



Fairness Concerns and Corrupt Decisions an Experimental Approach

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Fairness concerns and Corrupt decisions an Experimental approach *

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Abstract

This study investigates the impact of a public officials' fairness considerations towards citizens in a petty corruption situation. Other-regarding preferences, and, more particularly, fairness concerns are widely acknowledged as crucial elements of individual economic decision-making. In petty corruption contexts, public officials are to a large extent aware of differences between citizens. Here, we experimentally investigate how fairness considerations may impact on corrupt behaviour. Our novel bribery game reveals that bribes are less frequently accepted when bribers are unequal in terms of endowments. These results suggest that fairness considerations can influence corrupt behaviour.

Keywords: petty corruption, bribery, laboratory experiment, fairness, inequality

JEL: C91, D63, D73, K42

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1 Introduction

In this paper, we show that fairness concerns play a role in corrupt behaviour. In a laboratory bribery experiment involving a distribution task by a public official between two citizens who are unequal in terms of endowment, bribe rejection and equal distribution rates are higher than when citizens have equal endowments.

In their press release for the publication of the 2016 Corruption Perception Index (CPI), Transparency International claim that corruption and inequality form a vicious circle that must be tackled (Heinrich 2017). They demonstrate how corruption and social inequality are closely related using CPI scores, social exclusion scores, and the Welfare Regime indicator.¹ They find a strong correlation between corruption and social exclusion and argue that "corruption leads to an unequal distribution of power in society which, in turn, translates into an unequal distribution of wealth and opportunity, feeding the risk of popular discontent" (Heinrich 2017).

Besides grand corruption where large sums of money and politics are involved, a considerable part of corruption can be categorized as petty corruption. Transparency International define petty corruption as the "everyday abuse of entrusted power by public officials in their interactions with ordinary citizens, who often are trying to access basic goods or services".² Those transactions can take place in hospitals, schools, police departments, and other governmental agencies. Petty corruption also involves negative externalities. An example of those was studied with a field experiment by Bertrand et al. (2007) in New Delhi, India. By paying public officials to obtain a driving license, unfit drivers increased the risk of injury (or death) for other drivers and pedestrians. This study highlights how seemingly anodyne bribery transactions between public officials and citizens can actually have dramatic consequences for society as a whole.

To our knowledge no study yet focusses on the impact of fairness concerns of potential bribe-takers in petty corruption situations. The present research focusses on bribe-taking behaviour and fairness concerns in a petty corruption setting. We focus on a specific type of petty corruption where the access to the public resource is limited. Typical examples encompass school admissions, working permit delivery, access to hospitals, or health treatments. This feature allows us to explore fairness issues related to the distribution of a limited resource by a public official.

The idea in this context is the following: usually public officials obtain information about citizens they have to deal with. Bureaucratic procedures require the communication of quite a number of data (including address,

¹The Social Inclusion Index is compiled by the Bertelsmann Foundation's Sustainable Governance Indicators, the Welfare Regime indicator is compiled by the Bertelsmann Foundation's Transformation Index.

²Definition of petty corruption. http://www.transparency.org/glossary/term/petty_corruption.

origin, job, income status, social benefits, etc.). We can consider that a public official has a significant amount of information on the economic status of her clients. Further, a public official has only limited resources at her disposal, be it limited working hours or the amount of permits, licenses, or other public service she can deliver. She may process several clients a day who differ in the above mentioned aspects.

If we consider that a majority of petty corruption attempts does eventually lead to bribery, the public official might consider a bribe as her usual additional income.³ In a highly corrupt environment, citizens who can afford paying above average bribes are expected to have better chances to get more of the scarce resources than others. To analyse the impact of fairness concerns in a petty corruption situation, this paper focuses on a public official's concerns for fairness between two citizens who are unequal in terms of endowment. In our experiment, public resources to be distributed by the public official are limited, which arguably puts emphasis on the unequal economic status of the citizens. The bribe-taking or bribe-refusal behavior of a public official, who earns a relatively safer and higher income than the citizens, may be influenced by this difference in economic status. The design of our experiment allows to observe how the public official might change his behaviour and sacrifice part of her potential payoff when confronted with this difference. We constituted three-player groups with the abstract roles of a public official and two citizens in a laboratory setting. Citizens in the baseline treatment received different levels of initial endowments; accordingly, they can afford different bribe amounts when requesting a resource from the public official. In the control treatment, the two citizens start with the same initial endowment, everything else in the game being equal to the baseline treatment. This paper is structured as follows: section 2 reviews the literature regarding two aspects of our experiment, bribery and fairness concerns. Section 3 explains the experimental design. Hypotheses are presented in section 4. Results are detailed in section 5 and section 6 concludes.

2 Literature

Bribery has been studied in the laboratory for several years now. However, only few experiments focus specifically on behaviour in petty corruption situations. Barr and Serra (2009) argue that specific experimental design elements are necessary. In petty corruption settings, there is a low level of reporting and enforcement; briber and bribee generally interact in a direct

³Petty corruption might be very frequent because public officials dissociate its practice from its moral implication. Literature on ethical decision-making reveals that several enablers can lead to ethical fading. As a result, a moral transgression can be conducted without feeling guilty or responsible (see Tenbrunsel/Messick 2004 for details.) In the case of petty corruption this could mean that making decision-makers aware of the fairness aspect might lead to less ethical fading and thus to less morally questionable behavior.

relationship and the interaction often takes place only once. Moreover, Barr and Serra (2009) include negative externalities in the design of their petty corruption game and show their impact on corrupt behaviour. In the same line, we build on the fact that resources to provide to the client of public services are often scarce. For example, public officials can hand out only a limited amount of permissions or can only process few requests a day, especially as the acceptance of a request often takes more time than a rejection. Further, in developing countries with weak institution and governance capabilities, petty corruption occurs more regularly (Khan 2006). In those countries, public officials often enjoy a relatively advantageous position with a safe and long-term job and relatively good wage compared to the poorest fraction of the citizens who rely heavily on them.

Research shows that petty corruption not only causes huge losses for society in general, it also widens the gap between rich and poor members of the society (Gupta, Davoodi and Alonso-Terme 2002). Wealthier citizens get more power to push through their interests in government-related requests; bribery may help them to increase their wealth to the detriment of others. Using corruption indexes and their impact on growth and Gini coefficients, Gupta, Davoodi and Alonso-Terme (2002) see the practice of corruption as a risk to exclude the poor from public services and to skew growth in favour of the rich. Results of a natural experiment that relies on the comparison of administrative data and a household survey lead Olken (2006) to suggest that corruption may limit a country's effort to redistribute wealth. In his study of rice distribution to poor households in Indonesia, he observes that a program with the initial target of improving the poor households' situation ends up in damaging welfare because of corruption opportunities. Moreover, he finds that missing rice is more prevalent in poorer and isolated areas. Justesen and Bjornskov (2014) use micro-level data from the Afrobarometer to argue that poor people are more likely to be victims of corrupt behaviour by street-level bureaucrats. The poorest citizens often rely heavily on services provided by governments because costly exit options are not available to them. This view meets the one of Fried, Lagunes & Venkataramani (2010) who observe police officers' behavior when drivers from different socio-economic categories commit identical traffic violations. They observe that police officers are more likely to demand a bribe from poorer drivers in a field experiment conducted in Mexico City. They argue that richer class individuals are targeted less because police officers fear their potential retribution. With household survey data from Uganda and Peru, Hunt & Laszlo (2012) empirically show that public officials reward clients who bribe by facilitating bureaucratic process or providing public service. Moreover, the officials angle for bribes from richer clients. Although they conclude that rich clients pay more and larger bribes, they also claim that poor clients bear the burden of bribery more heavily in disutility terms.

Barr, Lindelow and Serneels (2009)'s experimental finding that public

servants are influenced by their relative wage when monitoring performance echoes Abbink (2004)’s observation on notions of distributive fairness affecting behavioral responses. In another experiment, Abbink (2005) investigates a related aspect of fairness in corrupt decision-making in the lab. A firm is the briber, the public official is the potential bribe-taker, and the workers are a passive group suffering from negative externalities. Fairness is defined as equal salaries for public officials and workers, and, unfairness, when workers earn more than the public official. He finds that the relative earnings of a public official, compared to those of the workers suffering from negative externalities, has no influence on the decision to bribe or take a bribe. With a similar design, van Veldhuizen (2013) compares public officials’ wages with those of citizens, with the third party being represented by a charity. He argues that a higher endowment of the public official leads to less corrupt behaviour. Fairness in these two studies is different from fairness in our paper because they focus on fair wage between the public official and passive groups, while we are interested in the fairness concerns of the public official for two citizens. The public official’s self-interest does play a role in decision making as well. However, we put the public official in a position that allow us to primarily observe concerns for fairness between the citizens who requested a service from a public official.

As we argued before, public officials might be aware of the relative wealth of their clients, if they do not choose to ignore it. As they witness inequality between their clients, fairness concerns should lead to more reluctant bribe-taking behaviour, or to a bribe-taking behaviour that attempts to improve the situation of the poorer clients. The inequity model by Fehr and Schmidt (1999) suggests that a player is altruistic towards other players whenever their payoffs are lower than her own. When the other player’s payoff is higher, he might feel envious. But fairness considerations play a role even when the own payoff is not affected. We know from the redistribution literature that a third-party decision-maker, an impartial spectator, redistributes money equally between two people when they are inculpably unequally endowed (Chavanne, McCabe & Paganelli 2011; Dickinson & Tiefenthaler 2002; Konow 2000).

3 Experimental Design

The scenario of our experiment modelled the interaction of a public official and two citizens with petty corruption attempts. The actual experiment was one-shot and context-free, and all instructions were expressed in an abstract manner.⁴ The public official, hereafter called player B , had a limited amount of resources to distribute. The citizens, called player A_1 and player A_2 , wanted to obtain access to the resources. The experiment used a real-effort

⁴ An English version of the instructions can be found in Appendix A.

task (for player A_1 and player A_2) and a distribution task (for player B). The real-effort task was based on Gill and Prowse (2011)’s slider task, with some of the features adapted to fit with our game. The distribution task was performed by player B who had a limited amount of resources to distribute between player A_1 and player A_2 . The experiment consisted of a preliminary stage, a decision-making stage, and a real-effort stage. In the preliminary stage, all participants completed three trial rounds of the slider task in order to familiarise with the real-effort task of the actual experiment. They were informed that their performance in the trial rounds would not influence their final payoff.

3.1 Set-up

Participants were assigned a role: A_1 , A_2 or B . At this point, three-player groups were formed, all composed of A_1 , A_2 and B . Then player A_1 and player A_2 requested sliders from player B in order to earn money by correctly positioning the sliders. The amount of sliders that player B had to distribute was limited to 20. She had to indicate her slider distribution to player A_1 and player A_2 following the strategy method.⁵ That is, we asked players B to make a decision for each possible combination of requests that could happen in the game. The strategy method allowed us to retrieve a maximum of information from our participants.⁶ All players were then informed about the actual requests by players A_1 and A_2 and the resulting distribution by player B . After that, players A_1 and A_2 completed the slider task based on player B ’s distribution of tasks, which earned players A_1 and A_2 some money.

The structure of the decision-making stage is described in figure 1. Player B received a fixed endowment of 1300 Talers to distribute the exact amount of 20 sliders between player A_1 and player A_2 . She had to distribute all of the sliders which were not valuable to keep for her. With each correctly positioned slider, player A_1 and player A_2 earned an additional 70 Talers, while it only cost them 5 Talers to acquire it. The sliders are easy to position when given enough time, which was always the case in our setting. So each slider acquired led to the correct position reward of 70 Talers. Starting with zero sliders in their possession, the objective of player A_1 and player A_2 was therefore to get as many sliders as possible from player B in order to increase their payoffs. During role assignment, player A_1 and player A_2 had privately learned about their respective initial endowments. They were informed that

⁵For the sake of clarity, we will use the pronouns ‘she’ for player B and ‘he’ for player A_1 or player A_2 .

⁶Moreover, results collected with the strategy method constitute a lower bound to direct response method (Brandts & Charness 2011). We can therefore assume that were the results collected using direct response method, they would go in the same direction as those collected with the strategy method with possibly larger effects.

they could use their initial endowment to buy sliders and to try convincing player B to give them more sliders by giving her an extra payment, in addition to the cost of the sliders. In other words, while corruption vocabulary was never explicitly mentioned in the experiment, player A_1 and player A_2 could indeed bribe player B to obtain more sliders. Therefore, more than 10 sliders obtained for one player necessarily meant that less than 10 sliders were left for the other player.

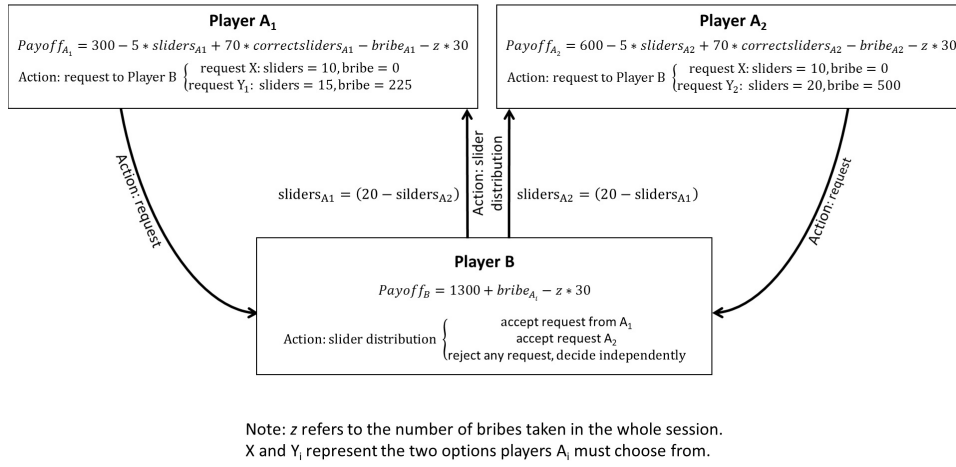


Figure 1: Experimental Design - UNFAIR treatment

Our experiment consisted of two treatments: UNFAIR and CONTROL. In the UNFAIR treatment, player A_1 got an initial endowment of 300 Talers and player A_2 got 600 Talers. Player B learned about both A players' endowments. The difference in initial endowments, was meant to be clearly perceived as unfair and to model the heterogeneity of economic status amongst citizens.⁷ We made sure that unfairness between player A_1 and player A_2 was salient to player B by prompting information on the differing endowments on their computer screen. We also made all participants aware of the high profits realised from every further slider obtained from player B .⁸

Since player A_2 was richer than player A_1 , he was able to propose a higher bribe. We fixed bribe amounts for player A_1 and player A_2 in order

⁷To avoid effort, skill, or luck perceptions in the role assignment, a message from the experimenter appeared on each participant's computer screen, informing them of the role and of the initial endowment that goes with their role. Moreover, note that the design of the experiment guaranteed that player B 's payoff would always be larger than A players', whichever decision they made.

⁸Feedback from our post-questionnaire confirms that the situation in UNFAIR treatment was indeed perceived as unfair, which was not the case in CONTROL.

to avoid variation that would generate fuzzy data and render result analysis inefficient. The bribe from player A_2 was high and fixed to 500 Talers for the request of 20 sliders. The bribe from player A_1 was lower and fixed to 225 Talers for the request of 15 sliders. For player A_1 as well as for player A_2 , when offering a bribe to player B , their whole endowment is spent between the cost of the sliders and the bribe amount. Every time a player B accepted a bribe during the session, 30 Talers were subtracted from the payoff of every participant in the session. This payoff reduction represents the negative externalities generated by the practice of corruption for society as a whole. It seems consistent that the whole society, including the corrupt citizens, suffers from the consequences of petty corruption even if the amount in payoff reduction for each participant is quite small. We consider it as a welfare damage that affects everybody, and adds up with the frequency of bribery.⁹

Situation	Player A_1 request	Player A_2 request
0	X: sliders=10, bribe=0	X: sliders=10, bribe=0
1	Y_1 : sliders=15, bribe=225	X: sliders=10, bribe=0
2	X: sliders=10, bribe=0	Y_2 : sliders=20, bribe=500
3	Y_1 : sliders=15, bribe=225	Y_2 : sliders=20, bribe=500

Table 1: Situations summary

Table 1 summarizes the four possible situations resulting from requests made by player A_1 and player A_2 :

- Player A_1 had two options:
 - Request X: 10 sliders and pay the cost of the sliders ($10 \cdot 5 = 50$ Talers)
 - Request Y_1 : 15 sliders, pay the cost of the sliders ($15 \cdot 5 = 75$ Talers) AND offer an extra payment of 225 Talers to player B
- Player A_2 had two options:
 - Request X: 10 sliders and pay the cost of the sliders (50 Talers)
 - Request Y_2 : all 20 sliders, pay the cost of the sliders (100 Talers) AND offer an extra payment of 500 Talers to player B

⁹Using payoff reduction to represent the general welfare damage generated by corruption is a common design element in bribery experiments although other ways to implement negative externalities exist (Barr and Serra 2009).

When player A_1 and/or player A_2 attempted to bribe her, player B had three options:

- Reject any bribe request Y
- Accept the request from player A_1
- Accept the request from player A_2

When rejecting a bribe, player B could choose to distribute the 20 sliders freely but couldn't offer more than what was initially requested by player A_1 or player A_2 .¹⁰ In this case, the bribe amount automatically went back to the bribers. When accepting a bribe, the favour was always granted to the briber and he received the amount of sliders he asked for. The aim of this latter design element is to rule out reciprocity to explain behaviour in the distribution decisions of player B once he has accepted a bribe. It is also a way to avoid a specific behaviour where the distributor accepts the bribe from the briber but distributes sliders equally, thereby avoiding the moral costs associated with unfairness and possibly overruling the moral costs associated with bribery, a way of 'having the cake and eating too', as in Falisse and Leszczynska (2015).

In CONTROL treatment, both player A_1 and player A_2 got the same initial endowment of 600 Talers, everything else in the game (including possible bribe amounts) being equal to the UNFAIR treatment.

3.2 Payoffs

The payoff of each player is described by the following equations:

$$P_B = 1300 + \text{bribe}_{A_i} - z * 30 \quad (1)$$

$$P_{A_i} = \text{endow}_i - 5 * \text{sliders} + 70 * \text{correctsliders} - \text{bribe}_{A_i} - z * 30 \quad (2)$$

where z represents the number of times bribery was accepted in the session, i.e. if three players B accepted a bribe in the session, $z=3$. Initial endowments of each player A_i are represented by endow_i . The possible situations combining requests from player A_1 and player A_2 that required player B to make a decision are described in table 2.¹¹ Following the strategy method, B players were asked to make a decision for each of the three situations. Player B can either reject bribes or accept at most one of them.¹²

¹⁰Player B who chose this option always distributed 10 sliders to each player A , except in 5 cases (out of 222).

¹¹In situation 0, no decision is required from player B since no bribery occurs.

¹²As an incentive to answer carefully to each situation considered, players B were informed that each situation, depending on player A_1 and player A_2 's requests, had a positive probability to occur at the end of the game.

Decision situation	Player $A_1 \rightarrow 300$	Player $A_2 \rightarrow 600$
1 – LOW bribe	sliders=15, bribe=225	sliders=10, bribe=0
2 – HIGH bribe	sliders=10, bribe=0	sliders=20, bribe=500
3 – LOW and HIGH bribe	sliders=15, bribe=225	sliders=20, bribe=500

Table 2: Decisions of player B – strategy method

3.3 Procedure

The experiment was programmed using z-Tree (Fischbacher 2007) and was conducted in the Business and Economic Research Laboratory (BaER-Lab) of Paderborn University. Participants were recruited via the ORSEE recruitment system (Greiner 2015). In total, 222 students from various fields of academic study participated to 17 sessions (maximum 27 subjects per session) between January and April 2016. Each session lasted for no longer than 1,5 hour and the average payment of a participant was of 13,62 Euros (which approximately corresponds to the standard student wage in Paderborn). In the preliminary stage each participant first received a document with carefully detailed instructions and was given 10 minutes to read it individually (see instructions in appendix B). They then received a pre-questionnaire through a brief computerised test, which allowed us to check that participants understood the crucial aspects of the experiment. After completing the experiment participants were asked to complete a computerized post-questionnaire that included individual characteristics and motives or interpretations of their actions. The experiment currency were *Talers* with a conversion rate of 100 Talers=1,00 Euro.

4 Hypotheses

We are interested in how player B will adapt his corruption behaviour when witnessing inequality between player A_1 and player A_2 .¹³ Each player has been assigned a role and a corresponding endowment by the experimenter. Role and endowments come from the experimenter to render salient the unfairness of the situation between player A_1 (300 Talers) and player A_2 (600 Talers) in the UNFAIR treatment. While economic theory would predict that player B always takes the highest possible bribe, the literature that takes fairness preferences into account may lead to a different prediction. Accepting a bribe or the level of bribe accepted might be influenced by

¹³The fairness view of player A_1 and player A_2 towards each other and towards player B is also of interest but we will not discuss their attitude here.

fairness considerations and, therefore, those may lead to different outcomes depending on bribers endowments.

Our first hypothesis concerns the influence of bribers endowments on bribe-taking in general, i.e. all decision situations of the experiment are considered.

Hypothesis 1. *Bribe rejection is more frequent in the UNFAIR treatment.* Bribe offers are rejected more often when initial endowments are not equal. If people do have a preference for fairness, they might sacrifice a fraction of their payoff by refusing bribes to restore an initially unfair situation. In our experiment, this means that, across all situations where bribery is possible, we expect players B to reject bribes more when they see that player A_1 has a lower endowment than player A_2 .

The two following hypotheses regard how fairness concerns impact bribe-taking when two bribes are simultaneously offered to player B , which is only the case in situation 3. In a corruption-prone environment, it is not rare that several bribers compete for access to a same public resource. This is why we focus on situation 3 as the central part of our analysis.

Hypothesis 2. *A bribe from player A_2 is accepted less frequently in the UNFAIR treatment, in situation 3.* When bribes are offered by the poor and the rich citizens, the rich citizen's bribe is rejected more often because accepting it would further enlarge inequality between citizens to a point that leaves the poor citizen without any opportunity to improve his initial position. In our experiment, this means that, when player B is simultaneously offered a bribe by player A_1 and by player A_2 , we expect her to reject bribes from player A_2 more when they see that player A_1 has a lower endowment.

Hypothesis 3. *A bribe from player A_1 is accepted more frequently in the UNFAIR treatment, in situation 3.* When both citizens offer a bribe, the bribe from the poor citizen is accepted more often by player B because it gives her the opportunity to correct unfairness from the unequal initial endowments, on top of improving her payoff. In our experiment, this means that, when player B is simultaneously offered a bribe by player A_1 and by player A_2 , we expect her to accept bribes from player A_1 more when she sees that player A_1 has a lower endowment. In other words, the public official may accept a bribe that allows her to improve the situation of the poor citizen relative to the rich citizen while improving her own payoff (but not to the maximum).

Situations	Requests		Bribes		Sliders		Taken	Payoffs		
	A_1	A_2	A_1	A_2	A_1	A_2	B	A_1	A_2	B
0	10	10	0	0	10	10	0	950	1250	1300
1	15	10	225	0	15	5	225	1050	925	1525
2	10	20	0	500	0	20	500	300	1400	1800
3	15	20	225	500	15	5	0	1275	925	1300
3bis	15	20	225	500	15	5	225	1050	925	1525
3ter	15	20	225	500	0	20	500	300	1400	1800

Table 3: Payoffs in each situation of UNFAIR treatment, before subtraction of negative externalities (value in Talers of the correctly positioned slider=70, cost of the slider=5 and negative externality=30).

5 Results

For each observation, we focus on the behaviour of the players B ; 49 of them participated in the UNFAIR treatment and 25 were in the CONTROL treatment. In line with the strategy method, each player B (representing the public official and potential bribe-taker) was asked to decide whether she would or not accept a bribe in three potential situations. The data is therefore related to the three situations where bribery can take place; see Table 2. The payoffs for all players in each situation within the UNFAIR treatment are described in Table 3. Note that player B is always better off than both player A_1 and player A_2 , in each potential situation. This element of the design is meant to minimize envy from player B regarding decisions between herself and player A_1 and/or player A_2 .

First, in both treatments and for each situation considered, a majority of participants accepted bribes ($\emptyset=77.66\%$). This level of bribe acceptance is consistent with other experimental bribery games with no sanction and no reporting that were conducted with student participants (Frank & Schulze 2000, Barr & Serra 2009).

The findings relating to our hypotheses are presented in Figures 2 and 3, and in Table 4. The figures contain histograms showing the proportions of bribes rejected and the type of bribe accepted for each situation considered in the game.

Bribe rejection in all three situations where bribe acceptance was possible (low, high, double) are shown in Figure 2. Bribe rejection looks higher on the right-hand side of the graph, i.e. in the UNFAIR treatment. Indeed, player B rejected bribes on average 28.6 % in the UNFAIR treatment and 16.0 % in the CONTROL treatment. The Mann-Whitney U-test supports that average bribe rejection rates are higher in the UNFAIR treatment ($z=-1.808$, $p=0.0706$). In other words, player B rejected bribes more often in the UNFAIR treatment than in the CONTROL treatment. This indicates that

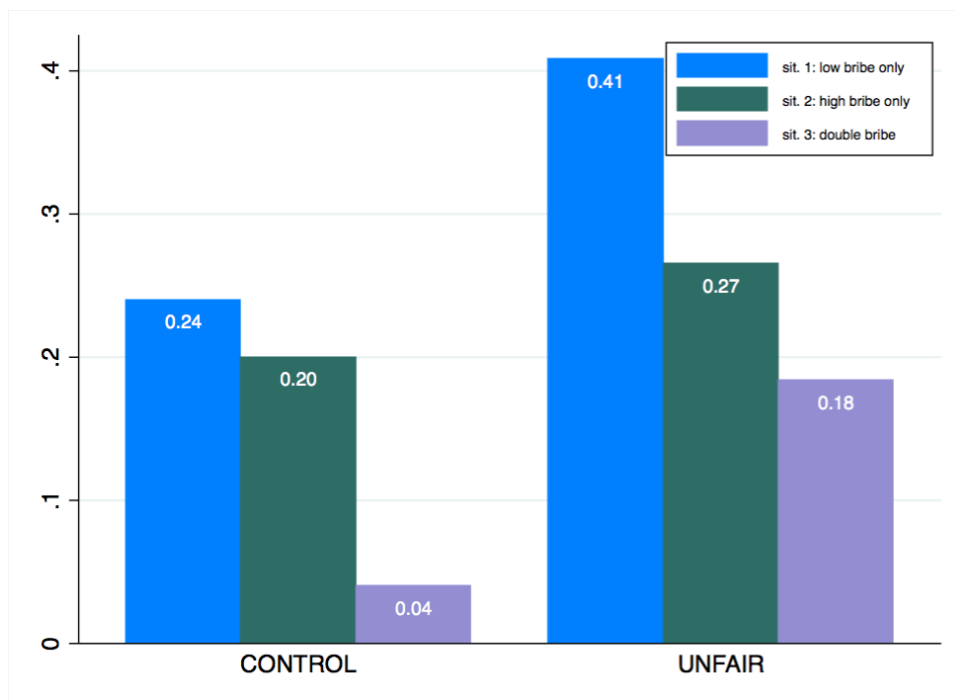


Figure 2: Bribe rejection by treatment for each situation (each bar corresponds to a situation in which bribe taking was possible: *low bribe only* corresponds to situation 1, *high bribe only* corresponds to situation 2, and *double bribe* corresponds to situation 3).

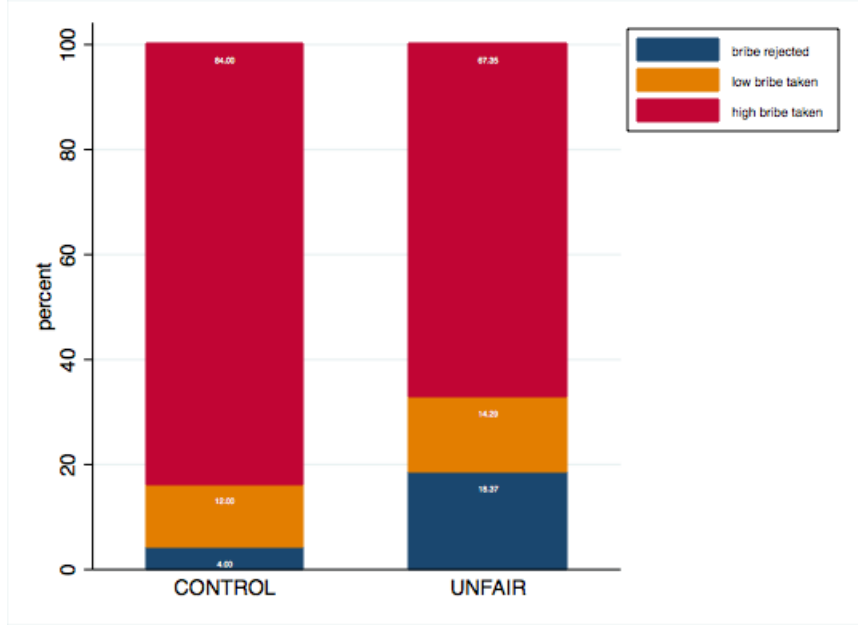


Figure 3: Proportion of rejected and accepted bribes by player B in situation 3, i.e. when two bribes are offered simultaneously.

bribe rejection was higher given unequal initial endowments for player A_1 and player A_2 , which speaks in favour of our first hypothesis that predicted bribe rejection in general to be higher in the UNFAIR treatment.

The main focus of our analysis is on situation 3, when two bribes were offered simultaneously by player A_1 and player A_2 . First, in situation 3, the bribe rejection rate was lower than in situation 1 or in situation 2 where only the low or only the high bribe was offered. This suggests that when two bribes are offered simultaneously, a public official may more easily accept at least one of the bribes offered to her.

In situation 3, player B had three options: she could either decide to accept the high bribe from player A_2 , or accept the low bribe from player A_1 , or she could reject all bribes and herself decide on the sliders distribution. Table 3 shows that accepting the high bribe in the UNFAIR treatment would leave player A_1 with no sliders and a final payoff of only 300 Talers (3,00 Euros). Compared to this, player A_2 would earn 1400 Talers.¹⁴ If, however, player B accepted the low bribe she could decrease the inequality due to the difference in initial endowments, leaving A_1 with 1050 Talers and A_2 with 930 Talers.

¹⁴Reported payoffs exclude the show-up fee and assume that players A_1 and A_2 solve all the received slider tasks correctly. This was always the case in this experiment.

Figure 3 shows player B decisions in situation 3 per treatment. Player B 's choices between the three options [accept A_1 , accept A_2 , reject all] were numerically different in the UNFAIR and CONTROL treatments (Mann-Whitney U-test: $z=1.643$, $p=0.1003$). Further, more people tended to reject all bribes rather than taking a bribe, in the UNFAIR treatment (proportion test: $p=0.0436$). The general difference is mainly driven by the difference in high bribe rejection. High bribes are accepted less often in the UNFAIR treatment (proportion test: $p=0.0635$), which supports hypothesis 2 that predicts a less frequent acceptance of the high bribe from player A_2 when player A_1 and player A_2 are not equally endowed. However, there is no significant variation in low bribe acceptance between the treatments. This means that players B who did not accept the high bribe were not willing to take the low bribe that would lead to almost equal payoffs for players A_1 and A_2 , which speaks against hypothesis 3. A substantial part of participants seemed to hold back from corrupt behaviour at all when inequality is obviously in place. We can explore further this unexpected behaviour with the analysis of additional results.

The behaviour of player B in situation 1 and in situation 2 allows us to complement our analysis. In situation 1, player B was offered the low bribe only (225 Talers) to give 15 sliders to player A_1 . In the UNFAIR treatment, player A_1 was poor since he received half of the endowment of player A_2 . According to hypothesis 3, we would expect that player B accepts the low bribe more frequently when player A_1 is poor than when he is equal to player A_2 . This would allow him to (i) make more money, and (ii) reduce the inequality due to the endowment allocation. However, the payoffs described in table 3 show that accepting the low bribe in situation 1 would not only reduce unfairness between the A -players, it would also reverse the initial situation, i.e. it would make player A_2 poorer than player A_1 . In situation 1, the data show a significant difference in the low bribe rejection between the UNFAIR and CONTROL treatments, which goes in the direction opposite to what was predicted by hypothesis 3 (proportion test: $p=0.0759$). This could indicate that players B are reluctant to reverse the initial wealth ranking of player A_1 and player A_2 with their decision, even if they are given an opportunity to make more money while decreasing unfairness. This interpretation would suggest the presence of rank preserving preferences, and compare with results from Zhou, Ho, Meier and Xie (2016) who find that people tolerate higher inequality in order to preserve pre-existing rank orders of endowments. Participants in their redistribution game rejected a redistributive transfer that would reduce inequality if this transfer reversed the initial ordering of endowments. In our case, we could argue that these preferences are such that people prefer to renounce to a monetary incentive added to the possibility of reducing inequality to preserve the ranking between player A_1 and player A_2 .

In situation 2, player B is offered the high bribe only (225 Talers) to give all 20 sliders to player A_2 . In the UNFAIR treatment, player A_2 is rich since he received twice the endowment of player A_1 . We find a small and insignificant difference between the two treatments in the high bribe acceptance by player B , which shows that, when the bribe is high, fairness concerns may not be a priority. Moreover, accepting the high bribe does not reverse the initial wealth ordering between player A_1 and player A_2 .

Table 4: Robustness checks

	(1)	(2)	(3)	(4)	(5)
	bribe refusal	bribe refusal	bribe refusal	bribe refusal	bribe-taking
	All situations	situation 1	situation 2	situation 3	situation 3
		low bribe	high bribe	low and high	low and high
UNFAIR	0.332** (0.153)	0.322** (0.145)	0.0791 (0.125)	0.202** (0.0923)	-0.729* (0.402)
age	-0.0317* (0.0179)	-0.0104 (0.0167)	0.00170 (0.0133)	-0.00495 (0.00964)	0.0263 (0.0447)
gender	0.120 (0.125)	0.106 (0.118)	0.00420 (0.102)	0.0439 (0.0738)	-0.0247 (0.314)
faculty	-0.0265 (0.0231)	-0.0266 (0.0224)	-0.00799 (0.0192)	-0.00277 (0.0144)	0.0441 (0.0620)
religion	0.000438 (0.0375)	0.0290 (0.0332)	-0.000770 (0.0289)	-0.00743 (0.0202)	0.0504 (0.0923)
politicalparty	0.0377 (0.0244)	0.00630 (0.0180)	0.00551 (0.0155)	0.0162 (0.00994)	-0.0398 (0.0483)
session	0.0105 (0.0175)	0.0252 (0.0159)	0.00196 (0.0140)	0.0143 (0.00987)	-0.0220 (0.0429)
N	74	74	74	74	74

Column (1) shows marginal effects for a probit model of bribe rejection by Player B in all situations.

Column (2) to (4) show marginal effects for a probit model of bribe rejection in situation 1, 2 and 3.

Column (5) shows the ordered probit regression result for bribe-taking by player B in situation 3.

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Results of probit and ordered probit regressions in table 4 reveal similar results, supporting the effect of unequally endowed players A_1 and A_2 on bribe rejection. The dependent variable of the probit models is bribe refusal, taking the value 1 if bribe(s) were rejected by player B . In the ordered probit model, only relevant in situation 3 where a low and a high bribes are proposed, the dependent variable is bribe-taking. Results are stable when adding individual control variables such as age, gender, field of study, religion, and political party.

6 Conclusion

We have investigated the link between public officials' fairness concerns and their corruptibility. The results of our neutrally framed laboratory experiment reveal evidence that bribe-taking of a public official is influenced by an unindebted unfair situation between the citizens when they request public services. When decision-making of the public official (and potential bribe-taker) did lead to strong negative consequences for a disadvantaged citizen, bribes were rejected more often. Especially in a petty corruption situation where bribes were offered from several citizens, public officials tended to refuse more bribes from richer citizens. To our knowledge there is no other experiment focussing on an external decision-maker's fairness concerns towards his clients when being offered a bribe. Our findings contribute to a new aspect of the petty corruption literature and point out that concerns for fairness do play a role when making corrupt decisions. We argue that understanding the fairness mechanism at play in our experiment could be used to reduce bribe-taking in street-level bureaucracies. If inequality between citizens is highlighted to public officials, they could be more reluctant to take a bribe. Further, the consequences of corrupt decisions for the poorer part of society could be made salient to the decision-maker in order to impact his corruptibility. More research on this new insight could be used to explore the recent findings by Transparency International about the correlation between corruption and social inequality as well as findings of studies showing that poor citizens suffer more from corruption (Gupta, Davoodiv& Alonso-Terme (2002), Hunt & Laslo (2012), Justesen & Bjornskov (2014)).

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A Real effort task

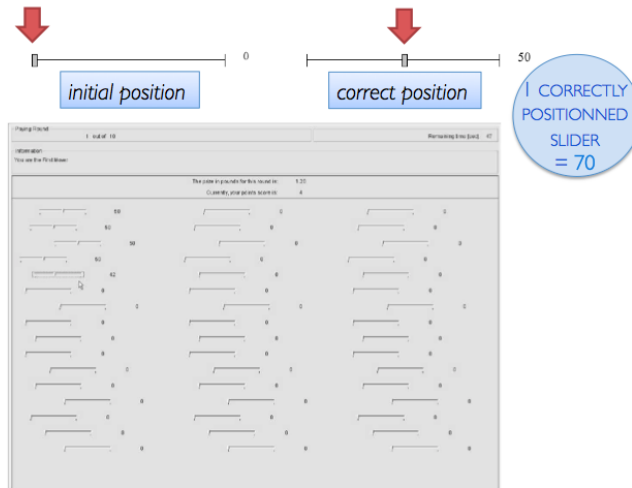


Figure 4: original slider task (Gill & Prowse 2011), 48 sliders in 120 seconds

B Instructions

Instructions

General remarks

- During the experiment all values are indicated in the fictional currency 'Taler'.
- At the end of the experiment the earnings in Talers are converted into Euros at an exchange rate of **1** Euro per **100** Talers. You receive the total sum plus a show-up fee of **2,50** Euro.
- We also ask you to fill out a questionnaire after the experiment. It is very important for us that you answer all questions carefully; remember that your answers will remain entirely anonymous. We will only use your answers for research purposes. In the questionnaire there are no "right" or "wrong" answers. The way you answer the questionnaire does not influence your earnings.
- Your earnings will depend on your decision and on that of other participants.

Please consider the following

- Es ist keine Kommunikation gestattet.
- Alle Handys müssen während der kompletten Experimentdauer ausgeschaltet sein.
- Sämtliche Entscheidungen, die Sie im Rahmen dieses Experiments treffen, erfolgen anonym, d.h. keiner der anderen Teilnehmer erfährt die Identität desjenigen, der eine bestimmte Entscheidung getroffen hat.
- Auch die Auszahlung erfolgt anonym, d.h. kein Teilnehmer erfährt, wie hoch die Auszahlung eines anderen Teilnehmers ist.
- Bitte bleiben Sie bis zum Ende des Experiments an Ihrem Platz sitzen. Sie werden zur Auszahlung mittels der Ihnen zugeordneten Platznummer aufgerufen.

Instructions and Roles

- You will play together with two other participants.
 - The experimenter will assign each participant to one of 3 following roles: Player A₁, Player A₂ or Player B.
 - Only you know which role you are assigned to and it will only be shown on your screen.
 - All participants are anonymous. Thus you will never know the identity of the person you play with.
- You will be randomly assigned to a playing group. Each playing group consists of a player A₁, a player A₂ and a player B.

- You will stick to your role and to your playing group during the whole experiment that lasts only 1 round.

Player A_1 and player A_2

- You will work on a task to earn Talers: you will have to position sliders on the exact middle of the corresponding lines.
 - In order to successfully complete the task you must position a small slider on position 50, which is the exact middle of a line. You must use the computer mouse and the arrows to move the slider.
 - The following figure represents an example of this task:



- There will be several sliders on your screen.
 - There is a time limit of 120 seconds
- You will earn **70 Talers** for each correctly positioned slider.
- However, the amount of sliders initially available to you is 0. This means that you have initially no possibility to earn Talers.
- To be able to play, and hence to earn Talers, you will have to request sliders from player B before the start of the task.
 - You will have the choice between two kinds of request that will be displayed on your screen: Option X and Option Y
 - Option Y gives you the possibility of receiving a higher amount of sliders than the option X. Option Y involves a payment to player B. Details on these options will be displayed on the screen.
 - Player A_1 and player A_2 will not learn about each other's choices.
- You will receive an **initial endowment** of Talers.
 - The initial endowments of player A_1 and player A_2 might be different. The exact amount of endowments will be displayed on screen of the respective player A. Player A_1 and player A_2 do not learn about each other's endowment. However, player B is informed of the initial endowment of player A_1 and player A_2 .
- Each slider that you will receive from player B will decrease your initial endowment by **5 Talers**. If you proposed option Y and it was accepted by player B, the payment will be subtracted from your initial endowment and transferred to player B. As already mentioned each correctly solved slider will earn you **70 Talers**.

Player B

- You are in charge of distributing a limited amount of sliders between player A₁ and player A₂.
- The total amount of sliders you have to distribute is **20**.
- Player A₁ and player A₂ have to choose between 2 kinds of request to submit to you: option X or option Y with a payment, i.e., the transfer an amount of Talers to player B. Player B can accept at most one A-player's payment.
 - If player B accepts a payment:
 - The payment is added to player B's final earnings.
 - The A player whose payment was accepted automatically receives the exact amount of sliders he or she requested. The rest (if any) goes to the other A player.
 - All participants of this experiment session (including A₁, A₂ and B and all the members of all other playing groups) incur a decrease of **30 Talers** in their final earnings.
- Player B can:
 - refuse any payment and decide on the distribution of sliders or
 - accept one payment (if at least one is proposed) and send the exact amount of requested sliders to the player who offered this payment.
- Sliders requests and initial endowments of player A₁ and player A₂ will be displayed on your screen. Note that player A₁ and player A₂ do not know each other's requests.
- You must decide how to distribute the sliders amongst players A.
 - You have to distribute the exact amount of **20 sliders**.
 - If the sum of requests is higher than **20 sliders**, you must decide to give less to one or both of players A.
 - Note that you can never give more sliders than what was asked by a player A.
- This is a simplified preview of the decision screen where all possible requests combinations by player A₁ and player A₂ are presented to you:

Combinations of requests	
1	Player A1: Option X Player A2: Option X
2	Player A1: Option Y Player A2: Option X
3	Player A1: Option X Player A2: Option Y
4	Player A1: Option Y Player A2: Option Y

- Before learning about the actual requests made by player A_1 and player A_2 , you will have to indicate your choice about sliders distribution for each of the presented combinations.
- After doing so, you will learn which of the combinations was actually made by player A_1 and player A_2 .
 - This means that only one out of your four sliders distribution decisions will be realized and will influence your payment.
 - However, since you will learn about player A_1 and player A_2 's actual requests only after indicating your sliders distribution for each combination, you should carefully make each sliders distribution as if they corresponded to player A_1 and player A_2 's actual requests.
- Your earnings will consist of a fixed payment of **1300 Talers**. In addition to this, if you accept a payment from player A_1 or player A_2 , the amount will be added to your fixed payment.

Procedure (short review of the different steps of the experiment)

After reading the instructions and before starting the experiment, you will have to answer some multiple choice-questions in order to make sure you perfectly understood the instructions.

I.

In the 1st part of the game, you will participate in three trial rounds of a task that you will later solve for earning money. This means that your performance in these trial rounds will not influence your earnings. The trial rounds are meant to help familiarize you with the task.

- There is a time limit of 120 seconds for each trial round.
- For these rounds you will find 48 sliders on the screen.
- You will probably not manage to position all of them. However in part 1, you should learn how many sliders you manage to position correctly during the imparted time limit.

II.

- The experimenter will assign each participant to one of 3 following roles: Player A₁, Player A₂ or Player B.
- All participants are randomly assigned to a playing group. Each playing group consists of a player A₁, a player A₂ and a player B.
 - Player A₁ and player A₂ are given their initial endowments: Player A₁ and player A₂ do not learn about each other's endowment. However, player B is informed of the initial endowment of player A₁ and player A₂.

III.

- Player A₁ and player A₂ send their slider requests to Player B.
- Meanwhile, player B indicates his sliders distribution for each request combinations.

IV.

- All players get to know the realized distribution.
- Player A₁ and player A₂ are respectively informed about player B's decision about how many sliders they receive.
- Player A₁ and player A₂ perform the task.
- All players answer the questionnaire.

Viel Erfolg beim Experiment!