Corruption, Extortion, Reputation, and Asymmetric Information

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Abstract

This paper develops a simple reputational model that examines the situation of where a corrupt official attempts to extort a bribe from a firm. The game, between these two players, is repeated, giving us a two-period story. In, what I describe as the 'pretending-to-be-heroic scenario', the firm (a 'soft' firm) does not pay the bribe in the first period (as well as, not paying the bribe in the second period). If it was a one period-model this firm would pay the bribe, and, if the bribe was not paid, the official would carry out her threat. However, in the two-period model, with a pooling equilibrium, both types of firms behave like 'hard' firms in the first period (not paying the bribe and complaining if the threat is carried out). Since the official knows that either type of firm will complain, she does not carry out her threat. A necessary condition for this pooling equilibrium, is that, in the second period (if the official has not discovered the firm's type) the parameters will be such, that the official will calculate that there would be an expected loss from carrying out her threat.

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1. Introduction

We frequently think of corruption as a firm (or individual) bribing an official to obtain something, such as, an import licence. However, there is also the aspect of corruption which involves corrupt officials attempting to extort a bribe, from a firm, in return for not doing the firm harm. In this paper, I develop a simple two-period model, where there is an asymmetry of information between a corrupt official and a firm, so as to explore under what circumstances a firm will refuse to pay an extortionate bribe.

Bodrock (2005) in his *Harvard Business Review* fictional case study, presents us with some truly thought provoking material. Bodrock's protagonist is Pavlo Zhuk, a young American software entrepreneur of Ukrainian extraction. Zhuk has recently started a software firm located in Kiev. His premises receive a visit from a woman claiming to be Laryssa Ossipivna Simonenko, an agent of the Ukraine Tax Authority. She states that there are unpaid taxes and that there could be serious consequences for non-payment. She further states that, "….in such cases, it was not uncommon for the parties to reach an agreement", see Bodrock (2005, p. 35). Bodrock leaves us in no doubt that the claim of unpaid taxes is bogus and that Simonenko is attempting to extort a bribe. Bodrock makes it clear that Zhuk reasons that there is an asymmetric-information issue associated with his decision, as to whether, to pay the bribe. Zhuk wonders: "What happens when word gets out that we're a soft touch?", see Bodrock (2005, p. 35). Here Zhuk implies a belief that corrupt officials cannot directly observe what 'type' an individual firm is and, further, by paying a bribe a firm may reveal what type it is. Bodrock includes four commentaries on Zhuk's problem written by eminent people. Three out of the four commentators, advise Zhuk against paying the bribe, stating, or at least implying, that doing so will identify Zhuk's firm as being soft. Bozidar Djelic, a consultant and former Serbian government minister, says, with regard to paying a bribe, that: "Once you join that dance, the music never stops.", see Bodrock (2005,

p. 41). It seems clear from this discussion that, to model this sort of situation, a two-period model is required. The second period represents the future, where, the firm maybe at a disadvantage if it has paid the bribe in the first period.

Interestingly, Rafael Di Tella, the only one of Bodrock's commentators who has substantially contributed to the economics of corruption literature (see Ades and Di Tella (1997)), states that what Zhuk will do is pay the bribe – regarding it as just another tax. The style of Bodrock's fictional case study is deliberately entertaining and journalistic. All the elements for a game-theoretic based explanation, as to, why a soft firm may rationally refuse to pay a bribe, are not there. In this paper, I set out the circumstances where it will be optimal for a firm not to pay a bribe, in order to avoid revealing what type it is to the corrupt official. In my model the firm faces, potentially, two choices in each period. The first choice is whether to pay the bribe or not. The second choice is whether to complain or not, if the corrupt official takes action to harm the firm, in response to the firm not paying the bribe. There is a cost to the firm of complaining and there is a cost to the corrupt official of being complained about. Also, the corrupt official makes some gain from taking action to harm the firm, although not as much gain as if the bribe had have been paid.

This paper falls into the category of analyses that use reputational considerations to explain seemingly irrational behaviour. It is a simple application of a class of model Tirole (1988, p. 439) refers to as the Kreps-Wilson-Milgrom-Roberts reputation story. This framework has been used to explain seemingly irrational predatory practices in terms of establishing a reputation that will deter future entrants, see Milgrom and Roberts (1982). In my model, this framework is used to explain, why a firm will not pay a bribe, even though, in the one-period version of the model, the threat is credible.

I consider two types of firms, soft firms and hard firms. The soft firm can be thought of as the normal type, while the hard firm can be thought of as the heroic type. The hard firm

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will not pay the bribe because, for it, there is an extremely high physic penalty for doing this. The hard firm also does not incur any cost associated with complaining about the corrupt official. Instead the hard firm would incur a physic cost from not complaining. The most obvious thing to say, when asked to justify the assumption that hard firms actually exist, is to say that there are individuals who are born with combative and stubborn personalities. A Russian education sector example gives us an interesting instance of hard-type and soft-type behaviour. ITRA-TASS (2004) announced the opening of criminal cases against various lecturers and teachers accused of extorting bribes from students. A senior official associated with the prosecution, Andrei Leontenkov, is quoted as saying:

"many students, fearing expulsion, keep silent about the extortion by teachers."

Clearly, for the prosecutions to have taken place, some of the students must have adopted hard-type behaviour and not kept silent. The picture we get is one of a vast number of students, most of whom will pay bribes, and a few of whom, with a combative nature, will not pay and will complain.

Another existence-of-hard-firms justification, relevant to subsidiaries of multinationals, is based on the idea that the senior management of a multinational might publicly commit to not allowing any of its subsidiaries to pay bribes. Of course, an outsider cannot know for sure whether these subsidiaries really will not pay bribes. The point is, the manager of a subsidiary may decide it is never worth paying a bribe, because if the bribe ever became public, the embarrassment to the multinational would be such, that the manager would face dismissal and disgrace. For an example of a multinational with a public commitment not to pay bribes, see Pedersen's (2006) discussion of the public commitment made by Novozymes.

It should be noted, that the emphasis in the corruption and reputation literature has, somewhat surprisingly, not focused on the relationship between the briber and the bribee.

The main strand of this literature is concerned with the problem of cheating when buyers and sellers are engaged in transactions, see Tirole (1996) and Andrianova (2001). Ventelou (2002) considers political corruption in the form of misappropriation of funds and how politicians' concern for their reputation with voters can moderate this activity.

An approach far closer to my model, can be seen in some of the work on corruption and taxation, see Hindriks et al. (1999) and Marjit et al. (2000). These papers examine the issue of a taxpayer bribing an auditor to underreport his taxable income. Marjit et al. consider what they refer to as 'harassment'. By this they mean it is possible that the auditor threatens to over report taxable income – in order to induce the taxpayer to pay a bribe in return for underreporting. Unlike the game in my model, there is no second period where the game is repeated. This is because, this literature is not concerned with exploring the reputational issue of how paying a bribe in the current period may disadvantage you in the future period. Instead, the focus of this literature is on how corruption affects tax issues, such as, distributional issues and revenue collection issues.

In the next section the model is set out complete with parameter values that will give a pooling equilibrium, so that, whatever type the firm is, it will behave like a hard firm. Then I provide a discussion with regard to the plausibility of the parameter values that I chose. This is followed by an examination of three conditions necessary for the 'pretending-to-be-heroic scenario'.

2. The Model

In this model there are two players. One player is a corrupt official in a developing or transitional economy. The other player is a firm that has started to operate in this economy. The model has two periods. In each period the official attempts to solicit a bribe from the firm by threatening to take some action that will be costly to the firm. Thus the 'shakedown'

would go something like this: 'Pay me a bribe, or I will cost you twice as much in bogus taxes and fines'. The firm then has to decide whether, with respect to a bribe, to 'Pay' or 'Don't Pay'. If the firm does not pay, the official has to decide whether to make good on her threat. That is, she needs to decide between taking 'Action' or taking 'No Action'. If the official does take action the firm needs to decide whether to complain. That is, it needs to decide between 'Complain' and 'Don't Complain'.

In this model the firm is one of two possible types. The firm could either be the 'soft' type or the 'hard' type. The official cannot directly observe the firm's type. The focus of this paper is on the soft firm pretending to be hard in the first period so the official will not carry out her threat in the second period. In a full information world, the soft firm would act soft and pay the bribe, while the hard firm would not pay the bribe. The hard firm does not pay the bribe because in doing so it would incur an extremely high physic penalty. The hard firm would always complain about action taken by the official against the firm. For the hard firm making a complaint is costless. Indeed, the hard firm would actually incur a physic penalty from not complaining. By contrast, it is costly for the soft firm to complain. Therefore the only reason that the soft firm would complain is to pretend to be hard in the first period.
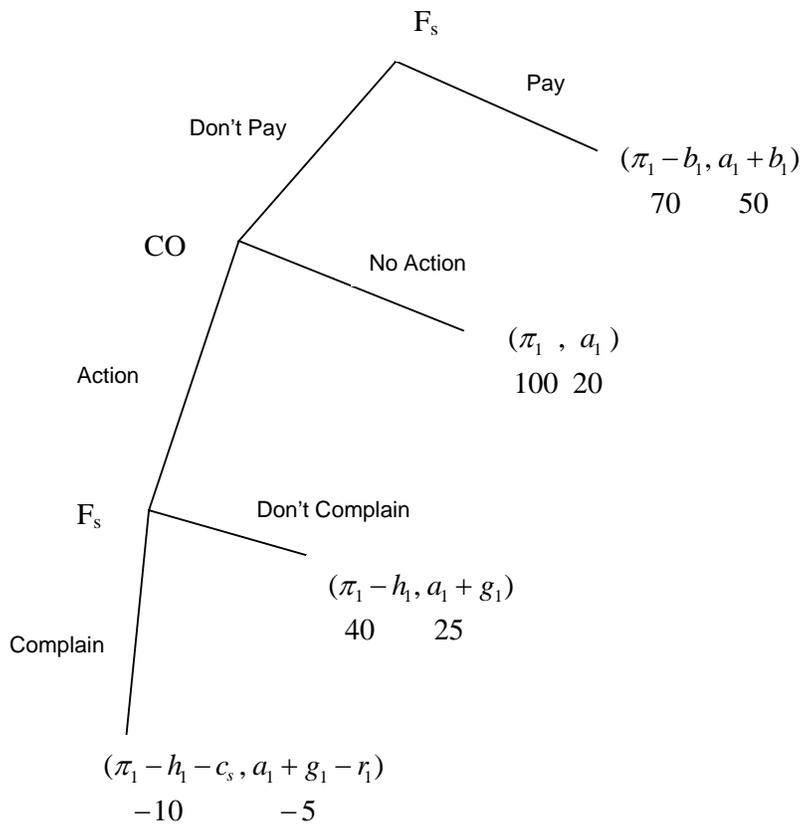
The official has a prior belief of probability μ that the firm is soft. Let us set $\mu = 0.9$. If the soft firm paid the bribe or did not complain in the first period, the official would, in the second period, update its prior belief to a probability of 1 that the firm is soft. In the case we are looking at here, the official anticipates the pooling equilibrium, and thus knows that either type of firm will behave like a hard firm in the first period. That is, not only will both types of firms not pay the bribe, both types of firms will complain if the action is taken. Thus $\gamma_1 = 0$, where γ_1 is belief by the official as to the probability of the firm not complaining (in the first period).

Now we consider the first-period payoffs in detail. In the first period, profit is $\pi_1 = 100$, the bribe is $b_1 = 30$ and the harm from the threatened action of the official is $h_1 = 60$. The actual size of the bribe is somewhat arbitrary, however, it might be justified by thinking of it as something that comes out of a bargaining process once the firm has agreed to pay a bribe. Setting the harm at 60 comes from the arbitrary assumption that the harm is 60% of profit. It seems, a not outrageously unreasonable assumption, that such harm from bogus taxes and fines are some fixed percentage of profit. The amount the official is paid, regardless of anything else, is $a_1 = 20$. If the official takes action she will get an extra amount of $g_1 = 5$. Think of it as her cut from the various dubious taxes and charges. Note that we rule out the possibility of the official taking the bribe and then taking the harmful action anyway. While duplicitous behaviour by corrupt officials is an important issue, it is not what is being focused on in this paper. If the firm complains about the official's action, then this causes the official aggravation resulting in a penalty of $r_1 = 30$ leaving the official with a payoff of $a_1 + g_1 - r_1 = -5$. The penalty might be thought of as legal expenses, or maybe bribes, to avoid prosecution.

As stated above, the hard firm and the soft firm differ in two ways. The hard firm will not pay the bribe because it would incur the extremely high physic penalty of $z_h = 1000$ if it did so. The hard firm will complain in response to action being taken. The hard firm's physic cost of not complaining is $v_h = 5$. The hard firm's cost of complaining is $c_h = 0$. The soft firm does find it costly to complain with the cost of complaining being $c_s = 50$. Thus the payoff for the soft firm from complaining is $\pi_1 - h_1 - c_s = -10$. By contrast, the hard firm's payoff from complaining is $\pi_1 - h_1 - c_h = 40$, and its payoff from not complaining is $\pi_1 - h_1 - v_h = 35$.
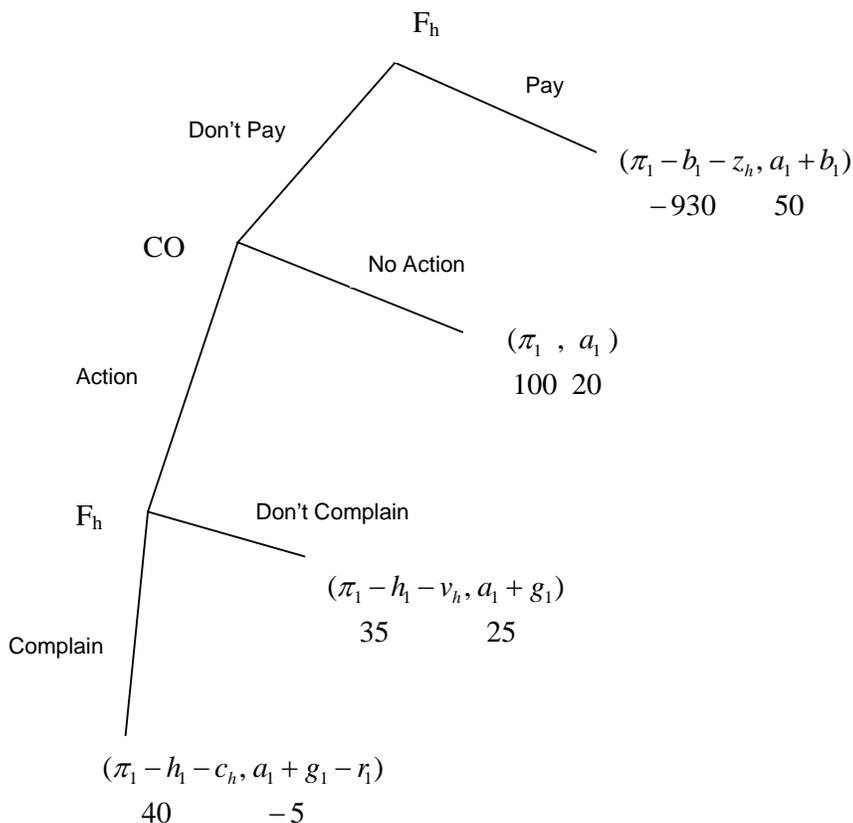
Figures 1 and 2 show the first period of the game in extensive form respectively for the soft firm and the hard firm.

Figure 1: First Period for the Soft Firm

F_s

Pay

Don't Pay

$(\pi_1 - b_1, a_1 + b_1)$

70   50

CO

No Action

(π_1 , a_1)

100 20

Action

F_s

Don't Complain

$(\pi_1 - h_1, a_1 + g_1)$

40   25

Complain

$(\pi_1 - h_1 - c_s , a_1 + g_1 - r_1)$

-10 -5

From Figure 1 it is clear, by backward induction, that, if the game ended in period 1 and the corrupt official had full information, the soft firm would choose to pay the bribe. The soft firm would know that, if the bribe was not paid, then the corrupt official would take action because the corrupt official would know that the soft firm would not complain.

F_h

Pay

Don't Pay

$(\pi_1 - b_1 - z_h, a_1 + b_1)$

$-930 \qquad 50$

CO

No Action

$(\pi_1 \quad , \quad a_1)$

$100 \quad 20$

Action

F_h

Don't Complain

$(\pi_1 - h_1 - v_h, a_1 + g_1)$

$35 \qquad 25$

Complain

$(\pi_1 - h_1 - c_h, a_1 + g_1 - r_1)$

$40 \qquad -5$

From Figure 2 it is clear, by backward induction, that, if the game ended in period 1 and the corrupt official had full information, the hard firm would choose not to pay the bribe and the corrupt official would not take action because if she did so the hard firm would complain. As an aside, it is worth noting here, that if it was a one-period game (with asymmetric information) the threat of taking action would be a credible threat. To see this, note that the expected payoff from taking action would have been:

$$(1-\mu)(a_1 + g_1 - r_1) + \mu(a_1 + g_1) = 0.1(20 + 5 - 30) + 0.9(20 + 5) = 0.1(-5) + 0.9(25) = 22$$

, which would have exceeded the payoff from not taking the action, that being $a_1 = 20$.

In the second period, let's assume that the profit the firm makes has increased substantially to $\pi_2 = 500$. This seems quite reasonable. We can think of the lower profit in the first period being a result of the firm being newly established. The bribe that is asked for is now $b_2 = 150$ and the harm the firm is threatened with is $h_2 = 300$. The cost to the official of being complained about has increased to $r_2 = 75$ leaving the official with a payoff of $a_2 + g_2 - r_2 = -50$. Here we assume that the official's salary has not changed $(a_1 = a_2 = 20)$ and the 'cut' from taking action has not changed $(g_1 = g_2 = 5)$. The increase in the cost of being complained about might be thought of as a reflection of a strengthening feeling against corruption. For the sake of simplicity, it is assumed that the discount factor is equal to 1.

Figures 3 and 4 show the first period of the game in extensive form respectively for the soft firm and the hard firm.

F_s

Pay

Don't Pay

$(\pi_2 - b_2, a_2 + b_2)$

350   170

CO

No Action

(π_2 , a_2)

500 20

Action

F_s

Don't Complain

$(\pi_2 - h_2, a_2 + g_2)$

200   25

Complain

$(\pi_2 - h_2 - c_s, a_2 + g_2 - r_2)$

150   -50

F_h

Pay

Don't Pay

$(\pi_2 - b_2 - z_h, a_2 + b_2)$

$-650 \quad 170$

CO

No Action

$(\pi_2 \ , \ a_2)$

$500 \ \ 20$

Action

F_h

Don't Complain

$(\pi_2 - h_2 - v_h, a_2 + g_2)$

$195 \qquad 25$

Complain

$(\pi_2 - h_2 - c_h, a_2 + g_2 - r_2)$

$200 \qquad -50$
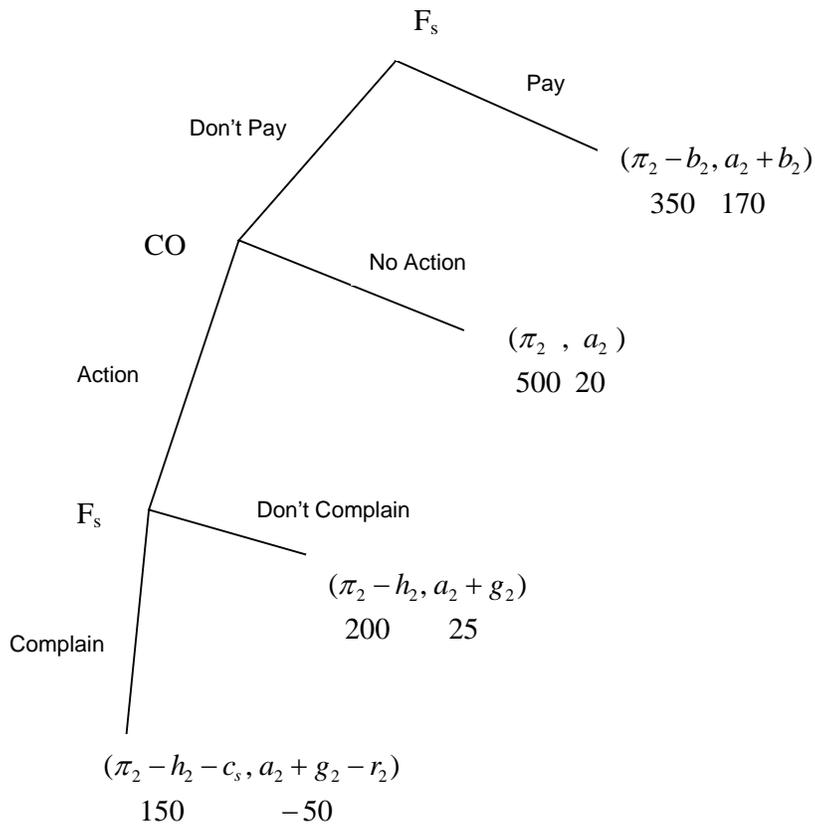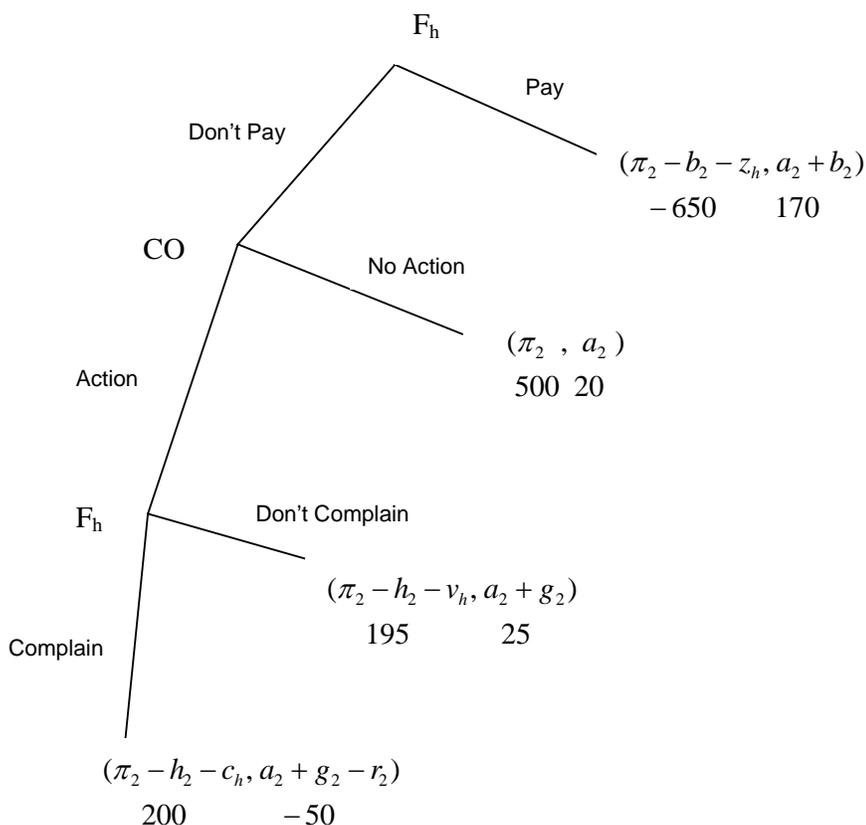
From backward induction, it is clear that once again, if the official knew that the firm was soft, the firm would pay the bribe. Similarly, if the official knew that the firm was hard, the official would not take action in response to the firm not paying the bribe. The only way the official would know with certainty that the firm was soft, would be if the soft firm did not behave like a hard firm in the first period. With the parameter values chosen here, the soft firm will choose to behave like a hard firm in the first period so that the official cannot update her prior belief from $\mu = 0.9$ to a probability of 1 that the firm is soft. The official's belief as to the probability of the firm not complaining is $\gamma_2 = \mu$. This is because, the second period is the final period of the game, and so a soft firm would not complain (act hard) if the

official did take action. Thus, in the second period, the official, confronted by the soft firm not paying the bribe, will have to use this prior belief to calculate the expected payoffs from taking action and not taking action. It turns out that, with the assumed higher cost of being complained about $(r_1 = 30, r_2 = 75)$, there is a higher expected payoff from not taking action.

The 'pretending-to-be-heroic scenario' alluded to above, can be seen to be consistent with the chosen parameters by checking some simple calculations. We can think of the official considering what would happen in the first period, if she did take action against a firm that actually was a soft firm. It turns out, it would be worth it for the soft firm to incur the first-period cost of behaving like a hard firm by complaining, and, by doing so, not giving away that it is soft. The cost of complaining in the first period is $c_s = 50$, the benefit of being treated like a hard firm in the second period is $b_2 = 150$. It is simple to show, that if the official does not know the firm's type in the second period, the official will treat the firm as if it was hard. To see this consider the official's expected payoff from taking action, in response to the bribe not being paid:

$$(1 - \gamma_2)(a_2 + g_2 - r_2) + \gamma_2 (a_2 + g_2) = 0.1(20 + 5 - 75) + 0.9(20 + 5) = 0.1(-50) + 0.9(25) = 17.5$$

The payoff from not taking action is $a_2 = 20$. Therefore, the official will not take action in response to the bribe not being paid. In the first period both player understand this about the second period, so the soft firm does not pay the bribe and the official does not take action. So, in summary, acting like a hard firm in both periods, that is, not paying the bribe – advantages the soft firm in both periods.

Obviously, I have carefully chosen the parameter values so as to be consistent with the 'pretending-to-be-heroic scenario'. However, when the key choices are considered, it seems clear that, these choices are plausible. First, consider the official's cost of being complained about. In the first period, this cost would be sufficiently low for the official to take action when the bribe is not forthcoming, if the game ended there and did not go on to a

second period. If this was not the case, then we would not be contemplating a situation of where officials are to be genuinely feared. There are numerous examples, throughout the world, of where standing up to corrupt officials is to a firm's disadvantage. For instance, see the BBC report [Gregory (2005)] about the difficulties faced by the owners of small firms in the Russian city of Novgorod. In the second period, the cost of being complained about is such, that only firms known to be soft will have action taken against them. This increase in the cost of being complained about is consistent with a situation where a high level of corruption provokes a political reaction against it. The 'orange revolution' in Ukraine has been seen as, in part, a reaction against massive corruption, see Transparency International (2006 p. 266). Of course, a high level of corruption can result in a discontented acceptance of corrupt practices. For a discussion of how corruption can persist using an evolutionary framework, see Mishra (2006). Now, consider my assumption of profits and consequently the size of the bribe being higher in the second period. It is an assumption that sits comfortably with the idea of a firm starting operations in a developing or transitional economy, in the first period, and then, in the second period, having increased profits because of factors such as learning-by-doing and greater market acceptance of the firm's products.

So far, we have considered the model in terms of certain chosen parameter values. This has allowed us to see that the 'pretending-to-be-heroic scenario' can be obtained with plausible settings of the parameters. Now let us dispense with these, or any other, specific parameter values and turn to summarising the paper by noting some important conditions associated with our scenario. First, consider the condition for the official not taking action in the second period:

$$(1 - \gamma_2)(a_2 + g_2 - r_2) + \gamma_2 (a_2 + g_2) < a_2 \text{ where } \gamma_2 = \mu.$$

This condition can be rewritten as:

$$g_2 < (1 - \mu)r_2 \tag{1}$$

If this condition did not hold, there would not be a pooling equilibrium. This condition states that the benefit from taking action in the second period, is smaller than the expected cost of being complained about in the second period. Thus, both the official and the firm, know that there is an advantage for a soft firm to behave like a hard firm, in the first period, so as not to reveal its type.

Second, consider the condition for it to be worthwhile for a soft firm to complain in the first period, in order not to reveal its type:

$$b_2 > c_s \tag{2}$$

If a soft firm does complain in the first period, and hence does not reveal its type, in the second period, the firm can refuse to pay the bribe in the second period, and, because of condition (1), the official will not take action against the firm. Now since the official, in the first period, knows that condition (2) holds, she does not take action against the firm in response to the bribe not being paid. This is because the official knows that both types of firms will complain. If the firm was the hard type, it would complain because it would incur a physic cost from not doing so. If the firm was the soft type, it would complain so as not to reveal its type. Thus conditions (1) and (2) are necessary for the pooling equilibrium associated with the 'pretending-to-be-heroic scenario'.

Finally, it is useful to write down a condition that emphasises that the first-period not-paying-the-bribe, followed by the official not taking action, is not a simple case of the official's threat being a threat that is not credible (if the game is not repeated, that is, it ends in the first period 1). This condition is that, the first period benefit (to the official) of taking action, exceeds the expected cost of doing so:

$$g_1 > (1 - \mu)r_1 \tag{3}$$

The reason the official's threat is not credible, is that the game goes on to the second period, and when the above conditions hold, both players know that in the first period, both types of

firms will not pay the bribe, and the threat is not credible, because both types of firms would complain.

3. Concluding Comments

The broad question this paper asks is: can it be rational to reject extortion, even though, if the threat is carried out, it will prove costly to you? A situation is shown, involving a pooling equilibrium, where it is rational to reject extortion. In the scenario explored, the firm rejects the extortion attempt in the first period, and the official does not carry out her threat (knowing that the firm will definitely complain). Similarly, in the second period, the extortion attempt is rejected and the threat is not carried out by the official (since the expected cost of a possible complaint, is now too high to make it worth it).

A result that falls out of the model, that is worth commenting on, is that in the second period, the cost of being complained about needs to be high enough for 'pretending-to-be-heroic' to work. The policy implication of this is that current anti-corruption policy initiatives, that are only in their infancy but are expected to have a greater effect in the future, can cause firms to reject threats by corrupt officials in the current period.

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