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Fighting corruption with asymmetric penalties and leniency

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Fighting Corruption with Asymmetric Penalties and Leniency



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Fighting Corruption with Asymmetric Penalties and Leniency

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Abstract

Corrupt arrangements are characterized by a high risk of opportunism: double-dealing, whistle-blowing and extortion are significant uncertainties for participants in corrupt transactions. This paper demonstrates how legislators may use an asymmetric design of (criminal) sanctions and leniency programs to amplify these inherent risks, thereby destabilizing corrupt arrangements. It is also shown that asymmetric penalties and (ex-ante) leniency do not necessarily interfere with the goal of deterrence and may be a useful tool to disband the ‘pact of silence’ characteristic of corrupt arrangements. In particular, we show that bribe-takers should less be penalized for taking and more for reciprocating a bribe. Likewise, bribe-givers should be punished for giving bribes, but not for accepting the bribe-takers’ reciprocity.¹

JEL Classification: K42, D73

Keywords: Corruption, Asymmetric Penalties, Leniency, (Self-) Reporting, Whistle-blowing.

¹ Paper presented at the CeGE Research Workshop on November 16, 2006.

1 Introduction

Combating corruption is like judo. Instead of bluntly resisting the criminal forces, one must redirect the enemy's energy to his own decay.

Corrupt actors must be deterred from their criminal actions. But deterrence involves more than just the threat of suffering from heavy and prompt legal sanctions. It encompasses the possibility of being cheated by one's counterpart; besides, deterrence also increases with the risk of being reported. These uncertainties can be amplified by designing criminal sanctions in a strategic way, aimed at enhancing opportunism. This paper investigates how differences in criminal sanctions, coupled with strategically granting (ex-ante) leniency at a certain stage of a corrupt deal, may be exploited by legislators to destabilize corrupt arrangements.

We develop a simple game-theoretic approach to determine for which acts corrupt perpetrators should be penalized, and which elements of an offence could be eliminated and for which leniency should be granted. At the core of the model lies the idea that partners in a corrupt transaction may cheat each other. That is, they may renege on their promises and/or report a deal before or after it has been finalized. Unable to rely on legal recourse, corrupt partners face the challenging task of ensuring that each side sticks to the agreement. At the same time they are continuously tempted to betray each other. Such betrayal is a good thing from the point of view of society at large. It assures that corruption is a troublesome business and induces potential participants to refrain from getting involved in corrupt arrangements.

When public officials are paid with counterfeit money, as it recently happened in India, or are given fake antiques, as in China, they can no longer trust to be given 'fair' treatment by bribers. The resulting insecurity may effectively deter them from asking for or accepting bribes in the future.² Similarly, when corrupt public servants renege on their promises, businesspeople may become less likely to continue with their illegal strategy, [Husted 1994; della Porta and Vanucci 1999; Rose-Ackerman 1999: 91-110; Lambsdorff 2002; Lambsdorff, Schramm and Taube 2005].

Courts usually reject the enforcement of corrupt agreements, forcing actors to explore alternative safeguard mechanisms against opportunism. They must employ methods to make their agreements self-enforcing. Various forms of institutional solutions come into play and provide guidance to reform. Corrupt parties lacking trust in each other, for example, often

² See Herald Tribune [08 March 2002: "One corrupt city shows the plague that afflicts all of China"]; The New Zealand Herald [28 March 2002: "It's hard graft when bribes are crooked"]; Asia Times [04 April 2002: "Rampant corruption threatened by corruption"].

use intermediaries as a way to credibly link the two parties. Practical insights into the corrupt dealings of intermediaries have recently been provided, [Aburish 1986; Andvig 1995; Moody-Stuart 1997; Bray 1999, 2004].

Pre-existing social relationships may lay the foundation for economic exchange by providing the required protection from opportunism. Certain social structures facilitate economic exchange by embedding individuals in long-term (personal) relationships (of trust), [Granovetter 1992; Ogilvie 2004; Greif 2005]. For members of a group, the advantages to be gained from honesty may outweigh the motivation to behave opportunistically. Social structures and ties may thus facilitate the sealing also of corrupt deals, [Rose-Ackerman 1999: 98; Kingston 2005].

In the course of established ongoing exchanges yet another mechanism to enforce corrupt agreements is at the disposal of business partners. Relationships of mutual trust and respect, formed by repeated legal exchange or hierarchical control, can be misused for striking corrupt agreements. Corrupt transactions may thus be embedded in a broader context of exchange, and legal transactions may act as ‘guarantors’ for corrupt deals. Once trusted relationships have emerged and mutual threats have been established, these can be exploited for securing corrupt side-contracts. Consequently, the threat to end legal relationships may effectively prevent opportunism in corrupt arrangements, [Lambsdorff and Teksoz 2005].

To root out corruption, it may be necessary to shatter some of the confidence that goes along with it, i.e. to destroy the trust that corrupt favors will be reciprocated. Fjeldstad and Tungodden [2001] argue that the way customs services were downsized in Tanzania was a failure because those officials who were fired at a later stage became intermediaries and created trusted corrupt relationships. After a first crackdown on corruption, corrupt networks revitalized and strengthened, and corruption returned to its original level. Apparently, strategies in fighting corruption may fail if they do not adequately take into consideration network ties and mechanisms that facilitate corruption.

Acts of opportunism, including (self-) reporting are not uncommon. In fact, insiders are often a vital source of information for the prosecuting authorities, [Anderson 1995; Rose-Ackerman 1999: 53]. For those who decide to expose a deal miscellaneous motivations exist. For example, the largest company in France, Elf Aquitaine, allegedly set up an internal financial network aimed at providing funding for corrupt political purposes. This so-called “Investment Board” consisted of relatives and friends of the chairman of the board. This institution was well established, and succeeded for a while. Yet the booting out of one member put an end to its operation. The outcast took revenge, and reported operations of the

network.³ Clearly, some type of conflict can stimulate one party to take revenge, or to prefer honesty to involvement in illegal transactions.

Another motive for providing information on illegal transactions may also result from monetary inducements by third parties. While prosecutors may offer (crown) witnesses a reward in exchange for inside information, private agents may also bid on such information, e.g. as a means to regain access to markets lost to corrupt competitors, [Rose-Ackerman 1999: 56]. For the media it is common practice to pay for tip-offs, enabling them to report on political scandals. Crucial information about corruption by Benazir Bhutto and her husband in Pakistan was obtained from a collaborator in London. Pakistani prosecutors obtained these pieces of information in exchange for a payment of US\$ 1 million.⁴ As people can profit from obtaining such information for a variety of reasons, and may be willing to pay a price, a market emerges for inside information on corrupt agreements.

That opportunism represents a substantial threat to informal contracting has recently been corroborated by laboratory experiments. In some experiments participants played bribery games or faced problems similar to those explained above, for a comprehensive review see Dušek, Ortmann and Lízal [2004]. Drawing on the gift-exchange literature, Abbink, Irlenbusch and Renner [2000] let two participants hope for reciprocity when exchanging gifts. In case of defection, one of them can spend resources on punishment. Game theory would predict that such punishment would not be carried out because it does not increase the punisher's income. Expecting that sanctions will not be imposed, the other player would have no incentive to return a gift. This suggests that none of the participants would give gifts in the first place. However, contrary to game-theoretical predictions, retribution is found to be quite common. Dušek, Ortmann and Lízal [2004: 5] summarize that "hostile actions are consistently punished while the friendly ones are less consistently rewarded." Players seem to opt for 'negative reciprocity' (in the sense of 'doing bad to those who did us bad') even if this is costly.

Another strand of literature investigates the effects of leniency programs on self-reporting and the enforcement of criminal deals, Spagnolo [2006]. Buccirosi and Spagnolo [2005] identify how leniency may backfire and help entrepreneurs to enforce their corrupt deals by threatening self-reporting in case of non-delivery. We go beyond this strand of literature, by investigating how penalties may be designed asymmetrically and how this should be combined with leniency so as to knock corrupt deals off balance. While we focus on criminal

³ See Rheinischer Merkur [27 November 1997: "Schmutzige Geschäfte"].

⁴ See The Straits Times, Singapore [1 February 1998: "Paper trail points to illicit Bhutto hoard"].

sanctions, the ideas outlined may also apply to other legal realms, such as disciplinary sanctions or civil law.

We propose the following asymmetric design: expected criminal sanctions for accepting bribes should be low and those for illicitly supplying favorable treatment (e.g. awarding a public contract) to the briber high; in turn, expected penalties for paying bribes should be severe, while those for accepting the (illicit) favorable treatment mild. Moreover, we show that a bribe-taker shall only be granted ex-ante leniency as long as he does not reciprocate a bribe, whereas a bribe-giver shall be entitled to leniency only if he self-reports after having received the favorable treatment by the bribe-taker.

The rationale behind asymmetry in penalties and leniency has already been taken up by Rose-Ackerman [1999: 53]: “Successful detection of corruption depends on insiders to report wrongdoing. Often this requires officials to promise leniency to one of the participants.” Yet, in most countries legal sanctions are imposed roughly symmetrically on both payers. Furthermore, leniency is commonly at the discretionary powers of prosecutors and judges (ex-post leniency), rather than implementing it explicitly and unambiguously in the respective legal codes (ex-ante leniency). We contest the logic of symmetry and argue that some of the skepticism surrounding asymmetry and ex-ante leniency may not stand up to a careful analysis.

Sections 2 and 3 develop the model for asymmetric penalties and (ex-ante) leniency and present the results. In section 4 we translate the model’s results into policy implications and recommendations and discuss these in light of the United Nations Convention Against Corruption (UNCAC), and the German and the Turkish penal code. Section 5 concludes.

2 A Model of Asymmetric Penalties

In the subsequent one-shot game there are two rational, risk-neutral players: A bureaucrat (player “B”) and an entrepreneur (player “E”). B is in the position to award a public contract whose value for E is denoted by v . E may give a bribe, i.e. a payment that has the potential of influencing B’s decision, whose value for B is denoted by b . Without a bribe the firm will not get the contract, resulting in a payoff of zero.⁵

Because those seeking influence usually have to move first by giving a bribe, we assume that opportunistic behavior, i.e. failing to reciprocate, is primarily an option for B. This appears to be the standard sequence, evidenced in most cases of corruption. One theoretical justification

⁵ Instead of using the term “bribe” legal codes usually refer to an “advantage“, which may be understood as any material or immaterial gain that accrues to the receiver.

for this sequence relates to the monopoly position enjoyed by bureaucrats in placing contracts, awarding licenses or granting permits. Given that businesspeople at times compete for preferential treatment by deploying illegal means, the bureaucrats may easily shift the risk of opportunism to the private sector.

Both B and E have to weigh the benefits from opportunism against its potential drawbacks. For example, both players could lose future income from corrupt deals. Moreover, social sanctions may be imposed. That is, possible social ties between B and E might be torn apart; or a social group may penalize the respective player for disobeying the rules of reciprocity, [Kingston 2005]. Without the loss of material results we neglect these costs.

Obviously, legal sanctions also have to be borne in mind. In our game there are four actions that may be subject to punishment. On the one hand, B may be penalized for accepting a bribe, denoted by F_B^b .⁶ On the other hand, B may be punished for awarding the public contract even though E may not have been entitled to it, denoted by F_B^a .⁷ In other words, after having accepted the bribe, F_B^a is the penalty B may additionally face for reciprocating it. On E criminal sanctions may on the one hand be levied for giving a bribe, F_E^b .⁸ On the other hand, E may be penalized for accepting the public contract, captured by F_E^a . In other words, after having given the bribe, F_E^a is the penalty E may additionally face for accepting B's reciprocity.

We assume that there exist optima F^a and F^b for the total criminal sanctions, i.e. $F_B^b + F_E^b = F^b$ and $F_B^a + F_E^a = F^a$. The respective optimal levels may be set so as to outbalance the gains expected from the illegal action, [Rose-Ackerman 1999: 54-55], or they may relate to the damage imposed on society, usually referred to as social harm. Since Becker [1968], research has mostly focused on determining the optimal level of these penalties, F^a and F^b . We are primarily interested in how a given level of F^a and F^b should be divided among perpetrators.

⁶ For simplicity in the model we focus only on the act of accepting a bribe. In our policy recommendations in section 4 we shall also take into consideration other variations, in particular the acts of soliciting and agreeing to accept a bribe.

⁷ In legal terms, B would be punished for acting or refraining from acting on behalf of E in return for being promised, offered or given a bribe.

⁸ For simplicity in the model we focus only on the act of giving a bribe. In our policy recommendations in section 4 we shall also take into consideration other variations, in particular the acts of offering and promising to give a bribe.

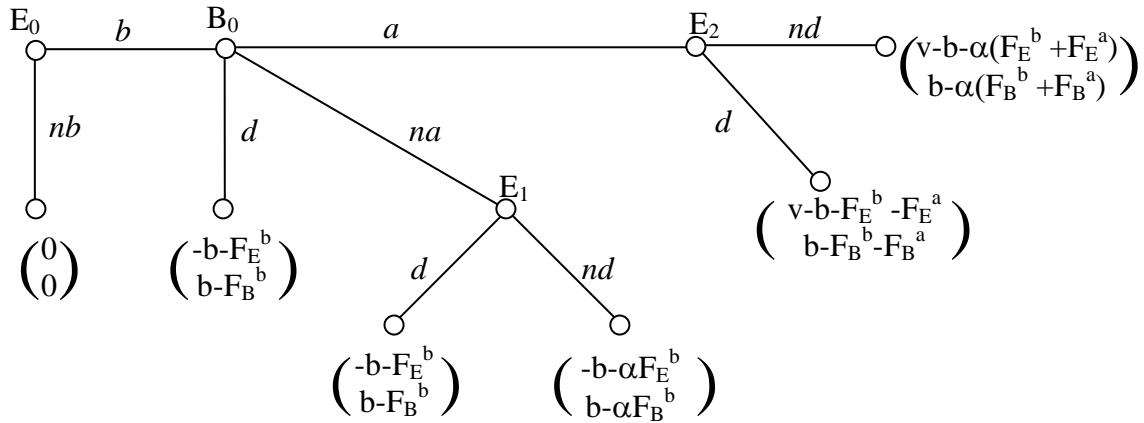


Figure 1: One-Shot Game with Asymmetric Penalties

Figure 1 captures the one-shot game in its extensive form.⁹ At the start of the game (at node E_0), E chooses either to seek influence by giving a bribe (action b) or to stay out of the corrupt arrangement (action nb). In case E gives the bribe, B has three options (at node B_0). On the one hand, B may choose to comply with the illicit agreement and to award the contract (action a), or B decides to renege on his promises (action na). Additionally, B may choose to report the deal (action d). For the sake of simplicity we assume that $b - F_B^b > 0$; otherwise, rather than taking the bribe and reporting, the bureaucrat would reject the bribe upfront. As long as B does not already report at node B_0 , E then has the choice of reporting (action d) or to stay silent (action nd), both at node E_1 and E_2 . The ensuing payoffs are depicted in Figure 1. The parameter α denotes the probability of random detection and conviction for both B and E, with $0 < \alpha < 1$.

The participation constraints (PC) allow determining a range for the size of the bribe, with \bar{b} denoting the upper bound and \underline{b} the lower bound. The entrepreneur will participate only if the best possible outcome is positive,

$$(1) \quad \begin{aligned} v - b - \alpha(F_E^b + F_E^a) &\geq 0 \\ b &\leq \bar{b} = v - \alpha(F_E^b + F_E^a) \end{aligned} \quad (PC_E)$$

The same applies to the bureaucrat, yielding

$$(2) \quad \begin{aligned} b - \alpha(F_B^b + F_B^a) &\geq 0 \\ b &\geq \underline{b} = \alpha(F_B^b + F_B^a) \end{aligned} \quad (PC_B)$$

⁹ For a similar model setup see Buccirosi and Spagnolo [2005: 21].

Both players participate in the corrupt deal if and only if

$$(3) \quad b \leq \bar{b} \Leftrightarrow v \geq \alpha (F_B^b + F_B^a + F_E^b + F_E^a).$$

Formally, general deterrence in its strict legal meaning, understood as “preventing [corruption] with the threat of sufficiently heavy and prompt expected sanctions”, [Buccirossi and Spagnolo 2005: 8], unfolds if (3) is violated, i.e. if $v < \alpha (F_B^b + F_B^a + F_E^b + F_E^a)$. This condition reveals a wide degree of freedom in the design of criminal codes as any of the four penalties could suffice for general deterrence. As already mentioned by Rose-Ackerman [1999: 54-55], penalties can either be imposed on the bribe-giver or the bribe-taker. In addition, lawmakers in principle enjoy discretion in imposing them on the exchange of the bribe or that of the returned favor.

Realistically, the risk of detection and conviction, α , can vary considerably with the circumstances of a particular transaction. Moreover, detection and conviction involves costs. Thus, relying only on one constraint is not advisable. Further complementary constraints should be employed to ascertain that entrepreneurs and bureaucrats abstain from corrupt transactions. These constraints might prove less costly as compared to the classical deterrence effect which involves expenses for prosecutors, judges and prisons, [Buccirossi and Spagnolo 2005: 9-10].

E will not give B a bribe if B cannot credibly commit to complying with the agreement. B's choice in this respect depends on E's actions in nodes E_1 and E_2 . Given that $\alpha < 1$ and assuming $F_E^b, F_E^a > 0$, E will never report in either of these nodes. Due to this, B can only credibly promise that he will perform action “a” instead of “na”, i.e. that he will award the contract, if

$$(4) \quad b - \alpha F_B^b \leq b - \alpha (F_B^b + F_B^a) \Leftrightarrow F_B^a \leq 0. \quad (CP_B)$$

(4) is the “credible promise condition” (CP) for the bureaucrat. If $F_B^a > 0$, B cannot credibly make the promise of reciprocating the bribe, undermining his trustworthiness. The entrepreneur will anticipate this behavior and observe his negative payoffs at node E_2 , motivating him to abstain from giving a bribe.

Translated into policy recommendations, (4) shows that B should be punished for reciprocating the bribe. This penalty, as opposed to the other penalties, F_B^b, F_E^b, F_E^a , has the strongest effect by not only increasing the expected losses from punishment, but by additionally making reciprocity less likely. In reality, private parties seek methods for improving the enforcement of their deal. Social norms or an intrinsic motivation towards reciprocity operate on their behalf. This tips the inequation (4) to their favor and increases its right hand side. As a result, the higher F_B^a the better does the legal norm operate against private attempts to enforce the corrupt deal.

Another constraint relates to B's incentive to report (action d). The entrepreneur will only give a bribe if B can credibly commit to non-reporting. This requires

$$(5) \quad b - F_B^b < b - \alpha(F_B^b + F_B^a) \Leftrightarrow F_B^b > \frac{\alpha}{1-\alpha} F_B^a. \quad (\text{NR}_B)$$

A strategy for fighting corruption entails to set only a mild penalty F_B^b , because in this case the bureaucrat retains his incentive to report after taking the bribe. From a deterrence-perspective, this would be a desirable outcome, because creating incentives for B for reporting the deal would reduce E's willingness to give a bribe in the first place. We will discuss subsequently the feasibility of such a proposal. While there are various caveats that arise, it is fair to point to the fact that harsh penalties for accepting minor gifts backfires by bolstering the pact of silence among bribe-givers and -takers. Civil codes tend to encourage confiscation of bribes. Also this aspect tends to backfire, because it discourages self-reporting.

Conditions (4) and (5) could be made more strenuous for B's attempt to promise delivery and non-reporting. This would be achieved if E is induced to report in E_2 . In this case, not $b - \alpha(F_B^b + F_B^a)$ but the lower term $b - (F_B^b + F_B^a)$ would be on the right hand side of (4) and (5). The incentive for E to report would be achieved if

$$(6) \quad v - b - (F_E^b + F_E^a) > v - b - \alpha(F_E^b + F_E^a) \Leftrightarrow -(1-\alpha)F_E^a > (1-\alpha)F_E^b.$$

At the same time we want to retain preference for non-reporting in E_1 , because otherwise the left hand side in (4) would reduce to $b - F_B^b$, which makes it easier for the bureaucrat to commit to delivery. Thus, we require $-b - F_E^b < -b - \alpha F_E^b \Leftrightarrow (1-\alpha)F_E^b > 0$, which is achieved with a positive penalty F_E^b . It follows that (6) could be achieved if $-F_E^a > F_E^b > 0$. We would thus have to reward E for accepting the contract. The logic would be to encourage whistleblowing as soon as the contract is awarded, making it unpleasant for the bureaucrat to reciprocate. Entrepreneurs should be punished for paying bribes, but not for accepting the favor. We will discuss subsequently the feasibility of such a proposal. While caveats arise, it is fair to point out that E should be punished for paying bribes and less for accepting the favor. Civil codes tend to declare contracts void and unenforceable if they were achieved by help of bribes. This is a measure that runs counter to our advice, because the penalty is levied only on those who accepted the contract.

3 A Model of Asymmetric Penalties and Leniency

In our model both players may receive a reduced sanction for self-reporting. For this case we introduce a rebate, r , on the original penalty, with $0 \leq r \leq 1$.

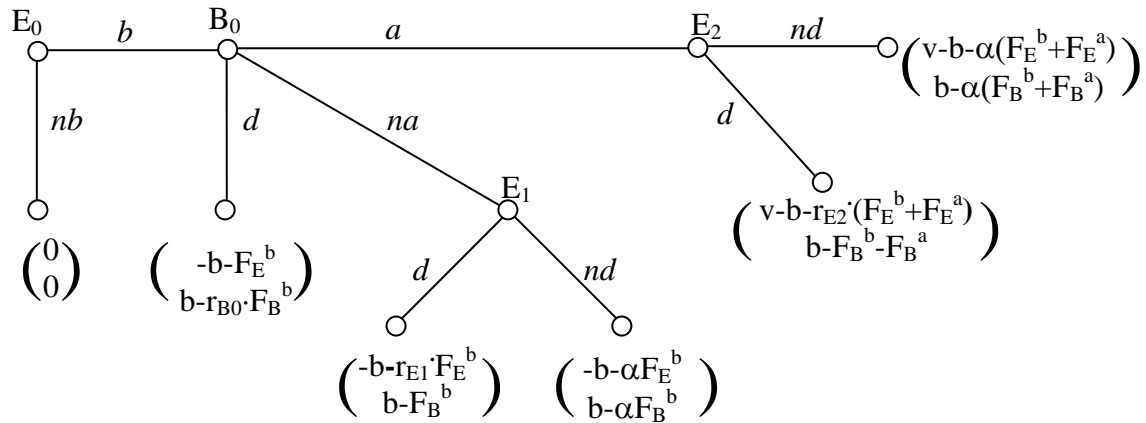


Figure 2: One-Shot Game with Leniency

Offering leniency to the bureaucrat has some trivial advantages. The entrepreneur fears reporting by the bureaucrat and may thus abstain from paying bribes. B, in turn, can only credibly commit to non-reporting if

$$(6) \quad b - r_{B0} \cdot F_B^b \leq b - \alpha (F_B^b + F_B^a) \Leftrightarrow F_B^b > \frac{\alpha}{r_{B0} - \alpha} F_B^a. \quad (NR_B)$$

If the reduction in the penalty is such that the penalty approaches that expected from random detection, $r_{B0} = \alpha$, B cannot credibly commit to non-reporting, further undermining his trustworthiness. This is a result already noted by Buccirosi and Spagnolo [2005: 8].

Leniency for bribe-givers is a more complex topic. We denote the reduced sanctions for E by $r_{E1} \cdot F_E^b$ (action d at node E_1) or $r_{E2} \cdot (F_E^b + F_E^a)$ (action d at node E_2), with $0 \leq r_{E1}, r_{E2} \leq 1$. Mostly, there is no difference being made as to whether one is at node E_1 or E_2 . In this case we have $r_{E1} = r_{E2} = r_E$.¹⁰ Again, B anticipates E's choice in nodes E_1 and E_2 . E can only credibly threaten B with reporting at node E_1 (and thus ensuring that B performs action “a”) if

$$(7) \quad -b - r_E \cdot F_E^b \geq -b - \alpha \cdot F_E^b \Leftrightarrow r_E \cdot F_E^b \leq \alpha \cdot F_E^b. \quad (CT)$$

If F_E^b is strictly larger than zero, a credible threat can be made by E if $r_E \leq \alpha$. (7) is the “credible threat condition” (CT), as also reported by Buccirosi and Spagnolo [2005: 8]. The same condition results in E_2 as long as $F_E^b + F_E^a > 0$. Under these circumstances, the bureaucrat's credible promise condition remains as depicted by equation (4). Overall,

¹⁰ Showing that ex-post leniency is inferior to ex-ante leniency is trivial. Because ex-post leniency refers to leniency that is at the discretion of prosecutors and judges, and thus its level is uncertain ex-ante, the rebate r would have to be increased in the model: $s \cdot r$, with $s > 1$.

moderate leniency for the entrepreneur remains useless as long as the resulting penalty is larger than that expected from random detection and conviction.

A more pronounced leniency with $r_E \leq \alpha$ does have an impact. In this case it becomes preferable for the entrepreneur to report in E_1 and E_2 . B anticipates this and will abstain from awarding the contract, again, if $b - F_B^b \geq b - F_B^b - F_B^a$, i.e. if $F_B^a \geq 0$. This repeats our previous results, emphasizing that the bureaucrat should be penalized for awarding the contract, and possibly not so much for accepting the bribe. Given that the results remain unaffected by leniency of the type $r_{E_1} = r_{E_2} = r_E$, there is no clear motivation for granting this type of leniency to the entrepreneur.

Another option, however, deserves notification. Assume a negative penalty (i.e. a reward) for accepting the contract, i.e. $F_E^a < 0$. Assume that this reward is higher than the entrepreneur's penalty for giving a bribe, i.e. $F_E^b + F_E^a < 0$. The leniency program for the entrepreneur would then be effective. In node E_2 it becomes preferable for the entrepreneur to report. This induces the bureaucrat to abstain from awarding the contract.

We will discuss subsequently the feasibility of such a proposal. In any case it is justifiable to point out that harsh penalties imposed on the entrepreneur for accepting the contract are likely to backfire. They lower the chance of reporting once the corrupt deal has been finalized. But these deals, i.e. the ones with a high likelihood of being finalized, are precisely the ones that should be destabilized.

A more fine-tuned approach would be to make leniency for the entrepreneur conditional on whether the contract was awarded or not, i.e. whether one is in node E_1 or E_2 . We would then have $r_{E_1} \neq r_{E_2}$. In this case E can credibly threaten B with reporting at node E_1 (and thus ensuring that B performs action "a") if

$$(8) \quad -b - r_{E_1} \cdot F_E^b \geq -b - \alpha \cdot F_E^b \Leftrightarrow r_{E_1} \leq \alpha. \quad (CT)$$

Legislation should impede E from being able to impose this threat. That is, no leniency should be granted to E if he reports before B reciprocated, $r_{E_1} = 1$. Besides reporting in node E_1 , E could also report in node E_2 . Thus, the entrepreneur can only credibly commit to non-reporting if

$$(9) \quad v - b - \alpha \cdot (F_E^b + F_E^a) \geq v - b - r_{E_2} \cdot (F_E^b + F_E^a) \Leftrightarrow r_{E_2} \geq \alpha. \quad (NR_E)$$

Penalties should be designed so as to invoke reporting in node E_2 . In other words, granting leniency in node E_2 would be helpful. Hence, it is advisable to set $r_{E_2} < \alpha$. This invokes that the bureaucrat is not safe by reciprocating, inducing him to prefer opportunistic behavior.

In sum, our model suggests to set $F_B^a = F^a$ and $F_E^a = 0$, i.e. to impose the full sanction available for the awarding of the contract only on the bureaucrat. B would have the strongest possible incentive not to perform action “a”, because exactly this action would be penalized most heavily. To the contrary, the entrepreneur should not be penalized for accepting the contract because this would reduce his willingness to report precisely after having obtained the contract, while retaining his willingness for reporting when he was cheated by the bureaucrat.

Penalties for accepting bribes can backfire, because they force bureaucrats into a pact of silence. Setting $F_B^b = 0$, however, has disadvantages that will be discussed in section 4. An alternative option for avoiding the pact of silence is to grant leniency to a bureaucrat for reporting, for example by setting $r_{B_0} = 0$. There is a strategic advantage in granting leniency only if the bureaucrat has not yet reciprocated the bribe (an option which is not explicitly included in the model). This would ensure that reciprocity becomes more costly to the bureaucrat by stripping him of his chances to self-report. This restriction, certainly, relates only to ex-ante (pre-detection) leniency. Ideas whether prosecutors and judges may grant ex-post (post-detection) leniency to bureaucrats who reciprocated are beyond the scope of this paper.

Our model disregards a bureaucrat who awards a contract and also reports (in node B_0) simply because such cases may be rather seldom. A straightforward suggestion for reform would be to allow the bureaucrat to report only as long as he did not award the contract, because this would further induce opportunism among the bureaucrat.

Leniency should be granted to the entrepreneur only if he reports after having obtained the contract, i.e. $r_{E_2} = 0$. No leniency should be given otherwise, i.e. $r_{E_1} = 1$.

Ex-ante (pre-detection) leniency, i.e. leniency that is explicitly and unambiguously laid down in the respective legal codes, and, hence, definitely granted, may prove to be more adequate for fighting corruption than ex-post (post-detection) leniency, i.e. leniency that is up to the discretionary powers of prosecutors and judges. The reason is simple: ex-ante leniency shatters both players trust in reciprocity and non-reporting right at the start of their relationship, i.e. at nodes E_0 and B_0 . The same would not hold true for ex-post leniency. First, judges’ and prosecutors’ commitments may not be credible, as shown by various cases in which the one cooperating with the authorities ultimately received a higher punishment than negotiated with the prosecutors.¹¹ Thus, while ex-post leniency may be better than no leniency at all, from a perspective of destabilizing corrupt deals it is clearly inferior to ex-ante leniency.¹² Second, some of our recommendations might be regarded as “unfair”. If an

¹¹ One recent case is that of German soccer referee Hoyzer. After being detected, Mr. Hoyzer cooperated with the authorities, leading also to the conviction of some members of the German gambling mafia. Still, the judge sentenced Mr. Hoyzer to a higher prison term than the prosecution in fact had asked for in its final plea.

¹² See footnote 10.

entrepreneur reports after having obtained the contract, he walks away rich and unpunished. Prosecutors and judges may dislike such unfairness and use their discretionary power in a way that invalidates the incentives set in our model. Third, prosecutors and judges might themselves be susceptible to misusing their discretionary power. In the worst case this would increase corruption in the judicial system rather than helping to deter corruption.

4 Policy Implications and Recommendations

Because of its potential to shatter corrupt actors' trust in reciprocity and in mutual silence, an asymmetric design of sanctions, coupled with strategically granting leniency, might unleash higher deterrent effects of anti-corruption legislation, if deterrence is understood in the broader sense of reducing potential perpetrators' willingness to participate in illegal acts. Yet, in most countries sanctions for bribery tend to be symmetric; and ex-ante leniency is the exception rather than the rule.

In Germany, as in many other countries¹³, symmetry prevails under §§331-335 of the penal code (StGB), because law scholars treat the integrity and the public's trust in the immaculateness of the administrative authorities as well as the objectivity of governmental decisions as the laws' subject of protection, [Bannenberg 2002: 18-19; Kargl 2002: 782-783].¹⁴ It is argued that both parties in a corrupt deal jeopardize the subject of protection similarly and should thus be punished equally. Such symmetry also follows from Article 3 of the German Constitution. Put simply, Article 3 implies that equal facts of a case have to be tied to equal legal consequences, and unequal facts of a case have to be tied to different legal consequences.

As we see it, however, reasoning that both parties equally interfere with the subject of protection of §§331-335 is not indisputable. Indeed, the acceptance of a bribe by a public official may give the impression of venality, but does not imply the actual supply of a service (e.g. the awarding of a public contract). Yet only the actual supply in reality may violate official duties, harm the integrity of the administrative authorities, and may reduce the public's trust. Moreover, from an economic perspective, it is only to a minor extent that soliciting or accepting a bribe leads to economic losses. In fact, the acceptance of a bribe merely constitutes a redistribution of resources from the private to the public sector. Thus, it may rather be the act of reciprocating bribes that offends the integrity of public office, runs contrary to the notion of governmental objectivity, distorts allocative efficiency, and annuls fair competition. In this respect, we perform a shift of the subject of protection's emphasis from venality towards the act of reciprocating bribes. Likewise, it may not be business peoples' willingness to accept favorable treatment that distorts decisions in public office, but rather the initiative to sidestep competition by giving bribes. Already from this perspective, symmetry may not be the self-evident and logical consequence.

Moreover, in Germany (as in many other countries using codified law), ex-ante leniency is not provided for in corruption offences (and for other criminal offences). Rather, §§153a-f and 154 of the code of criminal procedure (StPO), by the nature of the code of criminal procedure, govern only ex-post (post-detection) leniency.

¹³ One notable exception is Taiwan, where only those taking bribes are penalized, [Hepkema and Booyens 1997].

¹⁴ The subject of protection is designed similarly in §§299-300 (corruption in commerce).

How may our proposal of designing criminal sanctions asymmetrically and of granting ex-ante leniency translate into legal practice? Asymmetry may be implemented by eliminating certain elements of an offence. Eliminating certain elements of an offence, specifically the punishment for accepting bribes, however, is a sensitive issue, because it would necessitate reinterpreting most penal codes' subject of protection. Besides, elimination would not be in line with Article 15 of the United Nations Convention Against Corruption (UNCAC)¹⁵ as well as with many national anti-corruption legislations, among them §§331-335 of the German penal code.

National laws are usually designed so as to penalize the offering, promising or giving on the one hand, and the solicitation, agreeing to accept and the acceptance of a bribe (advantage) on the other. Indeed, our game theoretic suggestions would push things too far. Prosecutors have a hard time proving irregularities in the conduct of public servants, particularly if there is repeated exchange with a private party. In this context, the exchange of gifts and monetary inducements may be the clearest indicator for misbehavior, which must be subject to legal sanctions. But our model shows that the penalizing of public servants for accepting (and also for soliciting and agreeing to accept) bribes would squeeze them into a 'pact of silence'. The authorities may ameliorate this dilemma. The relevant provisions in the penal codes may be changed and/or amended in the following way¹⁶:

(1) A public official, who, directly or indirectly, solicits, agrees to accept or accepts an undue advantage, for himself or herself or another person or entity, in order that he or she, in the exercise of his or her official duties, act on behalf of the giver of an advantage or another person or entity shall be punished.

(2) A public official shall receive a milder punishment for soliciting, agreeing to accept or accepting, directly or indirectly, an undue advantage, for himself or herself or another person or entity, if he or she does not act on behalf of the giver of the advantage or another or entity.

¹⁵ Article 15 states: Each State Party shall adopt such legislative and other measures as may be necessary to establish as criminal offences, when committed intentionally:

(a) The promise, offering or giving, to a public official, directly or indirectly, of an undue advantage, for the official himself or herself or another person or entity, in order that the official act or refrain from acting in the exercise of his or her official duties;

(b) The solicitation or acceptance by a public official, directly or indirectly, of an undue advantage, for the official himself or herself or another person or entity, in order that the official act or refrain from acting in the exercise of his or her official duties.

¹⁶ Note that the stated provisions do not include specific degrees or forms of punishment. The provisions shall rather serve as a guideline of how the relevant provisions may be designed.

(3) A public official shall not be liable for soliciting, agreeing to accept or accepting, directly or indirectly, an undue advantage, for himself or herself or another person or entity, if he or she reports to the competent authorities [before legal proceedings have been taken and] before he or she has, in the exercise of his or her official duties, acted on behalf of the giver of an undue advantage or another person or entity.

To some extent the phrasing of paragraph (2) implicitly includes a reversion of the onus of proof, i.e. the onus of producing evidence in proof or disproof of an issue is put onto the defendant, [de Speville 1997]. Such a reversion has been controversially discussed. But bribery commonly entails such a provision because any act that is committed with lawful authority or reasonable excuse is often excluded from prosecution. Paragraph (2) implies that the failure to reciprocate a bribe may represent such a reasonable excuse.¹⁷

For the design of criminal provisions relating to bribe-givers our model can be immediately applied. In particular, we suggest that ex-ante leniency should be granted to a briber only on condition that the public official has already reciprocated on the bribe. In other words, leniency should result only if the bureaucrat to award the contract (service), and not if she cheated. This would ensure that the briber could not credibly threaten the recipient that she had better not renege, thereby stabilizing the arrangement. Against this background, the relevant provisions in the penal codes may be changed and/or amended in the following way¹⁸:

(1') A person offering, promising or giving, directly or indirectly, an undue advantage to a public official, for the official himself or herself or another person or entity, in order that the official, in the exercise of his or her official duties, act on behalf of the giver of an advantage or another person or entity shall be punished.

(2') A person shall not be liable for offering, promising or giving, directly or indirectly, an undue advantage to a public official, for the official himself or herself or another person or entity, if he or she reports his or her act to the competent authorities [before legal proceedings have been taken and] after the public official, in the exercise of his or her official duties, acted on behalf of the person or another person or entity.

We remain ambiguous on the question of whether leniency should even be given after legal proceedings have been taken. Disallowing this has two effects: On the one hand immediate

¹⁷ Circumstantial evidence for granting leniency may for example be disputes and conflicts between bribers and public officials after the acceptance of the bribe. Conflict prior to the giving of a bribe may be indicative of extortion by the public official and should therefore not qualify as circumstantial evidence for a reasonable excuse.

¹⁸ Note that the stated provisions do not include specific degrees or forms of punishment. The provisions shall rather serve as a guideline of how the relevant provisions may be designed.

self-reporting would be more attractive when this option is no longer available after legal proceedings have been started. But a downside effect would arise if prosecutors cannot prove the *quid pro quo*. In this case, only the penalties F_B^b, F_E^b might be imposed. There might be a case of asymmetric information where only E and B can prove the quid-pro-quo. Granting leniency in exchange for this proof would help to impose also the sanction F_B^a on the bureaucrat, acting as an additional deterrent.

Interestingly, some legal provisions are likely to inhibit opportunism rather than to encourage it. Former Article 215 (2) of the Turkish penal code granted leniency only if the public official had not yet reciprocated on the bribe, [Tellenbach 1997: 642]. Remarkably, according to Article 215 (2), the bribe-giver was entitled to reclaim the bribe in case of self-reporting. Such provisions run contrary to our recommendations, because they strengthen the briber in requesting illegal reciprocity. Subject to this legislation, bribe-givers could credibly threaten public servants who failed to reciprocate. The design of the former Turkish penal code may have thus forced public servants to deliver on their corrupt promises.¹⁹

Also adjudication relating to §§299-300 (corruption in commerce) and §§331-335 of the German penal code does not conform with our recommendations, as highlighted by the Bavarian district court's final judgment concerning the conviction of Karl-Heinz Wildmoser, a prominent football manager ensnarled in a corruption scam related to the building of Munich's new football stadium, the *Allianz Arena*. The district court emphasized that "the interest of the general public...is already interfered with if the bribe-taker does not abide by the illicit agreement or did not intend to do so in the first place...", [Bavarian Criminal Division 2005: 68]. This has a perverse effect: If high sanctions are already imposed for accepting bribes, bribe-takers are no longer deterred from reciprocating and, thus, from taking the next step in their criminal career.

Such adjudication runs the risk of protecting illegal reciprocity. In extreme form, such a type of ruling occurred in an Italian court. The Sicilian court overruled a verdict relating to Mr. Mario Campana, a director of a civil court in Potenza, who received 88 pounds of fish in return for helping to expedite the case of a plaintiff. The court explained that "the law punishes the false boast of being able to exert influence, and not the real traffic of influence", [Stanley 2004: A4]. In other words, the Italian court ruled that "the director could only be convicted of *pretending* to influence higher authorities; punishment would be warranted only if the official *couldn't* deliver", [Uslaner 2005: 79], implying that in the judgment of this court, if an illicit favor works successfully, it ceases to be a crime.

¹⁹ The Turkish penal code was revised in 2005, with new but equally disputable clauses taking effect.

Questions remain about exactly what criminal sanctions and leniency ought to encompass (e.g. should disciplinary penalties also be abandoned), but also about potential civil litigation and the ensuing indemnifications. May a bribe-giver, for instance, retain the public contract, license or permit? Or may the bribe-taker keep the bribe? From the perspective of destabilizing corrupt arrangements the second question could clearly be approved because it would strengthen a bribe-taker's willingness to cheat. However, the public's notion of justice and fairness may be violated. Similarly, if an entrepreneur could keep the contract, license or permit in case of reporting, the corrupt arrangement would further be destabilized. The incentive to self-report, however, would be reduced if the public preferred to seek a more competent or 'ethical' entrepreneur for the execution of the contract. Certainly, such sentiments may not necessarily be the suitable guide for the design of anti-corruption legislation.

5 Conclusion

Asymmetric sanctions and (ex-ante) leniency may increase the risk inherent in corrupt deals because opportunism is furthered. As a result, participation may become less likely. Moreover, given the lack of legal enforcement, transaction costs might increase as more complex and thus costlier safeguard mechanisms have to be sought, [Lambsdorff 2002].

Given the risks of both being cheated upon and whistle-blowing, there may result additional deterrent effects from our design of criminal codes. Bribe-givers would be dissuaded from entering corrupt arrangements not only because of heavy and prompt expected sanctions, but also because public servants may become unreliable partners in corrupt transactions. Thus, we are hinting at a broader concept of deterrence, i.e. one that does not exclusively relate to the expected disutility from exposure to legal punishment, as implied for instance in Becker [1968], Polinsky and Shavell [1984; 1999], Posner [1985], Shavell [1987, 1990], and Carlsmith, Darley and Robinson [2002]. In fact, our models suggest that deterrence, in the broader sense of reducing potential perpetrators' willingness to participate in illegal acts, also entails the disincentives created by a specific design of the relevant criminal sanctions, including ex-ante leniency. It is this deterrent effect that legal codes can legitimately draw upon by devising criminal sanctions so as to destabilize corrupt arrangements.

In this spirit, we showed within the confines of a simple formal model that public servants²⁰ should not be penalized for soliciting, agreeing to accept or accepting but rather for reciprocating a bribe. In turn, businesspeople should be sanctioned for offering, promising or giving bribes, but not for accepting the bribe-taker's illicit service. Leniency should be

²⁰ The same would arise for potential bribe-takers in commerce.

granted to bribe-givers only if they self-report and if the public official reciprocated the bribe.

Some caveats have to be borne in mind, though. Obviously, in cases of repeated transactions, asymmetry and leniency may be fruitless. Thus, asymmetry and leniency may unfold their effects rather in one-shot, large-scale transactions which oftentimes are part of grand corruption schemes. Furthermore, it may be very difficult for prosecutors to establish the link between the officials' services and the bribe payments, i.e. to prove the *quid pro quo*, because of complex and subtle payment/gift-exchange schemes coupled with long time spans. Imagine, for instance, that prosecutors can prove that a bribe has been given, yet cannot connect the bribe to a specific favorable treatment. Following our formal model, the bribe-giver would be penalized for exerting influence on the bribe-taker; yet the taker would go unpunished. A similarly undesirable outcome would result if a public official harassed businesspeople and attempted to extort a bribe. Clearly, the solicitation of such a payment should be subject to legal punishment. We showed that consideration of these issues provides a potential dilemma to lawmakers, because respective sanctions are likely to squeeze the bribe-takers into a 'pact of silence'. Our suggestions for the formulation of criminal codes take these issues into account on potentially overcome them.

Asymmetric sanctions and leniency are not contrary to the respective laws' subject of protection. Neither is there a conflict with the objective of general deterrence. In fact, asymmetry and ex-ante leniency might unleash higher deterrent effects of anti-corruption laws, if deterrence is understood in the broader sense of reducing potential perpetrators' willingness to participate in illegal acts. Thus, in order to clamp down more vigorously on corruption, legislators should seriously consider the benefits of asymmetric sanctions and leniency in their (re-) formulation of the respective anti-corruption laws.

References

- Abbink, K., Irlenbusch, B. and Renner, E. (2000): "The Moonlighting Game", *Journal of Economic Behavior and Organization*, 22, p. 265-277.
- Anderson, A. (1995), "Organized Crime, Mafia and Governments", in Fiorentini, G. and Peltzman, S. (Eds.): "The Economics of Organized Crime", Cambridge, pp. 33-54.
- Bannenberg, B. (2002), "Korruption in Deutschland und ihre strafrechtliche Kontrolle: Eine kriminologisch-strafrechtliche Analyse", Neuwied/Kriftel.
- Bavarian Criminal Division (2005), Conviction by the 4th Criminal Division of the Munich District Court, 4 KLS 571 Js 50602/03.
- Becker, G. S. (1968), "Crime and Punishment: An Economic Approach", *Journal of Political Economy*, Vol. 76: 169-217.
- Buccirosi, P. and Spagnolo, G. (2005): "Leniency Policies in Illegal Transactions", *Governance and the Efficiency of Economic Systems (GESY)*, Discussion Paper No. 74, September 2005.
- Carlsmith, K. M., Darley, J. M. and Robinson, P. H. (2002): "Why Do We Punish? Deterrence and Just Deserts as Motives for Punishment", *Journal of Personality and Social Psychology*, Vol. 83, No. 2, pp. 284-299.
- della Porta, D. and Vanucci, A. (1999): "Corrupt Exchanges, Actors, Resources and Mechanisms of Political Corruption", New York.
- Dušek, L., Ortmann, A. and Lízal, L. (2004): "Understanding Corruption and Corruptibility through Experiments: A Primer", *Prague Economic Papers*, No. 2.
- Granovetter, M. (1992), "Economic Action and Social Structure: The Problem of Embeddedness", *The Sociology of Economic Life*, ed. by M. Granovetter and R. Swedberg, (Boulder: Westview Press): 53-81.
- Greif, A. (2005): "Institutions and the Path to the Modern Economy: Lessons from Medieval Trade", forthcoming, Cambridge University Press.
- Hepkema, S. and Booyen, W. (1997), "The Bribery of Public Officials: An IBA Survey," *International Business Lawyer*, October 1997, pp. 415-416, 422.
- Kargl, W. (2002), "Über die Bekämpfung des Anscheins der Kriminalität bei der Vorteilsannahme (§ 331 StGB)", in *Zeitschrift für die gesamte Strafrechtswissenschaft (ZStW)*, Vol. 114, No. 4, pp. 763-781.
- Kingston, C. (2005): "Parochial Corruption", forthcoming in *The Journal of Economic Behavior and Organization*, <http://www.amherst.edu/~cgkingston/Parochial.pdf> (downloaded on Nov. 30 2005).
- Lambsdorff, J. Graf, Schramm, M. and Taube, M (2005): "The New Institutional Economics of Corruption: Norms, Trust, and Reciprocity", Routledge, London 2005.

Lambsdorff, J. Graf and Teksoz, S. U. (2005): "Corrupt Relational Contracting", in Lambsdorff, J. Graf, Schramm, M. and Taube, M. (Eds.): "The New Institutional Economics of Corruption: Norms, Trust, and Reciprocity", Routledge, London 2005.

Lambsdorff, J. Graf (2002): "Making Corrupt Deals: Contracting in the Shadow of the Law", *Journal of Economic Behavior and Organization*, Vol. 48 (3), pp. 221-241.

Ogilvie, S. (2004): "The Use and Abuse of Trust: Social Capital and Its Deployment by Early Modern Guilds", CESifo Working Paper No. 1302, Munich.

Polinsky, M. A. and Shavell, S. (1984): "The Optimal Use of Fines and Imprisonment", *Journal of Public Economics*, Vol. 24 (June 1984), pp. 89-99.

Polinsky, M. A. and Shavell, S. (1999): "On the Disutility and Discounting of Imprisonment and the Theory of Deterrence", *Journal of Legal Studies*, Vol. XXVIII (June 1999), pp. 1-16.

Posner, R. A. (1985): "An Economic Theory of the Criminal Law," *Columbia Law Review*, Vol. 85 (October 1985), pp. 1193-1231.

Rose-Ackerman, S. (1999): "Corruption and Government. Causes, Consequences and Reform", Cambridge.

Shavell, S. (1987): "The Optimal Use of Nonmonetary Sanctions as a Deterrent", *The American Economic Review*, Vol. 77, No. 4 (September 1987), pp. 584-592.

Shavell, S. (1990): "Deterrence and the Punishment of Attempts", *Journal of Legal Studies*, Vol. XIX (June 1999), pp. 435-466.

Spagnolo, G. (2006): "Leniency and Whistleblowers in Antitrust", Centre for Economic Policy Research (CEPR), Discussion Paper Series, No. 5794.

Stanley, A. (2001): "Rome Journal: Official Favors: Oil That Makes Italy Go Round", *New York Times*, April 20, Section A, p. 4.

Tellenbach, S. (1997): "Türkei", in Eser A, Überhofen M. and B. Huber, B. (Eds.): "Korruptionsbekämpfung durch Strafrecht", Max-Planck-Institut für ausländisches und internationales Strafrecht, Freiburg, Germany.

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