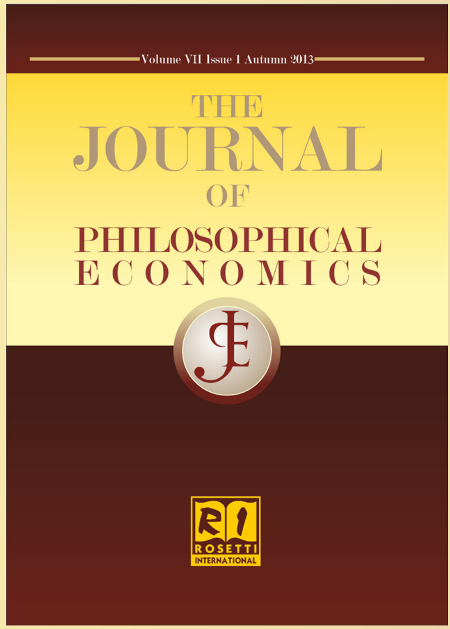
THE JOURNAL OF
PHILOSOPHICAL ECONOMICS

Volume VII Issue 1 Autumn 2013

ISSN 1843-2298



Research note on an experimental approach to the intrinsic motivations of corruption

Valeria Burdea

ROSETTI INTERNATIONAL

Burdea, Valeria (2013) 'Research note on an experimental approach to the intrinsic motivations of corruption', *The Journal of Philosophical Economics*, VII:1

Research note on an experimental approach to the intrinsic motivations of corruption

Valeria Burdea

Abstract: Even though most of the causes of corruption are easily identifiable at the macro level, there is considerable disagreement when it comes to the intrinsic motivations leading people to engage in this activity. The present paper tries to shed light on the aspect concerning the correlation between corruption and individual performance. This is useful for understanding the dynamics of common events like medical students attempting to bribe their way towards becoming a doctor, or companies bribing public officials to obtain licenses to build public highways, buildings, or provide electricity and water. However, corruption's secretive nature makes it difficult to obtain trustworthy qualitative data on this subject. Hence, the study addresses the issue in the lab, through an experiment based on a bribery game. The results show that there is a significant correlation between performance and propensity to engage in a corrupt activity, opening the way for an improvement in the allocation of resources to reduce this negative phenomenon.

Keywords: laboratory experiment, trust, game design

Introduction

Does being a low performer increase individuals' propensity to engage in a corrupt transaction? More exactly, is there a correlation between a person's performance and her corruptibility? The aim of this study is to provide insight related to the behavioural profile of an agent involved in bribery, so as to be able to better direct the resources available towards reducing bribery and corruption.

Received : 26 July 2013

At the macro level, low economic development, whether the government is centralized or decentralized, short experience with democracy and free trade (Treisman 2001) are among the obvious and most researched causes of corruption. Despite this, there is a lack of comprehension at the micro level concerning what drives people to engage in corrupt activities. A better understanding of these causes is important in finding what institutional changes could be implemented to efficiently fight corruption (Dušek et al. 2005).

A clear definition of the problem and its magnitude must be provided in order to see whether there is a real need to address it. Corruption, defined as 'the abuse of entrusted power for private gain'[1] is an important policy concern that breaches the rules of fairness by enabling unworthy people to access advantages at the expense of rightful candidates. According to the World Bank, each year, there are losses between 1 and 1.6 trillion dollars due to illegal activities enabled by corruption. The reason why corruption leads to such high economic losses is because it discourages new investments. Furthermore, it leads to a misallocation of governmental resources, acting as an 'extra tax on citizens, leaving less money for public expenditures' (Uslaner 2011). Decreasing the amounts available for spending on governmental projects, corruption lowers the quality of education, public health systems and infrastructure. Finally, it decreases the wages of public employees and the general public trust in government. This increases people's propensity to engage in corrupt activities, and leads to the creation of a vicious circle.

The most common example of corruption is bribery [2], which concerns 'an illegal act where a person offers money or receives money from another person to influence the actions of a public officer or official' [3]. Despite it being among the first causes leading to the above described negative effects, there are some consequences of bribery worth mentioning. These are related to the fact that this phenomenon provides unworthy candidates with access to certain privileges they do not deserve, and are therefore unable to handle properly. Such situations arise when medical students try to bribe their way towards becoming a doctor, or when bad drivers obtain their driving licenses without legitimately passing the driving test. Even more worrying are events when companies bribe public officials to obtain the license to build public highways, buildings, or to provide electricity and water. It can be observed that one common denominator of these examples is the fact that the bribers tend to be less qualified for the task than they should, or than other candidates. With this in mind, this study attempts to shed light on the relation between individuals' propensity to bribe and their performance profile – being a high or a low performer. The hypothesis is that being a low performer creates an incentive to offer a more substantial bribe as a consequence of the need to compensate for the lack of skill.

Due to its secretive nature, it is extremely difficult to obtain veritable observational data on bribery. Addressing this issue in the lab can provide promising and unbiased results concerning the determinants of bribery and the efficiency of different deterrent methods. Therefore, this study will make use of a laboratory experiment to answer the question addressed in the beginning, and find out which type of individuals are more prone to engage in bribery acts, or in what type of situations this issue might arise. The experiment takes into account recent insight added to the literature by Gneezy et al. (2013) concerning the design of the previous experiments intended to analyze bribery. Previous models were based on the idea that at the core of a corrupt transaction stands the relation of trust and reciprocity between the briber/citizen and the bribee/authority, as well as the negative externalities on third parties. There is, however, one more important aspect typical for bribery actions: the distortion of facts or judgment. This appears when the authority takes the decision based on the bribe received, disregarding the performance of the candidates. It is important to take into account this aspect not only because it is influencing the authorities' corruptibility but also because it influences bribers' behaviour, depending on the beliefs they form regarding the value of the cost of lying for the authority. Incorporating this concept in the design of the experiment improves the external validity of the results.

Competition among bribers is another aspect that is essential for bribery relationships, although not necessarily evident in all cases. This occurs in situations where companies try to obtain licenses to implement public projects (construction of roads, public buildings), when students compete for different certificates (medical, lawyer licenses), or to get into specific universities, when individuals compete for jobs, or when sport teams or athletes are engaged in competitions to win a prize or a title. The diversity of potential scenarios demonstrates why it is important to create a competitive environment in an experiment meant to investigate the causes of bribery.

Consequently, the experiment is based on a game design inspired by the one presented in the paper of Gneezy et al. (2013). It involves the interaction of subjects within groups consisting of 3 members – 2 competitors and 1 referee. The competitors are asked to solve a real-effort task in order to win a prize. Based on the results of the task they become either low or high performers, after which they have the possibility to bribe the referee in order to win the prize. In order to test whether low performers offer higher bribes 2 different treatments are used. In one, subjects are not aware of their competitor's performance, and hence cannot evaluate their own performance – if it is high or low. In the other treatment, participants can observe the performance level of the player they are competing with and can judge their own ranking. The results of this experiment are significantly supporting the hypothesis that becoming aware of their own performance makes low performers offer a higher bribe (91.64% higher). In order to evaluate the importance of this result, one must take into account the difficulty to increase the detection probabilities of corrupt actions. This is limited not only by the scarce resources available, but mostly by an aspect which cannot be controlled – the transparency of bribery transactions is null as they are not formally closed, with a contract, so there is no formal way to detect them. Therefore, the findings of this study contribute to a better allocation of the resources available for fighting against corruption.

The paper is structured as follows: the first of the remaining sections deals with a theoretical analysis of bribery from the perspective of the economics of crime; then, the experimental design and the hypotheses are described, followed by a section in which the results are analyzed. The next part presents a discussion of possible controversial aspects of the study while the last one presents the conclusions and suggestions for future research directions.

The bribery game

Due to the secretive nature of corruption it is fairly difficult to accurately analyze the environment in which such behaviour flourishes. However, despite the existing restrictions, in the past two decades, the major negative effects of corruption have motivated more researchers interested in the economics of crime to focus their attention on decomposing the causes of this phenomenon and the effects of different deterrent measures. This section will focus on the latest addition to the literature concerning the modelling of bribery in the laboratory.

Experimental research is an area which has been extensively developed in the last decade in economics. Through this it is possible to manipulate different factors that cannot be varied in the real world due to high costs or unavailability of data. Two approaches have emerged in experimental research: a traditional one – the economic incentives approach, and a modern one – the intrinsic motivations approach. In terms of economic incentives, the dynamics of corruption depend on the size of penalties, the detection probabilities, the wages and the institutional changes like staff rotation, competition between public officials, whistle-blowing and intermediaries. The intrinsic motivations side deviates from the traditional view of deterring dishonest behaviours. This approach posits that corruption can be reduced through addressing feelings of guilt and shame brought on by the illegality and immorality of a corrupt act, by the negative externalities it causes, and by the social disapproval of such behaviour (Serra 2012).

However, in order for the results of such studies to be externally valid, it is important to accurately grasp the defining characteristics of this phenomenon within the design of the games employed to analyze corruption. Therefore, when analyzing this phenomenon in the lab one must take into account that the main characteristics of a corrupt act are: the reciprocity relationships between bribers and officials, the negative welfare effects, and the high penalties in case the corrupt act is unveiled (Abbink et al. 2002). With this in mind, Abbink, Irlenbusch and Renner (2002) come up with one of the main models used to analyze corruption in the lab. This involves an adapted version of a trust game between 2 players – the citizen and the public official – in which the citizen has to decide whether to make a transfer to the public official or not. This transfer is intended to induce the latter to choose an option that is in the advantage of the citizen but that is costly for him/her. The effect of negative externalities is also analyzed in their study, and it is found that this does not have a deterrent effect on corrupt behaviour. What they find to be effective however, is the introduction of the punishment mechanism, which is a rather trivial finding considering the fact that in the laboratory the first aspect that influences subjects' decisions is their final payoff. Interestingly though, they conclude that detection probabilities are usually underestimated (Abbink et al. 2002).

In order to create the reciprocity relationship based on trust that is characteristic to a corrupt environment in the lab, most of these experiments are based on repeated games in which pairs of players interact for multiple rounds. Therefore, it seemed natural to test methods meant to break this relationship. One such method is staff rotation, which proved to be highly efficient in decreasing the average bribe in an experiment of Abbink (2004). The option of whistle-blowing should also have a destabilizing effect on the corrupt relationship, due to the increased threat that the corrupt public official will be detected. However, Schikora (2011) finds two interesting effects of this option: first, its introduction leads to the stabilization of a corrupt relationship, and second it is used as an insurance against abuse coming from the public official.

Even though methods like increasing the penalties or the wages of public officials proved to be efficient in the lab, the costs associated with implementing them in reality are too high to be considered viable options. Additionally, the efficiency of increasing the sanctions is dependent on the detection probability. Since the latter is usually very low, higher sanctions rarely lead to a proportional effect in decreasing corruption (Howse & Daniels 1995). It is highly possible that there is a threshold after which these monetary incentives are no longer efficient – an aspect that is difficult to investigate. This view suggests that research should direct its focus on finding less costly solutions through adopting an approach more centred on the intrinsic motivation component that drives corrupt behaviour.

Modelling bribery as a trust or gift-exchange game leads to an external validity problem due to disregarding the distortion of judgment, and the intrinsic costs associated with it. This is common for situations in which the authority/judge takes the decision regarding who is entitled to a specific gain based on the received bribe rather than on 'other objective criteria such as merit, performance, or quality' (Gneezy et al. 2013). The refinement brought to the experimental model by this insight is important, as it helps to better explain the results observed in previous experiments. Additionally, subsequent models including this aspect can provide more reliable data regarding the reasons why people engage in bribery. This would enable one to better calibrate the effort to reduce the occurrence of this phenomenon. In order to implement this aspect in the bribery experimental model and to test its implications, Gneezy et al. (2013) conduct an experiment in which two subjects engage in a competition requiring them to solve a subjective real-effort task – making a joke – in order to win a prize. The winner is decided by a third participant who takes up the role of a referee. Additionally the two competitors have the possibility of sending a bribe, consisting of 50% of their initial endowment (equal to €5) to the referee. In order to conclude if bribes distort referees' judgment, two different treatments are implemented: one in which the referee can keep only the bribe from the winner (KeepWinner treatment), and one in which he/she can keep both bribes (KeepBoth treatment). The results are significantly different between the two treatments. It is observed that in the KeepWinner treatment, 85% of the competitors send a positive bribe while in the KeepBoth treatment only 34% do so. Moreover, their results show that in the KeepWinner treatment 86% of the referees award the prize to the participant offering the highest bribe and not to the one that wrote the better joke. Therefore, after the statistical analysis the authors conclude that bribery distorts referee's judgment when their payoff depends on the choice of the winner. By contrast, in the KeepBoth treatment, when the referee's payoff does not depend on who she decides to become the winner, bribery does not distort judgment. More exactly, the better joke wins in significantly more cases than the higher bribe. Comparing these two results, the authors conclude that greed is the motor of bribery and not reciprocity. Taking into account the fact that reciprocity would be the determinant of bribery, the results of the two treatments should have been similar. This proves that the premises that this model was based on were correct, and justifies its use in further studies.

Description of the experiment

The design of the game implemented in the experiment is based on the one proposed by Gneezy et al. (2013). The main difference between the two designs is the real-effort task. While the original game makes use of a subjective task (making a joke), this study's game implies that participants solve an objective task – counting squares. This section will provide a formal description of the game as implemented in both treatments – the 'No info' and the 'With info' treatments – followed by the equilibrium analysis.

'No Info' treatment

Players: two competitors (players A and B) and one authority (player C).

Real-effort task: Players A and B choose a positive integer representing their answers to the real-effort task. Player C does not have any action available. Based on these answers, the following states can be differentiated:

States: ω_1 = {A: low performer, B: high performer}
ω_2 = {A: high performer, B: low performer}

Signals: $\tau_i(\omega_1, \omega_2) = s_i$ – meaning that players cannot differentiate between the two states, and therefore do not know whether they are low or high performers.

Beliefs: $pr_i(\omega_j | s_i) = 1/2$, $i = \{A,B\}$, $j = \{1,2\}$.

Actions: Player A/B chooses a transfer amount: $t_i = \{0,1,2.....100\}$;

Player C chooses one action for each of the following two action spaces:
a_1 = {keep t_i, reject t_i}
a_2 = {A is the winner, B is the winner}.
If a transfer is kept or rejected, it is automatically implied that the transfer was positive.

Payoffs: $\Pi_{A,B} = \begin{cases} 100 - t_i + p & \text{if i wins} \\ 0 & \text{if i loses} \end{cases}$, $i=\{A,B\}$, $p=100$.

$$\Pi_C = \begin{cases} 100 + t_i & \text{if } a_1 = \{\text{keep } t_i\} \\ 100 & \text{if } a_1 = \{\text{reject } t_i\} \end{cases}$$

'With Info' treatment

This treatment is the same as the previously described one, except for the fact that players now receive information about their competitor's answer in the real-effort task. Therefore, the formal description of the game is similar to the one already provided, with 2 exceptions:

Signals: $\tau_i(\omega_1) = s_1$
$\tau_i(\omega_2) = s_2$

Beliefs: $pr_i(\omega_j | s_j) = 1$, $i = \{A,B\}$, $j = \{1,2\}$ – meaning that players can now differentiate between the two states, knowing whether they are low or high performers.

Equilibrium analysis

If we consider the players to be fully rational and selfish individuals, they should resort to the following payoff-maximizing strategies. The authority should always choose the winner to be the player offering the highest bribe, independent of his task performance. Knowing this, the two competitors – A and B – should always offer the maximum amount of transfer (i.e. $t_i = 100$ points).

Hence, the equilibrium monetary payoffs are:

For player C: $\Pi_C = 100 + t_{i*}$, where i^* is the player offering the highest transfer, and thus the winner of the game.

For players A and B: $\Pi_{A,B} = \begin{cases} 100 - t_i + p & \text{if i wins} \\ 100 & \text{if i loses} \end{cases}$, $i=\{A,B\}$, $p=100$, $b_i=100$.

Additionally, it must be noted that this equilibrium analysis is valid for both types of treatments. This is because player C is restricted to keeping only the transfer coming from the player that she decides to award the winner prize to. As a rational player that wants to maximize her final payoff, C would only care about the transfers of points which are influencing her monetary payoff and not about the answers to the real effort task – whether a player is a high or a low performer. Therefore, it is expected that no matter the treatment, C would always award the prize to the player offering the highest transfer, and consequently, A and B would both send the maximum amount (100). This leads to the same equilibrium result from the standard economic point of view in both treatments.

Experimental design and hypotheses

In order to answer the research question posed, a lab experiment was conducted. In the following section, the experimental design will be presented, including the design of the game and the procedures employed in running the experiment. The game is one in which players interact in groups of 3 as follows: 2 of the players (players A and B) compete for a prize by solving a real-effort task, while the third one – the authority (player C) – decides the winner of the competition. The winner is awarded a prize of p (p=100 points). His competitor does not receive anything after losing the competition. All players – players A, B and player C – are endowed with 100 points. Besides solving the task, players A and B have the possibility to make a transfer – send a bribe (t_i) – to player C. The size of the transfer is limited to the value of the initial endowment (t_i<100). The authorities are allowed to keep only the transfer coming from the player which they decide to be the winner. They do not receive anything else after deciding the winner. The transfers that are rejected are returned to the offering players.

In order for players C to choose the competitor that would win the prize, they were first informed about the decisions of players A and B in Part1 of the experiment – both these players' answers for the real-effort task and their choices regarding how many points they would transfer to player C in case they became winners.

Afterwards, players C had to find out the correct answer for the task through solving the task themselves. The excerpt from the instructions explaining this step is the following: 'On the next page, you will find the task that the 2 players had to solve. You are asked to solve this task yourself. After solving the task you are asked to fill in the decision form where you will indicate the winner.'

However, in order to make clear that the scope of them solving the real-effort task was so that they can reach the correct answer with high probability, they were not limited by time when doing so. Additionally, this portion of the experiment was designed as such in order to see the degree to which the judges rationalize their choice of the winner – to see whether players C would choose answers closer to the one of the player that they would subsequently decide to be the winner. This was possible to observe as players C were informed about the decisions of players A and B before solving the task themselves. After this step, players C were asked to decide which, if any, transfer they wanted to keep, with the clear mention that they could only keep the transfer coming from the player that would become the winner. It was also made clear that they were able to reject both transfers if they so desired. The experiment was designed as a one-shot game to control for learning effects related to the solution of the task. The task that players had to solve in order to be able to win the prize involved counting the squares in the image below in 1 minute (see Appendix for complete instructions). The correct number of squares in the image is 163.

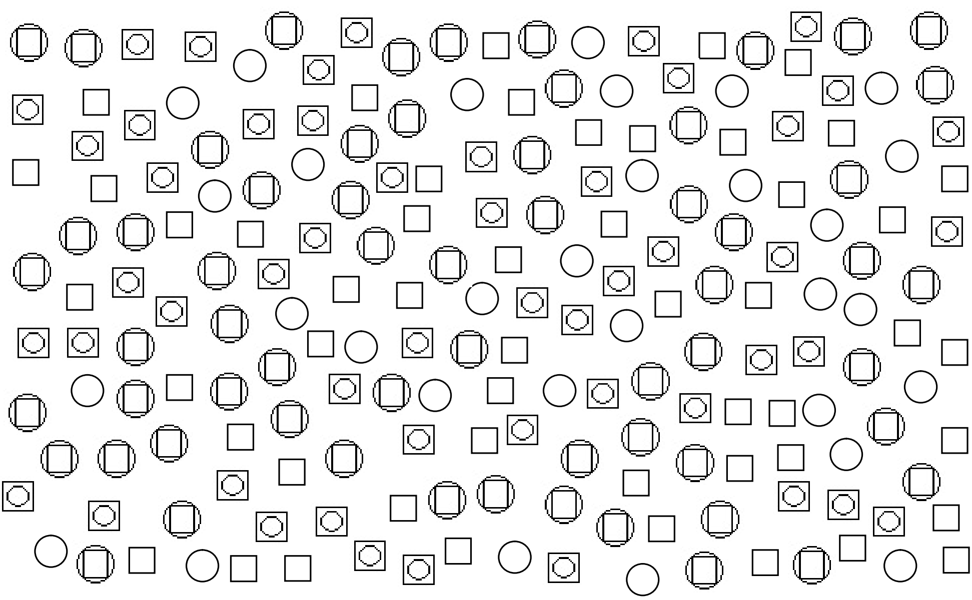


Figure 1: Task design

The experiment consisted of two treatments, with a between-subjects design. This choice was necessary as each subject could solve the task only once. In both treatments, after solving the task, players were informed about the correct answer. In the 'No info,' treatment, players A and B did not receive any information regarding the performance of their competitor, so they were not able to evaluate their own performance; in the 'With info,' treatment, players A and B were informed about their competitor's performance in the real-effort task. Thus, in the 'With info' treatment, players were able to evaluate their own performance relative to their competitor's and determine whether they were the low or the high performer.

As opposed to the original design (Gneezy et al. 2013), in which the competitors' and the authorities' initial endowments were different (the authority was endowed with half of the competitors' endowment), in this study, equal initial endowments were implemented so that players would not believe that they need to compensate the authority for the unfair starting distribution of the initial endowments. Thus any observed transfer cannot be biased by such a belief. Also, as opposed to Gneezy et al.'s design, where the two possible bribers were allowed to offer only half of their initial endowment, here the size of the bribe was restricted only to the full amount of the initial endowment. This was intended to provide the two competitors with a larger scope of decision. There are two other characteristics of a bribery interaction that are not modelled in this design: negative externalities and detection probabilities with punishment. The first one is not directly included in the design because its effect does not constitute the purpose of this study. However, one can consider that an indirect negative externality of a player offering a bribe is the decrease in chances for his competitor to win the prize. The obvious cost of bribing – costly punishment if detected – is not incorporated in the game because there was a need to maintain the design of the experiment as simple as possible, so that the change observed in the transfer rate would only be related to the implemented treatment.

Procedure

The experiment was run with 72 students of the University of Amsterdam from different programs (Master and Bachelor studies): Business, Economics, Accountancy and Control, Physics, Forensic Science, Earth Science. These represented friends and acquaintances that were recruited personally. Four sessions were run at the end of May (2013), while four others were run during the month of June (2013). The experiment was not computerized; all sessions were conducted using pens and instructions printed on paper.

There were eight sessions in total – four sessions for each treatment – that were run within the facilities of University of Amsterdam. Each session lasted around 15 minutes and it involved nine participants that were randomly and anonymously matched in groups of three members and assigned to one of the three player roles: A, B and C. The participants were separated in two rooms as follows: players A and B sat together in one room, separate from players C which were sat in the next room. This random assignment was done through inviting each subject to extract a number from a bowl containing nine cards – six with number one and three labelled with number two. This number would direct them to one of the two rooms where they would be randomly assigned to a player role and an ID number as follows. While entering the respective rooms (1 or 2), players drew an ID number from another bowl. This number would direct them to their tables on which they would find their player role. In room 1 the subjects were randomly given the role of either player A or B, while in room 2 subjects were given the role of player C. In room 2 a second experimenter read the instructions and made sure that the participants followed the protocol.

After sitting, subjects received instructions which were read out loud. Additionally, the experimenters answered questions in order to make sure that all the participants understood the instructions correctly. No control questions were asked due to the simplicity of the design. Also, considering the design of the experiment, and that it was a one-shot game, it was important that the players' decisions were not to be affected by any learning bias that could be caused by answering control questions. Another way to verify that the game was understood correctly was by studying the answers from the final questionnaire in which subjects had to explain their strategies in deciding the amount to transfer to player C, or how did they choose the winner between players A and B.

The experiment consisted of two parts – in the first part players A and B had to solve the task. Afterwards they were informed that they could choose to transfer an amount of points from their initial endowment to player C. During this part, players C did not have to take any action. The experimenter present in the room ensured that there was no interaction among the participants during the first part of the experiment. In the second part, players C were informed about the answers and transfer decisions of players A and B. They had to solve the task themselves in order to find out the right answer and be able to decide which of the two subjects assigned to them would win the prize.

Finally, all players were asked to fill in a final questionnaire in which they had to detail the strategies adopted when making their decisions (either related to the size of the transfer – players A and B – or to whom to award the prize to – players C). In the end, players A and B received a piece of paper on which they were informed about the decision of player C and their final payoff.

The payment procedure implied that only one of the nine players within each session would receive her final payoff in cash. The selection of this participant was done by randomly and publicly extracting a number from a bowl containing all of the players' ID numbers. The selected participant would then extract again the ID of the player that would receive his/her payoff in cash. The final payoffs ranged from €5 to €10.

Hypotheses

For an easy way to follow description of the hypotheses, the following terms are defined:

– *Tr_Low_ WithInfo* = the size of the transfers coming from low performers in the 'With info' treatment;
– *Tr_Low_ NoInfo* = the size of the transfers coming from low performers in the 'No info' treatment;
– *Tr_High_ WithInfo* = the size of the transfers coming from high performers in the 'With info' treatment;
– *Tr_High_ NoInfo* = the size of the transfers coming from high performers in the 'No info' treatment;

***H1$_0$*:** *Tr_Low_ WithInfo = Tr_Low_ NoInfo.*

***H1$_1$*:** *Tr_Low_ WithInfo > Tr_Low_ NoInfo.*

The alternative hypothesis H1$_1$ is supported by the theoretical analysis which predicts that becoming aware of having a low performance level leads to experiencing two types of feelings of disappointment. The first one is related to the fact that realizing that one is a low performer conflicts with an individual's image of self. Next, the expectation of an additional disappointment arises: the one concerning the fact that he/she will lose the competition. The first-order disappointment triggers the second-order one, which leads to the necessity to take action in order to prevent the occurrence of that second-order disappointment. In such a situation, bribing is the most efficient solution to reach this goal. In other words, in order to compensate for their lack of skill low performers have a tendency to bribe more. This would result in an increased chance to win the prize and therefore be a useful strategy in order to overcome second-order disappointment – the one of losing the game – and avoid another negative emotion. Each of these factors lead to an increased degree of rationalization of the dishonest behaviour when considering the role of a low performer.

$H2_0$: *Tr_High_WithInfo = Tr_High_NoInfo.*

$H2_1$: *Tr_High_WithInfo < Tr_High_NoInfo.*

The second alternative hypothesis ($H2_1$) is supported by two arguments. First, being a high performer increases the chances that the player will win without having to offer a bribe. Therefore, the need to transfer a positive amount of points to player C decreases. However, the insight related to this increased probability of winning is dependent on a player's beliefs regarding player C's honesty level. These beliefs are, on their turn, influenced by individual factors like culture or previous experience with bribery. Due to random assignment, one can assume that these individual factors are controlled for in the lab and do not affect the average end results. Second, being a high performer strengthens a player's confidence that he/she is entitled to win. In this case, transferring an amount of points in order to win contradicts the conviction of having the right to obtain the prize.

Does it pay off to offer a bribe?

The simple design of the experiment allows one to answer multiple questions, which are useful for the better understanding of bribery and to judge whether the research question posed in this thesis is worth asking. The statistical analysis will be conducted using non-parametric tests, and mainly the Mann-Whitney test. The choice of this statistical tool was motivated by the difficulty of testing whether the sample population follows a normal distribution. Even though parametric tests have more statistical power than non-parametric ones, in the case of the present study, a non-parametric approach was chosen as it is more robust against violations of the assumptions that these different statistical analysis tools are based on. Next, the main findings of the study are presented.

Do subjects offer a positive transfer?

The distribution of transfers across treatments is illustrated in Figure 2. It can be observed that the two most popular choices were **50** (33% frequency), and **0** (21% frequency).

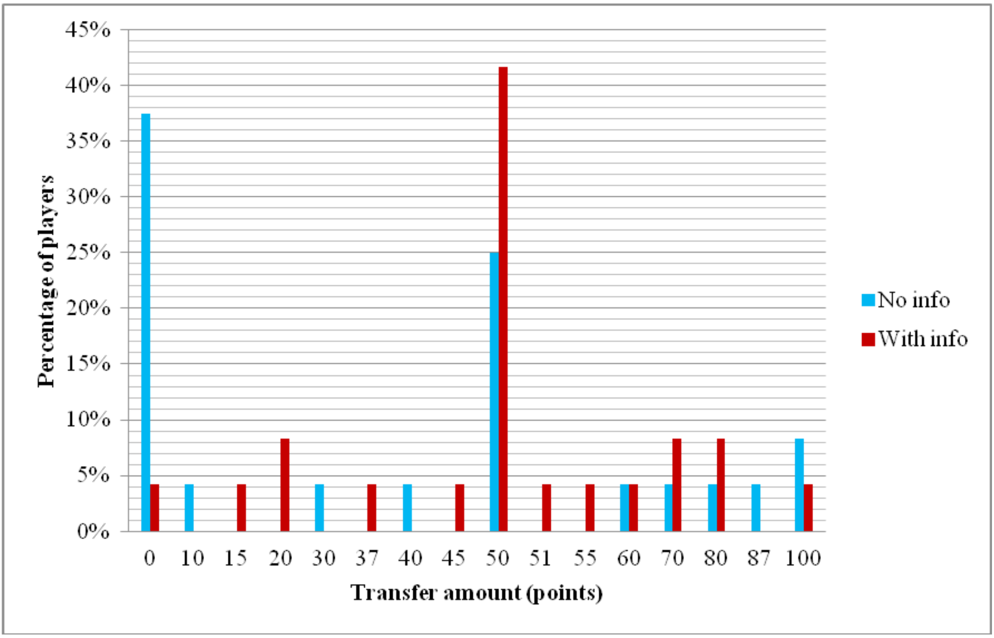


Figure 2: Distribution of transfers across treatments

From all players A and B that participated in both treatments 79% (48 subjects) chose a positive transfer to offer players C. The rest of 21% of players A and B (10 subjects – 9 being in the 'No info' treatment and only 1 in the 'With info' treatment) – chose not to give any points to player C (transfer = **0** points). Therefore, it can be concluded that the majority of players offer a positive transfer.

The average transfer in the 'No info' treatment was 36.54 while in the 'With info' treatment it was 50.125. The difference between the two results is not significant when using a Mann-Whitney test (p=0.1039). However, it becomes significant when computing a Paired t-test, using a 10% level of significance (p= 0.0766). This suggests that more data could smooth the variance in the results, and therefore increase the significance of the difference between the 2 average transfers.

Is there a real difference in performance between subjects?

As the research is geared towards better understanding the effect of performance on a subject's bribery behaviour, it is important to check whether after playing the game, the difference in performance was significant enough so as to conclude that there is a clear profile difference between players. The distribution of answers between high performers and low performers is illustrated in Figure 3. The straight purple line goes through the 163 point on the vertical axis. This value represents the correct answer for the real effort task.

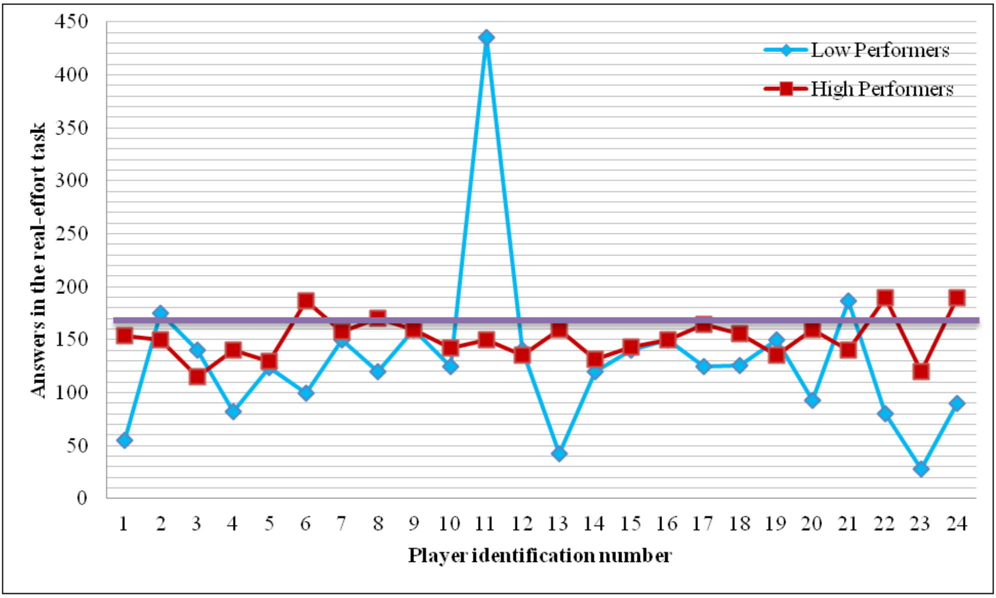


Figure 3: Distribution of answers according to performance (Low vs. High)

As seen in Figure 3, the distances from the correct answer in the participants' responses are much larger for low performers than for high performers. From a statistical point of view, there is a significant difference (5% significance level) between the performance of the players that have been categorized as low performers and the ones that have been categorized as high performers ($p= 0.0045$, Mann-Whitney test).

Also, the average answer in the real effort task was not significantly different between treatments (130.75 – 'No info' – vs. 151.29 – 'With info' – $p= 0.6127$, Mann-Whitney test). This means that the performance of subjects across treatments is comparable, and that there was no selection bias regarding the possible allocation of more capable subjects in one of the treatments.

Do low performers transfer higher amounts of points?

Considering that there is a real performance difference between subjects, it is justified to proceed with the analysis of the main research question of this paper. The graph below (Figure 4) illustrates the difference in the average transfer between the two treatments.

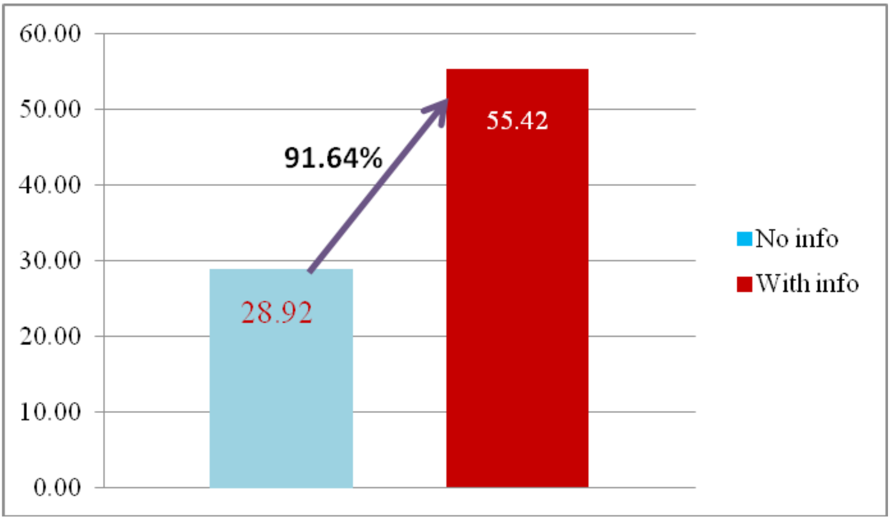


Figure 4: Average transfer of low performers between treatments

As seen in Figure 4 the average transfer in the 'With info' treatment is 91.64% higher than the average transfer in the 'No info' treatment (55.42 vs. 28.92). This increase is significant at a 5% significance level (p= **0.0436**, Mann-Whitney test). Therefore, the results of the experiment support the rejection of $H1_0$ in favor of $H1_1$. In other words, the availability of information concerning players' performance, which allows them to evaluate their own performance, leads low performers to increase the level of their transfers. Also, it must be noted that in the 'With info' treatment, not only the average transfer amount increased, but also the frequency of a null transfer decreased with 89% (9 – 'No info' – vs. 1 – 'With info'). This frequency change is significant after running a Chi-square goodness-of-fit test (p=**0.0006**).

Do high performers transfer lower amounts of points?

Where high performers' transfers are concerned, there is an observed 1.51% increase in the average transfer from the 'No info' treatment to the 'With info' treatment. This change, however, is not significant (p= **0.9521**, Mann-Whitney test). Hence, $H2_0$ cannot be rejected after analyzing the results, meaning that the average transfer of high performers is equal between treatments.

Is a higher transfer more efficient than a higher performance?

In order to answer this question, we first have to verify whether having a higher transfer increases a player's chance to win the prize. The results show that in 72.7% of the cases the higher transfer wins. This number is significantly higher than chance (p=**0.0029**, Mann-Whitney test). Next, the chance of winning when having the better performance must be analyzed. In this regard, the higher performance wins 73.9% of the time, which is also significantly higher than chance (p= **0.0013**, Mann-Whitney test).

After comparing the number of players with the higher transfer that were declared winners with the number of players with the higher performance that were declared winners the results show that there is no statistical difference between the probability of winning when having the higher transfer and the one of winning when having the higher performance (p=**1.0000**, Mann-Whitney test). Therefore, having a higher transfer is equally efficient in enabling a player to win as having a high performance. This result holds also when looking at how often low performers with high transfers win, compared to high performers with low transfers. In this view, there is no statistical difference between the chance of winning of these two typologies of players, each winning in 50% of the cases (p=1.0000, Mann-Whitney test).

However, after running a linear regression, in which the result of the competition (win/lose) is regressed on the performance ranking of the player and on his chosen transfer value, the results show that only the performance ranking is significantly influencing the result at a 10% level of significance (p = 0.067). The value of the transfer does not have a significant effect on the result of the competition (p = 0.440).

Do players C let their evaluation be influenced by the received transfers?

The results show that only in 8.3% of the cases (2/24 players C) player C's subjective evaluation of the performance of players A and B was contradictory to the objective evaluation based on the correct answer to the task. This frequency is not statistically significant (p= 0.6831 Chi-square goodness-of-fit test).

Do players C reject both bribes?

In line with the standard economic expectations, there is no statistically significant percentage of players C who rejected both bribes (p = .8383, Chi-square test). More exactly, only 1 out of the 24 participants with the role of player C rejected both bribes.

Does it pay off to offer a bribe?

This inquiry implies analyzing first, whether the final payoff of the players that offered a bribe is higher than for those that chose not to transfer any points. Consequently, the average payoff for high performers offering a positive transfer was 135.1 points, while for high performers that chose a null transfer was 166.67. This difference is not statistically significant (p= 0.2244, Mann-Whitney test). When looking at how efficient bribes were for low performers, the results show again no statistically significant difference between the two average payoffs: 112.53 vs. 100 (p= 0.1456, Mann-Whitney test).

Second, I analysed whether offering a higher transfer pays off for either type of player (high or low performer). As it turns out, in this case there is no significant difference between the average payoff for those that offered a high transfer and those offering a low transfer. High performers with high transfers earned on average 142.92 points which is not significantly different than the 141.17 points average payoff earned by those with low transfers (p= 0.9556, Mann-Whitney test). Furthermore, low performers with high transfers earned on average 111.92 points, which is, again not significantly different than 105.39 points representing the average payoff for low performers with low transfers (p= 0.1611, Mann-Whitney test).

Discussion

In this part, possible controversial aspects related to the necessity, applicability and the design of the game are discussed.

Is a transfer of points perceived as a bribe?

The first aspect that needs to be addressed is whether participants perceived the transfers they were making as bribes even though the game did not imply that there would be any negative consequences for making a transfer. This suggests that it could not be considered as being an 'illegal' action. However, in order for a transfer to be perceived as a dishonest action, it should be clear for players that it is intended to influence player C's decision through redirecting his/her focus from the effort task results. In this regard, the answers from the questionnaires were revealing. By analyzing the descriptions of the strategies chosen by players A and B it can be safely assumed that the transfer option was interpreted as intended – as a means to influence player C's decision. 29 players (60%) [4] clearly described their strategies as having this purpose. Examples of such strategy descriptions are the following: 'Just like a bribe,' 'The other player guessed better than me, so my only strategy in order to win would be to bribe player C with more money than player B'.

Why would a player choose a transfer value equal to 50?

As the results show, 50 was the most popular choice for a transfer – 16 participants (33%) chose this value. The choice of this amount has two explanations. The first one is related to fairness or inequality aversion, as choosing to transfer 50 points would lead to equality in the final payoffs of player C and player A/B, in case the latter (that chose the 50 points transfer) won. The existence of such a strategy among the subjects of this study is proved by analyzing the answers to the questionnaire. Eight players' answers reveal the use of a strategy based on fairness. A few examples are the following responses: 'thought half = fair,' 'I just considered it fairly to give the half.'

The second explanation takes into account the endowment effect. This concept states that individuals value goods that they own more than they value identical goods that are not in their possession (their willingness to pay – WTP [5] – is lower than their willingness to accept – WTA [6]). Daniel Kahneman and Amos Tversky talk about the endowment effect in their concept of Prospect Theory as 'the most robust manifestation of loss aversion' (Knetsch, Tang & Thaler, 2001). It is sensible to talk about this effect in the present study due to the design of the game implemented. As players A and B knew that player C can only keep the winning transfer, and that they would receive their transfers back if they lost, the observed transfer values can be interpreted as individual valuations of the prize. More exactly, assuming that they would win, the offered transfers represent how much the players valued the 100 points prize.

In the case of the present study, one can assume that without any information regarding the other player's answer, the expected value of the prize is 50 points (= 50% chance of winning x 100 points). Therefore, based on players' WTP, there are two effects that can appear:

1. <u>Endowment effect</u>: if the transfer is lower than 50, meaning that they value their initial endowment more than they value the prize.
2. <u>Reverse endowment effect</u>: if the transfer is equal to or higher than 50. Under the influence of this effect, 2 categories of players emerge:
    a) *Neutral players* – those that offer 50 points, meaning that their valuation of the prize is equal to the valuation of their initial endowment.
    b) *Players with high willingness to pay* – those that offer more than 50 points, meaning that they value the prize more than their initial endowment.

Taking into account this categorization, one can assume that the other eight subjects that offered a transfer equal to 50 were influenced by a reverse endowment effect. From this perspective, their choice was due to a neutral attitude towards the value of the prize.

Why would a subject choose a transfer value equal to 0?

Considering the very low probability of being caught in the act of bribing or accepting a bribe the question is not why people engage in such actions, but rather why doesn't everyone do it? In the experiment presented, there was no probability of being caught, no cost for offering a bribe, and the certainty that players will receive their transfers back in case they were not winners. Still, there were subjects (10/48 – 6 in the 'No info' treatment and 4 in the 'With info' treatment) that did not choose a positive transfer amount.

Observing null transfers proves that subjects understood the game – that player C can choose whether to base her decision on the real-effort task performance or on the amount of points transferred. In other words, it was clear that they weren't obliged to transfer a positive amount in order to win.

Nevertheless, from an economic point of view, choosing a null transfer is an expression of an intriguing behaviour. There can be several reasons why these players did not choose a positive transfer, some of them having been already mentioned in the explanation of the hypotheses. It could be the case that they were very confident that their performance would ensure them the win. One example to support this statement is a player's strategy description: 'I chose to send nothing because I was really close to the guessed amount of squares'. In such a situation, the transfer could be perceived as an insult to a player's skill. Secondly, individuals might be risk averse, and would prefer to keep the full initial endowment rather than risk a part of it in order to gain the prize. Risk aversion is obvious in one player's answer from the final questionnaire: 'I did not want to take a risk, so I chose not to transfer any amount to player C.'

How is the design of the bribery game relevant for reality?

In the experimental laboratory, the possibility of bribing is part of the game – it is something accepted and formally provided by the 'system' (through the instructions). This raises the question of whether the individuals participating in such experiments would actually use bribery in the real world where this is not an alternative included in the rules of the system. Because it is an action outside of these rules (outside the legal system), in reality, bribery is driven by a much more powerful intrinsic need within individuals to pursue their interests through dishonest means. It is therefore uncertain whether any kind of bribery experiment would manage to provide results that are externally valid considering this aspect of the real-life environment in which bribery takes place.

Nevertheless, there is still a case to be made for such economic experiments. In this regard, one must consider that even if it is not provided formally by the system, bribery is systemic – that it is not part of how a system works. This is indeed what bribery has become – an institution (Teorell 2007). From this point of view, it can be argued that experiments that investigate this phenomenon through incorporating the 'transfer' option in the game are valid. However, it is important to keep in mind that the rules of the 'bribery game', are in reality unwritten rules. It is also very common for these to have become norms deeply engrained in a community. This is where the research related to the correlation between bribery/corruption and social norms intervenes. There are, however, great limitations in this area for lab experiments as due to the negative social aspect of bribery, individuals are biased to react dishonestly to the incentives created in the controlled research environment. A field experiment would probably be much more reliable in this sense. However, the noise involved in such a study and the related costs decrease its appeal.

Conclusion

This study analyses the influence of individuals' performance on their propensity to offer. This is done through an experiment which manipulates the information available to players regarding their competitors' performance level, allowing them to evaluate their own performance and thus realize if they are on the high or on the low ranking. The main finding of this study shows that when subjects acknowledge that they are low performers the average bribe level increases significantly. Furthermore, the number of players choosing not to engage in a dishonest transaction increases significantly. This means that, as hypothesized, individuals' propensities to offer points in order to influence their probability of winning increase when they become aware of being low performers. This can be considered a rational response to the newly available information (that of being a low performer). In this sense, the results show that a player's performance ranking is slightly more powerful in deciding whether he/she will become the winner. With this in mind, since low performers can no longer increase their ranking, the only option available to improve their chance of winning is through raising their transfer level.

This can also be explained by the fact that for these individuals, the value of winning is higher than the moral costs of offering a bribe. Therefore, when the chance of winning decreases due to a lower competitive advantage, subjects develop a need to compensate for their weaknesses. In this situation, the willingness to offer a bribe and the level of this bribe increase. This finding is helpful in narrowing the spectrum of search for individuals involved in this illegal activity. Additionally, it provides support for policies regarding the possibility of redirecting the efforts needed for bribery deterrence towards individuals that are suspected to be unworthy of the rewards they receive.

Thus, the finding of this thesis contributes to a better characterization of the profile of a briber, suggesting that there is a negative relation between a low performer's skill and his/her propensity to offer a bribe. However, it must be noted that the high performers' bribing level did not decrease. Therefore, under this study's conditions, performance does not influence high performers' bribing behaviour. This could be due to several reasons: the type of the real-effort task, the size of the difference between the high and the low performers' results or simply because high performers in general have a lower but positive disposition for bribing that is invariable with respect to the variability of their performance. Further research on this topic is most surely needed to clarify the suggested inferences.

In this sense, one first direction for future studies would be related to how the performance in different types of real effort tasks influences subjects' propensity to bribe. The task used in this study required mechanical skills. Further on, it would be interesting to study tasks involving more creative and cognitive skills. It could be the case that when subjects are required to employ more creative skills, they would value the exerted effort more and so they would expect that the decision of the authority be made on the basis of the test results and not taking into account the side payments. Another possibility would be to observe how the bribing level changes when the authorities are given the possibility to ask for bribes. This would enable one to analyze whether citizens are responsive to the requested amount, or whether they are insulted by the request and therefore their willingness to offer a bribe would decreases. This suggestion leads one to think about how the expectations related to the possible amounts that can be received or requested influence an individual's propensity to accept or offer a bribe. Since these expectations are influenced by the social attitudes towards bribery, this last idea could be combined with studies looking at how the cultural environment shaping the social attitude towards bribery influences the level of bribing in a community, through influencing the expectations regarding the level of bribes that could be requested or offered.

Additionally, this thesis strengthens the case for focusing on policies that exploit human emotions (such as those elicited when losing) rather than policies involving increasing penalties or improving monitoring (so as to increase detection probabilities). It is important to see what kind of emotions are elicited when a person is losing, and afterwards implement measures aimed at reducing the effect of these negative emotions that increase individuals' propensity to offer bribes. This suggests that intrinsic motivations rather than extrinsic ones should be employed in the fight against the spread of bribery. In this sense, measures could be taken so that the educational system would train its citizens for a better understanding of the world and for developing as individuals rather than with the sole objective of winning competitions. Trying to infuse a more cooperative rather than individualistic spirit could also be useful in decreasing the effect of the negative feelings experienced when losing in a competition.

Acknowledgements

I want to thank Professor Theo Offerman whose advice contributed greatly to the end quality of the paper and to Professor Arthur Schram for his helpful comments. I also acknowledge the fruitful discussions with Orestis Kopsacheilis, his relevant suggestions for improving the paper and his help in organizing the experiment. Last but not least, I want to mention all my other colleagues from the University of Amsterdam who contributed to this research project.

Endnotes

[1] Definition provided by Transparency International. Retrieved from: http://www.transparency.org/whoweare/organisation/faqs_on_corruption#defineCorruption

[2] According to the United Nations' Anti-Corruption Toolkit, Vienna, September 2004.

[3] Definition provided by Black's Law Dictionary.
Retrieved from: http://thelawdictionary.org/bribery-2/

[4] 5 subjects out of the remaining 19 did not describe their strategies, while the strategies of the rest are included in 3 other categories: strategies based on fairness, based on confidence that their performance will enable them to win, and strategies influenced by the endowment effect.

[5] WTP = maximum amount a person is willing to pay in order to obtain the good that is not in her possession.

[6] WTA = minimum amount a person is willing to accept in order to give up the good that she owns.

References

Abbink, Klaus, Irlenbusch, Bernd and Renner, Elke (2002), 'An experimental bribery game', *Journal of Law, Economics, and Organization* 18(2), 428-454.

Abbink, Klaus (2004), 'Staff rotation as an anti-corruption policy: an experimental study', *European Journal of Political Economy* 20(4), 887-906.

Dušek, Libor, Ortman, Andreas & Lízal, Lubomír (2005), *Understanding Corruption and Corruptibility through Experiments*, Prague Economic Papers, University of Economics, Prague, vol. 2005(2), 147-162.

Gneezy, Uri, Saccardo, Silvia and Van Veldhuizen, Roel (2013), *Bribery: Greed versus reciprocity*, Work in progress.

Howse, Robert and Daniels, Ronald J. (1995), 'Rewarding whistleblowers: the costs and benefits of an incentive-based compliance strategy', in Ronald J. Daniels and Randall Morck (eds.), *Corporate Decision-Making in Canada*, Calgary: University of Calgary Press, 525-549.

Kahneman, Daniel and Tversky, Amos (1979), 'Prospect theory: an analysis of decision under risk', *Econometrica* 47, Issue 2, 263-292.

Knetsch, Jack L., Tang, Fang-Fang and Thaler, Richard H. (2001), 'The endowment effect and repeated market trials: is the Vickrey auction market revealing?', *Experimental Economics* 4, 257-269.

Serra, Danila and Wantchekon, Leonard (2012), 'Experimental research on corruption: introduction and overview', in Danila Serra, Leonard Wantchekon (eds.), *New Advances in Experimental Research on Corruption*, Research in Experimental Economics, Volume 15, Emerald Group Publishing Limited, 1-11.

Schikora, Jan (2011), *Four Essays on Corruption and Cooperation: Theory and Evidence*, Unpublished doctoral thesis, Ludwig-Maximilians-Universität München: Germany.

Simon, Herbert A. (1955), A Behavioural Model of Rational Choice, *The Quarterly Journal of Economics*, Vol. 69, No. 1, 99-118.

Sutherland, Edwin H. (1949), *White Collar Crime*, New York: Holt, Rinehart & Winston.

Teorell, Jan (2007), 'Corruption as an institution: rethinking the nature and origins of the grabbing hand', QoG Working Paper 5, The Quality of Government Institute, University of Gothenburg.

Treisman, Daniel (2001), 'The causes of corruption: a cross-national study', *Journal of Public Economics* 76, No. 3, 399-457.

United Nations Office on Drugs and Crimes (2004), *The Global Programme Against Corruption. UN Anti-Corruption Toolkit*.

Uslaner, Eric M. (2011), *Corruption and Inequality*, CESifo DICE Report.

Valeria Burdea is a PhD candidate at Universitat Autonoma de Barcelona (International Doctorate in Economic Analysis) and holds a Master's Degree in Economics from University of Amsterdam (valeria.burdea@uab.cat).

Appendix

<u>General Instructions – common for both treatments</u>

Welcome to this experiment. During the next 15 minutes you are asked to make decisions that will enable you to earn real monetary rewards. **Throughout the whole experiment you are kindly asked to remain seated and refrain from any kind of interaction with the other participants.**

All the participants in this experiment have been randomly assigned to one of the following player identities: A, B or C, and to one individual ID number. You will find this information on a piece of paper on the table in front of you. Throughout this experiment, players will interact within groups made up of 3 members each, consisting of: a player A, a player B and a player C (players A and B are in one room, while players C, are in the next room). This experiment consists of 2 parts. The composition of these groups will remain the same throughout both parts of the game. Keep in mind that **all your answers are anonymous**, so your identity will be kept secret throughout the whole experiment.All members are initially endowed with **100 points. 20 points correspond to 1€ (euro).**

In this experiment players A and B will have to solve a task in order to be able to win a prize. Winning leads to a **payoff of an extra 100 points reward** on top of the initial endowment. **The winner will be decided by player C.**

THE GAME:

In Part 1, **players A and B** solve a task and write their answers on a decision form. During this part, players C are not asked to take any action.

Detailed instructions for Part 2 will be handed in at the end of Part 1.

Based on the answers in Part 1, the **winner of the game is decided by player C** in Part 2 of the experiment. The one that becomes the winner is awarded the **100 additional points**.

During Part 2, players A and B are not asked to take any action.

QUESTIONNAIRE:

While the final payoffs are decided, you will be handed in a questionnaire to fill in.

PAYMENT:

At the end of the experiment, **1 player out of 9 will be randomly chosen** to receive her/his final payoff. This is going to be decided by asking one random subject to extract a card from a bowl containing all players' ID numbers.

The payment will be done in private through handing in an envelope with the corresponding payoff.

If there are any questions please raise your hand and an experimenter will come to answer your questions in private.

Instructions for Part 1 for players A and B – common for both treatments:

PART 1:

In this part of the experiment you will receive a task that you are asked to solve in order to be able to win **100** points on top of your initial endowment. After this, you will receive further instructions for the next step of this part. The winner of the game is decided by player C, taking into account your answers in this part. Please write your player ID at the top of each of the following sheets of paper that you will receive. Keep in mind that all your answers are anonymous, so your identity will be kept secret throughout the whole experiment.

If there are any questions please raise your hand. An experimenter will come to answer your questions in private. Please remain seated and refrain from any kind of interaction with the other participants.

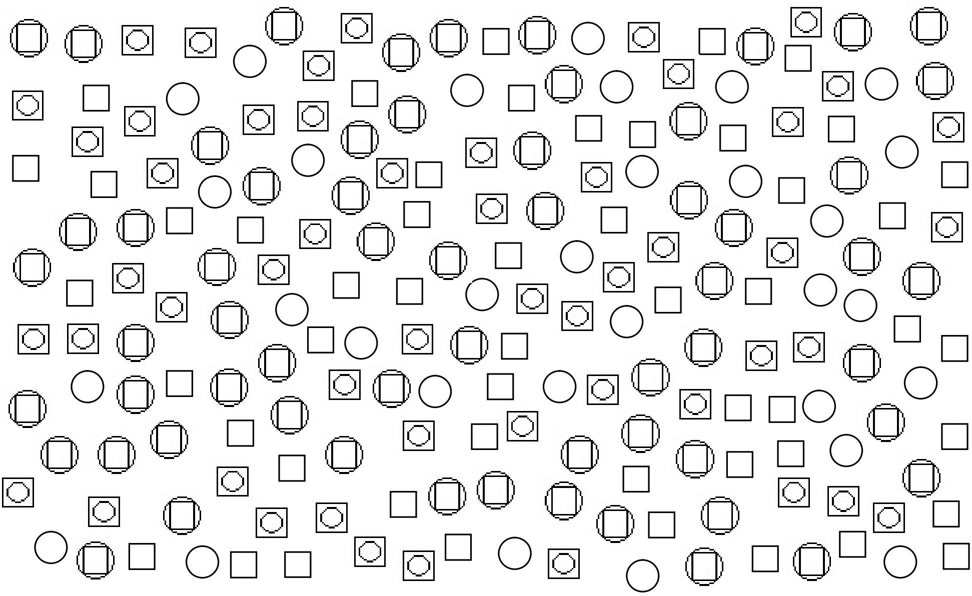
<u>Task Sheet for players A and B – common for both treatments:</u>

Task Sheet

Player ID:

TASK:

How many squares are there in the image below? You have **1 minute** to count them. The scope of the task is to be as close to the right answer as possible.



Answer:....................................

After the 1 minute allocated for solving the task, an experimenter will collect the task sheets and you will be handed in instructions for the next step of this part. Please remain seated and refrain from any interaction with the other participants.

<u>Decision form for Part 1 for players A and B – 'No info' treatment:</u>

Player ID:

Please write your player ID at the top of this page.

In the previous image there were 163 squares.

Your answer was................

Before the winner is decided, you (player A/B) as well as your competitor (player B/A), can transfer an amount of points to player C (**up to 100 points**). This will be deducted from your initial endowment. Please note that player C can keep only the transfer coming from the winning player, or s/he can reject both transfers. In case a transfer is rejected this amount will be returned to the respective offering player (A/B). Keep in mind that your decisions are completely anonymous.

Would you like to transfer an amount to player C?

- ○ Yes
- ○ No

If yes, please specify the amount:................................

After this stage, an experimenter will collect the decision sheets and will inform player C about your decisions. During Part 2 in which player C will decide the winner, you are asked to remain seated and refrain from any interaction with the other participants.

Decision form for Part 1 for players A and B – 'With info' treatment:

Player ID:

Please write your player ID at the top of this page.

In the previous image there were 163 squares.

Your answer was………

Your competitor's answer was:……………..

Note: the player A/B you are paired with is also informed of your answer, but not of your identity.

Before the winner is decided, you (player A/B) as well as your competitor (player B/A), can transfer an amount of points to player C (**up to 100 points**). This will be deducted from your initial endowment. Please note that player C can keep only the transfer coming from the winning player, and can reject both of the transfers. In case a transfer is rejected this amount will be returned to the offering player (A/B). Please note that your decisions are completely anonymous.

Would you like to transfer an amount to player C?

- o Yes
- o No

If yes, please specify the amount:…………………………..

After this stage, an experimenter will collect the forms and will inform player C about your decisions. During Part 2 in which player C will decide the winner, you are asked to remain seated and refrain from any interaction with the other participants.

Decision form for players C – common for both treatments:

Player ID:

Please write your player ID at the top of this page.

Part 2:

In this part, you are informed about the answers of players A and B in Part 1 and have to decide the winner of the 100 points prize. The decision should be taken based on who is closer to the right answer.

Player A's answer was:............

Player B's answer was:............

After solving the task, each player had the possibility of transferring an amount of points to your account.

Please note that in case a positive transfer has been made from either of players A and/or B, you can keep or reject one or both transfers. Also, all your answers are anonymous, so your real identity will be kept secret throughout the whole experiment. Note: you can only keep the transfer coming from the player that you decide to be the winner. The offers that you turn down will be returned to the offering player (A/B).

Player A's transfer was:..............

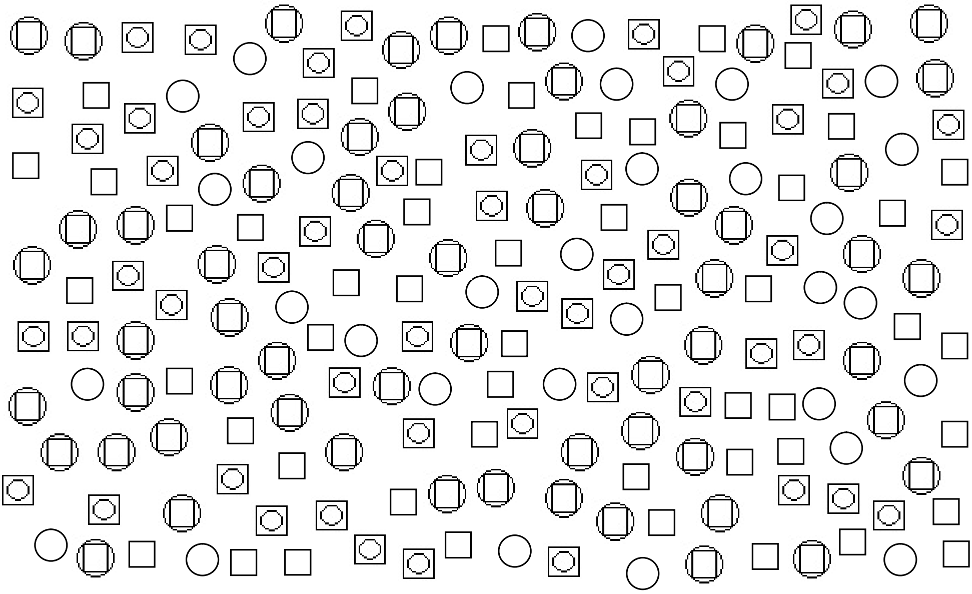
Player B's transfer was:...............

On the next page, you will find the task that the 2 players had to solve. You are asked to solve this task yourself. After solving the task you are asked to fill in the decision form where you will indicate the winner.

If there are any questions please raise your hand. An experimenter will come to answer your question in private.

Task that Players A and B had to solve:

Count the squares in the image below in **1 minute**. The scope of the task is to be as close to the right answer as possible.



Please solve the task above. **NOTE: You are not restricted by time in this part.**

Your answer:...................................

Please indicate if and which transfer(s) you wish to keep or reject, by underlining one of the options below. **Keep in mind that you can only keep the transfer coming from the player that you decide to be the winner.**

Player A's transfer (if applicable):

- Keep
- Reject

Player B's transfer (if applicable):

- Keep
- Reject

Next, please indicate which player you decide to be the winner by underlining one of the options below:

- Player A
- Player B

After this, an experimenter will collect the decision forms and we will proceed to the payout part and the questionnaire.

Please remain seated and refrain from any kind of interaction with the other participants.

<u>Questionnaire for players A and B:</u>

Player ID:

Please write your player ID at the top of this page.

Questionnaire:

1. What is your gender?
   - Male
   - Female
2. What is your age?.............
3. What are you studying?..
4. What is your nationality?..
5. Please describe your strategy when choosing the amount you transferred to player C?

....

....

....

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

<u>Questionnaire for players C:</u>

Player ID:

Please write your player ID at the top of this page.

Questionnaire:

6. What is your gender?
   - ○ Male
   - ○ Female
7. What is your age?…………
8. What are you studying?……………………………………………………………………
9. What is your nationality?…………………………………………………………………
10. Please describe your strategy when deciding the winning player between A and B?

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………