Legal Corruption*

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Abstract:

We challenge the conventional definition of corruption through the analysis of legal forms of corruption, and by devoting special attention to influence induced by the private sector. This paper studies the determinants of the world pattern of legal and illegal corruption by proposing a simple theoretical model of endogenous corruption and related legal framework, and its thorough empirical test. Three types of equilibrium outcomes are identified: one based on illegal corruption, where the elite does not face any binding incentives to limit corruption; one centered around legal corruption, where the elite must incur a cost to legally protect corruption; and finally a no-corruption outcome, where the population is able to effectively react to corruption. Testable implications from the model are derived based on country-wide parameters. Crucially, we use a rich corporate survey, including 8279 firms in 104 countries, tailored for this research, and featuring measures of legal corruption that are novel to the literature. The micro-dimension of the database enables improving on familiar shortcomings associated with the use of endogeneity-prone, country-wide indices of perceived corruption. The empirical results, making use of a broad range of proxies and sources, generally validate the model's explanations.

JEL Codes: D73, H83, K20, O57, P16.

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> "Are all dinner menus here the same?" - asked a key aide to Menem, the Argentinian president during the nineties, to the chef at the presidential residence.
> "The menus change, the presidents change. What never changes is the dinner guests" - retorted the chef, referring to the cadre of businessmen who frequented the residence.[1]
>
> "You dance with them what brung ya." - old Texan saying.

1. Introduction

Corruption has been at the centre of policy and research debates on the quality of state institutions. This has been particularly the case in the context of developing countries, where corruption frequently takes crude and obviously illegal forms. But is corruption only happening in poorer countries? Is it always illegal? And is it purely a public sector issue?

This paper explores a more general view of corruption encompassing both legal and illegal 'abuses of public office or entrusted power for private gain' (see Bardhan, 1997, Transparency International), and emphasizing the roles of both public and private actors. Prominent examples of this extended view are the exchange of legal political contributions for the passage of specific firm-favoring legislation, or the exchange of public-sector procurement for later private-sector jobs.

Our major purpose is to identify the main determinants of the world pattern of legal and illegal corruption. For this, we present both an original political economy model and a systematic empirical test. Crucially, our empirical analysis features tailored measures of legal corruption, which are unique to the literature.

The main idea is to propose an explanation for the presence of three types of countries in the data: one coping with illegal corruption, in a context of high inequality and low income (which includes many developing countries); one facing legal corruption, where the main issue is low

[1] Ocampo (1993), page 46.

political accountability (interestingly, some OECD countries are included); and one not dealing with significant corruption problems at all (e.g. Nordic countries).

In order to explain the observed three types of patterns, we explore a simple political economy model where the population of a country interacts with its elite. The elite decides whether to engage in corruption, i.e. to appropriate the allocations that relate directly or indirectly with power control over the state. And it also chooses whether to build a (costly) legal framework that protects corruption. The population may act against corruption by beginning an unrest, which loosely refers to a reaction - for which a revolution, a strike, or simply a public demonstration may be good examples. This unrest is assumed to be more difficult to begin if a corruption-protecting legal framework is in place.

In this setting, when the likelihood of a successful unrest is sufficiently low and the aggregate cost of the unrest is also sufficiently low, the elite does not bother building a legal framework for corruption and prefers to engage in illegal corruption. However, in the event that a successful unrest is likely and its aggregate cost is sufficiently high, the elite chooses to behave differently: if the cost of overcoming the legal framework to initiate an unrest is high for the population, the elite goes for legal corruption; otherwise, no corruption is best.

We test the implications of this theory by looking at how the pattern of legal and illegal corruption depends on each of the following parameters: the likelihood of success of the unrest, its aggregate cost, and the cost of unrest for the population when the legal construct is in place. These three parameters are empirically proxied by, respectively: equality measures, provided the outcome of the unrest ultimately depends on the relative economic power of the population; initial income, since the opportunity cost of the unrest is higher in more productive economies; and the lack of political accountability, given its relation to the population's ability to counteract institutional barriers imposed by the elite.

Our empirical test uses a rich worldwide micro-level firm survey with 8729 observations, which was conducted by the World Economic Forum for its World Competitiveness Report 2004-2005. This dataset presents a wide range of questions on legal and illegal types of corruption both at the aggregate and industry levels. It also features a wide range of firm-level characteristics. We complement these data with country-level indicators of the parameters of interest from a wide range of different sources.

Our micro data environment, in addition to originally presenting legal corruption proxies, enables us to improve on purely cross-country work based on country-level perceptions of corruption. This is done by addressing concerns about endogeneity of our regressors of interest with the use of industry-level questions on corruption, and by purifying the perceptions used as dependent variables through the use of observable firm characteristics.

We find that the model predictions seem to fit our data well, particularly the proxies of legal and illegal corruption related to political party contributions, influence in laws and regulations, and procurement.

The economic literature on corruption[2] has looked into a variety of research questions. Much attention has been devoted to the consequences of corruption in empirical terms: Mauro (1995), Kaufmann and Kraay (2002), at the aggregate level; more recently, Bertrand et al (2006) and Dal Bo and Rossi (2007) at the micro level. This line of work, although mainly addressing illegal, administrative types of corruption, constitutes important motivation for our exercise: it clearly states that corruption contributes to lower growth and tends to be associated with inefficiency[3]. On a different stream, Ades and Di Tella (1999), Treisman (2000) and Paldam (2002) allotted their efforts to studying the determinants of corruption. While the first underlines the effect of market competition mainly on theoretical terms, the second and third

[2] This literature was initiated by Becker and Stigler (1974) and Rose-Ackerman (1978).

[3] The same type of premise is theoretically captured by Campante and Ferreira (2007) in the context of lobbying (therefore also related to legal corruption), through the analysis of its implied inefficiency.

take on a purely empirical approach, where exposure to democracy (which may be understood as political accountability) and a higher level of development (as proxied by income) feature prominently - their focus is however on aggregate indices of illegal corruption.

Not so much empirical attention has been devoted to legal types of corruption. However, some consideration has already been granted to less classical forms of corruption in transition countries[4] such as state capture (viewed as direct sale of public policy) and influence (of public policy in exchange for votes). Hellman, Jones, and Kaufmann (2003) assess these concepts and conclude that, in their transition-country data, captor firms enjoyed clear private advantages in association with aggregate social costs. Consistently with our model, Hellman and Kaufmann (2004) focus on the impact of inequality on influence, which is reported to generate a self-reinforcing mechanism in which institutions are subverted. A recent paper by Campos and Giovannoni (2007) looks at the use of lobbying and bribery by firms in transition countries – they find that they are substitutes and that lobbying seems to be more effective than bribery in influencing policy. This is in some contrast to what we argue in this paper, using worldwide data, as we propose that legal corruption embeds a higher cost to the political elite relative to illegal corruption.

The model we present in this paper is a simple structure in the spirit of Acemoglu and Robinson's (2000, 2001) theories of franchise extension/democratization. In those models, the population poses a threat of revolution that ultimately constrains the holders of political power[5]. Although in our theory we make use of that insightful idea, our focus is neither on democracy vs. autocracy (i.e. specific political systems) nor on commitment to franchise extension, but rather on characterizing patterns of corruption. Our theoretical target also relates to the classical treatment of lobbying, as given by Bernheim and Whinston (1986), and

[4] Shleifer and Vishny (1994) is also very much embedded in this spirit.
[5] See Grossman (1991) for a seminal early contribution, specifically on this constraint.

Grossman and Helpman (1994, 1996). However, differently from that strand of theoretical literature, we are not as interested in characterizing equilibrium policy platforms as we are in orienting our model structure to testable predictions using data on our specific 'political' outcomes, i.e. on corruption. Esteban and Ray (2006) provided an interesting theoretical challenge to our general perspective in this paper: they argue the association of poverty and inequality (two of our parameters of interest) with inefficiency may not be due to corruption. This is because even a benevolent government may be confounded by lobbies whose 'loudness' is determined by true merit and wealth. Our findings, although not directly targeting that hypothesis, do seem to back up the corruption-based explanation.

A final note goes to the emerging literature on laboratory experiments of corruption (see Abbink, 2006, for an early review of this literature). Abbink et al (2000, 2002) introduced reciprocity games that mimic situations where corruption arises: by inducing economic incentives, these games make corruption incentive-compatible. Alatas et al (2009), Cameron et al (2009), Barr et al (2009) provide comparative studies of similar bribery games for different country and occupation samples. These micro-level frameworks may be seen as complementary to our model, provided our theory does not make explicit the specific manner members of the elite interact to produce corrupt outcomes. However these experimental frameworks typically assume a third agent that may punish corrupt behavior by others, given implied negative externalities. Clearly that is the role of the population in our model.

In the next section we motivate, present, and solve our theoretical model. In section 3 we provide its testable implications. Data description and simple tests of the model are displayed in section 4. Section 5 offers econometric strategy and results. We then conclude.

2. A Political Economy Model of Legal and Illegal Corruption

2.1 Legal and Illegal Corruption

The exercise of this paper depends on a competent definition of corruption. This has been a long contention in the economics literature, not fully resolved provided different definitions have been used for different deduction purposes. Departing from the classic 'abuse of public office for private gain', we postulate corruption to be a label that can be added to any allocation involving public officials, whether on the demand or on the supply side. Commonly, public officials are seen to have been entrusted to use their position for a unique purpose: allocating goods to the 'population'. That is where we base our corruption label. If a good allocated by a public official does not go to the population, we consider that to be corruption; if a good is allocated to a public official, with this agent making use of his or her position, we consider that to be corruption.

This means we see corruption as a phenomenon that involves public officials and 'other citizens', the allocation of public sector goods and of 'other goods'. The private sector is therefore as central to our definition of corruption as is the public sector. This is in contention to much of the policy discourse on the phenomenon of corruption, which typically over-emphasizes the role of public officials[6].

But how do we reconcile this definition with the usually held notion of corruption as pure bribery of public officials? The answer is: we are proposing a more general definition than that one, i.e. we do encompass that notion. This can be seen in Figure 1, where we represent our definition of corruption.

In that figure, we represent two transactions: one where the public official allocates a good to the private agent (who competes with the population), and another where the private agent

[6] Note that Bardhan, in his essay on corruption, proposes a definition of corruption that encompasses purely private-sector examples.

allocates a good to the public official (who competes with the population). Under our definition, the order is not relevant (see parenthesis in the figure). What matters is that both transactions are related, with one being the counterpart pay for the other. Bribery is the simple case of having money as the good allocated by the private agent. The time dimension is useful for emphasizing cases of lagged allocation of goods (usually interpreted as influence), although it loses some appeal in the bribery examples (in which nevertheless we still typically find a time lag between the allocation of the good and the payment). Note that the rent at stake in these allocations is divided in some way between the public official and the private agent (the value of the first allocation may be smaller, equal, or larger than the value of the second allocation). Importantly, the corrupt relationship relies on having the second allocation yielding a suitable continuation payoff (higher than the one implied in allocating to the population) – this can be in place through a long term relationship between public official and private agent or even through intimidation (i.e. threatening of negative payoff, as is commonly the case in extortion).

This is the micro-level component of our modeling, which we will take as a 'black box'. We now dedicate to embedding this corruption definition in a macro-level, political economy framework, where an elite (including the public official and private agents from above) may engage in corruption[7]. This model aims at shedding light on the understanding of the determinants of legal and illegal corruption.

For this purpose we have to be explicit about what we mean by legal and illegal corruption. Legality is defined at the political level. It is therefore a decision variable of the elite in power. We assume the elite may build a legal framework to protect her own conduct of corruption (e.g. legal lobbying). We assume this is done at a cost (borne by the elite, not reverting to anyone). We have in mind the opportunity cost of the time the elite has to spend in following

[7] In a related model, Vicente (2007) explicitly embeds the corruption relationship in a macro setting.

these self-imposed rules, helpful in making corruption acceptable to the population (e.g. organization of lobbies). This building of a corruption-prone legal framework is therefore an example of rent-seeking[8] by the elite. When this legal framework accompanies corruption in our model, we refer to the existence of legal corruption[9]; when corruption arises without this legal framework, we refer to illegal corruption.

2.2 The Model

Let us now be specific about our model. We assume two players, the elite and the population. The elite moves first by choosing either to be corrupt (in the above sense, i.e. allocation of goods within the elite) or to extend the franchise (in the sense of allocating the goods to the population). If deciding for corruption, the elite then decides whether to build a legal framework (*L*) or not (*NL*) [10]. If *L* is selected, the elite bears a percentage cost ε, applied to whatever payoff the elite earns at the end of the game.

After this first stage, the population reacts by choosing to unrest (a general, lighter version of the revolution assumption in the work by Acemoglu and Robinson) or to pursue stability (social rest). These actions are denoted *U* and *R* respectively. We assume *U* implies a percentage cost of destruction d applied to both players' payoffs. We think of this cost as being higher when the level of coordination in the economy is higher (i.e. when productivity is higher). This is the reason we will proxy the cost with initial income per capita. We are

[8] Note that we did not have any kind of rent-seeking component in our corruption definition. As in Besley (2006), corruption is independent from any kind of transaction cost (although it may be associated to such costs). This does not preclude us from thinking of corruption as inefficient, by directly involving inefficient allocations. The cost of legality, from rent-seeking (therefore inefficient), does not mean illegal corruption is efficient. We just do not need to model that inherent type of inefficiency.

[9] A good example of legal corruption is the one implied in the complex mechanisms of campaign fundraising described in the Washington Post (2004) - regarding the "Pioneer" and "Ranger" networks of the US 2004 presidential campaign: these were aimed at escaping the legal individual limits in campaign funding. The limits provided assurance to the general public, but to a large extent were made irrelevant through a complex web of smaller collusive contributions.

[10] The assumption that the legality node only appears if the elite decides for corruption is made for simplicity without loss of generality.

assuming that the higher is income, the more costly is unrest. Implicit is the idea that unrest causes a proportional cut in productivity, or in other words, the destruction of a proportional amount of resources[11].

Initiating unrest may in addition imply a specific cost to the population. This cost is zero if there is no legal framework protecting the elite, or c if that legal framework is in place. We think of c as the cost of overcoming the legal framework to start unrest. We will think of this cost as the symmetric of political accountability. The idea is simply that societies with lower accountability impose higher costs on the population if it were to react to corrupt public policies.

If unrest is commenced, nature plays by deciding whether the unrest succeeds (S) or fails (F). The unrest succeeds with probability p. We assume this probability represents the level of equality in the economy, which embeds the notion that an unrest is more likely to be successful when the relative material power of the population is high. This assumption plainly depicts the idea that, when a contest happens, what matters to define the winner is the relative power of the contestants. Inequality is assumed to be a competent measure of the power of the population relative to the rich elite[12].

This game can be seen in its extensive form in Figure 2. Regarding payoffs, we assume there is output of size 1 at stake in this economy. We also assume that when the elite extends the franchise, percentage λ goes to the elite. More specifically, we postulate the following payoff conditions, where in case of successful unrest, we assume the population gets access to all available output.

[11] This assumption is in line with empirical patterns found in literature on economic motives for civil conflict (e.g. Collier and Hoeffler, 2004; Miguel et al, 2004). Indeed lower income per capita is established as an important determinant of conflict.

[12] Note that the work of Acemoglu and Robinson (2000, 2006) depicts a positive relationship between revolutions and inequality, founded with stylized facts. They explain it with the attractiveness of revolutions for the population, over redistribution by the rich elite (either through simple promises or through the creation of persistent democratic institutions) when inequality is too high.

If the elite engages in corruption and does not build a protective legal framework:

- if the population begins an unrest: the elite gets $(1-p)(1-d)$ and the population achieves $p(1-d)$ as expected payoffs;
- if the population goes for social rest: the elite obtains 1 and the population nothing.

If the elite goes for corruption and builds a protective legal framework:

- if the population initiates an unrest: the elite achieves $(1-p)(1-d)(1-\varepsilon)$ and the population achieves $-c+p(1-d)$ as expected payoffs;
- if the population goes for peace: the elite obtains $(1-\varepsilon)$ and the population nothing.

If the elite extends the franchise (no corruption):

- if the population starts an unrest: the elite gets $(1-p)(1-d)\lambda$ and the population obtains $p(1-d)+(1-p)(1-d)(1-\lambda)$ as expected payoffs;
- if the population goes for social stability: the elite achieves λ and the population $(1-\lambda)$.

We are now ready to analyze the equilibrium of this game. We assume all parameters of the model are strictly positive.

2.3. Equilibrium

We derive the Subgame Nash Equilibrium of the above described game. For that we apply backward induction and assume indifference is resolved in favor of social stability.

We start by looking at the moves of the population. If the elite decides for illegal corruption (corruption plus lack of legal protection), the population will decide to initiate unrest, as $p(1-d)>0$.

In case the elite decides for legal corruption (corruption plus building of legal framework), the population will contrast 0 with $-c + p(1-d)$; if $-c + p(1-d) > 0$, she will go for unrest, otherwise social stability will be kept.

If the elite decides to extend the franchise, there will be social stability if and only if $(1-\lambda) \geq p(1-d) + (1-p)(1-d)(1-\lambda)$, which is the same as $\lambda \leq \frac{1}{p + d(1-p)} d$. For simplicity of our empirical analysis, we will assume that this condition is verified. It is not interesting to assume the payoff from unrest (in case of franchise extension) may be the top payoff of the game for the population.

We now analyze the moves of the elite (on corruption and building of legal framework). If there is unrest in case of legal corruption, i.e. when $-c + p(1-d) > 0$, the elite will contrast $(1-p)(1-d)$ (illegal corruption), with $(1-p)(1-d)(1-\varepsilon)$ (legal corruption), and λ (no corruption). Only the first and third will be at stake (since, in this case, legal corruption is always worse than illegal). There will be illegal corruption if $(1-p)(1-d) > \lambda$, and no corruption otherwise.

If there is social stability in case of legal corruption, i.e. when $-c + p(1-d) \leq 0$, the elite will pick up the highest of $(1-p)(1-d)$ (illegal corruption), $(1-\varepsilon)$ (legal corruption), and λ (no corruption). Note that the level of *p* that equates $(1-p)(1-d)$ to $(1-\varepsilon)$ is $\frac{\varepsilon - d}{1-d}$.

We can now write the following proposition:

Proposition 1: Assume $\lambda \leq \frac{1}{p + d(1-p)} d$, $\lambda = 1 - \varepsilon$ [13] *Then the unique Subgame Nash Equilibrium of this game is:*

[13] This assumption guarantees that legal corruption may arise in the equilibrium. Assuming $\lambda \leq 1 - \varepsilon$, the largest parameter set that places legal corruption in the equilibrium, would increase the number of thresholds (complexity

- *if* $c < p(1-d)$ *:*
    - *if* $p < \frac{\varepsilon - d}{1-d}$*, there is corruption and no legal protection (Illegal Corruption), and there is social unrest;*
    - *if* $p \geq \frac{\varepsilon - d}{1-d}$*, there is no corruption (No Corruption) and there is social stability;*
- *if* $c \geq p(1-d)$ *:*
    - *if* $p < \frac{\varepsilon - d}{1-d}$*, there is corruption and no legal protection (Illegal Corruption), and there is social unrest;*
    - *if* $p \geq \frac{\varepsilon - d}{1-d}$*, there is corruption and legal protection at indifference*[14] *(Legal Corruption), and there is social stability.*

Proof:

If $\lambda \leq \frac{1}{p + d(1-p)} d$, the population will prefer social stability in case there is no corruption.

If $c < p(1-d)$, we are in the situation where the population will start an unrest in case of legal corruption. Then, provided $\lambda = 1 - \varepsilon$, we can state that for any p such that $p < \frac{\varepsilon - d}{1-d}$, illegal corruption will happen (together with social unrest) - meaning $(1-p)(1-d) > \lambda$; $p \geq \frac{\varepsilon - d}{1-d}$ implies no corruption will arise (and social stability will take place) – meaning $(1-p)(1-d) \leq \lambda$.

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of equilibrium pattern) without changing the relevant testable implications of the model, explored in the remaining of the paper. In this sense this assumption is made without loss of generality.

[14] We will assume for the remaining of the paper that this indifference is broken in favor of legal corruption. However a strict inequality on the simplifying assumption $\lambda = 1 - \varepsilon$, i.e. $\lambda < 1 - \varepsilon$, would break that indifference.

If $c \geq p(1-d)$, we are in the situation where the population will opt for stability in case of legal corruption. Then, given $\lambda = 1-\varepsilon$, for any p such that $p < \frac{\varepsilon - d}{1-d}$, we can guarantee that illegal corruption will emerge as it embeds the strictly better payoff; if $p \geq \frac{\varepsilon - d}{1-d}$, legal corruption will emerge at indifference with no corruption.■

In broad lines, we can conclude that when both the probability p (equality) and the cost d (initial income) are low, we see illegal corruption and instability emerging[15]. If that is not the case, we may see legal corruption or no corruption at all. That crucially depends on $-c$ (accountability): if it is low, legal corruption happens, otherwise, corruption does not arise. In the next section we are more specific about the implications of this model on these three parameters.

3. Testable Implications

From Proposition 1 above we now derive the patterns of relationship between corruption, as given by the difference between legal and illegal corruption, and the parameters of this economy, $-c$ (accountability), p (equality), and d (initial income). Note that the difference between legal and illegal corruption, in stylized terms (from the model), takes positive value when there is legal corruption but no illegal corruption, negative value when there is illegal corruption but no legal corruption, and zero value when there is neither type of corruption. We take as constants λ and ε, as the concepts behind these parameters, i.e. share of the output going to the elite when the franchise is extended, and share of output borne by the elite as the cost of building legal protection, are most likely not to vary considerably across countries (apart from not being easily translated into empirical measures). Whereas the first is at the

[15] This outcome is in line with the focus of attention of Jennings (2007), who underlines the role of expressive motivations, understandable as conducive to corruption, in maintaining conflict.

essence of payoff assumptions of our political economy model, we discuss below the implications of assuming a positive ε - that will help in understanding its role in this paper.

We also assume $\varepsilon > d, p$, as that guarantees positive thresholds (from Proposition 1) for the parameters of interest, and full consideration of all possible cases in equilibrium.

We start by looking at accountability. By drawing the relationship between 'legal minus illegal' corruption ('L-I' in the y-axis) and accountability ('Acc' in the x-axis) for each of the possible levels of *p* (above and below the threshold $-\ p(1-d)$), we arrive at the two top graphs in Figure 3. The same exercise is pursued for each of the possible levels of *d* in the two graphs below those. Overall, we unambiguously find a weakly decreasing relationship. Regarding curvature, we find both convex and concave parts in the relationship between the difference between legal and illegal corruption and accountability.

We now turn to finding the relationship between legal minus illegal corruption and equality. By analyzing the pattern of Proposition 1, we find that it depends on two levels of *p*, $\frac{c}{1-d}$ and $\frac{\varepsilon - d}{1-d}$. In Figure 4 (equality is represented by 'Equal') we take into account the two possibilities, $\frac{c}{1-d} > \frac{\varepsilon - d}{1-d}$ and $\frac{\varepsilon - d}{1-d} > \frac{c}{1-d}$. We find mainly an increasing relation, with both convex and concave patterns. However, concavity is stronger, and therefore, more likely to appear in the data.

Finally we analyze the degree of economic inter-dependency, proxied by initial income. From Proposition 1, we know that the pattern of variation of this parameter depends on the thresholds $1-\frac{c}{p}$ and $\frac{\varepsilon - p}{1-p}$. In Figure 5 (income is represented by 'Inc') we consider both possibilities concerning the relationship between the thresholds. We find an unequivocal weakly increasing and convex relationship.

We now mention which would be the consequences of discarding from our model the cost to be borne by the elite when she decides to adopt a corruption-prone legal framework (ε). This is worth pointing out for two reasons: imposing a positive ε is not an obvious/standard assumption in the literature; we will not directly test this parameter in our empirical exercise. If we assume that $\varepsilon = 0$, under sufficient assumptions for all three different outcomes to arise (no corruption, legal corruption, and illegal corruption)[16], we have rather different testable predictions for the shape of the relationship between the parameters and the difference between legal and illegal corruption[17]. This means we will be able to (indirectly) empirically identify in the data described ahead our assumption on the existence of a positive cost ε, as we will find the former (specified in the graphs described above) and not the latter pattern of relationships.

4. Descriptive Data

As empirical counterpart for the referred types of corruption we use data from purposely-designed questions in the Executive Opinion Survey (EOS) of the Global Competitiveness Report 2004-2005 published by the World Economic Forum. This mail-based firm survey included a total sample of 8729 responding firms in 104 different countries (an average of 84 filled questionnaires per country[18]).

This sample of firms composes a rich database including respondents from a wide range of sectors, most prominently from manufacturing, 37%, and retail trade, 25%[19]. It also features a variety of sizes (as given by the number of employees, 3,665 on average, with a large standard deviation of 13,701 workers), of types of ownership (private domestic, public, and foreign),

[16] The equilibrium would then be characterized by: in case $-c > -p(1-d)$, if $p < 1-\lambda/(1-d)$, illegal corruption emerges (at the indifference), otherwise, no corruption happens; in case $-c \leq -p(1-d)$, legal corruption is the outcome.

[17] Namely, equality becomes both mainly decreasing and concave, and income yields a concave relation.

[18] Only 5 countries have below 30 questionnaires; 25 countries have above 100 (with 4 countries having above 200 responded questionnaires).

[19] The original, disaggregated sector data correspond to 18 different categories (sectors of activity).

and of intensity of competition faced in the market (seemingly well divided between numerous local competitors, 37%, and small/no competition, 42%). A complete picture of the sample characteristics is provided in Table 1. Ahead we will make use of these respondent characteristics as important controls in our regressions of corruption perceptions.

The crucial data on legal and illegal corruption come from a number of different questions in the EOS 2004-2005 survey. As proxies for legal corruption, we take questions on Influence of Well-Connected in Procurement (L.1), Influence of Legal Contributions to Political Parties (L.2), Independence of the Judiciary from Influence (L.3), and Influence on Laws and Regulations - Respondent's Industry (L.4). As proxies for illegal corruption, we use questions on Public Trust in Financial Honesty of Politicians (I.1), Illegal Donations to Political Parties (I.2), Frequency of Diversion of Public Funds Due to Corruption (I.3), Frequency of Bribes in Procurement - Respondent's Industry (I.4), Frequency of Bribes in Influencing Laws and Policies - Respondent's Industry (I.5), and Frequency of Bribes in Influencing Judicial Decisions - Respondent's Industry (I.6). The precise phrasing of these questions is presented in the Appendix. Note that L.4, I.4-6 are questions concerning the level of corruption in the responding-firm's industry, therefore not at the aggregate/national level, as is the case in the other questions above. In Table 2 we display descriptive statistics for all these corruption proxies.

Since the predictions of our model in terms of outcomes can be summarized by type of corruption in place (legal vs. illegal), and provided it is empirically difficult to fully disentangle (in the answers of respondents) what is legal and what is illegal corruption (namely, legal scores may be contaminated by perceptions of illegal corruption, as is apparent from high correlations between legal and illegal proxies – see Table 2), we opt for using as

dependent variable, the difference between legal and illegal corruption[20]. Then, as introduced graphically in the last section, we interpret a higher number as more indicative of legal corruption, a negative number as more indicative of illegal corruption and a low absolute number as being evidence in favor of no corruption. We construct several proxies of that difference based on the questions named above. We therefore make full use of the wide variety of proxies of corruption at stake.

The specific proxies we use are on Procurement (version I given by L.1 minus I.4, version II given by L.1 minus I.1), on Political Contributions (L.2 minus I.2), on the Judiciary (L.3 minus I.6), and on Laws and Regulations (version I given by L.4 minus I.5, version II given by L.4 minus I.3). Note that Laws and Regulations I is the one measure fully targeting the respondent's industry.

Finally, we describe our chosen empirical counterparts for the parameters of the model in this paper. For Accountability, we use data from a question in EOS concerning Freedom of Press, three Freedom House Indicators[21] - Press Freedom, Civil Liberties, and Political Rights, 2002 - , Government Fractionalization from the Database of Political Institutions – DPI (Beck et al, 2001), and the Voice and Accountability Indicator 2002 from KKM. All these measures are popular sources in the literature, featuring slightly different concepts, which nevertheless, in the context of our model, may be strongly related.

Regarding Equality, we use the Gini Coefficient (2002)[22] and data from a question in EOS regarding Equality in Health Care. Concerning Initial Income, we employ lagged logGDP per capita (1984). The earlier year picked is due to stronger endogeneity concerns one may have

[20] Note also that the absolute level of perceptions of corruption may be an imperfect measure of real corruption (see Olken, 2009). We are therefore conservative in using the difference between legal and illegal corruption as the main source of information on the pattern of corruption.
[21] Data from these indicators were transformed to low-to-high accountability scales.
[22] The presented coefficient is given by 100-Gini in order to capture an equality scale.

related to this variable. All the referred variables and respective sources are described in detail in the Appendix.

4.1. Simple Empirical Tests

We will test our model by verifying whether the relationships between the difference 'legal minus illegal corruption' and the main parameters of the model (accountability, equality, and initial income) that we displayed in section 3 are found in the data.

We begin this exercise by showing simple unconditional relationships of the outcome variable with each one of the parameters, based on country averages. These are presented, as an example, in Charts 1-3 for the Procurement II proxy (which includes questions on influence in procurement and public trust on financial honesty of politicians), Press Freedom (Freedom House), and Gini-based Equality[23].

As can be observed, even in an unconditional setting, we find a good depiction of the theoretical implications in the graphs described above: increasing functions of equality and initial income; clear convexity in the accountability and initial income relationships to our corruption difference of interest (although our model is neutral with respect to the first); less strong but still decreasing and concave relationship in the equality graph. Although, we seem to be finding a good fit of our model's implications, we deepen our test in the next section by pursuing an appropriate multivariate econometric strategy.

5. Econometric Approach and Results

We adopt a simple econometric strategy that directly tests the theoretical predictions of section 3, while making use of the micro-level nature of our dataset to purify legal and illegal

[23] Other proxies for the relevant outcome and parameter variables offer similar results.

corruption perceptions, as well as for minimizing the possibility of endogeneity biases in our regressions.

We therefore pursue the following specifications of determinants of the difference between legal and illegal corruption, linear and quadratic on the parameters of interest:

$$LEGILLEG_{ic} = a + bACC_c + cEQUAL_c + dINC_c + eFIRM_{ic} + \varepsilon_{ic} \quad (1)$$

$$LEGILLEG_{ic} = a + bACC_c + cACC_c^2 + dEQUAL_c + eEQUAL_c^2 + fINC_c + gINC_c^2 + hFIRM_{ic} + \varepsilon_{ic} \quad (2)$$

where *LEGILLEG* is the difference legal minus illegal corruption, *ACC* is accountability, *EQUAL* is equality, *INC* is initial income, *FIRM* is a vector of firm characteristics, *i* denotes an individual firm and *c* denotes an individual country.

Note that the qualitative results of the model allow us to test it at the level of the parameter coefficients of the linear specification (1), and at the level of the coefficients of quadratic terms of the quadratic specification (2).

Since the dependent variable is a perception-based proxy of legal minus illegal corruption, we crucially control for observable characteristics of responding firms. In the regressions below, whenever we control for firm characteristics, we use firm-level measures from all variables displayed in Table 1, including industry dummies for the 18 sectors of activity that are available in the dataset. This procedure contributes to improving on purely perception-based country averages, which constitute the most frequent type of data in the literature on corruption.

Regarding the possibility of endogeneity of the proxies for the parameters of the model, we cannot rule it out completely, although we argue it is being minimized by two important

procedures. The first is the use of lagged accountability (except for the EOS proxy), lagged equality (except for the EOS proxy), and lagged income. Since income in the model intends to capture a fundamental economic activity coordination level, we use a distant 20-year lagged measure. The second and most important is the possibility of testing the model at a more micro level (the industry-level), which enables the provision of a robustness test for the remaining aggregate-level legal-illegal corruption regressions. Since some of the legal minus illegal corruption proxies relate to industry-level perceptions, we argue that in the corresponding regressions it is unlikely that an unobservable explains aggregate accountability, equality, and initial income, on one side, and industry-level corruption, on the other. This is an additional, essential advantage of using a micro dataset to test our model.

Finally, provided the availability of a wide range of different accountability measures (specifically addressing Freedom of Press, Civil and Political Rights, Government Representation, Voice, and Level of Autocracy/Democracy), with no clear differential relation to the accountability concept we introduce in the model (identified with the cost of initiating an unrest when corruption is protected by a legal framework), we add to our analysis an aggregate measure of all the different accountability proxies. For that purpose, and given our theoretically-neutral approach to the measurement of accountability, we opt to use the first principal component of the different accountability indicators. Principal component is a practical data-compressing method purely based on statistics, as it maximizes the variance embedded in different proxies of a variable[24]. It suits our need for a unique variable to testing the accountability-related part of the model. However, we will also present results for the different accountability measures.

[24] The leading eigenvectors from the eigen decomposition of the covariance matrix of the different proxies describe a series of uncorrelated linear combinations of the variables that contain most of the variance. We take the first component as it accounts for as much of the variability in the data as possible. Each succeeding component accounts for as much of the remaining variability as possible.

5.1. Econometric Results

The econometric results generally validate the predictions of the model[25], although some fit-quality variation arises regarding the different empirical proxies.

In Table 3, we show the output concerning the legal minus illegal corruption proxy on Political Contributions. Overall, this is the best match for our model: all regressions displayed seem to be consistent with our theoretical construct.

We first show simple linear regressions. There, we use all proxies introduced in this paper for accountability and equality. We find that all signs are the expected ones; only one accountability measure does not display statistical significance at standard levels. These findings confirm that using principal component analysis for the accountability measurement may be a suitable information-compressing strategy. The final regression, which controls for firm characteristics (and uses the first principal component for accountability, together with the more general, Gini-based equality measure), displays individual statistical significance at the 1% level for all independent variables of interest.

In the final columns of Table 3 we show the quadratic-specification regressions, using the accountability measures' principal component (at all shown regressions), both measures of equality (separately), and the controls for firm characteristics (together with the Gini-based equality). We find a robust fit of the model, with highly significant quadratic terms, at the 1% and 5% levels.

We now show results from using the Laws and Regulations I measure of the difference between legal and illegal corruption (Table 4). Crucially this measure refers to perceptions

[25] Although our dependent variables are categorical, we will show results below for OLS regressions (where scales are assumed to be embed linear or equidistant categories). We also ran Ordered Probit estimations, where the latent scale is estimated – however, these estimates, while being less easily interpretable, did not yield relevant differences.

about the industry of the respondent. As pointed out above, we rely on using this proxy for providing a robustness test on endogeneity concerns (given that it is less likely to arise with industry-level measurement of the dependent variable). We confirm that overall the model seems to fit well our data.

In the linear specification, only some proxies for accountability seem not to yield the expected signs in a statistically significant manner. However, Polity displays the anticipated sign (highly significant, at the 1% level), which is replicated by the principal component, although with lower statistical significance (only achieved when using the health care-specific measure of equality). The remaining coefficients of interest (on equality and initial income) achieve the expected signs (although the Gini-based equality does not attain standard levels of statistical significance).

The regressions based on the quadratic specification yield the expected signs on the quadratic terms, with high statistical significance at the 1% level for initial income, but no statistical significance for equality (even though the regressions using the Gini-based measure, namely the one that controls for firm characteristics, display the anticipated negative sign).

Note that overall (for Political Contributions and Laws and Regulations I), firm characteristics improve on the general fit of the regressions, as given by the adjusted R-squared. This is evidence that they may be playing a role in purifying these perception-based dependent variables. This is generally true for the other proxies of the dependent variable.

In Table 5, we display summarized results concerning the remaining proxies for the difference between legal and illegal corruption. These are regressions for the linear and quadratic specifications using firm characteristic controls, the principal component for the accountability measures, and the more general Gini- based equality.

We find that Procurement II (for which we displayed the graphs of last section) is fitted by our model's implications, in both specifications, at all relevant coefficients (with statistical significance, mostly at the 1% level). Laws and Regulations II still provides a good fit, only failing to provide the expected sign (offering the opposite sign, with statistical significance) in the linear specification's accountability coefficient.

Finally, the fits of the model for Procurement I, but especially for the Judiciary seem to be ranking lowest among our set of proxies for the difference legal minus illegal corruption. For the first we still find the anticipated signs for all but the equality coefficient in the linear specification (although statistical significance is weak for the quadratic specification). But for the second we find several opposite-sign, statistically significant coefficients, namely in both specifications.

We interpret the encountered variation of fit-quality among the different proxies of the dependent variable with differing suitability for an empirically meaningful distinction between legal and illegal corruption. That is very clear from the fact that Political Contributions yield the best fit and the Judiciary exhibits the worst: while the first embeds a direct, precise, and specific notion of legality, the second (on judicial application of law) relates to a context where influence tends to be mostly illegal, with any empirical legality distinction suffering from such conceptual difficulties.

6. Concluding Remarks

This paper suggested a set of simple hypotheses to explain the pattern of legal and illegal corruption across a comprehensive, worldwide group of countries.

We proposed a three equilibrium-pattern world with: (i) an illegal corruption outcome, where the relative power of the population in challenging the elite's corruption decision is low

(proxied by equality), and where the cost of destruction from unrest (proxied by initial income) is low; (ii) a legal corruption outcome where equality and initial income are higher but the cost of overcoming elite-built legal defenses is high (proxied by low political accountability); and (iii) a no-corruption outcome where differently from (ii) accountability is high. We found convincing evidence for these hypotheses in our data.

Our contribution to the literature is focused on the exhaustive exploration of this idea, both by presenting an original political economy model that endogeneizes both corruption and its related legal framework, and a thorough empirical test using a wide range of empirical proxies on a micro (firm)-level data structure - centered on original and rich proxies of both legal and illegal corruption perceptions.

In terms of the policy dimension of our work, we would like to emphasize some underlying messages. First, this work stresses the need (both conceptually and empirically) for not overlooking the private sector as a key player in the determination of corruption outcomes. Our corruption definition departed from a good amount of neutrality in that respect, and our empirical analysis was built on explicit measures of the relationship between public and private sector players.

Second, this paper underlines that, conceptually, legal corruption may be quite close to its illegal counterpart. Interestingly, it is clear from a quick analysis of the data (in the charts of section 4) that many rich countries (G7 and OECD members) seem to be challenged cases in what legal corruption is concerned. This is definitely a worth-noting finding given the enormous policy-debate focus on developing countries in what corruption is concerned. However, the current literature is lagging on the comparison of the effects of legal and illegal types of corruption on economic performance – we believe that is the most obvious next step for the research presented in this paper.

Finally, we have also found that higher accountability is the essential determinant of lower levels of legal corruption in more equal and richer societies – it is never too much to say that policies oriented to its reinforcement may be very fruitful.

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Figure 1: Definition of Corruption

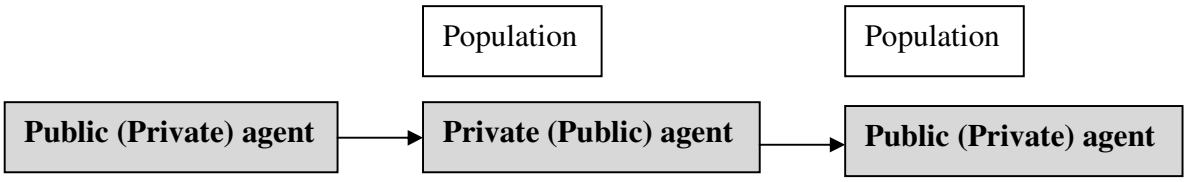


Figure 2: Game in Extensive Form

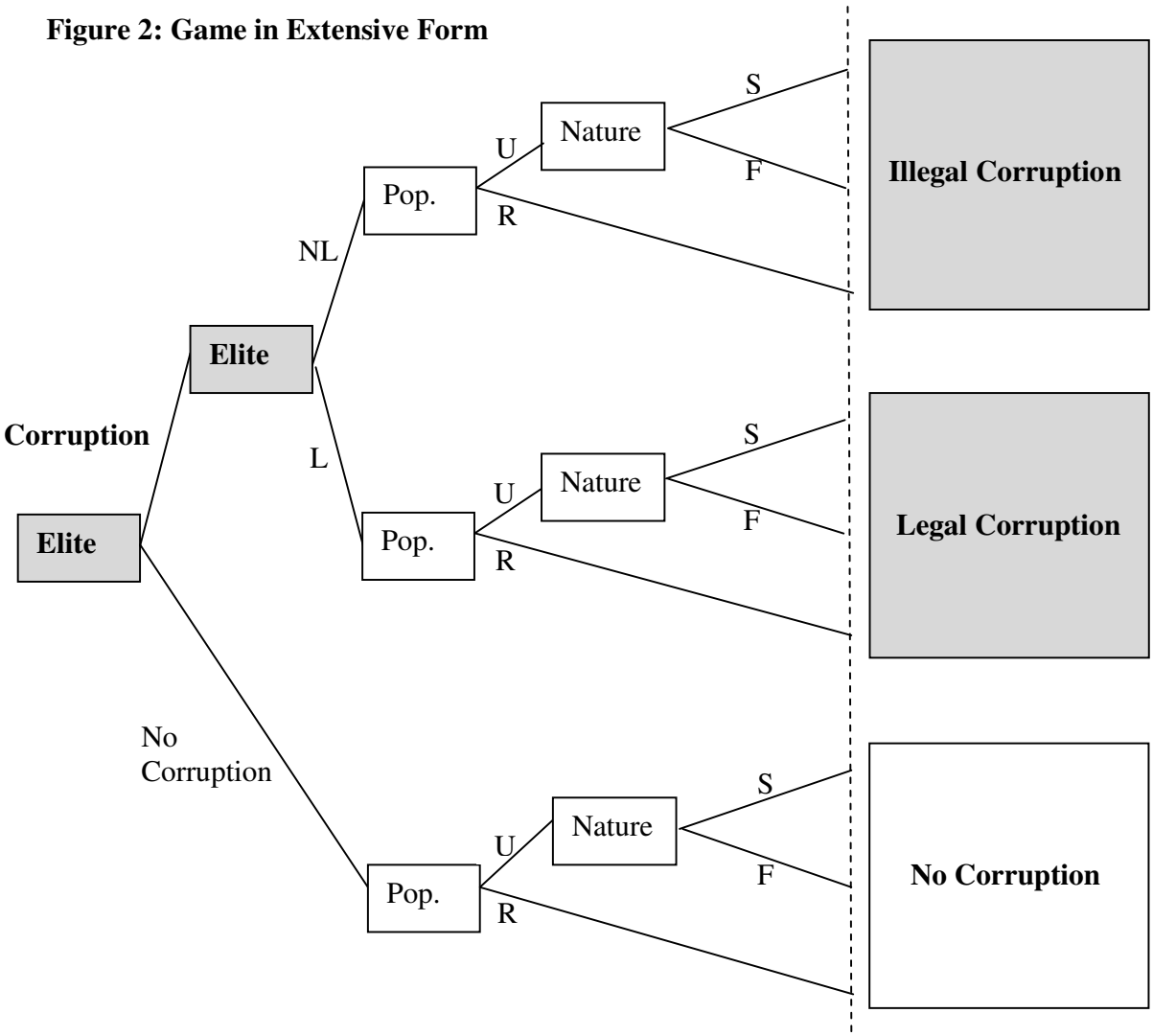


Figure 3: Patterns of Testable Implications on Accountability

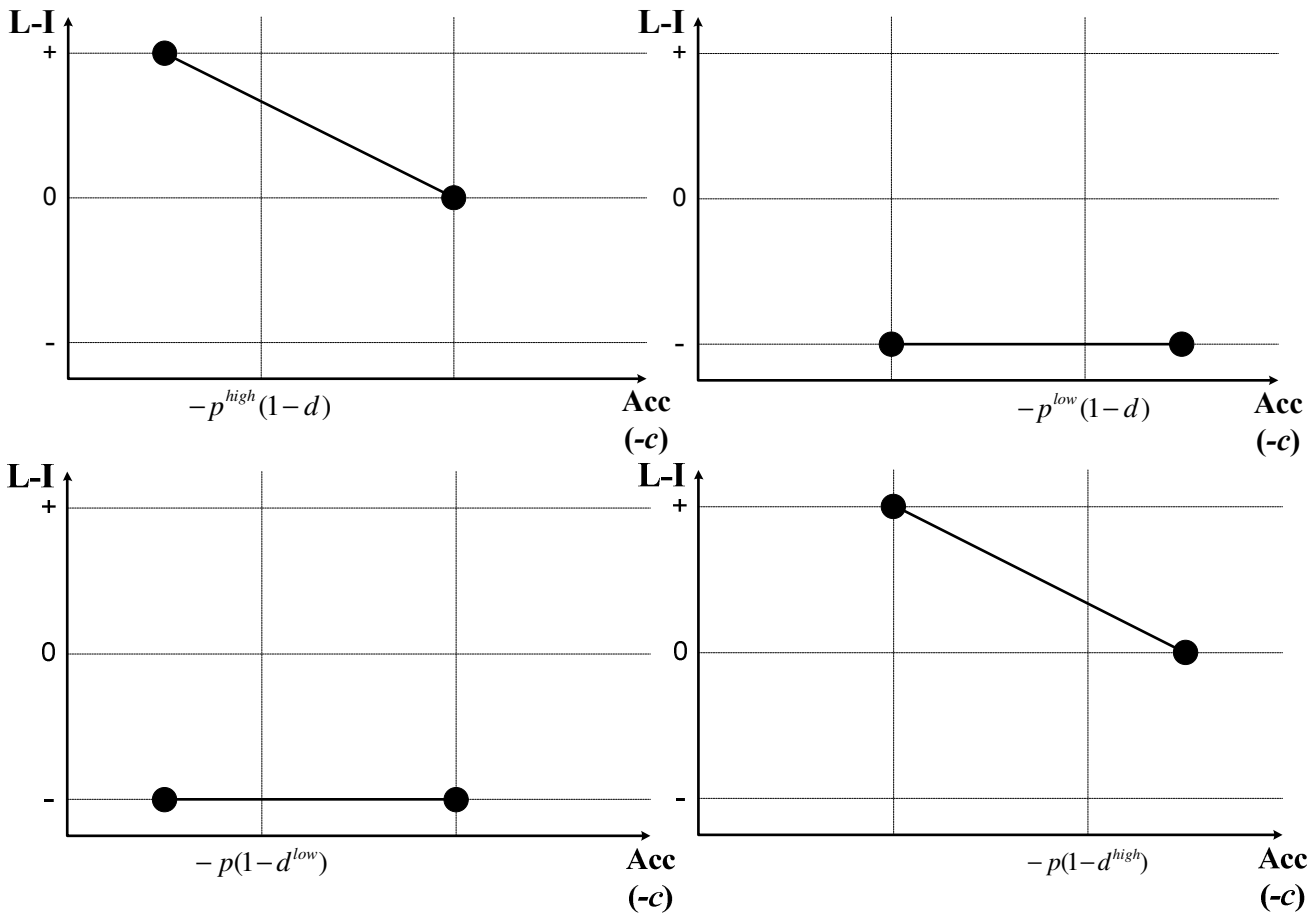


Figure 4: Patterns of Testable Implications on Equality

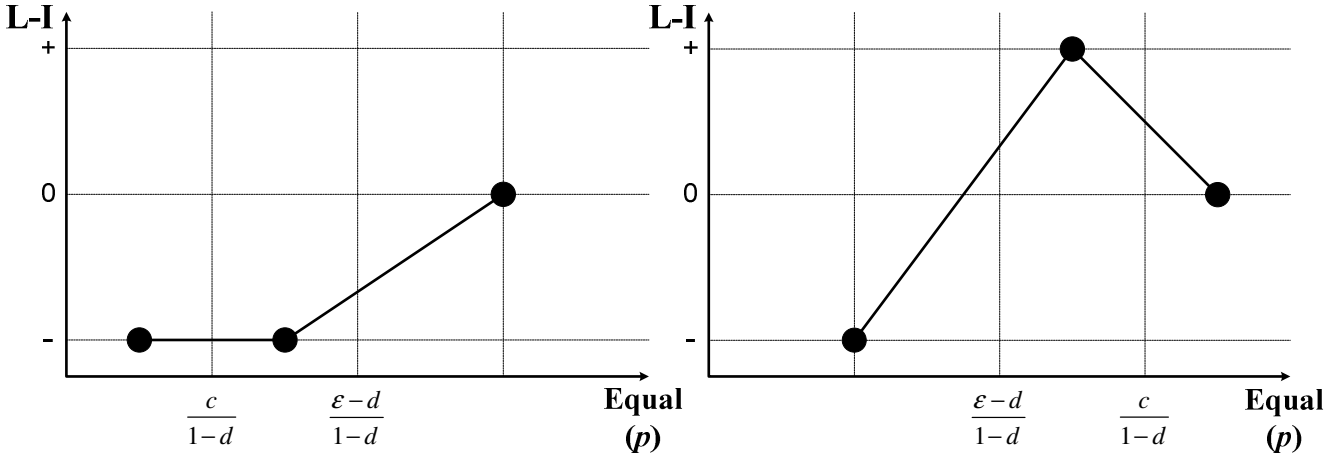


Figure 5: Patterns of Testable Implications on Initial Income

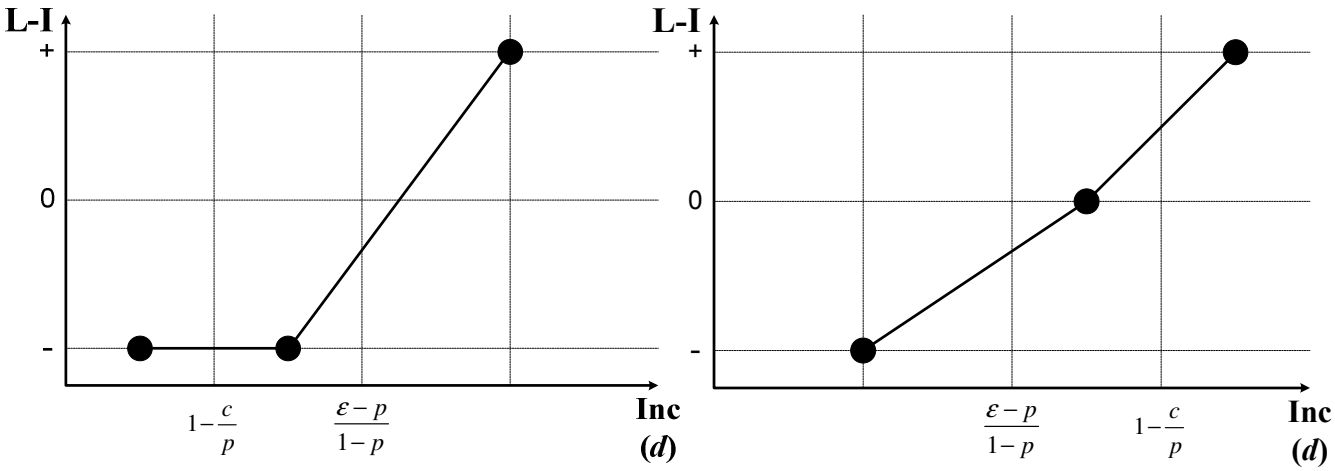


Table 1: Firm Characteristics - Descriptive Statistics of the Sample

		Average	Standard Deviation			%
Number of Employees		3665	13701	Main Competition Faced	Face little or no competition	11
% of Company Owned	By Domestic Private Sector	66	43		One dominant local competitor	5
	By Government	11	30		A few large local competitors	26
	By Foreign Private Sector	22	38		Numerous local competitors	37
Exports as % of Company's Sales		19	31		Imports	6
% Time Negotiating with Government		14	15		Multinationals operating within the country	14
Tax Burden as % of Net Revenues		28	18	Company's Sector of Activity (18 sectors)	Agriculture, Fishing, Mining	8
Self-rated Productivity (1 low - 7 high)		4.2	1.7		Manufacturing, Water/Electricity,	37
Hours Worked per Week	Hourly Worker	38	14		Retail Trade, Restaurants, Transports	25
	Salaried Worker	40	12		Financial Intermediation, Real Estate	15
	Respondent	47	16		Public Administration, Education, Health	5
Credit in Past Year (1 easy - 7 difficult)		4.3	1.7		Others	11

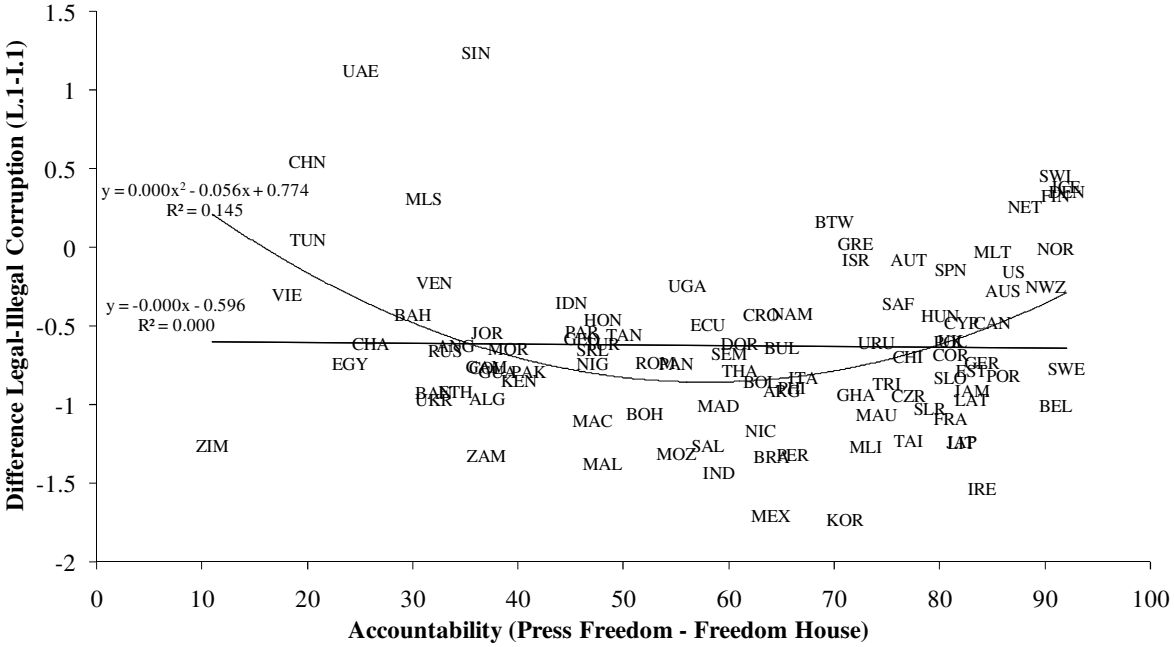
Source: EOS, World Economic Forum, 2004-2005.

Table 2: Corruption Measures - Descriptive Statistics

Corruption Measures			Firm Sample			Correlations									
			Obs.	Ave.	Std. Dev.	L.1	L.2	L.3	L.4	I.1	I.2	I.3	I.4	I.5	I.6
Legal Corruption (1 low - 7 high)	L.1	Influence of Well-Connected in Procurement	8461	4.8	1.7	1									
	L.2	Influence of Legal Contributions to Political Parties	7970	4.3	1.8	0.49	1								
	L.3	Independence of the Judiciary from Influence	8426	4.2	2.0	0.54	0.45	1							
	L.4	Influence on Laws and Regulations (Respondent's Industry)	6720	4.1	1.8	0.35	0.30	0.34	1						
Illegal Corruption (1 low - 7 high)	I.1	Public Trust in Financial Honesty of Politicians	8490	5.4	1.7	0.59	0.51	0.56	0.33	1					
	I.2	Illegal Donations to Political Parties	8098	4.5	1.9	0.56	0.61	0.50	0.33	0.63	1				
	I.3	Diversion of Public Funds Due to Corruption	8402	4.4	1.8	0.58	0.46	0.61	0.38	0.63	0.56	1			
	I.4	Bribes in Procurement (Respondent's Industry)	8014	3.9	2.0	0.47	0.35	0.47	0.39	0.46	0.45	0.56	1		
	I.5	Bribes in Influencing Laws and Policies (Respondent's Industry	8068	3.7	1.9	0.49	0.42	0.51	0.43	0.47	0.48	0.56	0.78	1	
	I.6	Bribes in Influencing Judicial Decisions (Respondent's Industry	8085	3.5	2.0	0.46	0.38	0.61	0.38	0.47	0.45	0.58	0.73	0.80	1
Legal-Illegal Corruption (-6 low - 6 high)	L.1-I.4	Procurement I	7888	0.8	1.9										
	L.1-I.1	Procurement II	8299	-0.6	1.5										
	L.2-I.2	Contributions to Political Parties	7801	-0.2	1.6										
	L.3-I.6	Judiciary	7909	0.7	1.8										
	L.4-I.5	Laws and Regulations I (Industry-Level)	6477	0.4	2.0										
	L.4-I.3	Laws and Regulations II	6608	-0.2	2.0										

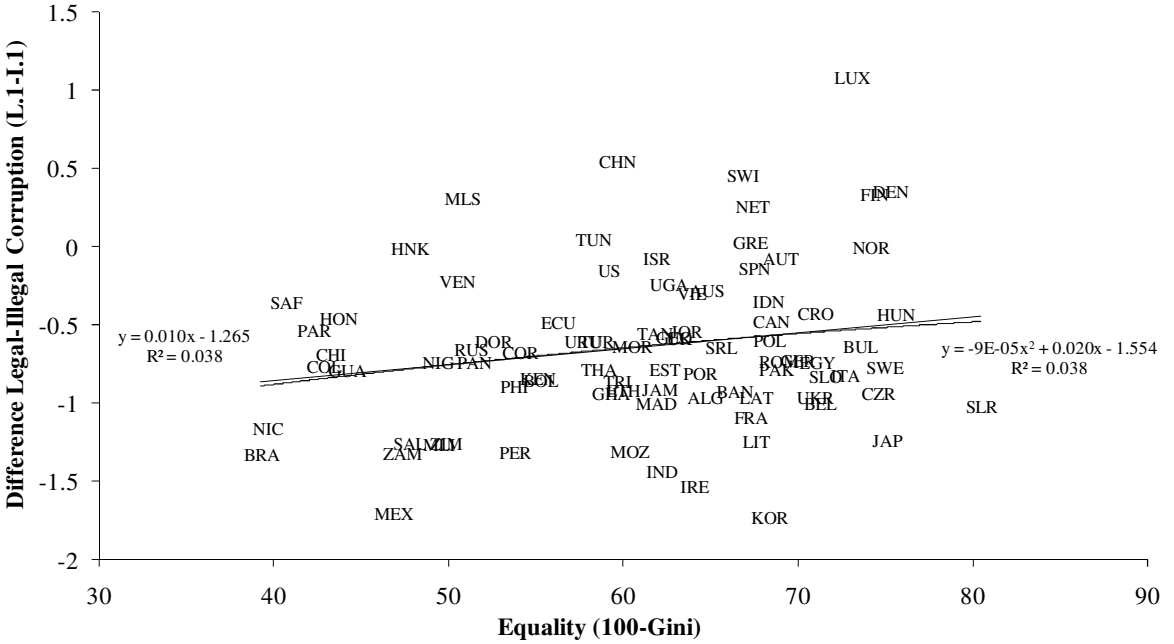
Source: EOS, World Economic Forum, 2004-2005.

Chart 1: Difference between Legal and Illegal Corruption (as given by Questions on Procurement, II) vs. Accountability



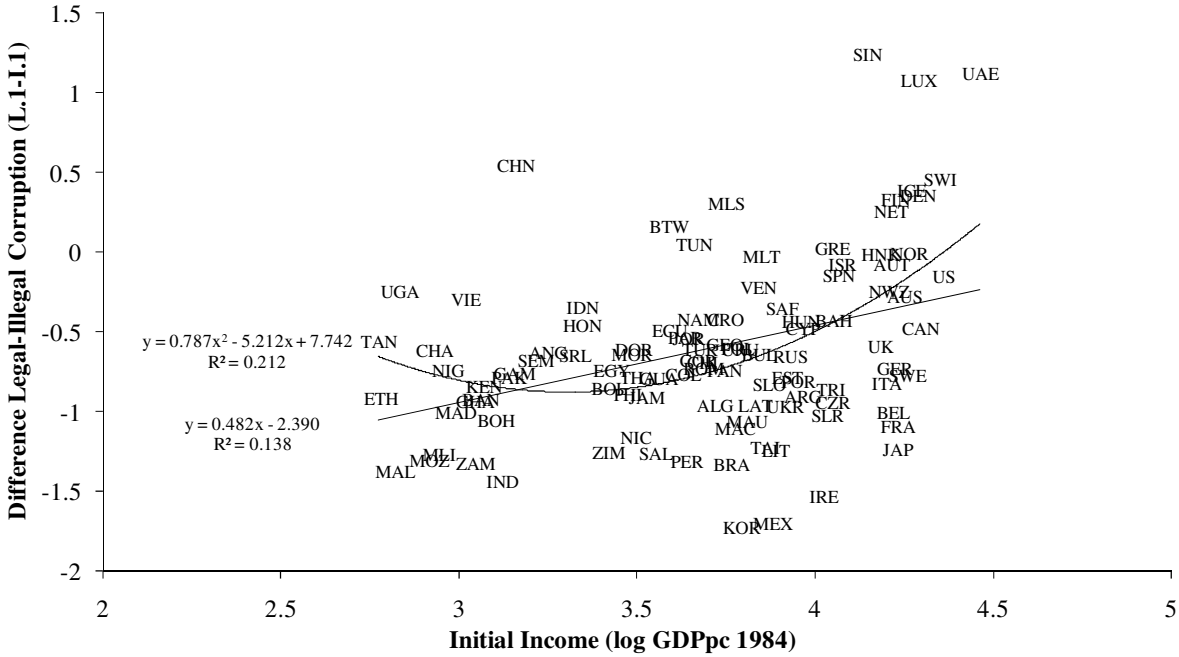
Sources: Corruption data from EOS 2004 - see Appendix for precise description of variables (questions) used. Accountability data (2002) from Freedom House.

Chart 2: Difference between Legal and Illegal Corruption (as given by Questions on Procurement, II) vs. Equality



Sources: Corruption data from EOS 2004 - see Appendix for precise description of variables (questions) used. Equality data (2002) from World Development Indicators.

Chart 3: Difference between Legal and Illegal Corruption (as given by Questions on Procurement, II) vs. Initial Income



Sources: Corruption data from EOS 2004 - see Appendix for precise description of variables (questions) used. GDP per capita from Penn World Tables, World Bank - SIMA, and CIA.

Table 3: Regressions of Legal - Illegal Corruption, Political Contributions

Dependent Variable ------>			Legal - Illegal Corruption (Political Contributions)												Theory	
															Linear	Quad.
Accountability	press freedom wef	**coef**	**-0.2006**												-	
		std err	0.0234***													
	press freedom fh	**coef**		**-0.0078**											-	
		std err		0.0012***												
	civil rights fh	**coef**			**-0.1473**										-	
		std err			0.0163***											
	political rights fh	**coef**				**-0.1402**									-	
		std err				0.0132***										
	herfindahl gov dpi	**coef**					**-0.0313**								-	
		std err					0.0781									
	voice & acc kkm	**coef**						**-0.2508**							-	
		std err						0.0349***								
	polity	**coef**							**-0.0693**						-	
		std err							0.0047***							
	first principal component	**coef**								**-0.1522**	**-0.1235**	**-0.1565**	**-0.0501**	**-0.0267**	**-0.0586**	-	
		std err								0.0128***	0.0117***	0.0165***	0.0180***	0.0155*	0.0224***	
	1st pc sq	**coef**											**0.0422**	**0.0436**	**0.0416**		-+
		std err											0.0043***	0.0041***	0.0054***	
Equality	equal gini	**coef**	**0.0107**	**0.0162**	**0.0155**	**0.0155**	**0.013**	**0.0164**	**0.0084**	**0.0109**		**0.0125**	**0.1112**		**0.1063**	+	
		std err	0.0022***	0.0022***	0.0022***	0.0022***	0.0023***	0.0022***	0.0022***	0.0023***		0.0030***	0.0257***		0.0329***		
	equal gini sq	**coef**											**-0.0009**		**-0.0009**		-
		std err											0.0002***		0.0003***		
	equal healthcare wef	**coef**									**0.1324**			**0.2421**		+	
		std err									0.0182***			0.0797***			
	equal healthcare wef sq	**coef**												**-0.0336**			-
		std err												0.0111***			
Initial Income	log gdp pc	**coef**	**0.6219**	**0.513**	**0.6057**	**0.6682**	**0.3125**	**0.6688**	**0.8226**	**0.9241**	**0.5455**	**1.0066**	**-1.4841**	**-2.9845**	**-1.8427**	+	
		std err	0.0621***	0.0601***	0.0608***	0.0612***	0.0529***	0.0711***	0.0605***	0.0730***	0.0725***	0.1009***	0.8769*	0.8971***	1.1863		
	log gdp pc sq	**coef**											**0.3096**	**0.4918**	**0.3806**		+
		std err											0.1263**	0.1301***	0.1698**		
	Constant	**coef**	**-2.1627**	**-2.6751**	**-2.6844**	**-2.9368**	**-2.1911**	**-3.6599**	**-3.3784**	**-4.2888**	**-2.6286**	**-5.0731**	**-2.4837**	**3.4115**	**-2.28**		
		std err	0.1894***	0.2045***	0.1978***	0.2023***	0.1942***	0.2794***	0.2042***	0.2595***	0.2423***	0.3815***	1.7995	1.5344**	2.4245		
Firm Characteristics			**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**Yes**		
Number of Observations			6635	6601	6601	6601	6087	6635	6635	6087	7101	3806	6087	7101	3806		
Adjusted R-squared			0.03	0.02	0.03	0.03	0.02	0.02	0.05	0.04	0.03	0.05	0.06	0.05	0.08		

Note: Standard errors reported. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: Regressions of Legal - Illegal Corruption, Laws and Regulations I, Industry-Level

Dependent Variable ------>			Legal - Illegal Corruption (Laws and Regulations I, Industry-Level)												Theory	
															Linear	Quad.
Accountability	press freedom wef	coef	**0.0618**												-	
		std err	0.0317*													
	press freedom fh	coef		**0.004**											-	
		std err		0.0016**												
	civil rights fh	coef			**0.0481**										-	
		std err			0.0225**											
	political rights fh	coef				**0.0233**									-	
		std err				0.0183										
	herfindahl gov dpi	coef					**-0.1024**								-	
		std err					0.1039									
	voice & acc kkm	coef						**0.1776**							-	
		std err						0.0477***								
	polity	coef							**-0.0221**						-	
		std err							0.0065***							
	first principal component	coef								**-0.0087**	**-0.0257**	**-0.0032**	**0.0407**	**0.016**	**0.0299**	-
		std err								0.0173	0.0156*	0.021	0.0240*	0.0204	0.0287	
Equality	1st pc sq	coef											**0.0279**	**0.0221**	**0.022**	-+
		std err											0.0060***	0.0056***	0.0071***	
	equal gini	coef	**0.0041**	**0.0033**	**0.004**	**0.0042**	**0.001**	**0.0012**	**0.0017**	**0.0005**		**0.0033**	**0.0216**		**-0.0025**	+
		std err	0.0029	0.003	0.0029	0.0029	0.003	0.0029	0.0029	0.003		0.0037	0.0347		0.042	
	equal gini sq	coef											**-0.0002**		**-0.00002**	-
		std err											0.0003		0.0004	
	equal healthcare wef	coef									**0.1737**			**0.007**		+
		std err									0.0240***			0.105		
	equal healthcare wef sq	coef												**0.0119**		-
		std err												0.0145		
Initial Income	log gdp pc	coef	**0.6551**	**0.6098**	**0.6209**	**0.6629**	**0.808**	**0.4923**	**0.912**	**0.8309**	**0.5107**	**0.6396**	**-3.9156**	**-2.6626**	**-5.1846**	+
		std err	0.0846***	0.0824***	0.0841***	0.0841***	0.0710***	0.0976***	0.0823***	0.0983***	0.0968***	0.1270***	1.1908***	1.1883**	1.5093***	
	log gdp pc sq	coef											**0.6487**	**0.4484**	**0.8085**	+
		std err											0.1708***	0.1718***	0.2155***	
	Constant	coef	**-2.5819**	**-2.2923**	**-2.3831**	**-2.4279**	**-2.5806**	**-1.529**	**-2.9257**	**-2.6618**	**-1.9862**	**-2.4985**	**5.4061**	**3.7903**	**8.2183**	
		std err	0.2588***	0.2779***	0.2700***	0.2754***	0.2613***	0.3808***	0.2785***	0.3500***	0.3234***	0.4820***	2.4624**	2.0391*	3.1104***	
Firm Characteristics			**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**Yes**	
Number of Observations			5452	5418	5418	5418	5038	5452	5452	5038	5905	3269	5038	5905	3269	
Adjusted R-squared			0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.04	0.05	0.04	0.04	0.06	

Note: Standard errors reported. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 5: Regressions of Legal - Illegal Corruption, Other Proxies

Dependent Variable ------>			Legal - Illegal Corruption (Other Proxies)								Theory	
			Procurement I		Procurement II		Judiciary		Laws/Reg. II		Linear	Quad.
Accountability	first principal component	**coef**	**-0.0424**	**-0.0433**	**-0.1243**	**-0.0355**	**-0.0703**	**-0.1054**	**0.1094**	**0.2034**	-	
		std err	0.0185**	0.0257*	0.0151***	0.0197*	0.0181***	0.0240***	0.0213***	0.0287***		
	1st pc sq	**coef**		**-0.0034**		**0.0409**		**-0.0182**		**0.0469**		-+
		std err		0.0061		0.0048***		0.0058***		0.0070***		
Equality	equal gini	**coef**	**-0.0123**	**0.0218**	**0.0062**	**0.0549**	**-0.0058**	**-0.0423**	**0.0166**	**0.1778**	+	
		std err	0.0034***	0.0379	0.0027**	0.0293*	0.0032*	0.036	0.0038***	0.0420***		
	equal gini sq	**coef**		**-0.0003**		**-0.0005**		**0.0004**		**-0.0015**		-
		std err		0.0003		0.0003**		0.0003		0.0004***		
Initial Income	log gdp pc	**coef**	**1.2217**	**3.1763**	**0.4994**	**-3.6829**	**0.6055**	**4.4117**	**0.447**	**-6.3074**	+	
		std err	0.1134***	1.3555**	0.0887***	1.0577***	0.1069***	1.2910***	0.1284***	1.5125***		
	log gdp pc sq	**coef**		**-0.2723**		**0.5671**		**-0.5307**		**0.937**		+
		std err		0.1942		0.1515***		0.1848***		0.2160***		
Constant		**coef**	**-2.5281**	**-7.0093**	**-2.4673**	**3.9477**	**-0.9599**	**-6.8248**	**-3.7042**	**4.0958**		
		std err	0.4264***	2.7755**	0.3398***	2.1391*	0.4083**	2.6145***	0.4892***	3.1127		
Firm Characteristics			**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**		
Number of Observations			3837	3837	3930	3930	3821	3821	3321	3321		
Adjusted R-squared			0.05	0.05	0.02	0.06	0.01	0.02	0.09	0.12		

Note: Standard errors reported. * significant at 10%; ** significant at 5%; *** significant at 1%

Appendix -Data Specifications[26]

Legal Corruption:

From the Executive Opinion Survey (EOS) – Global Competitiveness Report 2004-2005 (World Economic Forum):

L.1 (EOS Q4.12): *When deciding upon policies and contracts, government officials… Usually favor well-connected firms and individuals (7) - are neutral among firms and individuals (1)*

L.2 (EOS Q4.14): *To what extent do legal contributions to political parties have a direct influence on specific public policy outcomes? Very close link between donations and policy (7) - little direct influence on policy (1)*

L.3 (EOS Q5.01): *Is the judiciary in your country independent from political influences of members of government, citizens or firms? No – heavily influenced (7) - Yes – entirely independent (1)*

L.4 (EOS Q5.14D): *How much influence do you think the following groups actually had on recently enacted national laws and regulations that have a substantial impact in your business? Individuals or firms with close personal ties to political leaders. Enormous influence (7) - no influence at all (1)*

[26] The data concern at most the following countries (EOS-sampled): Algeria, Angola, Argentina, Australia, Austria, Bahrain, Bangladesh, Belgium, Bolivia, Bosnia Herzegovina, Botswana, Brazil, Bulgaria, Canada, Chad, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Finland, France, Gambia, Georgia, Germany, Ghana, Greece, Guatemala, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Korea, Latvia, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, Mali, Malta, Mauritius, Mexico, Morocco, Mozambique, Namibia, Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russian Federation, Serbia & Montenegro, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Taiwan, Tanzania, Thailand, Trinidad & Tobago, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Venezuela, Vietnam, Zambia, Zimbabwe.

Illegal Corruption:

From the Executive Opinion Survey (EOS) – Global Competitiveness Report 2004-2005 (World Economic Forum):

I.1 (EOS Q4.02): *Public trust in the financial honesty of politicians is… Low (7) – high (1)*

I.2 (EOS Q4.13): *How common are illegal donations to political parties in your country? Common (7) - never occur (1)*

I.3 (EOS Q5.11): *In your country, diversion of public funds to companies, individuals, or groups due to corruption is… Common (7) - never occurs (1)*

I.4 (EOS Q5.12E): *In your industry, how commonly would you estimate that firms make undocumented extra payments or bribes connected with awarding of public contracts (investment projects)? Common (7) - never occur (1)*

I.5 (EOS Q5.12F): *In your industry, how commonly would you estimate that firms make undocumented extra payments or bribes connected with influencing of laws and policies, regulations or decrees to favor selected business interests? Common (7) - never occur (1)*

I.6 (EOS Q5.12G): *In your industry, how commonly would you estimate that firms make undocumented extra payments or bribes connected with getting favorable judicial decisions? Common (7) - never occur (1)*

Political Accountability:

From the Executive Opinion Survey (EOS) – Global Competitiveness Report 2004-2005 (World Economic Forum):

(EOS Q5.06): *In your country, can newspapers publish stories of their choosing without fear of censorship or retaliation? No (1) – yes (7)*

From Freedom House 2003 (http://www.freedomhouse.org/):

Press Freedom Indicator: low (0) - high (100)

Civil Liberties Indicator: low (1) - high (7)

Political Rights Indicator: low (1) - high (7)

From DPI - Database of Political Institutions 2000, Beck et al (2001):

Government Fractionalization – Herfindahl Index: low (0) – high (1); this variable corresponds to the probability that two deputies picked at random from among the government parties will be of different parties.

From Kaufmann, Kraay, and Mastruzzi (2003):

Voice and Accountability: low (-2.5) – high (2.5)

From Polity IV 2002 (www.cidcm.umd.edu/polity/):

Polity Indicator: autocracy (-10) - democracy (10)

Inequality:

Gini Coefficient 2002: World Development Indicators 2002, World Bank;

From the Executive Opinion Survey (EOS) – Global Competitiveness Report 2004-2005 (World Economic Forum):

EOS Q7.10: *The difference in the quality of the healthcare available to rich and poor people in your country is… Large (1) – small (7)*

Gross Domestic Product Per Capita 1984: Penn World Tables, World Bank – SIMA, CIA, World Factbook 2002; data used is from Penn World Tables (Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania - CICUP, October 2002) Real GDP Per Capita, Chain Series, $ in 1996 Constant Prices with the following exceptions: Bahrain, Bosnia Herzegovina, Bulgaria, Czech Republic, Malta, Serbia Montenegro, Slovak Republic, United Arab Emirates, Vietnam; for all these countries except UAE, extrapolations were made using World Bank – SIMA GDP Per Capita Annual Growth Rates (from the earliest year available from the Penn World Tables); for UAE, a direct extrapolation was done using GDP Per Capita PPP in 1984 from World Bank – SIMA; for Bosnia Herzegovina and Serbia Montenegro values comparable with the ones for the World Bank – SIMA were obtained from CIA.