# Trivial Bribes and the Corruption Ban: A Coordination Game Among Rational Legislators

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Abstract

Legislators in modern democracies (a) accept bribes that are small compared to value of the statutes they pass and (b) allow bans against bribery to be enforced. In our model of bribery, rational legislators accept bribes smaller not only than the bene¯t the briber receives but than the costs the legislators incur in accepting the bribes. Rather than risk this outcome, the legislators may be willing to suppress bribery altogether. The size of legislatures, the quality of voter information, the nature of party organization, and the structure of committees will all in°uence the frequency and size of bribes.

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## 1. Introduction

Bribery is both pervasive and pervasively illegal. But even where bribes are legal (for by \bribes" we will mean payments to government o±cials for speci¯c favors, whether legal or illegal), politicians often sell their votes for amounts trivial relative to the value of the favors bestowed. Where dictators like Ferdinand Marcos sell their favors dear, democratic legislators sell them cheap. Seldom, it seems, do they collect aggregate payo®s that even approach the value of the statutes they sell. Together with the criminal penalties for bribery, that value ought to induce legislators to sell high. Instead, they sell low, and the public is more often appalled by bribes's trivial size than by their lavishness. Consider the \Grey Wolves" of the 1892 Chicago city council:

> The irksome aspect of boodling to the civic-minded was not only that the vicious system corrupted the whole of Chicago politics but that the city gained from the passage of boodle ordinances hardly a cent in compensation. Even the grafting aldermen, receiving as little as $100 or as much as $25,000, actually were being paid only a small fraction of the real worth of the privileges they were selling. (Wendt & Kogan, 1943: 35)

At ¯rst glance, such behavior hardly seems rational on the part of the wolves, as Gordon Tullock has noted (e.g., Tullock, 1980b: 32;1990: 201). Indeed, the phenomenon of pro¯table rent-seeking is sometimes called the \Tullock Paradox\ after his observations. But legislators seem just as irrational when they ban bribes and thereby restrict their own behavior. Voting for bans on bribery may be politically advantageous, but the legislators could ban bribes formally while preventing executive enforcement of the ban. Nonetheless, they frequently not only ban bribes, but fund government institutions to enforce the bans. If legislators are truly the rational wealth-maximizers that public-choice analysts have pictured them to be, an explanation for these enforced bans must be found.

Thus, we face two puzzles. Our ¯rst puzzle is the small size of bribes. Almost always, legislators sell their collective services for less than their value

to the buyer. In many cases, they seem to sell them for less even than the expected political and criminal costs of providing the services for pay. The anecdotes are endless. New York Congressman Mario Biaggi manipulated the federal government to save from bankruptcy an enormous Brooklyn dockyard. For this, he received three Florida vacations worth $3000 (Tullock, 1990: 200). The 56 members of the Senate Finance and House Ways & Means committees have jurisdiction over $400 billion in tax revenues, but ro reeelection they raised just $20 million in a recent year(Tullock, 1990: 200-201; Shaviro, 1990: 73). Alabama state legislators can concurrently hold jobs at local colleges. For every 1theyreceiveinsalaryfromagivencollege; theyroutetheschoolanextra19 in public funds (Couch, Atkinson & Shughart, 1992). In the 1790s, several Georgia legislators sold 35 million acres of state land at 500; 000; apricefarbelowmarketvalue:Fc each. The incident became known as the "Yazoo scandal," and for their part in it all but two of the legislators involved lost their jobs in the next election. Apparently, they sold a valuable asset for a small amount, and lost o±ce besides (Noonan, 1984: 436-442). From the 1790's to the 1980's, the vote industry seems sometimes to please its lobbyist customers, sometimes to ignore them, and perennially to operate at prices below average cost. Critics of public choice delight in the puzzle (e.g., Shaviro, 1990: 73). If legislators are not becoming rich, they must not be maximizing wealth; the talk of political markets must be no more than talk.

To be sure, public-choice scholars have suggested several reasons for these cheap bribes. Where bribes are illegal, for example, lobbyists may incur large risks in assembling a bribing coalition. Where lobbyists can make take-it-or-leave-it o®ers, they may place the legislator in a disadvantageous bargaining position. Where many legislators will take bribes, they may compete down the price. Where property rights are statutory rather than constitutional, legislators may receive less because they can renege on any rent-dispensing deal they make with the bribing lobbyist. Although each of these factors suggests bribes should be low, the costs of bribery to the legislator should nonetheless place a °oor on the size of the bribes. Our model will suggest a more startling result: at times, bribes should not just be low, they should be insigni¯cant.

Our second puzzle is the bribery ban. Why society as a whole gains by banning bribes is straightforward: bribes generate a wide variety of inefficient agency costs and hold-up problems. But bans must be passed by statute, and policing agencies must be funded. If legislators can collect money by accepting bribes, why do they pass bans and fund enforcement efforts? To be sure, rational voters might find it profitable to pay legislators an amount equal to the expected value of their foregone future bribes in exchange for a ban on such bribes.[1] But even if voters made such a deal, they would find it hard to enforce | rational legislators ought to pocket the payment and revoke the ban. Notwithstanding that logic, most modern democracies enforce a ban on bribes.

We use a coordination game between wealth-maximizing legislators to show why cheap bribes are fully consistent with a market analysis: if self-interested legislators cannot coordinate their actions, they may supply private-interest statutes for bribes less than the costs they incur. Only when they can negotiate agreements with each other, solving a coordination problem, will they obtain bribes that equal their costs. Only when they can enforce agreements with each other, solving a prisoner's-dilemma problem, will they come close to collecting the full benefit of the statutes they pass.

Our explanation for the paradox of bribery bans follows from our explanation for the cheap price of special-interest statutes. We show that if bribery is only mildly difficult, then legislators may find it individually advantageous but collectively disadvantageous to sell their votes for small bribes. Were legislators able to take bribes legally, in short, they would not necessarily obtain large bribes. And if legislators would not obtain large bribes even if bribery were legal, then voters might not find it prohibitively expensive to convince them to ban the bribes altogether.

Insignificant bribes do not always follow in our model. Instead, the

[1] One simple way to accomplish this would be by paying them salaries that are high in comparison to present political salaries but low in comparison to the losses from special-interest legislation. The high wage would act as an "efficiency wage," making the legislators cautious about any activity that might lose them their offices. See Rasmusen (forthcoming). But this does not address the enforcement question.

price and quantity of bribery depend on a variety of factors: on the penalties convicted legislators face, on the rents lobbyists earn, on the propensity of voters to reject incumbents indiscriminately, on the ability of legislators to coordinate their actions, and on the transaction costs of bribery. Accordingly, we explore the implications not only of the size of rents and penalties, but of party organization, committee structure, and other exogenous political institutions on the frequency and size of bribes. We conclude with several further implications: the larger the legislature, the smaller will be the bribes paid and the greater will be the likelihood of a bribery ban; the more parties involved in making a political decision, the greater will be the likelihood of ine±cient private-interest statutes; and the better informed the voters, the larger will be any bribes paid.

We have organized the paper as follows. We begin by surveying the public-choice commentary on corruption (Section 2). We then turn to the heart of the paper: a game between bribe-taking legislators and incompletely informed voters (Section 3.1). We derive the pure-strategy and mixed-strategy equilibria in simultaneous (Section 3.2) and sequential (Section 3.3) versions of this game. Finally, we generalize the model (Section 4) and discuss its implications (Section 5).

## 2. Extant Explanations

Many observers purport to explain patterns of corruption through moral norms or ideological tastes (Kelman, 1988; Mikva, 1988). If legislators fail to earn bribes that capture their marginal product, such observers imply, they fail because they pursue ideas rather than money. To be sure, ideological tastes may explain some Congressional voting patterns.[2] Yet ideology cannot explain why bribes are small. Suppose ideologically correct legislators prefer honesty to corruption. If so, their scruples simply raise the opportunity costs (foregone moral satisfaction) of corruption. As the fraction of legislators with such scruples increases, the supply curve for private-interest statutes will shift to the northwest, and two consequences will follow. First, legislators will sell fewer private-interest statutes, but those they sell will command a higher price. Second, if the demand for such statutes is sufficiently inelastic (absent transferrable tax benefits, for example, firms can only use so many investment tax credits), the total resources lobbyists devote to bribery will increase. Whatever the detail, the basic point is simple: ideology raises, not lowers, the size of bribes.

Other scholars propose more promising explanations for the small size of bribes. For example, Tullock (1980a) notes that the amounts a lobbyist will invest in efforts to obtain a statute will depend on his probability of success, which in turn will depend on what competing lobbyists do. Given this uncertainty, some lobbyists will invest far less (but some far more) than the wealth the statute would transfer. Tullock (1990) ascribes the low price of bribes to the inefficiency of most rent-transferring regulatory arrangements. Snyder (1991) and Denzau & Munger (1986) argue that lobbyists will most often bribe legislators with policy preferences closest to their own, and that this will drive down the average size of bribes paid.

Landes & Posner (1975) and McChesney (1987) note that legislators cannot always credibly promise that a statute will stay in effect. Given this

[2] Nelson & Silberberg (1987); Kalt & Zupan (1984); Kau & Rubin (1979). Exactly how much ideology does explain remains unclear. See Dougan & Munger (1989); Lott (1987); Peltzman (1984).

uncertain durability, lobbyists may pro®er smaller bribes than they would otherwise pay. Finally, Baysinger, Ekelund & Tollison (1980) argue that the large size of most democratic legislatures increases the transaction costs to lobbying, while Browning (1980) and Rose-Ackerman (1978: 45-48) note that the lobbyists themselves may sometimes encounter coordination problems.

We take a di®erent approach. We suppose that the legislative outcome is certain and durable, and that the lobbying process is free. Even here, we show, rational wealth-maximizing legislators may sell their votes for aggregate amounts less than the total costs they incur.

## 3. Coordination and legislative pricing

3.1. Legislative production costs. A legislator incurs a variety of costs when he votes for a statute in exchange for a bribe. If his constituents detect the bribe, the bribe increases the chance that they will reject him at the next election. If lobbyists must bribe a legislator to pass the statute, then presumably his constituents dislike the statute, so the yes vote (or even just the statute's passage) will hurt his reelection chances. Most directly, voters can unseat legislator i if they dislike the way he votes. On the issues that matter most to them, some constituents follow their representative's voting record, and some others rely on voting summaries they obtain from groups they trust (e.g., Americans for Democratic Action or the National Ri°e Association).Because voters economize on information, legislators also incur costs when their party (or occasionally their legislature) passes statutes that voters do not like. Two reasons account for this. Most simply, voters sometimes attach \guilt by association." Because they have less than perfect information, they sometimes vote against a legislator whenever they think the legislature as a whole has done poorly.

More realistically, voters rely on the reputational capital that political parties create. They vote in candidates from parties with reputations they like, and vote out those from parties with reputations they despise. Because the phenomenon cuts both ways, party leaders will try to use it strategically: to choose a portfolio of policies that will maximize the party's chance of building and maintaining a legislative majority. To the extent that they can

enforce party discipline on their members, voters will then simply vote by party. And to the extent that voters do, a candidate's fortunes will depend critically on how other members of his party vote. After Watergate, for example, voters in 1974 cut the number of Republican Senators they returned to o±ce by 5 and the number of Representatives by 48. [3]

Moreover, because party leaders will instruct legislators to vote strategically, rational voters sometimes have no choice but to ignore their representative's voting record. They will vote instead on the basis of their representative's party's record. They do so because the party leaders may have rigged their representative's votes | the leaders may have let him vote as he did because it did not need his vote. According to Illinois state senator Judy Topinka, for example, \[v]ery often with simple majorities you see structured votes { `You put up X number on your side, and we'll put up X number on our side.' That way you keep o® people in swing districts and let some people keep a low pro¯le."[4] The Gulf war illustrated this phenomenon. After George Bush had obtained his vote for war, Democratic Representative Torricelli reported that ten more Democrats were available if needed.[5] All that voters can do in response to such strategic voting is to vote out all incumbents or all members of the erring party, regardless of how any one incumbent votes.[6]

In short, the the costs of information create reputational externalities. When voters do not discriminate perfectly, they will vote on the basis not just of how a legislator has voted, but also of how other legislators have voted. And when they do, their \throw the rascals out" e®ect can swamp any sympathy they might otherwise have for their own representative.

Careful analysis of the costs of bribery to the legislator deserves independent study, but for present purposes what matters is only how di®erent

[3] xxxx (present f.n. 5)

[4] \Tax Revolt," Chicago Reader, 20 April 1990, p. 24.

[5] New Republic, 4 Feb. 1991, p. 16.

[6] For empirical evidence of strategic voting against the incumbent majority members, see Lewis-Beck (1990). Other studies include Cox (1987), Denzau, Riker and Shepsle (1985), and Ferejohn & Calvert (1984).

kinds of costs a®ect the size of bribes. For this, what is important is how a cost depends on the behavior of other legislators, not whether the cost arises from voters, police, or conscience, or whether it is an expected cost or a known cost. In the general model analyzed below in Section 4, we will divide a legislator's costs from bribery into: (1) the cost of personally voting Yes on a statute that fails ($C_{pf}$); (2) the cost of personally voting Yes on a statute that succeeds ($C_{ps}$); and (3) the cost (to oneself) of the legislature having enacted a private-interest statute ($C_o$).

In Section 3.2, we construct a game in which legislators are simultaneously bribed and, if the statute passes, voters concern themselves only with the legislature's general record. As noted earlier, in a more realistic model voters may concern themselves with their incumbent's party's general record rather than with the legislature's record. We structure the discussion below by the legislature's record only for expositional simplicity { the model would not otherwise change. The game (an adaption of the model of exclusive-dealing contracts in Rasmusen, Ramseyer & Wiley (1991)) is a simultaneous game with two symmetric pure-strategy equilibria (Sections 3.2.1 & 3.2.2). If legislator i thinks the other legislators will sell their votes, then i too will sell. The legislators will sell, however, at a collective price both below the value of the wealth transfers involved and below the costs they incur from voter dissatisfaction. On the other hand, if i thinks the others will refuse to sell, i too may refuse. In short, both the statute's passing and its failing are Nash equilibria. We conclude our discussion of the model by analyzing mixed strategy equilibria (Section 3.2.4) and sequential games with full communication (Section 3.3). The particular payo®s used in Section 3 will be slightly restricted for simplicity (we will assume $C_o = 0$), and Section 4 will return to greater generality.

3.2 The simultaneous game:

3.2.1 Pure-strategy equilibria. The players are N identical legislators, and one lobbyist L. The lobbyist may o®er a bribe of X in exchange for a positive vote on a statute that would give him a bene¯t of R. Legislator i may accept X and vote \yes," or reject X and vote \no". A statute passes if $\overline{Y}$ legislators

vote \yes," where $\overline{Y}$ could be 1=2N, 2=3N, or some other margin (including $\overline{Y} = 1$ | see Section 3.2.3).

As noted above, legislator i can lose o±ce either because of his own vote (thus generating \personal costs" $C_p$) or because of the statutes his colleagues pass (\outcome costs" $C_o$). In this section of the article, we assume that the outcome costs overwhelm the personal costs when voters \turn the rascals out," so that the legislator incurs a cost of $C_p$ if he votes for a statute that fails to pass.[7]

The legislator's payo® equals his bribe income minus any costs he incurs. Thus, if he is bribed X and votes for a successful bill his payo® is $X - C_o$; if he is bribed and votes for a failed bill his payo® is $X - C_p$; and if he votes against a successful bill his payo® is $-C_o$. Table 1 summarizes these payo®s.

| | | Other legislators: No | Other legislators: Yes |
|---|---|---|---|
| Legislator i | No | 0 | $-C_o$ |
| | Yes | $X - C_p$ | $X - C_o$ |

Table 1: Payo®s to Legislator i in the simultaneous game

The order of play is simple. First, the lobbyist simultaneously o®ers each legislator a bribe X, payable if and only if the legislator votes for the statute. Second, without communicating with each other, the legislators each decide whether to accept the bribe.

Proposition 1 states that this game has two pure-strategy Nash equilibria: one in which the bill succeeds even though the bribe is X = 0, and one

[7] If the legislator's voting for a successful bill cost him $C_p + C_o > C_o$, then the general character of the equilibrium is una®ected, but (a) the bribes are positive, though smaller than his total costs $C_o + C_p$ or R, and (b) the lobbyist therefore only bribes the minimum number of legislators needed for passage. We analyze this perhaps more realistic, but undoubtedly more complex case in Section 4.

in which it fails. If the lobbyist's valuation is high enough, there is just one equilibrium, in which the bill succeeds. The size of the bribe and the type of equilibrium depend on the lobbyist's valuation of the bill.

PROPOSITION 1: Let R be the lobbyist's valuation of the bill, $\overline{Y}$ be the number of votes needed for passage, X be the bribe and $C_p$ be the legislator's personal cost from voting for the bill. If $R < \overline{Y}C_p$, there are two pure-strategy Nash equilibria:

(SUCCESS) X = 0, all legislators vote \yes," and the statute succeeds.

(FAILURE) $X < C_p$, all legislators vote \no", and the statute fails.

If $R \geq \overline{Y}C_p$, then SUCCESS is the only equilibrium.

PROOF: Suppose i believes all other legislators will vote \yes." If so, the statute will pass. Hence, i will su®er a loss of $C_o$ however i votes, and i will vote \yes" for a bribe of X = 0. Because all legislators will vote \yes," the lobbyist L has no incentive to o®er more than X = 0.[8] If there were an equilibrium with X > 0, the lobbyist could deviate by o®ering X = 0 and the individual legislator, believing that the statute would pass anyway, would accept X = 0; deviation would therefore be pro¯table and such an equilibrium cannot exist.

Suppose i believes all other legislators will vote \no." If so, the statute will fail. Hence, i will vote \yes" if and only if o®ered a bribe X larger than the threat to i's career generated by i's own \yes" vote (unless $X \geq C_p$). If $R < \overline{Y}C_p$, L will not ¯nd it pro¯table to o®er $\overline{Y}$ legislators a bribe of $X \geq C_p$ and FAILURE will be a Nash equilibrium. If $R \geq \overline{Y}C_p$, on the other hand, L will ¯nd it pro¯table to o®er such a bribe to $\overline{Y}$ legislators, and FAILURE will not be an equilibrium. Hence, success is the only equilibrium if $R \geq \overline{Y}C_p$.

[8] Legislator i will vote \yes," in other words, for an arbitrarily small bribe. We assume that a legislator who is indi®erent between accepting and rejecting a bribe will accept. This assumption, customary in rational-choice modelling, rules out certain weak Nash equilibria and avoids the open-set existence problem that would arise if the lobbyist had to o®er the legislator an in¯nitessimally small bribe of X > 0.

3.2.2 A heuristic example. A simple example comparing an autocratic government with a democratic one may be useful. Suppose that private-interest statute S14 would provide a bene¯t of 14 for a lobbyist and would cost an autocratic government 50 because of the increased probability of revolution. The autocrat will supply this statute only if o®ered at least 50, which the lobbyist is unwilling to o®er, so S14 will fail. Suppose that a second statute, S80, would cost the autocrat 50 but bene¯t the lobbyist by 80. The autocrat will supply this statute if o®ered 50, and if he is a good bargainer he may obtain a bribe of up to 80.[9]

Suppose, however, that the state is a democracy with ¯ve legislators who must vote on statutes S14 and S80. For each statute, each legislator loses 5 by voting \yes" when the others vote \no," but 10 if the statute passes. The government thus loses a total of 50 if a statute passes | the same cost that the autocratic government incurs.

Consider ¯rst the statute S14. If each legislator thinks that the others will vote \no," then all voting \no" will be the equilibrium. The lobbyist could overcome these expectations by o®ering a bribe of 5, but that is too costly for him: bribing three legislators at a total cost of 15 to obtain a statute worth 14 is bad business. But if each legislator thinks the others will vote \yes," then each may as well vote \yes" and join the crowd. He will lose 10 regardless of how he votes, so he will agree to vote \yes" for an in¯nitesimally small bribe. Expectations are crucial, and it is on forming expectations that the lobbyist should spend his money.

But consider also the statute S80. Here too, there is an equilibrium in which the statute passes with an in¯nitesimally small bribe, and, in fact, this is the only equilibrium. One might think that there is also an equilibrium with a successful bribe of 5, but there is not. If there were, then all ¯ve legislators would vote for the bill, even if only three were bribed, since all of

[9]Rose-Ackerman (1978: 45-48) notes that well-organized legislators may be able to extort larger amounts than disorganized legislators | a point consistent with our model. Our thesis di®ers from Rose-Ackerman's in the way we explain how a poorly organized legislature will sell votes for amounts below the costs the legislators incur | for in¯nitesimally small amounts.

them know the bill will pass. But then if the lobbyist refrains from paying the bribe to a legislator, he still might as well vote for the bill | he will lose the 10 anyway, and voting against the bill does not help him.

Thus, democratic legislators may refuse to sell a statute at all (a Nash equilibrium), or they may sell it cheap (another Nash equilibrium), but they will not sell it dear. Also, democratic states may sell private-interest statutes that an autocratic state would not. Where autocrats can limit the statutes supplied to those that generate pro¯ts at least as large as the costs they incur, democratic legislatures cannot without additional institutions.

3.2.3 Additional implications. At stake is one of the di®erences between market competition and political competition: each legislator's vote potentially imposes an externality on every other legislator. Like ¯rms in a market, legislators may compete the price of their vote down to marginal cost. Unlike such ¯rms, they do not control their marginal cost. Instead, each legislator's marginal cost depends on what his colleagues do: each legislator's marginal cost to voting \yes" is 0 if a majority of the others votes \yes," and 5 if a majority votes \no". E®ectively, that externality can prevent all legislators from breaking even. Even when the passage of the statute costs each legislator 10, each may agree to vote \yes" for a miniscule bribe.

Because of this coordination problem, wealth-maximizing legislators may rationally support institutions that make bribing individual legislators di±cult (though lobbyists will oppose such institutions). One way to do this is to make bribery illegal and impose heavy penalties on lobbyists who pay the bribes.[10]

A second way for legislators to deal with the problem is to create institutions which prevent the game from playing out the Success equilibrium. Our argument so far has hinged on the inability of legislators to coordinate their actions. The lobbyist can succeed in getting his legislation cheaply if he can

[10]Putting criminal penalties on the legislator caught taking the bribe has a slightly more complicated e®ect, since it puts a wedge between the payo®s of the legislator who takes the bribe when the statute passes and the legislator who refuses the bribe. We deal with this as Case 3 in Section 4, which generalizes the model in this section.

create an expectation in the minds of the legislators that he will succeed. If the legislators have time and organization enough to reassure each other that they will vote against the legislation, then the Failure equilibrium becomes more probable. The simplest institution for this purpose is the party leader: the legislators delegate their votes to one of their number who acts as cartel ringmaster, accepting bribes and deciding which statutes are to pass.

Note that political organization produces ambiguous results as far as the total amount of bribery is concerned. Politicians might organize to e®ect a Failure equilibrium; they may also organize to raise the price of the bribes paid in the Success equilibrium. In some legislatures, legislators have apparently centralized bribery. Japanese legislators, for example, have organized themselves into disciplined factions that receive enormous pay-o®s. Although competing factions still exist within it, at least one observer estimates that from 1966 to 1975, members of the ruling Liberal Democratic Party received assorted payo®s of $2.5 billion (Sasago, 1988: 39).[11]

Alternatively, legislators may be able to avoid unfavorable equilibria through the committee system. Were the legislators to delegate the authority to accept bribes to a single leader, they would impose on him extraordinary political and legal risks, and tempt him to withhold the bribery proceeds from his followers. Under the committee system, the legislators can delegate the authority they jointly hold to each other | by making each member a leader for one particular kind of statute. Thus, a committee would exert power not because it set the agenda, but because each member coordinates the bribe-taking from particular lobbyists, with a general understanding that every well-behaved legislator has a set of captive lobbyists. Perhaps the most successful of such committees will be the extra-legislative groups to which opposition politicians are not invited. Japan's Liberal Democratic Party, for example, conducts most policy-making within its own party's Policy A®airs Research Council (Inoguchi and Iwai, 1987). By making policy behind closed doors, party members can both coordinate any pay-o®s and keep the process

[11] xxx Quite tangentially Mark: Has anyone suggested that one reason Japanese busienss does so well might be the corruptness of the politicians? Mayb the way to catch up with the Japanese is to get rid of \good governemnt" in the US A.

invisible.

Consider three other applications of this model. First, the crucial difference between democracies and autocracies does not lie in whether the private-interest statute can be authorized by a single person. This case ($\overline{Y} = 1$) is included in the model and in Theorem 1, and is quite common in democracies. It occurs where a single legislator can provide benefits by telephoning an agency, for example, or by sponsoring an amendment. Having this power, however, does not help the legislator. Rather, it hurts him because he shares the power with all other legislators. Legislators will still compete with each other and bid down the bribe price, and when one accepts a bribe he will cast a cloud over the entire legislature.

Second, our model does not depend on a formal vote. Even in an autocracy, there are many "legislatures." Whenever a group must make a decision, it acts through implicit votes. The lobbyist might be a dictator, for example, and the group might be the leaders of the armed forces. If the dictator can maintain an expectation that he will stay in power, and the army leaders cannot communicate easily, then even a dictator unpopular with his generals may be able to remain in power cheaply. Each general knows that if he deviates unilaterally, he will lose his "bribe" (which might be merely the privilege of staying alive) without deposing the dictator.

Third, what the lobbyist obtains in exchange for the bribe need not be a firm promise to vote for a bill. Some commentators plausibly explain campaign contributions in the United States as "access money." Through the contributions, the lobbyist obtains not a vote but the privilege of conveying information to the legislator. The lobbyist willingly pays for this privilege because he hopes the information will affect the legislator's vote (see Austen-Smith & Wright (1990)). He thereby obtains not a Yes vote, but the higher probability of a Yes vote. The question our model answers is why legislators sell access so cheaply, when lobbyists find it so valuable.

3.2.4 The mixed strategy equilibrium. This simultaneous game has a third equilibrium: a mixed strategy Nash equilibrium in which the bribe

is $X^{\alpha} < C_p$, and legislators refuse a bribe of $X = X^{\alpha}$ with probability $\mu(X^{\alpha})$ and bribes of $X > X^{\alpha}$ with probability one.[12] To the extent that a mixed strategy describes how legislators act, Proposition 2 shows that although in a given equilibrium the lobbyist cannot reduce the bribe without certainly killing his statute, those equilibria with smaller bribes have greater likelihoods that the statute will pass.

PROPOSITION 2: If $R < \overline{Y}C_p$, then a continuum of mixed-strategy equilibria exists, differing in their bribes and the probabilities the bribes are accepted. The bribes are positive but less than the personal cost $C_p$, and the probabilities of the statute's success are positive but less than one. Equilibria with greater values of $X^{\alpha}$ have higher probabilities that the statute will fail.

PROOF: In the proposed equilibrium, the lobbyist offers the same bribe $X^{\alpha} < C_p$ to each legislator. Each legislator then rejects $X^{\alpha}$ (and votes no) with probability $\mu^{\alpha}$.

Legislator i will accept X and vote "yes" if $X \geq C_p$, but if $R < \overline{Y}C_p$ the lobbyist will not offer any X that large. If, on the other hand, the bribe is 0 and there is any chance of the bill failing, the legislator will refuse the bribe. Hence the bribes will lie somewhere within $(0; C_p)$ if the equilibrium is in mixed strategies.

Let $N_y$ represent the number of legislators who accept X and vote yes. Suppose that every legislator but i votes against the statute with probability $\mu$. The probability that the statute fails will be $F_y(\mu) = Prob(N_y < \overline{Y}|\mu;$ i votes yes) or $F_n(\mu) = Prob(N_y < \overline{Y}|\mu;$ i votes no), depending on how i votes. $F_y(\mu)$ and $F_n(\mu)$ are binomial distributions, so $dF_y/d\mu > 0$ and $dF_n/d\mu > 0$.

First, consider whether the legislators are willing to follow a mixed strategy. If i accepts the bribe, he earns the payoff $X - C_p$ if the statute fails and

[12] The intuition behind the mixed-strategy equilibrium is that some legislators (the fraction $\lambda$ of all legislators) will take a bribe of $X = X^{\alpha}$ and the rest will refuse, and that those who would accept the bribe cannot readily be identified ex ante.

$X - C_o$ if it passes, for an expected payoff of

$$\pi(\text{yes}) = (1 - F_y(\mu))(X - C_o) + F_y(\mu)(X - C_p): \quad (1)$$

If he rejects the bribe, he earns the payoff 0 if the statute fails and $-C_o$ if it passes, for an expected payoff of

$$\pi(\text{no}) = (1 - F_n(\mu))(-C_o): \quad (2)$$

In a mixed strategy equilibrium, the mixing player must be indifferent between the two pure strategies he mixes, so $\mu$ and $X$ must be chosen so that $\pi(\text{yes}) = \pi(\text{no})$. There will exist a continuum of values of $\mu$ and $X$ such that this is true.

Take $X$ to be fixed. If $\mu$ is sufficiently large, the legislator will reject the bribe, since $X < C_p$ and the statute would probably fail even with his vote. If $\mu$ is sufficiently small, the legislator will accept the bribe, since $X > 0$ and the statue would probably succeed even without his vote. Because the differential in the payoff is continuous in $\mu$, there must exist some $\mu$ between these extremes for which the legislator is indifferent about accepting versus rejecting the bribe. Since he is indifferent, he is also willing to randomize, and with the same probability $\mu$ as makes he himself indifferent.

Now consider what happens as $X^*$ increases. If $\mu^*$ remained fixed at the initial equilibrium level, the payoff from accepting the bribe would become greater than the payoff from rejecting it. This would be true a fortiori if $\mu^*$ were to decrease, so that the statute's probability of success would rise. Since the mixed-strategy equilibrium requires that the payoffs from accepting and rejecting be equal, $\mu^*$ must therefore decline. As $X^*$ increases, $\mu^*$, $F_y(\mu^*)$, and $F_n(\mu^*)$ must all decrease.

$X^*$ is the equilibrium level of $X$, which is different in different equilibria. In a given equilibrium, offering $X < X^*$ results in being turned down with certainty. But equilibria in which $X^*$ takes bigger values also have bigger values of $\mu^*$ | that is, smaller probabilities of rejection.

Second, consider whether the lobbyist is willing to offer $X^*$. This is not immediately obvious, because he must pay the bribes to those legislators

who accept them even if the statute fails, which could result in a negative expected payo®. He can avoid these costs by deviating with $X \leq X^{\alpha}$, in which case the bribes are all rejected and his payo® is zero, not negative. The lobbyist's expected payo® from o®ering $X^{\alpha}$ is

$$\sum_{t=0}^{y-1} [Prob(N_y = t|\mu^{\alpha}) N_y (0 - X^{\alpha})] + \sum_{t=y}^{N} [Prob(N_y = t|\mu^{\alpha}) R - N_y X^{\alpha}].$$

As $X^{\alpha}$ approaches 0, the earlier analysis suggests that the expected number of Yes votes increases and the left summation will drop out. Because $R - N_y X^{\alpha}$ will be positive as $X^{\alpha}$ approaches 0, the right summation will be positive and the lobbyist will earn positive pro¯ts. Hence, he will ¯nd some mixed strategy equilibria pro¯table.

3.3. The sequential game:

Even if the lobbyist approaches the legislators sequentially, the result may still be cheap bribery. The lobbyist could structure such a sequential game in several ways. One way is to approach the legislators in order, but so as to require them to respond independently without knowing what other legislators have decided. As noted earlier, such a game would be analytically the same as the simultaneous game. In the speci¯cation of Proposition 3, each legislator sequentially, permanently, and publicly, decides how to vote.

PROPOSITION 3: The sequential game has two possible equilibrium outcomes for $\overline{Y} \geq 2$:

(SUCCESS) If $\overline{Y} C_p/2 \leq R$, then $X = 0$, all legislators vote "yes," and the statute passes.

(FAILURE) If $\overline{Y} C_p/2 > R$, then all legislators vote "no", and the statute fails.

PROOF: We deal separately with three parameter ranges. We call i "crucial" if enough other legislators have voted "no" that the number of legislators who have voted "yes" will be less than $\overline{Y}$ if i refuses, even if all subsequent legislators vote "yes."

Range A: SUCCESS. Suppose that $C_p\overline{Y} < R$. Legislator i will accept $X = 0$ and vote \yes" unless enough colleagues have refused so that all remaining legislators are crucial. In that case, L will o®er $X = C_p$ to each remaining legislator, each will accept the bribe, and the statute will pass. Yet that situation will not occur. Each i will accept $X = 0$ and vote \yes" unless i is crucial. As the ¯rst legislators are never crucial, they will vote \yes" for $X = 0$. Because all non-crucial legislators vote \yes," L never encounters a crucial legislator, and thereby signs up all legislators at $X = 0$.

In Range A, L can sign up all legislators for free because L is willing to pay each of $\overline{Y}$ legislators $X = C_p$ if he ever did become crucial. Non-crucial legislators receive only $X = 0$, but are willing to vote \yes" because they know that L can successfully obtain $\overline{Y}$ \yes" votes regardless of what they do. L's willingness to pay $\overline{Y}$ legislators, in short, induces all to vote \yes" at $X = 0$.

Range B: SUCCESS: Suppose that $C_p\overline{Y}=2 \quad R < C_p\overline{Y}$: The lobbyist now is unwilling to pay $C_p$ to $\overline{Y}$ legislators, and the argument above collapses. Suppose i expects every other legislators to vote \no". If so, i will vote \yes" only when $X \geq C_p$, unless (o® the equilibrium path) $\overline{Y}$ legislators have already voted \yes.\ As L will not pay $C_p$ to $\overline{Y}$ legislators, the statute apparently fails.

In fact, however, the statute passes. To see why, assume the contrary: that an equilibrium exists where the majority votes \no". We show below that L can successfully induce $\overline{Y}$ legislators to deviate from the equilibrium and vote \yes.\ We start at the end of the deviation subgame.

(B1) Suppose that L needs each of the legislators he can still approach. If so, then each remaining legislator is crucial and L must pay each $C_p$.[13]

(B2) Suppose that $\overline{Y} - 1$ legislators have voted \yes," and that L has not

[13] We assume L can make take-it-or-leave-it o®ers. Relaxing this assumption raises the danger of extortion by crucial consumers who could demand the whole of the rents the lobbyist expects to gain from the statute. On hold-up problems in sequential models, see, e.g., Rasmusen (1988).

yet approached two legislators. If the first of the remaining two legislators refuses, the second will vote "yes" for $C_p$ which (because $R \geq C_p\overline{Y}/2$) L will pay. Knowing that, the first will vote "yes" for $X = 0$. Because $\overline{Y}$ legislators have now voted "yes," the last legislator is not crucial and will vote "yes" for $X = 0$ as well.

(B3) Suppose that $\overline{Y} - 2$ legislators have voted "yes," and that three legislators remain. The first of the three will vote "yes" for $X = 0$, because his vote is not crucial; if he refuses, the last two legislators will vote "yes" for $C_p$ (we address what happens if $R < 2C_p$ in [B5]). Accordingly, the first legislator votes "yes" at $X = 0$. From (B2), we know that the other two will also vote "yes" at $X = 0$.

(B4) Suppose that $\overline{Y}/2$ legislators have voted "yes," and that $\overline{Y}/2 + 1$ legislators remain. By induction from (B2) and (B3), all legislators will vote "yes" for $X = 0$.

(B5) This induction does not hold indefinitely. Suppose that $R = C_p\overline{Y}/2$, that L needs $\overline{Y}/2 + 1$ more votes, and that $\overline{Y}/2 + 2$ legislators remain. The first legislator in this subsequence knows that if he refuses, L will need $\overline{Y}/2 + 1$ more votes, yet only $\overline{Y}/2 + 1$ legislators will remain. Because $R = C_p\overline{Y}/2$, L cannot bribe all remaining legislators ($\overline{Y}/2 + 1$ of them). Therefore, the first legislator is crucial, and will hold out for $C_p$. This amount L willingly pays, however, because he foresees that in the remaining subgame all $\overline{Y}/2 + 1$ will vote "yes" for $X = 0$. The statute thus passes, but L must pay the first legislator $X = C_p$.

(B6) Last, suppose that $\overline{Y}$ votes are needed and that $\overline{Y} + 1$ legislators are left. By the logic of (B5), L must pay $C_p$ to the first $\overline{Y}/2$ of these legislators, and $X = 0$ to the remaining $\overline{Y}/2 + 1$. Because L is willing to pay $C_p\overline{Y}/2$, the statute passes. If $R > C_p\overline{Y}/2$, then (by the same logic) L will be able to sign up $R/C_p$ legislators for free.

(B7) Suppose that $N = \overline{Y} + 1$. The first legislator knows that if he refuses to vote "yes," all others will be crucial. Hence the logic above would suggest that L will need to pay $X = C_p$ to all legislators. The point is

misleading: if $N = \overline{Y} + 1$ and statutes pass by majority vote, there are only 2 or 3 legislators | not generally the case in modern democracies.

(B8) If (more realistically) $N > \overline{Y} + 1$, the only equilibrium is where everyone votes \yes" and no one receives more than $X = 0$. By the induction argument, the ¯rst $N ¡ (\overline{Y} + 1)$ legislators will foresee that the statute will SUCCEED. Hence, each will vote \yes" for $X = 0$. L thus never reaches the situation where he needs $\overline{Y}=2 + 1$ more legislators and only $\overline{Y}=2 + 2$ remain. Never encountering a crucial legislator, the lobbyist never pays $X > 0$.

Range C: FAILURE. Suppose that $R < C_p\overline{Y}=2$. Now the statute cannot pass. The argument in Range B crucially depended on the lobbyist's willingness to pay $C_p$ to the last $\overline{Y}=2$ legislators. If the lobbyist cannot do so, then any equilibrium in which all legislators vote \yes" at $X = 0$ is unstable. If all but $\overline{Y} + 2$ legislators have refused, the next legislator knows that if he refuses, so will enough future legislators that the statute will fail. Therefore, if all but $\overline{Y} + 3$ legislators have refused, the next legislator knows that if he refuses, the statute will fail. The argument continues back to the initial legislator.

## 4. Extending the Model.

In this section we will extend the model in two directions: to general assumptions on the legislators' costs, and to the case where only a single legislator can grant the desired favor.

### 4.1 General Payo® Functions.

In the model above, voters did not discriminate among legislators when a statute passed. A more general model would allow some voters to respond in di®erent ways that might be more appropriate to some situations. As before, the legislator's bene¯t from voting for a statute will be the bribe X. Now, however, we will split the legislator's costs into the three categories shown in Table 2: (1) the cost of being part of a legislature which passes a corrupt statute ($C_o$), (2) the cost of personally voting Yes on a statute that fails ($C_{pf}$), and (3) the cost of personally voting Yes on a statute that

succeeds ($C_{ps}$). For example, if (as is generally true) a politician who accepts a bribe faces a positive risk of a criminal conviction regardless of whether the statute passes, then both $C_{ps}$ and $C_{pf}$ will be positive. The earlier model is a special case with $C_o > 0$, $C_{pf} > 0$, and $C_{ps} = 0$.

| | | Other legislators: No | Other legislators: Yes |
|---|---|---|---|
| Legislator i | No | 0 | $-C_o$ |
| | Yes | $X - C_{pf}$ | $X - C_{ps} - C_o$ |

Table 2: Payoffs to Legislator i in the general model

The game consists of the lobbyist choosing the bribe X and deciding which legislators are to be offered it, followed by a subgame consisting of simultaneous offers and votes. The size of the bribe that the lobbyist offers depends on his benefit from a successful statute (R) and the equilibrium he expects in the voting subgame. Depending on the size of the bribe X relative to the cost of personally voting Yes on a failed bill ($C_{pf}$) and the cost of personally voting Yes on a bill that succeeds ($C_{ps}$), the subgame falls into one of four categories:

(CASE 1) The only equilibrium is passage of the bill. This happens if the bribe is large enough so that $X - C_{pf} > C_{ps}$ or $X > C_{ps} > C_{pf}$.[14]

Case 1 bears some resemblance to the prisoner's dilemma. The legislators hope that the statute fails, so they can avoid the coat-tails cost, $C_o$, but the bribe is great enough that taking the bribe and voting for the statute is a dominant strategy. In a one-shot game the legislators would not be able

[14]xxx Eric, I don't see why one inequality is absolute and one isn't. Mark: if $X = C_{pf} > C_{ps}$, then one equilibrium is for the legislators to turn down the bill. They are willing to do that, because they are indifferent about voting for the bill or against it given that the other legislators will vote against it. Eric: But that CONTRADICTS the statement in the text! MARK: What statement? Does this still apply?

to trust each other, because even if they all agreed not to accept bribes, any individual legislator would wish to break the agreement and accept the bribe anyway.

(CASE 2) The only equilibrium is failure of the bill. This happens if $X < Min(C_{pf}; C_{ps})$.

Case 2 applies if the briber is not willing to o®er even a bribe of $C_{ps}$, much less one equal to $C_o + C_{ps}$. If, for example, $X = 0$ and both $C_{pf}$ and $C_{ps}$ are positive, then the bill will certainly fail.

(CASE 3) There are two pure-strategy equilibria (one with success; one with failure), and, if $X < C_{pf}$, a continuum of mixed-strategy equilibria. This happens if $C_{ps}$ X $C_{pf}$.

If $C_{ps} < C_{pf}$, the legislator's loss from voting for a failed bill is greater than the di®erence between his voting for a successful bill and voting against a successful bill. Note that this inequality does not imply that his loss is greater for a failed bill than from voting for a successful bill. If, for example, $X = 0$, $C_o = 5; C_{ps} = 1$ and $C_{pf} = 3$, then the legislator's ranking of outcomes is (a) Vote No and the bill fails (payo® 0), (b) Vote Yes and the bill fails (payo® ¡3), (c) Vote No and the bill succeeds (payo® ¡5), and (d) Vote Yes and the bill succeeds (payo® ¡6).

If $C_{ps}=0$, a zero bribe will allow multiple equilibria, as in the model of Section 3, where $C_o > 0$, $C_{ps} = 0$, and $C_{pf} > 0$. Otherwise, a positive bribe equal to $C_{ps}$ is required.

Case 3 di®ers from Case 1 in that accepting the bribe and voting for the statute is not a dominant strategy. Rather, a legislator will vote for the statute if he thinks it will pass and against it if he thinks it will fail. If the legislators could communicate and coordinate with each other, they would give each other assurances that each would turn down the bribe; and once these assurances were given and believed, each individual would have no incentive to deviate from them. This points to an important role for party leaders: they not only lead in positive actions, but they can prevent

stampedes to vote for statutes that no legislator really wants.

(CASE 4) There is no pure-strategy equilibrium. This happens if $C_{pf}$ $X < C_{ps}$.

In Case 4, there is a positive personal cost of voting for a bill, even beyond the coattail cost, a cost that is greater if the bill succeeds than if it fails. Each legislator is willing and eager to take the bribe and vote for the statute, but only if he thinks it is going to fail.

The four cases above were all contingent on the value of the bribe, X, which is endogenous. What value of X will the lobbyist choose? E®ectively, he can choose which of the four cases he prefers.

If R is small enough relative to the costs, the lobbyist will choose not to o®er a large enough bribe to allow success, and Case 2 applies. The statute fails and no bribes are paid.

If R is larger, then the lobbyist has a choice of subgames. If $C_{pf} < C_{ps}$, then he chooses between a pure-strategy equilibrium in which the statute passes but the bribe is $X = C_{ps}$ and a mixed-strategy equilibrium in which $C_{pf} < X < C_{ps}$ and the statute sometimes fails. With speci¯c parameter values, it is a straightforward problem for the lobbyist to choose between these alternatives.

If $C_{ps}$ $C_{pf}$, then the lobbyist chooses between a pure-strategy equilibrium in which the statute passes but the bribe is $X = C_{pf}$ and a subgame with multiple equilibria and a smaller bribe. Which option is preferable depends on which of the multiple equilibria would be played out, which in turn depends on the expectations of the legislators. To make a prediction, we would have to move outside of the model. If the lobbyist can manipulate expectations, then we would expect him to choose $X = C_{ps}$ and succeed with the statute. Indeed, the act of o®ering a bribe as low as $X = C_{ps}$ might persuade legislators that the statute was going to pass, since they know the lobbyist will o®er no more than he has to. On the other hand, if the legislators can credibly communicate with each other, even if they cannot make

binding agreements with each other, then they will agree to turn down very cheap bribes, and the lobbyist would offer the merely cheap bribe of $X = C_{pf}$, which could still be less than his benefit of $R=Y$ and the legislator's cost of $C_o + C_{ps}$.

Note that $C_o$ does not enter into these parameter ranges, a curious feature of the model. If other legislators have decided to vote for a bad bill and impose cost $C_o$ on our representative legislator, then his own actions do not depend on that cost, which he cannot possibly avoid.

4.2 Monopoly Provision of Legislative Favors.

So far we have assumed that a single lobbyist faces a legislature of independent individuals who suffer from a coordination problem. Another case occurs when the single lobbyist faces either a coordinated legislature that delegates its votes to a single leader, or when only one individual | more likely a bureaucrat than a legislator | is in a position to grant the desired favor.[15]

This is a case of bilateral monopoly, of bargaining over the surplus $S = R - C_o - C_p$. The legislator will receive at least $X = C_o + C_p$ and the lobbyist will pay no more than $X = R=Y$, but without further information it is difficult to say more. One's first thought is that the lobbyist and the legislator are symmetrically situated, so that we might reasonably guess that each would receive a net benefit of $S=2$ from the transaction. This would be the outcome in the axiomatic model of Nash (1950) and in the shrinking-pie model of Rubinstein (1982), and it seems intuitive.

An even split between the briber and the bribed may indeed occur. Consider the case of Judge Manton, who frequently accepted large sums of money from litigants from 1932 to 1938 (see Noonan [1984] p. 568-70). Manton was the only one of three judges on a panel to accept bribes, and in some of the cases the bribes turned out perhaps to be unnecessary, since the decisions were unanimous. In one case, a stockholder sought a return of $10 million in bonuses paid to American Tobacco Company executives. A

[15] Still another case is when multiple lobbyists compete for a limited stock of government favors. We will not explore that case here; see Peltzman (1976) or Hillman & Riley (1989).

few days before argument, Manton asked a high-ranking partner of the law ¯rm representing American for a $250,000 loan. This partner, Louis Levy, was Manton's mentor at law school and helped push his appointment. Levy gave Manton the loan, and took in return a demand note he never actually demanded.

Whether or not the split of the surplus was 50-50, Manton's bribe certainly was not cheap. But what is special about this example is that (a) Manton approached Levy, (b) Manton and Levy had longterm ties, and (c) Levy's costs from discovery were substantial because of the risk of disbarment (which actually occurred). Thus, Manton could make an initial o®er and bargaining costs were sizeable for both sides.

Even if there is bilateral monopoly, however, it is not always the case that the two bargainers are symmetric and will split the surplus evenly. If the briber and the bribed have di®erent bargaining costs, the split will not be even. A reasonable way to model the bargaining in bilateral monopoly is for one bargainer to make an initial o®er, for the other to reply with a counter-o®er, and for them to alternate o®ers until one of them accepts. Each time an o®er is made, the o®eror incurs a cost, which in this context would be the expected cost of being discovered. But this expected cost will normally be much higher for the legislator than for the lobbyist. Both may be subject to criminal prosecution, but only the legislator needs to maintain a reputation for honesty in order to be re-elected. Thus, if the legislator makes a countero®er, he may risk much more than does the lobbyist. If the bargaining costs are $B_p$ for the legislator and $B_l < B_p$ for the lobbyist, then the model just described is the ¯xed-bargaining-cost model of Rubinstein (1982). The equilibrium outcome is that the lobbyist gets all or almost all of the surplus; if the lobbyist moves ¯rst, the equilibrium bribe is $X = C_p + C_o$, and if the legislator moves ¯rst it is is $X = C_p + C_o + B_l$. For proof, see Rubinstein; roughly, the legislator knows that the lobbyist has lower bargaining costs, and after any o®er by the legislator the lobbyist would be willing to make a counter-o®er if he could reduce the bribe by $B_l$. Hence, the legislator ends the bargaining immediately by accepting the cheap bribe. In ABSCAM, Congressman Thompson told the lobbyist \I'm not looking for

any money" in the morning, but returned in the evening for his briefcase to which $50,000 had been added. He was more ready to accept the money than to talk about its amount (Noonan, 1984: 609-614).

The lobbyist would ordinarily have the first move in this game, further improving his position. By moving first, the lobbyist is in a much better position to make a take-it-or-leave-it offer to the legislator. He could purposely make it difficult for the legislator to reply by, for example, not revealing his identity. Or, he could wait until the last possible moment when the favor might be granted, and then make an offer without leaving the legislator time to make a counteroffer. In either case, the lobbyist will succeed with a cheap bribe. The legislator might try to respond by refusing bribes until they are bid up high enough, but the briber's costs rise significantly with successive offers to a legislator who claims to be honest | for he might actually be honest. In one of the ABSCAM cases, Judge Bryant held that: \Anyone other than an agent [of the government]... would have given up at the first refusal by the congressman for fear of being reported and prosecuted. Only the knowledge that he was safe from any charge let the agent press his offer. Without realistic restraint, the government's conduct was fundamentally unfair" (Noonan, 1984: xxx).

5. Implications.

Our model suggests why legislators in democratic societies sell their votes so cheaply | and thus also why they are willing to ban bribes: when legislators vote for private-interest statutes, they impose an externality on every other legislator, yet they cannot coordinate their votes to demand a bribe which compensates them for that externality.

Our model yields the following additional hypotheses. First, the average price of bribes paid will correlate with the ease with which legislators can coordinate. Because coordination problems generally increase as the number of people involved rises, pay-offs should be larger where the number of people involved in a political decision is smaller { a point corroborated by Parker

(1992: 177).[16] Accordingly, our model predicts that the greater the number of legislators, the greater the likelihood that they will receive only very small bribes and therefore decide to ban corruption.

Second, again all else equal, [17] decision-making groups will supply more private-interest statutes than decision-making individuals.[18] The difficulty of coordination can lead groups to supply statutes even when they earn a collective payoff less than the collective cost the statute imposes. An individual | whether an autocrat or a democratically elected president | would not do so. This second hypothesis contradicts the implications of transaction-costs analysis. Baysinger, Ekelund & Tollison (1980) argue that the transaction costs of purchasing a statute increase with the size of the political control group. They then suggest that private-interest statutes should be most common where the decision-making group is small. Our model predicts the opposite: the greater the number of legislators, the more acute the coordination problems, and the greater the probability that legislators will supply legislation that costs them more than the wealth it transfers.

Third, the better the information voters possess, the larger will be the average bribe paid. The greater the percentage of informed voters, the greater the percentage who respond to the actions their legislator has personally taken, the larger $C_{ps}$, and the smaller $C_o$. As $C_o$ falls and $C_{ps}$ rises, the size of the bribes paid also rises.

When legislators pass private-interest statutes, they irritate voters and hurt efficiency. Effectively, they impose an externality on their colleagues | on those who opposed the statute as well as on those who supported it. Were they able to coordinate their actions, they could demand bribes that compensated themselves for those costs. Yet coordination must often be public and most modern democracies contain voters who resent bribes. As a

[16] Committees, disciplined factions, and political machines serve in part to reduce the coordination problems of large legislatures. See, e.g., Crain & Tollison, 1980.

[17] Autocrats often incur lower political costs for dispensing private-interest statutes | in which case all else will not be equal.

[18] Empirical evidence consistent with this hypothesis appears in, e.g., McCormick & Tollison, 1980.

result, legislators often cannot coordinate their bribe-taking with each other. Unable to coordinate, they each agree to support private-interest statutes for bribes far smaller than the costs they thereby incur. In the process, they also become more amenable to e®orts to ban bribes. Unable to capture the high bribes in a legalized regime anyway, legislators more readily accept pressure from voters to ban bribes and fund the necessary enforcement machinery.

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