Original Article

Gender and Corruption: Lessons from Laboratory Corruption Experiments

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Abstract Reliable microdata on corrupt behavior are hard to obtain in the field, and available field data are hard to interpret. Laboratory corruption experiments have therefore recently gained in popularity, and those that shed light on gender effects are surveyed in this article. The tentative main result is this: if women are involved in a potentially corrupt transaction, it is more likely to fail. The reason is not that women are intrinsically more honest, but that they are more opportunistic when they have the chance to break an implicitly corrupt contract and less engaged in retaliating nonperformance. The survey closes with tentative implications for development policy.

Les micro-données fiables sur les comportements de corruption sont difficiles à recueillir sur le terrain, et les données de terrain disponibles sont difficilement interprétables. Les expériences en laboratoire sur la corruption gagnent donc, depuis quelques temps, en popularité. Celles qui mettent en lumière les effets de genre sont examinées dans cet article. Un premier constat provisoire est celui ci: Si des femmes sont impliquées dans une transaction potentiellement frauduleuse, la probabilité d'échec de cette dernière est plus élevée. La raison n'en n'est pas que les femmes sont intrinsèquement plus honnêtes, mais plutôt qu'elles sont plus opportunistes lorsqu'il s'agit de rompre un contrat teinté de corruption et moins enclines à réagir face à des performances insatisfaisantes. L'étude conclut en décrivant des implications possibles pour les politiques de développement.'

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Introduction: Exploring the Gender-Corruption Nexus

The international development community widely acknowledges the importance of gender equality and the empowerment of women as a key to combat poverty and to enhance aid effectiveness. Fighting for human rights, enhancing equal opportunities of participation for women and men, and their access to all kinds of resources are not only strategies, goals and challenges, but main keys for equity, economic growth and social justice. Corruption, in turn, by diverting resources, biasing decision-making processes, and undermining trust in politics and the economy, is a major stumbling block for achieving good governance and thus for sustainable development. Corruption is increasingly addressed by the international community and governments, and also by development assistance. It is largely acknowledged that most of the Millennium Development Goals cannot be achieved without seriously tackling corruption.

Establishing and exploring the nexus between both issues, gender and corruption, however, has been rarely undertaken, but is facing growing interest both by development

practitioners and the academic world. Basically, there are three ways to look at this nexus. First, gender may play a role in explaining corrupt behavior; there might be observed differences between men and women with respect to their willingness to give and take bribes and to engage in corrupt networks of reciprocity. For instance, based on interviews with taxi drivers in Colombia, Lambsdorff and Fink (2006, p. 23) find that women transit police officers seem to be more difficult to bribe. This result was later confirmed in Fink and Boehm (forthcoming). Insights into such gender-specific behavior may be harnessed and translated into better policy recommendations. Second, one could look at the effects that corruption may have on the policy goal of enhancing gender equality. As with other goals and reforms, gender policies may of course be undermined by certain types of corruption; identifying and tackling these can increase the effectiveness of gender policies. Third, some of the many facets of corruption may hit its victims differently according to gender. Men may experience corruption differently than women; identifying who are most vulnerable to certain aspects of corruption again may be valuable to design countervailing measures. Nyamu-Musembi (2007), for instance, shows that women and men are experiencing corruption differently in justice administration (for other examples beyond sexual extortion, see Transparency International, 2007, and GTZ, 2004, 2009). This article focuses on the first issue: the exploration of gender differences in behavior.

The pioneering studies that picked up the issue of gender and corruption had the merit to put the two topics together on the agenda and have opened the debate. The two initial works in combining gender and corruption are, on the one hand, the paper by Dollar *et al* (1999), later published in 2001 in the *Journal of Economic Behavior and Organization*, and, on the other, the paper by Swamy *et al* (2001). On the basis of cross-country studies, both find that a larger share of women in parliament, bureaucracy or labor force coincide with lower levels of corruption. While Swamy *et al* (2001), in order to explain these findings, refer to microdata showing that women are less likely to be involved in bribery and are also less likely to condone bribe-taking, Dollar *et al* (1999, 2001) refer to behavioral studies and come to the conclusion that women are more trustworthy and public-spirited than men.

Along these lines, we constructed a simple correlation graph between the Corruption Perception Index (CPI) 2007, published by Transparency International, and the Gender Equity Index (GEI) 2007 developed by Social Watch measuring women's relative economic activity, education and empowerment (Figure 1). And indeed, the correlation between gender equality and level of corruption is positive. Low levels of corruption come along with a more equal gender situation, and vice versa.

A simple correlation, of course, does not shed light on the issue of causality. Is it a more equitable society that leads to lower levels of corruption, as hypothesized by the two studies presented above, or is it that higher levels of corruption impede women to participate in economic and political life and this makes it more difficult for them to enforce or obtain their rights (Lambsdorff, 2007, p. 34)?

Indeed, these findings are interesting, but they must be interpreted with great caution. The main problems are spurious correlation and reverse causality. *Spurious correlation* is present when both female participation and corruption are driven by other factors. This is the argument advanced by Sung (2003), who shows that the impact of gender on corruption decreases considerably once further variables such as rule of law, freedom of the press and democracy are controlled for. He argues that it is largely these institutions that simultaneously help women and integrity, rather than female participation lowering corruption. Experimental evidence can directly either support or qualify this conclusion.

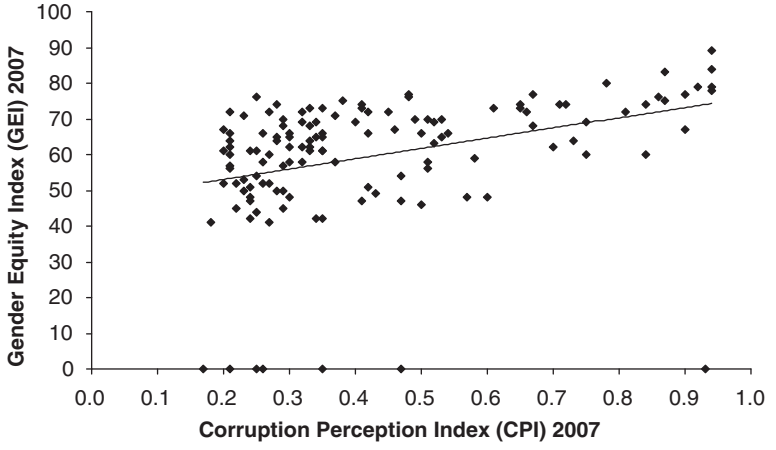

Figure 1: Gender equity and corruption.
Source: CPI 2007 by Transparency International (www.transparency.org or www.icgg.org), GEI 2007 by Social Watch (www.socialwatch.org).

Reverse causality would be at work if a low level of corruption imposes restrictions on male-dominated networks, provides women with legal recourse for pursuing their rights and improves non-discriminating access to higher positions. Or women might find corrupt industries more repugnant than do men and seek career opportunities in industries with higher levels of integrity. If such forces are at work, female participation would not *cause* integrity but be the result of lower levels of corruption. Along these lines, one could argue that the relationship between corruption and gender is not an evidence for one gender being fairer or more corrupt than the other. It is rather to be expected that '[d]istorted institutions are likely to distort the individuals working in them, whatever their gender' (Transparency International, 2007). Owing to the legal discrimination of women in many countries and cultural constraints in male-dominated societies, women are of course often denied equal rights and access to resources such as land, property or credit. Alhassan-Alolo (2007) investigates this point with evidence from Ghana and comes to the conclusion that 'women may not prove less corrupt in the public sector if corrupt opportunities and networks are not restrained.' Similarly, Goetz (2007) also warns from drawing too fast and simplistic conclusions. She argues that it is 'rather […] the gendered nature of access to politics and public life [that] shapes *opportunities* for corruption [emphasis in original].'

Reverse causality or an omitted variable bias overshadow existing empirical (field) studies. Corrupt behavior, clandestine by its very nature, is hard to observe, and even if inventive researchers find related field data, causality is arduous to disentangle. But these problems can be avoided in experiments where a controlled environment can be designed.

There is a vast literature on economic experiments (not related to corruption) that revealed gender differences in behavior, for instance during negotiations (Bowles *et al*, 2005), in competitive environments (Gneezy *et al*, 2003), related to the provision of public goods and altruism (Andersen *et al*, 2008), or to the *expectation* one might have with respect to the behavior of men or women (Aguiar *et al*, 2009), to name a few. A recent overview on the literature on gender differences in economic experiments can be found in Croson and Gneezy (2009).

Gender-specific behavior in (attempted) corrupt transactions is therefore a case in point. In such economic experiments, male and female participants do not put themselves into more or less corrupt situations; they are all confronted with the same decision problem. There are no unobserved third variables that might have an impact on both variables of interest, gender (or gender composition) and corruption. In other words, the experimenter has a high degree of control. This article surveys laboratory experiments that shed light on gender effects when it comes to offering or accepting bribes.[1] The experiments share the following features: Subjects are confronted with clearly defined decision problems, and their decisions are relevant for their actual monetary payoffs. In accordance with usual practice in economics (but not in psychology[2]), the experimenters did not deceive subjects (concerning rules, payoffs, opponents' incentives and so on).[3] Furthermore, interaction between subjects is anonymous. Otherwise, 'the possibility of postgame interaction, positive or negative, may influence decisions.' (Eckel, 2007, p. 846n). Finally, economists often give subjects the opportunity to learn, using training rounds and/or repetitions of the same experiment to minimize the possibility that subjects misunderstand the rules, and hence do not play the game actually intended by the experimenter. However, if one-shot experiments are really simple, their results can be meaningful and are included in this survey, the remainder of which is organized as follows:

In the next section, we briefly describe the design of the experiments, reporting the results with a focus on the behavior of the public officials (or agents, more generally). Bear in mind that we do not mean *actual* public officials, but rather (student) participants in the role of public officials. This terminological shortcut is possible because experiments with real public officials are extremely rare.[4] The subsequent section reports on the briber behavior from the same set of experiments. The final section sketches open research questions that could be tackled with additional experiments, and closes with tentative implications for development policy.

Women as Public Officials

Gift exchange games often set the starting point for experiments on corruption. In such experiments an investor can decide how much to transfer to a trustee. Any transfer received by the trustee is multiplied (for example tripled) by the experimenter to represent joint profits from trusting. The trustee then decides on how much (if at all) to return to the investor. In a corrupt setting, however, the joint profit for both actors goes along with a negative externality imposed on others. This is the idea implemented by Abbink *et al* (2002). If a transfer is made back to the investor, a certain amount is subtracted from the payoff of all other subjects in the laboratory.

Rivas (2007) uses the design of Abbink *et al* (2002), who disregarded possible gender effects in their investigation. Subjects in the role of public officials play 20 rounds of trust game with one partner representing firm B. Public officials can award a contract to firm B or to firm A, which is more efficient. Rearranging somewhat and renaming the notation of Rivas (2007), who used a completely neutral framing, the (undetected[5]) public official's payoff consists of a 3€ show-up fee, an initial endowment with 40 tokens (100 tokens are exchanged into €1.50 at the end of the game) and the following incomes for each of the 20 rounds:

- an income of 50 tokens;
- a bribe worth $3x$ (and costing the briber x, with $x \in \{0, 1, 2, \ldots, 10\}$);

- costs of 5, to be subtracted if B gets the contract, that is, for hiding information from the public official's colleagues (or possibly psychic costs);
- costs of 2 to be subtracted if A gets the contract and the public official decides to punish an attempted bribery by firm B;
- cost of 3 for each (out of 12) public officials in the laboratory who award the contract to firm B to depict the negative externality.[6]

In each round, the bribe payment cannot be made conditional on actually awarding the contract. In other words, the public official has the option to pocket the bribe and nevertheless award the contract to the efficient firm. At least in the last round, this would maximize the public official's income. In previous rounds, an income maximizing public official might award the contract to B in order to get more bribes later on.

Consequently, the final round has the clearest interpretation. A public official who awards a contract to B in that round sacrifices own income in order to reciprocate, as a thank-you to the briber. While one-third of the male public officials in the final round act that way, no woman does that.[7] Taking all 20 rounds together, there are no clear differences between women and men with respect to their inclination to accept bribes. However, women are significantly more likely to behave opportunistically, that is, to keep the bribe, but award the contract to firm A.

Alatas *et al* (2009a) use a similar, yet slightly simpler, design as Rivas (2007). They play a one-shot game instead of a repeated game. They also discard the idea that public officials might punish firms for attempted bribery. Instead, they introduce a third subject ('citizen') who decides whether or not to sacrifice own resources in order to punish a corrupt pair of briber and public official. This subject, who can punish any corrupt transaction, is also the one who is harmed by corruption, that is, whose payoff is reduced. (Unfortunately, this level of knowledge by the victim does not correspond very well with real cases of corruption.) If not punished, the public official earns[8]

- an income of 30 tokens;
- plus $3x$, where x is the bribe paid, with $x \in [4, 8]$;
- minus 3P with P being the amount spent by the citizen on whom an externality of size x was imposed in case of bribery.

The briber would also suffer from a punishing citizen by loss of 3P. But in this game, it is not possible for the public official to pocket the bribe and not fulfill the implicit contract with the briber. Under these circumstances, are there any gender differences between male and female officials?

The results differ among the four countries in which the experiment was performed. In Australia, the percentage of officials accepting a bribe is significantly lower for women (80.0 per cent) than for men (92.1 per cent). In India and Indonesia, this difference amounts to less than 1 percentage point and is insignificant,[9] whereas in Singapore women appear to be more inclined to take bribes than men, yet the difference is not statistically significant. Similarly, Australia is the only country where female 'citizens' are significantly more likely than men to punish (62.6 versus 49.2 per cent). This hampers the interpretation: in the role of public officials, Australian women might be either intrinsically more honest than men, or they might expect more punishment to take place, concluding on its likelihood from introspection ('What would I do if I were the citizen affected by my corruption?').

The first experimental investigation of corruption, carried out by Frank and Schulze (2000), focused entirely on the behavior of public officials (or agents, more generally); bribe payers were fictitious and simulated by the experimenters. Subjects were students who attended the showing of a film organized by the students' film club, a self-financed non-profit organization that volunteered as the 'principal' in this experiment. Similar to many real-world victims of corruption, the potential victim of corruption was deemed to be entirely passive, which distinguishes this experiment from the two reported on so far. Before the film started, subjects were asked to make a decision on behalf of the film club in the following situation: a 200 German mark banknote (about €102) that belongs to the film club has fallen into a drainpipe. It will be lost unless one of 10 competing plumber firms retrieves the banknote. Each firm made a bid composed of two parts: the price that the film group would have to pay, and an amount of money the decision maker would receive from the plumber for obtaining the contract. Prices were positively linked with bribes, ranging from DM 20 (combined with a bribe = 0) to 200 (leaving a zero rent for the film club, combined with a bribe of DM 144). It was credibly announced that payments would actually be made by the experimenters to the film club (DM 200 minus the payment to the successful plumber), as well as to two randomly chosen subjects (one per treatment).

In one treatment, corrupt agents could not be detected. In another (Schulze and Frank, 2003), there was a certain (publicly known) probability for detection, its size depending on the amount of the bribe taken, being up to 67 per cent for the highest bribes (and hence for the most inefficient plumber firms). Subjects whose corruption was detected lost all income (which for some included a fixed income, reinforcing the deterrence). Unlike in the no-risk treatment, it was no longer income maximizing to take the highest bribe. The average bribe taken, however, did not decrease, as complete honesty (taking no bribe at all and choosing the most efficient firm for the principal) is behavior that was almost completely crowded out because of the introduction of monitoring.

Women turned out to be only very slightly and not significantly less corrupt in the no-risk treatment. However, they exhibit a significantly lower willingness to accept bribes in the risky situation.[10] This is highly plausible, given that the majority (though not all) of the experiments and field studies surveyed by Eckel and Grossman (2008) find women's risk aversion to be higher than men's for many types of decision.

Armantier and Boly (2008) designed an ingenious field experiment, that is, one in which subjects did not know they were taking part in a controlled experiment. The subjects recruited were citizens of Burkina Faso, who thought they had been hired for a small job: grading 20 exam papers. Opening the 11th paper, one with so many mistakes that the candidate should fail, they found a banknote attached with a post-it note saying: 'Please, find few mistakes in my exam paper.' This attempt to bribe was indeed more, not less, successful for female graders – but only if the graders were not monitored. As in the laboratory studies mentioned above[11] (stochastic), monitoring increases honesty much more for women than for men.

Armantier and Boly (2008) observe cases where subjects cash the bribe, but still report a failing grade. However, there were no pecuniary incentives or disincentives for acting opportunistically. Hence, the particular finding that women were less likely to show this kind of opportunism should not be overstated; as reported above, Rivas (2007) found that women were less likely to reciprocate a favor of the briber when it was costly to them, an aspect that also plays a role in the next experiment we will discuss.

In Lambsdorff and Frank (2007, 2010), like in Rivas (2007) and Alatas *et al* (2009a), some subjects are put in the shoes of the briber, others in the shoes of the public official.

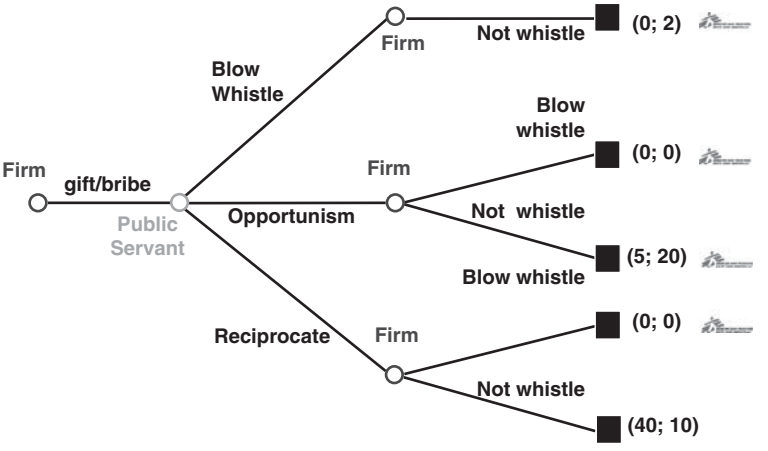

Figure 2: Corrupt reciprocity – The payoffs to students. Numbers in parenthesis indicate payoffs in € (firm; public servant). The logo of *Medicins sans Frontiers* indicates a €8 donation.

As in Schulze and Frank (2003), the third party that suffers from corruption is passive but real, in this case *Médecins Sans Frontières*, which receives a donation if the agent contracts the efficient – instead of the corrupt – firm. In addition, a number of new features are tried out in our experiment. As in real life, bribers have a choice of how exactly to frame their bribe offer.[12] Furthermore, both parties directly involved in the transaction have the chance to blow the whistle. Again, this makes the experiment a bit more realistic; every player should try to anticipate the likelihood that his or her opponent will take legal action.

The experiment took place in Passau, Germany, where students were allotted the role of public servants, and in Clausthal, Germany, where students acted as firm managers. The game they played is shown in Figure 2. Starting from an endowment of €25, the firm gives €20 (as a gift or bribe) to the public servant, resulting in an initial endowment of €5. He or she would win a further €35 as a profit from the contract in case of reciprocity and lose 5 € if someone blew the whistle. The public servant obtains a payoff of €20 (gift or bribe) from the firm. He or she would have to pass on €10 for arranging the awarding of the contract (reciprocity). Upfront whistle-blowing induces confiscation of the gift or bribe but a bonus of €2. If the contract were not given to the firm in Clausthal (either because of opportunism or whistle-blowing), no damage would be done to society. This is considered in our game by a €8 donation to *Medecins sans Frontiers*.

There were remarkable differences in gender, as revealed in Figure 3. With respect to whistle-blowing, women's behavior was not significantly different from that of their male colleagues, yet women are markedly more likely to behave opportunistically and less likely to reciprocate (at a 5 per cent and 1 per cent error level, respectively; $n = 175$).

Although women are sometimes found and sometimes not found to be more cooperative than men in laboratory experiments, here they appeared to be significantly less cooperative, but the situation is special as it is a briber, a corrupt person, with whom they might dislike to cooperate. Yet this does not necessarily mean that women's moral predisposition is different, it might simply be driven by strategic considerations: if women do not expect negative reciprocity, that is, whistle-blowing by firms that were cheated and

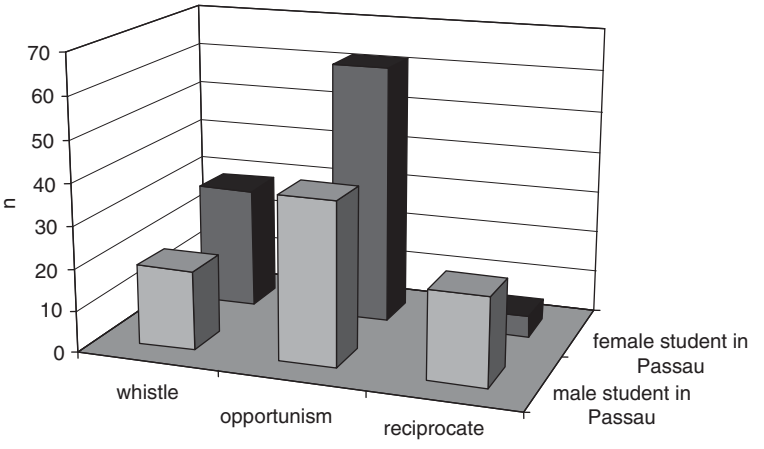

Figure 3: Gender matters; public servant's reaction.

seek retaliation, they might guess that opportunism is the most profitable strategy. We will turn to this at the end of the next section.

Women as Bribers

In two of the corruption experiments described in the previous section, firms had the choice whether to pay a bribe or not. Rivas (2007) finds that men offer bribes significantly more often, in 6 out of 20 rounds on average, compared to 3.2 rounds for women. And those bribes that are paid are significantly larger if coming from men (5.11 tokens compared to 3.38 for women). Both men and women offer less to female officials than to their male colleagues, but the difference is not significant.

In Alatas *et al* (2009a), the gender pattern depended on the country where the experiment took place – in exactly the same way for bribe-giving as for bribe-taking. Again, Australia was the only country where women turned out to be significantly less corrupt: 80.3 per cent of the women, but 91.6 per cent of the men in the role of firms offered a bribe. The difference seems to be small compared to that found by Rivas (2007), but if the incentives in the experiment lead women to offer bribes in 80 per cent of all cases, how much larger can men's inclination to bribe be? Tellingly, in a replication in Indonesia, with a lower overall inclination to pay bribes (because of a different subject pool), Alatas *et al* (2009b) observed a gender effect, with men being more likely to bribe.

In Lambsdorff and Frank (2007), by contrast, the game started after firms had already paid a bribe – this was something not decided on. However, the bribers could react to the public servant's decision. They could blow the whistle after being awarded the profitable contract (lower node in Figure 2), but as expected no one did that. It was harder to predict what they would do if the agent behaved opportunistically, keeping the bribe but not awarding the contract to the briber. Again, whistle-blowing is costly to the briber; in the experiment, s/he would lose the €5 that is left from the initial endowment. However, this would be offset by the satisfaction of seeing the agent, who apparently had hoped for €20, also being down to zero.

Again, the findings vary with gender. Men are much more likely than women to sacrifice income of their own in order to retaliate after they were cheated by an opportunistic public servant: 31 per cent of the men confronted with opportunism do that, but only 16 per cent of the women, a difference that is highly significant. This result might partly explain the gender pattern found for public servants in this experiment: if the subjects presume that the average participant in the game is no different from themselves in this respect, this might have been a reason for male agents to refrain from opportunistic behavior with a higher likelihood than female agents. Anticipated whistle-blowing may increase corruption rather than decreasing it when it is motivated by negative reciprocity rather than integrity (Buccirossi and Spagnolo, 2005; Lambsdorff and Nell, 2005).

Finally, the latest corruption experiment we are aware of nicely complements the work by Lambsdorff and Frank (2007). Krajčová and Ortmann (2008) have independently developed a similar game, unfortunately without externalities from corruption. On the other hand, they provide new insights from the use of two different parameterizations; the following remarks are confined to the one in which theory (disregarding reciprocity between briber and bribee) would predict a non-corrupt equilibrium. Furthermore, they let firms start by deciding whether or not they want to bribe at all. (Only) at this stage, which was missing in Lambsdorff and Frank (2007), Krajčová and Ortmann (2008) describe an interesting gender effect: If the game is played with a neutral framing, about half of both women and men make a transfer to the bureaucrat; calling this transfer a bribe (loaded framing) raises the share of bribers among men from 52 to 67 per cent, whereas among women, the share of bribers falls from 56 to 43 per cent. This is not spectacular, but enough to warn us against presuming the unconditional external validity of laboratory evidence for decisions that are concerning conflicting norms, regardless of whether this evidence is obtained with a neutral or a loaded framing. In real life, as one referee to this study has observed, people have different frames in mind for identical situations, which is different not only from a neutral framing, but also from a loaded framing that tries to control the framing used by the subjects.

Summary and Policy Implications

The six studies on which we focus here shed light on different aspects of gender issues in corruption, but they fit together well, and they do not contradict each other in any major way. Nevertheless, a word of caution is in place. Corruption experiments might have been conducted, but never been published, as no gender effect was found, to the disappointment of the experimenters. In our opinion, this 'publication bias,' as Tullock (1959) called it, did most probably not contribute to the overall picture we drew in this article, for a number of reasons. First, it is unlikely that an experiment is set up with one treatment only and subjects' gender as the only variable of interest. Second, even if this were the case, why not publish an insignificant result? It would be of interest to some readers, and they can easily be reached via electronic discussion papers, which were unknown to Tullock (1959). Third, economic experiments are expensive, which decreases the probability that experimenters throw results away entirely unpublished.

However, there are published corruption experiments (see footnote 1) that do not report gender results. A possible reason is that gender turned out to be insignificant and hence much less interesting than the other results. Yet it is usual practice to report insignificant

control variables at least in the regression tables; the marginal costs of doing so are close to zero anyway.

We presume that the typical reason for not reporting gender results is that this variable was not recorded when the experiment was run. Many economists object 'data mining' and restrict themselves to using only those variables on which they have a hypothesis from the start. We suggest that this practice should be reconsidered even by those economists who are not interested in gender issues *per se*. Gender might simply be a control variable that helps to understand other effects.[13] For example, Frank and Schulze (2000) found that the difference in corruptibility between students of economics and other students is almost entirely due to the difference between the behaviors of male economists and male non-economists. The former were more corrupt and the latter were less corrupt than female economists and female non-economists. Hence, gender effects might partly be determined by the subject pool.

Furthermore, the above-mentioned experimental findings have all been observed in somewhat artificial situations, which is fine, as argued in the introduction, as the experimenters can be pretty sure about the internal validity of their results. But what about external validity; do these results hold for real decision makers in the real world? For instance, this would not be the case if women in the highest positions behave, owing to indoctrination or self-selection, like men in every relevant aspect. Women's resistance towards corruption may disappear if their career forces them to engage in reciprocal exchange.

With these caveats in mind, what did we learn? To start with, women are not necessarily more intrinsically honest or averse to corruption than men.[14] They react more strongly to a given risk of detection, however. Yet detecting and punishing the offense is only one way to tackle corruption, and often it is not viable. Another possibility is to simply let corrupt transactions fail. Corrupt transactions require trust among the criminal partners, particularly because the hidden agreements are not enforceable by courts. Women appear less able or willing to establish this trust among corrupt criminals. Men tend to engage in positive reciprocity, delivering to the briber, even if this behavior is at odds with moral considerations *vis-à-vis* society. Men were also more willing to play negative reciprocity: they more often blew the whistle when their bribe was not reciprocated.

From a policy perspective, the findings suggest a more differentiated view on the claim that a higher involvement of women in the public and private sector could reduce corruption. In areas where one-shot interactions between public and private entail temptations for bribery, women are less likely to strike successful corrupt deals. The involvement of women then reinforces the possible success of the 'invisible foot principle' (Lambsdorff, 2007), whereby the unreliability of corrupt counterparts induces honesty and good governance, even in the absence of good intentions. Reforms, particularly on lower levels of civil service, should thus focus on a better involvement of women in the public and the private sector, not (merely) for gender equity reasons, but also in order to reduce opportunities for successful corruption.

The experimental results surveyed in this article might lead us to either underestimate or to overestimate the effects of an increasing share of women in higher positions. As to the former possibility, there are effects of involving women that are not captured by experiments. In general, involvement of outsiders might shatter the trust of pre-existing networks, and women are simply a prime example for outsiders to male-dominated networks, especially in higher positions. If women are for whatever reason not assimilated because the networks are not flexible enough to adapt, the anti-corruption effect of bringing in women might be stronger than the experiments suggest. A related point was recently

made by Echazu (2010), who argued that female agents might be (or might think that they are) discriminated against by male prosecutors. Hence, as long as women are underrepresented in prosecutors' and agents' offices, we should expect positive effects of increasing female participation in addition to those discussed in this article.

On the other hand, while the experimental finding might well describe women in general, they might be misleading for some of those who successfully pursue their career. First, only those who are successful in committing to reciprocity may find a network that advances their careers. Thus, successful women may not differ from their male colleagues. Second, where women engage in repeated exchange (unlike in the experiment), their willingness to reciprocate may be similar to that of men. Overall, these caveats leave much room for future research. In a similar fashion, it will be important to investigate group behavior and whether (and how many) female participants in teams would make a difference.

Acknowledgement

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Notes

1. There is a range of general surveys on corruption experiments available, see Abbink (2006) and Dušek *et al* (2005) for the longer ones, Andvig (2005) for a short one, and Renner (2004) for one in German. None of these touches on the gender issue.
2. See Hertwig and Ortmann (2001) for a comprehensive survey of differences between economists' and psychologists' experimental practice.
3. A special case are field experiments, where subjects are not aware that they are taking part in an experiment, which can be considered as an advantage, leading to more external validity.
4. The only exception we are aware of is Alatas *et al* (2009b), who find that public officials are less inclined to pay and accept bribes; unfortunately, it is not reported (and possibly not tested) whether this effect is stables across sexes.
5. Following Abbink *et al* (2002), Rivas (2007) used a very small detection probability of no more than 0.003. Detection did not occur in her experiments, and its possibility probably did not have a large impact on subjects' decisions.
6. Remarkably, Abbink *et al* (2002) found that the presence of this negative externality does not seem to have a notable effect on the extent of corruption.
7. Unfortunately, it is not clear to what extent this is to be ascribed to the distribution of nonzero bribe offers between male and female public officials in the final round.
8. Using the same notation as above, which is slightly different from Alatas *et al* (2009a).
9. For Indonesia, also see the replication in Alatas *et al* (2009b).
10. A similar effect was not found by Rivas (2007), most probably owing to the low detection probability of 0.003.
11. And like in a laboratory experiment performed by Armantier and Boly (2008) in Canada with rules similar to the field experiment in Burkina Faso.
12. The results with respect to this element of the experiment are interesting (Lambsdorff and Frank, 2007), but rather uniform across the sexes, hence they are disregarded below.
13. In addition, Jackson (2009) points out that additional insights from experiments could be gained through post-experimental interviews exploring the underlying motivation that lead to certain behavior observed in a given game. It would also enable researchers to learn more about the circumstances and contexts of a given experiment and, for instance, to detect gendered framing effects and their potential impact on findings. We believe that on the one hand such

additional information could add value to the research on gender differences in corrupt behavior, and on the other findings from such interviews could be an interesting avenue for designing future experiments and testing new fine-tuned hypotheses.

14. See also Azfar and Nelson (2007) for a related result, which we do not discuss here because, its title notwithstanding, their paper is on a political principal-agent constellation without bribes being paid.

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