An Expected Value Analysis Of The Role Of Secret Shoppers In Combating Petty Corruption

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Abstract :One common form of public-sector petty corruption is the extortion performed by low-level bureaucrats against citizens when they request (require) facilitating payments to provide needed approvals that they control as part of their job function. This paper examines the effect of "secret shoppers" in combating petty corruption. We first develop a model of a single play interaction between a citizen and a bureaucrat to uncover the condition under which the citizen will pay the requested facilitating payment. The model is then extended to include the possibility that the citizen may in fact be another government official with the authority to sanction the bureaucrat. This model is used to determine what factors may be taken induce the bureaucrat to not request facilitating payments. We show that both the size of a monetary sanction and the perceived probability that a citizen is in fact a government official with the authority to sanction the bureaucrat's behavior affect the propensity to extort. We conclude with policy implications and suggestions for further research.

Key Words: White-collar crime, extortion, corruption, public sector, facilitating payments

INTRODUCTION

This paper examines the effect of "secret shoppers" in combating petty corruption. One common form of public-sector petty corruption is the extortion performed by low-level bureaucrats against citizens when they request (require) facilitating payments to provide needed approvals that they control as part of their job function. Facilitating payments had the lowest joint probability of detection and punishment of the five types of illegal acts included in a case-based study of corruption in the public sector in Bolivia conducted by Murphy [1].

In this paper we first develop a model of a single play interaction between a citizen and a bureaucrat to uncover the condition under which the citizen will pay the requested facilitating payment. The model is then extended to include the possibility that the citizen may in fact be another government official with the authority to sanction the bureaucrat. This model is used to determine what factors may be taken induce the bureaucrat to not request facilitating payments. We conclude with policy implications and suggestions for further research.

LITERATURE REVIEW

Pellegrini and Gerlagh [2] in their research on the causes of corruption identified three themes. These themes included (1) institutional factors such as the role of democracy [3], (2) the regulatory burden imposed on the economy [4], the legal origins of a country [5, 6]. In this paper we focus on institution factors at the micro rather than macro level by honing in on the expected value maximizing decisions of individual government functionaries. After all, institutions

and organizations don't making decisions. The individuals within the institutions make decisions and the direction of the institution, and eventually society as a whole, is simply the result of all of these individual decisions that have been made.

Georgiev [7] noted that large-scale corruption at the low levels of society functions as a form of the public redistribution of prosperity in the "amorphous pseudo-democratic country". He also noted that corruption at the higher levels of society is indicative of lack of public interest in the governance process. While bribery by low-level government functionaries may in fact be an income redistribution mechanism it may not be the most efficient, and certainly leads attitudes towards corruption that foster a culture of corruption. Morris and Klesner [8] noted that the simple perception of corruption has a stronger effect on the erosion of public confidence in major political institutions than does actual participation in corruption. The more that individuals are forced to engage in corrupt activities, such as payment of bribes "requested" by government functionaries, the more widespread becomes the perception of the existence of corruption.

Low-level, public-sector corruption occurs at the intersection between the private and public sectors, when individuals and business are required to seek government approval for or registration of specific activities or transactions. The ability of minor government officials to extort these facilitating payments arises when the conditions identified by Klitgaard [9] are present. The conditions include government monopoly, discretion in interpreting

'law' or 'procedures', and a lack of direct accountability. Government monopoly exists when the government requires the specific transactions or events be registered with the government. For example, most government require that real estate and motor vehicle transactions be registered, that building permits the acquired or that businesses be licensed. Such 'permissions' are granted by the government, or really by government functionaries, a monopoly power vested in the government exists.

Minor government officials have the ability, because of information asymmetry or private knowledge to interpret 'laws', 'regulations' or 'procedures' to either facilitate or impede the timely processing of a transaction. Note that laws, regulations, and procedures were placed within quotation marks because most citizens don't really know what those laws, regulations or procedures are. This information asymmetry gives government functionaries the ability to creatively interpret the same for their benefit or that of the government. These officials often request facilitating payments, or small bribes, which are common in developing countries, and in exchange for the payment are expected to perform their job function efficiently and in the citizen's favor [10]. There is little control over the actions of a government functionary at a window dealing with a citizen and so little control of requests for or payment of facilitating payments.

In fact in some societies the ability to request facilitating payments is viewed as part of one's job rights and the proceeds are expected to be shared with superiors. Argandoña [10] noted that public opinion tends to condone facilitating payments because they are often assumed to be an unavoidable entitlement. In addition, in many countries, low wages, a lack of professionalism among public officials, disorganized government offices are used to rationalize facilitating payments. Facilitating payments are such an accepted part of doing business that even the anti-bribery provisions of the Foreign Corrupt Practices Act allows for such payments to expedite certain government actions when they affect the timing but not the outcome of the government official's decision [11].

Given that facilitating payments may be endemic in developing countries, and other countries as well, and that they are accepted, condoned, and their practice can be easily justified, why bother with them? Facilitating payments have the pernicious effect that they lead to the formation of a culture of corruption. Consequently facilitating payments are the bridge to more serious forms of corruption. Combating such behavior is difficult because it is an expected behavior, however, 'secret shoppers' may be useful tool to combat such petty corruption.

SECRET SHOPPERS

A secret shopper is a government official with the authority to sanction other government functionaries who, in the conduct of a transaction with the secret shopper, request or demand a facilitating payment. The objectives of undercover operations to combat petty corruption are to (1) reduce the harm imposed on citizens by corrupt government functionaries, (2) reduce the perception that corruption is pervasive and hence transform the culture a governmental entity where a culture of corruption has evolved, and (3) combat corruption with minimal cost. The use of secret shoppers in an undercover operation reduces that probability of the use of entrapment as a defense should the undercover operations result in legal action.

In our study the government functionary is presumed to be a predisposed person, an individual who would have likely committed the same crime had the secret shopper not been present. Deis [12] notes that a '. . . predisposed person poses a threat to society because of the likelihood he or she will engage in criminal activity, without government solicitation, under normal market conditions.' In practice the identification of such predisposed government functionaries can be based on complaints received from citizens or may result from the use of undercover secret shoppers as part of corruption prevention program. In any case, by focusing investigative action on the identification and sanctioning of predisposed government functionaries the probability of a defense based on the charge that the petty corruption offense was a government-manufactured crime can be minimized.

FORMAL MODELS

Our analysis begins with the case of a single bureaucrat (B) interacting with a citizen (C). All public-sector bureaucrats are presumed to possess private information about their requests for facilitating payments and their transaction approval criteria. This means that they don't know what other bureaucrats are demanding. In this one-stage game the citizen presents a transaction that must be approved by the government. Prior to submitting the transaction for approval C must prepare an application form. The time and effort required to complete the required form are presumed to be proportional to the value of transaction approval, which is assigned a value of V. The cost incurred by C to prepare the necessary application, given by A, can be stated as:

$$A = aV, \text{ where } 0 < a < 1.$$
$$(1)$$

The citizen must also pay a mandated processing fee (P) whose cost is proportional to the value of the transaction such that:

$$P = cV, \text{ where } 0 < c < 1.$$
$$(2)$$

The bureaucrat does not know V, but knows upon reviewing the transaction, whether or not all requirements (q) for proper approval have been met.

q = 1 if all requirements have been met, otherwise q = 0.

The citizen, on the other hand, does not know q but does know its distribution and so to C q is a probabilistic variable and not a decision variable. This occurs because the bureaucrat, as noted above, is assumed to have private knowledge or discretion in the interpretation of "law", "regulations" or "procedures" related to transaction approval.

1. Model I

The bureaucrat may extort a facilitating payment or bribe (b, $b \geq 0$). The citizen must then decide to pay the bribe (p = 1) or forgo payment (p = 0). If the citizen pays the bribe then the transaction will be recorded even if q = 0, otherwise the transaction may be recorded but with a delay where the cost of the delay (D) is proportional to the value of the transaction:

$$D = dV, \text{ where } 0 \leq d < 1$$
(3)

The sequence events in this game are as follows:

Step 1: C engages in a transaction which must be recorded,

Step 2: C prepares the necessary application form with a cost of $A = aV$,

Step 3: C submits the transaction for approval and pays the mandated transaction processing fee $P = cV$,

Step 4: B decides whether or not transaction approval criteria have been met and demands a non-negative bribe $b \geq 0$ and B estimates the probability that C will pay a facilitating payment if one is requested, denoted as e, where $0 \leq e \leq 1$.

Step 5: C decides whether to pay the bribe (p = 1) or forgo the bribe (p = 0), and

Step 6: If C paid the bribe (p = 1) then the transaction is approved (t = 1) whether or not q=1. If C did not pay the bribe (p = 0) the transaction is approved with a probability of t = q < 1 and C incurs the delay cost D.

The project expected value to C is thus given by the following[1]:

$$\text{If } p = 1 \text{ then } EV_{C1} = t(V\text{-}b) - aV - cV$$
(4)

$$\text{If } p = 0 \text{ then } EV_{C2} = tV - aV - cV - dV$$
(5)

C would be indifferent about paying the bribe when $U_{C1} = U_{C2}$. Setting equation 4 equal equation 5 and solving for b we find that:

$$b = \frac{dV}{t}$$
(6)

Obviously, then, as the cost of delay increases the bribe that C is willing to pay will also increase. In addition, the amount of the bribe that C is will to pay will vary directly and proportionally with increase in the value of the approval to C. On the other hand as t approaches 1, b approaches dv. An increase in the probability that the transaction will be approved without payment of the bribe results in a decrease in the equilibrium bribe payment.

At this point the expected value for B, ignoring B's legitimate compensation, is given by:

$$EV_B = pb$$
(7)

This expected value is deterministic, not probabilistic. If C decides to pay the bribe then $p = 1$ and B's expected value is b. On the other hand if C decides not to pay the bribe then $p = 0$ and so $U_B = 0$. In this model, given that B does not face any risk, the wealth maximizing action on B's part is to always demand a facilitating payment or bribe.

2. Model II

We now extend this simple model by introducing the probability that any given C is another government employee (S) with the power to impose sanctions on B if B requests a facilitating payment. B's subjective expected

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[1] Expected value is the product of a payoff and payoff probability. Individuals as assumed to risk neutral when computing expected value. Utility, on the other hand, takes risk preferences and especially risk aversion, into account. We do not explicitly model risk preference and so expected value rather than utility is the quantity to be maximized by the citizen and bureaucrat.

probability that any given C is an S is given by *s* where *0 ≤ s ≤ 1*. We further assume that S is empowered to impose a sanction or fine (F) that is a multiple of the facilitating payment requested such that:

$$F = mb, \text{ where } m > 0 \tag{8}$$

With this slight modification B's expected value becomes more complex. B must weigh the cost of a potential fine against the reward gained when C makes the facilitating payment (bribe) using B's expectation that the bribe will be paid if requested.

Whereas in Model I we had a linear or sequential sequence of events in Model II B must make a decision that will affect B's expected value.

If B request a facilitating payment then
$$EV_{B1} = (1-s)(eb) - s(m)b \tag{9}$$

If B does not request a facilitating payment then $EV_{B2} = (1-e)0 = 0$ (10)

Setting equation 9 equal to equation 10 and solving for both s and m we can determine the indifference points for both *m,* the multiplier used to compute the fine if one is given, and *s* the probability that any given C is really an S. Solving for *m* first we find that:

$$m = \frac{e - es}{s} \tag{11}$$

Recall that *p* is a deterministic not probabilistic. However, *e* is B's subjective expectation or intuitive probability estimate that C will make a requested facilitating payment. As *e* increases the indifference point for *m* also increases. Nevertheless, as shown in equation 11 the net subjective expectation (*e – es*) that the citizen C will make the requested facilitating payment is adjusted downwards by the product of *e* and *s*. As the subjective expected probability that any C is an S approaches 1 the need for fine imposition approaches zero because *m,* the fine multiplier approaches zero. At the same time, because of the inverse relationships between *m* and *s* in equation 11, as the probability that C is really an S increases the fine that B is willing to risk decreases.

The following Figure shows the effect on *m* of increasing *s* from 0.10 to 0.20 when e ranges from 0.00 to 1.00. As shown in Figure 1, an increase in the subjective expected probability that a citizen is a government "secret shopper" has a significant effect on reducing the required fine multiplier.

Figure 1

Effect of Changes in the Perceived Probability of Bribe Payment s and

Subjective Expected Probability that any C is an S on the Fine Multiplier

$$m = (e – es)/s$$
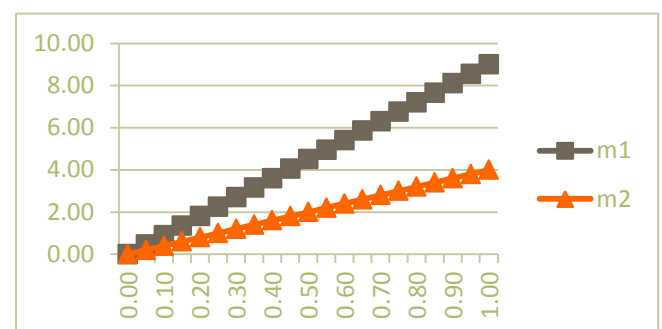
Again setting equation 9 equal to equation 10 and this time solving for *s,* the probability that C is an S, we find that B will be indifferent when:

$$s = \frac{e}{e+m} \tag{12}$$

Again, as with equation 11, the two independent variables, *e* and *m* this time, have opposite effects on *s*. As *e* increases, the risk that any given C is really an S (that any given citizen is really a government "secret shopper") that B is willing to bear also increases. This makes intuitive sense because if B has a higher expectation of receiving a facilitating payment then the cost-benefit tradeoff shifts away from the effect of the fine and towards the income from the payment. On the other hand, as the fine multiplier, *m >1*, increases the risk that B is willing to bear of requesting a facilitating payment from an S decreases. This too makes intuitive sense because as the risk of fine imposition increases the attractiveness of requesting a bribe decreases.

As above, we can see the effect of changes in *m* on *s*. In Figure 2 below, *e* increases from 0.00 to 1.00 on the x axis while *m* is set equal to 1 for the computation of *s1* and 2 for the computation of *s2*.

Figure 2

The Effect of Changes in the Perceived Probability of Bribe Payment and Fine Multiplier on Subjective Expected Probability s = e/(e+m)
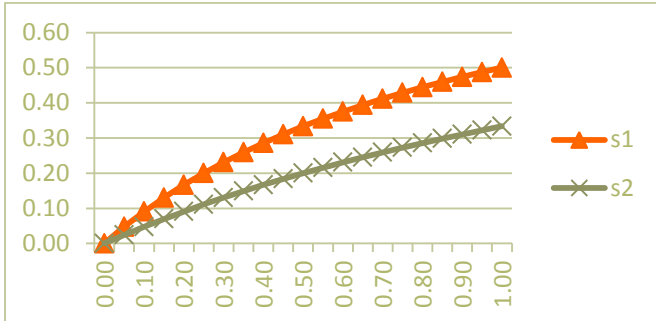
As shown in equation 11, an increase in s, the perceived expectation that C will pay the bribe b, while holding e constant results in a decrease in m, the fine multiplier.

CONCLUSION

As we saw with Model I, which really focused on C's actions and decisions, the bribe that C is willing to pay increases with both the value of the approval to C and the cost of approval delay. On the other hand as the probability of approval without bribe payment approaches 1 the bribe that C is willing to pay decreases. Several policy actions can be taken by a government to reduce the cost of delay and to increase that probability that approvals will be granted without bribe payment.

To reduce the cost of delay a government must ensure that all submissions are either rejected or approved within a stated time period. While the imposition of such a policy is easy, its execution is more problematic. One way to deal with processing goals is to compensate government functionaries for meeting processing time targets or to penalize them when targets are missed. In the case of compensation for meeting processing time targets this, in essence, shifts the burden of bribe payment from citizens to the government. In addition, rather than accepting illicit payments the government functionaries receive a legal, and taxable, bonus for meeting their targets. The imposition of a penalty for failure to meet processing time targets functions much like a fine.

To increase the probability that applications are approved two actions need to be taken. First, citizens must know what the requirements for approval are so that they can prepare documents that meet the stated requirements. Second, government functionaries must be motivated to approve all qualified applications. This might be accomplished by supervisory review of all rejected applications. This review should require that government functionaries justify all rejects by demonstrating how the rejected application failed to meet laws, regulations, and procedures.

The second model focused on the government functionaries actions in a risky environment, one where there was a risk that any given citizen might be a government "secret shopper" with the authority to penalize the government functionary for requesting a bribe. In this model it appears that two actions can be taken to moderate government functionary behavior. By increasing the perceived subjective probability assessment s that any given C is an S the likelihood that B will request a bribe decreases. This can be done by reducing the value of e in equation 12 by reducing the probability that citizens will pay bribes. Grassroots-level efforts to stigmatize both bribers and bribe payment may affect e. In addition, increases in the size of fines by increasing the fine multiplier, m, so that the cost of paying a single fine far outweighs the benefits of repeated bribery. Job termination, rather than payment of a fine, with an accompanying prohibition of future public-sector employment may be an effective deterrent.

To accomplish the goal of reducing or eliminating facilitating payments the culture of corruption that exists in many societies must be addressed. This may be accomplished most expeditiously by (1) increasing the perceived probability and those who request facilitating payments will be caught, (2) that the sanctions imposed when caught are sufficiently severe so that potential costs far outweigh potential benefits, and (3) reward government functionaries for rapid performance of their assigned duties, and (4) educating the citizenry so that they understand that payment of bribes is not a socially condoned behavior.

There is hope for institutions and consequently for society. Hechanova, et al. [13] demonstrated, within the context of a government hospital in the Philippines, that several specific actions can help build a culture of integrity. These actions included (1) articulating integrity as an institutional value (2) clarifying acceptable behavior with codes of conduct and appropriate policies, the role modeling of integrity value by institutional leader, and engaging employees in the process of culture building.

FUTURE RESEARCH AND LIMITATIONS

Future research should test the propositions of this study. Experimental economics may be a valuable tool to test these propositions and to gain further insight into the effects of perceived probability that a citizen is a "secret shopper" and sanction size on the behavior of low-level government functionaries.

This study was based on the analysis of a single interaction between a citizen and a bureaucrat. In practice a bureaucrat will face a significant number of citizens each day any of whom in our second model could be a "secret shopper". Future research should extend the single-play model to multiple plays.

This paper presents the results of an analytical analysis of human behavior. The results of this analysis only hold to the extent that the models developed accurately summarize rational human behavior.

Organisational culture and workplace corruption in government hospitals. *Journal of Pacific Rim Psychology*, 8(2), 62-70.

REFERENCES

[1] Murphy, D. (2004). Public Sector Corruption in Bolivia. *Journal of Governmental Financial Management, 53*(3): 44-52.

[2] Pellegrini, L., & Gerlagh, R. (2008). Causes of corruption: A Survey of cross-country analyses and extended results. *Economics of Governance, 9*(3), 245–263.

[3] Sung, H.-E. (2004). Democracy and political corruption: A cross-national comparison. *Crime, Law and Social Change, 41*(2), 179–194.

[4] Chafuen, A. A., & Guzman, E. (1999). Economic freedom and corruption. In G. P. O'Driscoll, K. R. Holmes, & M. Kirkpatrick (Eds.), 2000 *Index of economic freedom*. Washington D.C.: Heritage Foundation.

[5] Glaeser, E. L., & Schleifer, A. (2002). Legal origins. The Quarterly Journal of Economics, 117(4), 1193–1229.

[6] La Porta, R., De-Silanes, F. L., & Shleifer, A. (1999). The quality of government. Journal of Law, Economics and Organizations, 15(1), 222–279.

[7] Georgiev, L. (2013). Corruption: A necessary or surmountable evil. *Megatrend Review. 10*(1), 83-100.

[8] Morris, S. D., & Joseph L. Klesner, J. L. (2010), "Corruption and trust: Theoretical considerations and evidence from Mexico," *Comparative Political Studies* 43(10): 1260.

[9] Klitgaard, R. (1988) *Controlling Corruption*, Berkeley, CA: University of California Press.

[10] Argandoña, A. (2005). Corruption and companies: The use of facilitating payments. *Journal of Business Ethics*, *60*(3), 251-264.

[11] Bolger, R. (2012, June). Facilitating payments: why best practice prevails over law. *International Financial Law Review*, p. 18.

[12] Deis, J. G. (2001). Economics, Causation, and The Entrapment Defense, *University of Illinois Law Review,* 2001 U. Ill. L. Rev. 1207.

[13] Hechanova ,M. R. M., Melgar,I., Patrick Z. Falguera, P. Z., & Villaverde, M. (2014).