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# A GENERALIZATION OF THE BUCCIROSSI & SPAGNOLO (2006) MODEL

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# A Generalization of the Buccirossi & Spagnolo (2006) Model

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**Abstract**

We get rid of an undesirable key feature of the Buccirossi & Spagnolo (2006) model, the assumption of production of hard evidence between briber and bribee as a means of commitment to occasional illegal transactions. Our modification is simple and straightforward but makes the model more realistic and more readily applicable to the experimental testing of anti-corruption measures. We compare the predictions of the original model and our generalization.

**Abstrakt**

Eliminujeme nežiadúci predpoklad modelu Buccirossi & Spagnolo (2006), kde autori predpokladajú dobrovoľnú produkciu dôkazového materiálu, s čím vopred súhlasia obe strany, platiteľ aj prijímateľ úplatku, a čo neskôr slúži ako záruka na dodržanie príležitostných nelegálnych dohôd. Naša modifikácia je jednoduchá a priamočiara a robí model realistickejším a jednoduchšie aplikovateľným pre experimentálne testovanie protikorupčných opatrení. Porovnávame predikcie pôvodného a upraveného modelu.

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# 1 Introduction

Corruption remains, albeit to various degrees, a serious problem in almost all modern economies (see for example the latest Transparency International Corruption Perception Index,[1] or Ortmann 2004). The design and implementation of effective anticorruption measures remains, therefore, an important concern (Lizal & Ortmann 2003; Dusek, Lizal, & Ortmann 2005).

Arguably the most promising anti-corruption measures are leniency policies. Such policies award fine reductions of varying intensities to wrongdoers who decide to report an illegal agreement. So far, leniency policies have been used, and analyzed, mostly in the context of cartel deterrence. Spagnolo (2004), for example, theoretically analyzed the impact of various leniency programs (from moderate fine reductions to full fine reductions, and even bonus-schemes), some of which have been in use for years. Spagnolo shows that paying a bonus to the cartel member that reports first is likely to produce the desired deterrence effect, and is the more likely the higher the bonus is. This full leniency-plus policy leads to the first best if the bonus is fully financed from fines collected from the other members of the cartel.

Drawing on earlier versions of Spagnolo (2004), Apesteguia, Dufwenberg and Selten (2004) conducted an experiment that confirms these cartel-deterring properties of leniency policies.[2] All things considered, both the theoretical and experimental results suggest that leniency policies may also be effective tools of corruption deterrence.

Leniency policies to deter cartels are not directly applicable as anti-corruption measures, as the former situation is essentially a simultaneous game while strategies,

[1] http://www.transparency.org/policy_research/surveys_indices/cpi/2006

[2] Surprisingly, the prices in bonus-paying treatments exceed the levels from moderate leniency treatments and cartel formation is also higher; Dusek, Ortmann, Lizal (2005) discuss some of the experimental implementation issues that may have produced these results.

payoffs, and move structure of the latter is asymmetric;[3] a separate theoretical and experimental analysis is therefore called for.

Buccirossi and Spagnolo (2006, B&S from here on) provide a theoretical analysis of the effects of various leniency policies on corruption. Taking as point of departure a simple and straightforward bribery model, they demonstrate that poorly designed moderate leniency policies[4] may enable punishment of a defecting partner at relatively low cost, thus inducing occasional illegal transactions[5] which otherwise would not have been enforceable. Rather than deterring corruption, some leniency policies thus provide additional enforcement mechanisms for agents and might increase corruption.

In setting up their model, the authors assume that absent explicit agreement between briber and bribee to produce hard evidence (which in their model is a necessary precondition for conviction), occasional illegal transactions are not enforceable because hard evidence will not exist.[6] Essentially, their model is thus based on the idea of hostages (Williamson 1983). Consequently, the probability that an audit will lead to conviction is one. This strikes us as an undesirable feature of the B&S model.

Our modification is simple and straightforward but makes the model more realistic and more readily applicable to the experimental testing of anti-corruption measures. Specifically, rather than assuming that briber and bribee produce a hostage, we assume an audit might lead, with some nonzero probability, to the discovery of a smoking gun that is enough to initiate an indictment. Maybe not

[3]For a more detailed discussion see Richmanova (2006).

[4]Moderate leniency policies at best reduce or cancel a sanction for the reporting party but do not pay a reward.

[5]Occasional illegal transactions are one-shot illegal transactions for which reputation plays no role.

[6]The authors (see section 2.2.) understand that this assumption is problematic; they argue that a more realistic assumption ”would make the model more cumbersome without changing any qualitative results” (fn 10, p. 1285). Such a model, however, is needed for a proper experimental testing of leniency policies.

surprisingly, this generalization of the B&S model leads not to qualitatively different results. It does, of course, change the likelihood of various outcomes. It is the modest purpose of this paper to draw out the quantitative implications of our modification and to provide a model more readily available for experimental testing of anti-corruption measures.

The remainder of this paper is organized as follows. In the first section, we briefly summarize the B&S model. Afterwards, we propose its generalization and describe the resulting changes in the game. The next section provides a discussion and comparison of the results of the two models. The last section concludes.

## 2 The Original Model

B&S define leniency policy as a fine reduction for a party which reports the illegal transaction to authorities. This fine reduction might be negative when the leniency program would pay a bonus. Moderate leniency is defined as a leniency which never pays a bonus.

B&S model the interaction between a bureaucrat and an entrepreneur. The entrepreneur has an investment possibility of net present value $v$; the success of the investment, however, requires the bureaucrat to perform an illegal action $a$. For doing so, the bureaucrat may require a bribe $b$.

The timing of the game is as follows. First, the entrepreneur decides whether to pay a bribe or not. If she does not pay a bribe, the game ends. Alternatively, the bureaucrat chooses one of three possible actions: *Denounce*, do *Nothing*, or perform *Action a*. If he denounces, he will have to pay a reduced fine whereas the entrepreneur will have to pay the full fine. If he plays *Nothing* or *Action a*, then the entrepreneur moves next. In both cases she chooses between *Denounce* and do *Nothing*. If she denounces, then she will have to pay the reduced fine whereas the bureaucrat will have to pay the full fine. If she chooses *Nothing*, then an audit may occur with some positive probability $\alpha$. If corruption is detected, both parties are subject to sanction, which consists of the confiscation of illegal gains (the bribe $b$ and the value of the project $v$) plus the (full) fine. Figure 1 summarizes:

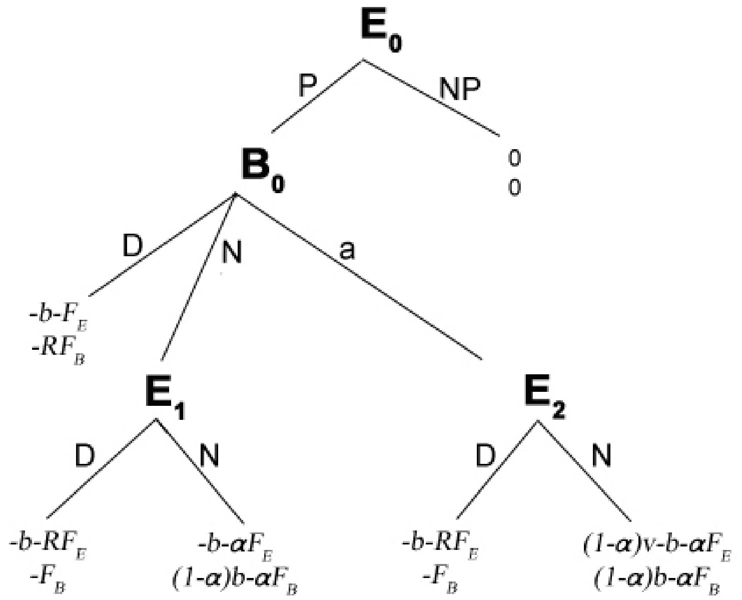


Figure 1: The extensive form of the Buccirossi & Spagnolo (2006) game; $P$ stands for *Pay*, $NP$ for *Not Pay*, $D$ for *Denounce*, $N$ for doing *Nothing*, $a$ for performing *Action a*, $b$ for bribe, $v$ for value of the investment to the entrepreneur, $\alpha$ for exogenous probability of detection, $F_E$, $F_B$ and $RF_E$, $RF_B$ for full and for reduced fine to the bureaucrat and to the entrepreneur, respectively.

The authors show, that in the absence of a leniency program, occasional illegal transactions are not implementable.[7] After the introduction of a modest leniency program, occasional illegal transactions are enforceable if the following three conditions are satisfied simultaneously. First, the *No-reporting* condition for the bureaucrat: the reduced fine must be such that the bureaucrat prefers performing *Action a* to reporting once the bribe has been paid. Second, the *Credible-threat*

[7]Facing the full fine even after reporting, the entrepreneur cannot credibly threaten to report if the bureaucrat does not deliver. Therefore, the bureaucrat would keep the bribe and not perform *Action a*, knowing that it is not profitable for the entrepreneur to punish him. Consequently, the entrepreneur would not enter the illegal agreement in the first place.

condition for the entrepreneur: reduced fine and full fine must be set such that the entrepreneur can credibly threaten to report if the bureaucrat does not deliver. Third, the *Credible-promise* condition: the entrepreneur must be able to credibly promise not to report if the bureaucrat obeys to the illegal agreement.

The authors further discuss generalizations and extensions of the basic setup discussed above. First, they analyze a game with alternative sequencing of the illegal exchange, where the bureaucrat moves first, deciding between doing *Nothing* and performing *Action a.* If he performs *Action a*, the entrepreneur can choose between *Denouncing*, doing *Nothing* and *Paying bribe b.* Finally, in the latter two cases, the bureaucrat has a chance to report the illegal transaction. Qualitatively, the result is the same as in the basic game – poorly designed moderate leniency programs implement occasional illegal transactions.

More interestingly, B&S also discuss a general version of a game – a linear combination of the two possible sequencings of the illegal transaction. In the first node, the entrepreneur decides whether to *Pay* a fraction $q \cdot b$ of a bribe or *Not Pay.* Then the bureaucrat chooses between *Denouncing*, doing *Nothing* and performing *Action a.* If he plays *Nothing*, the entrepreneur can either *Denounce* or do *Nothing.* If he performs *Action a*, the entrepreneur can either *Pay* the remainder of the bribe $(1-q) \cdot b$, do *Nothing,* or *Denounce.* The former two actions are yet followed by the bureaucrat choosing between doing *Nothing* or *Denouncing.* Using this general game, the authors show that an occasional illegal transaction which cannot be implemented with either $q = 0$ or $q = 1$, can also not be implemented with any $q \in (0, 1)$.

Altogether, the authors show that a leniency policy does not implement occasional illegal transactions either if 1) the reduced fine for either party is not smaller than her/his expected full fine; or if 2) at least one party is awarded a reward which exceeds her/his maximum expected gain from the illegal transaction. All other leniency policies implement occasional illegal transactions.

The one problem with this otherwise straightforward model is the assumption that, for the purpose of law enforcement, no occasional illegal transaction is enforceable unless both partners explicitly agree on the production of hard evidence. Absent such an agreement, no hard evidence would exist but illegal transactions would also not take place. Thus, both parties would earn zero profits. In other words, the authors assume that for all occasional illegal transactions which take place, there exists hard evidence. Consequently, the probability of conviction is equal to probability of audit, as the voluntarily produced hard evidence will be found with probability one during an audit. There is no empirical evidence in favor of this assumption: the probability of conviction is surely lower than the frequency of audit, and there is no empirical evidence that we know of that occasional illegal transactions are indeed supported by the voluntary (and mutually agreed-upon) production of hard evidence.

# 3 The Modified Model

We propose a straightforward modification of the B&S model that eliminates the assumption of voluntary (and mutually agreed-on) production of hard evidence. Essentially we replace this assumption with a new one that stipulates that, with some probability, evidence is discovered during an audit (which itself is probabilistic). In other words, we assume that an audit will, with some probability less than one, find some (unintentionally created) evidence[8] of corruption. We denote this probability $\beta$. For simplicity we assume that discovery of evidence leads to indictment and conviction and use these terms interchangeably.[9]

[8]To illustrate how this may work in reality, imagine, for example, that auditing inspector notices unexplainable credit on a bureaucrat's bank account.

[9]We realize that in such a game beliefs about the probability of detection might play an important role. However, introduction of beliefs would make the game far more complex than

Introduction of the probabilistic discovery of evidence, $\beta$, has two consequences for the payoffs in our modified model. First, the probability of conviction is $\beta$ after one of the partners reports[10] and $\alpha \cdot \beta$ if no reporting takes place.[11] Both probabilities are lower than in original B&S model. Second, leniency applies only when evidence is discovered. Therefore, even after reporting, there is a positive probability $(1-\beta)$ that both agents keep their illegal gains and only with probability $\beta$ they face a penalty (reduced for the party that has reported and full for the one that has not). Figure 2 summarizes the payoffs that result from the new assumption of probabilistic discovery of evidence. The expected cost from reporting as well as the risk of being involved in bribery are now lower than in B&S.

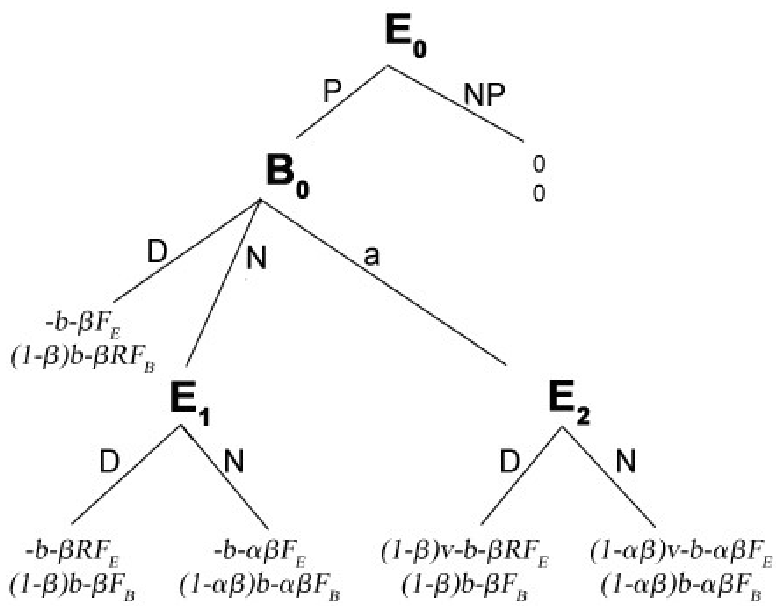


Figure 2: The extensive form of the modified model; $P$ stands for *Pay*, $NP$ for *Not Pay*, $D$ for *Denounce*, $N$ for doing *Nothing*, $a$ for performing *Action a*, $b$ for bribe, $v$ for value of the investment to the entrepreneur, $\alpha$ for exogenous probability of audit, $\beta$ for probability of conviction, $F_E$, $F_B$ and $RF_E$, $RF_B$ for full and for reduced fine to the bureaucrat and to the entrepreneur, respectively.

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necessary, and maybe desirable, for experimental testing. We thus view probability $\beta$ as an empirical success rate, or effectiveness, of a detection technology that is known to subjects.

[10] After reporting, the probability of audit is one.

[11] Audit happens with probability $\alpha$ and consequently some evidence of corruption is found with probability $\beta$.

## 3.1 Timing of the Game and Payoffs

The timing of the modified game is the same as in Buccirossi & Spagnolo (2006). Like the authors, we assume that the probability of audit is one when either the entrepreneur or the bureaucrat report. However, the probability that evidence of bribery is found is assumed to be $0 < \beta < 1$. If the audit discovers evidence of bribery, illegal gains are confiscated (bribe $b$ and/or value of the project $v$, depending on the stage of the transaction).

When the bureaucrat reports the game ends and the payoffs are as follows: he keeps the bribe only when no evidence of bribery is discovered, otherwise he pays the reduced fine $RF_B$. The entrepreneur has already paid the bribe and in addition, if the audit is successful, will have to pay the full fine $F_E$. If the bureaucrat in node $B_0$ chooses either doing *Nothing* or performing *Action a*, the game continues. As in B&S, the entrepreneur chooses between two actions, *Denounce* and do *Nothing,* at both nodes $E_1$ and $E_2$.

First, we discuss the case when the bureaucrat has not respected the agreement (not performing the *Action a*, for which he has already accepted the bribe – $E_1$ node). If the entrepreneur chooses to *Denounce*, she suffers a sunk cost $b$ and if the corruption is discovered (with probability $\beta$), she pays in addition the reduced fine. The bureaucrat, in case of detection, pays the full fine. He keeps the bribe, when the audit finds no evidence of corruption, which happens with probability $(1 - \beta)$. If the entrepreneur chooses to do *Nothing* (meaning not reporting), then in addition to paying bribe $b$, she faces an audit with probability $\alpha$ which may, with probability $\beta$, discover corruption. In case of detection the entrepreneur pays the full fine. The bureaucrat keeps the bribe only with probability $(1 - \alpha\beta)$[12] and, as

[12]The bureaucrat keeps bribe if either no audit takes place, which happens with probability $(1 - \alpha)$, or an audit discovers no evidence, which happens with probability $\alpha(1 - \beta)$. This gives an overall probability $(1 - \alpha\beta)$.

the entrepreneur, he pays the full fine if the audit is successful.

Now second, we discuss the case, when the bureaucrat respects the agreement and performs *Action a.* If the entrepreneur denounces, in addition to suffering a sunk cost $b$, she enjoys the value of the project $v$ only if the audit discovers no evidence. If the audit is successful, as a reward for reporting, the entrepreneur pays only the reduced fine. Similarly, the bureaucrat can keep the bribe if the audit is not successful; otherwise he pays the full fine. If the entrepreneur decides to do nothing in node $E_2$, then the audit happens only with probability $\alpha$. This means that if the audit is successful, in addition to losing the money paid as a bribe $b$, the entrepreneur pays the full fine. If the audit discovers no evidence, the entrepreneur enjoys the value $v$. The bureaucrat keeps bribe only if the audit finds no evidence, otherwise he pays the full fine.

## 3.2 Discussion and Comparison of the Results

What are the consequences of introducing the probabilistic discovery of evidence?

First, we look at the participation constraints for the bureaucrat and the entrepreneur. As in the original model, the expected payoffs from obeying the illegal agreement must be greater or equal to not entering it at the first place, which leads to the following conditions for the two agents.

For the bureaucrat, the participation constraint becomes:

$$PC_B : (1 - \alpha\beta)b - \alpha\beta F_B \geq 0$$

which defines a minimum feasible bribe $\underline{b} = \frac{\alpha\beta}{(1-\alpha\beta)} F_B$ for which the bureaucrat would enter the illegal agreement. Compared to the original B&S model, where the bureaucrat's participation constraint is $(1-\alpha)b - \alpha F_B \geq 0$ – defining the minimum feasible bribe as $\underline{b} = \frac{\alpha}{(1-\alpha)} F_B$ – in our generalized model the minimum feasible bribe is lower and the left-hand side of the participation constraint is higher holding other parameters fixed.

For the entrepreneur, the participation constraint becomes:

$$PC_E : (1 - \alpha\beta)v - b - \alpha\beta F_E \geq 0$$

which defines a maximum feasible bribe $\overline{b} = (1 - \alpha\beta)v - \alpha\beta F_E$ which the entrepreneur is willing to pay. Compared to the original B&S model, where the entrepreneur's participation constraint is $(1 - \alpha)v - b - \alpha F_E \geq 0$ – defining the maximum feasible bribe as $\overline{b} = (1 - \alpha)v - \alpha F_E$ – in our generalized model the maximum feasible bribe is greater as well as is the left hand side of the participation constraint.

Thus, in the modified model, the participation constraints for the bureaucrat and for the entrepreneur are more likely to hold (and consequently the range of feasible bribes is wider) than in the original model. That is, more corruption can be expected ceteris paribus according to our modified model.

Further, we want to examine the effect of the introduction of probability $\beta$ on the set of moderate leniency policies which implement occasional illegal transactions. In other words, we want to see, how the *No-reporting*, *Credible-promise* and *Credible-threat* conditions will be affected.

First, the *No-reporting* condition states that the bureaucrat's expected payoff from reporting has to be no greater than his expected payoff from obeying the illegal agreement. In our generalized setting it becomes:

$$(1 - \beta)b - \beta R F_B \leq (1 - \alpha\beta)b - \alpha\beta F_B$$

It can be rewritten to $-RF_B \leq (1-\alpha)b - \alpha F_B$ which is the same condition as in the original model.

Second, the *Credible-threat* condition states that the entrepreneur's expected payoff from reporting has to be no smaller than her expected payoff from doing *Nothing* in case when the bureaucrat does not respect the illegal agreement (meaning that he does not perform *Action a*). In our generalized model it is:

$$-b - \beta RF_E \geq -b - \alpha\beta F_E$$

This can be reduced to $-RF_E \geq -\alpha F_E$ which is the same condition as in the original model.

Finally, the *Credible-promise* condition states that the entrepreneur's expected payoff from obeying the illegal agreement has to be no smaller than from denouncing it in case when the bureaucrat performs *Action a*. In our generalized model it is

$$(1-\beta)v - b - \beta RF_E \leq (1-\alpha\beta)v - b - \alpha\beta F_E$$

This can be rewritten to $-RF_E \leq (1-\alpha)v - \alpha F_E$ which is, again, the same condition as in the original model.

Clearly, all the restrictions on parameters which would ensure that the occasional illegal transaction is implementable are the same as in the original B&S model. What would change, however, are the expected gains of both agents from entering the illegal agreement. Specifically, the bureaucrat's maximum expected gain becomes

$$\overline{M_B} = (1-\alpha\beta)\bar{b} - \alpha\beta F_B = (1-\alpha\beta)^2 v - \alpha\beta(1-\alpha\beta)F_E - \alpha\beta F_B$$

which is greater than original $(1-\alpha)\bar{b} - \alpha F_B = (1-\alpha)^2 v - (1-\alpha)\alpha F_E - \alpha F_B$. Similarly, for the entrepreneur, the maximum expected gain becomes

$$\overline{M_E} = (1-\alpha\beta)v - \alpha\beta F_E - \frac{\alpha\beta}{1-\alpha\beta} F_B$$

which is also greater than original $(1-\alpha)v - \alpha F_E - \frac{\alpha}{1-\alpha} F_B$.

Thus, the expected payoff from reporting is now higher than in original model, as well as is the maximum expected gain for both agents. The difference lies in the assumption of probabilistic production of evidence, as a result of which, after the reporting, the agents do not lose their illegal gains with certainty, only with probability $\beta$. Similarly, the probability of conviction without any agent having reported is now lower than in the original model. Thus, the overall probability of conviction is lower in this modified version, which means lower risk associated with bribery and thereby accounts for larger maximum expected gain. Keeping other parameters the same as in the original model, we predict more corruption (which is exactly what we can see from the participation constraints).

Finally, we want to see, whether the set of implementable occasional illegal transactions in our generalized version of the model is different than in the original model. Again, the three crucial "implementability" conditions are the same in both models, only now, the participation is more likely and the interval for possible bribes is wider. Thus, if for any moderate leniency policy from the original version, there exist a bribe (from the original interval which is now a subset of the new, wider, interval) such that the occasional illegal transaction is implementable (the three conditions hold), so it does in the new version. Thus, every moderate leniency policy which implements occasional illegal transaction in the original version of the model also does so in our modified version.

In the above discussion, we have focused on the basic game in which the entrepreneur moves first. Not surprisingly, our modification does not change the qualitative results in either of the other two models the authors discuss. However, unlike in the basic game, in these two extensions the introduction of the probability $\beta$ of an audit discovering hard evidence is reflected in conditions which identify leniency programs implementing occasional illegal transaction. Nevertheless, these conditions still identify a non-empty set of such leniency programs. Also, the general result still holds: as in the original model, an occasional illegal transaction which is not implementable under either sequencing[13] is not implementable under their linear combination.

# 4 Conclusion

We have replaced the assumption of voluntary production of hard evidence in Buccirossi and Spagnolo (2006) by the more realistic assumption of probabilistic discovery of evidence. In other words, we assume that the illegal transaction may leave traces of evidence which may be discovered by an investigator. To make things simple, we have assumed that indictment and conviction follow with probability one if the investigator discovers such evidence. Unlike B&S, we assume that the probability of conviction after an audit is smaller than one. Our modification makes the model by Buccirossi & Spagnolo more readily applicable for experimental testing.

As predicted by Buccirossi and Spagnolo (2006), our modification does not change qualitatively the key results of their article: poorly designed moderate leniency policies may implement occasional illegal transactions which would otherwise not be enforceable. Our modification does have quantitative implications of relevance for the experimental testing of anti-corruption measures (see Richmanova & Lizal 2008, and Richmanova & Ortmann 2008). The most important quantitative

[13]In one sequencing the entrepreneur moves first, in the other the bureaucrat does.

difference is that the risk of entering an illegal agreement is lower in our modified model and thus we predict a higher incidence of corruption than B&S.

# References

Apesteguia, J., Dufwenberg, M., Selten, R., (2004). Blowing the Whistle. *GaMes Research Paper 10/04*, Granada and Malaga Experimental Society.

Buccirossi, P., Spagnolo , G., (2006). Leniency policies and illegal transactions, *Journal of Public Economics 90*, 1281–1297.

Dusek, L., Lizal, L., Ortmann, A., (2005). Understanding Corruption and Corruptibility through Experiments: A Primer. *Prague Economic Papers, 14.2., 2005,* 147-163. [*CERGE-EI Discussion Paper No. 136*]

Lizal, L., Ortmann, A., (2003). Designing and Testing Incentive-compatible and Effective Anti-corruption Measures, grant proposal successfully submitted to the Grant Agency of the Czech Republic.

Ortmann, A., (2004). "Corruption Prague," (a review of the TI CR V4-City Corruption Propensity Index), *The Prague Post, August 5, 2004, 5.*

Richmanova, J., (2006). In Search of Microeconomic Models of Anti-Corruption Measures – A Review, *CERGE-EI Discussion Paper No. 2006-157.*

Richmanova, J., Lizal, L., (2008). Experimental Testing of Leniency Programs: The Impact of Change in Parameterization, [in prep].

Richmanova, J., Ortmann, A., (2008). Experimental Testing of Leniency Programs: The Impact of Instructions Framing, [in prep].

Spagnolo, G., (2004). Divide et Impera: Optimal Leniency Programs, *C.E.P.R. Discussion Paper No. 4840.*

Williamson, O., (1983). Credible commitments: using hostages to support exchange. *American Economic Review 73,* 519–540.

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