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## Analyzing corruption possibilities in the gaze of the media

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Discussion Paper No. 2001/30

## **Analyzing Corruption Possibilities in the Gaze of the Media**

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### **Abstract**

In this paper I analyze the economic incentives that govern the strategic relationship between the government and the independent media using a consistent analytical framework. The analysis focuses on the extent to which the 'free' press can act as a deterrent to corruption in governance. I find that although 'press freedom' is indeed important as stressed in the existing literature, both mutually profitable cover-up arrangements as well as the government's ability to 'manage' the media's allegations tend to have a substantial negative impact on the media's role as an effective watchdog. Also, more competition in the media sector need not necessarily translate into increased deterrence from corruption.

Keywords: media, corruption, political accountability, governance, contest

JEL classification: D72; D74; D78; H57; K40

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If corruption is understood as an exchange of favors for money, then the news media may be at least as exposed to corruption as is the government bureaucracy... . Grzegorz W. Kolodko (2000)

## **Introduction**

Existing scholarly opinion on the ability of the 'free' press to impart discipline to corruptible governments is by no means unanimous. At one end of the spectrum, many political scientists have expressed despair at the ephemeral nature of public uproar to press-reports on misgovernance. To quote Pharr and Putnam (1997), "Despite the maelstrom of media furor and public debate that frequently greets corruption and other ethical lapses on the part of the officeholders, the public reaction is thought to be epiphenomenal... in ...much of the political science literature". In contrast, economists such as Besley and Burgess (2001), Stromberg (2001), and Stapenhurst (2000) are very optimistic about the media's ability to accurately report governmental misdeeds and hence force governing politicians to be more responsive and accountable to the electorate. What is clearly missing in the existing literature is a systematic framework that would bring together the multitude of aspects involved in the strategic relationship between the media and the government before taking stock of the media's ability to restrict corruption in governance. The purpose of this paper is to do just that.

If the above quotation from Kolodko (2000) (see page 166-7) is any reminder, the media is not always altruistic as is assumed in much of the literature in this area. Often, strong economic incentives (for example increase in circulation and advertising revenues due to greater publicity) would seem to govern its decision to both collect and release evidence of a misdeed in the public. Once we recognize this possibility, it would seem that the transmission of information from the media to the public would not be automatic. What about the possibility of the government and the media entering into a mutually profitable arrangement (through side payments, granting exclusive licenses providing access to political platforms such as a party ticket for forthcoming elections and so on) to keep the evidence covered? What about the government's ability to launch its own counter-propaganda to question the media's evidence? Also, can we always trust a profit-minded media sector to refrain from raising false allegations? In the ensuing analysis I address some of the above questions in order to gain a deeper understanding on the media's role as a watchdog.

Accordingly, the paper is organized as follows: The first section explores the incentives for the government to indulge in corruption when the media can potentially find 'compelling' evidence. The next section explores the implications for deterrence when the evidence collected need not be compelling but can be questioned in the public arena. In the third section I extend the analysis by allowing the possibility of the media raising false allegations. In the fourth section, I offer some preliminary insights on the effects of recognizing multiple players in the media sector. In conclusion I find that although 'press' freedom is clearly important, both mutually profitable cover-ups as well as the government's ability to 'spin' the evidence projected by the media using smart personalities would tend to take a lot of bite away from the media's ability to deter corrupt deals. Hence one needs to be guarded when evaluating the usefulness of repeated exposures by the media of corrupt politicians: what we might be seeing is simply the play of a 'corrupt' equilibrium.

## 1 Model outline and implications for deterrence when evidence is ‘compelling’

I model the strategic relationship between the ruling government and the independent media sector as a two-player game between them. As a first mover of the game, the ruling government must choose between staying honest (which provides it with, say, a benefit of  $H$ ) or entering into a corrupt deal<sup>1</sup> which could potentially provide an additional benefit private benefit of  $\alpha_G H$  (where  $\alpha_G > 0$ ) as long as no one is found out. Let a decision to enter into a corrupt deal be represented by  $C$  and a decision to stay honest represented by  $NC$ . The media makes the next move, where it must decide whether to invest resources in exploring and possibly unearthing a potential corrupt deal on the government’s part not knowing of its actual decision. So it effectively makes this decision simultaneously with the government.

The media must incur an up-front cost  $F$  to investigate a scandal. The outcome of the investigative process is stochastic. With a probability  $\pi$  ( $0 < \pi < 1$ ) the media manages to find some evidence of the corrupt deal when the government enters into one. It has no chance of finding anything if the government stays honest. In a later section, I relax this assumption to allow for the possibility of false allegations on the media’s part. Throughout the analysis, I assume  $\pi$  to be exogenous on the part of the government. This assumption captures the notion of ‘press freedom’: There are effective constitutional safeguards that prevent the ruling government from interfering with media’s investigative efforts. Also the media does not have to worry about persecution on the government’s part, should it signal a willingness to settle or release information to the public. For the bulk of the analysis, I also assume  $\pi$  to be exogenous on the media’s part for analytical simplicity. I relax this assumption later when I allow for multiple players in the media sector.

In the event that the media finds some evidence, it stands to gain a payoff of  $\alpha_M H$  by releasing it to the public if the latter perceives the evidence to be true. In this section, I assume that the evidence if found by the media is always compelling: when released in public, it proves the misdeeds of the government unquestionably. Hence the media is assured a payoff of  $\alpha_M H$  should it release the evidence to the public. However, it might be able to gain more by settling with the government and suppressing the evidence. Hence when armed with some evidence, the media must decide between signaling a willingness to settle ( $S$ ) or releasing it ( $NS$ ). Similarly, the government must decide between reciprocating to media’s willingness to settle or rejecting it. To keep the analysis simple, I shall assume that both sides anticipate the outcome of the settlement to be given by a Nash Bargaining Solution.<sup>2</sup> Also  $\alpha_G, \alpha_M, \text{ and } H$  is common

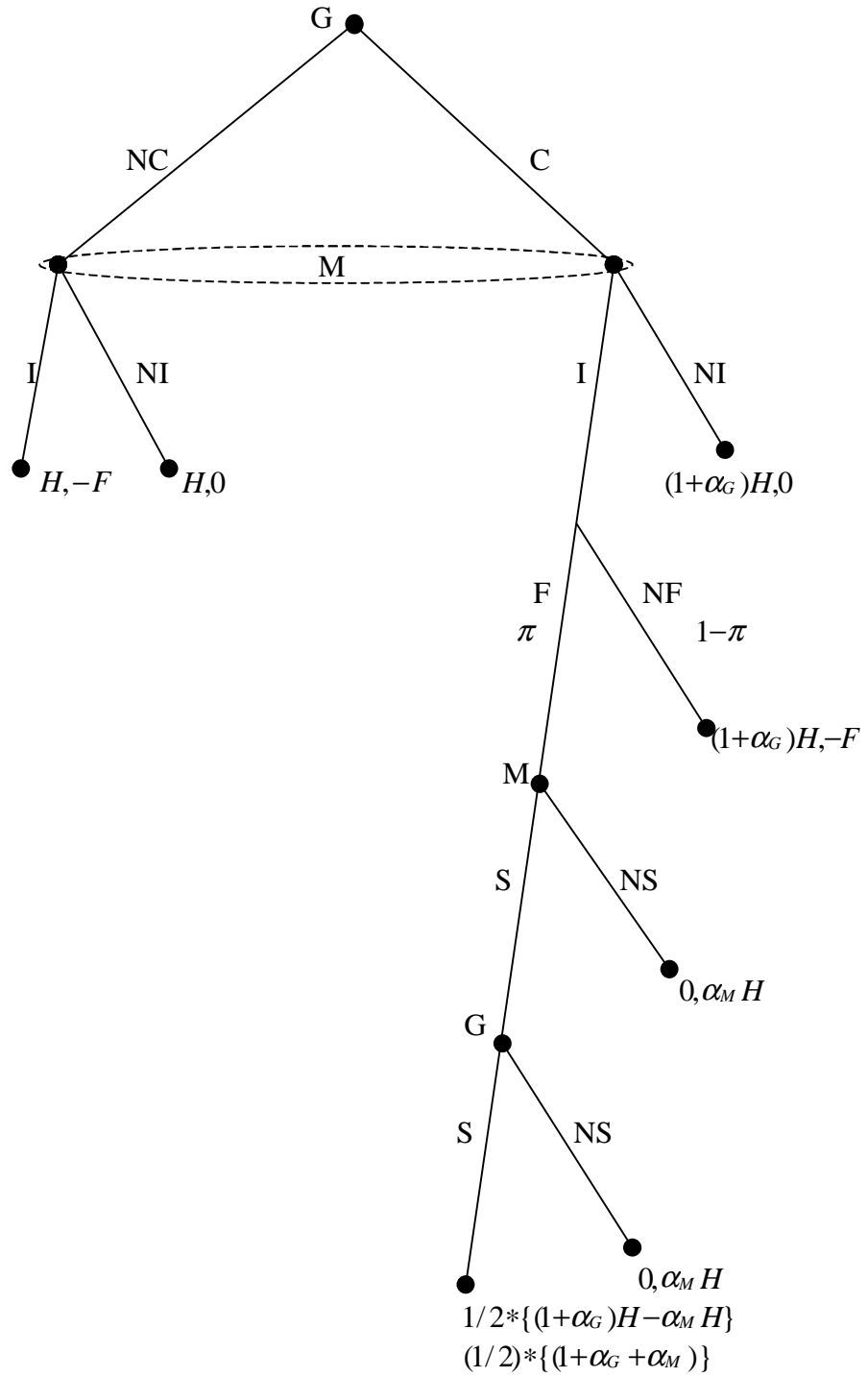
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<sup>1</sup> A corrupt deal involves a decision taken by the government authority, which imposes a social loss. This could take many forms including procuring poor quality material & needlessly expensive provision among other things. Some examples of corruption scandals in India include the Bofors howitzer scandal (1986) and the very recent Defensegate Scandal (2001). The main issue in both the scandals involves acceptance of bribes by government officials towards defense procurement.

<sup>2</sup> As pointed out by a referee, given that the legal machinery does not enforce such a settlement, what imparts credibility to such a deal is not clear-cut and is in itself an interesting question. However, parallel institutions such as the Mafia do exist and provide at least a semblance of protection. I have used the Nash Bargaining Solution simply as a pedagogical device to study the implications of a media-government nexus for corruption deterrence.

knowledge to both the players, who are assumed to be risk-neutral. See Figure 1 for a graphical representation of the above game.

Figure 1



Before proceeding with the analysis, let me define the strategies of the two players concerned. A strategy for the government  $S_G$  would specify the government's choice between going corrupt and staying honest ( $C$  or  $NC$ ) and then choosing whether to show willingness to settle or not ( $S$  or  $NS$ ) following the media's willingness to settle ( $S$ ). Hence  $S_G \in \{C, NC\} \times \{S, NS\}$ . Similarly, the media would first decide whether to investigate or not ( $I$  or  $NI$ ). Further it would also have to decide whether to signal a willingness to settle or release evidence right away should it find some evidence ( $S$  or  $NS$ ). Hence, the media's strategy would be given by  $S_M \in \{I, NI\} \times \{S, NS\}$ . I restrict my attention to pure strategies.

### 1.1 Compelling evidence and corruption deterrence

To understand the impact of a watchful media towards deterring corrupt deals, I examine Subgame Perfect Nash Equilibria (SGPNE) of the above game using backward induction. I begin with the government's choice of whether to reciprocate the media's willingness to settle ( $S$ ). The government would anticipate that its refusal to settle would instigate the media to make the compelling evidence public. In that event it would no longer be able to either extract the gains from a corrupt deal or retain an honest image. Hence its payoff would fall to zero.<sup>3</sup> Anticipating a Nash Bargaining outcome, its payoff from settling would be  $1/2 * \{(1 + \alpha_G)H - \alpha_M H\}$  (The media's outside option in this case is  $\alpha_M H$ ). Hence the government would decide to settle if:

$$1/2 * \{(1 + \alpha_G)H - \alpha_M H\} > 0 \dots (1) \text{ i.e. if } (1 + \alpha_G) > \alpha_M .$$

Assuming that the above condition holds, let us now examine the media's choice between showing willingness to settle ( $S$ ) and making the evidence public right away ( $NS$ ).

The media would rationally anticipate a favorable response from the government to a settlement offer, and hence a decision to settle ( $S$ ) on its part would provide it a payoff of  $\alpha_M H + 1/2 * \{(1 + \alpha_G)H - \alpha_M H\} = 1/2 * (1 + \alpha_G + \alpha_M)H$ . It would hope to get  $\alpha_M H$  if it were to release the evidence right away ( $NS$ ). Clearly as long as  $(1 + \alpha_G) > \alpha_M$ , the media would be better off showing a willingness to settle at this decision node.

Hence, when deciding whether to investigate ( $I$ ) or not ( $NI$ ), the media would expect a settlement if it were to get the evidence. Hence if the government were to enter into a corrupt deal ( $C$ ), the media's expected payoff from a decision to investigate ( $I$ ) is given by  $\pi * \{1/2 * (1 + \alpha_G + \alpha_M)H\} - F$ . Its payoff from not investigating is 0. Hence the media's best response would be to investigate ( $I$ ), if  $\pi * \{1/2 * (1 + \alpha_G + \alpha_M)H\} - F > 0$ .

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<sup>3</sup> Note that the assumption of press freedom is important here. The government does not have the option of threatening the media to suppress the evidence. It is also important to note the implicit assumption of zero corruption tolerance on the part of the society. A government that is proved corrupt in the public arena has no chances of surviving. Although this is probably a strong assumption, relaxing it would only weaken the impact of media on corruption deterrence.

What would be the media's best response if the government were to stay honest ( $H$ )? Since by assumption the media cannot find any evidence when the government stays honest ( $\pi = 0$ ),<sup>4</sup> its payoff from investigating would be  $-F$ . Hence the media is clearly better off not investigating ( $NI$ ). Notice that for  $F = 0$ , the media is never worse off by investigating for any  $\pi$ .<sup>5</sup> In this case, investigation is a weakly dominant move for the media, irrespective of the government's decision.

Suppose that  $F = 0$ . Then the critical question is whether the government would want to enter into a corrupt deal ( $C$ ) knowing fully that the media would investigate its action (i.e. Can ( $C$ ) ever be a best response to ( $I$ )?). The government's payoff from going corrupt ( $C$ ) in this case is given by  $(1 - \pi) * (1 + \alpha_G)H + \pi / 2 * (1 + \alpha_G - \alpha_M)H$ . The first component in the above expression captures the payoff that would result if the media's investigation were fruitless: the government would be able to get away with an honest image and also obtain the benefits from the corrupt deal. This occurs with a probability of  $1 - \pi$ . However, in the event that the media manages to get the evidence, the government would have to settle and get a payoff of  $1/2 * (1 + \alpha_G - \alpha_M)H$ . This is captured in the second component of the expression. The government would be assured of a payoff of  $H$  if it were to refrain from the corrupt deal ( $NC$ ).<sup>6</sup>

The government would choose to enter into a corrupt deal ( $C$ ) if  $(1 - \pi) * (1 + \alpha_G)H + \pi / 2 * (1 + \alpha_G - \alpha_M)H > H$

.The above condition simplifies to  $(1 + \alpha_G) > (1 + \pi / 2 * \alpha_M) / (1 - \pi / 2)$ . An important implication of the above condition is that the government might choose to enter into a corrupt deal ( $C$ ) even if  $\pi = 1$ . In fact this is the case when  $\alpha_G > \alpha_M + 1$ . Hence when the gains from a corrupt deal are large enough, the ability to settle with the media would imply that the government would prefer to engage in corruption ( $C$ ), even when it perfectly anticipates that the media would investigate and find concrete and unambiguous evidence against it. This result is summarized in the following proposition:

**Proposition 1:** When settlement is mutually profitable, i.e.  $(1 + \alpha_G) > \alpha_M$ , even if  $F = 0$  and  $\pi = 1$ , (so that a potential scandal would be investigated and compelling evidence found with certainty),  $[S_G = (C, S), S_M = (I, S)]$  is a Subgame Perfect Nash Equilibrium (SGPNE) of the above game when  $\alpha_G > \alpha_M + 1$ . When  $\pi < 1$ , the above strategy profile emerges as a SGPNE, whenever,

$$\alpha_G > \pi / 2 * (1 + \alpha_M) / (1 - \pi / 2).$$

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<sup>4</sup> This would no longer be true once we allowed for the possibility of false allegations.

<sup>5</sup> This is also due to the assumption of press freedom. Effective safeguards from government coercion imply that the press could never be worse-off from having some evidence as compared to not having any.

<sup>6</sup> Again this is primarily due to the assumption in this section that the media cannot raise false allegations.



It is also interesting to note that the expected payoff from entering into a corrupt deal ( $C$ ) increases as  $\pi$  falls. In fact when  $\pi = 0$ , ( $C$ ) would strictly dominate ( $H$ ). Hence the government has a clear incentive to interfere with the media's investigative effort if possible. Its inability to affect  $\pi$  is critical for the media to have any deterrent effect on corruption. In this sense, press freedom matters. However, it may not be enough.

What about the case when settlement is not mutually profitable i.e.  $(1 + \alpha_G) \leq \alpha_M$ ? In this case, if the government were to choose ( $C$ ) then the media's expected payoff from ( $I$ ) would be  $\pi\alpha_M H - F$ . Hence the media's best response would be ( $I$ ) if  $\pi\alpha_M H - F > 0$ . As before, if the government were to choose to ( $NC$ ), the media's best response would be ( $NI$ ). Again suppose that  $F = 0$  so that the media would never be worse off by ( $I$ ) for any level of  $\pi$ .

In the absence of settlement possibilities, if the media plays ( $I$ ), the government's expected payoff from ( $C$ ) is  $(1 - \pi) * (1 + \alpha_G)H$ . Notice that contrary to the earlier case, the second component disappears, as a settlement is no longer possible. As before ( $NC$ ) fetches an assured payoff of  $H$ . Hence ( $C$ ) would be a best response to ( $I$ ) if  $(1 - \pi) * (1 + \alpha_G)H > H$  i.e. if  $(1 + \alpha_G) > 1/(1 - \pi)$ . Hence in this case, the media's ability to deter a corrupt deal crucially depends on  $\pi$ . If  $\pi = 1$  so that the media can come up with compelling evidence for sure, then the corrupt deal is completely deterred. However, when  $\pi < 1$ , for any given  $\pi$  there exists an  $\alpha_G$  such that the government would proceed with the corrupt deal. This result is summarized in the proposition below:

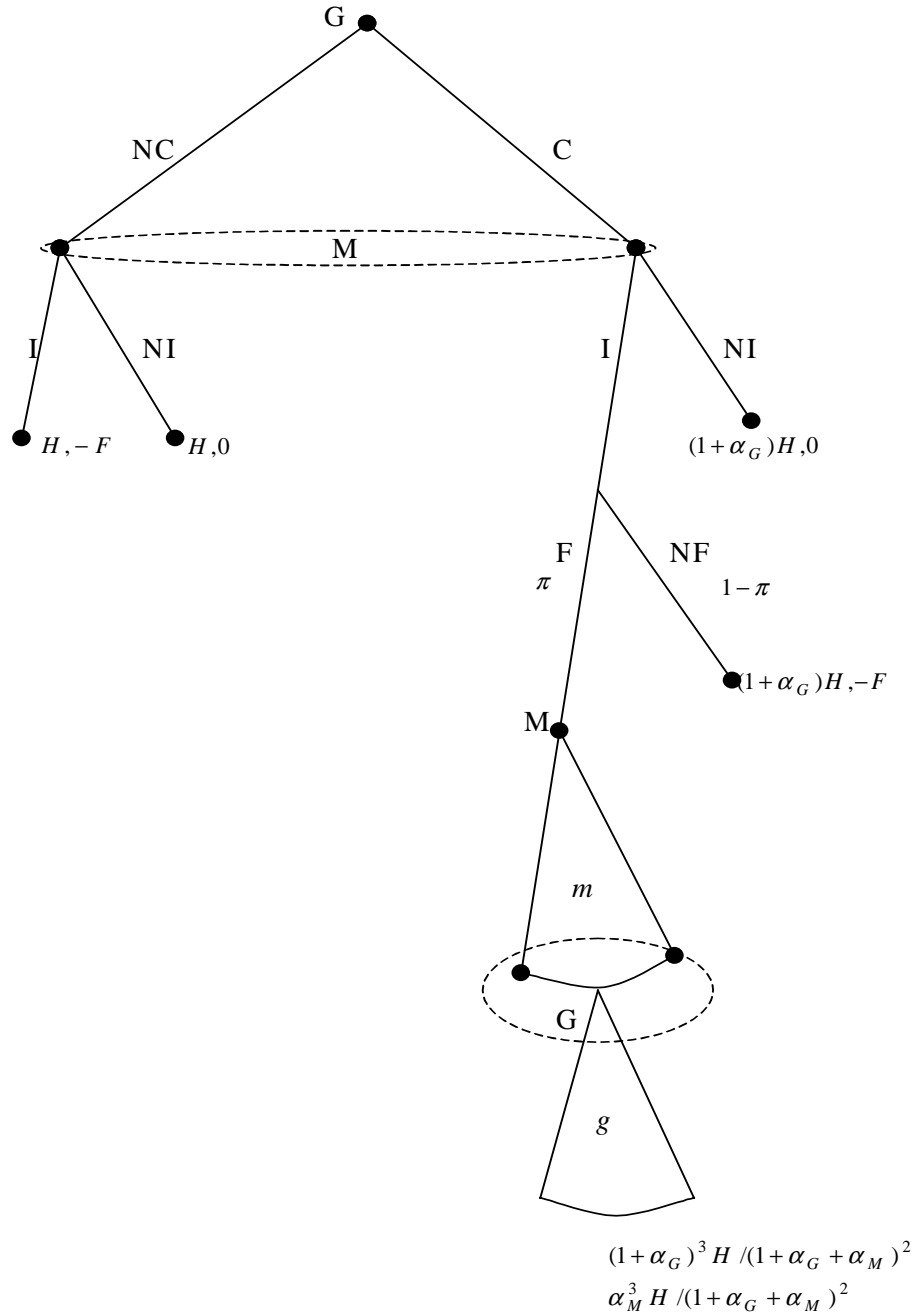
**Proposition 2:** Assume that  $F = 0$  and  $(1 + \alpha_G) \leq \alpha_M$  (so that settlement is not mutually profitable). For any  $\pi$  such that  $0 \leq \pi < 1$ ,  $[S_G = \{C, NS\}, S_M = \{I, NS\}]$  emerges as a Subgame Perfect Nash Equilibrium (SGPNE), so long as  $\alpha_G > \pi/(1 - \pi)$ . Hence even when the media's private gain from exposing the government is large enough to preclude a settlement, the government's potential gain from the corrupt deal could still lead it towards dishonesty. For fairly large gains on the government's side, even a large probability of detection may not be enough to deter corrupt deals.

## 2 Impact on deterrence when evidence is 'contestable'

An important assumption in the analysis so far has been the media's ability to uncover compelling evidence. However, in many real-life situations the members of the ruling government can challenge allegations made by the media. Allegations of corruption often act as 'curtain-raisers' to lengthy debates in the public arena (e.g. as recently in India following the exposure of corruption in defense dealings by a news web-site 'Tehelka.com'). The ruling governments use every opportunity to counter the charges raised and come up with their own justifications for their alleged misdeeds employing media-savvy spokespersons. In such a situation, following its release of evidence, the media must brace itself to compete with the government in a contest to retain the public opinion in its favor. Its gain from releasing evidence against a fraudulent deal is no longer assured. At the same time all would not be lost for the government if the media went public with the charges: it would have a fighting chance to defend its actions. Hence in contrast to the game in the previous section, the payoffs to the two parties following

the media's release of evidence are now different. This would also influence their payoffs from a successful settlement as their bargaining position changes. The government's position improves at the expense of the media. I examine the consequences of such a contest for corruption deterrence. However to keep things simple, I abstract from the possibility of settlement. Hence one could consider the media in this section to be 'idealistic': it refrains from colluding with the government. Figure 2 depicts the sequence of moves for both the players of this modified game.

Figure 2



As before, I work my way through the game backwards. Hence I begin with the contest phase of the game which gets initiated should the media investigate and find evidence against the government (remember that settlement has been ruled out by assumption). The expected payoffs to the media and the government in this stage can be expressed as follows:

$$\text{Media: } \{m/(m+g)\} * \alpha_M H - c * m \dots(2)$$

$$\text{Government: } \{g/(m+g)\} * (1 + \alpha_G)H - c * g \dots(3)$$

In expression (2),  $m$  and  $g$  represent the media and governments' expenses respectively towards capturing the public opinion in their favor. These would include among other things, the time spent in preparing for and making public appearances, money spent in advertising campaigns and so on. The expression  $\{m/(m+g)\}$  represents the probability of the media winning the contest. It is modeled as a function of the relative expenditures made by the two sides.<sup>7</sup> Accordingly, the probability of the government winning this contest is simply  $1 - \{m/(m+g)\} = \{g/(m+g)\}$ .<sup>8</sup> The term  $c$  measures the marginal cost of such expenditures. I have assumed the same marginal cost for both the players to focus on the differing gains to the two sides for deterrence. The terms  $\alpha_M H$  and  $(1 + \alpha_G)H$  measures the gross gains to the two sides respectively from winning the contest. Both sides choose  $m$  and  $g$  simultaneously. To identify the interior Nash Equilibrium of this contest, I look at the following optimization problems:

$$\text{Media: } \text{Max}_m [\{m/(m+g)\} * \alpha_M H - c * m]$$

$$\text{Government: } \text{Max}_g [\{g/(m+g)\} * (1 + \alpha_G)H - c * g]$$

The first order conditions of the above maximization exercises are given by:

$$[g^*/(g^* + m^*)^2](\alpha_M H) - c = 0 \dots(4) \text{ (Media)}$$

$$[m^*/(g^* + m^*)^2]\{(1 + \alpha_G)H\} - c = 0 \dots(5) \text{ (Government)}$$

Solving the above pair of equation yields:

$$g^* = \alpha_M (1 + \alpha_G)^2 H / (1 + \alpha_G + \alpha_M)^2 c .$$

Notice that  $g^*$  decreases with  $c$  and increases with  $\alpha_G$  as intuition would suggest.

$$m^* = \alpha_M^2 (1 + \alpha_G)H / (1 + \alpha_G + \alpha_M)^2 c .$$

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<sup>7</sup> Such Contest Success functions have been recently used in the economics and political science literature to model situations of conflict (for example Skaperdas (1992)) and incompletely defined property rights (Robson and Skaperdas (2000)). They have been used to model the outcomes of courtroom deliberations as in Hirshleifer and Osborne (1999).

<sup>8</sup> I have assumed this functional form for analytical simplicity. It seems to me that the results would hold even for a more general contest technology. However, I have not worked them out as yet.

Similarly  $m^*$  decreases with  $c$  and increases with  $\alpha_M$  as intuition would suggest.

Accordingly, the expected payoffs to the government and media from the contest phase are given by:  $G^* = (1 + \alpha_G)^3 H / (1 + \alpha_G + \alpha_M)^2$

$$M^* = (\alpha_M)^3 H / (1 + \alpha_G + \alpha_M)^2$$

As with the previous section, the media would choose to investigate if

$$\pi * (\alpha_M)^3 H / (1 + \alpha_G + \alpha_M)^2 - F > 0.$$

Again if  $F = 0$ , then the media will always prefer to investigate so long as  $\pi \geq 0$ . Assuming this, the government's payoff from staying honest is  $H$ . However, its expected payoff from entering into a corrupt deal is given by:

$$(1 - \pi) * (1 + \alpha_G)H + \pi * (1 + \alpha_G)^3 H / (1 + \alpha_G + \alpha_M)^2.$$

Hence the government prefers to enter into a corrupt deal if

$$(1 - \pi) * (1 + \alpha_G)H + \pi * (1 + \alpha_G)^3 H / (1 + \alpha_G + \alpha_M)^2 > H \dots (6)$$

Eliminating  $H$ , the above expression reduces to,

$$(1 - \pi) * (1 + \alpha_G) + \pi * (1 + \alpha_G)^3 / (1 + \alpha_G + \alpha_M)^2 > 1$$

Notice that for given  $\alpha_M$  and  $\pi$ , the expression on the left-hand side is increasing in  $\alpha_G$ . Hence for large enough values of  $\alpha_G$ , the above condition would hold and the government would prefer to go corrupt. Also notice that in line with the results of the previous section, returns from corruption are decreasing in  $\pi$ . However there are some important differences. Previously, when settlement was infeasible, the government would be induced to enter into a corrupt deal if  $\alpha_G > \pi / (1 - \pi)$ . In contrast to this, when evidence is contestable, equation (6) implies that the critical value of  $\alpha_G$ , for any given  $\pi$ , is strictly lower than the above threshold and approaches it only as  $\alpha_M$  goes to infinity. This result is depicted in Figure 4. Further, even when  $\pi = 1$  and settlement is ruled out, the government might still choose to enter into a corrupt deal. Hence, when the government can challenge the evidence projected by the media in the public arena, the certain prospect of facing media allegations is not necessarily enough to rule out corruption. For  $\pi = 1$ , the above inequality reduces to  $(1 + \alpha_G)^3 / (1 + \alpha_G + \alpha_M)^2 > 1$ . This result is summarized in the proposition below:

**Proposition 3:** Assume  $F = 0$ , and  $\pi = 1$  so that the media investigates the scandal for sure and comes up with some evidence. However, collected evidence is contestable and settlement possibilities are ruled out (what I refer to as the assumption of an idealistic press). For any given  $\alpha_M$ , let  $\alpha_G^C$  be the critical value of  $\alpha_G$  such that  $(1 + \alpha_G^C)^3 / (1 + \alpha_G^C + \alpha_M)^2 = 1$ . Then for all  $\alpha_G > \alpha_G^C$ ,  $[(S_G = C, g^*), (S_M = I, m^*)]$  emerges as a SGPNE of the above game.

The results of this section suggest that when the government can ‘play’ with the media’s allegations, it is less deterred by the latter’s ability to find evidence against it ( $\pi$ ). Hence it is no wonder that in countries where the rule of the law prevails to protect press freedom, one finds political parties investing in their ability to play with it by employing media-savvy personalities.

### 3 Effects of pernicious media

Throughout the analysis so far, the government would have to face the possibility of media allegations only if it were to undertake a corrupt deal. In this section I relax this assumption to explore the possibility of the media being able to raise false allegations (for example due to a buyout by the opposition or an interest group) and its consequence for deterrence. Although, in a real-life situation, the media’s incentive to raise false allegations would be tempered by anti-defamation law (if they exist) and also by the fear of losing credibility if proved wrong, I abstract from these complications to isolate the deterrent effect of false allegations. Hence in what follows, the media has nothing to fear by charging the government and therefore would do so regardless of the government’s action. (One could think of this as an extreme form of press freedom.<sup>9</sup>) As a result, the government would anticipate a contest with the media even if it were to stay honest. The exact sequence of moves in this game is depicted in Figure 3.

As usual, I proceed to solve the game backwards, beginning with the sub-game involving a contest between the media and the government following the latter’s decision to stay honest. Characterizing the Nash Equilibrium for this sub-game involves focussing on the following optimization problems:

$$\text{Government: } \text{Max}_g [\{g/(m+g)\} * H - c * g]$$

$$\text{Media: } \text{Max}_m [\{m/(m+g)\} * \alpha_M H - c * m]$$

The first order conditions of the above maximization exercises are given by:

$$[g^*/(g^* + m^*)^2](\alpha_M H) - c = 0 \dots(7) \text{ (Media)}$$

$$[m^*/(g^* + m^*)^2](H) - c = 0 \dots(8) \text{ (Government)}$$

Solving the above pair of equation yields:

$$g^* = \alpha_M H / (1 + \alpha_M)^2 c .$$

$$m^* = \alpha_M^2 H / (1 + \alpha_M)^2 c .$$

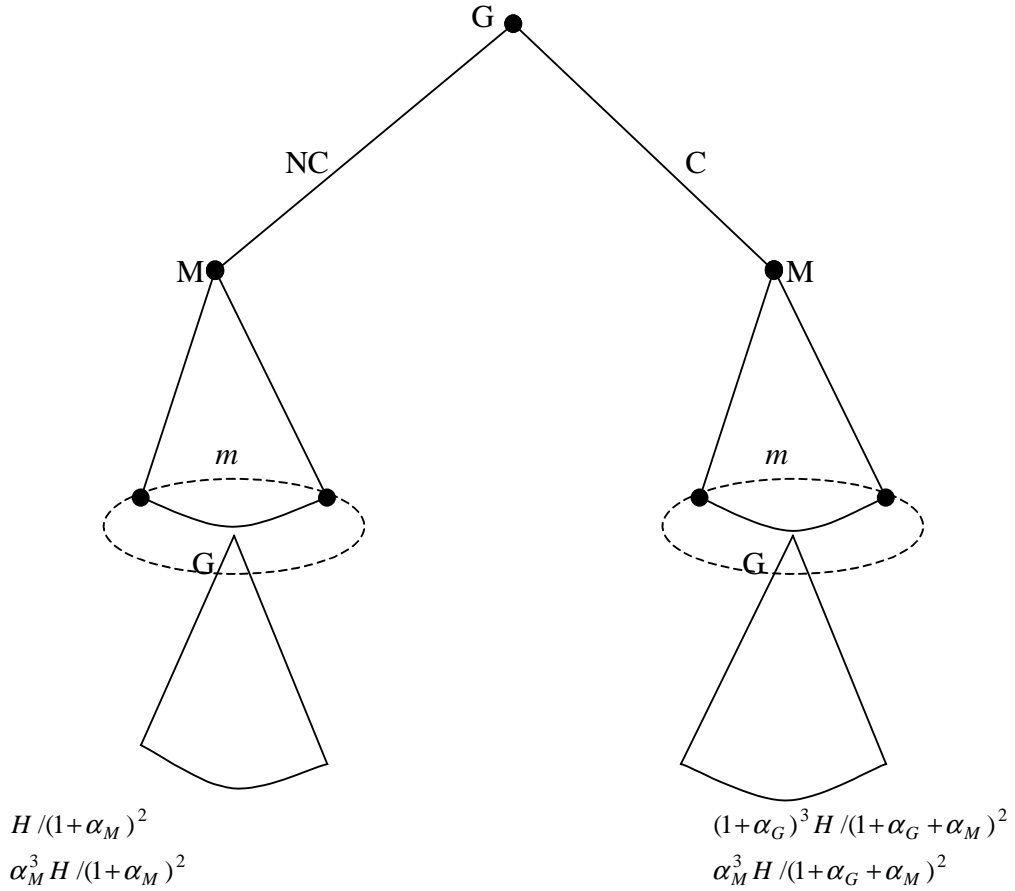
Accordingly, the government’s expected payoff from staying honest would be:

$$G_H^* = H / (1 + \alpha_M)^2$$

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<sup>9</sup> For an interesting discussion of the trade-off between press freedom and protection from defamation see Garoupa (1999).

Figure 3



Similarly, the media's expected payoff from raising false allegations would be:

$$M_H^* = (\alpha_M)^3 H / (1 + \alpha_M)^2.$$

Borrowing from the results of the previous section, the expected payoffs to the government and the media respectively when the former decides to enter into a corrupt deal are given by:

$$G^* = (1 + \alpha_G)^3 H / (1 + \alpha_G + \alpha_M)^2$$

$$M^* = (\alpha_M)^3 H / (1 + \alpha_G + \alpha_M)^2$$

Hence the government would go for a corrupt deal if its expected payoff from doing so ( $G^*$ ) exceeded that from staying honest ( $G_H^*$ ). Notice that  $G^* = G_H^*$  when  $\alpha_G = 0$ .

Further  $\partial G^* / \partial \alpha_G = (1 + \alpha_G)^2 (1 + \alpha_G + 3\alpha_M) H / (1 + \alpha_G + \alpha_M)^3 > 0$  for  $\alpha_G \geq 0$ .

Hence  $G^* > G_H^*$ , whenever  $\alpha_G > 0$ . This implies that the media's ability to raise false allegations would eliminate its capacity to deter corrupt deals. The government would prefer competing for a larger gain rather than a smaller one.

**Proposition 4:** When the media can raise false allegations so that gains from honest governance are not assured, it might not be able to generate any deterrence from corruption.<sup>10</sup>

#### 4 Some conjectures on effects of media competition

Can a more competitive media sector provide greater deterrence from corruption? To examine this question I introduce two independent players in the media sector. To focus purely on the effects of competition, I assume that the evidence once collected is always compelling. The time-line of this expanded game is as follows: as before, the government makes the first move and has to decide whether to enter into a corrupt deal keeping in mind a possible threat of exposure from the two media players. Next, each of the two media players must decide whether to proceed with investigating a potential scandal ( $F > 0$ ). Each player ( $i = 1, 2$ ) must also decide on the amount of effort ( $e_i$ ) he devotes towards the investigation to compete with the rival in trying to get to the evidence first. In the subsequent analysis, I refer to the winner of this competition as the “first player”. I call the loser of this competition the “second player”. For simplicity, I assume that  $\pi = 1$ . Hence one of the two players are certain to get the evidence. Who gets to it first depends on the relative effort exerted by them towards the investigation. Hence let  $e_1/(e_1 + e_2)$  represent the probability of player 1 getting the evidence first. Accordingly  $e_2/(e_1 + e_2)$  ( $= 1 - \{e_1/(e_1 + e_2)\}$ ) gives the probability of player 2 being the first player. However, the second player might get to the evidence later. Let  $q$  ( $0 < q < 1$ ) be the probability of the second player getting the evidence later. However, getting the evidence later would be useful only if the first player would settle with the government and not release it in public.

Having got the evidence, the first player who must choose between releasing it in the public right away and get ( $\alpha_M H$ ) for sure (remember that the evidence is compelling) or offering to settle with the government. Similarly, the government must decide between settling or not. As before, both sides anticipate the payoffs of the settlement to be given by a Nash Bargaining Solution. However, contrary to the earlier model, the government’s decision to settle with the first player is trickier in this case. On the one hand, a settlement with the first player (involving paying him a side transfer) would keep the option of earning the rents from the corrupt deal alive. However, on the other hand, the government would also have to take into account the potential threat of exposure from the second player. This would reduce the expected gains from the settlement with the first player and hence weaken the possibility of a settlement. I examine the settlement game more carefully next.

To understand the how the threat of an exposure by the second player works its way into government’s decision to settle with the first player, I begin my analysis backwards. Suppose that having settled with the first player, the government now faces a threat of

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<sup>10</sup> Apart from the caveats noted earlier, the starkness of this result is also due to the assumption that the government faces the same probability of winning irrespective of its action. It would be interesting to explore the sensitivity of this result by envisaging a contest tilted in favor of the side with the truth along the lines of Hirshleifer and Osborne (1999).

exposure from the second player, who offers to settle. Clearly at this stage, the terms of trade of the first settlement are irrelevant for the government. The bribe paid to the first media player ( $b_1$ ) is a sunk cost. Hence, it faces exactly the same decision problem as in the previous model. Accordingly, both the parties prefer to settle at this stage if  $(1 + \alpha_G) > \alpha_M$ . Assuming this condition holds, their payoffs are:

$$\text{Government: } V_G^2 = 1/2 * \{(1 + \alpha_G - \alpha_M)H\} - b_1$$

$$\text{Second Player: } V_M^2 = 1/2 * (1 + \alpha_G + \alpha_M)H$$

The superscript 2 denotes settlement payoffs with the second player). Accordingly, the government's expected payoff from any side-payment ( $b_1$ ) in the first stage would be given by  $(1 - q) * (1 + \alpha_G) + q/2 * \{(1 + \alpha_G - \alpha_M)H\} - b_1$ . Following the payment of  $b_1$ , with a probability of  $(1 - q)$ , the second player would not have any evidence and the government would be able to retain the gains from corruption. However, with a probability of  $q$ , the second player would get the evidence, and the government's best option would be to settle with him. From this expression it is clear that  $b_1$  would never exceed  $(1 - q) * (1 + \alpha_G) + q/2 * \{(1 + \alpha_G - \alpha_M)H\}$ . (The government always has the option of not settling and getting a payoff of 0.) Accordingly, the Nash Bargaining outcome of the first stage settlement would imply the following payoffs to the two sides:

$$\text{Government: } V_G^1 : 1/2 * [(1 - q) * (1 + \alpha_G) + q/2 * \{(1 + \alpha_G - \alpha_M)H\} - \alpha_M H]$$

First Media Player:

$$V_M^1 : \alpha_M H + 1/2 * [(1 - q) * (1 + \alpha_G) + q/2 * \{(1 + \alpha_G - \alpha_M)H\} - \alpha_M H]$$

Hence the settlement would be mutually profitable for both the parties only if  $1/2 * [(1 - q) * (1 + \alpha_G) + q/2 * \{(1 + \alpha_G - \alpha_M)H\} - \alpha_M H] > 0$ . This condition reduces to  $(1 + \alpha_G) \geq (1 + q/2) / (1 - q/2) * \alpha_M$ . Notice that since  $(1 + q/2) / (1 - q/2) > 1$ , the range of values of  $\alpha_G$  for which settlement is feasible for a given  $\alpha_M$  in the first stage gets reduced in comparison to the one player case. For example, when  $q = 0$ , the above condition reduces to exactly the one in our basic model:  $(1 + \alpha_G) \geq \alpha_M$ . At the other extreme, when  $q = 1$ , the above condition resolves itself to  $(1 + \alpha_G) \geq 3\alpha_M$ . Hence, in general settlement possibilities are reduced. Also notice that when settlement is infeasible in the first stage, then second stage becomes irrelevant, as the first player would release the evidence in the public right away. For the range of  $\alpha_G$  such that settlement is not feasible, the government would prefer to stay honest given the compelling nature of evidence and the certainty of someone finding it. These results are summarized in the proposition below:

**Proposition 5:** When one allows for competition in the media sector, for any given  $\alpha_M$ , the minimum  $\alpha_G$  such that settlement is mutually feasible in the first stage increases as long as both the media players would find it profitable to investigate in a potential



scandal. In other words, settlement possibilities reduce. Over this range the government would prefer to abstain from corruption.

It is also interesting to note that for  $0 < \pi < 1$  the results in proposition 2 are still applicable in this two-player model as long as settlement is infeasible.

As before, when settlement is feasible in the first stage, the government would go for a corrupt deal only if its expected payoff from doing so exceeded that from staying honest. This is represented by the following condition:

$$1/2 * [(1 - q) * (1 + \alpha_G) + q/2 * \{(1 + \alpha_G - \alpha_M)H\} - \alpha_M H] > H .$$

This condition simplifies itself into  $(1 + \alpha_G) > 2/(1 - q/2) + (1 + q/2)/(1 - q/2) * \alpha_M$ . In contrast, the corresponding condition for the single-player model (as given in proposition 1) is  $1 + \alpha_G > 2 + \alpha_M$ . Let  $\alpha_G^*$  represent the re-initialized value of  $\alpha_G$  over the region where settlement is feasible in both the cases. (Hence for the current model,  $\alpha_G^* = \alpha_G - (1 + q/2)/(1 - q/2) * \alpha_M$ ,  $\alpha_G^* \geq 0$  while for the single-player model,  $\alpha_G^* = \alpha_G - \alpha_M$ ,  $\alpha_G^* \geq 0$ .) In terms of  $\alpha_G^*$ , the government would go for a corrupt deal in the two-player case anticipating a settlement with the media if  $(1 + \alpha_G^*) > 2/(1 - q/2)$ . For the single player model, it would do so when  $(1 + \alpha_G^*) > 2$ . Comparing the above conditions, it is clear that the minimum value of  $\alpha_G^*$  for which the government would enter into a corrupt deal is higher in the two-player case than the one-player case for any  $q$  ( $0 < q \leq 1$ ). Hence the government is relatively more deterred in the two-player case. This result is summarized in the proposition below:

**Proposition 6:** Even when settlement is feasible, the government is relatively more deterred from entering into a corrupt deal in the two player case so long as it anticipates a credible threat of investigation from both the players. The possibility of having to settle again dampens the gains from corruption.

Although the above results imply that competition in the media sector would have a favorable impact towards corruption deterrence, it is also important to keep in mind the caveat spelt out in both the above propositions. We would have increased deterrence only as long as both the media players found it profitable to investigate. If the government refused to settle with the first player, the payoff from investigating a scandal would only be derived by making it public. Also, this payoff would only accrue to the first player. Hence while deciding whether to investigate or not, both the players would have to keep in mind the expected payoffs from the run-off for getting the evidence first. Should both players decide to investigate, their decision problems would be given by:

$$\text{Player 1: } \max_{e_1} \{e_1 / (e_1 + e_2)\} * \alpha_M H - e_1 - F$$

$$\text{Player 2: } \max_{e_2} \{e_2 / (e_1 + e_2)\} * \alpha_M H - e_2 - F$$

Assuming an interior Nash Equilibrium, the first-order conditions for the above maximization problem are:

$$\{e_2 / (e_1 + e_2)^2\} * \alpha_M H - 1 = 0 \dots(9)$$

$$\{e_1 / (e_1 + e_2)^2\} * \alpha_M H - 1 = 0 \dots(10)$$

Solving (9) and (10) simultaneously, we get the following:

$$e_1^* = e_2^* = (1/4) * (\alpha_M H) \dots(11)$$

Accordingly, the equilibrium payoff for either player is  $(1/4) * \alpha_M H - F$ . Let  $H = 1$ . Clearly, as long as  $(1/4) * \alpha_M - F > 0$  (i.e.  $\alpha_M > 4F$ ) for both the players, investigation is a strictly dominant move and both of them would investigate. However, if  $\alpha_M < 4F$ , then both the players would be strictly worse off (relative to their initial payoffs of zero) if they investigated simultaneously. In this case the structure of payoffs is best represented by the following normal-form game:

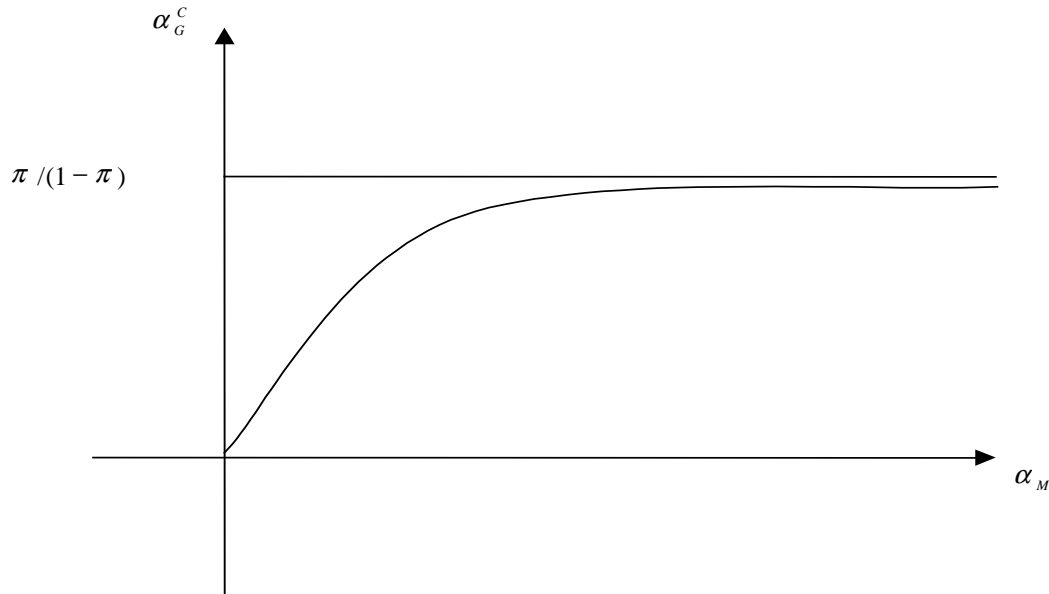
	Investigate (I)	Not Investigate (NI)
Investigate (I)	$(1/4) * \alpha_M - F, (1/4) * \alpha_M - F$	$\alpha_M - F, 0$
Not Investigate (NI)	$0, \alpha_M - F$	$0, 0$

In the above matrix,  $(1/4) * \alpha_M - F < 0$ , while  $\alpha_M - F > 0$ . The first expression in a cell gives the payoff to player one and the next the payoff to player two. From the above matrix it is clear that the pure-strategy Nash equilibrium would comprise of one player playing (I) and the other playing (NI). Hence despite having two players to begin with, effectively only one of them would prefer to investigate in equilibrium. This result is summarized in the proposition below:

**Proposition 7:** Only when  $\alpha_M > 4F$ , would both players investigate even if they did not anticipate settling with the government later. Hence the benefit of increased deterrence as outlined in proposition 5 would only be realized over this range. For  $F < \alpha_M < 4F$ , the threat of both the players investigating in the absence of settlement opportunities would not be credible and proposition 5 would not hold.

On the contrary, when the government is willing to settle, the potential gain from an investigation would be larger (particularly because even the first-round loser could hope to get the evidence later and gain from it). This would in turn lower the threshold that  $\alpha_M$  must cross for both the players to investigate. Hence the threat of both the players investigating would be more credible when the government would find it profitable to cover up the findings. To sum-up, the deterrent effect of an increase in the number of players in the media sector seems ambiguous. More players lead to greater deterrence only when all of them choose to effectively participate in the investigative process regardless of settlement possibilities. For this to happen, the gain from public exposure must be sufficiently large.

Figure 4



## 5 Conclusions

In the foregoing analysis, I have attempted to analyze the extent to which ‘free’ press can act as a watchdog on the government. The results of my analysis suggest that the media’s role in deterring corruption might be more limited than is generally thought. Even the media’s credible threat of investigating corruption with certainty and having a good chance of finding compelling evidence might not be enough to deter the government from doing so. When the media is prone to raising false allegations, it may not be able to provide any deterrence from corruption. However, this is not to say that ‘press freedom’ does not matter at all. The government’s inability to affect  $\pi$  is critical for the media to provide any credible deterrence. When one explicitly allows for multiple players in the media sector, its effect on deterrence turns out to be ambiguous: Although competition in the media sector tends to increase deterrence by making a settlement more difficult, for it to be effective, the gain from public exposure must be sufficiently large.

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