

## 6. Corruption and Market Reform in China

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Heaven is high and the emperor is far away  
-A Chinese Proverb

### Introduction

Everyone knows that officials in China are corrupt. It would be difficult to find a China scholar who would disagree outright with this statement.<sup>1</sup> However, because official corruption is illegal, immoral or both, it is painstakingly concealed from the public and from researchers alike.<sup>2</sup> So, what do we do about it if we can't even measure it? Many authors have answered this challenge by using descriptive methods that discuss political corruption as a broad phenomenon that has commonalties of both cause and effect across many different situations.<sup>3</sup> These works often focus more on the effects and potential future effects of corruption than on explanations and possibly helpful responses to its existence.<sup>4</sup> In this paper, I propose that a solution to the problem of studying political corruption in China can be found in the analytic approach of game theory.<sup>5</sup> I model particularistic gift-giving from citizens to officials for necessary goods as a

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<sup>1</sup> As Manion puts it, "The basic premise that corruption is an empirical regularity and not an exceptional occurrence in politics is not equally problematic in all settings: even the most cursory review of the literature on corruption illustrates that political scientists writing about developing countries, authoritarian systems, and post-communist regimes have often considered the premise obvious" (p. 1.).

<sup>2</sup> Klitgaard discusses the difficulty this fact poses for empirical research on the subject: "Researchers find it difficult to study corruption empirically because the parties involved have every reason to keep data hidden..." (p. 30). Chan, Madsen, and Unger also recount the danger to local officials posed by flaunting corruptibility even when in a position of power and amongst a majority of corrupt fellow officials, p. 283.

<sup>3</sup> Chan, Madsen, and Unger, Meaney, and Oi, for example.

<sup>4</sup> Michael Johnson, in "The Systematic Consequences of Corruption: A Reassessment," a paper presented at the International Political Science Association meeting in Oxford in March of 1994, states that scholarly debates about the harm or help corruption might be to development "tend to rely too much upon anecdotes, hypothetical cases, and speculative linkages between corruption and future social outcomes."

<sup>5</sup> An added note: the measurement problem for game theory is limited in that we need to understand general relationships, contexts and structures but do not need to come up with accurate numbers of cases and other rigorous measures. This is very beneficial in studying corruption.

product (equilibrium outcome) of choices made by different players attempting to maximize their individual payoffs in the context of certain clearly understood and common priors (a specific institutional framework and incentive structure).<sup>6</sup> Using this method, we can then proceed to a discussion of how part of a “stably corrupt system” such as China’s might be altered or broken by exploring how changes in the system and the incentive structure might shift players’ choices and thus the equilibrium outcome. In this way, I hope to replace interesting but vague and finally unhelpful descriptions of modernization, democracy and marketization as ‘natural’ and long-term cures for corruption<sup>7</sup> with a more concrete discussion of specific policy options and institutional and political structural changes that can begin to address corruption and its related problems in the short to medium term (though may not promise to eliminate it)<sup>8</sup>.

Thus, using game theory, not only can we hope to explain the macro phenomenon of corruption as an aggregation of individual choices<sup>9</sup>, but we will also discover that it takes extreme environmental changes to crack corruption as the modus operandi of Chinese citizen/official interactions.

### **Political Corruption**

Most authors serve up some sort of general definition of political corruption at some point that involves public officials deviating from some set of expectations, norms, laws, duties and/or regulations and using public office, power and/or influence for some sort of private-regarding (or sometimes institutional-serving) gain -- pecuniary, status or otherwise.<sup>10</sup> Because it is clear and

<sup>6</sup> I do not take any effort in this paper to defend rational choice assumptions in general or game theory as a methodology in particular. See Tsebelis, 1990, pp. 32-33 for an excellent discussion of why and under what circumstances a rational choice approach is valid and useful.

<sup>7</sup> “When it considers anti-corruption policies at all, the literature on corruption in developing countries gives advice that sounds fatalistic. It is not that the advice is false, only that it may overlook policy tools that can be used in the meantime to reduce, though not to eradicate, various kinds of corruption” (Klitgaard, p. 68). Bicchieri and Rovelli include the long-term increasing social cost of systemic inefficiency as an ingredient in their model of corruption. Alats, 1968, pp. 30-31 lists some of the social costs associated with endemic corruption.

<sup>8</sup> It is important to note that focusing on how to completely (or nearly completely) eliminate corruption is neither realistic nor terribly helpful in the current situation (and the full and sudden realization of which would pose too great a social and economic cost in practice, as pointed out by Klitgaard, pp. 26-27).

<sup>9</sup> The Principal of Methodological Individualism states that all social phenomenon can and should be explained in terms of the actions of individuals operating under prevailing constraints (Elster 1983).

<sup>10</sup> Many authors and institutions begin with some sort of minimalist definition and then expand it through categorization or specification: Kwong, p. ix; Friedrich, 1966, p. 74; Huntington, 1968, p. 59; Sands, p. 86;

brief, makes no cultural assumptions about appropriate behavior, and contains no value judgments, Hussein Alatas' general definition is perhaps one of the best: Corruption is the abuse of trust in the interest of private gain. This is also an excellent general definition for this paper because it highlights, at the most basic level, the nature of corruption as a conscious and intentionally self-serving human act – thus suggesting some form of rationality or payoff maximization calculation.

### **Gifts For Goods: A Specific Type Of Political Corruption**

We call corrupt a public servant who accepts gifts bestowed by a private person with the object of inducing him to give special consideration to the interests of the donor.

-Wertheim,

I model “gifts-for-goods” corruption described loosely here by Wertheim. This type of political corruption involves lower-level (mainly rural)<sup>11</sup> officials and local citizens. The citizen must turn to the official for any of a number of necessary goods over which the official has a monopoly.<sup>12</sup> The citizen knows that she is playing in the context of a generally (or stably) corrupt system and must decide whether or not to offer a gift in order to attain the good. Clearly, a corrupt official will not produce the good without a gift offer of a generally known going rate value (this rate is discussed in detail below) and the citizen will suffer a great loss if she exits play without the good. The following section highlights the structural, legal and social priors that define this specific form of corruption.

Gifts-for-goods corruption is mainly rural (Kwong, 1997 p. 58). It is political in that it takes place between a citizen and an official within a government bureaucracy -- at the intersection between state and society, in the public sphere. It takes place in the context of a long history of

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Hurstfield, 1967, p. 19; Senturia, 1931, vol. 4; Nye, 1967, p. 418; Andreski, 1968, p. 92; Lasswell and Rogow, 1963, p. 132.

<sup>11</sup> This type of corruption happens everywhere, but in a rural setting it is more obvious and clean of individual case-based external pressures that may alter the game entirely in limited and specific times and places. That is, the incentive structure of the game is more clear and generalizable. See Kwong, p. 58.

<sup>12</sup> Oi, pp. 151-152. These goods include access to contracts, access to jobs, access to market information, rationed goods and coupons, and collective lands and property.

both clientelist relationships (called *Guanxi* or patron/client relationships in China) and variously legal and moral official corruption (Gong, 1994 and Liu, 1979). It is quite specific to China that the offering of a gift to encourage the granting of a reasonable (legal and moral) request by an official is legal for the offering citizen (first made clear at the 24<sup>th</sup> Session of the Standing Committee of the Sixth National People's Congress of January 21, 1988 and stated in the third paragraph, Article 389 of the 1997 Criminal Code). However, both accepting the gift and offering a gift with an inappropriate request are illegal. Thus, despite a widespread absence of real accountability (Kwong, 1997; Lo, 1995; Oi, 1991; De Speville, 1997; and Manion, 1998) and the saturation of the system with corrupt officials (Chan, Madsen and Unger, 1992), there is a need for subtlety in the transaction. Finally, officials have a powerful monopoly over the necessary goods sought by citizens (Oi, 1991 and Manion, 1998) as burgeoning markets are almost always neither accessible nor affordable and citizens are in competition with one another to gain access to the rare and controlled goods (Bicchieri and Rovelli, 1995).

### **Gifts-for-Goods As a Game**

**(see pages 16 through 18 for the games' payoff structures and game trees)**

#### ***Play one: Action by the citizen***

The first action is taken by the citizen.<sup>13</sup> The citizen must make a request for a particular "good" over which an official has sole control. The citizen knows whether her request is appropriate (Game A) or inappropriate (Game B). In either case, she can choose one of two actions. The citizen either puts forth a freestanding request or puts forth her request along with a "gift." In any case where the gift and request will be accepted by an official, the citizen will lose  $G$ , (the value of the gift) but gain  $g$  (the value of the good).<sup>14</sup>

The citizen may also incur costs other than the value of the gift. If the citizen offers an illegal gift to a corruptible official, there is a slim chance that it will be caught and punished.<sup>15</sup> This very

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<sup>13</sup> A defining feature of this transaction is that play is not simultaneous. The citizen plays first. When it is his turn to play, the official knows what choice was made by the citizen.

<sup>14</sup> The official cannot take the gift and withhold the good. If the gift is taken, the good is proffered.

<sup>15</sup> Recall that giving a gift is illegal only when the request is inappropriate.

small cost is  $A_1$ . If she offers an illegal gift to an incorruptible official, the cost ( $B_1$ ) is greater, though still not very large.<sup>16</sup>

**Payoff structure for “Gifts for Goods” games**

(simple forms of the game and game trees appear on the following pages)

**Payoffs for Citizens (values listed are gained by the player):**

Receiving the “good” in question g

**Costs for Citizens (values listed are lost by the player):**

Forfeiting the “good” in question	0
Giving a “gift” (loss of value of gift)	$G^*$
Not having to give a gift	0
Offering “gift” with appropriate request	0
Offering “gift” with inappropriate request	$A_1$
Offer “gift” to incorruptible official	$B_1$
Offer “gift” to corruptible official	0
Not offering “gift” at all (playing it safe)	0

$L \gg A_1 > B_1$

**Payoffs for Corruptible Officials\*\* (values listed are gained by the player):**

Receiving a “gift” (value of gift)	$G^*$
Refuse Inappropriate request	$D_2$ (currently set as 0)

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<sup>16</sup>  $B_1$  is currently very small because of widespread corruption and the correlated lack of support for snitches both among local colleagues as well as at higher levels of the bureaucracy.

**Costs for Corruptible Officials (values listed are lost by the player):**

Granting request without getting a “gift” or refusing a request that has a “gift” attached to it	$G^*$
Refusing a request that had no “gift” attached	0
Accepting illegal “gift” (possibility of being caught and possible repercussions)	$A_2$
Not accepting illegal “gift” (with any request)	0
Grant (or consent to) appropriate request	0
Refuse appropriate request	$B_2$
Grant inappropriate request	$C_2$

$$C_2 > A_2 > B_2$$

\* The value of  $G$  is a function of the sub-scripted values (see Table 5)

\*\* If incorruptible, the following two costs supersede the aforementioned payoffs:

Receiving a “gift” under any circumstances	$-\infty$
Granting request without getting a “gift” or refusing a request that has a “gift” attached to it if incorruptible	0

**GAME A: Appropriate Request Payoffs**

all payoffs are listed citizen first, then official

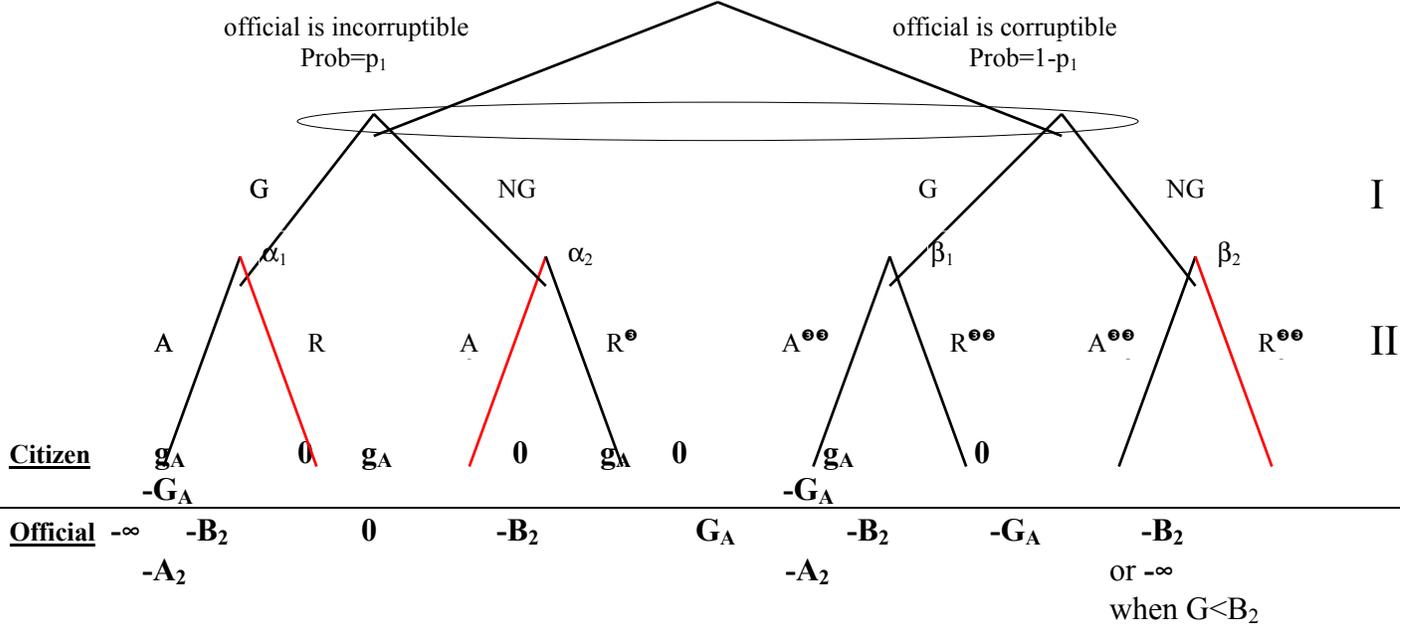
		Corruptible Official		C I T I Z E N	Incorruptible Official	
		A	R		A	R
G	G	g-G, G-A <sub>2</sub>	0, -B <sub>2</sub>		g-G, -∞ -A <sub>2</sub>	0, -B <sub>2</sub>
	NG	g, -G	0, -B <sub>2</sub>	g, 0	0, -B <sub>2</sub>	

**GAME B: Inappropriate Request Payoffs**

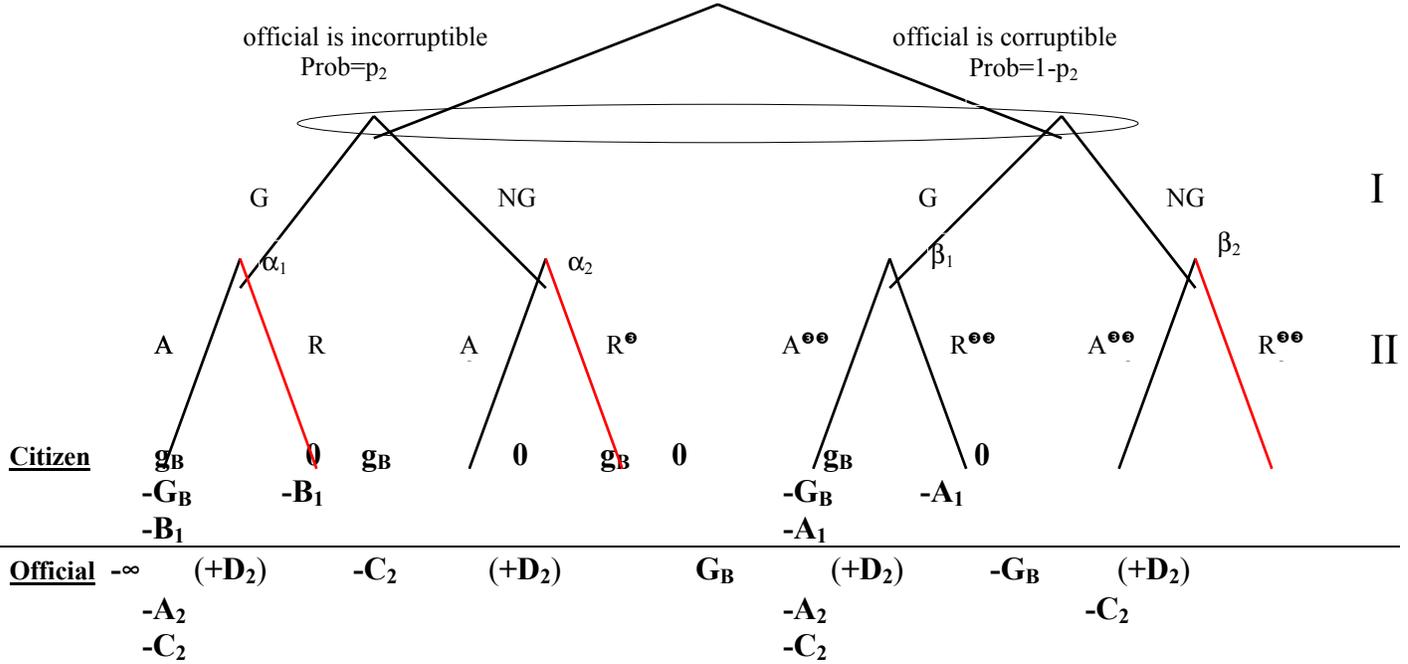
all payoffs are listed citizen first, then official

		Corruptible Official		C I T I Z E N	Incorruptible Official	
		A	R		A	R
G	G	g-G-A <sub>1</sub> , G-A <sub>2</sub> -C <sub>2</sub>	0-A <sub>1</sub> , (+D <sub>2</sub> )		g-G-B <sub>1</sub> , -∞-A <sub>2</sub> -C <sub>2</sub>	0-B <sub>1</sub> , (+D <sub>2</sub> )
	NG	g, -G-C <sub>2</sub>	0, (+D <sub>2</sub> )	g, -C <sub>2</sub>	0, (+D <sub>2</sub> )	

**GAME A: Appropriate Request**



**GAME B: Inappropriate Request**



***Play Two: Action by the Official***

All officials incur some cost through refusing an appropriate request ( $B_2$ ) or granting an inappropriate request ( $C_2$ ) as these are both illegal actions and may be discovered and punished.  $C_2$  is much greater than  $B_2$  only because the action of granting an inappropriate request has a much greater chance at being discovered, turned in, and proved.<sup>17</sup>  $B_2$  is, in practice, very small.

There is also a cost associated with accepting an offered gift to fulfill a request, which is, for the official, always illegal. There are two types of officials: corruptible and incorruptible. For the corruptible official, the cost is simply  $A_2$  which measures the possibility of being caught added to the possible repercussions if caught.<sup>18</sup> This cost is still smaller than  $C_2$  alone as the gift-giving tends to be subtle and purposefully not clearly attached to receiving any particular good (the connection between giving a gift and receiving a particular good is unclear to outside observers, but this game is a model of situations in which, in the eyes of the players involved, the offering of a gift is plainly part of a specific bargaining process for a specific good).  $A_2$  is, however, bigger than the minute  $B_2$ . For the incorruptible official, the cost of accepting the gift is, by definition,  $-\infty$ , as this choice is simply unavailable to him.

An important feature of this model is that while a corrupt official gains  $G$  if he accepts an offered gift, he also loses  $G$  if he chooses to fulfill a request with no bribe attached. The game is modeled this way because it assumes competition among citizens for the good in question. By accepting a request with no offer of a gift, the official forfeits that good without payment in a context in which a payment of  $G$  could almost certainly be found from another citizen in a new game (had the official retained the good).  $-G$  is used here just to capture the intuition of the official losing out if he gives over the good without getting a bribe. However, an infinitely large negative payoff could be used instead of  $-G$  because the point here is that corruptible officials have the power of monopoly that allows them to force gift-giving into being the only viable strategy for citizens when faced with a corruptible official. That is, the corruptible official simply never chooses to accept a request without a gift attached. This is a very credible strategy as the

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<sup>17</sup> That is,  $B_2$  and  $C_2$  are not differentiated in the written law.

<sup>18</sup>  $A_2$  is actually a smaller punishment when officials can make it seem that the gift was not solicited. Article 386, 1997 Criminal Code. As stated earlier, officials and citizens are very subtle in this regard. Also in reality,  $A_2$  should increase as  $G$  increases but I ignore that for this paper. See Article 386.

citizen loses more if they do not get the good than the corruptible official loses if he does not get the bribe.<sup>19</sup> This dynamic becomes much clearer through the calculations of the expected utilities of different strategies below.

Finally,  $D_2$  is added to the model as a variable that could potentially be made to be a positive value. In China's current situation, its value is zero, but if altered policies attached a reward and/or protection to rejecting inappropriate requests,  $D_2$  may become a factor affecting either players' strategies or other game parameters (such as the minimum value of  $G$  that must be offered in order to get an acceptance from a corrupt official).

### **Game Analysis**

The interesting question is under what circumstances (game parameter values) the official accepts or rejects the different types of offers (appropriate or inappropriate and with or without gifts attached). Also, how does the official's strategy choice affect whether or not choosing to attach a gift to her request is a payoff maximizing and thus preferentially chosen strategy for the citizen. Put simply, under what circumstances is gift-offering and gift-accepting the dominant strategies for both players. Finally, what potential policy or social implications does the model suggest and are there any extra-game issues that may be of interest.

In order to answer the posed questions, we may begin by exploring the possibility of dominant strategies for the official in order to finally determine a reasonable formula that reflects the citizen's expected payoffs for both the play of offering a gift with her request and not offering a gift (separately for appropriate and inappropriate requests). However, in order to set up for a discussion of expected payoffs, we must first settle the issue of gift value.

### ***Value of the Gift***

Because citizens are aware that the goods are held monopolistically, that citizens are in competition with one another to obtain these goods, and thus that a corruptible official will never

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<sup>19</sup> One might challenge that iteration would also display this dynamic. However, the reality of the situation is that while both citizens and officials do play this game over and over, it is always played with different players. Thus using iteration would make it seem that each official has the power of credible threat over each individual citizen they play. This is not the case. It is only because officials as a group hold a monopoly over goods for which citizens must compete that an individual corruptible official has the power to force a citizen into a certain strategy by simply never playing A when the citizen plays NG.

accept a request with no gift attached, they come into this game with the knowledge that there is a pre-set “going rate” for acceptable gift value. If this “going rate” is not matched by the player in question, the official can afford to default to always rejecting the request as he will retain the good and re-play the game with another citizen who is willing to ‘pay’ the going rate. For the citizen, any rate is acceptable as long as payoffs outweigh costs overall. Any rate that makes the game worth playing and the gift worth taking is acceptable to the official. Thus, there is a range of gift values that would be acceptable as the going rate.

As we can see from the extensive form of the game, for a corruptible official to accept an appropriate request (Game A) with a bribe attached, the bribe must be worth slightly more than the cost of accepting a gift from a citizen making an appropriate request minus the cost of rejecting an appropriate request (minimum  $G_A > A_2 - B_2$ ). However, this is not the only restriction placed on the gift’s minimum acceptable value in Game A. In order for playing this game to be worthwhile for the official, the going rate of the gift must also be greater than the cost of rejecting an acceptable application (minimum  $G_A > B_2$ ). The explanation for this lies in the fact that the cost to the corruptible official of rejecting an acceptable application is  $B_2$  while the cost to the corruptible official of fulfilling a request with no gift attached is infinitely large because this response would not only lose him the gift (and the good) but would also alter the equilibrium strategies of the game (game A only) to not offering a gift for the citizen and accepting the request for all officials. Clearly, this is not an acceptable option for the corruptible official as he can no longer benefit from his willingness to be corrupt.

In Game B, where the citizen’s request is inappropriate, it is only if the value of the offered gift is greater than the cost of accepting a gift from a citizen with an inappropriate request that the official will accept the citizen’s request. To belabor a point, the going rate of  $G$  is greater than  $A_2 + C_2$  as citizens within a corrupt system would only bribe the officials with a gift that would cause an acceptance. Obviously, the gift size has to be bigger to get an inappropriate request granted than for an appropriate request.

For both games, the citizen also makes restrictions on the gift value. For the citizen to approach an official for a good, she must know that if she offers a gift to a corruptible official, it will both be acceptable and will be of a value such that her expected utility of playing the game

with a bribe is greater than her costs for the same play. Clearly, this maximum gift value is determined by the citizen's payoffs. In the next section we will determine the expected payoffs of various strategies for games and all player types as well as the maximum gift value that makes the game still worth entering for the citizen. Table 5 is a summary table that lays out the expected payoffs for players' optimal strategies as well as the gift's going rate value range (minimums and maximums for both games).

### *Official's Expected Payoffs*

From the extensive form of the game (and the table below), one immediately sees that there are several nodes at which the official has a clearly dominant (payoff maximizing) choice no matter the values of the parameters of the game. Both types of officials reject inappropriate requests that have no bribe (there is no benefit to any other strategy). Incorruptible officials will always reject a request that is accompanied by a bribe. They will also accept appropriate requests that are not connected to a bribe as they will never accept a gift and are thus just doing their job. Finally, corruptible officials will always reject a request with no bribe attached. When the request is inappropriate, this play is clearly payoff maximizing. When the request is appropriate this action is the only one that will always maintain game play and thus maintain a stably corrupt system with continued positive payoff for the official. These always dominant moves are highlighted in **Table 2: Official's dominant choices from specific nodes**

Request Type (Game)	Node Identification	Dominant Choice	Payoff	Payoff of the Rejected Choice
appropriate (A)	Alpha <sub>1</sub>	reject	-B <sub>2</sub>	-∞ - A <sub>2</sub>
appropriate (A)	Alpha <sub>2</sub>	accept	0	-B <sub>2</sub>
appropriate (A)	Beta <sub>2</sub>	reject	-B <sub>2</sub>	-G <sub>A</sub> or -∞ if G <sub>A</sub> < B <sub>2</sub>
inappropriate (B)	Alpha <sub>1</sub>	reject	D <sub>2</sub> (0)	-∞ - (A <sub>2</sub> +C <sub>2</sub> )
inappropriate (B)	Alpha <sub>2</sub>	reject	D <sub>2</sub> (0)	-C <sub>2</sub>
inappropriate (B)	Beta <sub>2</sub>	reject	D <sub>2</sub> (0)	-G <sub>B</sub> - C <sub>2</sub>

Because of these clearly payoff maximizing choices, the only important expected utility calculations for the official are those for the strategies  $RA'A'R''$ , and  $RA'R''R''$  when the citizen puts forth an appropriate request (Game A) and only  $RR'A'R''$  and  $RR'R''R''$  if the request is inappropriate (Game B). This is true because the expected utilities for any other strategies must be less than for these within their respective games (because of the values shown in table 2).

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**Table 3: Expected utilities of certain of the official's strategies**

$q_G$  = The probability that a citizen will offer a gift with her request

$q_{NG}$  = The probability that a citizen will chose not to offer a gift

Obviously  $q_G$  and  $q_{NG}$  have different values in the two different games

GAME A: modelling appropriate requests

$$EU_{RA'A'R''} = p [q_G (-B_2)] + (1-p) [q_G (G - A_2) + q_{NG} (-B_2)]$$

$$EU_{RA'R''R''} = p [q_G (-B_2)] + (1-p) [q_G (-B_2) + q_{NG} (-B_2)]$$

If the game is being played, then  $G > A_2 - B_2$  and  $G > B_2$ . Therefore,  $RA'A'R''$  is the official's best strategy as its expected utility is greatest of the two whenever the game is played.

GAME B: modelling inappropriate requests

$$EU_{RR'A'R''} = p [q_G (D_2) + q_{NG} (D_2)] + (1-p) [q_G (G - A_2 - C_2) + q_{NG} (D_2)]$$

$$EU_{RR'R''R''} = 0 + p [q_G (D_2) + q_{NG} (D_2)] + (1-p) [q_G (D_2) + q_{NG} (D_2)]$$

If the game is being played, then  $G > A_2 + C_2$ . As long as  $D_2$  remains zero, all the red parts of the formula drop out and  $RR'A'R''$  is the official's best strategy.

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***Citizen's Expected Payoffs***

For the citizen, we must determine the expected payoffs for both the strategy of offering a gift and of not offering a gift as her best strategy is unclear and, indeed, depends on the value of certain game parameters as well as the official's expected strategy.

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**Table 4: Expected utilities of the citizen's strategies**

$q_a$  = The probability that an incorruptible official will accept a request with a gift attached

$1-q_a$  = The probability that an incorruptible official will reject a request with a gift attached

$q_r$  = The probability that a corruptible official will accept a request with a gift attached  
 $1-q_r$  = The probability that a corruptible official will reject a request with a gift attached  
 $s_a$  = The probability that an incorruptible official will accept a request with no gift  
 $1-s_a$  = The probability that an incorruptible official will reject a request with no gift  
 $s_r$  = The probability that a corruptible official will accept a request with no gift attached  
 $1-s_r$  = The probability that a corruptible official will reject a request with no gift attached  
 These all have different values for the different games.

#### GAME A: modelling appropriate requests

$$EU_G = p [q_a (g-G) + (1-q_a)(0)] + (1-p) [q_r (g - G) + (1- q_r)(0)]$$

$$EU_{NG} = p [s_a (g) + (1-s_a)(0)] + (1-p) [s_r (g) + (1- s_r)(0)]$$

If the game is being played, then  $G > A_2 - B_2$  and  $G > B_2$

RA`A`R`` is the official's dominant strategy and the red parts drop out.

#### GAME B: modelling inappropriate requests

$$EU_G = p [q_a (g - G - B_1) + (1-q_a) (- B_1)] + (1-p) [q_r (g - G - A_1) + (1-q_r) (- A_1)]$$

$$EU_{NG} = (0) [p (1-2s_a) + (1-p) (1-2s_r)]$$

If the game is being played, then  $G > A_2 + C_2$ . As long as  $D_2$  remains zero, RR`A`R`` is the official's dominant strategy and the red parts drop out.

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### **Table 5: Citizens' expected utilities (general and at minimum acceptable gift value) and going rate gift value**

#### Game A: Appropriate request

**Minimum gift value** that must be offered (once citizen decides to offer a gift) in order for acceptance:

At node Alpha, no size gift will be accepted.

At node Beta,  $G > A_2 - B_2$  and  $G > B_2$

**Maximum gift value** that still gives the citizen a positive return:  $G < g - \frac{p(0)}{1-p}$

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Utility to the citizen to offer a gift:  $EU_G = p(0) + (1-p)(g - G)$

Utility to the citizen to offer the minimum acceptable gift:  $EU_G = p(0) + (1-p)(g - A_2 - B_2)$

Utility to the citizen to not offer a gift:  $EU_{NG} = p(g) + (1-p)(0)$

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Game B: Inappropriate request


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**Minimum gift value** that must be offered (once citizen decides to offer a gift) in order for acceptance:

At node Alpha, no size gift will be accepted.

At node Beta,  $G > C_2 + A_2$

**Maximum gift value** that still gives the citizen a positive return:  $G < g - A_1 - \frac{p(0 + B_1)}{1 - p}$

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Utility to the citizen to offer a gift:  $EU_G = p(0 - B_1) + (1-p)(g - G - A_1)$

Utility to the citizen to offer the minimum acceptable gift:  $EU_G = p(0 - B_1) + (1-p)(g - C_2 - A_2 - A_1)$

Utility to the citizen to not offer a gift:  $EU_{NG} = -Q$

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**Policy Implications**

[the reformers] are searching for cats that, regardless of colour, can catch mice, although they may now be facing rats or worse.

- Levy

A process of [policy formulation] moves spasmodically within a restricted set of possibilities, priorities, switching from one to another and different aspects being weighed in the balance from one point to the next.

- Hickson and McCullough

In the following sections, I will highlight 4 of the most interesting policy directions and other corruption-curbing possibilities suggested by my model: introducing competition amongst officials; increasing accountability and punishment costs; introducing rewards and protection for officials refusing inappropriate requests; and morality education. Any response to corruption in China would ideally include more than one of the suggested changes below as well as an analysis of which options may be the most viable in terms of support and implementation.

**Introducing Competition (cracking the official's monopoly over goods and introducing choice among officials)**

It has been suggested by Rose-Ackerman in 1978 (p. 278) that “ the role of competitive pressures in preventing corruption may be an important aspect of a strategy to deter bribery of low-level officials.” Many other authors have also suggested a relationship between increased

competition and cracking gifts-for-goods types of corruption.<sup>20</sup> In 1978, Rose-Ackerman suggests that a very small number of honest officials may be able to crack the type of corruption studied here if there is an increase in numbers of officials to whom citizens can turn for the goods needed. Currently, most scenarios have one official holding sole allocative control over a good. Shleifer and Vishny (1993) highlight the importance of official cooperation among themselves in protecting a system of gifts-for-goods corruption. Ades and Di Tella (1994) and Bliss and Di Tella (1997) show that exogenous increases in market competition may be able to reduce corruption in the bureaucracy. Finally, Theobald suggests a link between privatization and lowered corruption (1990, p.156 specifically).

I have previously discussed that, all else being equal, two of the key reasons that gifts-for-goods corruption persists as a dominant interaction between citizens and lowest-level officials in the rural areas are: the lack of competition among officials for the potential to receive citizen gifts; and the non-existence of viable alternate sources for the necessary goods to which the citizens could turn. In my model, a stable equilibrium of corruption is powerfully maintained by the fact that officials can refuse to accept requests that are not accompanied by a gift because citizens as an aggregate have no other option but to play the game for access to the goods. This is reflected in my model by the payoffs for the official at node Beta<sub>2</sub>. Where the corruptible official is not offered a gift, his payoffs in my model suggest that: 1) the setting of game-play is such that an official can assume that he will exit the game with a gift if he wishes (that is, he will lose the gift value another citizen would have given if he accepts a request without a gift); and 2) the corruptible official knows he is in a position of power and will in no cases accept a request without a gift (as seen by the infinitely large negative payoff in game A), thus maintaining game play. In fact, if competition of some form that altered the official/citizen power relationship to the latter's advantage was introduced into my model, corruptible officials would be more likely to accept appropriate requests without a gift attached (costs at node Beta<sub>2</sub> would decrease to zero, making accept the dominant strategy). This would then alter citizen behavior in cases where they have an appropriate request such that they would no longer feel compelled to offer a gift. However, a gift offer in the correct value range would still need to be offered in the case of an inappropriate request.

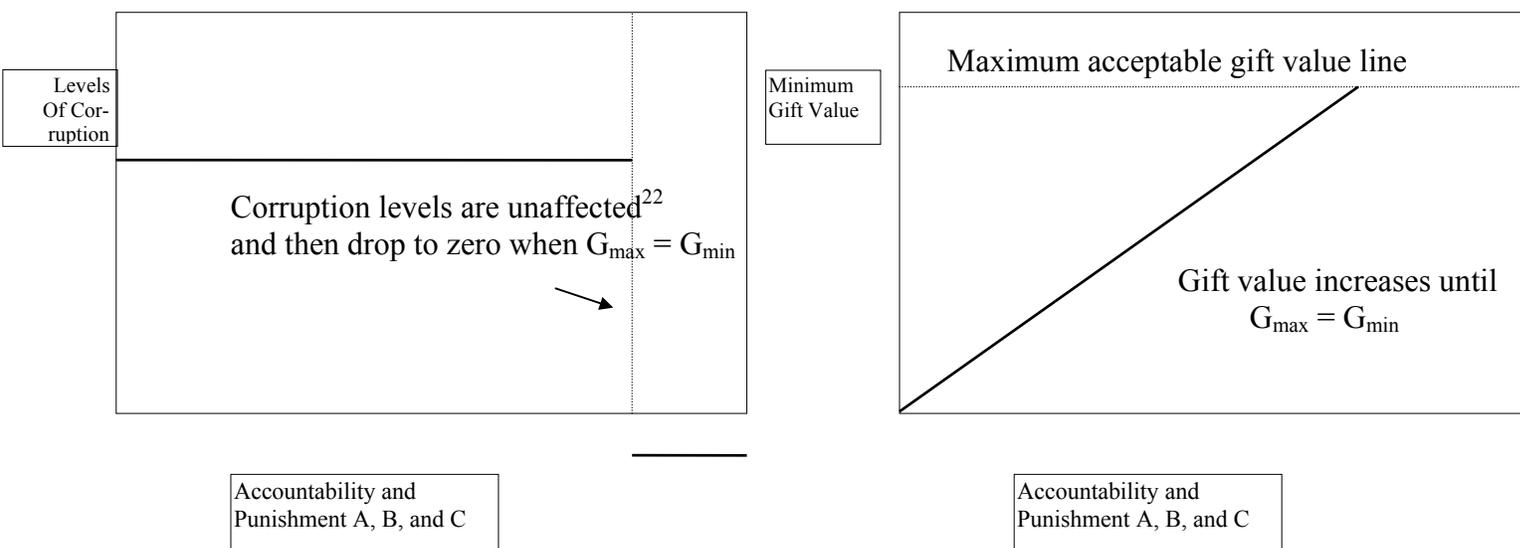
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<sup>20</sup> These are listed immediately below in the text.

**Increasing Accountability and Punishment costs (increasing A, B, and C)**

Increasing the expected cost of corruption makes it less appealing. Much of the focus of Chinese anti-corruption campaigns has been on morals – on increasing the “psychic cost” of corruption.<sup>21</sup> However, altering more concrete incentives is often suggested by authors as the proper answer to corruption. That is, if we can catch and strongly punish officials, we can stop corruption. As it turns out, even fairly large (likely unrealistic) increases in costs associated with accepting a gift (A), refusing an appropriate request (B) and granting an inappropriate request (C) do not alter players’ equilibrium strategies. As the comparative statistics of Appendix A and the following diagrams show, it is actually the minimum acceptable value of the gift that is affected up to a point where  $G_{min}$  and  $G_{max}$  are the same (at which point the game loses all positive payoffs for both players). This pattern suggests that increased punishments may in fact be to the benefit of both officials and more wealthy citizens that can afford more costly gift-giving.

**Table 6: The Effects of increased Accountability and Punishment Costs on Levels of Corruption and on the Gift Value range**



<sup>21</sup> Manion, p. 46.

**Introducing Rewards and Protection for Officials Refusing Inappropriate Requests (increasing the value of D)**

Well-run, trustworthy crime reporting centers for official corruption have only been in existence in a useful form in China since the 1980's and are truly an urban phenomenon.<sup>23</sup> Besides protection and support for those who may chose to turn colleagues in for corruption of various sorts, there have also been minor forms of reward for such honest behavior. However, these have been very small and only available in the most limited of situations. In the present model, the variable D represents possible rewards for honest officials who are known to refuse inappropriate requests no matter what the gift offered. It is very clear that if the reward offered for personal honesty (D) is greater than the value of the gift offered minus the cost of punishments for accepting a gift and for granting an inappropriate request ( $G - A - C$ ), then payoffs are greater for corruptible officials to refuse an inappropriate request no matter what than to grant the request with a gift offered.

Unfortunately, the logistics of implementing such a reward in a fair and honest way are currently overwhelming for China. As well, it is very likely that the introduction of new and powerful anti-corruption institutions in China, while it might break certain types of corruption at the lowest levels, could well encourage more serious types of corruption at higher levels.<sup>24</sup> However, Hong Kong and Singapore have well-respected and functioning autonomous anti-corruption agencies that do seem to be affecting corruption as well as public opinion and general morality.<sup>25</sup> The ICAC in Hong Kong and the CPIB in Singapore may be able to serve as models for the Mainland in the future.

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<sup>22</sup> Obviously levels of corruption do not remain exactly stable and then go to zero, but for present purposes, this is a reasonable representation of the dynamic.

<sup>23</sup> Lo, p. 62.

<sup>24</sup> Klitgaard, p. 133.

<sup>25</sup> Klitgaard, pp. 114-115 for the moral affects within the public.

### **Social/Cultural/Moral Changes (increasing the value of p)**

But what I wish particularly now to emphasize is that history proves it to be impossible to secure proper government by merely relying on the power of the law to control officials when the latter are not the right men for their jobs. It is equally futile to expect efficient government if, having the right men in their proper positions, you hedge them about by a multitude of minute and harassing prohibitions.

- Wang An Shih

Experience in Hong Kong strongly suggests that it is very important to garner public support and get new blood involved if a government or an agency hopes to mount a serious and successful offensive against corruption.<sup>26</sup> However, without actually affecting the morals of the officials who drive gifts-for-goods corruption, actions will not reflect public sentiment. In fact, my model suggests (see Appendix B) that there needs to be a very substantial increase in the number of incorruptible officials in the official population (p) in order to actually alter dominant citizen behavior to not offering a gift with a request (especially in the case of Game B where the citizen's request is inappropriate).<sup>27</sup>

The very important question of how to alter official morality has been a focus of Chinese anti-corruption campaigns in the past and is a focus of many authors who are studying corruption in China. I will not go into that question here except to say that there is hope in terms of public ripeness for any work towards this end. In today's China, social forces are becoming very perturbed over the levels of corruption.<sup>28</sup> There is no question that many Chinese citizens feel that corruption of most sorts is morally wrong (especially in extreme cases like where a gift is taken to fulfill an inappropriate request). As well, although there are disagreements among them on the causes of corruption, the leadership and official publications all agree that unless

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<sup>26</sup> De Speville, p. 39.

<sup>27</sup> See Appendix B for a demonstration of this fact.

<sup>28</sup> The Tiananmen demonstrations were the most dramatic example of this. Zhao Ziyang stated that corruption was the biggest source of public displeasure. See Findlay and Chiu, p. 153.

corruption can be brought under control, it poses a serious threat to the reforms if not to the regime.<sup>29</sup> So, it is likely that any effort at moral reform will at least not die before it is born.

### **Blockers**

Despite the several routes toward combating corruption or limiting its negative effects suggested by this model, it is far from clear that the national government or even specifically the ‘reformers’ among them is willing to pursue any and all options to combat corruption. In fact, there are at least three blockers that currently exist to pursuing any of a number of possible ‘best’ methods to fight corruption. The first is that central leaders may have short-term priorities that supersede combating corruption. This problem is exaggerated by factional infighting at the center and by central/provincial or central/local power struggles.<sup>30</sup> The second blocker to efficiently battling corruption is that many of the reformers in power may feel at their core that corruption is a temporary and necessary evil for a greater and more long-term plan. This perspective is based on the theory that the route to modernization is through neo-authoritarianism during which time economic inequalities, suppression of civil society and rampant corruption are acceptable by-products.<sup>31</sup> Therefore, unless political stability becomes seriously and immediately threatened, corruption is not a priority.<sup>32</sup> Finally, corruption at the lowest levels does not only affect officials at the lowest levels. To some higher-level cadres, maintaining a cooperative and self-protective corrupt system all the way down guarantees their own padding against censure.<sup>33</sup> Feichtinger and Wirl’s model of corruption describes top-level reaction to lower-level forms of corruption as being cyclic and often entailing tacit allowance of gifts-for-goods types of corruption.

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<sup>29</sup> Levy, p. 4, referring to Ostergaard and Peterson, p. 89-91 in which there is reference to several talks and works by Deng Xiaoping, Chen Yun, Bo Yibo and Qiao Shi stating that corruption is a serious threat.

<sup>30</sup> Many authors mention this issue. For example, see Teiwes (1979).

<sup>31</sup> Levy, pp. 22-23 is excellent on this point.

<sup>32</sup> Kwong, p. 150 and Lo, pp. 65-66.

<sup>33</sup> Lo, p. 4.

## Conclusion

Using an empirically-based game theoretic model to describe gifts-for-goods corruption in rural China, I have been able to explore and discover weaknesses and strengths in various possible medicines for the disease of corruption. While there may be political, logistic and structural blockers to implementing many of the reforms suggested above, this paper has been able to provide some support for various directions being pursued in the race to alter the system of stable corruption before China's socio-political stability and economic modernization goals are irreversibly threatened by emerging disgruntled social forces and growing systemic costs.

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**Appendix A: Increasing accountability and punishment costs**

All of the values used here are arbitrarily chosen. However, they do reflect the general relationships between the variables (except for Q which is probably much higher in reality but the higher the Q value the more dramatic corruption is made to look - the point is that even if Q is very small, corruption as an equilibrium is still quite stable). As well, through running several different plausible combinations of values through these experiments, it became clear that the basic conclusions demonstrated here do not change drastically. This is all to say that it is the demonstration and not the specific values that are important here.

**Game A: (EU gift assumes the citizen offers the minimum acceptable gift)**

P	1-p	g	Q	A2	B2	EU gift	EU nogift	Gmin	Gmax
0.45	0.55	25	3.125	3	1	11.24375	9.53125	4	24.83
0.45	0.55	25	3.125	3	2	11.79375	9.53125	5	24.65
0.45	0.55	25	3.125	4	2	11.24375	9.53125	6	24.45
0.45	0.55	25	3.125	4	3	11.79375	9.53125	7	24.22
0.45	0.55	25	3.125	5	3	11.24375	9.53125	8	23.66
0.45	0.55	25	3.125	5	4	11.79375	9.53125	9	22.92
0.45	0.51	25	3.125	6	5	10.83375	9.65625	11	22
0.45	0.55	25	3.125	6	6	12.34375	9.53125	12	21.88
0.45	0.55	25	3.125	7	8	12.89375	9.53125	15	20.3
0.45	0.55	25	3.125	7	9	13.44375	9.53125	16	17.71
0.45	0.55	25	3.125	8	9	12.89375	9.53125	<b>17</b>	<b>12.5</b>

**Game B: (EU gift assumes the citizen offers the minimum acceptable gift)**

P	1-p	g	B1	C2	A2	A1	Q	EU gift	EU nogift	Gmin	Gmax
0.45	0.55	30	4	6	3	6	3.75	4.7625	-3.75	9	17.65909
0.45	0.55	30	4	6	3	6	3.75	4.7625	-3.75	9	17.65909
0.45	0.55	30	4	7	3	6	3.75	4.2125	-3.75	10	17.65909
0.45	0.55	30	4	7	6	6	3.75	2.5625	-3.75	13	17.65909
0.45	0.55	30	4	8	6	6	3.75	2.0125	-3.75	14	17.65909
0.45	0.55	30	4	8	7	6	3.75	1.4625	-3.75	15	17.65909
0.45	0.55	30	4	9	6	6	3.75	1.4625	-3.75	15	17.65909
0.45	0.55	30	4	9	8	6	3.75	0.3625	-3.75	17	17.65909
0.45	0.55	30	4	10	6	6	3.75	0.9125	-3.75	16	17.65909
0.45	0.55	30	4	10	7	6	3.75	0.3625	-3.75	17	17.65909
0.45	0.55	30	4	11	6	6	3.75	0.3625	-3.75	17	17.65909
0.45	0.55	30	4	11	7	6	3.75	-0.1875	-3.75	<b>18</b>	<b>17.65909</b>

For both game A and game B, it takes quite high values of A, B, and C to cause the game to be not worth playing (i.e.  $G_{\min} > G_{\max}$ )

**Appendix B: Increasing the population proportion of incorruptible officials****Game A: (EU gift assumes the citizen offers the minimum acceptable gift)**

P	1-p	g	Q	A2	B2	EU gift	EU nogift	Gmin	Gmax
0.05	0.95	25	3.125	4	1	<b>20.74375</b>	-1.71875	3	24.83
0.1	0.9	25	3.125	4	1	<b>19.4875</b>	-0.3125	3	24.65
0.15	0.85	25	3.125	4	1	<b>18.23125</b>	1.09375	3	24.45
0.2	0.8	25	3.125	4	1	<b>16.975</b>	2.5	3	24.22
0.3	0.7	25	3.125	4	1	<b>14.4625</b>	5.3125	3	23.66
0.4	0.6	25	3.125	4	1	<b>11.95</b>	8.125	3	22.92
0.49	0.51	25	3.125	4	1	9.68875	<b>10.65625</b>	3	22
0.5	0.5	25	3.125	4	1	9.4375	<b>10.9375</b>	3	21.88
0.6	0.4	25	3.125	4	1	6.925	<b>13.75</b>	3	20.3
0.7	0.3	25	3.125	4	1	4.4125	<b>16.5625</b>	3	17.71
0.8	0.2	25	3.125	4	1	1.9	<b>19.375</b>	3	12.5

The interesting thing is that even with changes in L, A, and B, it still requires between about 45 and 55 percent incorruptible officials to make not offering a gift more valuable than offering one. Guesses in the literature of levels of corruption run from about 65 to 85 percent and even higher. For Game B, EU for not offering a gift is always negative.