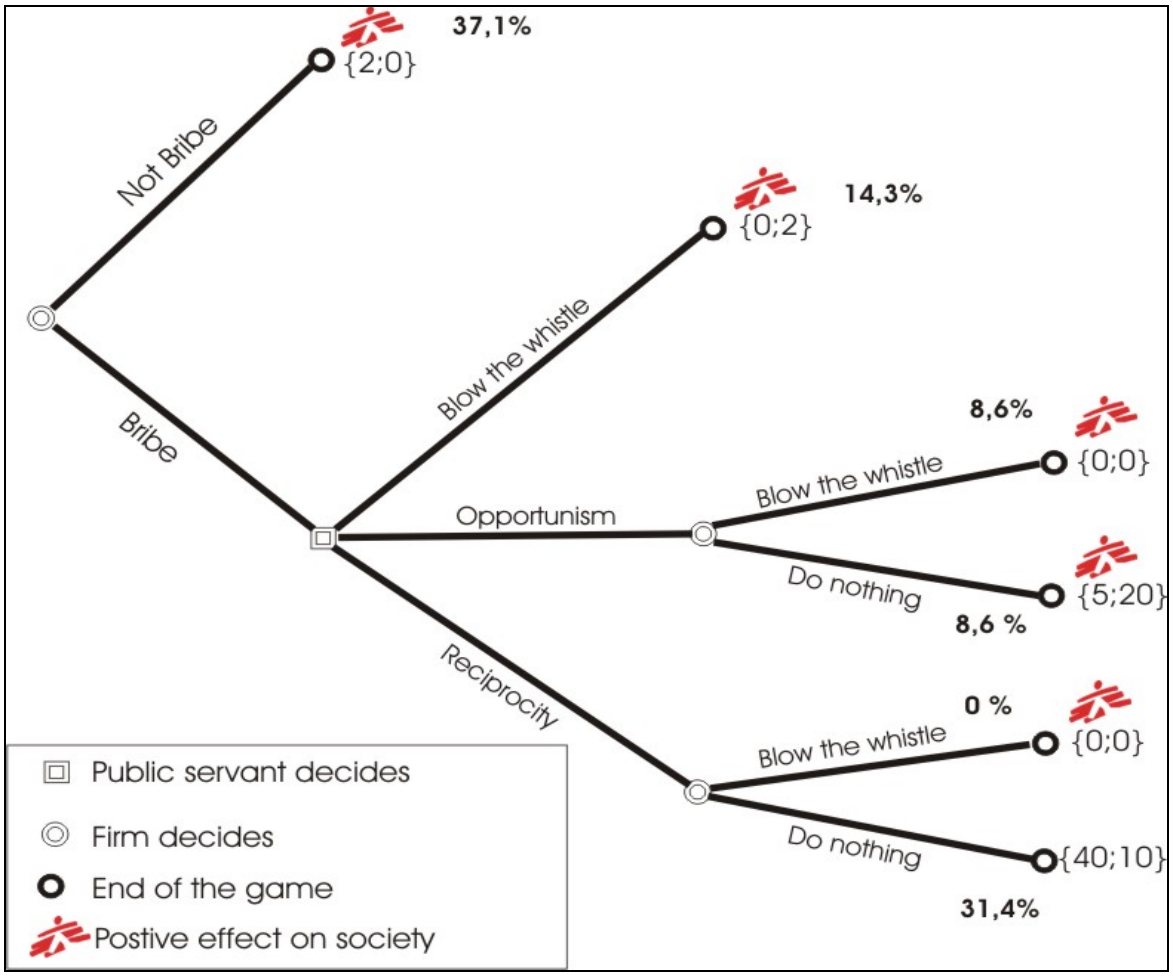

figure 1 - game tree in extensive form

In figure 1 opportunism used by the public servant would mean that he concedes the contract in tender to another firm than firma alpha, which would perform better. Therefore also society would not be harmed, which is illustrated by the little red image, the logo of Medecins Sans Frontiers. If the public servants plays reciprocity he concedes the contract to the firm he was bribed by. The corrupt deal would be successful and therefore society be harmed.

Solving the game mathematically via backward-induction results in the following strategy as equilibrium. First the firm bribes, then this payment is not reciprocated by the public servant and the opportunistic play is not punished by the firm. This would lead to a payoff of 20€ for the public servant and 5€ for the firm. This means that bribing and opportunistic behavior should win out. But looking at both the facts out of the original game and further research other hypotheses seem to be more realistic.

4. Hypotheses

The first part of the research dealt with the introduction of the new possible decision of the firm, whether to engage in bribery or not. Having conducted all the treatments with the new version of the game only a comparison to the original game from 2007 could show if the decision pattern changed by introducing the new option.

H1a: As in the original game no firm chooses to blow the whistle in case of reciprocated corruption.

This should be true because firms with a negative attitude towards corruption opted for abstaining from corruption and the remaining firms explicitly choose the corrupt way. While the firm's whistle-blowing-option was the only chance to declare honest behavior in the original game, in the new game this can be explicitly done by the firm upfront. Surprisingly in the original game no firm blew the whistle, which means that no firm had moral concerns about acting corruptly.

H1b: The public servant is less likely to play opportunistically.

H1c: In comparison to the original game, whistle-blowing by the firm is more likely in case of opportunistic behavior.

Both hypotheses should be true due to the fact of the explicit character of the firm's previous decision and the higher expectation of the public servant that opportunistic behavior is punished.

Anyway these hypotheses (1a-1c) were only tested under limitations because data was taken from two different experiments and the framing effect may overlap with the effects mentioned above. In order to get a sound comparison two treatments should have been designed. Because the idea for these hypotheses emerged during the conduction of the experiments, the two-treatment-design could not be applied and therefore several limitations on the result of the first hypotheses were caused.

The second part of hypotheses refers to the different behavior of men and women. Here the hypotheses posted by Lambsdorff (2007) were taken as a starting point and expanded by a hypothesis for the new decision point.

H2a: Female "public servants" are less likely to reciprocate.

H2b: Female "firms" are less likely to report on bribe-taking when the public servant played opportunistically.

H2c: Female "firms" engage less in bribery.

Empirical results on gender point in the direction of hypothesis 2c (Swamy et al. 2001). But it should also be stated this gender differences highly depend on the cultural background as suggest by Alatasa et al. (2006). As all persons are students of the University of Passau cultural differences should not account for any effect.

The third part refers to different behavior according to the field of study. I distinguished between students of business administration or economics, students which are studying International Cultural and Business Studies (ICBS) at the University of Passau and others. This clustering has the advantage that the three groups have a different amount of economic lectures in their curriculum. ICBS students' program consists of half economic lectures and half other lectures, whereas the other group has no economic lectures.

H3: Students with more economic lectures tend to act more profit-maximizing and less morally.

That economists act differently was already investigated by many papers (Kirchgaessner (2005), Frank et al. (2000), Carter, et al. (1991)). The latter also revealed that it was not important if economic students were in their first semesters or at the end of their academic curriculum. Therefore in this experiment it was not controlled for the number of semesters.

Due to the conduction of computer-based games, the time for decision-making was measured by ztree. Therefore the next hypotheses reflect on the time aspect, whether to engage in bribery or not.

H4: Honest actions take less time because a sound moral background is used and less calculation should be made.

When the no-bribery-decision roots in a sound moral background, the time for choosing the non-corruption-way should be shorter. Nevertheless this time data has to control for the reading capacity of the participants.

5. Setting and data

The experiments were conducted at the University of Passau in January 2010. Instead of paper-based playing, all games were played via the computer making use of the program ztree, the Zurich Toolbox for Readymade Economic Experiments. This client-server-system was mostly used in the pc-pools of the university. Only four datasets were played via the internet. Screenshots of the most important stages can be found in appendix C. After welcoming the participants, one screen explained the setting making use of a text description and a game tree. In the next stage both players made their decisions and the payoffs were shown. Thereafter a questionnaire of three pages was displayed to all participants. The first page asked for statistically important data like age, gender and field of study. The second page was the same for all students and asked for the general attitude towards corrupt deals and the legitimacy of corrupt deals in a dilemma situation. On the last page questions were posted according to the strategy played in order to get a better insight on the motivation of the players. The detailed questionnaire is listed in the appendix A. No other additional oral instructions were provided to the participants than not to talk during the experiment and that payoffs were hypothetic. The matching of the players

was done randomly and the participants did not know who they played with. Due to restricted room capacity two games of two other colleagues were played in the same session. Therefore learning effects from the previous game could not be excluded. All participants choose voluntarily to take part at the experiments. The announcements were made in several lectures and friendship-networks were used for promotion. All games were supervised by three instructors. One controlled the server station and started the games; the other two placed the participants and took care of them.

Altogether 70 persons took part in the experiments, constituting 35 groups. Almost all were students with a mean age of 23. This can be seen in figure 2, which also depicts the distribution between men and women. The data of a pretest made with the participants of the seminar “experimental economics” and four datasets, which were partly lost due to computer problems, were not included into the results.

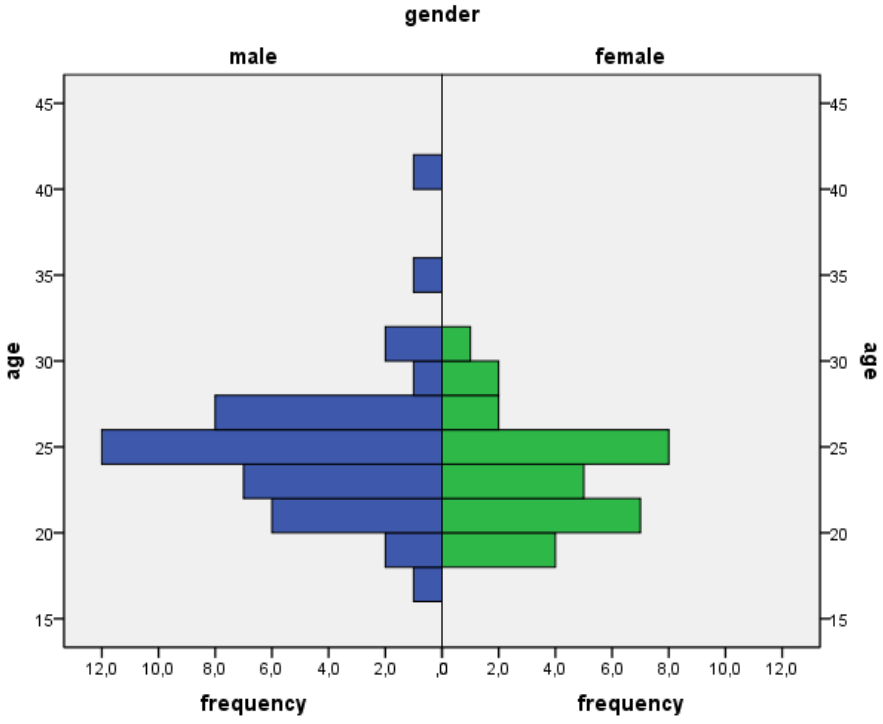

figure 2 - participants in the experiment

6. Limitations

The first limitation to mention is the absence of real payoffs. Due to the fact that the game was played in a seminar course and all conductors are students the agreement was not to use real monetary incentives. This may have led to a distortion of the results. Participants would have played less morally if they had been given the payoffs not only hypothetically.

The next limitation to mention is the fact that three games were played with the same group of participants. That could have induced learning effects. This game was played after a simple trust-game. In order to avoid the possibility of trust-building during the first game, the participants were randomly mixed after the first game and they were told about it.

The third limitation is connected to the hypotheses 1a-1c. The results were only examined in comparison to the original game. The differences therefore may emerge out of the different play mode (paper-based vs. computer-based) or the firm's framing possibility (gift vs. bribe) in the original game.

7. Results

The overall results can easily be seen in figure 1. The percentage numbers next to the payoffs show the portion of players who ended up in this scenario. Surprisingly the preferred strategy was honest play by the firm followed by the successful corrupt deal. Adding all players which play honestly from the beginning sums up to 51,4% of the groups. This very honest behavior may be due to the limitations on real monetary payments. Their absence renders it easier to act morally. The equilibrium strategy emerged not to be played very often. Risk aversion and moral attitudes may have caused this. When you look at the questionnaire in appendix A, it can be clearly seen that the honest decision of the firm was motivated mainly by moral concerns while the whistle-blowing-decision of the public servant was motivated only slightly more by honesty than by risk aversion. The strategy of whistle-blowing despite a successful corrupt deal was never played. This suggests that the game was understood correctly, because the honest playing firm would use the first decision point for stating its attitude.

7.1. Adding a new decision point reduces opportunism

The first hypotheses which were examined talked about the differences between the original setting in Lambsdorff and Frank (2007) and the modification in the new game. Considering hypothesis 1a also in the new game no firm took revenge for reciprocal behavior and therefore this hypothesis can be confirmed.

public servant's behavior	male				female				total			
	original game		new game		original game		new game		original game		new game	
whistle-blowing	19	24%	4	29%	29	30%	1	13%	48	27%	5	23%
opportunism	39	49%	2	14%	62	65%	4	50%	101	58%	6	27%
reciprocity	21	27%	8	57%	5	5%	3	38%	26	15%	11	50%
total	79	100%	14	100%	96	100%	8	100%	175	100%	22	100%

table 1 - public servant's behavior in both experiments

firms reaction to opportunism	male				female				total			
	original game		new game		original game		new game		original game		new game	
whistle-blowing	16	31%	1	25%	5	42%	2	100%	21	44%	3	50%
do nothing	35	69%	3	75%	7	58%	0	0%	27	56%	3	50%
total	51	100%	4	100%	12	100%	2	100%	48	100%	6	100%

table 2 - firms reaction to opportunism in both experiments

Results appeared as stated in table 1 and table 2. Since gender is an important controlling variable, results were stated separately. In order to evaluate hypotheses 1b and 1c the decision patterns are compared. As seen in table 1 the public servant's decision for honest play remains almost the same[3]. This seems logical, because whistle-blowing is just personally motivated by the public servant and not influenced by the firm's decision. The more noticeable differences can be found by comparing opportunism and reciprocity. The majority of public servants in the original game choose opportunistic behavior while in the new game reciprocity is preferred. This may be due to the explicit character of the bribe and the higher fear of punishment in case of opportunism. If a firm decides for bribing, it makes punishment more probable. Public servants who acted reciprocally were asked about their motivation in the questionnaire. The risk aversion here exceeds the feeling that a corrupt deal has to be maintained. All this seems to strongly confirm hypothesis 1b. The results on hypothesis 1c are mixed instead as seen in table 2. No clear change emerged also due to the restricted number of participants in this stage of the game.

[3] The exception of female public servants may be due to the low frequency of female public servants.

7.2. The gender pattern remains

Lambsdorff and Frank (2007) revealed that women are not more likely to blow the whistle upfront, but that they play more opportunistically (Hypothesis 2a. in this paper). This hypothesis seems plausible and statistically significant[4] in the new experiment. The differences in playing are clearly recognizable in figure 3. Women are much more likely to behave opportunistically and not to reward the given corruption payment. This confirms the statement in Lambsdorff and Frank (2007). The detailed values are listed in appendix B1.

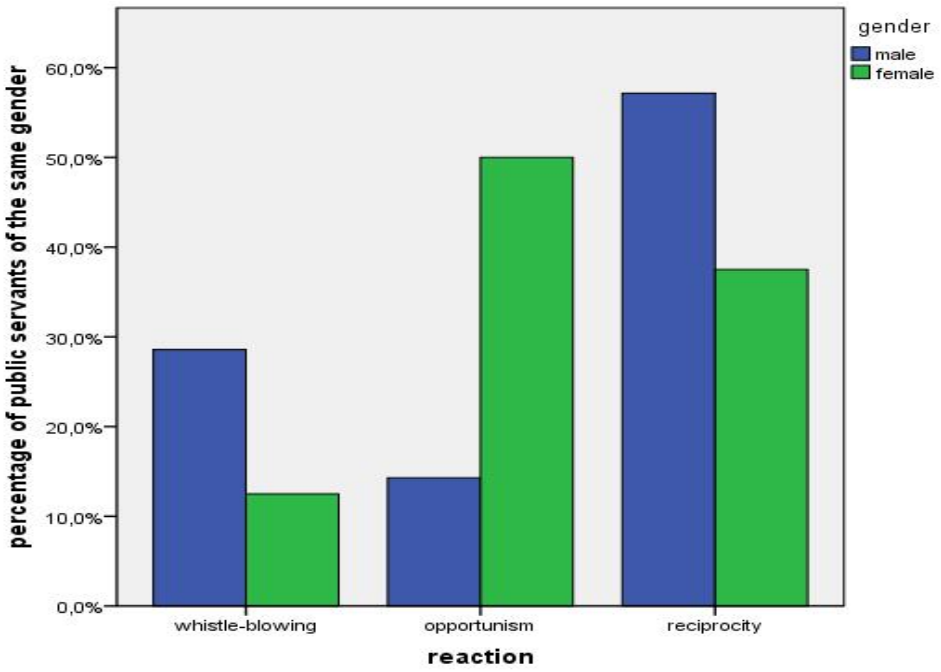

figure 3 - reaction of the public servant depending on the gender

Another hypothesis that was stated by Lambsdorff and Frank (2007) is that female "firms" would punish opportunistic behavior more heavily. In Lambsdorff and Frank (2007) this hypothesis was rejected. Women were found to play less negative reciprocity. Instead this was true in this experiment and may lead to reject hypothesis 2b of this paper. Despite this, due to a low number of participants in this stage, the hypothesis reveals not to be statistically significant. All women played the punishing strategy, while the men mainly preferred to do nothing. The detailed data are listed in appendix B2. Taking into account the different results from Lambsdorff and Frank (2007), which were based on a larger number of participants, no clear assumption can be made on hypothesis 2b and the results point more in the direction of the original game.

The third hypothesis, which took gender into account, dealt with the effect of the new decision point. Hypothesis 2c was confirmed[5]. Female "firms" were distributed almost

[4] The differences were testes with Fisher's exact test (p=0,055 one-sided).
[5] The differences were tested using a Chi-Square-Test, which showed a p-value of 0,06. Minimal expected frequency per field of the table was greater than 5.

equally between bribing and not bribing, whereas almost 80% of the men opted for the corrupt transaction. That implies that men are more likely to engage in corruption and women are satisfied with a small but honest profit. This result can also be seen also in figure 4 and in the detailed data in appendix B3. Also the questionnaire asking about the attitude towards corruption confirms the results. Men agreed less with the statement that corruption is always bad and more with the statement that corruption is legitimate for bailing out a company in trouble[6].

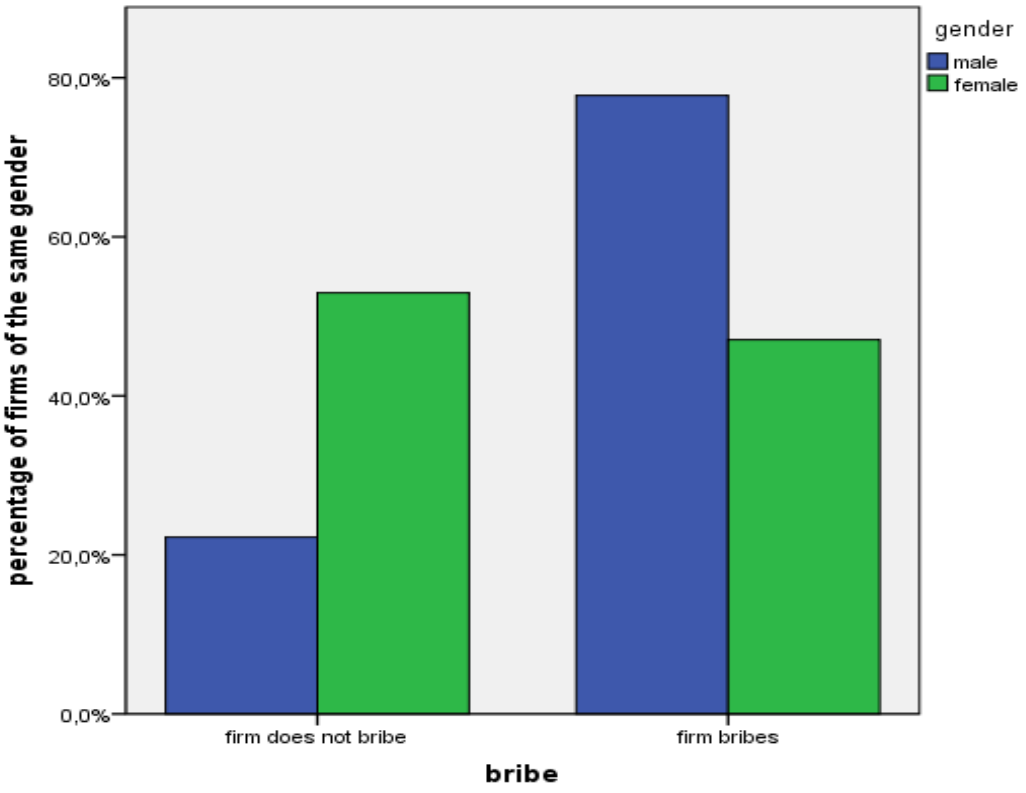

figure 4 - firm's bribing decision depending on gender

7.3. Academic major

After having shown the important differences according to gender this paper aims to explain also differences in the academic major. Taking into account the result of the previous section these results have to control for the gender aspect. According to hypothesis 3 students with a higher portion of economic lectures should play more profit-maximizing and "suffer" less moral concerns. The first look is done on the data of firm's decision for bribery. Figure 5 shows that among economists 83,3% decided for bribing, whereas in the other groups the distribution is almost equal. This confirms partly hypothesis 3. The only point which is not been observed is the difference of ICBS and non-economic-students.

[66] For detailed values see appendix B6.

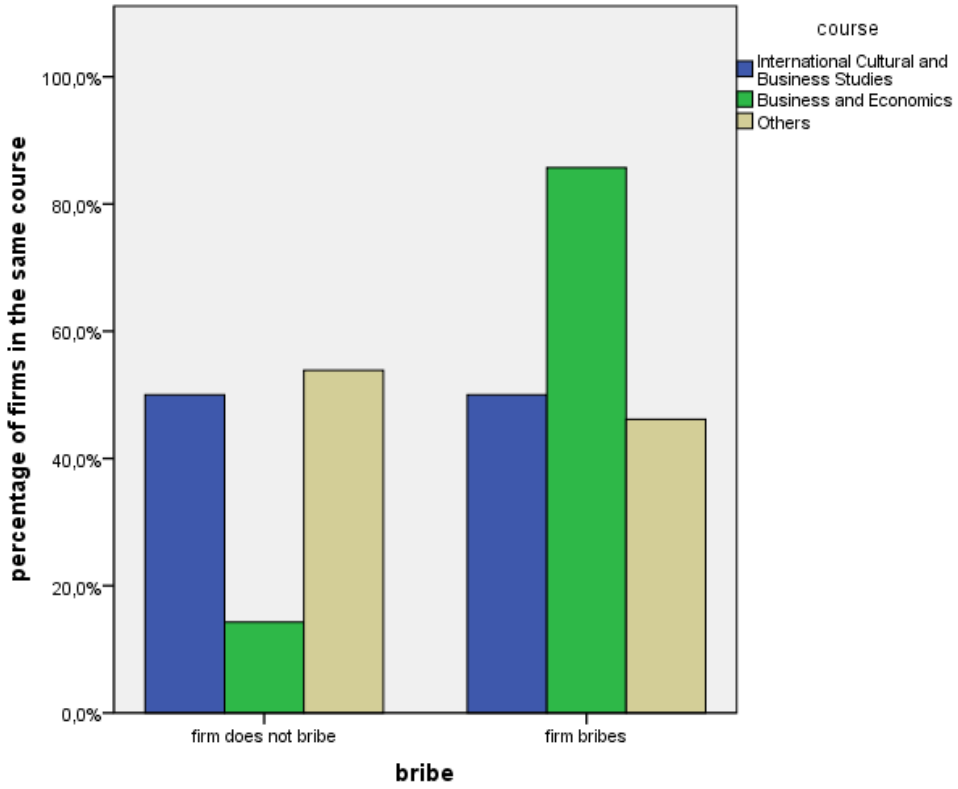

figure 5 - firm's bribing decision according to academic major

Another look has to be taken on the discrepancy of the public servant's decision depending on the academic major. Also here the economists play more profit-maximizing strategies than all others. Notable are the different levels between students of ICBS and non-economic-students giving confirmation to hypothesis 4.

A very strong limitation to these findings emerges when you control for gender. As stated in the tables in appendix B4 and B5 the pattern of a correlation between amount of economic lectures and corrupt decisions becomes unclear and less observable. Also due to a low number of participants per gender and academic major reasoning about hypothesis 4a-4c becomes difficult. While the differences between the different academic major was significant not controlling for gender, it remains significant only for male public servants and female firms[7].

[7] Fisher's exact test was calculated for firms and public servants. For firms and both genders p=0,021 (one-sided), for men p=0,133 (one-sided) and for women p=0,09 (one-sided). For the public servant considering both genders p=0,027 (one-sided), but p=0,063 for only men and p=0,178 for only women. In addition thereto frequencies for testing are very low and mainly below 5.

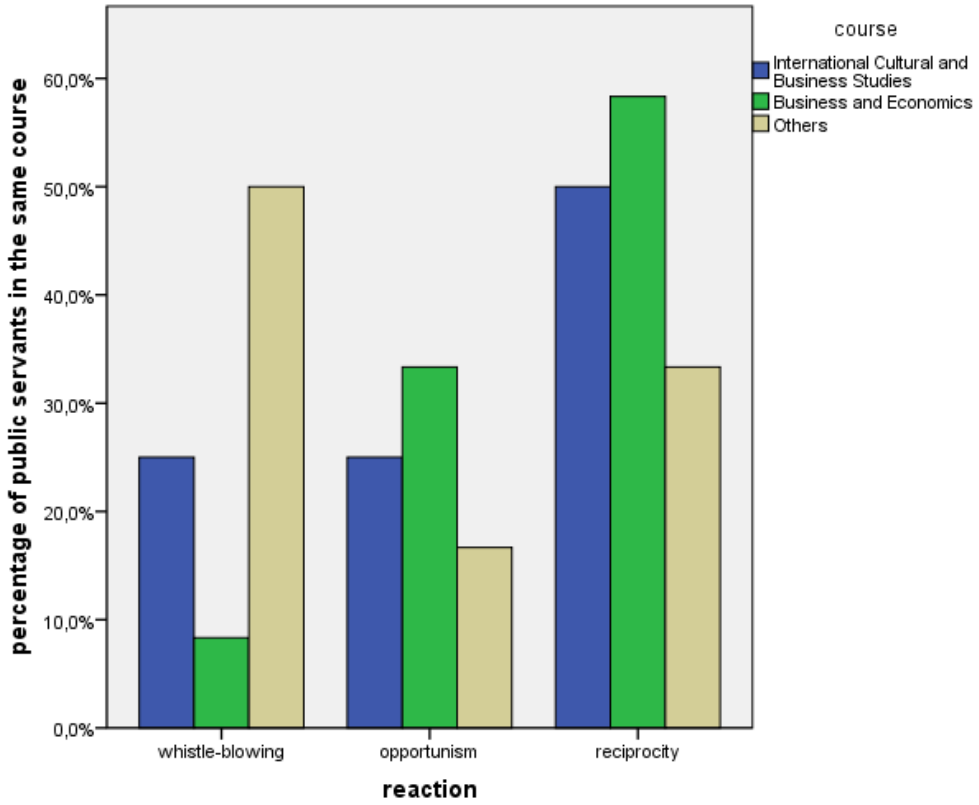

figure 6 - public servant's decision according to academic major

7.4. Honesty needs more time

Interesting information were gathered making use of a particular feature of computer-based playing – time measurement. The results of the mean time needed in different stages depending on the decision made are stated in table 3. In the first column the time needed for reading and making the decision is depicted. In the second column this time is controlled for the reading capacity of the participants. Therefore the time from the first column was divided by the reading time of the welcome screen. The interpretation of the second column is for example that in the mean a bribing firm took 6,81 times their reading time to make their decision whether to bribe[8].

[8] It is important to compare only decision time of one stage, because different stages where explained with a different amount of text and the results may differ therefore. This holds not true for the two last rows where the text for a firm was almost the same, if the public servant played opportunistically or reciprocally.

		Time for decision making (seconds)		Time controlled for reading capacity (reading the welcome screen)
		Mean	Standard deviation	
firm	not bribe	53	38	6,81
	bribe	37	15	1,51
public servant	whistle-blowing	51	15	2,13
	opportunism	67	38	1,89
	reciprocity	61	30	3,50
firm *(when public servant played opportunistically)*	whistle-blowing	31	9	0,63
	do nothing	52	7	0,64
firm *(when public servant reciprocated)*	whistle-blowing	-	-	-
	do nothing	22	5	0,24

table 3 - time measured for different stages

Looking first at the public servant's decision time it can be seen that reciprocity needs more considerations than opportunistic playing (in the weighted case). This seems plausible because the public servant needs time to weight the risk of whistle-blowing versus the loss in payoff. Plausible findings are also made looking at the firms decision speed in doing nothing. Much less time is needed when the corrupt deal was successful than for the decision to abstain from punishment. The time needed for or against punishment interestingly is almost the same.

The most interesting findings are the firm's decision time for its bribing decision. The time which was needed to decide on abstaining from bribery is very much higher. In the mean it took the quadruple of time to decide against bribery than for it (6,81 vs. 1,51). These findings heavily contradict hypothesis 4. This contradiction can also be observed at the public servant's decision for whistle-blowing (2,13 vs. 1,89) in a more modest way when you look at the controlled values.

An explanation to this surprising findings may be that people playing honestly need longer for their decision because they need to account for the whole context, while those playing profit-maximizing strategies just can focus on a payoff-calculation which therefore would need much less time.

8. Concluding Remarks

The experiment described in this paper revealed some facts about factors which may influence a corrupt deal. First of all opportunistic behavior in a corrupt system seems to be less likely if the firm decides for bribery than if it is forced to. This is problematic because opportunistic behavior is one way that a corrupt deal is destabilized. Clearly expressed bribery approaches seem therefore to stabilize a corrupt agreement and should be made as difficult as possible.

The second factor of influence, which was asserted, dealt with the gender of the players. Women seem to be less tolerant towards corrupt behavior and should be

therefore not only be better integrated in the public but also in the private sector in order to inhibit corrupt approaches by firms. As public servants women seem to act less reciprocally which would also help to destabilize corrupt deal, even if women were not found to blow the whistle upfront more likely.

Academic major was the third topic to be checked. Here a tendency towards a negative correlation between the quantity of economic lectures and honest play can be observed. The effect becomes weak once controlling for gender. Therefore the best practicable approach due to lack of certainty should be to mix teams which make the decision in the bidding process. Clearly economists are needed for a sound check of the profitability but should be always be assisted by members of others academic majors.

The fourth and last parameter which was tested in the experiments dealt with the timing of decisions. Honest behavior took less time than corrupt one in the case of whistle-blowing by the public servant but surprisingly not in the case of the firm's decision. The decision process to abstain from bribery took more time than to "invest" into bribery. A plausible explanation may be the time needed to incorporate the whole circumstances and effects which are caused by using corruption. This time may be lower in case of pure profit maximization.

Taking all the results together they may should some circumstances which can be used to make corrupt deals less easily to build up. And that always involves making use of the personal background of persons to redirect the decision whether to bribe or not to bribe in the direction of the latter.

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Appendix

A. Questionnaire

Statistical data were collected first:

- Age
- Gender
- Field of Study

The following questions were formulated as statements, which could be agreed or disagreed with within a range of 1 to 5. 5 would mean total agreement with the statement. The first four questions were asked to every participant.

question to all participants N=70	mean answer (standard deviation)
Korruptes Verhalten ist immer schlecht, auch wenn sich dadurch höhere Profite erreichen ließen.	4,08 (0,86)
Bevor eine Firma Konkurs geht, ist es legitim, dass sie sich Aufträge mit Hilfe von Korruption sichert.	1,77 (0,83)
Wenn Bestechungsgeld von Beamten angenommen wurde, muss die bezahlte Gegenleistung (z.B. Auftragsvergabe an die bestechende Firma) auch erbracht werden.	3,31 (1,32)
Wenn sich ohne Korruption ein kleiner, aber sicherer Gewinn erreichen lässt, so ist dies besser als zu versuchen, sehr große Gewinne durch Korruption zu erreichen.	4,77 (0,44)

Three or four additional questions were asked depending on the strategy which was played. On the first line the number of participants which answered the question is stated (N=13 means that the questions were answered by 13 firms and 13 public servants). In the right column the mean and the standard-deviation in brackets are stated.

N=13	No bribe	
Firm	Ich habe von Bestechung abgesehen, da ich das Risiko vom Beamten angezeigt zu werden als zu hoch angesehen habe.	2,85 (1,86)
	Ich habe von Bestechung abgesehen, weil für mich Bestechung nie ein Mittel der Wahl darstellt.	4,62 (0,51)
	Ich habe erwartet, dass, wenn ich bestochen hätte, der Beamte die Bestechung auch angenommen.	3,15 (1,41)
Public Servant	Wenn die Firma Alpha mich bestochen hätte, hätte ich die Bestechung sofort gemeldet.	2,85 (1,12)
	Wenn die Firma Alpha mich bestochen hätte, hätte ich den Auftrag an die Firma Alpha vergeben.	3,00 (1,73)
	Wenn die Firma Alpha mich bestochen hätte, hätte ich den Auftrag an den besseren Konkurrenten Firma Beta gegeben.	2,54 (1,76)

N=5	whistle-blowing by the public servant	
Firm	Ich habe den Beamten bestochen, da ich nicht damit gerechnet habe, dass dieser den Bestechungsversuch meldet.	4,00 (1,73)
	Ich habe den Beamten bestochen, da ich mir höhere Gewinne erhoffte.	4,40 (1,34)
	Wenn der Beamte den Vertrag trotz der Bestechung an meinen Konkurrenten vergeben hätte, hätte ich die Bestechung gemeldet, um mich zu rächen.	3,00 (1,41)
Public Servant	Ich habe die Bestechung gemeldet, da ich Bestechung grundsätzlich als nicht legitim ansehe.	4,20 (0,45)
	Ich habe die Bestechung gemeldet, da ich den sicheren Bonus von 2€ erhalten wollte und nicht darauf angewiesen sein wollte, von der Entscheidung der Firma abhängig zu sein.	4,00 (1,22)
	Ich habe die Bestechung gemeldet, da ich als Beamter nicht korrupt bin.	4,20 (0,45)

N=3	Opportunism and whistle-blowing by the firm	
Firm	Ich habe die Bestechung gemeldet, um mich dafür zu rächen, dass ich den Auftrag nicht erhalten habe.	3,67 (2,31)
	Ich habe die Bestechung gemeldet, da auch korrupte Abmachungen einzuhalten sind und der Beamte dies nicht getan hat.	3,00 (2,00)
	Ich habe die Bestechung gemeldet, damit nicht ich als schlechtere Firma den Auftrag erhalte und damit die Allgemeinheit schädige.	1,00 (0,00)
	Ich habe den Beamten bestochen, um meine Firma vor den Verlusten aus fehlenden Aufträgen zu retten und höheren Profit zu machen.	5,00 (0,00)
Public Servant	Ich habe den Auftrag an Firma Beta gegeben, da Sie den Auftrag besser erledigt hätte und die Gesellschaft davon profitiert.	5,00 (0,00)
	Ich habe den Auftrag an die Firma Beta gegeben, da mein persönlicher Gewinn dann höher ist.	2,33 (1,53)
	Ich habe damit gerechnet, dass die Firma Alpha die Bestechung nicht meldet, da ihr eigener Gewinn dann niedriger gewesen wäre.	3,67 (2,31)

N=3	opportunism and acceptance by the firm	
Firm	Ich habe die Bestechung nicht gemeldet, da mein persönlicher Gewinn damit höher ist.	4,67 (0,58)
	Ich habe die Bestechung nicht gemeldet, da die Rache für die Vertragsvergabe an den Konkurrenten zu kostspielig war.	3,00 (2,00)
	Ich habe die Bestechung nicht gemeldet, da ich die Entscheidung des Beamten, den Vertrag an die bessere Firma Beta zu vergeben, für gerechtfertigt halte, da die Gesellschaft davon profitiert.	2,00 (1,73)
	Ich habe den Beamten bestochen, um meine Firma vor den Verlusten aus fehlenden Aufträgen zu retten und höheren Profit zu machen.	4,67 (0,58)
Public Servant	Ich habe den Auftrag an Firma Beta gegeben, da Sie den Auftrag besser erledigt hätte und die Gesellschaft davon profitiert.	5,00 (0,00)
	Ich habe den Auftrag an die Firma Beta gegeben, da mein persönlicher Gewinn dann höher ist.	2,33 (1,53)
	Ich habe damit gerechnet, dass die Firma Alpha die Bestechung nicht meldet, da ihr eigener Gewinn dann niedriger gewesen wäre.	3,00 (2,00)

N=0	reciprocity and whistle-blowing	
Firm	Ich habe die Bestechung gemeldet, weil die Gesellschaft davon profitiert, wenn die bessere Firma den Auftrag erhält.	-
	Ich habe die Bestechung gemeldet, weil ich im letzten Moment moralische Zweifel an der Bestechung hatte.	-
	Ich habe die Bestechung gemeldet, weil mir nicht klar war, dass ich dann keinen Gewinn machen würde.	-
	Ich habe den Beamten bestochen, um meine Firma vor den Verlusten aus fehlenden Aufträgen zu retten und höheren Profit zu machen.	-
Public Servant	Ich habe den Auftrag an Firma Alpha vergeben, da korrupte Abmachungen einzuhalten sind.	-
	Ich habe den Vertrag an Firma Alpha vergeben, da ich Angst davor hatte, dass sich die Firma mit Whistle-Blowing rächen würde.	-
	Ich habe die Bestechung nicht gemeldet, da mein Profit dann wahrscheinlich höher sein würde, wenn die Firma die Bestechung nicht melde.	-

N=11	reciprocity and acceptance by the firm	
Firm	Ich habe die Bestechung nicht gemeldet wegen meines persönlichen Profites	4,18 (1,17)
	Ich habe die Bestechung nicht gemeldet, da der Beamte seinen Teil des korrupten Vertrages erfüllt hat	4,36 (1,21)
	Ich habe den Beamten bestochen, weil ich dachte, dass er mir den Auftrag zusprechen würde	4,73 (0,65)
	Ich habe den Beamten bestochen, um meine Firma vor den Verlusten aus fehlenden Aufträgen zu retten und höheren Profit zu machen	4,64 (0,07)
Public Servant	Ich habe den Vertrag an Firma Alpha gegeben, da mir das Risiko zu groß war, dass sich Firma Alpha bei Nichtvergabe rächen würde	2,64 (1,57)
	Ich habe den Auftrag an Firma Alpha gegeben, weil eine korrupte Abmachung einzuhalten ist	3,64 (1,43)
	Ich habe den Auftrag an Firma Alpha vergeben, da der Profit zwar geringer ist, allerdings ebenfalls das Risiko, dass die Firma Alpha die Bestechung meldet	4,18 (0,87)

B. Tables

B1. Data on hypothesis 2a

			gender		Total
			male	female	
reaction	whistle-blowing	Count	4	1	5
		% within gender	28,6%	12,5%	22,7%
	opportunism	Count	2	4	6
		% within gender	14,3%	50,0%	27,3%
	reciprocity	Count	8	3	11
		% within gender	57,1%	37,5%	50,0%
Total		Count	14	8	22
		% within gender	100,0%	100,0%	100,0%

Fisher's exact test (one-sided) p=0,055

B2. Data on hypothesis 2b

			gender		Total
			male	female	
Revenge in case of opport. behavior	whistle-blowing	Count	1	2	3
		% within gender	25,0%	100,0%	50,0%
	do nothing	Count	3	0	3
		% within gender	75,0%	,0%	50,0%
Total		Count	4	2	6
		% within gender	100,0%	100,0%	100,0%

Fisher's exact test (one-sided) p=0,2

B3. Data on hypothesis 2c

			gender		Total
			male	female	
bribe	firm does not bribe	Count	4	9	13
		% within gender	22,2%	52,9%	37,1%
	firm bribes	Count	14	8	22
		% within gender	77,8%	47,1%	62,9%
Total		Count	18	17	35
		% within gender	100,0%	100,0%	100,0%

Pearson's Chi-Squared: 3,534 (p=0,06)

B4. Data on hypothesis 3

	gender																	
	male						female						male and female					
	academicMajor						academicMajor						academicMajor					
	International Cultural and Business Studies		Business and Economics		Others		International Cultural and Business Studies		Business and Economics		Others		International Cultural and Business Studies		Business and Economics		Others	
	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %
whistle-blow.	0	,0	1	14,3	3	60,0	1	50,0	0	,0	0	,0	1	25,0	1	8,3	3	50,0
opportunism	1	50,0	1	14,3	0	,0%	0	,0	3	60,0	1	100,0	1	25,0	4	33,3	1	16,7
reciprocity	1	50,0	5	71,4	2	40,0	1	50,0	2	40,0	0	,0	2	50,0	7	58,3	2	33,3

B5. Data on hypothesis 3

	gender																	
	male						female						male and female					
	academicMajor						academicMajor						academicMajor					
	International Cultural and Business Studies		Business and Economics		Others		International Cultural and Business Studies		Business and Economics		Others		International Cultural and Business Studies		Business and Economics		Others	
	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %
not bribe	0	,0	1	14,3	3	42,9	6	66,7	1	20,0	2	66,7	6	46,2	2	16,7	5	50,0
bribe	4	100,0	6	85,7	4	57,1	3	33,3	4	80,0	1	33,3	7	53,8	10	83,3	5	50,0

B6. Data on different answers of men and women

The table refers to the four questioned presented in appendix A which were posted to all participants.

gender		Q1	Q2	Q3	Q4
male	Mean	3,6098	2,3415	3,3415	4,0732
	N	41	41	41	41
	Std. Deviation	1,15927	1,17494	1,51013	1,10432
female	Mean	4,2069	1,8966	3,0690	4,4483
	N	29	29	29	29
	Std. Deviation	,90156	1,17549	1,53369	,86957
Total	Mean	3,8571	2,1571	3,2286	4,2286
	N	70	70	70	70
	Std. Deviation	1,09393	1,18732	1,51487	1,02394

B7. Data on questionnaire answers depending on the academic major

The table refers to the four questioned presented in appendix A which were posted to all participants.

academicMajor		Q1	Q2	Q3	Q4
International Cultural and Business Studies	Mean	3,9524	1,9048	2,9524	4,5238
	N	21	21	21	21
	Std. Deviation	1,07127	,99523	1,35927	,67964
Business and Economics	Mean	3,6923	2,5000	3,3846	3,9231
	N	26	26	26	26
	Std. Deviation	1,08699	1,33417	1,52517	1,12865
Others	Mean	3,9565	2,0000	3,3043	4,3043
	N	23	23	23	23
	Std. Deviation	1,14726	1,12815	1,66337	1,10514
Total	Mean	3,8571	2,1571	3,2286	4,2286
	N	70	70	70	70
	Std. Deviation	1,09393	1,18732	1,51487	1,02394

C. Screenshots

Experiment

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Herzlich Willkommen zum Experiment und vielen Dank für Ihre Teilnahme!

Sie werden im Folgenden ein Korruptionsspiel mit einen zufällig zugelosten Partner spielen.

Es geht um eine Firma, die um einen öffentlichen Auftrag zu erhalten, versuchen kann, einen Beamten zu bestechen.

Das Spiel dauert etwa 10 min.

Zu Anfang wird Ihnen der genaue Ablauf des Spieles vorgestellt, dann treffen Sie Ihre Entscheidungen und am Ende wird nach Bekanntgabe de Auszahlungen ein Fragebogen gestellt.

Da das Experiment im Rahmen eines Projektes an der Universität abläuft und die Experimentatoren selbst Studenten sind, werden die möglichen Auszahlungen alle rein hypotetisch sein und nicht zur Auszahlung kommen. (auch eventuelle Spenden nicht)

Spielen Sie dennoch so, als würden Sie davon ausgehen, dass alle Beträge wirklich zur Auszahlung kommen würden.

Ihre Spielzüge bleiben selbstverständlich anonym.

Weiter

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Experiment - Anleitung Seite 1 von 1

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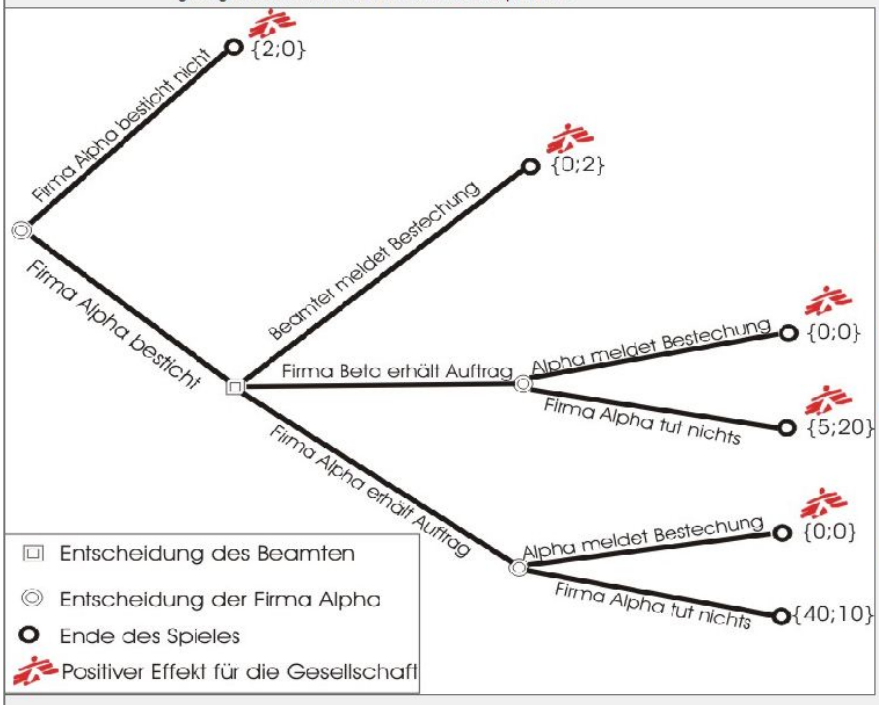
Die Zahlen am Ende der Stränge bedeuten {Auszahlung Firma, Auszahlung Beamter}.
Die kleinen roten Symbole bedeuten, dass in diesem Fall eine Spende an Ärzte ohne Grenzen getätigt werden würde und die Gesellschaft profitiert.



Das Spiel läuft folgendermaßen ab:

Es gibt zwei Spieler. Firma Alpha und einen Beamten. Sie werden zufällig einer Rolle zugelost. Firma Alpha hat eine Anfangsausstattung von 25€, der Beamte von 0€.

Stufe 1: Firma Alpha entscheidet, ob Sie einem Beamten ein Bestechungsgeld i.H. von 20€ zahlt. Damit verbleibt ihr von ihrer Anfangsausstattung 5€. Sollte die Firma kein Bestechungsgeld zahlen, sinkt die Anfangsausstattung auf 2€ wegen Verluste durch fehlende Aufträge und das Spiel endet. Der Beamte erhält in diesem Fall nichts.

Stufe 2: Der Beamte kann, wenn er bestochen wurde, entscheiden, ob er den Bestechungsversuch seinen Vorgesetzten meldet. Er würde dann einen Bonus in Höhe von 2€ erhalten und die Firma würde bestraft. Das Bestechungsgeld wird eingezogen. Die andere Möglichkeit, die der Beamte hat, ist den Auftrag an den besseren Konkurrenten Firma Beta zu geben oder Firma Alpha den Vertrag zusprechen. Die letzten beiden Fälle führen zu Spielstufe 3.

Stufe 3: Wenn der Vertrag vergeben wurde, hat Firma Alpha zwei Möglichkeiten der Entscheidung. Sie kann die Bestechung melden (Whistle-Blowing) oder sie kann Stillschweigen bewahren. Im Falle, dass der Vertrag dem Konkurrenten Beta zugesprochen wurde, kann Firma Alpha bei Stilschweigen die verbliebene Anfangsausstattung i.H. v. 5€ behalten, der Beamte behält das Bestechungsgeld. Im Falle, dass der Vertrag Firma Alpha zugesprochen wurde, muss der Beamte einen Teil seines Bestechungsgeldes an Kollegen abgeben und behält 10€. Die Firma erhält den Auftrag und kann mit einem Payoff von 40€ (=35€ Gewinn +5€ von der Anfangsausstattung) das Spiel verlassen. Im Falle des Whistle-Blowing wird das Bestechungsgeld eingezogen und die Firma bestraft. Beide Spieler erhalten Payoffs von 0€.

Da Firma Beta den Auftrag besser erldigen würde, hätte die Allgemeinheit in diesem Falle einen Vorteil i.H.v. 8€, der an Ärzte ohne Grenzen gespendet wird. Wenn die Firma Alpha durch Bestechung den Auftrag erhält, entfällt dieser Vorteil.

Spiel starten

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Experiment - Spiel

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Sie sind Eigentümer der Firma Alpha und wollen an einer Auftragsvergabe teilnehmen. Das funktioniert allerdings nur, wenn Sie bereit sind ein Bestechungsgeld in Höhe von 20€ zu zahlen. Ihre Anfangsausstattung beträgt 25€. Sollten Sie den Auftrag erhalten, bekommen Sie einen Gewinn in Höhe von 35€.

Alternative 1	Ich zahle kein Bestechungsgeld und kann nicht an der öffentlichen Auftragsvergabe teilnehmen. Weil ich aber keinen anderen Aufträge erhalte, macht meine Firma Verluste und meine Anfangsausstattung reduziert sich auf 2 €. Da der Auftrag dann an die bessere Firma Beta geht, hat die Allgemeinheit einen Vorteil i.H.v. 8€, der an Ärzte ohne Grenzen gespendet wird.
Alternative 2	Ich leiste eine Bestechungszahlung an einem Beamten in Höhe von 20€. Dieser entscheidet sodann über die Auftragsvergabe. Sollte ich den Auftrag erhalten, bekomme ich einen Gewinn in Höhe von 35€.

Welche Alternative wählen Sie?

Entscheidung ○ Alternative 1
○ Alternative 2

Weiter

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Experiment - Spiel

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Ihre Bestechungszahlung wurde an den Beamten übermittelt. Das Auswahlverfahren läuft. Bitte haben Sie einen Moment Geduld.

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Experiment - Spiel

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Sie haben sich beim Beamten für die Nichtvergabe des Auftrages gerächt und haben die Bestechung gemeldet. Sie zahlen eine Strafe, Ihre Bestechungssumme bleibt einbehalten.

Sie haben folgende Gewinne gemacht:

Anfangsausstattung	25€
Bestechungszahlung	
Strafe	-5€
Summe	**0€**

Da die bessere Firma Beta den Auftrag erhalten hat, entsteht der Allgemeinheit ein Vorteil i.H.v. 8€, der an die Organisation Ärzte ohne Grenzen ausgezahlt werden würde.

Weiter zum Fragebogen

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Experiment - Fragebogen Seite 2 von 3

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Wie bewerten Sie die folgenden Aussagen. Ihre Antworten bleiben selbstverständlich anonym.

Korruptes Verhalten ist immer schlecht, auch wenn sich dadurch höhere Profite erreichen ließen.
A1: trifft nicht zu ○ ○ ○ ○ ○ trifft voll zu

Bevor eine Firma Konkurs geht, ist es legitim, dass sie sich Aufträge mit Hilfe von Korruption sichert.
A2: trifft nicht zu ○ ○ ○ ○ ○ trifft voll zu

Wenn Bestechungsgeld von Beamten angenommen wurde, muss die bezahlte Gegenleistung (z.B. Auftragsvergabe an die bestechende Firma) auch erbracht werden,
A3: trifft nicht zu ○ ○ ○ ○ trifft voll zu

Wenn sich ohne Korruption ein kleiner sicherer Gewinn erreichen lässt, ist dies besser als zu versuchen sehr große Gewinne durch Korruption zu erreichen.
A4: trifft nicht zu ○ ○ ○ ○ ○ trifft voll zu

Weiter

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