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ABSTRACT

Transparency Gloves for Grabbing Hands? Politics and (Mis)Governance

Employing the canonical political agency model, this Paper studies the incentives of the government to provide high-quality services by reducing corruption. Acting as a principal in a moral hazard framework, the public disciplines the incumbent by replacing him if the generated output is unsatisfactorily low. The implications of the model indicate the importance of transparency, of the media, and of political contestability for taming corruption. The existing empirical evidence is shown to broadly support these conclusions.

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"Power tends to corrupt and absolute power corrupts absolutely"

Lord Acton

*"The most effective weapon against graft is information and publicity.
Corruption is like fungus, it thrives in dark and secretive places"*

(Kunda Dixit, "The Media in the Time of Kleptocracy")

1. Introduction

Governance affects economic policies and thereby economic development and growth. It has often been argued that sound governance is conducive to good economic performance and could be viewed as an engine of growth. Recent empirical research has developed measures of different aspects of governance and has related those to development indicators. This research invariably indicates the significance of lack of corruption, accountability, transparency and other measures for growth, development, and the quality of public services, see Hall and Jones, 1999, Kaufmann, et al., 1999, Mauro, 1995, Tanzi and Davoodi, 1997. Kaufmann, et al., 1999, for example, finds that a one-standard-deviation increase in any such measure causes between a two-and-a-half and four-fold increase in per capita incomes and a 15 to 25 percent increase in literacy.

The natural question to ask following this evidence is which social and political institutions improve governance and, in particular, reduce corruption. In a sense, this goes to the very basics of political theories, namely, how "to guard the guardians". The importance of a system of checks and balances has been long recognized and well

documented in the literature. Thus, North and Weingast, 1989, illustrate its importance in the context of the glorious revolution in 17th century England. In a different context, Alesina et al., 2002, study the tradeoff inherent in such system between restraining the government's voracity and enabling it to pass policy reforms.

In this paper, we provide a simple microfounded model that enables us to address this issue. The model draws on the political agency view of policy decision making, introduced in Ferejohn, 1986. As in that paper, the ruling government is viewed as an agent whose actions are only imperfectly monitored by the public – the principal. The ruling government is purely egoistic and is interested in maximizing private benefit, derived from appropriating part of public money. The voters' disciplining stick consists of its ability to replace the incumbent by electing a new government. Albeit, their power is limited by imperfect monitoring: deprived of having direct access to information on the ruler's actions, they have to infer them by only observing the outcome. The noise that interferes in the production function of outcome can be interpreted as the lack of transparency: the smaller is the noise the better can the ruler's action be verified by the public. This political agency framework has proved to be very useful in studying different aspects of electoral processes, see Persson and Tabellini, 2001, ch 4.

We find that the ruling government tends to be more corrupt the less transparent is the decision making. Indeed, lack of transparency magnifies the moral hazard problem in the interaction between the electorate and the ruler making the control of the latter more difficult. Further, the likelihood of the ruler's replacement also affects corruption incentives. This is manifested through two channels. First, when the political system makes it inherently difficult to replace a ruler, corruption tends to be higher. Second,

when the system is less democratic in the sense that only a small group of alternative candidates can potentially form a replacement, it also tends to increase, the reason being that when the decision making is only controlled by an oligarchy, the incumbent has a higher likelihood to come back to power in case of replacement. Thus, overall, the model predicts that a more open, democratic, political system should be less corrupt. Finally, an interesting implication of the model concerns the importance of the organization of the media. Here we find that corruption is positively related to the degree of media concentration. This result indicates the importance of free competitive media in reducing corruption.

This paper is related to the recent literature that studies the determinants of corruption. Some papers, specifically, Fisman and Gatti, 2002, and Treisman, 2000, have found, for example, that the extent of fiscal decentralization is one such important determinant. In particular, mostly in the cross- country context and (in the former study) also in the context of the US states, these studies present evidence that decentralization of government activity leads to lower corruption levels; see, however, Bardhan and Mookherjee, 2000, for a dissenting view on this matter.

Even more related is the still scant but developing literature on the effect of political structure on the level of corruption, see e.g., Persson, et al., 2001. In a recent contribution, Treisman, 2001, for example, finds that the length of democratic experience reduces corruption, and Lederman et., 2001, concur with this conclusion. Together these studies seem to imply that political turnover reduces corruption. Besley and Case, 1995, provide an additional, albeit indirect, piece of evidence. In their study of policies chosen by US governors, they found that those of the governors who faced term

limits tended to adopt less adequate fiscal policies than governors without term limits, which illustrates the importance of political constraints for implemented policies. These empirical studies can be viewed as providing supportive evidence for Olson's, 1982, theory of political coalitions. This theory suggests that entrenched rulers are more likely to adopt inefficient policies than those who face the threat of turnover. In a different but related context this idea has recently been developed in Acemoglu and Robinson, 2002.

There has also been some work on the significance of media and the organization of the media industry for governance indicators. Thus, Brunetti and Weder, 1999, detect a moderating effect of press freedom on corruption in their cross-country analysis. These results are reinforced in Adsera et al., 2000, and further supplemented by the analysis of conviction of US public officials on corruption charges; it generates very similar results.

The paper proceeds as follows. In the next section, we discuss the transition experience in Eastern Europe focusing on the issues raised in the paper. In section 3 the analytical framework is introduced, and its analysis is then performed in Section 4. Section 5 examines some implications following from the basic framework. Section 6 relates the main results to recent empirical findings, and Section 7 concludes with brief remarks.

2. Transition experience

The experience of the former communist countries of East Europe in their transition to democracy and free markets is very instructive for studying the interaction between media, political competition and quality of government and is illustrative of some of the main points made in this paper. While on average these countries score poorly on

governance, and corruption often features prominently in daily life, there are some profound differences across the countries. Countries which made a decisive break with the old regime, such as the Czech Republic, the Baltic states, Poland, and Hungary, appear to be making rapid progress in creating transparent governance, with only moderate levels of corruption and independent media. They seem to be gravitating towards adopting Western standards on all these scores. Thus, according to the latest Corruption Perceptions Index published by Transparency International for over 90 countries, Estonia is placed 28, Hungary 31, and Poland 44.

In other countries, however, such as Russia, Ukraine and especially the Central Asian states, the situation is markedly different. These countries are placed towards the very bottom of the Corruption Perceptions Index: Russia – 79, Ukraine – 83, Kazakhstan and Uzbekistan share 71th place. Interestingly, the media, which led the push for the reform in the former Soviet Union in early 90s, gradually became overtaken by groups of rich oligarchs with strong ties to the government. As a result, effective concentration of the media is often very high and its independence rather limited.¹ In addition, in several states political competition is almost non-existent. In fact, these elements frequently combine together. In Belarus, Ukraine and Kyrgyzstan, for example, incumbent presidents won overwhelming victories in recently conducted elections and only candidates loyal to the ruling regime were able to secure seats in the parliaments; in all cases, local and international observers alleged that elections were marred with intimidation of opponents, bribing and threatening of voters, ballot box stuffing and other irregularities. Control and manipulation of the media, especially in the course of these election campaigns, played an important part in the process. In many cases, intimidation

of journalists investigating corruption allegations took place; the most notorious is related to the disappearance of Georgy Gongadze, an opposition journalist in Ukraine, to which President Leonid Kuchma was linked. Reports on high-level corruption are extremely constrained in many CIS countries. In Kazakhstan, for example, threats and assaults were documented after the publication of an article about oil corruption (Global Corruption Report, 2001). There, mass media are overwhelmingly controlled by a few oligarchs intimately related to the government.²

3. The model

Consider an economy in which the population (electorate) is homogenous and where each individual (dynasty) lives indefinitely and seeks to maximize the discounted expected value of its output.³ We assume that aggregate output is distributed evenly across the population, thus restrict attention to a representative dynasty. We simply distinguish between an incumbent ($i=2$) and a newly elected government ($i=1$). The aggregate output in each period of time (time is discrete and denoted by the positive integers) is determined according to the following production function:

$$(1) \quad y_i^t = k_i (e - e^t) \cdot \varepsilon, \quad i=1,2$$

where e^t denotes the degree of corruption, that is a fraction of the 'public' endowment (given by e) that does not serve for public purposes; k_i denotes the government competence, and we assume incumbency advantage, $k_2 > k_1$; and ε , which is distributed uniformly in the interval $[1 - \Delta, 1 + \Delta]$, denotes a time-independent noise component. The higher the variance of the noise the more difficult it becomes to distinguish between a corrupt and a non-corrupt regime. This noise has at least two interpretations. It may be

related to the extent of transparency in the economy, say, public accessibility to information. Or else it may reflect exogenous shocks and thus be related to the economy's stability. We assume that the level of corruption is chosen before the realization of the shock. Note that our definition of corruption is broadly consistent with that used by international lending institutions such as the World Bank and the IMF, where corruption is perceived as "the abuse of public office for private gains".

We turn next to describe the political system. The baseline model considers a two-party system, where in each period the parties only differ in the amount of 'experience capital' they possess. An experienced government (an incumbent) can attain a higher level of expected output relative to a newly elected government, other things being equal. We further assume that elections are conducted in each period so as to determine whether to retain the prevailing regime or replace it, depending on the observed performance of the current regime. Without being excessively unrealistic, we assume that the electorate is myopic and makes a decision based only on current observed performance. The decision rule may however depend on the amount of experience possessed by the prevailing government (the electorate is able to distinguish between an incumbent and a newly elected government and modify the decision rule accordingly). The two parties are assumed to be purely *Downsian*. That is, they care for the well being of the electorate only to the extent that it serves their narrow interest (the ability to 'milk' the public treasury). Each party seeks to maximize the discounted expected value of gains from corruption.

The political game proceeds as follows. At the outset (the first stage), the electorate sets a rule, which defines a mapping $f_i : y_i \rightarrow \{0,1\}$ for each state of

government ($i=1,2$), which determines whether the government is re-elected ($f_i = 1$) or replaced ($f_i = 0$)⁴. In the ensuing continuation game which lasts indefinitely (the second stage), each party defines a *Markov* strategy, which determines the level of corruption for each state of government (for all periods of office). In order to simplify the analysis, we assume that there are only two levels of corruption, low or high, which are respectively denoted by \underline{e} and \bar{e} , where $e > \bar{e} > \underline{e} > 0$. We will restrict attention to a symmetric (*Markov-perfect*) equilibrium in the continuation game.

Without loss of generality (details are available upon request) we restrict the decision of the electorate to the class of cut-off rules set for each state of government ($i=1,2$). Then a *sub-game perfect equilibrium* in the two-stage political game is defined as follows. Let y_i^* , $i=1,2$, denote the cut-off levels of output for a newly elected government ($i=1$) and an incumbent ($i=2$), respectively. Namely, $f_i(y) = 1$ if and only if $y > y_i^*$. Let $e_i^*(y_1, y_2)$, $i=1,2$, denote the optimal level of corruption chosen by a newly elected government and by an incumbent, respectively, when the cut-off levels are given by y_i , $i=1,2$.⁵ Let V_i^e and V_i^o denote the discounted expected payoff for an elected party and a party in opposition, respectively, when the economy is in state i ; let U_i denote the discounted expected output, when the economy is in state i ; and let $p_i(e_i, y_i)$ denote the re-election probability of a government, when the economy is in state i , corruption is e_i and the cut-off is y_i . Last, denote by $0 < \delta < 1$, the discount factor.

Then the pair $\{y_i^*, e_i^*(y_1, y_2), i = 1,2\}$ describes a *sub-game perfect equilibrium* in the two-stage political game if:

$$(2) \quad e_i^*(y_1, y_2) \in \arg \max_{e_i \in \{\underline{e}, \bar{e}\}} \{e_i + \delta[p_i(e_i, y_i)V_i^e + (1 - p_i(e_i, y_i))V_i^o]\},$$

$$(3) \quad y_1^*, y_2^* \in \arg \max_{y_1, y_2} \{k_1(e - e_1^*(y_1, y_2)) + \delta[p_1(e_1^*(y_1, y_2), y_1)U_2 + (1 - p_1(e_1^*(y_1, y_2), y_1))U_1]\}$$

where,

$$(4) \quad V_i^e = e_i^*(y_1, y_2) + \delta [p_i(e_i^*(y_1, y_2), y_i) V_2^e + (1 - p_i(e_i^*(y_1, y_2), y_i)) V_i^o]$$

$$(5) \quad V_i^o = \delta [p_i(e_i^*(y_1, y_2), y_i) V_2^o + (1 - p_i(e_i^*(y_1, y_2), y_i)) V_i^e]$$

$$(6) \quad U_i = k_i(e - e_i^*(y_1, y_2)) + \delta [p_i(e_i^*(y_1, y_2), y_i) U_2 + (1 - p_i(e_i^*(y_1, y_2), y_i))U_1]$$

$$(7) \quad p_i(e_i, y_i) = 1 - G\left(\frac{y_i}{k_i(e - e_i)}\right), \text{ with}$$

$$(8) \quad G(\phi) = \begin{cases} 0 & \phi \leq 1 - \Delta \\ (\Delta + \phi - 1)/2\Delta & 1 - \Delta < \phi < 1 + \Delta \\ 1 & 1 + \Delta \leq \phi \end{cases}.$$

Conditions (2) and (3) define the optimal choices of the serving government with regard to corruption, and the electorate with regard to the replacement rule respectively. Equations (4)-(6) define a set of asset-value conditions, for the elected party, party in opposition and electorate, respectively. Finally, conditions (7) and (8) define the relationship between the cut-off rule chosen by the electorate and the replacement (re-election) probability, for a given level of noise (transparency).

4. Corruption equilibria

The electorate has basically four equilibrium configurations to consider, as there are two states in which the economy could possibly be and two levels of corruption: (a) $e_1 = \underline{e}$, $e_2 = \underline{e}$, (b) $e_1 = \bar{e}$, $e_2 = \underline{e}$, (c) $e_1 = \underline{e}$, $e_2 = \bar{e}$, (d) $e_1 = \bar{e}$, $e_2 = \bar{e}$. The optimal choice of

the electorate is obtained by first maximizing welfare for each configuration separately, and then choosing the welfare maximizing equilibrium configuration.

In configuration (a), the electorate elicits low level of corruption in both states ('incumbent' and 'new government'); it thus solves the following program:

$$(9) \quad \max_{y_1, y_2} \{k_1(e - e_1^*(y_1, y_2)) + \delta[p_1(e_1^*(y_1, y_2), y_1)U_2 + (1 - p_1(e_1^*(y_1, y_2), y_1))U_1]\}$$

subject to $e_i^*(y_1, y_2) = \underline{e}, i=1,2,$

where e_i^* are given by equation (2) and U_i are given by (6).

Employing (2) and (7), we re-write the incentive constraints of the maximization program in (9) as follows:

$$(10) \quad \underline{e} + \delta \left[1 - G\left(\frac{y_i}{k_i(e - \underline{e})}\right) \right] \cdot [V_2^e - V_1^o] \geq \bar{e} + \delta \left[1 - G\left(\frac{y_i}{k_i(e - \bar{e})}\right) \right] \cdot [V_2^e - V_1^o]$$

Condition (10) implies that the payoff from choosing a low level of corruption exceeds the payoff derived from choosing a high level of corruption. Current-period lower corruption gains are warranted by the prospect of a higher re-election probability, hence future corruption rents. The long run economic gains from remaining in office are captured by the term $V_2^e - V_1^o$, for which we derive an explicit expression below.

Since under configuration (a), in which corruption is low in both states of government, $k_2 > k_1$, using (6), it follows that $U_2 - U_1 = [(k_2 - k_1)(e - \underline{e})]/[1 - \delta(p_2() - p_1())] > 0$. Re-interpreting the maximization program in (9), the electorate seeks to maximize

$p_i()$, satisfying the constraints given in (10). In other words, the electorate seeks to maximize experience gains given that corruption is set at the low level in all states. Re-writing (9), we obtain:

$$(11) \quad \left[G\left(\frac{y_i}{k_i(\underline{e}-\bar{e})}\right) - G\left(\frac{y_i}{k_i(\underline{e}-\underline{e})}\right) \right] \geq [\bar{e}-\underline{e}]/[\delta(V_2^e - V_1^o)]; \quad i=1,2,$$

We turn to examine whether the simplified incentive constraints given in (11) are binding. Using (4) and (5) to obtain an explicit expression for the difference $V_2^e - V_1^o$, for the case of configuration (a), some algebraic manipulations yield:

$$(12) \quad V_2^e - V_1^o = \underline{e}/[1 + \delta - \delta(1 - \delta)p_1(\cdot) - \delta(1 + \delta)p_2(\cdot)]$$

Assuming an interior solution, that is $G(y_i/(k_i(\underline{e}-\bar{e}))) > 0$, and because equation (7) implies that $\partial p_i/\partial y_i < 0$, it follows from (12) that

$$(13) \quad \partial(V_2^e - V_1^o)/\partial y_i < 0, \quad i = 1,2$$

In words: the higher the threshold set by the electorate, the lower is the re-election probability, and hence the lower is the prospective gain from remaining in office.

Note that if both constraints are not binding, then by continuity one can slightly increase the probability of re-election in both states of government ('incumbent' and 'new government') by reducing both cutoffs slightly, while satisfying the incentive constraints. Suppose next, by way of negation, that only one constraint is binding. Consider the case

in which the constraint for $i=1$ is binding whereas the other constraint is not (the opposite case is symmetric and the argument is hence omitted). By slightly reducing the cutoff y_2 one can increase the re-election chances of an incumbent, thereby enhancing social welfare, while not violating the constraint for state $i=2$ by virtue of continuity (recall that the constraint in state $i=2$ is not binding). Furthermore, the incentive constraint for state $i=1$ is not violated either. To see that note that the left-hand-side of the incentive constraint for $i=1$ remains intact, whereas the right-hand-side decreases, by virtue of (13).

Moreover, it can be observed that in the optimum, $\frac{y_i}{k_i(e-\bar{e})} \leq 1 + \Delta$, otherwise, the cutoff, y_i , could be reduced without violating the two incentive constraints and enhance welfare, by increasing re-election probabilities in state i . Employing (7), then, yields the following simplified expression for the two (binding) incentive constraints:

$$(14) \quad \frac{y_i}{k_i(e-\underline{e})} = \frac{2\Delta(e-\bar{e})}{\delta(V_2^e - V_1^o)}; \quad i=1,2,$$

which implies, that in the optimal (interior) solution, $p_1 = p_2 = p$. Employing (7), (12) and re-arranging yields then:

$$(15) \quad p + \frac{(e-\bar{e})}{\delta\underline{e}} \cdot [1 - \delta(2p-1)] = \frac{\Delta+1}{2\Delta}$$

A necessary condition for an interior solution is that the left-hand-side in (14) increases with respect to p ; otherwise, one can increase p , thereby enhancing welfare, without violating the incentive constraints.⁶ It follows from (14) that in an optimal interior

solution, $\partial p/\partial \Delta < 0$. Intuitively, when the 'noise' intensifies, the electorate needs to raise the cutoff, so as to elicit the same level of corruption. An interior solution exists only in a sufficiently (but not too much) 'noisy' environment.

To sum up,

Proposition 1. The noisier the environment the smaller is the re-election probability.

This tradeoff lies at the core of this paper's argument. When the environment is noisy, eradicating corruption requires changing regime sufficiently often. Doing it is costly, due to loss of continuity in the functioning of the government, hence loss of experience. In the optimum, one should balance the gains from experience against the gains from low corruption. Co-occurrence of the two elements, namely a low level of transparency and relatively high switching costs, warrants corruption. One can extend the analysis above to the other equilibrium configuration. It is clear that in any state of the economy in which corruption is low, the cutoff output (hence re-election probability) is set such that the incentive constraint is binding. For states in which corruption is high, one simply sets re-election probability to either zero or one (pending on whether the expected output at the 'incumbent' state is lower or higher than the expected output in the 'new government' state, respectively). Notably, configuration (d) in which corruption is set to be high in both states requires no incentives, hence trivially implies that the regime is (optimally) never replaced so as to maintain experience gains throughout.

To simplify the analysis, we focus on two extreme equilibria given respectively by configurations (a) and (d), namely, 'Low Corruption' and 'High Corruption' and study

the choice between these two. Note that in the former configuration, regime is switched frequently often so as to elicit non-corrupt behavior, whereas in the latter configuration, the electorate allows for corruption so as to accumulate experience gains. The welfare measures for these configurations are given, respectively, by:

$$(16) \quad U_1^{LC} = \frac{1}{(1-\delta)} \cdot [(1-\delta p) \cdot k_1 \cdot (e - \underline{e}) + \delta p \cdot k_2 \cdot (e - \underline{e})],$$

$$(17) \quad U_1^{HC} = \frac{1}{(1-\delta)} \cdot [(1-\delta) \cdot k_1 \cdot (e - \bar{e}) + \delta \cdot k_2 \cdot (e - \bar{e})],$$

where p is given by the solution to (15).

Recall that we have shown that the optimal re-election probability is decreasing with respect to the 'noise', $\partial p / \partial \Delta < 0$. Suppose now that transparency in the economy is sufficiently low, namely the 'noise', Δ , is sufficiently high, formally, $p < \frac{e - \bar{e}}{e - \underline{e}}$. It is straightforward to verify that there exists a critical value, k_2^* , above which the equilibrium is the one with high corruption, whereas below which the low-corruption equilibrium is obtained. To see that note that both (16) and (17) are linear in k_2 , hence they intersect at most once in the $U_1 - k_2$ space (see figure 1). By virtue of our assumption that the noise is large enough, (17) is steeper than (16). Thus for k_2 large enough welfare is maximized for the 'high corruption' configuration (experience gains are large enough to warrant corruption). However, note that when the experience gains are negligibly small, $k_2 \rightarrow k_1$, the 'low corruption' configuration dominates the 'high corruption' one.⁷ By the intermediate value theorem, continuity implies the existence of k_2^* .

To sum up,

Proposition 2. Noisier environment and greater incumbency advantage lead to higher corruption levels at equilibrium.

5. Applications

A. Media organization and governance

The media, often described as the watchdog of democracy, has an indispensable role in fostering transparency and accountability in government. However, in case the government tightly controls the media, or when too much clout is wielded by a small bunch of media moguls with close ties to the establishment, the putative watchdog neither barks nor bites, it rather tends to save its bacon.⁸

To illustrate the potentially detrimental impact of a concentrated media on the level of corruption in the economy suppose that the media is controlled by a small fraction of the electorate, measured by the parameter $0 < \Delta < 1$. The degree of independence of the media, hence the transparency in the economy, is determined by the media tycoons, say the owners of the major broadcasting entities. To simplify, suppose that there are two levels of transparency, low and high, denoted respectively by $\underline{\Delta}$ and $\bar{\Delta}$, where $\underline{\Delta} > \bar{\Delta} > 0$. The former ($\underline{\Delta}$) refers to the case of a tightly controlled media (low transparency) and the latter ($\bar{\Delta}$) refers to the case of an independent media (high transparency). It is further assumed that $\underline{\Delta}$ is sufficiently large and that $\bar{\Delta}$ is small enough. Formally, let $p(\Delta)$ denote the implicit solution to equation (15). Then let

$$p(\underline{\Delta}) < \frac{e - \bar{e}}{e - \underline{e}} \text{ and } p(\bar{\Delta}) > 1 - \zeta \text{ for some positive but arbitrarily small } \zeta.$$

We extend the political game described in the previous sections, by including a preliminary stage in which the media moguls determine the level of transparency.⁹ Note that the special interest group (the media lobby) is small relative to the population, and can not manipulate voting in the continuation game after the transparency has been determined. Following our analysis in section 4, we define a threshold k_2^* , for each level of transparency, such that for all k_2 above the threshold the 'high corruption' equilibrium is obtained, whereas for all k_2 lower than the threshold the 'low corruption' equilibrium is obtained. We denote by \bar{k}_2^* and \underline{k}_2^* the thresholds for the high transparency (independent media) and low transparency (tightly controlled media) cases, respectively. By virtue of our assumptions, it follows that $\bar{k}_2^* > \underline{k}_2^*$.¹⁰ We further assume that $\underline{k}_2^* < \tilde{k}_2 < \bar{k}_2^*$, where \tilde{k}_2 denotes the 'governing' experience of an incumbent. That is, with low transparency the 'high corruption' equilibrium is optimal, whereas with independent media (high transparency) the 'low corruption' equilibrium is obtained (See figure 2, where LT and HT refer to low transparency and high transparency, respectively.). Note that by tightening the control of the media, gains from corruption are enhanced.

Suppose that $k_1 > 1$, which implies that corruption entails an excess burden, so that for any one-dollar 'stolen' from the public treasury by the government, the output (welfare of the electorate) is decreased by more than one dollar. Let G denote the discounted incremental aggregate gains from corruption derived by both parties due to a tightening of the control of the media; clearly, $G = \frac{\bar{e} - \underline{e}}{1 - \delta}$. Denote the corresponding discounted incremental aggregate loss suffered by the electorate by L . By virtue of the deadweight loss associated with corruption, it follows that $L > G$, for sufficiently small $\bar{\Delta}$.

To see that, note that when $p(\bar{\Delta}) \rightarrow 1$, then, employing (16) and (17), one obtains that

$$U_1^{LC} - U_1^{HC} \rightarrow [\delta k_2 + (1-\delta)k_1] \frac{\bar{e} - \underline{e}}{(1-\delta)} > \frac{\bar{e} - \underline{e}}{(1-\delta)}. \text{ If the media is sufficiently concentrated,}$$

so that $\alpha < G/L$, then the media moguls and the two parties find it desirable to conspire and restrain the independence of the media, for it creates a strictly positive surplus given by $G - \alpha L > 0$.

We sum up,

Proposition 3. The larger the concentration of the media the higher the likelihood of a conspiracy between the political elite and the media czars, which results in higher corruption.¹¹

B. Political competition

We examine next the effect of the competitiveness of the political system on the equilibrium level of corruption. To do this, we extend our earlier analysis to a multiparty system. Thus, let N^* denote the number of political parties in the political equilibrium. This number is inversely related to barriers to entry: the more open and competitive the political system the larger is N^* .¹²

Reformulation of the equilibrium asset conditions (4) and (5) yields:

$$(18) \quad V_i^c = e_i^*(y_1, y_2) + \delta[p_i(e_i^*(y_1, y_2), y_i)V_2^c + (1 - p_i(e_i^*(y_1, y_2), y_i))V_1^o]$$

$$(19) \quad V_i^o = \delta[p_i(e_i^*(y_1, y_2), y_i)V_2^o + (1 - p_i(e_i^*(y_1, y_2), y_i)) \cdot \frac{1}{N^* - 1} \cdot V_1^c]$$

The two incentive constraints are given by:

$$(20) \quad \left[G\left(\frac{y_i}{k_i(\underline{e}-\bar{e})}\right) - G\left(\frac{y_i}{k_i(\underline{e}-\underline{e})}\right) \right] \geq [\bar{e}-\underline{e}]/[\delta(V_2^e - V_1^o)]; \quad i=1,2$$

By virtue of the analysis in section 4, it follows that the two incentive constraints in (20) are binding. Moreover, it follows that re-election probability in both states (incumbent and new government) is equal. Denoting the common re-election probability by p and rewriting the asset conditions (18) and (19) yields:

$$(18') \quad (1-\delta p)V^g = \underline{e} + \delta(1-p)V^o$$

$$(19') \quad (1-\delta p)V^o = \delta(1-p)V^g / (N^* - 1)$$

It is easy to observe that $\partial(V^e - V^o) / \partial N^* > 0$. Thus, by virtue of the (binding) incentive constraints in (20), it follows that $\partial p / \partial N^* > 0$. To see that, note that when the number of parties increases, other things being equal, the right-hand side of (20) decreases. The slack in the incentive constraints allows an increase in the re-election probability, until the constraint becomes binding again. But then the low-corruption equilibrium becomes more advantageous and is realized for a wider range of the model parameters.

To sum up,

Proposition 4. The less competitive the political system the higher is the likelihood of higher corruption at equilibrium.

6. Transparency, media, political openness, and corruption: empirical evidence

The model predicts a moderating effect of transparency on corruption. The former concept, although featuring extensively in public debates, has been elusive to academic scrutiny. In particular, problems of definition and measurement have delayed empirical analyses of transparency. Some progress on these matters has been recently made. Conceptually, authors studying the issue, broadly agree that transparency means access to information, while lack of transparency is related to withholding of relevant information. Tanzi and Davoodi, 1997, in their empirical analysis of detrimental growth effects of corruption also attribute much of administrative failure to inadequate transparency. Recently constructed (mostly subjective) measures of both variables can be used as an indicative test of this relationship. Kaufmann et al., 2000, have constructed an index of voice and accountability, one of the important components of which is transparency. Its correlations with the index of law and order and other measures of quality of government presented by the same authors across countries are well above .70. More specifically, the Economist Intelligence Unit has compiled an index of transparency, which is currently available for over 100 countries; its correlations with different measures of governmental quality are of the same range.

The model also predicts a positive relationship between the concentration of the media industry and levels of corruption. While we are unaware of research that directly addresses this relationship, different related aspects of the effects of media organization on the quality of government have been studied. In particular, the role of media in

fighting corruption has been recently addressed. Brunetti and Weder, 1999, is probably the first contribution to this literature; they provide strong evidence on the relationship between press consumption and corruption in a cross-country setting. The index of newspaper circulation reported in World Bank, 2000, generates similar results. An increase in newspapers' circulation from the median to the maximum value reduces corruption by more than one and a half of a standard deviation, see Adsera et al., 2001. A simple correlation between a measure of press freedom as developed in the World Bank and corruption is -0.69 , see Stapenhurst, 2000.¹³ Adsera et al., 2001, provide very interesting evidence on the importance of the media as an instrument of restraining corruption in the US context. For the former, they have used an index of daily circulation of newspapers taken from the Statistical Abstract of the US per person; the average was 0.26. They have used data reported by the US Department of Justice on the number of convictions of public officials for violating corruption laws in the 80's and the 90's. (The average was 1.69 convictions per one hundred officials.) Using a variety of controls, they conclude that newspaper circulation has a significant effect on reducing the number of convictions; in particular, moving from the lowest to the highest levels of circulation decreases the number of convictions by more than one standard deviation. Perhaps even more directly related to the paper's thesis, Djankov et al., 2001, provide evidence on the positive association between the share of the media owned by the state and levels of corruption. The obvious interpretation is that media control by the state facilitates filtering of information flows and makes the entire system less transparent.

While it may not be easy to make operative the meaning of the openness of a political system, measures of a broader concept, the level of democracy, have been in

place for some time now. These measures, developed by several sources, such as Freedom House, Polity III, and others, invariably suffer from a drawback of being based on subjective valuations by independent observers. Yet, their extensive use both by academic researchers as well as some private consulting firms supplying information on country risk, suggests their value. Using this variable, Treisman, 2001, in his cross-country analysis detects a moderating effect of the length of democratic experience on corruption, although democracy itself is found to be non-significant. In contrast, Adsera et al., 2001, with a different regression specification find that democracy reduces corruption, although its impact is relatively small. Lederman et al., 2001, discern moderating effects on corruption of both democracy indicator and the length of democratic experience; in their cross-country panel analysis, a one-standard-deviation increase in democracy reduces the corruption index by 0.3, and a one-standard-deviation increase in democratic stability increases it by 0.54. Moreover, this paper compares presidential versus parliamentary regimes with regard to their effects on corruption, while carefully controlling for a host of other, cultural, geographic, and legal variables. The authors find that presidential regimes tend to be more corrupt, which is consistent with the above results, because presidential regimes tend to be associated with less parties than parliamentary systems.¹⁴

7. Conclusions

In representative democracies the major monitoring apparatus possessed by the electorate is voting franchise. The current paper illustrates the limits of this apparatus. Eradicating corruption is costly, for the existence of a fundamental agency problem makes it

necessary to change regime sufficiently often, hence it hurts the continuity of the regime and hinders the accumulation of experience. The key ingredient in the campaign against corruption is the media. An independent media enhances the transparency of the government decision process and mitigates the agency problem. An unduly concentrated media and/or one that is tightly controlled by the government aggravates the agency problem and renders low quality of government inevitable. Political contestability, namely, the openness of the political system to competition of rival candidates, is also found to be an important instrument to enhance the quality of government, whereas economy's instability is a detrimental factor in this regard.

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Appendix (not for publication)

We prove that once setting the optimal re-election probabilities, one can restrict attention to the class of cut-off rules, without loss of generality. Recall that a decision rule is defined by a mapping $f_i : y_i \rightarrow \{0,1\}$ for each state of government ($i = 1,2$), which determines whether the government is re-elected ($f_i = 1$) or replaced ($f_i = 0$) and consider the incentive constraint in state i inducing the serving government to choose a low level of corruption. Maintaining the text notation it follows that:

$$(A1) \quad \underline{e} + \delta[V_2^e - V_1^o] \cdot \int_{\underline{y}_i}^{\bar{y}_i} f_i(y_i) dH(y_i|\underline{e}) \geq \bar{e} + \delta[V_2^e - V_1^o] \cdot \int_{\underline{y}_i}^{\bar{y}_i} f_i(y_i) dH(y_i|\bar{e});$$

where $H(y_i|\tilde{e}) = G\left(\frac{y_i}{k_i(e-\tilde{e})}\right)$, $\bar{y}_i = k_i(e-\bar{e})(1-\Delta)$ and $\underline{y}_i = k_i(e-\underline{e})(1+\Delta)$.

Denote the supports of the CDF $H(y_i|\bar{e})$ and $H(y_i|\underline{e})$ by \bar{S}_i and \underline{S}_i , respectively. We partition the interval $[\underline{y}_i, \bar{y}_i]$ into three sub-sets as follows:

$$B_i^1 = \{y_i | y_i \in \bar{S}_i, y_i \notin \underline{S}_i\}, B_i^2 = \{y_i | y_i \in \bar{S}_i \cap \underline{S}_i\}, B_i^3 = \{y_i | y_i \notin \bar{S}_i, y_i \in \underline{S}_i\}$$

and construct an alternative decision rule f'_i , which satisfies the two incentive constraints ($i=1,2$) and dominate the decision rule f_i , namely (weakly) increases the re-election probability at state i . Define f'_i as follows:

$$f'_i(y_i) = \begin{cases} y_i \in B_i^1; f_i(y_i) = 1 & 0 \\ y_i \in B_i^3; f_i(y_i) = 0 & 1 \\ y_i \in B_i^2; y_i \geq \hat{y}_i & 1 \\ y_i \in B_i^2; y_i < \hat{y}_i & 0 \\ \text{otherwise} & f_i(y_i) \end{cases}$$

where \hat{y}_i satisfies $\int_{y_i \in B_i^2} f_i(y_i) dH(y_i|\underline{e}) = \int_{y_i \in B_i^2, y_i \geq \hat{y}_i} 1 \cdot dH(y_i|\underline{e})$

Note, that by employing the asset conditions in the text [equations (4) and (5)], after some tedious algebraic

manipulations, it can be shown that $\frac{\partial[V_2^e - V_1^o]}{\partial p_i} > 0$. Further, by changing the decision rule at state i ,

the only effect on the incentive constraint at the other state $j \neq i$, comes via the term $V_2^e - V_1^o$.

Obviously, any rise in the term $V_2^e - V_1^o$ reinforces the incentive to choose low corruption (Formally, the integral expression on the left-hand side of (A1) is necessarily higher than the integral expression on the right-hand side, in order to satisfy the incentive constraint). Thus, it suffices to show that p_i , the re-election probability at state i , (weakly) increases by switching from f_i to f'_i , to show that the incentive constraint for state j is satisfied.

We focus henceforth on the incentive constraint at state i , examining each branch of the decision rule separately. Consider the first branch. By reducing the re-election probability in scenarios that occur with positive probability only when high corruption prevails, one reinforces the incentive to choose low corruption. Thus, the incentive constraint is not violated. This does not affect re-election probability. Consider next the second branch. In this case the shift to the new decision rule increases the re-election chances in scenarios that occur with strictly positive probability only when low corruption prevails. This reinforces the incentive to choose low corruption and strictly increases the re-election chances if the set defined by the second branch is of strictly positive measure. It further reinforces the incentive to choose

low corruption by the rise in the term $V_2^c - V_1^o$. Finally consider the third and fourth branches. By construction of \hat{y}_i and by virtue of the fact that the noise distributes uniformly, it follows that the shift to the modified decision rule does not affect the incentive constraint, nor does it change the re-election probability. This completes the proof. ■

Figure 1: The Welfare Frontier

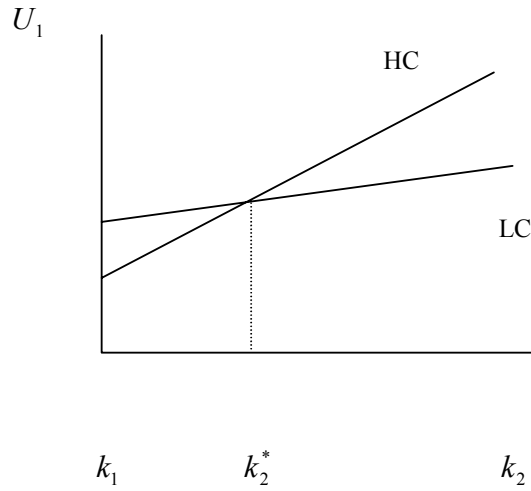
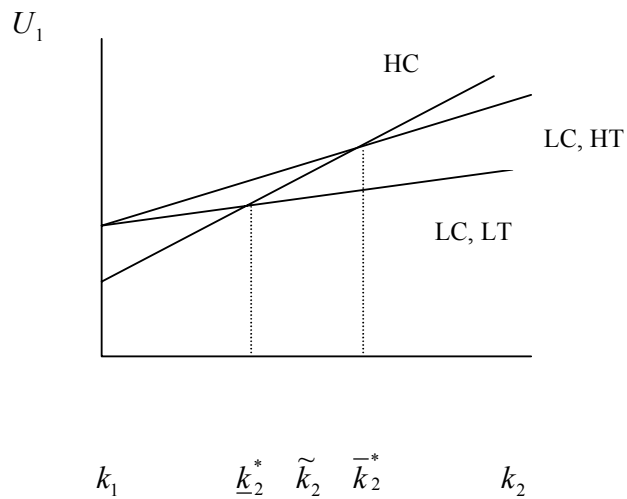


Figure 2: The Welfare Frontier and Media Independence



¹ Most of Russia's biggest financial-industrial companies have significant media interests, see *The Economist*, 1998, April 4.

² Thus, one of the most influential media companies is owned by the daughter of the president; another, somewhat less important publication is owned by his son-in law. While nepotism is generally prominent there, these examples illustrate the importance attached by the rulers to the media control.

³ Although this seems to be a non-realistic assumption at first blush, one could think of it as a reduced form of a more elaborate political environment. When die-hard voters on both sides of the political spectrum are in equal size, they leave the decisive role for the (homogenous) non-identified voters who care for performance rather than ideology.

⁴ We assume that the first serving government is randomly chosen.

⁵ Note that we confine attention to symmetric equilibria.

⁶ Formally, we require that $\underline{e} / 2 > (e - \underline{e})$.

⁷ In fact, the low corruption configuration is dominating all other configurations, namely cases (b) and (c) as well.

⁸ The following is an interesting conversation between the editor of a Government owned national newspaper and his reporter, recorded in a book entitled 'Who Tells the Truth in Tanzania'. The reporter who spent several weeks chasing a "juicy" story on the misappropriation of funds by officials in a government ministry was faced with a very skeptical editor:

Editor: I have gone through it. Is the story true?

Reporter: Of course, and with supporting documents.

Editor: Is it important?

Reporter: Why, the public will decide, there is every detail necessary.

Editor: No! No! The public swallow. We decide for the public.

Reporter: But they have the right to know the truth!

Editor: Oh yes! They have the right to information...but what to inform them, we know better! OK? Take my word now. Tell them this ...

⁹ We maintain the simplifying assumption that the electorate considers only the 'high corruption' and 'low corruption' equilibrium configurations.

¹⁰ Note that for a sufficiently small $\bar{\Delta}$, $k_2 = \infty$, that is the 'low corruption' equilibrium is always superior to the 'high corruption' one.

¹¹ Note that there could potentially be huge transaction costs associated with signing such a contract, let alone concealing the conspiracy. Thus the upper bound on α should be lowered further.

¹² This assumption can be rationalized by a simple model of entry into the political arena, whereby barriers to entry induce the equilibrium number of the parties.

¹³ Although the focus in Lederman et al., 2001, is on different issues, they also confirm the importance of the freedom of the press for reducing corruption.

¹⁴ In fact, presidential and parliamentary regimes are distinguished in this study by the propensity to get reelected.