An experiment on corruption and gender

María Fernanda Rivas

An experiment on corruption and gender

María Fernanda Rivas*

September 2006

Abstract

There exists evidence in the social science literature that women may be more relationship-oriented, may have higher standards of ethical behavior and may be more concerned with the common good than men are. This would imply that women are more willing to sacrifice private profit for the public good, and this would be especially important for political life. Many papers with field data have found differences in the corrupt activities of males and females, but given their different insertion in the labor market and in politics, it is not clear if the differences are due to differences in opportunities or real gender differences. The aim of this paper is to see if women and men, facing the same situation behave in a different way, as suggested in the field-data studies, or on the contrary, when women are in the same position as men they behave in the same way. The results found in the experiment show that women are indeed less corrupt than men. This suggests that increasing women's participation in the labor force and politics would help to reduce corruption.

Keywords: corruption, gender, experiment

JEL classification: C91, D73, J16

---
*International Doctorate in Economic Analysis, Universitat Autònoma de Barcelona, Spain, and Department of Economics, Universidad de la República, Uruguay.

1 Introduction

A large stream of research papers has documented systematic gender differences in behavior. This evidence suggests that women may be more relationship-oriented, may have higher standards of ethical behavior and may be more concerned with the common good than men are[1]. This would imply that women are more willing to sacrifice private profit for the public good, and this would be especially important for political life.

Most criminologists agree that men are more likely to commit offenses than females (Gottfredson and Hirschi, 1990). They argue that the gender differences do not vary over time and countries, they start at low ages and are maintained through the years, and the same patterns are observed in different countries. Moreover, crimes committed by men are more serious than those committed by women.

Moreover, there are papers with field data that have found that women are less tolerant toward dishonest behavior and that there exists a negative relation between women's participation in politics and corruption. It can be argued that the observed difference in behavior between women and men in the field may be due to other reasons than real gender differences in corrupt behavior, possible interference that can be controlled in a laboratory experiment. One possible explanation for the observed difference, refers to the different degree of risk aversion of males and females, which was observed in many experiments[2]. It could be an important reason given that corrupt behavior implies (almost) always a probability of being discovered and thus punished. In the real world this probability is small but generally the punishment is severe. As will be explained below, in my experiment I will control for risk aversion, trying to isolate the results from its influence.

An alternative explanation for the observed difference is that women have entered the labor market and politics much more recently than men, so that the gender differences may be due to differences in access to networks of corruption, or in knowledge of how to get involved in corrupt activities. Thus, it may just be a matter of time until women get involved in corrupt activities[3]. In my experiment there is no previous history, given that subjects do not have experience in this kind of game, neither women nor men. Therefore this effect can be eliminated as an explanation of any difference observed in the experiment. A third explanation for possible gender differences is that the higher participation of women in politics is determined by the presence of a liberal democracy that promotes both gender equality and good governance. In the experiment, this is ruled out given that it is going to be compared women's and men's behavior both in the same situation, where they can freely choose what to do.

The aim of this paper is to see if women and men, facing the same situation behave in a different way,

---

[1] See subsection 1.2.

[2] Croson and Gneezy (2004) review literature from psychology, sociology and economics, that indicate that women are more risk averse than men. See subsection 1.2.

[3] Although this hypothesis is not supported by Torgler and Valev (2006), as is explained in subsection 1.1.

as suggested in the empirical papers or, on the contrary, when women are in the same position as men they behave in the same way. As explained in the Handbook on Fighting Corruption, "In broad terms, corruption is the abuse of public office for private gain". In the context of this paper corrupt behavior will refer to the manipulation of public officers' decisions in exchange for bribes. The design of the experiment tries to capture the characteristics of corrupt behavior: the reciprocity between the briber and the official, the negative externality over the public, and the probability of being discovered. The results found in the experiment suggest that women are less corrupt than men, in line with the findings in the field-data papers.

The paper is organized as follows, in the next subsection three field-data papers dealing with gender and corruption are reviewed. Subsections 1.2 and 1.3 give an overview of some papers on experiments on gender differences and corruption, respectively. Section 2 explains the experiment design, section 3 presents the results, and finally section 4 finishes with some conclusions.

1.1 Literature on corruption and gender with field data

In this subsection well known field-data papers dealing with the relation between women and corruption are reviewed. Dollar et al (1999), Swamy et al. (2001), and Torgler and Valev (2006) conclude that men are more involved in corrupt activities than women.

Some data sources are self-reported and others are corruption indexes. These papers study two main topics, one is the acceptability of corrupt behavior by men and women, and the other is the relation between women's participation in politics and a corruption index, on a country level.

Dollar et al. (1999) analyze data for more than 100 countries, and find a strong negative and statistically significant relation between the level of female participation in politics -measured by the percentage of seats occupied by women in the lower and upper chambers- and a corruption index. They use the International Country Risk Guide's corruption index[4]. When estimating the relation, they control for variables such as GDP, a civil liberties index, population, average years of schooling, openness to trade, regional dummies, etc. They conclude that encouraging women to have a higher political participation may be for the benefit of the whole society.

Swamy et al. (2001) study the hypothesis that female participation in government would reduce corruption, using three different data sources. The first one is the World Value Surveys (WVS), which consists of questions regarding attitudes in hypothetical situations in which there is room for dishonest behavior. Their main interest is in the reaction to the situation where "someone is accepting a bribe in the course of their duties", the subjects can say that it can "never be justified" up to "always be justified", on a 1 to 10 scale. Aggregating over all countries, they find that there exist gender differences consisting in women being less

---

[4] They state that the ICRG's corruption index is "meant to capture the likelihood that high government officials will demand special payments, and the extend to which illegal payments are expected throughout low levels of government".

tolerant toward dishonest or illegal activities than men. Moreover, they find the same difference in almost all countries, although the estimated effects vary. When estimating, they control for marital status, age, religion, and education, variables that are thought to influence someone's acceptability of corruption.

The second data set they used, is a survey of enterprise owners and managers in Georgia[5]. These people were asked: "How frequently do the officials providing the service require unofficial payments?". The possible answers are from "Never" to "Always", on a 1 to 7 scale. They control for firm characteristics such as size, scale of operations, sector, etc. The evidence they find suggests a gender differential in involvement in corruption, where men are found to be more involved.

These sources of information are both self-reported. The third data set they use is also subjective but not self-reported, it is a cross-country data set[6]. With it, they find that corruption is less prevalent where women have more weight in politics and in the labor force. The participation of women is measured in different ways, arriving to very similar results. They measure it by the percentage of female legislators, the percentage of female ministers and high level government bureaucrats, and finally by the share of women in the labor force. In the estimation, they control for the per capita income, the average education of adults, the percentage of Catholics and Muslims, a political freedom index, etc.

In a recent paper, Torgler and Valev (2006) investigate empirically if women are more willing to be compliant than men, and if there exist differences in behavior over time due to a cohort effect (differences in attitudes among similar age groups in different time periods) or an age effect (changing attitudes of the same cohorts over time). Using the WVS and the European Values Survey that span the period from 1981 to 1999, they find a strong gender effect, women are more willing to comply than men, they are less likely to agree that corruption and cheating on taxes can be justified. Moreover, there is no decay over time in this gender difference. This finding contradicts the role theory that suggests that more equality of status between men and women would lead to decreasing gender differences over time[7]. They find an age effect but not a cohort effect, also contradicting the role theory[8]. They control for different variables like education, marital status, the economic situation of the subjects, occupational status, individuals' trust in the legal system and in the parliament, etc.

---

[5] The ex soviet country.

[6] They use the Transparency International Corruption Perception Index. It is based on different information sources such as investor surveys and assessments of country experts.

[7] The criminology literature also suggests that the role theory cannot explain differences in crime rates between men and women (Gottfredson and Hirschi, 1990).

[8] See for example Nettler (1984).

1.2 Experiments on gender differences

There are many studies that document gender differences in behavior, although they yield contradictory results. Some papers found differences -some in one direction and others in the opposite direction- and others do not. In the following I review some papers which do find differences and that analyze issues that are important for the subject being studied in this paper.

Croson and Gneezy (2004) review the literature on gender differences in behavior related with risk preferences, social preferences and competitive preferences. They show evidence of literature in psychology and sociology that shows that women are more risk averse than men. They indicate that some tasks that involve intellectual and physical risk generate larger gender gaps than others, as health risks like smoking. They say that economics focuses on attitudes toward financial risk. The economics evidence on the gender gap is not as conclusive as in psychology and sociology. One possible explanation for the observed difference in attitudes toward risk is related to the perception of risk, given that there exists experimental evidence that says that men are more overconfident than women. Nonetheless, it has been found that managers and professional business persons are an exception. In this subpopulation there appears to be no gender gap in risk attitudes.

In relation with social preferences, altruism, inequality-aversion, and reciprocity have been studied. In their review, Croson and Gneezy (2004) report evidence in different directions, and argue that this difference may be due to the fact -suggested by psychology studies- that women are more responsive to social conditions.

Eckel and Grosssman (2000) review evidence from public-good, ultimatum and dictator experiments. They find that there is no convincing evidence of gender differences in behavior, but they find some regularities in the data. When subjects are exposed to risk there is no significant evidence of differences in behavior, but when they are not exposed to risk, differences emerge. In this situation, women are less individually-oriented and more socially-oriented. The results depend on the details of the payoff structure and the experimental procedures. Andreoni and Vesterlund (2001) study differences in "demand for altruism" in a dictator game, through variation in the level and price of giving. They find that when the price of altruism is high, women are more generous, while when the price is low men are more altruistic. Therefore, the answer to their question "which is the fair sex?" depends on the price of giving. Men are more price elastic and women more egalitarian. Song et al. (2004) analyze the gender differences in other-regarding behavior when subjects are responsible for a group. They find that men are less other-regarding when they are acting in behalf of a group than when they are acting in their own behalf, while women do not exhibit this difference.

There exists evidence of gender differences in attitudes toward competitions. Gneezy et al. (2003) find that men have a better performance in a more competitive environment, but women do not. This creates a gender gap in the competitive environment -tournament payment scheme-, which does not exist in the

5

non-competitive situation -piece rate payment-. Niederle and Vesterlund (2005) and Datta Gupta et al. (2005) extended the Gneezy et al. (2003) setting by allowing the subjects to choose the payment scheme that they want to have, the non-competitive piece rate or the competitive tournament, before performing a real task. They find that men are more likely than women to choose the competitive payment scheme. Men are less influenced by the risk aversion degree in their election than women[9], and are influenced by their co-participant's gender, while women are not. They compete more when facing a male co-participant, and when facing a woman they compete more if they believe that this woman competes too.

It can be concluded that women are more risk averse and choose less frequently to be in a competitive environment. Moreover, depending on the circumstances, they are more generous (if the price of altruism is high) and are more socially oriented (if they are not exposed to risk).

1.3 Experiments on corruption

Given the difficulty of collecting reliable field data on corrupt activities due to the secrecy in which they take place, in recent years the topic has been studied using laboratory experiments. Some research papers on corruption using experiments are Abbink et al. (2002), Abbink and Hennig-Schmidt (2002), Abbink (2004), Abbink (2005b), Dusek et al.(2005). The first three papers deal with bribery games; I follow their design in this paper. The last two papers are surveys. Moreover, one paper that investigates if there exists gender differences in the acceptability of corruption is also reviewed (Alatas et al., 2006).

Abbink et al. (2002) present the first interactive experimental corruption game[10]. They model bribery as a situation with "negative" reciprocity. They implement a two-player sequential game, where the first player -the potential briber- is interpreted as a businessman or a firm, and the second player as a public officer. The first player can send some amount of money to the second player in the hope of persuading him/her to make a decision favorable to the former. This experiment has three different treatments to separate three characteristics of corruption: reciprocity (between the subjects involved in the activity), negative externalities to others, and risk of being caught[11]. Their baseline is a pure reciprocity game used

---

[9] Datta Gupta et al. (2005) found that women who choose the competitive payment scheme are significantly more risk loving than those that choose the non-competitive scheme, while men who choose the competitive payment scheme are as risk loving as those that choose the non-competitive scheme.

[10] There are papers that look for the factors that influence people's corruptibility and therefore the experiments are not interactive, e.g. Frank and Schulze (2000), Schulze and Frank (2003). They are different from the experiment reported in this paper, a bribery experiment, that focuses on the manipulation of a public officer's decisions in exchange for bribes. In this situation the experiment should be interactive given that one player is trying to manipulate the other's decisions in his/her own benefit.

[11] The corrupt relation should be based on the trust and reciprocity between the involved subjects given that no binding contracts are possible. Corruption implies a negative effect over the public, as was shown in many different studies, and it implies a probability -generally small- of being discovered.

as a control condition to compare with the other treatments. They add negative externalities in their second treatment and an external risk in the third one. In the baseline they find that the (non-desirable) relationship can be established through trust and reciprocity. They find similar results in the second treatment, meaning that they do not find evidence of any effect of the negative externalities over other players, on the decision making. But they do find differences when a possibility of severe penalty is introduced, they observe less reciprocal cooperation. The results suggest that harsh, low-probability punishment of corruption may be very preventive.

In a paper on the effects of staff rotation, Abbink (2004) finds a strong effect of changing the pairs (briber-public officer) concluding that rotating the staff would be an effective way to fight corruption[12]. In a following paper he analyzes the impact of fair salaries on corruption but fails to find significant effects[13].

One topic that is frequently discussed is a methodological aspect, namely, if instructions in bribery experiments should be framed or not. In the previous papers instructions were written in neutral terms. Abbink and Hennig-Schmidt (2002) conducted the same experiment performed previously by Abbink et al. (2002) but with loaded instructions[14]. They do not find significant differences, and conclude that the game is rather insensitive to the way it is presented to subjects.

For a complete coverage of laboratory experiments on corruption see the surveys by Abbink (2005b) and Dusek et al. (2005).

Alatas et al. (2006) conduct an experiment to investigate if there exist gender differences in the acceptability of corruption, and to see if they differ between countries. They conduct the experiment in Australia, India, Indonesia, and Singapore. The experiment is a one-shot game and subjects play in groups of three, one firm that can offer a bribe, one public official that can accept or reject the bribe, and one citizen that can punish the other two players. They only find gender differences in Australia and conclude that gender differences are culture specific, given that they vary between countries. Moreover, they find that males' behavior does not differ much between countries while women's behavior does vary[15]. Although this paper investigates a very similar subject as the present paper, there are important differences. First of all, Alatas et al. (2006) focus on the acceptability of corruption and not on corrupt behavior in itself, given that the public official does not have more discretionary power than accepting or rejecting the bribe. Secondly, they conducted a one-shot experiment and I conducted a 20-round experiment. I do it like this because I am interested in research into corrupt behavior in a long-run relation between the briber and the official, while they do it one-shot because they are interested in investigating the willingness to punish corruption without economic benefit to the subject that can punish.

---

[12] Staff rotation was a practice introduced by the German federal government.

[13] Abbink (2005a). They vary the wages of the "workers" affected by the corruption.

[14] The difference between neutral and loaded instructions for this case will be explained in the following section.

[15] They argue that it may be due to the fact that women are more influenced by their cultural environment than men.

2 Experiment design

As a typical bribery experiment, I consider two participants, a firm (F) and a public officer (PO). The design of the experiment tries to capture the characteristics of corrupt behavior[16]. The focus is on the manipulation of a public officer's decisions through the use of a bribe. Therefore, the first player (F) is allowed to send some amount of money to the second player (PO) in the hope of persuading him to make a decision favorable to the former, although this decision has negative externalities over all the other participants of the experiment[17].

The experiment was designed in completely neutral terms, following the design used by Abbink et al. (2002). As explained before, Abbink and Hennig-Schmidt (2002) reproduced the experiment of Abbink et al. (2002) -the one I follow- using, instead of neutral instructions, loaded ones, finding no significant difference in subjects' behavior. In the loaded case, subjects were told that a firm (Player 1 in my experiment) wanted to run an industrial plant which causes negative consequences to the public, and the public officer (Player 2) had to decide whether to give the permission or not. The firm could make a private payment (a transfer in my experiment) to influence the public officer. Moreover, in the instructions they explained that there existed a probability of being "discovered". Therefore, it was pretty clear the corrupt situation. Given that in this case they did not find significant differences in behavior, it can be understood that even using neutral instructions, the corrupt situation is reflected. Therefore, I use Abbink et al. (2002)'s design with neutral instructions.

The experiment was conducted at the Universitat Autònoma de Barcelona[18] with undergraduate students with different majors. They were recruited by public advertisements posted throughout the campus.

The experiment consists of 20 rounds, and each round has 4 stages, in the first two stages F has to decide how many tokens to transfer to PO, if any, and in the other stages PO has to decide whether to accept the transfer or not, and has to choose between two alternatives, as will be explained below. The subjects are endowed with 40 tokens. The experiment has four treatments depending on the gender of F and PO, we have ff, mm, fm, and mf, being the first letter the gender -female, male- of F and the second letter the gender of PO. The pairs (F and PO) are anonymously matched and remain unchanged throughout the experiment[19]. Before entering into the lab, in the mixed sessions, subjects are told that one gender will sit in one part of the lab and the other gender in the other part, and when the instructions are read aloud they are told that one gender has one role and the other gender the other role.

---

[16] As previoulsy mentioned, the characteristics of corruption are: the reciprocity between the briber and bribee, the negative externality over the public, and the probability of being discovered.

[17] As will be explained below, every time that a corrupt behavior is being carried out by a couple, both members of all the other couples in the lab are penalized.

[18] The experiment was programmed and conducted with the software z-Tree (Fischbacher 1999).

[19] A long term relation between the firm and the public officer is represented.

Stage 1 F has to decide whether to send some tokens to PO or not. If F decides to send, the experiment moves to stage 2, if not to stage 4.

Stage 2 F has to decide how many tokens t to transfer. If F sends any positive amount, he/she has to pay a fixed transfer cost of 2 tokens[20]. For simplicity, t is defined in integer numbers, and small enough to be sure that F will not end with a negative payoff, therefore $t \in \{1, 2, ..., 10\}$. The experiment moves to stage 3.

After F (Player 1) decides whether to offer a transfer or not and how much, F is asked with which probability he/she thinks his partner (PO) will accept the transfer and in case of accepting it, with which probability he/she thinks PO would choose alternative B (the "corrupt" alternative).

Stage 3 PO has to decide if to accept or not the tokens transferred by F. If he/she does, he receives $3t$ [21], and an integer (n) between 0 and 999 is randomly chosen, and if $n < 3$, then the pair is disqualified from the experiment, and if $n \geqslant 3$, then the experiment moves to stage 4. If PO decides to reject the transfer, then the experiment moves to stage 4.

Stage 4 PO has to decide between different alternatives.

i) *If PO has accepted the transfer*, he/she has to decide between alternative A and B. Alternative A is the "non-corrupt" alternative and alternative B is the "corrupt" one. The payoffs are defined in the following table.

Transfer	1		2		3		4		5		6		7		8		9		10	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Firm	47	67	46	66	45	65	44	64	43	63	42	62	41	61	40	60	39	59	38	58
Public Officer	53	48	56	51	59	54	62	57	65	60	68	63	71	66	74	69	77	72	80	75

Table 1: Payoffs if PO accepts the transfer

The payoffs are calculated as follows.

$$P_F = E - c - t + \left\{ \begin{array}{l} 10 \; if \; A \; is \; chosen \; by \; PO \\ 30 \; if \; B \; is \; chosen \; by \; PO \end{array} \right\} \qquad P_{PO} = E + 3t + \left\{ \begin{array}{l} 10 \; if \; A \; is \; chosen \; by \; PO \\ 5 \; if \; B \; is \; chosen \; by \; PO \end{array} \right\}$$

---

[20] The tranfer cost represents the cost to F to approach PO; it is independent from the fact whether PO accepts the transfer or not.

[21] The number of tokens is tripled to show the difference in marginal utility between the firm (the briber) and the public officer; it is assumed that the income as a public officer is lower than the income obtained in private business as a firm.

Where P_i is the payoff of player $i \in \{F, PO\}$, E is the initial endowment (40 tokens), c is the transfer cost (2 tokens), and t the amount of tokens transferred.

The payoff of PO is higher in alternative A than in B to reflect the fact that to carry out a corrupt alternative PO would have to incur in some costs, for example, to hide some information from his/her superiors. When alternative B is chosen, 3 tokens are discounted from the earnings of all the other subjects in the lab. This represents the negative externality that corruption has over the public[22]. The minimum possible discount that a subject can have is 0 if no pair (apart from his own) choose alternative B, and $g-1$ if all other pairs choose alternative B, being g the number of total pairs in the lab. In 3 out of 4 sessions there are 13 couples in the room, in the remaining session there are 12 couples[23].

ii) *If PO rejects the transfer,* he has to decide between alternative A and C. Alternative C implies a costly punishment to the F[24]. The payoffs can be seen in the following table.

	A	C
Firm	48	36
Public Officer	50	48

Table 2: Payoffs if PO rejects the transfer

The payoffs for this case are calculated using the equations below.

$$P_F = E - c + \left\{ \begin{array}{l} 10 \; if \; A \; is \; chosen \; by \; PO \\ -2 \; if \; C \; is \; chosen \; by \; PO \end{array} \right\} \qquad P_{PO} = E + \left\{ \begin{array}{l} 10 \; if \; A \; is \; chosen \; by \; PO \\ 8 \; if \; C \; is \; chosen \; by \; PO \end{array} \right\}$$

The payoffs when alternative A is chosen are the same as in case i with $t = 0$. When C is chosen, PO pays 2 tokens to punish F with 12 tokens, that is why PO receives 8 tokens instead of the 10 tokens that he receives when choosing A, and F receives -2 instead of 10.

iii) *If F does not send any amount*, then PO has to decide between alternative A and B. The payoffs for this case are defined in the following table. They are the same as in the first case but with c and t equal to 0. Again, when alternative B is chosen, 3 tokens are discounted from the earnings of all the other subjects in the lab.

---

[22] As has been stated in many papers, corruption has a relation with crime (corruption and crime are positively correlated), economic development (they are negatively correlated), international business (they are negatively correlated), etc. See Transparency International's annual reports.

[23] Due to technical problems in the computer room.

[24] I introduced the possibility of punishing F by PO -when PO rejects the transfer- to reflect the fact that F has to make an evaluation before offering PO a bribe, because it is not "for free" -apart from the small transfer cost-, as F can be punished by PO.

	A	B
Firm	50	70
Public Officer	50	45

Table 3: Payoffs if F does not transfer any token

When they are caught -the randomly chosen number n is lower than 3- both subjects are excluded from the experiment and receive 0 payoff, apart from the show-up fee. In this case the subjects are asked to complete a questionnaire, and to persuade them to remain in the lab and do it, an extra payment of 2 euros is offered in the moment they know that they are disqualified.

At the end of each round subjects are informed *only* about the payoff they obtain due to their own decisions, i.e. they are not informed about the deductions due to other couples choosing alternative B *until* the end of the 20 rounds. It was done like this to maintain the independence between the couples.

The final payoffs are calculated as the sum of all periods' payoffs converted into euros, the rate of conversion is 1.5 euros for 100 tokens, plus the show-up fee (3 euros).

After the 20 rounds are over, a questionnaire is distributed. In this questionnaire, using the modified version of Datta Gupta et al. (2005) of the psychometric test in Weber et al. (2002), subjects were asked to rate the likelihood that they would engage in 16 risky activities, on a 1 (very unlikely) to 5 (very likely) scale. The sum of the answers gives the degree of risk loving of the subjects, the higher the sum the higher the degree of risk loving.

3   Results

In this section the results of the experiment are analyzed. First of all, table 4 shows the number of subjects and average earnings in each one of the sessions[25]. As can be seen, average earnings are similar among the different sessions, with a total average of 16.91 euros. This earnings include the show-up fee of 3 euros. No pair was disqualified in any session.

Session	Number of Subjects	Average earnings
FM	26	17.03
MF	24	16.76
MM	26	16.12
FF	26	17.72
	102	16.91

Table 4: Number of subjects and average earnings

---

[25] As said before, the first letter corresponds to the gender of the first player (male or female) and the second letter corresponds to the gender of the second player.

The rest of the section is organized as follows. In subsection 3.1 the results for Player 1 are analyzed, while the results for Player 2 are analyzed in subsection 3.2. Finally, in subsection 3.3 some regressions related to Players 1' and Players 2' decisions are presented.

3.1 Results for the Firm - Player 1

As shown in table 4, the number of Players 1 is 13 in the fm, mm, and ff sessions and 12 in the mf session, therefore there are 25 male and 26 female Players 1.

The first player had to decide, first of all, if to offer a transfer to Player 2, and if yes how many tokens to offer. This decisions are what will be analyzed in this subsection.

RESULT 1: On average, women offered a transfer less frequently than men.

The percentage of men that decided to offer a transfer at least once is 80% and the percentage of women is 65%. Moreover, the average number of transfers is statistically different and smaller for women (3.1 out of 20 periods, 15%) than for men (6 out of 20 periods, it is 30% of the periods).[26]

Men offered a transfer to men in 26% of the periods (5.2 times) while the percentage when playing with women is 35% (7 times). The percentage of women is 17% (3.4 times) and 14% (2.8 times) respectively.

For those that decided to offer a transfer, we have in the next figure the histogram of transfer offers. As can be seen, for the lower amounts, the frequency of cases for women is higher than the frequency for men[27]. The peak in 6 tokens may be explained by the fact that transferring this amount, and Player 2 choosing alternative B, both players would get almost the same payoff (62 and 63 tokens).
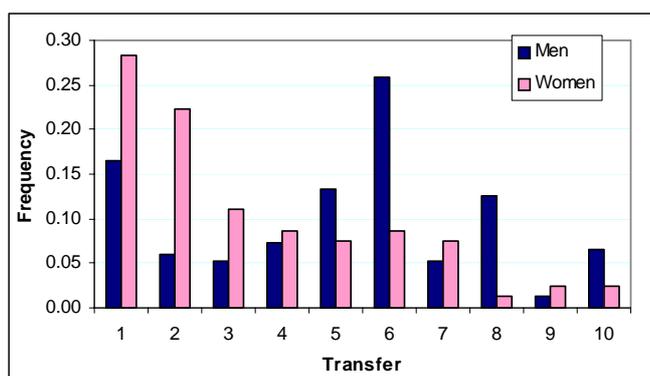
Figure 1: Histogram of transfer offers

---

[26] Either following a Mann-Whitney U test or a t-test to compare means. This tests are used from now on when comparing means.

[27] In this figure all the cases are being considered, it means all Players 1 in all the periods.

RESULT 2: The average transfer offered by women is statistically different and lower that the average transfer offered by men.

The average transfer -conditional on being positive- offered by men is 4.72 tokens and by women 2.60 tokens, and they are statistically different[28].

Men are offering on average 5.16 tokens to male Players 2 and 4.19 tokens to female Players 2, and women 3.19 and 2.07 tokens respectively. The average amount offered in Abbink et al.(2002) is 5.68 tokens, higher than 3.75 which is the average in my experiment taking together both sexes.

In this experiment, where subjects are playing together for 20 periods, Player 2 can reciprocate Player 1 by choosing alternative B, but also Player 1 can reciprocate Player 2's previous period behavior, by offering more tokens after he/she has chosen alternative B. This is observed in my experiment, the average transfer after Player 2 has chosen alternative A is 0.47 and after he has chosen alternative B is 3.87 tokens[29].

The next figures show the frequency of transfers and the average transfer -conditional on being positive- by period.

In figure 2 one can see again that the frequency of cases in which men make a transfer is higher than the frequency for women, and from figure 3 it is clear that -with the exception of period 2 and 11- the amount transferred by men is higher than the amount transferred by women, as was observed above.
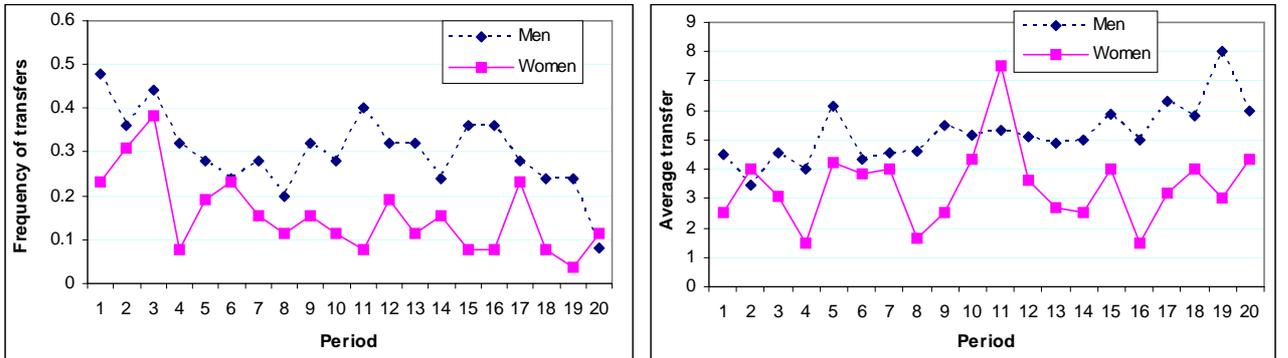
Figures 2 and 3: Frequency of tranfers and average tranfer by period

As was explained before, after each time F (Player 1) decided whether to offer a transfer or not and how much, F was asked with which probability he/she thought his partner (PO) would accept the transfer and in case of accepting it, with which probability he/she thought PO would choose alternative B. Men assigned

---

[28]Following either a Mann-Whitney U test or a t-test to compare means.

[29]Not conditional on being positive, it means that it includes zero transfers. The average transfer after a C choice is 1 token, but it is based only on 7 observations.

a different and higher probability to both events -0.78 and 0.57- than women -0.64 and 0.25-[30]. The average assigned probability to a male Player 2 accepting the transfer is 0.72 and for a woman is 0.70, and the average probability that a man chose alternative B was 0.46 and for a woman was 0.38.

The assigned probability to Player 2 accepting the transfer, by a male Player 1 was 0.72 when he was playing with a male and 0.84 when he was playing with a female, and the average assigned probabilities by a female Player 1 were 0.72 and 0.56 respectively. The average probability that men assigned to Player 2 choosing alternative B was 0.56 when they were playing with men and 0.57 when they were playing with women. The probabilities assigned by women were 0.32 and 0.19, respectively.

It is interesting to notice that men assigned a higher probability to women accepting the transfer (0.84) than to men (0.72) and (almost) the same probability of choosing alternative B, while the average transfer offered is higher for males than for females (5.16 and 4.19 respectively). A possible explanation for this is that men thought that women would consider a smaller amount "enough" to be accepted and to convince her to choose alternative B.

3.2   Results for the Public Officer - Player 2

The number of Players 2 is 13 in the fm, mm, and ff sessions and 12 in the mf session, therefore there are 26 male and 25 female Players 2.

The decisions the second player has to make depend on whether Player 1 has decided to send tokens or not. If he decided to send, then Player 2's first decision is whether to accept it or not. Then, Player 2 has to decide between different alternatives, as was explained in section 2. If Player 1 decided not to offer a transfer, then Player 2 only has to choose one of the two alternatives.

RESULT 3: *The frequency with which women accepted a transfer is smaller than the frequency for men.*

The percentage of male Players 1 that received at least one transfer offer is 73%, and this value for women is 72%. When receiving an offer, the average frequency of acceptance is 76% for men and 58% for women. Moreover, the frequency with which women accepted the offer is 95% when she was playing with a male Player 1 and 49% when Player 1 was a woman, these percentages are statistically different. The frequency with which men accepted the offer when they were playing with a male Player 1 is 61% and when Player 1 was a woman it was 68%, but these percentages are not statistically different.

RESULT 4: *Once accepting a transfer, women chose less frequently alternative B than men.*

---

[30] The average probability assigned by men and women are statistically different in both cases, either following a Mann-Whitney U test or a t-test.

When the transfer was accepted, men chose alternative B in 52% of the cases and women did it in 27% of the cases, percentages statistically different [31]. The average percentage of cases when men chose alternative B when they were playing with another man is 67% and the percentage is 37% when they were playing with a woman. The percentages for women are 33% and 19% respectively.

It is interesting to notice that the highest frequency of B choices is observed when only men are playing (67%) while the lowest when only women are playing (19%) .

As said above, Player 1 was asked to assign a probability to the event that his/her partner would accept the transfer and if he/she did, Player 1 was asked to assign a probability to Player 2's choice of alternative B. It turns out that the average assigned probabilities were very close to the real frequencies, with the exception when men where playing as Players 1 and women as Players 2. In this case men assigned a probability of women choosing alternative B of 0.57 while the real frequency was 0.33.

Figures 4 and 5 show the frequency of B choices by period and by the amount transferred for those that accepted the transfer.

In figure 4 one can see that, with the exception of periods 1, 10, 14 and 19, the frequency is higher for men than for women. In figure 5 we can see that the frequencies follow the same pattern, it means that it is higher for men than for women, with the exception of 9 tokens, because no man received an offer of 9 tokens, and 10 tokens where the frequencies are very close.
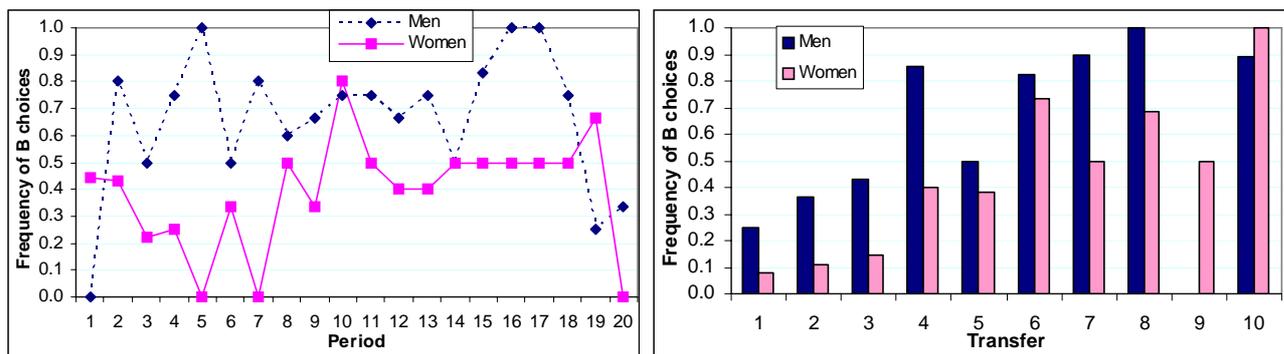
Figures 4 and 5: Frequency of B choices by period and by amount transferred

3.3   Estimations

Decisions of F - Player 1   The data consist of observations of subjects' decisions repeated over the time. This repetition of observations of the subjects should be taken into account when estimating. There are two alternative ways of doing so. The first one is to estimate a model using a random-effects specification and the second one is to regress the model clustering the observations by subject. The first alternative is more

---

[31] Following either a Mann-Whitney U test or a t-test to compare means.

powerful while the second one is more conservative. Therefore, with a random-effects specification not very strong relations may result in significant coefficients, while with the second alternative a real relation may be rejected. For that reason the results of the two different ways of estimating the models are reported.

Players 1' first decision analyzed is the **decision of sending a transfer** and I estimated a random-effects probit and a probit with clustered standard error[32]. The results are shown in table 5.

The dependent variable takes value 1 if the subject decides to offer a transfer and 0 otherwise. The independent variables in Estimations 1 and 3 are the gender of F -Player 1- (SEX in the table) that takes value 1 if Player 1 is a woman and 0 otherwise; the gender of PO -Player 2- a dummy variable that takes value 1 if Player 2 is a woman and 0 otherwise ($SEXP2$); an interaction term between both genders ($S1*S2$) ; two dummy variables referring to Player 2's behavior in the previous period, the first one (BT) takes value 1 if in the previous period PO chose alternative B after F has offered a transfer and 0 otherwise, and the second variable (BNT) takes value 1 if in the previous period PO chose alternative B after F has not offered a transfer and 0 otherwise.

Finally, two variables referring to the risk aversion of the subjects are included. The degree of risk aversion can influence the decision because it implies a risk, with a probability of 0.003 the subjects may be disqualified from the experiment[33] and earn 0 euros apart from the show-up fee. The variable $RLWOM$ reflects the degree of risk loving of women and $RLMEN$ of men. As explained before, the degree of risk loving was measured using the modified version of Datta Gupta el al. (2005) of the psychometric test in Weber et al. (2002), in the post experiment questionnaire. In Estimations 2 and 4 instead of including BT and BNT, the variables PAB and PAC were included, the first one takes value 1 if in the previous period Player 2 has chosen alternative B and 0 otherwise, while the variable PAC takes value one if C was chosen and 0 otherwise.

The variables reflecting previous period Player 2's decision were included because in this repeated game not only Player 2 can reciprocate Player 1 by choosing alternative B, but also Player 1 can reciprocate Player 2's previous period behavior by deciding to offer (more) tokens after he/she has chosen alternative B. In estimations 1 and 3 it was also taken into account if the election of alternative B was as a reply of Player 1's sending of tokens or Player 2 chose alternative B to show to Player 1 that he/she was willing to "cooperate" or start a "corrupt" relation.

---

[32] I also estimated random-effects logit and logit with clustered standard errors but the results are not reported here given that they are very similar to the ones reported below.

[33] If Player 2 accepts the transfer offered by Player 1.

| | Dep variable: Send (=1 if subject offers a transfer, 0 otherwise) | | | |
| | Random-effects | | Clustering | |
	Estimation 1	Estimation 2	Estimation 3	Estimation 4
SEX	-4.659**	-6.406***	-1.542	-1.682
	(1.882)	(1.767)	(1.520)	(1.554)
SEXP2	-0.088	0.549***	0.447	0.427
	(0.267)	(0.214)	(0.325)	(0.337)
S1*S2	0.612	0.056	-0.307	-0.286
	(0.406)	(0.326)	(0.456)	(0.474)
BT	1.139**		1.849***	
	(0.184)		(0.303)	
BNT	1.332***		1.142***	
	(0.230)		(0.263)	
RLWOM	0.111**	0.125***	0.043	0.045*
	(0.036)	(0.033)	(0.027)	(0.027)
RLMEN	0.014	-0.009	0.009	0.009
	(0.018)	(0.015)	(0.019)	(0.019)
PAB		1.211***		1.574***
		(0.154)		(0.201)
PAC		-0.119		0.618
		(0.664)		(0.380)
Constant	-2.048**	-1.053	-1.631*	-1.616*
	(0.918)	(0.726)	(0.918)	(0.922)
Nb of observations	969	969	969	969
Nb of groups	51	51		
Obs per group	19	19		
Prob>chi2	0.000	0.000	0.000	0.000

*** significant at 1 percent level
** significant at 5 percent level
* significant at 10 percent level
Standard errors in parenthesis

Table 5: Probit regressions for the send decision

The number of observations is the product of 51 Players 1 playing 19 times[34].

Gender of Player 1 In estimations 1 and 2 the gender of F is an important determinant of the probability of sending a transfer, its negative sign implies that the probability is lower if the player is a woman. In estimations 3 and 4 it has negative sign too, but it is not statistically significant. Therefore, we can conclude that it has a negative effect although we can not say that it is very strong.

Gender of Player 2 The variables related with the gender of Player 2 are not significant in Estimations 1, 3, and 4, suggesting that Player 1 does not take into account the gender of PO when deciding whether to offer a transfer or not. In Estimation 2 the variable $SEXP2$ is significant, but the total effect of playing with a woman is very close to 0[35].

Player 2's previous period decision The variables BT and BNT have positive signs and are highly significant, meaning that, if PO has chosen alternative B in the previous period, then the probability of

---

[34] The data for the first period is excluded to have complete data for all the included independent variables, given that BT, BNT, PAB, and PAC do not have data for the first period.

[35] It is not directly seen in the coefficient of the variable $SEXP2$ because to calculate the total effect all the significant coefficients are taken into account. The total effect of playing with a female Player 2 is 0.0013 for a man and 0.0017 for a woman following the results of estimation 2. According to estimations 1, 3 and 4 the total effect is 0.

offering a transfer in the current period is higher, in both cases. Estimations 2 and 4 show that if Player 2 has chosen alternative B in the previous period, the probability that Player 1 offers a transfer is higher, as it can be concluded also from estimations 1 and 3. However, if Player 2 has chosen alternative C, it does not affect the probability of Player 1 offering a transfer[36]. The omitted variable is Player 2 choosing alternative A.

Risk aversion The degree of risk aversion is a determinant of the probability of sending a transfer for women but not for men. Its level of significance is between 1% in Estimation 2 and 11% in Estimation 3. The more risk loving she is, the higher the probability of offering a transfer to PO. In their paper, Datta Gupta et al. (2005) find that the degree of risk aversion only influences the decision of women but not the decision of men[37]. In my case, as in their case, the degree of risk loving is not statistically different between genders, but the average degree of risk loving of the women that offered transfer is 45.68, higher than the average for those that did not offer (43.14). Those numbers for men are 44.80 and 43.83, values not statistically different.

The focus is on the determinants of offering a transfer given that the interest of the paper is to see if women and men behave in the same way with respect to bribery. It is not estimated a model for those that decided not to offer a transfer, but from previous results we can understand this attitude responded to three main motives. The first one may be that the subject is highly risk averse and wants to avoid the probability of being disqualified, the second possible explanation may be that he/she is waiting for a "signal of cooperation" from Player 2, i.e. choosing Alternative B. Finally, the subject may not want to start a relation where other subjects can be damaged. This last reason, I believe, is correlated with the gender of the subject.

The **second decision**, for those that decided to offer a transfer, was to decide **how many tokens to offer**. A OLS model was estimated, where the dependent variable is the amount offered[38], and the independent ones are the same used before with the exception of the risk loving degree, given that the risk of being disqualified is independent of the amount transferred, and therefore the risk aversion of a subject should not influence the amount transferred, conditional on being positive. The results are in table 6.

---

[36] Only in 7 cases alternative C was chosen.

[37] As said before, in their case the decision was to choose between a competitive payment scheme (tournament) and a non-competitive one (piece rate payment).

[38] A tobit model was also estimated and yielded very similar results.

	Dependent variable: Amount transferred			
	Random-effects		Clustering	
	Estimation 5	Estimation 6	Estimation 7	Estimation 8
SEX	-2.259**	-2.183**	-1.678**	-1.644**
	(0.990)	(0.971)	(0.849)	(0.830)
SEXP2	-1.561*	-1.518*	-1.259	-1.259
	(0.929)	(0.911)	(0.936)	(0.929)
S1*S2	0.585	0.545	0.800	0.803
	(1.382)	(1.356)	(1.288)	(1.279)
BT	0.311		1.412*	
	(0.313)		(0.704)	
BNT	1.211***		1.976*	
	(0.464)		(1.067)	
PAB		0.516*		1.579**
		(0.313)		(0.697)
PAC		-1.400		0.301
		(1.356)		(1.684)
Constant	5.481***	5.494***	4.902***	4.879***
	(0.687)	(0.675)	(0.582)	(0.579)
Nb of observations	214	214	214	214
Nb of groups	35	35		
Avrg obs per group	6.1	6.1		
Prob>chi2 (Prob>F)	0.001	0.004	0.000	0.000

*** significant at 1 percent level
** significant at 5 percent level
* significant at 10 percent level
Standard errors in parenthesis

Table 6: OLS regressions for the amount transferred

Gender of Player 1 Again, the gender has an effect on the amount offered. The offer is lower if Player 1 is a woman.

Gender of Player 2 This variable is significant when a random-effects model was estimated, yielding a negative sign meaning that if Player 2 is a woman, the amount transferred is lower, for both male and female Players 1.

Player 2's previous period decision In this case, when a random-effects model was estimated, only the variable BNT is significant, while the variable BT is not. The positive sign means that the amount offered is higher if in the previous period Player 2 has chosen alternative B after no transfer, that can be interpreted as a signal of Player 2 to his/her partner that he/she is willing to "cooperate". When a clustering specification was estimated, also the variable BNT was significant with a positive coefficient. In Estimations 6 and 8 the variable PAB is significant while PAC is not The non significance of the second variable coincides with the results above (Estimations 2 and 4). The positive sign of PAB is explained by the same reasons as the sign of BT and BNT, it is a reciprocity between the players.

It can be concluded that if Player 1 is a woman, the probability of starting a corrupt relation is lower, and the amount transferred (the bribe) is also lower.

Decisions of PO - Player 2 The decisions that are going to be studied are those that imply a corrupt relation between the subjects, it means after Player 1 has offered a transfer as a way to start this relation.

In this case, Player 2 (PO) has to take two decisions. The first one is whether to accept the transfer offer or not, and the second one is which alternative to choose. The results are in table 7.

For the **first decision**, the number of observations is constrained to Player 1's decision of sending a transfer[39]. The dependent variable takes value 1 if Player 2 accepts the transfer and 0 otherwise. The estimated models are a random-effects probit and probit with clustered standard errors[40].

In estimations 9-12 the variable SEX represents the gender of the second player, given that his/her decisions are the ones being analyzed now. The second variable is the gender of Player 1 ($SEXP1$), and the third variable is an interactive variable between the gender of Player 1 and Player 2 ($S1*S2$). The variable $TRANSFER$ represents the amount offered as a transfer. The last two variables refer to the psychometric test measuring the degree of risk loving, explained before. They are included here because the decision of accepting the transfer implies a risk, if Player 2 accepts the transfer then a number is randomly chosen deciding if the couple is disqualified or not.

Dependent variable:	Accept (=1 if transfer is accepted)		Alternative B (=1 if B chosen)	
	Random effects	Clustering	Random effects	Clustering
	Estimation 9	Estimation 10	Estimation 11	Estimation 12
SEX	-4.530	-3.690*	-0.768**	-0.713**
	(3.168)	(2.143)	(0.325)	(0.324)
SEXP1	1.262**	-0.053	-0.295	-0.221
	(0.607)	(0.570)	(0.389)	(0.357)
S1*S2	-3.504***	-1.124*	-0.013	-0.085
	(0.929)	(0.648)	(0.603)	(0.548)
TRANSFER	0.464**	0.123*	0.244***	0.251***
	(0.118)	(0.071)	(0.050)	(0.051)
RLWOM	0.117**	0.054		
	(0.062)	(0.046)		
RLMEN	-0.055	-0.043*		
	(0.038)	(0.025)		
Constant	0.500	2.292**	-0.661*	-0.699***
	(1.752)	(1.108)	(0.275)	(0.394)
Nb of observations	232	232	190	190
Nb of groups	37		29	
Avrg obs per group	6.3		6.6	
Prob>chi2	0.000	0.002	0.000	0.000

*** significant at 1 percent level
** significant at 5 percent level
* significant at 10 percent level
Standard errors in parenthesis

Table 7: Probit regressions for the transfer acceptance and alternative choice

Gender of Player 2 The gender of PO is statistically significant at 15% level in Estimation 9 and at 10% level in Estimation 10. Its negative sign means that the probability of accepting the transfer is lower if PO is a woman.

---

[39] In 232 cases Player 1 decided to offer a transfer to Player 2.

[40] It was also estimated a random-effects logit and a logit model with clustered standard errors but the results are not reported here given that they are very similar to the ones reported.

Gender of Player 1 The effect of playing with a female Player 1 is negative but small for a female Player 2 and almost 0 for a male Player 2[41].

Amount transferred The effect of the amount transferred is the expected one, the higher the amount the higher the probability of being accepted.

Risk loving As in the sending decision of Player 1, the degree of risk loving influences only the decision of women, although it is only significant in Estimation 9. As expected, the higher the degree of risk loving, the higher the probability of accepting the transfer. The average risk loving degree of those women that accepted a transfer (43.96) is higher than the degree of those that rejected it (39.64). For men it happens the opposite, the average risk loving degree of those that accepted the transfer is 40.45 and of those that rejected the transfer is 43.71. This is reflected in the negative sign of the variable $RLMEN$.

Given the previous results, it can be deduced that the rejection of the transfer offered may be due to the fact that the subject is against the acceptance of a "bribe" to manipulate his/her decisions, or the transfer offered was not "enough" for him/her, or it was a matter of risk aversion.

Once Player 2 decided to accept the transfer (or reject it), he/she has to decide **which alternative to choose**. As explained above, I am concentrated in the case where the "corrupt" relation is established, that is why I only analyze the alternative chosen when PO accepts the transfer or "bribe". A random-effects probit model and a probit model with clustered standard errors were estimated, where the dependent variable takes value 1 if alternative B is chosen, and 0 if alternative A is chosen. The results are also in table 7.

The independent variables are the same used above excluding the degree of risk loving given that the alternative chosen does not modify the risk of being disqualified, and therefore the risk aversion should not influence this decision.

Gender of Player 2 The gender of Player 2 has a negative impact meaning that if PO is a woman, the probability of choosing alternative B is smaller.

Gender of Player 1 The gender of Player 1 is not statistically significant, neither the interaction term.

Amount transferred The positive sign of the variable $TRANSFER$ implies that the higher the amount transferred the higher the probability of choosing alternative B.

As a result of the previous estimations, it can be said that if Player 2 is a woman, then the probability of accepting the transfer (bribe) is lower and the probability of choosing the corrupt alternative is lower.

---

[41] The total effect of playing with a female Player 1 is 0 for a man and -0.007 for a woman following the results of estimation 9, and 0 and -0.043 respectively, following the results of estimation 10.

4   Conclusions

The aim of this paper is to study in a controlled environment whether women and men behave in different ways with respect to corruption, as suggested in the papers using field data. In the experiment participants take one of two roles, that of a firm or that of a public officer. The possibility of corruption is introduced by allowing the first player (the firm) to send some amount of money to the second player (the public officer) in the hope of persuading the officer to take a decision favorable to the former, although this decision has negative externalities over all the other participants in the experiment.

The percentage of male Players 1 (Firm) that decided to offer a transfer (bribe) to Player 2 (Public officer) at least once is 80% while the percentage of female Players 1 that did it is 65%. Moreover, the average number of transfers is 6 for men and 3.1 for women, quantities statistically different. The average amounts offered -conditional on being positive- are also statistically different, they are 4.72 and 2.60 for male and female Players 1, respectively.

The average frequencies of transfer acceptance are 76% and 58% for male and female Players 2, respectively. When the transfer was accepted, in 52% of the cases men chose alternative B and women did it in 27% of the cases; this percentages are statistically different. The higher average percentage of B choices was observed when only men were playing (67%) while the lowest was observed when only women were playing (19%).

The estimations show that if Player 1 (Firm) is a woman, the probability of sending money is lower but this relation is significant under the random-effects model but not under the clustering specification. The amount transferred is lower if Player 1 is a woman in both specifications. These results imply that the probability of starting a corrupt relation is lower. If Player 2 (Public officer) is a woman, the probability of accepting the transfer or bribe is lower, and this relation is significant at a 15% level in the random-effects model and at 10% in the clustering specification. The probability of choosing the corrupt alternative is lower if Player 2 is a woman in both models.

Given the results mentioned above, the conclusion is in line with the field-data papers, meaning that women are less corrupt than men, and therefore, it can be expected that increasing women participation in the labor force and politics would help to fight corruption.

One explanation of the gender difference in crime -according to Gottfredson and Hirschi (1990)- is a difference in self-control, it is "the extend to which they are vulnerable to the temptations of the moment" or "the extend to which they are restrained from criminal acts". This motion can also be applied to differences in corruption. This would mean that women have more self-control and this is a reason why they refrain from committing corruption. Moreover, as Gottfredson and Hirschi (1990) point out, people with low self-control tend to be more egocentric and not interested in the others' needs. In relation with corruption, one possible explanation for the observed difference in the experiment is that women are more sensitive to others' losses

and that is why they choose less frequently the corrupt alternative -that has negative externalities over all the other participants. Other possible reason is that they behave like they did to follow the gender stereotype that women should be more concerned about the others. These hypothesis cannot be confirmed or rejected with the data that was obtained from the experiment. To arrive to a conclusion of why the gender difference is observed, more studies should be conducted on this subject.

This paper is an attempt to study gender differences in corruption through a lab experiment. Future research can shed more light on this topic.

References

[1] Abbink, Klaus, 2004. "Staff rotation as an anti-corruption policy: an experimental study". *European Journal of Political Economy,* vol 20, pp. 887-906.

[2] Abbink, Klaus, 2005a. "Fair salaries and the moral costs of corruption". Proceedings of the Conference on Cognitive Economics, Sofia.

[3] Abbink, Klaus, 2005b. "Laboratory experiments on corruption". Forthcoming in *The Handbook of Corruption,* ed. by Susan Rose-Ackerman, Edward Elgar Publishers, Cheltenham, UK, and Northampton, US.

[4] Abbink, Klaus, and Heike Hennig-Schmidt, 2002. "Neutral versus loaded instructions in a bribery experiment". Working paper, University of Nottingham and University of Bonn.

[5] Abbink, Klaus, Bernd Irlenbusch, and Elke Renner, 2002. "An experimental bribery game". *The Journal of Law, Economics and Organization*, vol 18 (2), pp. 428-454.

[6] Alatas, Vivi, Lisa Cameron, Ananish Chaudhuri, Nisvan Erkal, and Lata Gangadharan, 2005. "Gender and Corruption: Insights from an experimental analysis". University of Melbourne, mimeo.

[7] Andreoni, James, and Lise Vesterlund, 2001. "Which is the fair sex? Gender differences in altruism". *The Quarterly Journal of Economics,* vol 116 (1), pp. 293-312.

[8] Bolton, Gary E., and Elena Katok, 1995. "An experimental test for gender differences in beneficent behavior". *Economics Letters* vol 48, pp. 287-292

[9] Croson, Rachel and Uri Gneezy, 2004. "Gender Differences in Preferences." Mimeo.

[10] Datta Gupta, Nabanita, Anders Poulsen, and Marie-Claire Villeval, 2005. "Male and Female Competitive Behavior. Experimental Evidence". *GATE Working Paper* 05/12.

[11] Dollar, David; Raymond Fisman, and Roberta Gattia, 1999. "Are women really the "Fairer" sex? Corruption and women in government". Policy research report on gender and development. *Working paper series, Nº 4. The World Bank.*

[12] Dusek, Libor, Andreas Ortmann, and Lubomir Lizal, 2005. "Understanding corruption and corruptibility through experiments: a primer". *Prague Economic Papers*, No. 2.

[13] Eckel, Catherine and Philip Grossman, 2000. "Differences in the economic decision of men and women: experimental evidence". In *Handbook of Experimental Economics Results.* Ed by C Plott and V.L. Smith.

[14] Fischbacher, Urs, 1999. "z-Tree - Zurich Toolbox for Readymade Economic Experiments - Experimenter's Manual". *Working Paper Nr. 21*, Institute for Empirical Research in Economics, University of Zurich.

[15] Frank, Björn, and Günther Schulze, 2000. "Does economics make citizens corrupt?" *Journal of Economic Behavior and Organization,* vol 43 (1), pp. 101-113.

[16] Gneezy, Uri, Muriel Niederle, and Aldo Rustichini, 2003. "Performance in Competitive Environments: Gender Differences." *Quarterly Journal of Economics*, vol 118 (3), pp. 1049-74.

[17] Gottfredson, Michael and Travis Hirschi, 1990. "A general theory of crime". Stanford: Stanford University Press.

[18] Nettler, Gwynne, 1984. "Explaining crime". 3d ed. New York: McGraw-Hill.

[19] Niederle, Muriel and Lise Vesterlund, 2005. "Do Women Shy Away from Competition? Do Men Compete too Much?" *NBER Working Paper*, 11474.

[20] Schulze, Günther, and Björn Frank, 2003. "Deterrence versus intrinsic motivation: experimental evidence on the determinants of corruptibility". *Economics of Governance,* vol 4 (2), pp. 143-160.

[21] Song, Fei, C.Bram Cadsby, and Tristan Morris, 2004. "Other-regarding behavior and behavioral forecasts: Females versus males as individuals and as group representatives", *International Journal of Conflict Management*, 15(4).

[22] Swamy, Anand, Stephen Knack, Young Lee, and Omar Azfar, 2001."Gender and corruption". *Journal of Development Economics*. vol 64 (1), pp. 25-55.

[23] Torgler, Benno, and Neven T. Valev, 2006. "Women and illegal activities: gender differences and women's willingness to comply over time". *Working Paper Nr. 2006-15.* Center for Research in Economics, Management and the Arts (CREMA).

[24] Weber, Elke, Ann-Renée Blais and Nancy Betz, 2002. "A domain-specific risk attitude scale: measuring risk perceptions and risk behaviors". *Journal of Behavioral Decision Making*, vol 15 (4), pp. 263-290.

5 Appendix: Instructions

(Original text in Spanish)

Thank you for coming to this decision making experiment. You will be paid 3 euros for showing up plus the money you earn during the experiment which will depend on your and other participants' decisions. At the end of today's session you will be privately paid for your decisions.

From now on it is not allowed the communication with other participants. If you have any doubt during the reading of this instructions or in any moment of the experiment, rise your hand and you will be personally attended.

There are two types of participants in the experiment: player type 1 (called Player 1) and player type 2 (called Player 2). Players 1 are those that have an odd number and Players 2 those that have an even number. At the beginning of the experiment, each Player 1 will be matched with one Player 2 in an anonymous way, and this matching will be maintained during the whole experiment.

The experiment consists of 20 identical and independent rounds, and each round consists of 4 stages which will be explained in the following. At the beginning of each round, each participant will be assigned 40 tokens, meaning that he has this 40 tokens to be used in this round.

Stage 1

Player 1 has to decide whether to send a transfer to Player 2 or not.

- If he does, his credit is reduced by 2 tokens (it is a fixed cost for transferring tokens) and the experiment moves to stage 2.

- If Player 1 decides not to send a transfer to Player 2, his credit remain unchanged, and the experiment moves to stage 4.

Stage 2

Player 1 decides on how many tokens to transfer to Player 2 between 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 tokens. The experiment moves to stage 3.

Stage 3

Player 2 decides on whether to accept the transfer or not.

- If he decides to accept, then his credit is reduced by the amount transferred, and Player 2's credit is increased by the tripled amount that is transferred by Player 1. For example, if Player 1 sends 2 tokens, Player 2 receives 6 tokens. In the following, an integer out of the range from 0 to 999 is randomly drawn by the computer (every number has the same probability of being chosen).

– If the randomly drawn number is 0, 1, or 2, then the couple is disqualified. That means: The experiment ends for these two players, and their earnings in the experiment are 0, they receive only 3 euros for showing up. These players have to remain in their place in silence and fill in a questionnaire that will be distributed. For the other participants, the experiment is continued normally.

– If the randomly drawn number is 3, 4, 5, ...or 999, then the experiment moves to stage 4.

• If he decides not to accept the transfer that Player 1 is offering, then the credits remain unchanged (the transfer cost from stage 1, however, is also paid). The experiment moves to stage 4.

Stage 4

Player 2 chooses one of the alternatives, the options depends on what has happened until the moment, i.e. if Player 1 has transferred tokens and if in case of doing it, if Player 2 has accepted the transfer or not.

1. If Player 1 decided not to transfer tokens, Player 2 chooses one of the alternatives A and B

2. If Player 1 offered a transfer that was accepted by Player 2, then Player 2 chooses one of the alternatives A and B

3. If Player 1 offered a transfer that was rejected by Player 2, then Player 2 chooses one of the alternatives A and C.

This can be seen in the following table.

Situation			Alternatives
Stage 1	**Stage 2**	**Stage 3**	**Stage 4**
Player 1	*Player 1*	*Player 2*	*Player 2*
Decides not to send tokens	-------	-------	A or B
Decides to send tokens	Decides the amount of tokens	Accepts the tokens	A or B
Decides to send tokens	Decides the amount of tokens	Does not accept the tokens	A or C

Apart from the corresponding payoffs in each situation that will be specified in the following tables, for each couple that chooses Alternative B (i.e. for each Player 2 that do it) the payoff of all the other participants will be decreased by 3 tokens. These 3 tokens are not included in the following tables.

CASE 1

Player 1 decided not to offer a transfer of tokens. The payoffs are the following.

	A	B
Player 1	50	70
Player 2	50	45

This means that if Player 2 chooses Alternative A, the payoffs are 50 tokens for both players. If, on the contrary, Alternative B is chosen, the payoffs are 70 tokens for Player 1 and 45 for Player 2. If Alternative B is chosen, 3 tokens will be deduced from the payoffs of all the other couples in the room. The quantities in the table are the payoffs of this round, they include the initial tokens (40), and the added tokens for each chosen alternative.

CASE 2

Player 1 decided to offer a transfer of tokens and it was accepted by Player 2. In this case the payoffs depend on the amount transferred. The quantities in the following table are the payoffs of this round of the experiment, they include the initial tokens (40), the added tokens for each chosen alternative, the transfer made, and the cost of doing the transfer.

Transfer	1		2		3		4		5		6		7		8		9		10	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Player 1	47	67	46	66	45	65	44	64	43	63	42	62	41	61	40	60	39	59	38	58
Player 2	53	48	56	51	59	54	62	57	65	60	68	63	71	66	74	69	77	72	80	75

For example,

- If 2 tokens are transferred and Alternative A is chosen, the payoffs are 46 tokens to Player 1 and 56 tokens to Player 2. If Alternative B is chosen, then the payoffs are 66 and 51 tokens respectively. If Alternative B is chosen, 3 tokens will be deduced from the payoffs of each participant of all the *other* couples in the room.

- If 5 tokens are transferred and Alternative A is chosen, the payoffs are 43 tokens to Player 1 and 65 tokens to Player 2. If Alternative B is chosen, then the payoffs are 63 and 60 tokens respectively. If Alternative B is chosen, 3 tokens will be deduced from the payoffs of each participant of all the *other* couples in the room.

- If 10 tokens are transferred and Alternative A is chosen, the payoffs are 38 tokens to Player 1 and 80 tokens to Player 2. If Alternative B is chosen, then the payoffs are 58 and 75 tokens respectively. If Alternative B is chosen, 3 tokens will be deduced from the payoffs of each participant of all the *other* couples in the room.

CASE 3

Player 1 offered a transfer that was rejected by Player 2. In this case the payoffs are the following.

	A	C
Player 1	48	36
Player 2	50	48

It means that, if Player 2 chooses Alternative A, the payoffs are 48 tokens to Player 1 and 50 tokens to Player 2. If Alternative C is chosen, the payoffs are 36 tokens to Player 1 and 48 tokens to Player 2. The mentioned quantities are the payoffs of this round of the experiment, they include the initial tokens (40), the added or deduced tokens for each chosen alternative, and the cost of doing a transfer.

DEDUCTIONS

From the previous payoffs we should deduce an amount depending on how many players type 2 have chosen Alternative B. For each Player 2 of the other couples that chooses Alternative B, we should deduce 3 tokens from the payoffs. For example, if there are 5 couples (excluding yours) that have chosen Alternative B, then from your payoffs (and from your partner's payoffs) we have to deduce 15 tokens (5 couples * 3 tokens).

The minimum deduction is 0 (if none of the other couples chooses Alternative B), and the maximum deduction is 3 times the number of couples that are now in the room (your couple is not counted). For example, if there are 13 couples in the room, it means 12 couples apart from your couple, then the maximum possible deduction is 3 * 12 = 36 tokens.

After stage 4, the round ends. The total earnings of the experiment are the sum of the obtained payoffs in all the 20 rounds converted into euros plus the 3 euros for showing up. The exchange rate is 1.5 € for 100 tokens. Each obtained token is worth 1.5 cents, it means that the total earnings is the amount of tokens multiplied by 0.015. This quantity will be communicated to you at the end of the experiment.

NOTE

The quantity to be deduced from your earnings due to the number of couples that have chosen Alternative B will be communicated at the end of the experiment, when the 20 rounds are over.