

# LEGALIZING BRIBES\*

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## Abstract

Harassment bribes – payments that people give in order not to be denied what they are legally entitled to – are common in for example India. Kaushik Basu recently made a radical proposal to improve the situation: *Legalize the act of giving the bribe and double the fine for accepting the bribe!* We develop a formal model and delineate circumstances under which Basu’s proposal works well or poorly.

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## 1 Introduction

Corruption remains an endemic problem in the developing world and has become a central political issue in countries like India. Recent clever empirical work has considerably advanced our understanding of how widespread the problem is and on the many ways it can harm society.<sup>1</sup> However, at least on the ground of exactly how to fight corruption, "research has been lagging behind policy" (Banerjee, Hanna and Mullainathan 2011, p.1). While the World Bank has financed hundreds of anti-corruption programs and several international anti-corruption treaties have been signed, economic research did not yet identify a set of concrete anti-corruption tools to propose to policy makers, apart from some (important) general principles on monitoring and incentives.<sup>2</sup>

This paper tries to contribute by analysing a specific legal tool recently proposed and intensely debated in India. Our starting point is Kaushik Basu's (2011) recent paper "Why, for a Class of Bribes, the Act of *Giving* a Bribe should be Treated as Legal." Basu describes a society (India!) in which bribery is "rampant ... a scourge that deserves to be banished." His proposal, aimed at eliminating "harrassment bribes" which people have to pay just to get services they are legally entitled too, goes as follows:

*Legalize bribe-giving, double the fine for bribe-taking, and make the bribe-taker in addition have to pay back the bribe if discovered.*

When a citizen bribes a bureaucrat, under standard law the two parties become partners in crime. They may thus lack incentives to report the illegal activity. Under Basu's proposal, which he deems "fairly radical," incentives are provided for the bribe-giver to report the bribe-taker. If this is foreseen the bureaucrat will not accept the bribe in the first place. This is the key idea.

Will Basu's proposal be beneficial? Does the answer depend on institutional details? A hot debate is raging in Indian and international newspapers. *The Economist* appeared sympathetic.<sup>3</sup> However, in some quarters the proposal has stirred outrage and commentators have discarded it

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<sup>1</sup>See Svensson (2005) and Olken and Pande (2011) for excellent reviews.

<sup>2</sup>Olken and Pande (2011), in their review of recent academic work on corruption, explain: "On the one hand, there has been a revolution in the measurement of corruption and this has, in turn, led to a blossoming of the academic literature on corruption. On the other hand, if we were asked by a politician seeking to make his or her country eligible for Millennium Challenge aid or the head of an anti-corruption agency what guidance the economic literature could give them about how to tackle the problem, we realized that, beyond a few core economic principles, we had more questions to pose than concrete answers."

<sup>3</sup>"Who to Punish," May 5, 2011. See also Paul Seabright's piece on *Le Monde*, May 24, 2011.

mainly on moral grounds.<sup>4</sup> More tempered and thoughtful criticism has been encountered from economists. Jean Drèze, in particular, wrote a short but penetrating comment which argues that Basu does not give adequate attention to certain institutional and moral concerns which may overturn Basu's conclusions.<sup>5</sup>

Basu's intriguing and inspirational presentation is informal as is the heated debate that has followed. Perhaps one shouldn't expect the issues to be easily settled through such discourse? The proposal is reminiscent of somewhat analogous tools used in other fields such as leniency policies in antitrust and whistleblower protection and reward schemes against fraud and organized crime. Scholars who studied those topics & tools have suggested that these interventions may be very effective if well designed and administered, but highly counterproductive if details are not set right.<sup>6</sup> In our view, deeper understanding of the pros and cons of Basu's proposal requires careful scrutiny within a formal analytical model. The purpose of our paper is to contribute in this regard.

While we focus on Basu's proposal, it is worth noting that from a methodological stance an analytical approach similar to ours might be useful also for other legal applications. For example, in 1999 Sweden introduced a new law against prostitution that substantially increases sanctions for sex buyers while maintaining the sale of sex legal, much in analogy with Basu's proposal. Similar legislation was passed in Denmark and Norway in 2009. The asymmetry was introduced for moral reasons, but it seems clear that it may also affect behavior (of prostitutes, customer, pimps, and police), and analysis akin to ours may be useful.<sup>7</sup> The moral, practical, and legal issues that bear on prostitution surely differ from those that bear on corruption, so we do of course not suggest that our insights regarding what legislation is good or bad are portable between contexts.

In section 2 we introduce a stylized one-shot bribery game with entrepreneur-civil servant

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<sup>4</sup>Sometimes seemingly without having fully understood the idea; see e.g. the piece "Bribes: a small but radical idea" by P. Saniat in *The Hindu*, April 21, page 10, 2011, or listen to some of the commentary in the BBC World Debate broadcast (from the World Economic Forum in Mumbai) of "Can India Beat Corruption?" on 1.05 PM on Sunday November 19 (check after 47 minutes).

<sup>5</sup>See "The Bribing Game", *Indian Express*, April 23, 2011.

<sup>6</sup>See Spagnolo (2008) for an overview.

<sup>7</sup>For example, consider police treatment of prostitutes. Levitt and Venkatesh (2007) calculate that in Chicago, where both buying and selling sex is illegal, mishandling/extortion by the Police is so common that "a prostitute is more likely to have sex with a police officer than to get officially arrested". Perhaps this pattern would change under the Scandinavian model?

interaction, which in section 3 we extend to the case where one of the parties is a 'long-run' player who interacts over and over again with new 'short-run' players. In these two sections we highlight externalities associated directly with bribes and the services bureaucrats provide, but we abstract away from the more subtle institutional and moral considerations brought up by Drèze. We analyze under which circumstances Basu's proposal works well or poorly in such a streamlined world. Section 4 then addresses Drèze's objections. We explore how, within our analytical framework, addressing his main concerns changes our previous conclusions. In light of our findings, we introduce a modified proposal under which rather than legalize bribe-giving, only bribe-givers who report are awarded legal immunity. The idea, inspired by leniency rules in anti-trust, may seem a small twist on Basu's proposal but we show that it has some desirable qualities so that some of the problematic issues highlighted by Drèze can be overcome. Section 5 concludes with a summary of the results and a discussion of their policy implications.

## 2 The one-shot case

We consider interaction involving an entrepreneur ( $E$ ) and a civil servant ( $S$ ). The government has employed  $S$  trusting him with the task of issuing a licence to people like  $E$ . However, it is within  $S$ 's power to deny  $E$  this treatment. Anticipating this possibility  $E$  may offer  $S$  a bribe. Figure 1 depicts the game that describes the exact timing:

### INSERT FIG 1 HERE!

At the root  $E$  either offers a bribe ( $B$ ) or not ( $\neg B$ ). In the latter case  $S$  responds by either issuing a licence ( $L$ ) or not doing so ( $\neg L$ ). If  $E$  offers a bribe, then  $S$  has three choices: not accept the bribe & not issue a licence ( $\neg A \neg L$ ); not accept the bribe & issue a licence ( $\neg AL$ ); accept the bribe & issue the licence ( $AL$ ).<sup>8</sup> If  $E$  chooses  $B$  and  $S$  responds with  $AL$  then the players move once more, simultaneously choosing whether to report ( $R$ ) or not ( $\neg R$ ) the exchange of the bribe to the government.

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<sup>8</sup>We assume that when the bribe is accepted  $E$  hands it over with one hand at the same time that he receives the licence in the other hand. Hence it is impossible for  $S$  to accept the bribe & not issue the licence. This marks a difference relative to Buccirosi and Spagnolo's (2006) analysis of illegal exchanges where decisions are likely not simultaneous and need an enforcement mechanism in their own right (sometimes provided by the strategic use of poorly designed leniency policies).

As regards the players' payoffs, assume that we have a society where giving and accepting bribes is illegal and subject to fines. However, the practice is so widespread that there is practically no chance to be convicted and fined unless a party involved in the corrupt exchange reports it to the government. Let  $b$  be the amount of the bribe,  $v$  the value to  $E$  of a licence,  $c$  the cost to  $S$  of issuing a licence, and  $F_E$  and  $F_S$  the fines to  $E$  and  $S$  if government discovers (through a report) that  $E$  paid a bribe to  $S$ . Assume that  $F_E, F_S > v > b > 0$  and that  $b > |c|$ . Figure 1 shows how these economic parameters shape the players' payoffs.

Some clarifying comments are essential: First consider  $c$ . This is not a cost to care about for welfare purposes. Recall,  $S$  is hired with the understanding that he should issue the licence to people like  $E$ . It is implicit that  $S$  is adequately compensated and that the value to society of licensing is (much) higher than  $c$ . Hence, if  $S$  fails to issue a licence to  $E$  this is a bad outcome from society's point of view.

More generally, we propose that one should discount the relevance of all the payoffs in our stylized game, as regards welfare. Why is there public debate about the (negative) effects of bribes and corruption even when they do not appear to distort allocations? The answer has to do with externalities. It may serve the public's interest, somehow that people like  $E$  get a licence when they have earned it. That was our example of the previous paragraph. Similarly, occurrence of bribes may be bad. Why? Perhaps if  $E$  has to bribe  $S$  to get his licence, then this influences  $E$ 's propensity to not cheat when filling out his tax return! Or maybe it's something else. The issue may be real but nebulous. We shall not attempt any exact quantification of the related cost. Rather, we will use two qualitative yardsticks to evaluate welfare:

- *To what degree are bribes deterred?*
- *To what degree are licences issued?*

Basu's paper is based on the premiss that bribes are bad. Our example above reflected the idea that licences are good.<sup>9</sup> We shall accordingly evaluate outcomes according to whether they have good deterrence (of bribes) properties as well as in terms of how efficient they are in providing licences to all  $E$ 's.

We will in turn cover each of the cases  $c > 0$  and  $c < 0$ , again not because the level of  $c$  matters to welfare. The reason is that the sign of  $c$  matters to  $E$ 's and  $S$ 's decisions.<sup>10</sup> Note also that

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<sup>9</sup>We are following closely Basu in focusing on bribes paid for services people are entitled to, in which case – provided the entitlement rule is sound – more licenses should be unambiguously good.

<sup>10</sup>Assuming that  $S$  is an agent of a benevolent government that cares for welfare,  $c$  is thus a potential source of

each case makes sense. The case  $c > 0$  seems relevant to the extent that  $S$  has some opportunity cost of not shirking, say filling in paperwork rather than playing Tetris on a computer. The case of  $c < 0$  may be relevant in contexts where denying  $E$  a licence he is entitled to comes with some small risk of being caught-in-the-act-and-fired by a boss. Of course, both considerations may be relevant to some degree in any given situation so  $c$  should be interpreted as reflecting their net effect.<sup>11</sup> Since the second consideration reflects governments ability to catch a shirking servant, we like to think of  $c$  as a measure of how well organized government is, a lower value implying better organization.

### The case of $c > 0$

Once the reporting subgame is reached each player has a (weakly) dominant choice not to report. Assuming that each player thus chooses  $\rightarrow R$  there, the game possesses a unique associated subgame perfect equilibrium:  $S$  chooses  $AL$  following  $B$ . Moreover,  $S$  chooses  $\rightarrow L$  following  $\rightarrow B$ . The best response for  $E$  at the root is  $B$ . Compactly described, the strategy profile in question can be written as  $((B, \rightarrow R), (\rightarrow L, AL, \rightarrow R))$ . The outcome:  $E$  offers a bribe to  $S$  who accepts it & issues a licence; no player reports the bribe.

Is this good or bad from society's point of view? That depends. A bribe is paid, which is presumed to be bad. On the other hand, a licence is issued, which is presumed to be good. The overall effect seems unclear. In addition, there is the following consideration (in line with the theory of corruption inefficiency developed by Schleifer and Vishny 1993): As regards the efficiency with respect to the issue of licences the outcome may actually be substandard much in the same way as monopoly pricing leads to deadweight loss. Imagine that the situation in which this game is embedded is somewhat richer than seen in Figure 1: Relax the assumption that it necessarily holds that  $v > b$ . Assume that before  $E$  decides whether or not to offer  $S$  a bribe  $E$ 's value  $v$  is randomly drawn from (say) a uniform distribution on the unit interval ( $v \sim U[0, 1]$ ). Assume that  $E$  knows  $v$ , that  $S$  does not know  $v$ , and that  $S$  chooses  $b$  (a posted-price of sorts) before play proceeds as in Figure 1. Note that if  $v < b$  then  $E$  would never offer a bribe since that is a dominated choice, so in this case society loses a desirable license (given that  $S$  chooses  $\rightarrow L$  in response). Taking this into account,  $S$  should now choose  $b$  to solve

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"misgovernance" in the sense discussed by Banerjee (1997) (who also develops a model, which however has different focus than ours).

<sup>11</sup>It seems unlikely that the two effects would balance each other exactly, so we neglect the case of  $c = 0$ .

$$\max_b(1-b)(b-c)$$

The optimum is  $b = (1+c)/2$ . If every citizen in this society plays this game with some civil servant in the role of  $S$ , then folks that draw values of  $v$  such that  $0 \leq v < (1+c)/2$  never offer a bribe and never get a licence, with loss of payoff as described for them and for society.<sup>12</sup> As regards licensing, things could be worse (if the licence were never issued) but they could also be better (if  $E$  got his licence even when  $v \leq b$ ).

On the other hand, a similar point applies as regards bribe deterrence. Note that bribes occur when there is a licence, and vice versa. As regards deterrence, things could be better (if bribes were never exchanged) but they could also be worse (if a bribe was exchanged even when  $v \leq b$ ).

We now consider Basu's proposal: *Legalize bribe-giving, double the fine for bribe-taking, and make the bribe-taker in addition have to pay back the bribe if discovered*. This policy implies that the game of Figure 1 changes to the game of Figure 2:

### INSERT FIG 2 HERE!

Maintaining that dominant choices are made in the reporting subgame ( $R$  for  $E$ ;  $\rightarrow R$  for  $S$ ), this game has two subgame perfect equilibria. Compactly described, as before, they are:  $((\rightarrow B, R), (\rightarrow L, \rightarrow A \rightarrow L, \rightarrow R))$  and  $((B, R), (\rightarrow L, \rightarrow A \rightarrow L, \rightarrow R))$ . That is,  $E$  may or may not offer a bribe, but the outcome is essentially the same:  $S$  does not accept any bribe & does not issue any license.

Is this outcome good or bad? Again, it depends. On the one hand, bribes do not occur: *corruption is deterred*. On the other hand, *no licences are issued!* (Of course, the players get lower payoffs than in the game of Figure 1, but we argued that this is largely immaterial as regards welfare.) We conclude that, *when  $c > 0$  Basu's proposal is successful as regards deterrence but counter-productive as regards to efficiency.*<sup>13</sup>

### The case of $c < 0$

Back to the game in Figure 1. Assuming that the dominant choices of  $\rightarrow R$  are made in the reporting subgame, there is a unique associated subgame perfect equilibrium; compactly described:

<sup>12</sup>The game of Figure 1, and its solution, could be augmented to make this all explicit. We avoid doing so since the game tree becomes too large to be enjoyable and since the arguments are obvious when stated in words.

<sup>13</sup>The implicit working assumption here is that there is no alternative mechanism to induce  $S$  to perform. In the discussion we will consider alternative assumptions.

$((\neg B, \neg R), (L, AL, \neg R))$ . The outcome:  $E$  does not offer any bribe, but  $S$  issues a licence anyway. This is a great outcome on all fronts!<sup>14</sup>

Now consider Basu's proposal: *When  $c < 0$  Basu's proposal is redundant* in the sense that it does not substantially affect behavior. Consider again the game in Figure 2. Maintaining that the dominant choices are made in the reporting subgame ( $R$  for  $E$ ;  $\neg R$  for  $S$ ), this game has two associated subgame perfect equilibria:  $((\neg B, R), (L, \neg AL, \neg R))$  and  $((B, R), (L, \neg AL, \neg R))$ . The outcome is essentially the same:  $S$  does not accept any bribe but issues a licence anyway.

### 3 Long vs short-run players

Civil servants who deliver licenses or are assigned analogous tasks are often there for long periods. They may serve or harass many citizens/entrepreneurs, who are then likely to talk about the treatment received. A realistic setting in which to analyze Basu's proposal is therefore one in which  $S$  is a 'long-run' player who interacts over and over again with new ('short-run')  $E$ 's in each round, where new  $E$ 's know the previous history of play.<sup>15</sup>

Other types of public services exist where the natural assumption is that  $E$  is a long-run player repeatedly interacting with a sequence of different civil servants. Think, for example, of a large multinational firm trying to obtain long-term concessions or infrastructure procurement contracts from many different local authorities. Each local authority awards one license for many years, hence each  $S$  can be thought of as a one-shot player with respect to the firm  $E$ . The firm instead tries to get local licenses repeatedly by the many local authorities of the country. This case also captures situations where firms pay bribes through intermediaries or "agents", so that even if each  $E$  is a short run player his agent may in fact be a long run player.<sup>16</sup>

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<sup>14</sup>Note that arguments analogous to those we gave for the  $c > 0$  case why the outcome there might be considered suboptimal do not apply when  $c < 0$ ; there are no entrepreneurs to whom licenses are not issued.

<sup>15</sup>Vannucci and Della Porta (2007) study conversations between corrupt parties recorded by the police when the large Italian corruption network was discovered in the 90s (named Tangentopoli). They note, among other things, that corrupt public officials are careful in developing, spreading and maintaining a reputation for being reliable corrupt officials, that accept bribes without reporting the bribery attempts to the police, and reciprocate bribes with performance and hardly perform without a bribe. We are grateful to Elisabetta Iossa who brought their work to our attention.

<sup>16</sup>The important role of intermediaries in facilitating corrupt transactions is discussed in Rodenn (1986) for Brazil, and documented in Bertrand et al. (2007) with respect to driver's licences in India and in Fisman, Moustakerki and We (2005) with respect to international trade and tax evasion in Hong Kong.

In these 'one-sided repeated games,' each stage game is identical to the one shot game of section 1, and the repeated perpetual play (following any history) of the one-shot equilibria discussed in the previous section always corresponds to a subgame perfect equilibrium of the one-sided-repeated game. However, while short-run players are bound to play according to their static best-response strategies, the threat of reversion to a possibly inefficient stage game Nash equilibrium can credibly be used to sustain also other equilibria where the long run player does not play according to her static best response function (see Fudenberg, Kreps and Maskin 1990). We shall focus in particular on equilibria that involve as much bribery as possible, and explore to what extent Basu's proposal may be expected to reduce such patterns.

Let the game (including the verbally described features where chance selects  $E$ 's value  $v$  and  $S$  chooses  $b$ ) analyzed in the previous section be played an infinite number of periods. One of the players  $E$  or  $S$  each time interacts with a different co-player who is perfectly informed about the history of play. In each period  $E$ 's valuation  $v$  of the new licence or contract is an independent random draw from the same uniform distribution on the unit interval. Time is discrete and periods are indexed by  $t = 1, 2, 3, \dots$ . Let  $\delta$  denote the intertemporal discount factor, with  $0 < \delta < 1$ . We consider in turn the four cases that arise depending on whether  $E$  or  $S$  is the long-run player and whether  $c > 0$  or  $c < 0$ :

**Long-run  $S$ , short-run  $E$ ;  $c > 0$**

Perpetual play of the equilibrium of the one-shot game (starting at any history) is a subgame perfect equilibrium of the one-sided repeated game. That is, the short-run  $E$  player of any given round offers a bribe if  $v > b$ , subsequently relying on strategy  $(B, \rightarrow R)$  while  $S$  in each stage game chooses  $b = (1 + c)/2$  and then  $(\rightarrow L, AL, \rightarrow R)$ . The associated combination of strategies constitutes a subgame perfect equilibrium of the one-sided repeated game. Any short-run player  $E$  best responds to what  $S$  does at any history. And given this, the described behavior for  $S$  is a best response at any history.

What happens if the Basu proposal is introduced? Since short-term players are not able to commit, each  $E$  has a dominant choice to report and claim back any bribe. Therefore  $S$  accepts no bribe. As in the one-shot case, the policy change is successful in deterring corruption but has the drawback that no licenses are issued.

**Long-run  $S$ , short-run  $E$ ;  $c < 0$**

Perpetual play of the equilibrium from the one-shot scenario, where  $E$  does not bribe and  $S$

delivers the licence, remains viable under repetition. However, since  $S$  is now a long-run player, other equilibria may emerge where  $S$  conditions his stage-game choices on whether or not he was offered a bribe. As long as  $S$  is sufficiently patient he may be able to commit not to deliver the licence unless a bribe is paid. This behavior is sustainable in equilibrium as follows (we first consider behavior given  $b$ , then endogenize  $b$ ):

- $S$ : *Accept the bribe and issue a licence if  $E$  offers a bribe. Do not issue a license if  $E$  does not offer a bribe.*
- Each  $E$ : *Offer a bribe if  $v > b$  and  $S$  always issued a license every time a bribe was offered and did not issue a license every time no bribe was offered. Do not offer a bribe otherwise.*

Note that this equilibrium involves a form of trigger-strategy-combination, executed by the collection of short run  $E$  players.  $S$  issues a license iff he is bribed. This is sustained by the threat that if at any time a bribe was not offered and  $S$  still delivered a license then the 'live' short-run players from then on would forever stop offering bribes, and play would revert to perpetual repetition of the one-shot game equilibrium (with no bribes + licensing).

The long-run player  $S$  will not deviate from this strategy profile as long as the following incentive constraint is satisfied:

$$-c \leq \frac{\delta}{1-\delta} \{(b-c) \Pr[v \geq b] + c\},$$

where  $-c$  is  $S$ 's short-run gain (note:  $c < 0$  so  $-c > 0$ ) from unilaterally defecting by delivering the licence even if a bribe is not paid. On the right hand side we have the expected discounted loss of future payoffs caused by such a deviation.<sup>17</sup> Each  $E$  will have no incentive to deviate unilaterally as long as they believe all other players stick to the strategy profile.

In such a case, focusing on stationary equilibria,  $S$  would optimally choose  $b$  to solve

$$\max_b (1-b)(b-c)$$

*s.t.*

$$ICS^L : (1-\delta)c \leq \{(b-c) \Pr[v \geq b] + c\}.$$

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<sup>17</sup> $(b-c) \Pr[v \geq b]$  is the expected future undiscounted per-period payoff of sticking to the equilibrium;  $-c$  is the future undiscounted per-period payoff of deviation; the rhs depicts the difference:  $(b-c) \Pr[v \geq b] - (-c) = (b-c) \Pr[v \geq b] + c$ .

If  $\delta$  is high enough,  $ICS^L$ , the incentive constraints for the long-run player  $S$  will not bind and  $S$ 's optimal choice of  $b$  is then  $b = (1 + c)/2$ .

Suppose now that this equilibrium is relevant and consider the effect of introducing Basu's proposal. Since entrepreneurs are short term players, they cannot commit to not reporting; doing so will be dominant choice if a bribe is exchanged. So, assuming that  $E$  would thus report, the best  $S$  can do is to never accept a bribe but to always issue a license anyway. *So, here Basu's proposal works very well, both in terms of corruption deterrence and of efficiency!* It makes it impossible to sustain equilibria with bribes and rationing by undermining  $S$ 's ability to commit to a conditional licensing strategy, re-establishing the unique efficient static equilibrium.

**Short-run  $S$ , long-run  $E$ ;  $c > 0$**

Perpetual play of the one-shot licensing-conditional-on-bribe equilibrium  $((B, \rightarrow R), (\rightarrow L, AL, \rightarrow R))$ , with  $b = (1+c)/2$ , is possible as a subgame perfect equilibrium of the one-sided repeated game. Now consider Basu's proposal. Recall first that with long-run  $S$ , short-run  $E$ , and  $c > 0$  Basu's proposal was effective in eliminating bribes but counter-productive as regards getting licences issued. When instead  $E$  is the long-run player, perpetual repetition of the no-bribe-no-licence one-shot equilibrium is again a possibility. However, there may also be another equilibrium where  $E$  avoids this trap, withholding his report tactically as a means to make the short-run  $S$ 's issue licences for bribes. The implicit threat would be that if  $E$  were to report then play would revert to no-bribe-no-licence in perpetuity. An intriguing possibility is that for certain parameter constellations this equilibrium improves on the outcome that was predicted without Basu's proposal in terms of the number of delivered licences. Consider the following pattern of behavior (again we first consider behavior given  $b$ , then endogenize  $b$ ):

- Each  $S$ : *If a bribe is offered, accept it and deliver the licence if in all previous stage games the path of play was  $(B, AL, (\rightarrow R, \rightarrow R))$  or  $(\rightarrow B, \rightarrow L)$ , i.e. a bribe was offered and accepted and a license issued and no player reported this, or there was no bribe and no licence. In any other circumstance, do not accept the bribe and do not deliver the licence.*
- $E$ : *Offer bribe (when  $v > b$ ) and do not report after obtaining the licence if in all previous stage games the path of play was  $(B, AL, (\rightarrow R, \rightarrow R))$  or  $(\rightarrow B, \rightarrow L)$ . In any other circumstance, do not offer a bribe.*

Note that, as in an earlier case, the collective of short run players are implementing a form of trigger-strategy-combination. Each individual  $S$  has no incentive to unilaterally deviate as long as he believes all other players stick to the strategy profile. And  $E$  will not deviate as long as the following incentive constraint is satisfied:

$$b \leq \frac{\delta}{1-\delta} \int_{v=b}^1 (v-b)dv.$$

The  $b$  on the left-hand-side is  $E$ 's short-run gain from unilaterally defecting by reporting the bribe after the licence was delivered. On the right-hand-side we have the expected discounted loss of future foregone licence-values-net-of-bribe-costs caused by the switch to the no-bribes-no-licence continuation equilibrium after such a deviation. Assuming that each  $S$  will set bribes to maximize revenue,  $b$  would optimally be chosen to solve

$$\begin{aligned} & \max_b (1-b)(b-c) \\ & \text{s.t.} \\ ICE^L : & \quad b \leq \frac{\delta}{1-\delta} \int_{v=b}^1 (v-b)dv. \end{aligned}$$

The long-run player  $E$ 's incentive compatibility constraint ( $ICE^L$ , from a few lines earlier) is less tight the higher is  $\delta$ . If  $\delta$  is sufficiently large then if as before  $S$  chooses  $b$  his optimal choice that maximizes per period expected profits is  $b = (1+c)/2$ . However, if  $\delta$  is lower than that, so that the incentive constraint is binding, this may be overcome by choosing  $b < (1+c)/2$ . Hence, in such a case introducing *the Basu proposal reduces the maximum bribe that  $S$  can ask* without forcing a violation of the long-run player  $E$ 's incentive constraint. This is beneficial in the sense that *fewer cases occur where a licence is not issued*. It is not obvious how to evaluate the effects in terms of corruption deterrence, as in this case the proposal *increases the frequency of corruption* (a higher number of bribes are paid) but *decreases its amount* (the size of each bribe and the sum of all paid bribes fall).

#### **Short-run $S$ , long-run $E$ ; $c < 0$**

Again perpetual play of the one-shot equilibrium corresponds to an equilibrium in the one-sided repeated game.  $E$  does not bribe but all the  $S$ 's issue licences anyway. Since  $E$  is a long-run player, he will not be interested in committing to any other behavior. The short term players  $S$  on the other hand are not able to commit, hence they will stick to the one-shot no-bribes equilibrium.

Consider Basu's proposal. Since no bribe is paid it has no effect as there is no problem to solve in the first place. *Basu's proposal is therefore redundant in this case.*

## 4 Drèze's criticism

In the games of the previous sections Basu's proposal sometimes gets rid of bribery, sometimes does not. Our yardstick for whether the proposal did well, however, was not only whether bribery occurred or not, but also whether or not licences were issued. This is because the players payoffs, as well as the most readily conceivable notions of societal gain we could think of, naturally depended on whether or not licences were issued. With that yardstick, Basu's proposal did not do too well in the one-shot scenarios, although it did well in deterring corruption in one of them. However, it did well in two-out-of-four (arguably quite realistic) scenarios where one of the two parties was a long-run player.

In a thoughtful commentary to Basu's proposal, Drèze (2011) raised a number of subtle objections to Basu's proposal, objections that are not captured in the streamlined environment of our sections 2 and 3. The purpose of this section is to consider how these bear on, and possibly change, our conclusions of section 2 and 3. We concentrate on the following three main issues raised by Drèze:

First, as we discuss in section 4.1, *if law enforcement is as inefficient and corrupt as the rest of the bureaucracy*, then an individual that blows the whistle might actually expect "litigation costs, possible harrassment and little chance of getting justice" (as Drèze puts it). This may mean that the scheme does not deliver the promised corruption-deterrence effects.

Second, as we discuss in section 4.2, if there is a positive probability of being convicted for bribing an official even in the absence of a report, *legalizing the act of bribing also reduces the expected cost of bribing and not reporting*. If for some reason that option is still viable (e.g. because reporting would not lead to recovering the paid bribe but to harrassment from the police), then Basu's proposal may increase corruption by inducing also people that would otherwise be deterred by the risk of being detected and convicted to pay bribes.

Third, as we also discuss in section 4.2, *if legalizing bribe-giving reduces the moral cost of paying bribes* for those who dislike undertaking illegal acts then this may induce these people to also start bribing bureaucrats.

While we will discuss the likely effect of Basu's proposal in the presence of moral concerns

and possibly on their erosion or diffusion, we will refrain from commenting on the morality of the proposal itself because even within the Indian or western cultures moral judgements appear rather subjective.<sup>18</sup>

#### 4.1 nefficient or corrupt law enforcers

In discussing Basu's proposal, for simplicity we have been working under the assumption that it is impossible to induce  $S$  to perform if he does not want to while it is costless to convict, fine, and induce  $S$  to return the bribe if  $E$  reports the corrupt exchange. This (admittedly extreme) assumption captures in a simple way how a delay in the delivery of a licence can be due to so many different incidental reasons (besides harassment to get bribes) that it may be practically impossible to ascertain and discipline  $S$ 's misbehavior without a bribe. Receiving a bribe, however, is a clearer and arguably documentable crime (say, using a hidden recording device or marking down beforehand the numbers of the bills used to bribe).

Of course in many situations in which corruption is widespread the law enforcement system is also inefficient or corrupt. Consider first the case of *costly law enforcement*, such that  $E$  expects to bear substantial costs to have  $S$  convicted for bribe-taking and the bribe returned even after reporting relatively hard evidence.<sup>19</sup> We capture this by assuming that, if  $E$  reports, he expects litigation and further harrassment costs  $C \geq 0$  (possibly reduced to  $kC$ , with  $0 < k < 1$ , if  $S$  also reports, i.e. admits to be guilty). The game from Figure 2 is now modified as in Figure 3.

#### INSERT FIG 3 HERE!

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<sup>18</sup>For example, in contrast to Drèze some Indian commentators regard it as 'fair' to consider bribe-payers as victims of bureaucrats in the case of harassment bribes (see e.g. *Business News*, April 23, 2011). Drèze, on the other hand, dislikes Basu's proposal because it relies on "bribe-givers being doubly corrupt: by giving a bribe, and by stabbing bribe-takers in the back as they blow the whistle after the event." Judging negatively the act of turning in a (formerly fellow) criminal is common but not necessarily well grounded in ethics. It attributes the same positive value to legal and criminal cooperation, and the same negative value to betraying fellow citizens and fellow mafia members. It is one of the reasons – together with violent revenge – why in some cultures it is so difficult to find witnesses against criminal organizations.

<sup>19</sup>As some commentators on Basu's proposal stressed, these 'inefficiencies' are likely to increase substantially for poor individuals if law enforcers and bribe takers belong to the same powerful network or caste. Law enforcers would try to protect bribe takers and possibly further harrass the bribe-givers to deter them from denouncing their friends the bureaucrats.

It is clear by inspection that if these inefficiencies are substantial, so that  $C > b$ , even after having paid a bribe and received the licence  $E$  has no incentive to report and the Basu proposal becomes ineffective, both in the static and repeated versions of the game. If the cost of law enforcement is large, then a reward higher than the bribe may be needed to induce the bribe-giver to report.<sup>20</sup>

Consider now the case of *corrupt law enforcement*. To fix ideas, consider our one-shot game scenario with  $c > 0$ , where before we had a subgame perfect equilibrium where bribes changed hands. Assume that after the reporting stage but before law enforcers establish whether there was corruption or not the parties can offer bribes to affect their decision. After a bribe is paid and a party reported,  $E$  can offer a bribe  $b_E \geq 0$  to law enforcers to convict  $S$  and get back the original bribe and  $S$  can offer a bribe  $b_S \geq 0$  to have instead law enforcers falsely declare that there was not corruption. Suppose further that the bribing competition takes the form of an English auction and that law enforcers have a cost of lying  $\pi$  (possibly because there is some small chance they will be indicted). Then  $S$  will win the competition and be declared innocent when willing to pay more than  $\pi$  in addition to the highest bribe that  $E$  is willing to offer; otherwise,  $S$  is convicted and  $E$  obtains the original bribe  $b$  back net of the new bribe  $b_E$ .

Since at the time of the bribing competition the exogenous cost of starting the legal action  $C$  are paid and sunk, they do not affect  $E$ 's willingness to pay at the bribe competition stage. Hence,  $E$  will be willing to pay up to the original bribe paid  $b$  to have it back after a conviction of  $S$ . On the other hand, in case of conviction  $S$  will have to return the bribe  $b$  and pay the fines  $2F_S$ , hence his willingness to pay will be up to  $2F_S + b$ . Then when  $2F_S + b > b + \pi$ , i.e.  $2F_S > \pi$ , the bribe competition will be won by  $S$  who will not be convicted; the opposite happens when  $2F_S < \pi$ .

It follows that if sanctions for accepting harassment bribes are larger than the moral cost law enforcers incur in taking a false decision (not of accepting a bribe, the moral cost of that is implicitly assumed zero and would be cancelled out by competition),  $S$  will always be expected

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<sup>20</sup>The high costs of legal action and of further harassment from their employers born by whistleblowers is precisely the reason why in the US the False Claim Act, the IRS whistleblower scheme pays rewards (several secretaries got tens of millions of dollars for turning in their bosses). This might not work for harassment bribes however, as these typically concern a large number of small corrupt payments. The sum of the rewards and the administration costs of the program may be large before the deterrence effects materialize and will have to be financed by costly tax-payer money. This might generate further outrage as well as incentives for information fabrication and attempts to capture/blackmail otherwise innocent bureaucrats.

to win the bribing game and  $E$  will not report in the first place. When law enforcers are easily corrupted ( $\pi$  is low) the higher fines needed to deter bureaucrats from accepting harrassment bribes will make it hard for the Basu proposal to work.

## 4.2 The moral and legal costs of bribing and not reporting

In sections 2 and 3 we assumed that there were no costs associated with paying a bribe (apart from  $b$ ), if no one reported it. Drèze points out two reasons why this assumption may not hold. First, there may be a positive probability of being detected and convicted for bribing even without any report. Second, conscientious folks may suffer a moral cost of breaking the law when they illegally bribe. In these cases, legalizing bribe-giving may increase corruption. This is because  $E$ 's, who otherwise would offer no bribe, may now do so while planning on not reporting the bureaucrat. Why would they not report? Drèze gives an example where reporting implies "huge litigation costs, possible harassment, and little chance of getting justice", as discussed in the previous subsection.

Let's see how all of these aspects formally shape the analysis when incorporated in our setting. Let  $\alpha < 1$  denote the probability of conviction in the event that no party reports the bribe. Let  $M > 0$  be the moral cost of bribe-giving. We assume all of this affects only  $E$ 's payoff, as shown in Figure 4.

**INSERT FIG 4 HERE!**

Just as in Figure 1, each player has a dominant strategy in the reporting subgame of not reporting ( $\rightarrow R$ ). However, if  $\alpha$  and  $M$  are high enough then  $E$  will no longer wish to enter that reporting subgame, so he offers no bribe.

Consider now the effect of Basus's proposal. How does this affect the game in Figure 4? First, since paying a bribe is no longer illegal for  $E$ , we get  $\alpha = F_E = 0$ . Moreover, it would arguably no longer be considered morally reprehensible to bribe, so  $M = 0$ . On the other hand, we need to add the cost of getting justice (those litigation costs, etc); let them be  $C > 0$  as in the previous subsection. All in all, we get ... again the game in Figure 3!

Just as before, if  $C$  is high enough, etc, bribery deterrence is lost. This illustrates the second of Drèze's key objections to Basu's proposal. The proposal may provide disincentives for  $E$  to not offer a bribe relative to bribing and reporting, but the side effect is that it makes (in equilibrium) bribing and not reporting the very best option of all. If  $v - b > 0 > v - C$ , introducing Basu's

proposal moves us from an equilibrium where no bribes are paid to one where a bribe is paid (and no one reports it).

### 4.3 A slightly modified proposal

We can see a way to possibly have the cake and eat it. Here is a new proposal which at first glance looks similar to Basu's, but which is immune to Drèze's critique as exhibited in the previous section. We exploit an idea from so-called leniency laws in anti-trust under which participating in a cartel is not legal but nevertheless immunity from fines is assured if a culprit reports the activity. Let's consider granting  $E$  analogous immunity, if he reports a bribe. Apply that idea to the game in Figure 4. That is, if  $E$  chooses  $R$  then, in the corresponding row, remove  $b$  and  $F_E$ . Make no change concerning  $M$  and  $\alpha$ ; bribing is still illegal and hence presumably morally costly, and on not reporting  $E$  may still be caught with probability  $\alpha$ . On the other hand, court procedures to get back  $b$  are presumably costly just as when we moved from Figure 4 to incorporate Basu's proposal – and ended up with Figure 3 – so deduct  $C > 0$  just like we did then. We get the game in Figure 6:

**INSERT FIG 5 HERE!**

If  $C < b + \alpha \times F_E$  then, and if players use their dominant strategies in the reporting subgame, then this time  $E$  will report. Therefore,  $S$  would not accept a bribe. We're back to the outcome with no bribes!

How useful is this leniency-for- $E$  tool more generally? As regards the analysis in sections 2 and 3 it pretty much works just like Basu's proposal. We leave it as an exercise for the reader to verify this.<sup>21</sup> On the other hand, a leniency-for- $E$  policy may have bad properties if law enforcement is corrupt (so that  $C$  is large).

## 5 Discussion

Let us now recall our findings and discuss what can we take away from them. The results of Sections 2 and 3 are summarized in the following table. Columns 2 and 3 describe the results for the case where  $c > 0$ , where the organization of government is so poor that – apart from bribes

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<sup>21</sup>The analysis changes slightly only in the case with a long-run player  $E$  and short-run player  $S$  and  $c > 0$ .

– civil servants face more costs than benefits in doing their job properly. Then, abstracting from the issues raised by Drèze, Basu’s proposal tends to deter corruption but at the same time to interrupt the provision of the public service, or vice versa. Columns 4 and 5 show instead that when the organization of government is better, so that civil servants face more benefits than costs from performing their duties ( $c < 0$ ), Basu’s proposal will either have very good effects, both deterring corruption and increasing the delivery of license, or have no effects because there is no corruption to begin with.

	$c > 0$	(poor inst.)	$c < 0$	(good inst.)
One shot game	<b>+deterrence</b>	-licenses	<b>irrelevant</b>	irrelevant
Long-run $S$	<b>+deterrence</b>	-licenses	<b>+deterrence</b>	+licenses
Long-run $E$	<b>-deterrence</b>	+licenses	<b>irrelevant</b>	irrelevant

This suggests that introducing the Basu proposal alone in a country with very weak institutions may have rather poor effects. However, coupling it with other policies that improve civil servants’ incentives and turn the balance towards providing effort (e.g. increased wages, monitoring, and sanctioning of underperformance) could lead to unambiguously positive effects.<sup>22</sup>

The discussion in Section 4 suggests that a promise of immunity conditional on self-reporting is likely to have fewer drawbacks than legalizing bribe-paying. It also suggests that – as pointed out by Drèze – an inefficient or corrupt law enforcement system would scare people away from reporting bribe paying. The immediate implication of this is that it is important to start improving the efficiency and honesty of the law enforcement agencies as these are instrumental in fighting corruption anywhere else. When law enforcement agencies are inefficient or corrupt, implementing schemes aimed at inducing whistleblowing may require creating specialized agencies meeting higher accountability/performance standards able to instill the necessary confidence that harassment will not occur.<sup>23</sup>

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<sup>22</sup>This conclusion is in the spirit of Mookherjee and Png (1995). They analyze an inspection-corruption game showing that if government can use other instruments to induce inspectors to perform (stricter monitoring, higher efficiency wages, or tougher sanctions) and has an unlimited budget, then one can always find an equilibrium without bribes that welfare-dominates one with bribes. In such a world, Basu’s proposal would indeed increase welfare by facilitating corruption deterrence.

<sup>23</sup>It is interesting to note that these suggestions accord well with the demands raised recently by Anna Hazare, the Indian anti-corruption activist who through hunger strikes have attempted to force the establishment of new (ombudsmen-based) institution that can fight corruption.

Effective anticorruption in countries with weak institutions is therefore likely to require a set of complementary policies including, together with Basu's proposal or the leniency-based modification we described, also measures aimed at improving civil service performance and the accountability of law enforcement institutions.

It is worth noting at this point that one positive aspect of leniency policies is that we have some empirical and experimental evidence of their effectiveness against collusion.<sup>24</sup> One could legitimately ask, therefore, whether an analogous set of policies could be used to deter more harmful forms of corruption than Basu's harassment bribes. Our conjecture is that the answer will be positive, as for more distortive forms of corruption deterrence and efficiency consideration may be even better aligned. However, details seem to matter a lot for these policies, so that effective implementation will always require a thorough preliminary investigation of each case to avoid setting the details of the policy wrong.

## References

- [1] Acconcia, Antonio; Immordino, Giovanni; Piccolo, Salvatore and Patrick Rey (2009). "Accomplice-Witnesses, Organized Crime and Corruption: Theory and Evidence from Italy," Working Papers 232, Centre for Studies in Economics and Finance (CSEF), University of Naples.
- [2] Apesteguia, Jose; Dufwenberg, Martin and Reinhard Selten (2007). "Blowing the Whistle," *Economic Theory* 31, 143-66.
- [3] Banerjee, Abhijit (1997). "A Theory of Misgovernance," *Quarterly Journal of Economics* 112, 1289-1332.
- [4] Banerjee, Abhijit; Rema Hanna and Sendhil Mullainathan (2011). "Corruption," manuscript, MIT & Harvard.
- [5] Basu, Kaushik (2011). "Why, for a Class of Bribes, the Act of *Giving* a Bribe should be Treated as Legal." Working Paper 172011 DEA, Ministry of Finance, Government of India.

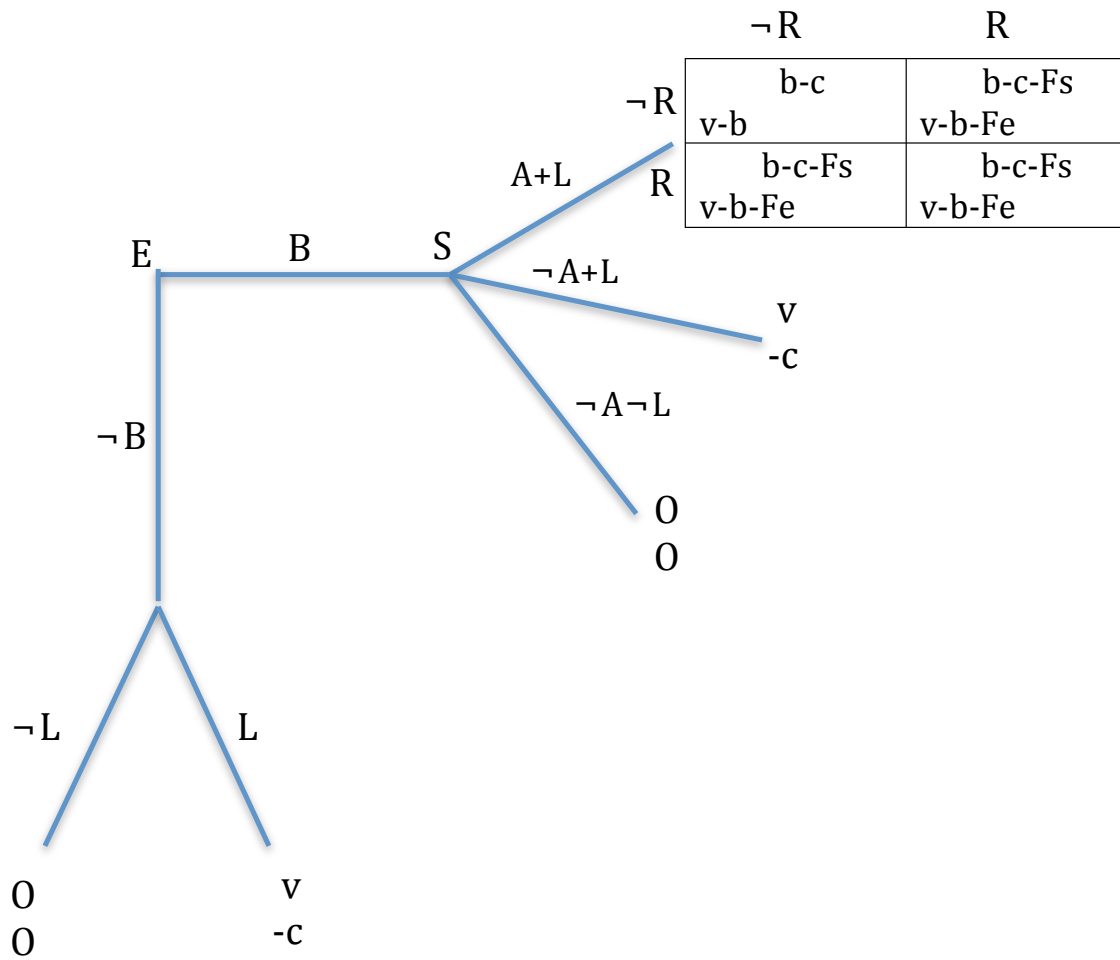
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<sup>24</sup>See e.g. Miller (2009) for empirical evidence, and Apesteguia et al. (2007), Hinloopen and Soetevent (2008), and Bigoni et al. (forthcoming) for experimental evidence. Acconcia et al. (2009) present suggestive evidence of their effectiveness against mafia-type organized crime.

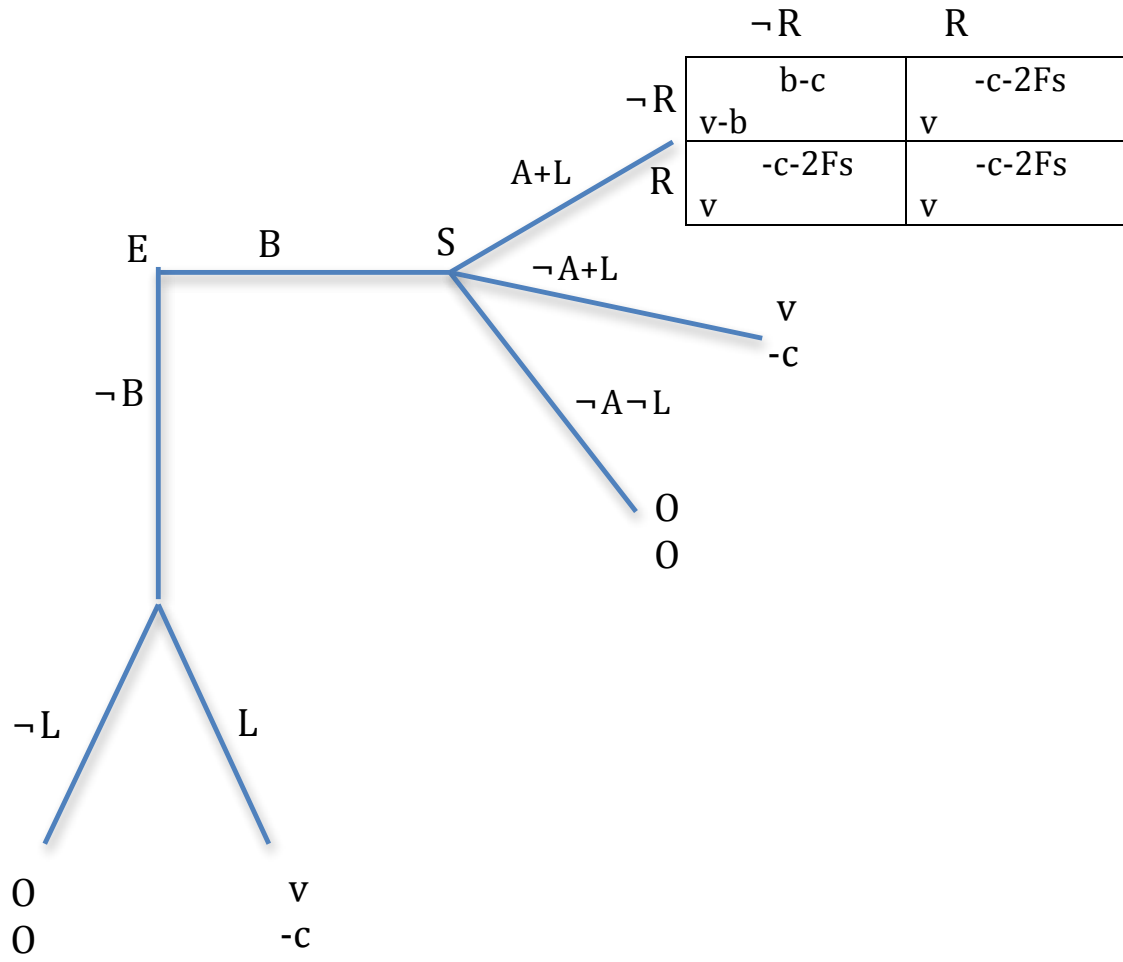
- [6] Bertrand, Marianne; Djankov, Simeon; Hanna, Rema and Sendhil Mullainathan (2007). "Obtaining a Driver's Licence in India: an Experimental Approach to Studying Corruption," *Quarterly Journal of Economics* 122, 1639-1676
- [7] Bigoni, Maria; Sven-Olov Fridolfsson; Chloe LeCoq and Giancarlo Spagnolo, "Fines, Leniency and Rewards in Antitrust," forthcoming in the *Rand Journal of Economics*.
- [8] Buccirosi, Paolo and Giancarlo Spagnolo (2006). "Leniency Policies and Illegal Transactions." *Journal of Public Economics* 90, 1281-1297.
- [9] Della Porta, Donatella and Alberto Vannucci (2007). *Mani Impunite. Vecchia e Nuova Corruzione in Italia*, VII-257 Editore Laterza.
- [10] Drèze, Jean (2011). "The Bribing Game", April 23, *Indian Express*.
- [11] Fisman, Ray; Peter, Moustakerski and Shang-jin Wei (2008). "Off-Shoring Tax Evasion: Evidence from Hong Kong as Entrepot Traders," *Review of Economics and Statistics*.
- [12] Fudenberg, Drew; David M. Kreps and Eric S. Maskin (1990). "Repeated Games with Long-run and Short-run Players," *Review of Economic Studies* 57, 555-73.
- [13] Hinloopen, Jeroen and Adriaan Soetevent (2008). "Laboratory Evidence on the Effectiveness of Corporate Leniency Programs", *RAND Journal of Economics* 39, 607-616.
- [14] Levitt, Steven D. and Sudhir A. Venkatesh (2007). "An Empirical Analysis of Street-Level Prostitution," manuscript, University of Chicago.
- [15] Mailath, George and Larry Samuelsson (2006). *Repeated Games and Reputations*. Oxford University Press.
- [16] Miller, Nathan (2009). "Strategic Leniency and Cartel Enforcement," *American Economic Review* 99, 750-68.
- [17] Mookherjee, Dilip and I.P.L. Png (1995). "Corruptible Law Enforcers: How Should They be Compensated?" *The Economic Journal* 105, 145-159.
- [18] Olken, Benjamin A. and Rohini Pande (2011). "Corruption in Developing Countries", manuscript, MIT & Harvard.

- [19] Shleifer, Andrei and Robert W. Vishny (1993). "Corruption", *Quarterly Journal of Economics* 108, 599-617.
- [20] Spagnolo, Giancarlo (2008). "Leniency and Whistleblowers in Antitrust," in Paolo Buccirossi (Ed.), the *Handbook of Antitrust Economics*, MIT Press.
- [21] Svensson, Jakob (2005). "Eight questions about Corruption", *Journal of Economic Perspectives*, 19 (5): 19-42.

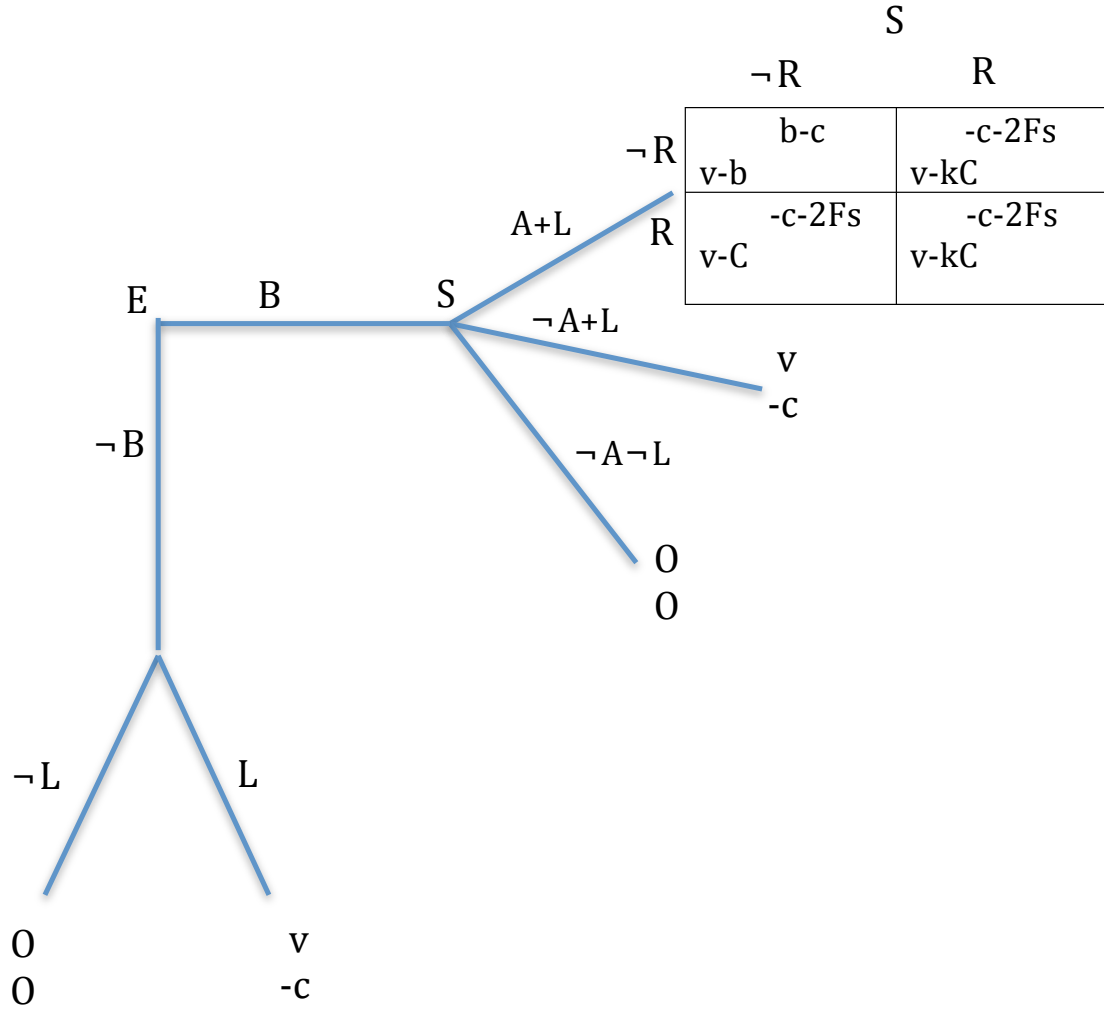
**FIGURE 1: STANDARD LAW ENFORCEMENT**



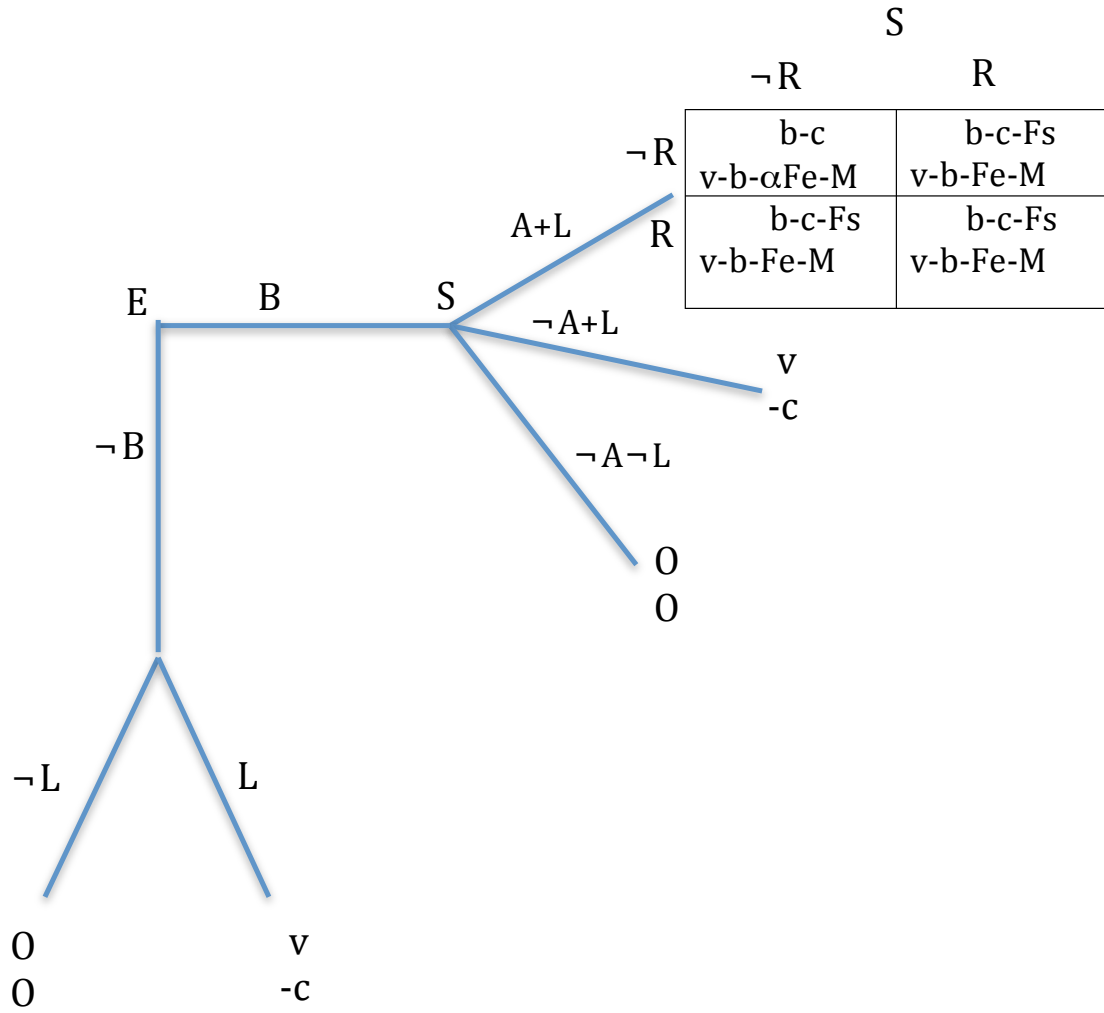
**FIGURE 2: BASU PROPOSAL**



**FIGURE 3: POOR LAW ENFORCEMENT**



**FIGURE 4: MORAL COSTS + EXOGENOUS CONVICTION**



**FIGURE 5: LENIENCY**

