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Philip Cosmo Hanke

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Abstract

This thesis gives an overview of the existing literature on economic analysis of corruption and the transition process in Central and Eastern Europe (including the republics of former Yugoslavia and Albania) as well as in the Commonwealth of Independent States. Three formal models (benevolent principal, grabbing hand, and self-reinforcing corruption) are presented and a series of hypotheses is deduced. Some of these hypotheses are tested empirically in a sample of 28 countries. Extreme Bounds Analyses are applied to test the robustness of regression results using variables from a variety of datasets, including data from Transparency International, the World Bank's BEEPS survey, and others.

Contents

Contents	5
List of Figures	9
List of Tables	11
1 Introduction	13
1.1 Definition of corruption	16
1.2 Rationale behind the analysis of corruption	17
1.2.1 Why an economic approach?	17
1.3 Transition	18
1.4 Analysis of Corruption applied to Transition Countries	18
1.5 28 countries	18
1.6 Corruption in Transition Countries - The big picture	19
1.7 Research questions and structure of this thesis	21
2 Literature survey	23
2.1 Theoretical foundations	23
2.1.1 Efficiency-increasing corruption	23
2.1.2 Efficiency-detrimenting corruption	23
2.1.3 Control rights	25
2.2 Empirical methodology	25
2.2.1 Causality	26
2.3 Corruption in transition economies	27
2.3.1 Comparison to other regions in the world	29
2.3.2 Privatization	30
2.3.3 Tax rates	32
2.3.4 Determinants existing already pre-1989	32
2.3.5 Determinants arising after 1989	33
2.3.6 The case of Russia and Poland	34

3	Models of Corruption	37
3.1	Benevolent principal	37
3.1.1	The government's optimal choice	39
3.1.2	Testing the model	39
3.2	The Grabbing Hand model	39
3.2.1	One government good and the official as monopolist . .	40
3.2.2	Several goods and competition among public officials .	41
3.2.3	Testing the model	43
3.3	Self-reinforcing corruption	43
4	Hypotheses	47
5	Methodology and Data	51
5.1	Methodology	52
5.1.1	Panel data	52
5.1.2	Extreme Bounds Analysis	52
5.2	The Corruption Perceptions Index	53
5.2.1	Method	53
5.2.2	Caveat	54
5.2.3	Discussion	54
5.3	TI Global Corruption Barometer	56
5.4	The Global Integrity Index	58
5.5	CPI - GII	58
5.6	Global Competitiveness Report 08	58
5.7	BEEPS questionnaire	61
5.7.1	Discussion	62
5.8	Indicators for democracy, freedom, and progress towards mar- ket economy	62
5.9	Budget data and economic indicators	63
5.10	Other	63
5.11	Data not used	63
6	Evidence	65
6.1	Descriptive Statistics	65
6.2	Indicators	66
6.2.1	International Treaties	66
6.2.2	Law and practice	66
6.3	Results from the BEEPS survey	66
6.3.1	Constructing Indicators	69
6.4	CPI and Global Competitiveness Report	69
6.5	CPI and other measures of corruption	69

6.6	Extreme Bounds Analysis	71
6.7	Test of the hypotheses	72
6.7.1	Hypothesis 1	72
6.7.2	Hypothesis 2	73
6.7.3	Hypothesis 3	73
6.7.4	Hypothesis 4	77
6.7.5	Hypothesis 5	77
6.7.6	Hypothesis 6	79
6.7.7	Hypothesis 7	79
6.7.8	Hypothesis 8	81
6.7.9	Hypothesis 9	81
6.7.10	Hypothesis 10	87
7	Conclusions	89
7.1	Data	89
7.2	Causality	89
7.2.1	Elements specific to transition economies	90
7.3	Further research	90
	Bibliography	93
A	Appendix: Stata code	99
A.1	Introduction	99
A.2	Evidence	99
B	Summary in German / Deutsche Zusammenfassung	101
C	Curriculum Vitae	103

List of Figures

1.1	SSCI (social sciences, arts, humanities) entries by year	15
1.2	CPI and GDP per capita for 28 transition economies in 2008	20
1.3	CPI and HDI for 28 transition economies	21
5.1	CPI by country between 1995 and 2008	57
5.2	CPI and GII: There seems to be a clear positive relation between the two.	59
6.1	Anti-corruption measures in law and in practice as scored by the Global Integrity Index 2008	67
6.2	CPI and Global Integrity Index “implementation gap”	68
6.3	CPI 2008 and density. A weak, but positive relation, significant at the 90% level only.	74
6.4	GDP per capita in 2008 (in thousand USD) and density. Regressions show no significant relation.	75
6.5	Frequency of state capture by sector	80

List of Tables

1.1	CPI2008: Estimates as grand mean/intercept and marginal impacts	22
3.1	Bribe levels in different scenarios	42
5.1	Correlation matrix for average CPI and average number of surveys used (1995-2008)	55
5.2	Correlation matrix for CPI and GII	58
6.1	Descriptive statistics for the CPI 2008 in the four sub-samples	65
6.2	CPI and WEF indicators	70
6.3	EBA with CPI 2007, frequency of state capture, and Z(nx4) vector	71
6.4	EBA with CPI 2007, government expenditure, and Z(nx5) vector	72
6.5	CPI2008 and density	73
6.6	CPI2008, density, and GDP	74
6.7	GDP and density	75
6.8	CPI, density, and dummies	76
6.9	EBA with CPI 2008, voice and accountability, and Z(nx4) vector	76
6.10	Fixed Effects Model	77
6.11	Arellano-Bond linear dynamic panel-data estimation (lag = 1)	78
6.12	Arellano-Bond dynamic panel-data estimation including number of surveys used (lag = 1)	78
6.13	EBA with CPI 2008, quality of regulation, and Z(nx4) vector .	79
6.14	BEEPS: Bribe incidence (Q27) and public officials' control rights	81
6.15	BEEPS: Bribe incidence (Q27) and public officials' control rights (ordered logit)	82
6.16	BEEPS: Bribe incidence (Q30) and public officials' control rights	83

6.17 BEEPS: Bribe incidence (Q30) and public officials' control rights (ordered logit)	84
6.18 Descriptive statistics for the CPI 1999 in the four sub-samples	85
6.19 GDP growth between 1999 and 2008	85
6.20 CPI 2008, log GDP per capita, and dummies	86
6.21 EBA with CPI 2008, log GDP per capita, and Z(nx3) vector .	86

Chapter 1

Introduction

Gambol: You think you could just steal from us, and walk away?
*The Joker: Yeah...*¹

Corruption in transition countries is a part of life of many of their inhabitants, visitors, and foreign investors. For example, polls in Russia revealed that 98% of drivers have offered a bribe to a highway patrol officer at least once. Punishment for being caught driving under the influence of alcohol can be avoided by paying a bribe between US\$ 100 and US\$ 300, depending on the model of the car. Russians perceive the housing and communal system to be the most corrupt part of the government administration, followed by law enforcement [Levin and Satarov, 1999, 123]. In 1996, proprietors and senior managers in Ukraine spent an average of 30 percent of their time dealing with officials [Rose-Ackerman, 1999]. Eastern Europe and the former Soviet Union are countries where organized criminal groups begin to dominate otherwise legal business. The stakes are in fact high, given that “nothing less than the entire wealth of the state is up for grabs.” This behavior drives away potential investors from the West, which basically explains why the level of FDI from legitimate business has not been large in the countries of the former Soviet Union and varies widely across countries (ibid, 24).

Yet, literature that performs an economic analysis of corruption in regard to developing or transition countries seems to be sharply increasing only since the last years. As Easterly points out, the four-volume, 3,047 pages *Handbook of Development Economics* (1988-1995) does not mention corruption with a single word, neither does Debraj Ray’s leading textbook *Development Economics*. Also international financial institutions such as

¹The Dark Knight, 2008

the World Bank or the International Monetary Fund drew their attention towards corruption only sometime in the early 2000s, though only by first calling it “problems with governance.” [Easterly, 2002, 241] This concept of “governance”, as [Dixit, 2009] puts it, “has risen from obscurity to buzzword status in just three decades.”

A common reason why corruption was often ignored as a research topic was that “a bribe is simply a transfer and therefore entails no serious welfare losses” [Ades and Tella, 1997b, 499]. Yet, this view was questioned by Gunnar Myrdal when he argued “that if corruption is allowed, government officials will have an interest in generating bureaucratic hurdles to demand bribes.” (ibid)

On the other hand there are a couple of economists who started analyzing corruption already in the 1960s. An important author is Susan Rose-Ackerman, who in 1978 published her seminal book *Corruption: A Study in Political Economy* [Rose-Ackerman, 1978].

The Social Sciences Citation Index (SSCI) delivers citations of 4036 published social sciences, arts, and humanities articles on corruption². As figure 1.1 shows, there is a strong increase in the number of articles on this topic, with 1996 being the first year counting more than one hundred.

Since many observers have been shocked by an apparent dramatic increase in corruption after 1989 in all the transition countries, the focus for political economists studying the region had shifted from the economics of transition to government in transition by 2002 [Treisman, 2003].

[Svensson, 2005] formulates eight questions about corruption that are relatively representative of the current research on corruption: (i) What is corruption? (ii) Which countries are the most corrupt? (iii) What are the common characteristics of countries with high corruption? (iv) What is the magnitude of corruption? (v) Do higher wages for bureaucrats reduce corruption? (vi) Can competition reduce corruption? (vii) Why have there been so few (recent) successful attempts to fight corruption? (viii) Does corruption adversely affect growth?

This thesis tries to deliberate on what and how much of the existing and publicly accessible literature and data are suitable for the endeavor to get a sense of the levels and causes of corruption in the formerly communist countries in Central and Eastern Europe and the former Soviet republics.

²http://thomsonreuters.com/products_services/scientific/Social_Sciences_Citation_Index, as of March 8, 2009

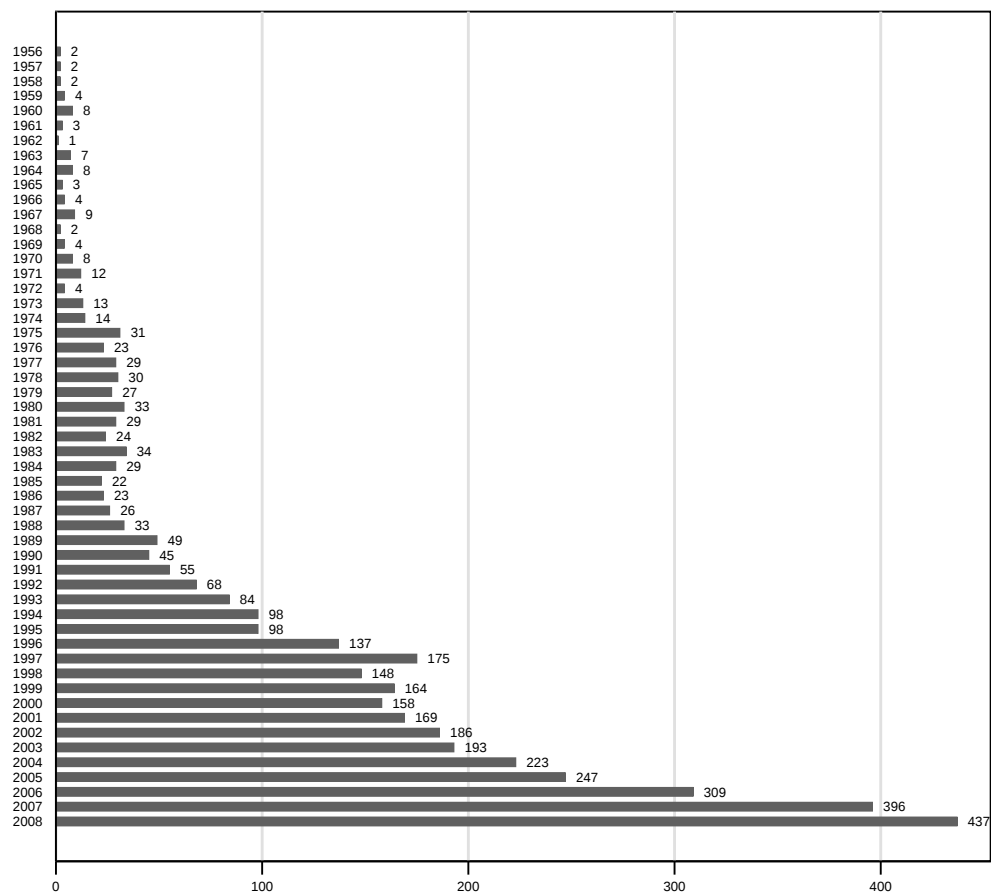


Figure 1.1: SSCI (social sciences, arts, humanities) entries by year

1.1 Definition of corruption

Due to the diverse nature of corruption and its many facets, defining it shows to be a difficult task. Toke S. Aidt [Aidt, 2003, 633] notes that typically a version of the following definition is used:

Definition 1 *Corruption is an act in which the power of public office is used for personal gain in a manner that contravenes the rules of the game. [Jain, 2001, 3]*

This definition has some implications for the plan of this paper: corruption is something committed by either politicians or (other) public officials. Corruption within the private sector - though most likely existing, especially after the privatization of former state-owned firms - will not be subject of analysis in this paper. By linking corruption to public office, we distinguish corruption from illegal activities not involving the use of public office such as fraud, money laundering, drug trade, and black market operations. [Jain, 2001, 3] This definition immediately shows an important aspect of the economic analysis of corruption: “rules of the game” implicitly assumes a society in which corruption indeed is not part of the game. Yet, in many countries, corruption has become an intrinsic part of the game’s rules, that is, of doing business. In fact, models that will be discussed later show how corruption, once introduced to “the game”, remains part of this “game” and cannot be easily excluded.

While corruption is the illegal seeking of rent, it also has to be clearly distinguished from legal rent-seeking. Pressure groups might influence politicians, bureaucrats or legislators to decide in their interest. The questions when, why and how this is done determine whether the process is free of corruption or not. These actions of rent-seeking are legal in our sense if the game of influencing the decision maker(s) is competitive with rules that are known to all the players, there are no secret or side payments between the players and the decision maker(s), and if neither the players nor the decision maker(s) benefit from the income earned by the other [Jain, 2001, 10]. Some authors, such as [Rose-Ackerman, 1978], explicitly include legal campaign financing when analyzing the economics of corruption. The reason for this is quite pragmatic: the availability of data. The other reason is that the reelection motive is very important when looking at the behavior of politicians.

[Tanzi, 1998, 9] identifies seven categories (though others could be added) by which corrupt acts can be classified:

1. Bureaucratic (or “petty”) or political, i.e. corruption by the bureaucracy or by the political leadership

2. Cost-reducing (to the briber) or benefit-enhancing
3. Briber-initiated or bribee-initiated
4. Coercive or collusive
5. Centralized or decentralized
6. Predictable or arbitrary
7. Involving cash payments or not

1.2 Rationale behind the analysis of corruption

The economic analysis of corruption literature regularly comes to one conclusion: corruption has negative effects on growth and well-being of a society. But this analysis can do more than merely stating the obvious. Daniel Kaufmann [Kaufmann, 1998, 147] notes that “[it] is often underplayed [...] how insightful empirical measures of corruption can be for a host of institutional and governance analysis (too often long in prose and short on data). As such, it is an empirical window to deeper underlying problems.” On a practical sidenote, a sound analysis of corruption can also lead to useful and working policy recommendations. This is particularly true for transition economies, given that they are an environment of constant motion, where change is happening on a daily basis and should, of course, go into the right direction.

1.2.1 Why an economic approach?

Corruption is a multi-faceted phenomenon. It affects political institutions and is thus subject to political science. Since it involves a transaction between two or more people, it is also of interest to economists. It shapes not only politics and economics, but also a country’s society and culture (see for instance page 25 citing [Fisman and Miguel, 2006] for a measure of corrupt cultural norms by looking at parking violations by diplomats in New York) and could thus also be analyzed by sociologists or cultural anthropologists. This means that it is paramount to keep up a somewhat interdisciplinary approach whenever talking or writing about corruption. This thesis uses mainly the tools of economists, such as formal models or econometrics and thus has to remember that it thereby remains incomplete. It is nevertheless legitimate to do so as corruption creates a set of incentives to which people respond and thereby gives economists an opportunity to contribute.

1.3 Transition

Transition is the process of reforming a centrally planned economy towards a functioning market economy. It redefines how the state and the firms are organized and how they interact with each other. Since corruption is a main aspect of their interaction, analyzing this phenomenon thus contributes to the theories of industrial organization. As [Hellman et al., 2000a] points out, there is a bi-directional relationship: the state interacts with firms, but (and this has been less subject to scientific investigation) at the same time firms influence the state. They can exert influence on public officials and collude with them to extract advantages, thereby changing the rules of the game, as mentioned above in the definition of corruption.

1.4 Analysis of Corruption applied to Transition Countries

Applying concepts used in research on corruption to economies in transition can add value to the research on corruption in general. This can be done by setting up counterfactuals. By taking a group of countries that have a common starting point in their economic development (as it is the case for former communist countries) and looking at the diverging paths in terms of the possible factors determining corruption, we can contribute to explaining the different outcomes in terms of corruption among those countries (e.g. [Kaufmann, 1998]). [Karasulu, 2003] notes that “[i]n the post-communist world, the process of economic transition not only unmasked corruption, but created fertile ground for the (unmasked) corruption’s being more systemic.”

Others, like [Treisman, 2003] argued that corruption in transition countries is not much different from corruption in other less-developed countries. Yet, also Treisman notes that “[p]ostcommunist countries have followed strikingly different trajectories. In some, the first postcommunist governments liberalized the economy and focused on providing public services; in others, politics descended into a competitive struggle over rents; in yet others, an authoritarian cartel kept such rents - and the population too - under strict control” (ibid).

1.5 28 countries

By “transition economies” we mean specifically 28 countries: the group of the ten New Member States (NMS) of the European Union (Bulgaria, Czech

Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia), the twelve Commonwealth of Independent States countries (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan), the five former Yugoslav republics that are not EU member states (Bosnia, Croatia, Macedonia, Montenegro, Serbia³) and Albania.

1.6 Corruption in Transition Countries - The big picture

To get a rough sense of the levels of corruption prevailing around the globe, one can look at the Corruption Perceptions Index (CPI) calculated annually by Transparency International (www.transparency.org). The CPI attributes to each country an index number between 0 (“highly corrupt”) and 10 (“highly clean”). Table 1.1 highlights the difference in Corruption Perception Index among three groups of Transition Countries. EU Member States have the highest CPIs, followed by Former Yugoslav countries (other than Slovenia), whereas CIS countries and Albania have the lowest. The smallest CPI observed was 1.8 (Turkmenistan, Uzbekistan), which is almost on the bottom of the global ranking, too, and is comparable to the scores of Zimbabwe or the Democratic Republic of Congo. The best CPI was Slovenia’s 6.7, which ranks only two places behind France and six behind the United States.

Global evidence shows a strong correlation between a country’s GDP and its CPI. This can also be confirmed for the case of Transition Countries. Yet, we can also see a strong variation and a significantly different level of corruption among some countries who have similar GDPs per capita. For instance, Poland and Russia have an almost identical GDP per capita (around \$12,000), yet Russia has a CPI of 2.1 (just like Kenya or Bangladesh) whereas Poland’s score is 4.6 (in comparison: Italy’s score is 4.8). At the same time, Slovakia has about the same level of corruption as the Czech Republic but a much lower GDP per capita. In general, as Figure 1.2 indicates, CIS countries seem to evolve along a different path than the New Member States and former Yugoslav republics⁴. A simple linear regression yields a constant of about 1.98 and a coefficient of 0.18 (GDP per capita being measured in

³Kosovo is not included as its independence is not universally recognized (yet) and because, due to the recentness of its establishment, data is hardly available specifically for Kosovo.

⁴CPI data from Transparency International (2008), GDP data from the IMF (estimates for 2008; for Montenegro, the CIA World Factbook estimate for 2008 was used).

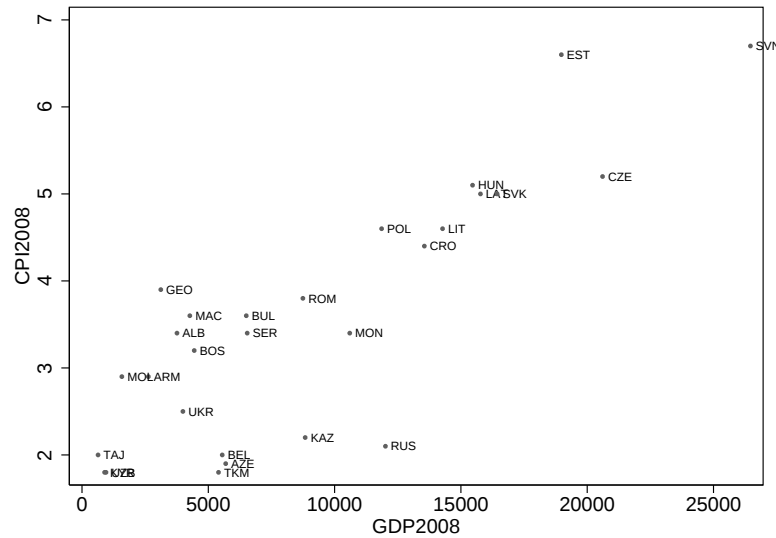


Figure 1.2: CPI and GDP per capita for 28 transition economies in 2008

thousands). The results are similar when we use the HDI from the UN's 2008 report⁵ (which includes HDI values for 2006) instead of GDP per capita. The constant is -11.53 and the coefficient 18.63 (note that the average among HDIs is much smaller than among GDPs). Yet, in this setting, Poland (which, as mentioned above, has about the same GDP per capita as Russia) is on rank number five in terms of HDI (as compared to number 10 in the GDP ranking). The HDI is an average of three indices: life expectancy, education (itself a weighted average of adult literacy rate and gross enrollment index) and GDP per capita. This might mean that education is a factor related to corruption. The reason for this might be the fact that education is actually more of an indicator of the quality of a country's institutions than GDP is.

Corruption thus seems not only to be a purely economic-developmental issue, but also a policy and institutional problem. If we assume that Poland and Russia were more or less at the same level of corruption before 1989, then something must have gone "wrong" in Russia during the transition period. We will therefore have to look at the various economic transition processes in those countries and - by comparing them - try to find the causes for why one country ended up being more corrupt than the other.

⁵http://hdr.undp.org/en/media/HDI_2008_EN_Tables.pdf

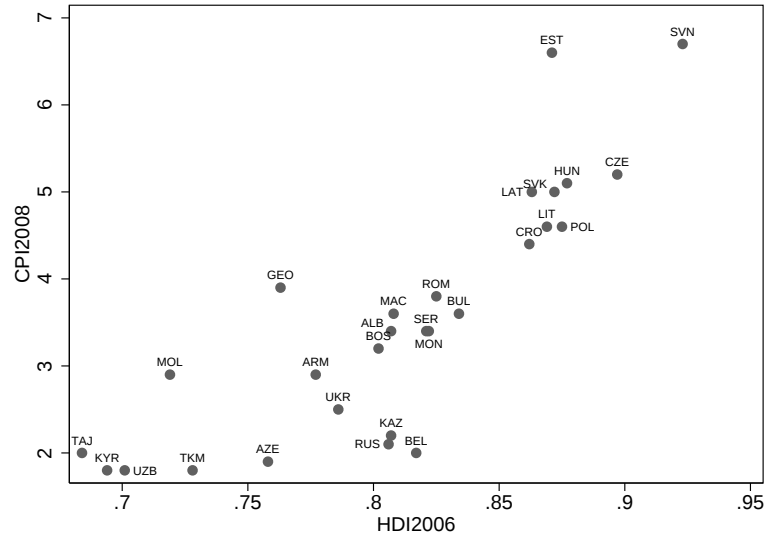


Figure 1.3: CPI and HDI for 28 transition economies

1.7 Research questions and structure of this thesis

This thesis tries to accomplish several things. It first gives a brief overview of the existing literature on the economic analysis of corruption (Chapter 2), and then presents three formal models in detail (Chapter 3). From the literature and the models, a number of hypotheses arise (Chapter 4). The next step then is to look at how those hypotheses could be tested empirically: A recurring issue is the illegality and secrecy of corruption, which will have huge implications on how this topic can be approached empirically. Chapter 5 therefore presents some of the available data and deliberates on the usefulness of these datasets. Chapter 6 then tries to test the formulated hypotheses using the data presented. The last section concludes by summarizing some of the determinants of corruption in transition economies and gives some thought on how data could be improved to achieve more significant results.

Table 1.1: CPI2008: Estimates as grand mean/intercept and marginal impacts

Variable	Coefficient
	(Std. Err.)
EXYU	0.050 (0.286)
EU	1.283** (0.193)
CIS	-1.233** (0.154)
other	-0.150 (0.692)
Grand	3.550** (0.133)
N	28
Significance levels : † : 10% * : 5% ** : 1%	

Chapter 2

Literature survey

There is a large literature on the relationship between corruption and development. See for instance [Bardhan, 1997] or [Mauro, 1999]. Since this thesis focuses on transition economies and not so much on developing countries, this literature is left out of this survey.

2.1 Theoretical foundations

2.1.1 Efficiency-increasing corruption

Some papers take corruption as given and look at the second-best outcome. Proponents of the view that bribe payments “grease the wheels” of bureaucracy as described in the Equilibrium Queuing Model of Bribery in [Lui, 1985] argue that firms that pay more bribes spend less time in the waiting queue for scarce government goods.

Yet, this view is strongly contested in [Kaufmann and Wei, 2000], which argues that in a general equilibrium (unlike the partial Nash equilibrium in [Lui, 1985]) bureaucratic harassment is endogenous. They also provide empirical evidence showing that bribe payments are not associated with less delay and lower burden, though they assert that paying bribes can be rational for individual firms in a corrupt environment.

2.1.2 Efficiency-detrimenting corruption

Andrei Shleifer and Robert W. Vishny’s often-quoted 1993 paper on corruption, [Shleifer and Vishny, 1993], tries to formally show (a) that the level of corruption is determined by the structure of government institutions and the political process, with weak governments inducing ultra-high corruption

levels, and (b) that due to its illegality and hence the need for secrecy, corruption is much more distortionary and costly than taxation. This is seen as part of the explanation of why in some less developed countries, corruption is so high and so costly to development. As described in more detail in Chapter 3, they introduce a simple model of a government produced good which is sold by a government bureaucrat, who has the opportunity to restrict the quantity of the good that is sold. He or she can then turn over the official price of the good to the government (no theft) or simply hide the sale (theft). They furthermore distinguish three cases: one where corrupt agencies constitute a joint monopoly, one where they act as independent monopolists, and one with perfect competition among different suppliers of the same government good. [Shleifer and Vishny, 1993] give plausible explanations for patterns of corruption in Russia. Yet, it is not addressed why countries in Central and Eastern Europe or former Yugoslav countries experienced a very different development than Russia and other former Soviet republics. This was addressed five years later in [Shleifer and Vishny, 1998a], where they look at the early transition process, especially the time of the so-called shock therapies in several countries. In particular, they compare differences in development in two seemingly similar countries: Poland and Russia.

Apart from the models presented in chapter 3, there are also formal approaches to corruption specifically relating to transition. For instance, [Basu and Li, 1998] are puzzled by the observation that countries in transition often experience an increase in corruption at the same time as an increase in growth, which is counterfactual to the theories of the destructive effects of corruption as well as to theories stating that corruption disappears with economic growth. By using a quite elaborate model, they describe how corruption levels can be reduced in the long run and thereby also the foundations for current high growth be laid if controls for corruption are temporarily relaxed and the government thereby secures support for its reform effort. A key to this rationale is that bureaucracies are not seen as uniform, but as a sequence of generations of bureaucrats, where one generation can be “bought out” to the detriment of the following generation.

Other theoretical papers look at the effect of corruption on competition. [Emerson, 2006] hypothesizes that if a government agent controls access to a formal market, he or she has a self-interest in demanding a bribe payment that serves to limit the number of firms. This is because only in an oligopolistic market firms earn profits, of which the public official can then demand a share. In this model, the probability of detection depends on the amount of the bribe payment and the number of firms that pay it. The model has multiple equilibria, with one being characterized by high corruption and low competition and another characterized by low corruption and high compe-

tition. This result is also confirmed empirically by using perceptions-based indexes for corruption and competition.

2.1.3 Control rights

Some data reveal that there are firms which need to pay more bribes than others. An explanation given e.g. by [Svensson, 2003] is that “officials’ opportunity to extract bribes, i.e., their opportunity to influence the firms’ business decisions and cash flows, differs across sectors and locations. With private firms, these control rights stem from the existing regulatory system and the discretion public officials have in implementing, executing, and enforcing rules and benefits that affect firms, such as business regulations, licensing requirements, permissions, taxes, exemptions, and public-goods provision” (ibid, 209). They also determine the threat point in the negotiations between public officials and firms. How much control over a firm can be exercised by a public official cannot be measured, but a firm’s required or voluntary dealings with the public sector can be. Formal models are described in [Shleifer and Vishny, 1994] and [Svensson, 2003].

[Ades and Tella, 1997a] argue that active industrial policy transfers rents to firms in favored sectors and that “bureaucrats with control rights over those firms can create mechanisms to extract some of those rents through bribes” (ibid, 1024). The total effect of industrial policy on investment can be decomposed into two effect, a positive direct effect and a negative indirect effect through corruption.

2.2 Empirical methodology

As, by definition, corruption is something illegal, obtaining data on it is a big issue in studies on this topic. It requires a great amount of creativity to find pieces of evidence that might hint at corruption taking place.

[Fisman and Miguel, 2006] take a look at how corruption is embodied in cultural norms of diplomats at the United Nations headquarters in New York by looking at their parking violations. Thereby they construct a revealed preference measure of government officials’ corruption based on real-world behavior taking place in the same setting. They find that diplomats from high corruption countries have significantly more parking violations.

In another paper, [Fisman and Wei, 2004] compare Hong Kong’s reported exports to China at the product level and China’s reported imports from Hong Kong and thereby design an indicator for the laxity of the rule of law.

Fisman also tried to estimate the value of political connections in a case study on Indonesia under Suharto ([Fisman, 2001]. Indonesia has a highly centralized and stable political structure, which made it possible to construct a credible index of political connectedness (ibid, 1095). He does so by taking into account rumors on Suharto's health during his final years in office as an indicator for the likeliness of his death and compared the returns of firms with differing degrees of political exposure. During such episodes of negative rumors, he shows that "in every case the returns of shares of politically dependent firms were considerably lower than the returns of less-dependent firms [and that] the magnitude of this differential effect is highly correlated with the net return on the Jakarta Stock Exchange Composite Index. [...] Well-connected firms will suffer more, relative to less-connected firms, in reaction to a more serious rumor. [...] Results suggest that a large percentage of a well-connected firm's value may be derived from political connections." (ibid, 1096). As a measure of political connectedness he uses the 1995 Suharto Dependency Index developed by the Castle Group, a consulting firm in Jakarta. The lack of such an index for transition economies makes a comparable study for those countries quite impossible, even though the high concentration of firms and their links to only a few oligarchs in Russia would invite to perform a similar analysis. For instance, it would probably be possible to establish links between Boris Yeltsin and large Russian firms and then look at effects of Yeltsin's resignation in 2000 or his death in 2007 on those firms. [Faccio, 2004] also studies political connections of firms and defines a typology of three types of connectedness: (a) connections with members of parliament (at least one top-director of the firm sits in the national parliament, or at least one shareholder is a member of parliament), (b) connections with a minister or head of state (as director, large shareholder or through a relative), and (c) close relations to a top official (which lacks the definitional objectivity of the other connection types). Faccio concludes that "connections are particularly common in countries with higher levels of corruption, countries imposing restrictions on foreign investments by their residents, and countries with more transparent systems [that is, where connections are easier to identify, PCH]. Connections are less common in countries with regulations that set more rigorous limits on political conflicts of interest." [Faccio, 2004, 13]

2.2.1 Causality

Much of the debate revolves around the question whether there is a causality between corruption and economic growth (or more precisely: the level of GDP). Since there is an obvious link between those two, the discussion is

mainly about what caused what. Authors like Johann Graf Lambsdorff of the University of Passau, who produces the Corruption Perceptions Index for Transparency International, basically claims that corruption produces low growth [Graf Lambsdorff, 2008], whereas others, such as Daniel Treisman in his cross-national study on the causes of corruption argue that corruption is poverty-driven and disappears when countries develop [Treisman, 2000]. [Gundlach and Paldam, 2000] contribute to this debate by using a somewhat unusual approach. They use instrumental variables to identify the long-run direction of causality - and do so by using prehistoric measures of biogeography. From those measures they deduce corruption-free incomes and then show that these incomes explain cross-country patterns of corruption just as well as the actual cross-country pattern of incomes. They conclude that all long-run causality is from income to corruption, which also means that corruption vanishes as countries get rich. They nevertheless explicitly do not rule out a short-run reverse causality.

2.3 Corruption in transition economies

[Levin and Satarov, 1999] link the prevalence of high levels of corruption in Russia to its communist past and subsequent bad development in the early transition process. Even though transition introduced a market system, pre-transition institutions and ways of doing business that use the weakness of the state for private profit remained in place. Competition thus is mainly for rents. The boundaries between politics and private business are ill-defined. It is estimated “that the sum of losses inflicted by corruption exceeds the combined expenditures on science, education, health care, and art allocated in the government budget” (ibid). Criminal groups in some branches of industry like the oil and gas or the mining of rare metals industries, spend up to half of their actual revenues on paying bribes to officials at various levels. The losses from improper uses of government funds amounted to billions of dollars in 1997. Small entrepreneurs across Russia are estimated to pay a minimum of half a billion U.S. dollars per month for bribes to officials and some ten percent of total revenues in small- and middle-size businesses are taken by corruption (ibid). Setting up a business can be very costly: permissions from about fifty officials are required and thus constitute a large potential for bribe payments. As combined corruption-related payments seem to be in the range of US\$ 10 to 20 billion a year, investments to reduce corruption would easily be socially profitable. The rise of the shadow economy led to a reduction in tax collection and a weakened government budget, at the same time, informal firms have to pay bribes in order to silence tax collectors. “Corruption

overheads” put a burden on companies or the state when it tries to provide public goods (ibid).

“Corruption, its scale, dynamics, and specific features, is a consequence of the general political and socioeconomic problems of the transition from socialism” [Levin and Satarov, 1999, 116]. The process of transition would have required a division of labor between free market agents and state institutions, which should create the conditions for the normal functioning of the economy. Instead, administrative bodies, especially at the regional level, “continued to play on the economic field according to the rules that they established for themselves” (ibid, 117). While rapid and radical changes occurred in the 1990s in Russia, the majority of state officials nevertheless kept their posts. A negative selection took place, meaning that those who were most likely to adhere to Soviet patterns of state interference in all aspects of life and those who considered a governmental administrative post as means for their personal enrichment remained in state bureaucracies.

The speed of transition and the political risk related to it discouraged long-term investments and led to an economic behavior that was more interested in extremely short-term goals. People who acted in this way were also likely to seek profit by means of corruption.

Due to the economic crises in the 1990s, the state had to increase taxes, thus again fostering the development of a shadow economy.

During the transition period, legislation lags behind the speed of reform, which means that the first steps of privatization were made in the absence of any legal regulations or strict controls. “Economic liberalization was combined with, first, obsolete principles of state control over resource distribution and, second, with the absence of legal norms regulating new activity” (ibid, 118). Russia’s historical lack of well-established democratic political traditions and of significant opposition enabled political figures to trade their political capital for economic gain. Furthermore, in Soviet times, protection was sought in party committees and not in courts, suing others was very unusual. The judiciary system is therefore traditionally weak.

Privatizations of state property were a serious cause of corruption: including state officials in the pool of shareholders was a widespread practice. The cost of privatized property was underestimated, tender conditions were manipulated, enterprise and state officials engaged in mass purchases of shares of enterprises through trustees (ibid).

It is estimated that around half of all decisions regarding state credits or the state distribution of state budgetary resources are accompanied by bribes. The lack of resources in the budget allowed officials to decide who will be the first to obtain financing. During administrative reforms, public officials regularly expressed the wish for the right to issue licenses (ibid).

Since the time of the Soviet Union, the number of convictions for corrupt acts decreased by 80%, even though Russia's population is smaller than that of the USSR by 40%. "The probability that a defendant will end up behind bars after a case is begun by the prosecutor's office does not exceed 0.08" (ibid, 126). Law enforcement agencies fail in their fight with corruption for three reasons:

1. Criminal prosecution cannot change large-scale corruption alone, since corruption is a systemic problem and not only a criminal one.
2. The quality of work of the law enforcement agencies is low, as the level of professionalism is low and those agencies are affected by corruption themselves.
3. The law enforcement system alone cannot cope with the problem, but needs the combined efforts of the state and society. (ibid)

[Treisman, 2003] examines whether transition countries are particularly corrupt and why some are more corrupt than others. He finds that they are on average somewhat more corrupt than others, though most of the difference can be explained by their relatively low economic development and limited history of democracy. The variation between countries can be explained by factors that were already fixed at the beginning of transition, namely 1989 economic development, years under communism, Protestant share of population, and natural resource endowments. Furthermore, political decentralization, political instability (during transition) and executive-parliament polarization do also contribute to some extent. Other aspects do not have a statistical significance: the extent of democracy, trade, and indicators of progress in economic and legal reforms. Based on these results, he criticizes that research focused too much on idiosyncratic features of the transition years and too little on underlying factors that explain corruption worldwide. For his calculations, he used the perceptions-based indexes from Transparency International (CPI) and the World Bank as well as the BEEPS dataset. These datasets will all be described in further detail in Chapter 5.

2.3.1 Comparison to other regions in the world

Corruption is generally linked to low economic development. Since transition economies, particularly those further to the East are relatively less-developed, this accounts for much of the observed levels of corruption. All of those 28 share the burden of not having been colonized by the British empire at any time in history. For many economic indicators, including corruption,

ties to the British tradition have a positive effect (see, e.g. [Treisman, 2003]. In fact, the world's largest economy (the United States) is a British spin-off, while the largest democracy in the world (India) experienced over a hundred years of British rule. The 2008 average CPI for the group of transition countries was 3.55, the world's average was 4.02. Treisman generally considers the specific effect of postcommunism on corruption to be small. So, according to him, "for the most part, Uzbekistan has high perceived corruption today for the same reasons as Pakistan or Paraguay," while "the main causes of Russia's corruption are the same as those of Paraguay's" (ibid).

Nevertheless, the transition process brought many changes and also many opportunities for corruption unique to transition, which legitimizes an analysis of corruption in those countries. The introduction mentioned the difference in corruption between Russia and Poland: in fact, even Treisman's skeptical to transition-specific explanations analysis explains only about 40 percent of the gap between those to countries. This gap is closed by adding prime ministerial turnover, parliament-executive polarization, Russia's greater political decentralization, and the less severe (1990s) economic crisis in Poland.

2.3.2 Privatization

As hinted at above, the way how privatizations took place in transition economies might be an important determinant of levels and patterns of corruption. Privatization can mean a combination of two changes undertaken by a reformer. "The first is turnover of control from spending politicians to managers, often referred to as corporatization. Such a turnover can be implemented by a strong reform government that effectively suppresses the ministries and the bureaucracy, as happened in the Czech Republic. Alternatively, such a turnover can happen more spontaneously, as the power of bureaucracy to protect its control rights diminishes. Such a slow turnover of control from politicians to managers occurred in Russia in the early 1990s" [Shleifer and Vishny, 1998b, 143] The second change is the reduction of cash flow ownership by the treasury and the increase of cash flow ownership by managers and outside shareholders (ibid).

However, the process of transferring assets to private ownership itself gives opportunities to corrupt acts. Those corrupt incentives can be comparable to those that arise in the award of contracts and concessions: bidders for a public company can bribe officials in the privatization authority or at the top of government. "Bribes may be solicited for inclusion on the list of prequalified bidders, and firms may pay to restrict the number of other bidders" [Rose-Ackerman, 1999]. But there are also corrupt incentives that are more specific to the privatization process, with three important factors

[Rose-Ackerman, 1999]:

1. **Valuation of assets and specification of the tax and regulatory regime:** Corrupt insiders might have knowledge not available to the public about the company and sell this information to the highest bidder. They can also give corrupt firms special treatment in the bidding process. The firm might simply be awarded to those with the best political connections [Rose-Ackerman, 1999]. “Sales, at unstated prices, have sometimes been made to dubious purchasers such as ruling party politicians and others lacking in business experience” (Nellis and Kikeri 1989, 668, cited in [Rose-Ackerman, 1999]). Privatization processes can thus be undermined by bid-rigging by banks that both arranged and won privatization auctions, as it was particularly the case in Russia.
2. **Wrong revelation of performance to the public:** “Corrupt officials may present information to the public that makes the company look weak while revealing to favored insiders that it is actually doing well. The insiders then are the high bidders in what appears to be an open and above-board bidding process” [Rose-Ackerman, 1999]. Corrupt bidders can also be assured of lenient regulatory oversight, while an outsider cannot rely upon this. In ex-post evaluations such privatizations look like a huge success: the newly private company achieves higher rates of return than expected based on the wrong information given to the public.
3. **Retention of monopoly power:** Bidders for a firm, as well as an impecunious state, both want to assure the monopoly power of the privatized firm. Through corrupt back-channels the state can give lip service to market competition, while supporting monopolization secretly.

Additionally, firms may obtain special benefits for purchasing a public firm, such as heavy protection (e.g. confiscatory taxes on competing production and a monopoly on imports). But even if the privatization process is corrupt, the result can still be a competitive private firm subject to market discipline. It is not assured because the firm might maintain a close relationship to the state (especially the case for public utility or transportation firms) and because frequently the state sells off only a portion of the state firm and thereby stays in control, giving opportunity to corrupt inside arrangements (ibid).

[Campos and Giovannoni, 2006] and others use the term asset stripping to describe the process of managers and politicians obtaining assets without paying the full market price for them. They argue that it is driven by the

interplay between the firm's potential profitability and its ability to influence law enforcement.

2.3.3 Tax rates

Nominal tax rates used to be very high in transition economies. This led to bribes and other types of tax avoidance which led to even more avoidance [Rose-Ackerman, 1999].

Additionally, excessive taxes force firms out of the official sector. Firms pay bribes to avoid paying taxes or following regulations, meaning that corruption reflects payments to evade government control. If the level of taxation and regulation is high, then bribes that are paid to get excused from paying taxes or following regulations are greater. Tax and regulatory burdens are therefore highly correlated with the level of corruption, which, just like regulation, does not raise any revenues for the government [Johnson et al., 1997]. [Johnson et al., 1998] show that when there is more corruption and when the rule of law is weaker, the share of the unofficial economy will be larger. This result, though, is only valid for transition economies, and is not found in a larger country sample. They conclude that "the effect of bureaucratic quality and the way regulations are administered appear to be particularly strong" (ibid, section I).

This is in line with [Auriol and Warlters, 2002] who argue that the government in developing countries have an incentive to raise barriers to entry in order to maximize state revenue. Those barriers of entry create market power and profits for the firm, which can be confiscated by the government.

2.3.4 Determinants existing already pre-1989

Some indicators that contribute to explaining corruption were already determined at the beginning of transition (see e.g. [Treisman, 2003]). They include:

- Share of protestants. This indicator can be ambiguous in measures: transition economies have many people (often the majority) who declare themselves as atheists. But this atheist majority can be either originally Catholic or Protestant, the country would then stand in one *tradition* rather than the other. To do this thoroughly, one would need to have knowledge of pre-Communist Party rule religious affiliations.
- Richness in natural resources: The more natural resources a country has, the fiercer will be the corrupt competition for rents from these endowments.

- Democratic history: The countries of the sample experience democracy for their first time at different points in history. Russia turned quickly from Tsarist feudalism to party dictatorship and only introduced a democratic constitution in the early 1990s. On the other hand, Poland introduced an (at the time) very progressive constitution already in 1791 as the first European country to do so and the second worldwide (after the United States).
- Number of years spent under Communist Party rule: This is to a certain degree a corollary to the “democratic history” indicator. This indicator though identifies effects on corruption specifically due to socialism, as opposed to periods of monarchy or authoritarian/fascist rule.

2.3.5 Determinants arising after 1989

Other determinants developed only after the fall of the country’s Communist Party (see e.g. [Treisman, 2003]):

- Civil service pay: Transition economies inherited civil pay scales from socialist times that exceeded business sector wages. But pay has fallen not only relative to private sector wages but also to civil service wages in the past. In Bulgaria, civil servants suffered a fall of 17.7 percent per year during the period 1989-1992 [Rose-Ackerman, 1999].
- Democratization: One would expect lower levels of corruption in democratic societies. A first glance at CPI data also confirms this assumption - though the highly authoritarian and unreformed regimes in Turkmenistan, Belarus and Uzbekistan at some points in time do not have scores much worse than relatively more democratic countries such as Romania, Macedonia or Croatia. In one year (2003), Belarus achieved a CPI score of 4.2 and was even “cleaner” than the Czech Republic and Slovakia. Due to the weakness of the data, Treisman “remain[s] agnostic” on the possible interpretation that partial reform is worse than none at all.
- Presidential vs. parliamentary regime
- Political decentralization. The literature sees mixed effects of political decentralization.
- Political instability

- Generational change at the head of government/state: This indicator relates to whether old elites or rulers staid in power, or whether there has been a renewal of people in government.
- Polarization between executive and legislature
- Speed of transition
- Legal extensiveness and effectiveness
- Openness to foreign trade
- State intervention

Legal system

Many papers address the question of rule of law and its interaction with corruption. For instance, Jain presents the following example:

“The level of corruption in a country with an ineffective legal system may begin to rise in response to, say, an external shock. The political elite may find the increased income from corruption irresistible. Once corrupted, the elite will attempt to reduce the effectiveness of the legal and judicial systems through manipulation of resources allocation and appointments to key positions. Reduced resources will make it difficult for the legal system to combat corruption, thus allowing corruption to spread even more.” [Jain, 2001, 2]

Several papers confirm earlier results suggesting that “civil liberties represent an effective means of controlling corruption” [Herzfeld and Weiss, 2003, 629], that is, that in a fixed-effect model (on the usability of corruption indexes for time series analyses, see 5.2.3) corruption significantly decreases with a higher level of political rights and civil liberties. They also point out that while some recent theoretical models focus on the link between past-experience of corruption and current levels of corruption, this has not yet translated into empirical research.

2.3.6 The case of Russia and Poland

It was mentioned in the introduction (section 1.6) that Poland and Russia developed from a same starting point, arrived at a similar stage of development, yet diverge in some aspects, such as corruption.

In their paper on government in transition, [Shleifer and Vishny, 1998a] elaborate a little bit on those two countries: At the beginning of transition, both were industrial economies and both “faced substantial disruption from the collapse of COMECON and other trade following the demise of the Soviet Union. Indeed, both economies were in shambles at the beginning of reforms, overwhelmed by inflation, goods shortages, and declining production” (ibid, 229).

Also in political terms, they argue, the two countries are similar: both experience turmoil, Poland in the 1980s when it declared martial law against the Solidarnosc movement¹, and Gorbachev’s government facing strong opposition, especially from what could be called conservative communists within the Red Army. “After communism collapsed, both countries moved to fragmented, rapidly changing party systems and “semi-presidential” regimes, in which a conflict between president and legislature was built from the start. Both were led in their transition by charismatic, populist presidents committed first and foremost to the destruction of Communism. Yet, despite these similarities as of 1990, the two countries’ reforms had had very different results as of 1996.” (ibid)

They see the reason for this in the fact that, despite similar economic reforms, the Russian government continued to retain substantial political control over economic life “and, moreover, uses this control to pursue predatory policies toward business” (ibid), that is, political transition in Poland was much faster than in Russia. In fact, Russia retained old politicians and created inappropriate incentives for them.

A political scientist might want to add to Shleifer and Vishny’s analysis, that transition in Poland originated from Solidarnosc, that is, from an opposition movement, whereas Russia’s transition was actually started by the Communist-turned-Capitalist elite. Solidarnosc obviously had a high interest in replacing Communist Party officials by members of the labor union movement, while Communist Party of the Soviet Union officials did not face such an alternative.

¹Though, unlike [Shleifer and Vishny, 1998b] describe it, martial law did not directly lead to the total demise of the Communist Party.

Chapter 3

Models of Corruption

Theoretical models can look at a variety of questions arising in the economic analysis of corruption:

- Is it optimal for a benevolent principal to design a corruption-free bureaucracy? [Aidt, 2003, 635] Answering by no means that corruption can be an integrated part of an optimally designed institution. Corruption thus persists when the cost of eliminating it is too high. Benevolence here means that the government wants to implement socially beneficial policies and attempts to optimize the working of its institutions.
- On the other hand, a non-benevolent state with weak political institutions favors the establishment of epidemic corruption. The Grabbing Hand theory formulated by [Shleifer and Vishny, 1993] introduces the concept of governments regulating entry to markets because of their corruption potential. The general principle from this theory is that “economic policies are adopted, not to eliminate market failures but *because* they create corruption opportunities: inefficient policy and corruption are equilibrium phenomena and are jointly determined by underlying economic and political institutions” [Aidt, 2003, 643].
- Furthermore, corruption can, as the third model presented argues, corrupt. This means that more public officials will engage more in corruption the more their colleagues do.

3.1 Benevolent principal

To look at the cost for a benevolent government to establish a corruption-free bureaucracy, a model for corruption in tax collection was formulated by

[Aidt, 2003].

The government assigns an agent with the task of collection taxes. His/her job is to investigate whether a firm is liable for taxation. The firm is liable to pay taxes if it had a positive profit, that is, if $\pi > 0$. The probability of achieving such a profit is $1 > h > 0$. For simplification, the tax rate t the firm has to pay if its profits get reported to the government is assumed to be 100 percent. So $t = \pi$.

But the firm can bribe the tax collector so that he or she does not report the firm's profits. The cost to the firm is thus not π anymore, but $b < \pi$.

The government, which, after all, is devoted to maximizing tax revenue, has a mechanism to detect corrupt tax collectors. The probability to discover them is p .

If the tax collector is discovered, he or she loses his or her job and has to pay a penalty of $f > 0$. Also the firm gets punished and has to pay a fee of $g > 0$.

The tax collector also has an outside option of working in the private sector, which would pay a wage $w_0 > 0$, instead of w received as public official. They furthermore show two different degrees of willingness to be corrupt: a fraction γ refuses corrupt acts (for "moral" reasons), while a portion $1 - \gamma$ is willing to accept bribes in exchange for not reporting firms to the government, if this proves to maximize their utility.

All actors involved are considered to be risk-neutral.

If the firm bribes the tax collector, its gain is $\pi - pg$, since it can keep the earned profit, but faces a risk of having to pay the penalty. The firm thus engages in bribery if

$$\pi > pg \quad (3.1)$$

Depending on the firm's and tax collector's respective bargaining power, and assuming that there are transaction costs involved, such that the tax collector only gets to keep a fraction $k \in [0; 1]$ of the bribe, the bribe will be

$$b = \max \{k(\pi - pg), 0\} \quad (3.2)$$

For the tax collector, the expected gain is larger than his or her "honest" wage if:

$$(1 - p)(w + b) + p(w_0 - f) > w \quad (3.3)$$

He or she accepts the bribe if

$$(1 - p)b + p(w_0 - w - f) > 0 \quad (3.4)$$

Four of these variables can be more or less easily designed by the government: it can set the public officials' wage w , the detection system p , and the punishments f and g .

3.1.1 The government's optimal choice

Efficiency wage

Leaving the monitoring system and legal remedies unchanged, the government can set the wage such that no more corruption arises (f can thus be zero):

$$(1 - p)b + p(w_0 - w^e) = 0 \quad (3.5)$$

$$\Leftrightarrow (1 - p)b = p(-w_0 + w^e) \quad (3.6)$$

$$\Leftrightarrow \frac{(1 - p)b}{p} = -w_0 + w^e \quad (3.7)$$

$$\Leftrightarrow w^e = w_0 + \frac{(1 - p)b}{p} \quad (3.8)$$

3.1.2 Testing the model

Since this model allows us to make conclusions about possible levels of corruption without actually observing corrupt acts, it is at least theoretically possible to empirically test the model. Wages of public officials should theoretically be easy to obtain as pay scales are determined by law; punishment is defined by law as well. The only problem is to estimate the efficiency of the detection system.

3.2 The Grabbing Hand model

The corruption network can be organized in different ways. In the Soviet Union, corruption was pervasive, but the briber had a guarantee that he or she will receive the government good and will not have to pay any further bribes in the future. In post-Soviet Russia, numerous officials need to be bribed to get that good and it is not sure that, after having paid a bribe to one official, another government official, or even the first one, will charge an additional bribe. A third regime would be one where no bribes are charged at all.

3.2.1 One government good and the official as monopolist

The Grabbing Hand theory, as formulated by [Shleifer and Vishny, 1993] uses a model of one government-produced good, such as a passport, or a right to use a government road, or an import license. It tries to examine the implications of those three regimes for their level of corruption and for the effects of corruption on economic activity and asks why bribery might be much more costly than taxation.

The good is assumed to be homogeneous and is demanded by private agents according to a demand curve $D(p)$. The good is sold by a government official who can restrict the quantity of the good that is sold (this corresponds in practice to a long delay or an imposition of many requirements). He can do so without fear of detection or punishment. The situation is thus basically analogous to a monopoly.

The official government price of the good is p , the cost of production is irrelevant to the official, since it is the government that produces the good and not the official.

Then, two cases can be distinguished. In the case without theft, the official turns over the official price of the good to the government. The marginal cost of providing the good is therefore p , that is, (s)he receives a bribe, but has to pay p to the government. In the case with theft, (s)he does not turn over anything to the government and hides the sale. Here, the price the buyer pays equals the bribe and might be lower than the official price (e.g. a custom official lets goods pass through the border for less than the official duty). The marginal cost is thus zero. Depending on the case, corruption can either raise the total price of the good, or reduce it. Buyers will thus prefer corruption with theft.

If the official cannot price discriminate between buyers, then (s)he will set the marginal revenue equal to the marginal cost. The official will create a shortage at the official price and then collect bribes so as to clear the market for the good.

In this model, especially in the case without theft, bribes act like a commodity tax, with the difference that taxes are kept by the government and not by its officials. The introduction of detection and punishment changes the model quantitatively, but not qualitatively: The level of the bribe will decrease and the quantity provided increase if the expected penalty increases with the level of the bribe. The level of bribe increases while the output decreases if the expected penalty rises in the number of people (s)he charges a bribe (that is, the more people are charged a bribe, the higher the probability that somebody will complain) and stay the same if the probability of

detection and the penalty are independent of the bribe and the number of people who pay it. Depending on the expected punishment and the benefits in both cases, the public official will choose whether he or she steals from the government or not.

Corruption spreads because of the competition both among the officials and among the customers. If the government officials who assign other officials to their jobs are corrupt, too, then the job distribution could be seen as an auction mechanism, where people pay to get the lucrative job of a bribe collector. In such a system, “honest” officials could not afford to get such a job, whereas those who are more efficient at collecting bribes will get the job. Such a competition scheme will ensure that maximal bribes are collected. In the case with theft, there will also be strong competition among bribers. Since getting the government good gives an advantage over one’s competitors, all players in the market have a strong incentive to engage in bribing. In that case, no buyer has an incentive to report on the official, since paying the bribe might still be better than having to pay p . Corruption thus spreads if theft from the government is easy to implement and to sustain.

3.2.2 Several goods and competition among public officials

The model above is incomplete in the sense that usually a buyer needs several complementary government goods to conduct his or her business and that usually these goods need to be obtained from several officials or agencies. During Soviet times, bribes could simply be channeled through the local Communist Party offices and deliverance was guaranteed by the party bureaucracy. Nowadays in Russia, the sellers of complementary government goods act independently. They set their own bribes independently and maximize their individual revenue and not total revenue.

If a joint monopolist agency sets the bribe prices p_1 and p_2 of two government goods, x_1 and x_2 are the quantities of these goods sold and the official prices (equal to the monopolist’s marginal costs) are denoted MC_1 and MC_2 , then the per unit bribes then are $p_1 - MC_1$ and $p_2 - MC_2$. The joint monopolist agency sets p_1 at which

$$MR_1 + MR_2 \frac{dx_2}{dx_1} = MC_1 \quad (3.9)$$

with MR_1 and MR_2 being the marginal revenues from the sale of goods 1 and 2, respectively. For complementary goods, $\frac{dx_2}{dx_1} > 0$, and so at the optimum, $MR_1 < MC_1$. The agency keeps the bribe on good 1 low to

expand the demand for good 2 and thus to raise its profits from bribes on good 2. Equally, the agency keeps down the price of good 2. If goods 1 and 2 are allocated by independent agencies, each agency takes the other's output as given, with $\frac{dx_2}{dx_1} = 0$. At the agency's optimum, $MR_i = MC_i$. The per unit bribe is thus higher and the output lower, than in the joint monopolist optimum. This means that the agencies hurt each other by ignoring the effect of their respective raising their bribe on demand for the complementary good and as well hurt the private buyers of government goods.

A third scenario would be one where the same good can be provided by two or more government agencies. This case is straight-forward: competition among suppliers of the good will reduce the level of bribes down to zero. Table 3.1 summarizes the different outcomes.

	Level of bribes	Total amount of revenues collected
Case 1: joint monopoly	intermediate	highest
Case 2: independent monopolists	highest	intermediate
Case 3: competition	lowest	lowest

Table 3.1: Bribe levels in different scenarios

The sometimes-quoted analogy made by [Shleifer and Vishny, 1993] is that of a tollbooth. A car might need to pay one toll to use the entire road (joint monopoly), pay toll at every town the road goes through (independent monopolists), or the car's driver might have the choice between several booths that all sell the right to use that particular road (competitive case).

Collusion of monopolists was easy to sustain in the Soviet Union as the KGB had a large surveillance network and because the ruling elite was relatively small, thus facilitating the detection of deviations. Russia in the 1990s and 2000s does not have a central government strong enough to fire or penalize corrupt rackets in the provinces or even in the capital, which is why independent monopolists easily established.

The policy recommendation from that model is clearly to produce competition between bureaucrats while intensively monitoring theft (as competitive pressure might increase theft from the government, even though it reduces bribes).

It was mentioned above that corruption has a similar effect to taxation. But, since corruption is per definition illegal and must be kept more or less secret, the distortionary effect of corruption can be larger. Corruption will rather take place in sectors where the probability of detection will be lower

and officials will use their powers to induce substitution into the goods on which bribes can be collect more safely and discretely. This can create very high efficiency losses. Public officials might have to keep their corrupt activities secret, but also the government might want to cover up corrupt deeds taking place in their country by preventing outsiders (be they foreign investors or locals) from entering.

3.2.3 Testing the model

Unlike the tax collector model from section 3.1, this model can only be tested empirically by using perceptions-based surveys. “Hard data” that can be used includes the number of permits needed to set up a business, the number of days it takes, and such.

3.3 Self-reinforcing corruption

The model of self-reinforcing corruption, as [Andvig and Moene, 1990] formulated it, brings us back to the tax collector agency model described above. This time, there is not only a corrupt tax collector, but also an auditor who supervises the tax collector. If the tax collector gets caught by the auditor, he or she gets fired. But the auditor can also be corrupt. In that case, the tax collector can prevent the punishment by paying a bribe b .

The tax collector’s probability of being detected is p . The proportion of corrupt auditors is equal to the proportion of corrupt tax collectors and is again defined as $1 - \gamma$.

The briber does not know which public official is corrupt and which one not. The probability of finding such a corrupt official after N trials is $(1 - \gamma)^{N-1}\gamma$. The average number of required trials until a corrupt official is found is thus $E(N) = \frac{1}{\gamma}$. The cost to the briber i (be it moral or real) for trying to give a bribe is q_i . If a corrupt service is obtained for a bribe b , then the excess profit is $\pi_i(b)$, with $\pi'_i(b) < 0$. The expected profits of bribing can thus be written as $P_i = \pi_i(b) - \frac{q_i}{\gamma}$. The participation constraint (PC) is therefore $P_i > 0$. If the moral costs are sufficiently low, this PC can be fulfilled even for agents with a small $\pi_i(b)$. Demand for corrupt acts is now proportional to the number of private agents with $P_i > 0$: $D = D(\underbrace{b}_{-}, \underbrace{\gamma}_{+})$.

The long run relationship between b and the level of demand for corruption γ can be derived from the equation $\gamma = D(b, \gamma)$, which gives $b = E(\gamma)$ at the long run demand curve. Thus, $E' = \frac{db}{d\gamma} = \frac{1-D_\gamma}{D_b}$, with $D_b < 0$ and

$1 - D_\gamma \leq 0$. The long run demand curve can hence be upward sloping, with supply directly inducing demand.

The bureaucrats, on the other hand, have utility functions which are linear in money and receive $w > 0$ per period more than they would receive in the private sector. But they are heterogeneous with respect to the costs (moral and organizational) of supplying corrupt services. The official's time horizon is infinite and (s)he discounts future incomes with the discount factor $\beta = \frac{1}{1+r}$. If b is the bribe, c_i official i 's cost of supplying corrupt services, and $b - c_i + U_i(t)$ his or her expected gain of choosing to be corrupt in period t , then his or her expected value of the options can be written as:

$$V_i(t) = w + \max[b - c_i + U_i(t), \beta V_i(t+1)] \quad (3.10)$$

The expected consequences of being corrupt depend on the probability $0 \leq s \leq 1$ of being caught and on whether the detecting colleague's is corrupt or honest. If (s)he is honest and reports the official to the authorities, they confiscate the bribe and fire the official. If the colleague is corrupt too, then the guilty official can silence him or her by paying a bribe B . For simplicity, we assume that $B = b$. Therefore,

$$U_i(t) = (1-s)\beta V_i(t+1) + s[\gamma(\beta V_i(t+1) - B)) + (1-\gamma)(-b)] \quad (3.11)$$

The valuation for honest officials is thus $V^H = \frac{w}{1-\beta}$, that is, the present value of future salaries. The expected present value of following a corrupt strategy is

$$V_i^c = \frac{w + b(1-s) - c_i}{1 - \beta(1-s(1-\gamma))} \quad (3.12)$$

A rational official chooses to be corrupt if

$$\frac{w}{1-\beta} < \frac{w + b(1-s) - c_i}{1 - \beta(1-s(1-\gamma))} \quad (3.13)$$

$$\Leftrightarrow c_i < (1-s)b - \frac{s(1-\gamma)w}{r} \quad (3.14)$$

$(1-s)b - \frac{s(1-\gamma)w}{r}$ is equal to the expected money gain of corruption and is the expected retained value of the bribe minus the expected loss of future incomes. If we assume that the costs c_i are distributed over the interval $[\underline{c}, \bar{c}]$ with a cumulative density $F(\cdot)$ such that $F(\underline{c}) = 0$ and $F(\bar{c}) = 1$, then the proportion of officials who choose to be corrupt is $F((1-s)b - \frac{s(1-\gamma)w}{r})$.

The number of corrupt bureaucrats is thus higher (i) the higher the perceived fraction of corrupt bureaucrats, (ii) the higher the bribes, (iii) the lower the salary, (iv) the lower the exogenously given detection probability, and (v) the higher the discount rate (which can also be interpreted as the probability of the present regime staying in power; if the regime is expected to change, then r will be higher, thus increasing corruption).

The Nash equilibria in this game, given the response function $F(\cdot)$ satisfy

$$F((1-s)b - \frac{s(1-\gamma)}{r}) = \gamma \quad (3.15)$$

$$b = E(\gamma) \quad (3.16)$$

The specialty of this model is that there might be several equilibria. For instance, if $(1-s)E(1) > \bar{c}$, then the value $\gamma = 1$ (everybody is corrupt) is in the equilibrium set. If $(1-s)E(0) < \frac{sw}{r} + \underline{c}$, then there is no corruption at all. In that case, the expected value of the equilibrium bribe when all others are honest is not high enough to cover the expected loss of future salaries and the costs of the most corrupt prone official.

The distribution of c_i could be bell-shaped. Then there would be for instance two stable and one unstable equilibrium levels of γ on the supply side for a given value of b . They are given by the intersections between the γ -curve and the F-curve.

[Andvig and Moene, 1990] present the various possible equilibria for different variants of distribution of c . They also present an extension in which the moral costs for each agent on both the demand and the supply side can be endogenized and subsequently depend on the behavior of others. Then, if the incidence of corruption is high, the moral costs of being corrupt too will be lower. Also, the probability of detection could depend negatively on the level of corruption or the probability of a regime shift could increase with the level of corruption. In all of these cases, the view presented in the model that corruption increases with its incidence is strengthened.

An important “message” from this model is that the stable supply side equilibria can be improved by a salary increase and that “in cases with multiple equilibria the permanent wage increase necessary to fulfill a certain (low) target level of honest bureaucrats is independent of whether one starts out in a high corruption equilibrium or in one with low corruption. The only difference is that from the high equilibrium level it may be necessary to offer a higher wage for a while to induce the equilibrium supply to converge to the ‘low level’ supply curve. After this transition the trade-offs between salary and corruption are of course the same in the two cases” (ibid, 76). A cut in public spending might thus lead to higher incidence of corruption, yet, the

contrary effect might occur in countries with much political (as opposed to bureaucratic) corruption.

Chapter 4

Hypotheses

Deducing from the literature and the theoretical models used, we can now formulate a number of hypotheses to be tested empirically:

Hypothesis 1 *Governments advocating a large size of government (“leftist”) tend to be more corrupt than free-market oriented governments.*

Pro: Governments might have high spendings because politicians were bribed in order to e.g. buy new military equipment. More government spendings also provide for more opportunities to channel government funds into corrupt politicians’ or officials’ pockets.

Against: [Kaufmann, 1998] shows that there is no correlation between a government’s ideology and the country’s CPI. But, ideology need not necessarily correlate with the size of government - democratic “leftist” governments can be small, whereas authoritarian “rightist” governments might be large.

Hypothesis 2 *Corruption is related to density and population size, with higher populated countries being more corrupt.*

Hypothesis 3 *Corruption is determined by the quality of democracy in a country. Especially, fiscal decentralization (that is, the assignment of expenditure functions and revenue sources to lower levels of government) is associated with lower levels of corruption [De Mello, 2004].*

Hypothesis 4 *Corruption can be self-reinforcing and there can be multiple equilibria “whereby organizations or societies with the same institutional characteristics can experience very different corruption levels.” [Aidt, 2003, 647] Therefore, history plays a prominent role as a determinant of corruption.*

Hypothesis 5 *Corruption is related to a high degree of regulation and generally low incentives for firms to operate in the formal economy.*

Hypothesis 6 *The incidence of corruption can be explained by the variation in policies/regulations across industries [Svensson, 2003].*

Hypothesis 7 *Firms' "ability to pay" and firms' "refusal power" can explain a large part of the variation in bribes across graft-reporting firms [Svensson, 2003].*

Hypothesis 8 *The level of corruption for specific public services depends on whether those services are complements or substitutes (Grabbing Hand Theory).*

Hypothesis 9 *While there might be a short-run interaction between corruption and GDP, in the long-run causality is entirely from income to corruption. Thus, as [Gundlach and Paldam, 2000] shows, as a country gets richer, it becomes less corrupt.*

Pro: An Instrumental Variable Analysis in [Gundlach and Paldam, 2000] provides some evidence in favor of the hypothesis.

Against: There is only short-run data available on corruption, which makes proving the counter-claim impossible. Furthermore, measuring the evolution of corruption is difficult for lack of coherent data.

Hypothesis 10 *Russia's and other high corruption countries' pattern of corruption corresponds to the independent monopolists pattern of the toll-booth theory, leading foreign investors to invest in another country instead.*

Other possible hypotheses (which will not be tested in chapter 6) could be:

Hypothesis 11 *Apart from the formal regulatory environment, the actual application of those rules (which is dependent on government officials' level of discretion in interpretation and implementation of regulation) is an important determinant of corruption.*

This hypothesis can be tested by looking at three elements:

- The share of the informal sector in the GDP should be higher when there is more regulation and more discretion for public officials.
- This share should be larger when there is a bigger tax burden on firms operating in the formal economy.
- The larger the informal sector, the worse the quality of public services should be.

Tests of this hypothesis in the late 1990s have shown to provide significant results [Johnson et al., 1998].

Hypothesis 12 *Corruption can be explained by the degree of political connectedness of firms [Faccio, 2004].*

Hypothesis 13 *Hierarchical structures of government favor corruption, as argued by [Hillman and Katz, 1987].*

Chapter 5

Methodology and Data

If you torture the data long enough, it will confess.
- Ronald Coase

[Svensson, 2005, 22] distinguishes three different types of measures on corruption:

- Indicators of corruption assembled by private risk-assessment firms such as the International Country Risk Guide, produced by Political Risk Services, capturing the “likelihood that high government officials will demand special payments and the extent to which illegal payments are expected throughout government tiers. The obvious disadvantage of such data, apart from the fact that it does not measure corruption but rather the political risk involved in corruption, is that it is priced at US\$ 4,725¹, though older versions of the data are available on the web.
- The second group of widely used datasets are perceptions-based sources, such as Transparency International’s Corruption Perceptions Index² or the World Bank’s Control of Corruption³, which is part of the Bank’s broader set of worldwide governance indicators. Both indexes are composites of third-party data and correlate highly.
- The third group provides not ordinal indexes as the two others, but cardinal measures. Main proponents of this group are the joint European Bank for Reconstruction and Development (EBRD) and World Bank Business Environment and Enterprise Performance Survey (BEEPS)

¹<http://www.prsgroup.com>

²<http://www.transparency.org>

³<http://info.worldbank.org/governance/wgi/index.asp>

and the UNODC's International Crime Victim Surveys (ICVS), which focus more on individuals than on firms.

5.1 Methodology

5.1.1 Panel data

While doing econometric analysis on cross-sectional data is relatively straight-forward using Ordinary Least Squares estimators, we might also want to look at development over time and thus perform some panel data analysis. In our case, two main problems arise:

1. The **cross-sectional sample** is relatively small with a maximum of 28 countries. Since data are not always available for every year and every country and since not all countries were actually existing since the beginning of transition (the Soviet Union was dissolved in 1991, when transition was already well under way in the CEE countries; Yugoslavia's split-up was a gradual process with declarations of independence between 1991 and 2008⁴), the actual number of countries used for estimations varies and sometimes becomes quite low.
2. Transition (more or less) started in 1989. This gives a maximal **time dimension** of the panel (T) of 20. Since e.g. the CPI is available only since 1995, T can be even smaller. Since the Least Squares Dummy Variable (LSDV) model with a lagged dependent variable produces biased estimates when the panel's T is small, this bias cannot be completely dismissed [Judson and Owen, 1999]. [Judson and Owen, 1999] recommend using a one-step GMM estimator for T s smaller than 10, the same or the Anderson-Hsiao estimator for $T = 20$ and LSDV for $T = 30$ for unbalanced panels and Kiviet's corrected LSDV estimator, LSDVC, for balanced panels.

5.1.2 Extreme Bounds Analysis

Two papers applied the Extreme Bounds Analysis of [Sala-i-Martin, 1997] to find determinants of corruption: [Seldayo and de Haan, 2005] and [Serra, 2004]. The latter finds five variables that are robustly related to corruption: GDP, democratic institutions, share of Protestants, political instability, and the

⁴Among the sample used, Montenegro was the last republic to declare its independence (2006). Kosovo was left out for reasons already explained in the introduction.

country's colonial heritage. [Seldayo and de Haan, 2005] use 40 variables, of which 20 pass the test.

A similar approach can be used for our sample of transition economies. The data used in the two papers cited above are by now already ten years old and could thus be revisited.

Following [Seldayo and de Haan, 2005], the methodology of the Extreme Bounds Analysis (EBA) is specified as follows:

$$Y = \alpha M + \beta F + \gamma Z + u \quad (5.1)$$

with Y being the dependent variable (that is, a corruption measure), M a vector of "standard" explanatory variables (but left to zero since there is no theoretical guidance and a wide variety of results reported in previous studies), F the variable of interest, Z a vector of up to three possible additional explanatory variables; and u the error term. The variable F is not robustly related to Y if the lower extreme bound for $\hat{\beta}$ (the lowest value for $\hat{\beta}$ minus two standard deviations) is negative, while the upper extreme bound for $\hat{\beta}$ (the highest value for $\hat{\beta}$ plus two standard deviations) is positive. Another possibility is to look at the distribution of the coefficient estimates. Because parameters of interest can have some positive as well as negative support, [Sala-i-Martin, 1997] suggests classifying the corresponding regressor as a robust determinant if the average 90% confidence interval does not include zero. Looking at the distribution of the coefficient estimates thus produces a much larger set of robust variables. In line with [Seldayo and de Haan, 2005], a more stringent 95% criterion is used.

5.2 The Corruption Perceptions Index

The Corruption Perceptions Index is a perception-based index published every year since 1995 by Berlin-based NGO Transparency International. By attributing a sample of countries a number on a scale of 0 to 10 (0 being most corrupt, 10 being least corrupt), it establishes a world-wide ranking of countries.

5.2.1 Method

The CPI is a composite index "drawing on corruption-related data from expert and business surveys carried out by a variety of independent and reputable institutions." It "reflects views from around the world. including those

of experts who are living in the countries evaluated.”⁵ It includes surveys of business people and country analysts (non-resident and resident experts, though, according to TI, viewpoints of both groups of experts correlate well). The 2007 and 2008 CPIs ranked 180 countries, the criterion for inclusion being the availability of at least three reliable sources of corruption-related data for a country or territory and is thus independent of the existence of corruption (meaning that if a country is not included, this does not mean that there is no corruption). Even though the index is freely available, “some sources do not allow disclosure of the data that they contribute.”

Data for our sample is completely available for 2008, but during the 90s, only a few transition economies were included in the CPI. The first year with a relatively usable amount of data is 1999, where 24 out of 27 (Montenegro not yet being separated from Serbia) countries are available. In comparison: 1998 features twelve countries, 1996 four (Hungary, Poland, the Czech Republic, and Russia) and 1995 only Hungary.

5.2.2 Caveat

An important thing to note is that a higher CPI means a lower level of corruption. Some papers (like [Gundlach and Paldam, 2000]) invert the CPI so that a higher score signifies more corruption. But since the CPI is a fairly widely-known index and inverting it might lead to some more confusion, this thesis uses it in its original form.

5.2.3 Discussion

The CPI is basically a ranking of countries. Thus, the actual informational value provided by the index is relatively small. Especially, it gives no hint at how corruption is actually shaped, that is, whether a country shows rather grand corruption or rather petty corruption. Furthermore, it probably has a bias towards non-corrupt countries: the number of surveys used to compose the index varies among countries and years and correlates with the level of corruption, thus somewhat confirming an observation often made in economics, namely that “the winners write history” (e.g. [Easterly, 2002, 64]).

This variance of the number of surveys used also means that the possibility to compare CPIs across years is somewhat limited. Not only that scores are not comparable over time, also the place of a country in the ranking

⁵Source for all quotes in this paragraph: FAQ on Transparency International’s website, http://www.transparency.org/policy_research/surveys_indices/cpi/2008/faq#general1

	avg CPI	avg SU
avg CPI	1.0000	
avg SU	0.5713	1.0000

Table 5.1: Correlation matrix for average CPI and average number of surveys used (1995-2008)

cannot be compared as other countries enter or leave the ranking between years. A country's rank can thus worsen just because additional countries, for which enough surveys are now available, entered the ranking.

An improvement of the CPI would have to include the abandonment of the current policy of eclectically mixing survey results. By establishing the possibility to compare CPIs year-to-year, it would also be possible to measure the effect of new policies. Some economists use the CPI as a measure of corruption in time series nevertheless. For example, a theory from Evgeny Gavrilenko, chief economist at Troika Dialog in Moscow, is paraphrased in a news article on Bloomberg:

“The [‘Chart of the Day’] shows corruption rises and falls with the price of oil. Russia had its best-ever score on Transparency International’s corruption perceptions index in 2004 when the price of Urals crude, Russia’s chief export blend, averaged \$34.18 a barrel. The country received its worst score last year since 2001 when Urals surged to a record \$142.94 a barrel and averaged \$95.10.”⁶

From there he concludes that “[i]f money is cheap and easily available, as it is when oil revenues are flowing in, people don’t mind paying bribes.” This, as a blog of Global Integrity argues, is a wrong usage of the CPI in a time series analysis⁷.

Yet, Transparency International themselves state that “[y]ear-to-year changes in a country’s score can either result from a changed perception of a country’s performance or from a change in the CPI’s sample and methodology” and that “[t]he only reliable way to compare a country’s score over time is to

⁶Source: Bloomberg article “Russian Corruption May Fall With Slump in Oil: Chart of the Day” from January 26, 2009; last accessed March 15, 2009, <http://www.bloomberg.com/apps/news?pid=20601109&sid=azKw0VcasBw&refer=home>

⁷Source: Global Integrity Commons blog, post from February 4, 2009; last accessed March 15, 2009, <http://commons.globalintegrity.org/2009/02/hey-experts-stop-abusing-corruption.html>

go back to individual survey sources, each of which can reflect a change in assessment.”⁸

In fact, the number of surveys used to calculate Russia’s CPI in 2004 was 15, but in 2008 only eight surveys were used - the change in CPI from 2.8 to 2.1 can therefore only be hardly significant. Notwithstanding the problem of its empirical implementation, it should nevertheless be added that the theory behind that argument makes sense: In a times of a high oil price, competition for oil rents will be large, but small if the oil price is low.

An OECD study critical of governance indicators notes that “the fact that users [of perception-based indexes] tend to rely on the same indicators which they see their peers using has led to a veritable bubble effect” and thus that “perceptions-based governance indicators can be subject to herd behavior by the ‘experts’ on whose assessments they tend to rely.” [Arndt and Oman, 2006, 90]

Transparency International counters this claim by stating that “this hypothesis was tested in 2006 using a survey question posed to business leaders around the world. Based on more than 9000 responses, knowledge of the CPI does not induce business experts to ‘go with the herd’. Knowledge of the CPI may motivate respondents to determine their own views. This is a strong indication that there is no circularity in the present approach.”⁹ The OECD study also underlines that such an index reflects primarily business-oriented perceptions, which can be of considerable value of its own right, but leaves out the perspective of non-business interests (ibid). Indeed, household surveys on corruption are never conducted. A critique from an epistemological standpoint is that results from perception-based indicators are only hardly replicable (ibid).

5.3 TI Global Corruption Barometer

Transparency International also conducts an annual household survey which collects their experience with petty corruption and their perceptions of overall incidence of corruption. It specifically tests the frequency of corruption in (i) political parties, (ii) parliament/legislature, (iii) media, (iv) the military, (v) the education system, (v) the legal system/judiciary, (vi) medical services, (vii) the police, (viii) registry and permit services, (viii) utilities

⁸Source: FAQ section on Transparency International’s website, http://www.transparency.org/policy_research/surveys_indices/cpi/2008/faq#interpreting4, as of March 15, 2009

⁹Source: FAQ on Transparency International’s website, http://www.transparency.org/policy_research/surveys_indices/cpi/2008/faq#general1

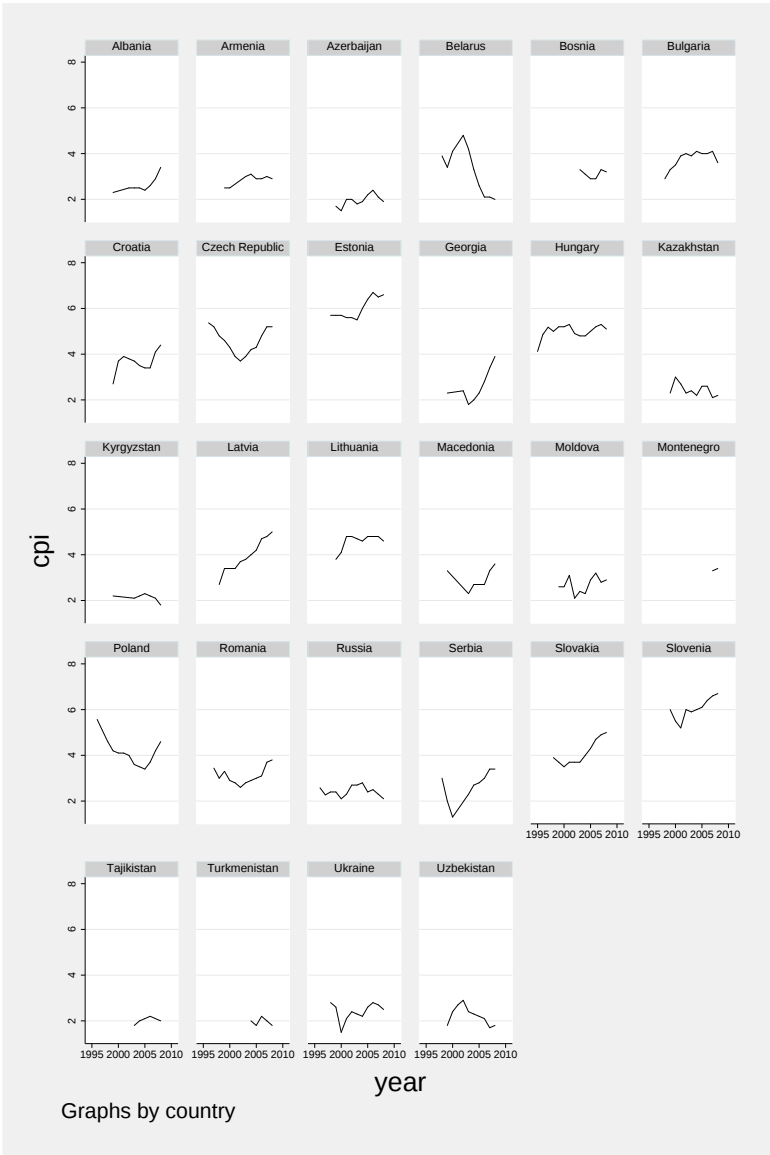


Figure 5.1: CPI by country between 1995 and 2008

(telephone, electricity, water, etc.), (ix) tax revenue, and (x) customs.

5.4 The Global Integrity Index

The index by Global Integrity is published yearly and “assesses the existence, effectiveness, and citizen access to key national-level anti-corruption mechanisms across a diverse range of countries.” It thus differs from the CPI in that it does not measure corruption, but rather the “‘medicine’ being used against it - in the form of government accountability, transparency, and citizen oversight.” The index aggregates over 300 integrity indicators systematically gathered for each country covered. For the 2008 index, “those indicators comprised more than 15,000 peer-reviewed questions and answers scored by [GI’s] in-country experts. Several rounds of review are conducted at the international level to ensure that cross-country comparisons are valid. In addition, all assessments are reviewed by a country-specific, double-blind peer review panel comprising additional local and international subject matter experts.”¹⁰

5.5 CPI - GII

Obviously, where anti-corruption measures are high, corruption should be low. CPI and GII should therefore be positively correlated. As figure 5.2 shows, this is in fact the case.

	CPI2008	GII2008
CPI2008	1.0000	
GII2008	0.4466	1.0000

Table 5.2: Correlation matrix for CPI and GII

5.6 Global Competitiveness Report 08

The Global Competitiveness Report prepared by the World Economic Forum (WEF) conducted a survey in 138 countries and asked the following questions in its section on the quality of institutions¹¹:

¹⁰Source for all quotes in this paragraph: Global Integrity website, <http://report.globalintegrity.org/globalIndex.cfm>, accessed March 15, 2009

¹¹Source: www.weforum.org

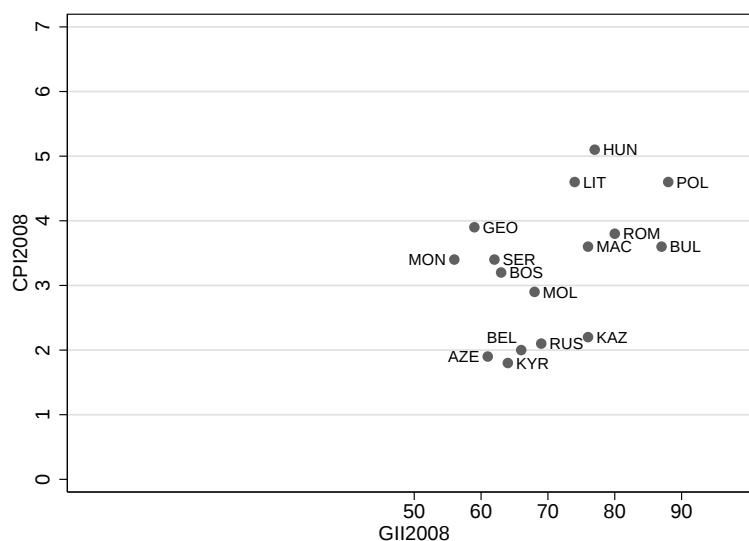


Figure 5.2: CPI and GII: There seems to be a clear positive relation between the two.

1. Property rights in your country, including over financial assets, are (1 = poorly defined and not protected by law, 7 = clearly defined and well protected by law)
2. Intellectual property protection and anti-counterfeiting measures in your country are (1 = weak and not enforced, 7 = strong and enforced)
3. In your country, diversion of public funds to companies, individuals, or groups due to corruption (1 = is common, 7 = never occurs)
4. Public trust in the financial honesty of politicians in your country is (1 = very low, 7 = very high)
5. Is the judiciary in your country independent from political influences of members of government, citizens, or firms? (1 = no - heavily influenced, 7 = yes-entirely independent)
6. When deciding upon policies and contracts, government officials in your country (1 = usually favor well-connected firms and individuals, 7 = are neutral)
7. The composition of public spending in your country (1 = is wasteful, 7 = efficiently provides necessary goods and services not provided by the market)

8. Complying with administrative requirements (permits, regulations, reporting) issued by the government in your country is (1 = burdensome, 7 = not burdensome)
9. The legal framework in your country for private businesses to settle disputes and challenge the legality of government actions and/or regulations is (1 = inefficient and subject to manipulation, 7 = efficient and follows a clear, neutral process)
10. Are firms in your country usually informed clearly by the government of changes in policies and regulations affecting your industry? (1 = never informed; 7 = always informed)
11. The threat of terrorism in your country (1 = imposes significant costs on businesses, 7 = does not impose significant costs on businesses)
12. The incidence of common crime and violence in your country (1 = imposes significant costs on businesses, 7 = does not impose significant costs on businesses)
13. Organized crime (mafia-oriented racketeering, extortion) in your country (1 = imposes significant costs on businesses, 7 = does not impose significant costs on businesses)
14. Police services in your country (1 = cannot be relied upon to enforce law and order, 7 = can be relied upon to enforce law and order)
15. The corporate ethics (ethical behavior in interactions with public officials, politicians, and other enterprises) of firms in your country are (1 = among the worst in the world, 7 = among the best in the world)
16. Financial auditing and reporting standards regarding company financial performance in your country are (1 = extremely weak, 7 = extremely strong, the best in the world)
17. Corporate governance by investors and boards of directors in your country is characterized by (1 = management has little accountability, 7 = investors and boards exert strong supervision of management decisions)
18. Interests of minority shareholders in your country are (1 = not protected by law, 7 = protected by law and actively enforced)

The data from the GCR with its relatively wide set of indicators covers up to seven years (2001-2007).

Using these questions, the World Bank constructs six variables: Voice and Accountability; Political Stability and Absence of Violence; Government Effectiveness; Regulatory Quality; Rule of Law; Control of Corruption. For pragmatic reasons, these variables will be used in the regressions instead of the answers to all 18 questions.

5.7 BEEPS questionnaire

The World Bank and the Office of the Chief Economist at the EBRD developed the Business Environment and Enterprise Performance Survey (BEEPS) for 26 transition economies and Turkey¹² in 1999 and 2000¹³.

The questionnaire can broadly be separated into two parts: one dealing with institutions and policies, that is, the macro-dimensions, and one dealing with bureaucracy, state intervention and corruption, which represent the micro-dimensions. A representative sample of about 3,000 firms is taken. By including questions on the perception of problems that are also externally measurable, the bias in perception can be estimated (e.g. by asking about infrastructure capacity and comparing the answers with hard data such as the number of telephone lines per capita or by doing the similar procedure with exchange rate variability). [Hellman et al., 2000b] find that the data do not suffer significantly from country perception bias, with the exception of Armenia which apparently tends to be overly pessimistic.

Questions at the micro-level on corruption include questions on the frequency of bribery (How often would you say the following statement is true? “It is common for firms in my line of business to have to pay some irregular ‘additional payments’ to get things done.”), the proportion of firms admitting to paying bribes, the percent of revenue typically paid per year in unofficial payments to public officials, the uncertainties associated with bribery (“Firms in my line of business usually know in advance about how much this ‘additional payment’ is.”; “If a firm pays the required ‘additional payments’ the service is usually also delivered as agreed.”; “If a firm pays the required additional payment to a particular government official, another government official will subsequently require an additional payment for the same ser-

¹²Albania, Armenia, Azerbaijan, Belarus, Bosnia (presumably the Federation of Bosnia and Herzegovina), Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Poland, Republica Srpska (part of Bosnia and Herzegovina, but not of the Federation), Romania, Russia, Slovakia, Slovenia, Turkey, Ukraine, Uzbekistan. It does not include: Montenegro (not yet independent at the time)

¹³The full data and questionnaire are available online at <http://info.worldbank.org/governance/beeps/> (as of March 15, 2009)

vice.”), the recipient of bribes (that is, the price of the various “services” that bribes are paid for), the connectedness of bribery with public procurement, bureaucratic accountability, lobbying, the degree of influence over the state, tax arrears and subsidies.

At the macro-level, questions ask about the quality of public institutions, institutional obstacles to business, grand corruption (i.e. stemming from parliamentary votes, presidential decrees, central bank, criminal court decisions, arbitration court decisions, political contributions, patronage, taxes and regulations), taxes and corruption (“Would you pay additional taxes to eliminate corruption, crime and excessive regulation?”), perceptions of the legal system, property rights, predictability (“How predictable are changes in the government’s economic and financial policies which materially affect your business?”), predictability over time, attitudes of the government towards business and on overall perceptions of government services.

5.7.1 Discussion

The dataset provides data with a great level of detail. Unlike the CPI, which produces only a mere ranking of countries and is not consequent in its use of data sources, the BEEPS (a) is not biased towards non-corrupt countries, (b) not only gives an idea of the general level of corruption, but also distinguishes between petty and grand corruption and allows for deductions on the *shape* of corruption in each individual country, (c) uses a large enough sample for statistically relevant results, and (d) asks firm executives in the transition economies and not Western “experts”. As conducting such a survey requires an enormous effort, it was only conducted once. Therefore, we unfortunately do not have any information on the development over time.

5.8 Indicators for democracy, freedom, and progress towards market economy

- **RSF:** Reporters sans frontières produce an annual worldwide Press Freedom Index since 2002 and is available at www.rsf.org. It is based on expert assessment on a scale of 0 to 114 (the higher, the worse).
- **EBRD:** The European Bank for Reconstruction and Development produces several indicators measuring progress towards market economy status. On a scale of 1 to “4+” (1 representing little or no change from a rigid centrally planned economy, they (staff and consultants) assess progress in the areas (i) large scale privatization, (ii) small scale

privatization, (iii) enterprise restructuring, (iv) price liberalization, (v) trade and foreign-exchange system, (vi) competition policy, (vii) banking reform and interest rate liberalization, (viii) securities markets and non-bank financial institutions, (ix) overall infrastructure reform, (x) telecommunications, (xi) railways, (xii) electric power, (xiii) roads, and (xiv) water and waste water.¹⁴

5.9 Budget data and economic indicators

- **Government balance:** Government balance in percent of GDP were taken from the EBRD (see link above).
- **FDI:** Foreign direct investment inflow in percent of GDP for the years 2006 and 2007 were also provided by the EBRD.
- **Government expenditure on education:** Measured in percent of GDP. The data are not available for all years for all countries and are usually from the years 2005, 2006, or 2007. Source: EBRD.
- **Household expenditure on power and water:** Measured in percent. Source: EBRD.

5.10 Other

Apart from the above-mentioned indicators, there is a variety of other indexes, though probably less prominent, especially due to their limitedness in scope. For instance, in 1994, [Neumann, 1994] produced what was later to be called the German corruption index [Faccio, 2004]. It is based on interviews with German exporters and asked them about the proportion of the transactions involving bribes. This index is insofar of historical value as it was produced relatively early (1994, one year before the first CPI was published, which, at the time, also featured only a very small sample) and because, when the survey was conducted, bribing foreign government officials was not a crime in Germany, which somewhat improves its objectiveness.

5.11 Data not used

Some papers use the number of convictions on bribe charges as an indicator of corruption. For example, [Leeson and Sobel, 2008] investigates the

¹⁴<http://www.ebrd.com/country/sector/econo/stats/index.htm>

effect of bad weather, that is, natural disasters and the subsequent availability of FEMA funds, on political corruption at the state level in the United States. This approach makes sense in a setting where the judiciary can be considered honest. Yet, in transition economies, corruption is more often than not also part of the judiciary. Additionally, especially in authoritarian countries like some in the CIS, the regime might use corruption charges to silence opposition.

Chapter 6

Evidence

6.1 Descriptive Statistics

Sub-sample	Obs	Mean	Std. Dev.	Min	Max
Former Yugoslav Republics (incl. Slovenia ¹)	6	4.117	1.333292	3.2	6.7
Former Yugoslav Republics (excl. Slovenia)	5	3.6	.4690416	3.2	4.4
CIS countries	12	2.317	.6365152	1.8	3.9
New EU Member States	10	5.02	1.011929	3.6	6.7
Albania	1	3.4	.	3.4	3.4
Total sample	28	3.55	1.420094	1.8	6.7

Table 6.1: Descriptive statistics for the CPI 2008 in the four sub-samples

CPIs for the year 2008 in our sample vary between 1.8 and 6.7, meaning that the spread of about 5 is equivalent to roughly half the scale. The former Soviet Union countries regularly score lowest. The former Yugoslav republics score much better on average (their average CPI being about 78% higher than the CIS country's). The new EU Member States perform best, with an average CPI about 116% higher than the CIS's average and 22% above the ex-Yugoslav average (note though that Slovenia is counted into the averages of new EU Member States as well as of the former Yugoslav countries; Table 6.1 also includes an average excluding it from the latter group). Albania belongs to none of these groups and has a CPI of 3.4, which happens to be within one standard deviation of both ex-Yugoslav averages. This is insofar interesting as Albania's regime between 1944 and 1992 (when the first president who was not from the Party of Labour of Albania was

elected) was more oriented towards first the Soviet Union and later China than towards Yugoslavia.

6.2 Indicators

6.2.1 International Treaties

International treaties, for instance within the framework of the United Nations' Office on Drugs and Crime endeavors, might have been an indicator for a country's government's political will to fight corruption. Yet, the United Nations Convention on Corruption has 140 signatories, of which 131 are parties to the convention. In particular, all countries (with the sole exception of Estonia) from the sample signed it². This means that, at least publicly, governments try to signal their opposition to corruption - which yet again shows how unrelated to their implementation UN conventions are.

6.2.2 Law and practice

The Global Integrity Index distinguishes between anti-corruption measures in law and anti-corruption measures in practice (see figure 6.2.2). The difference between those two is called the "implementation gap."³ Using this implementation gap, we can establish a relation to the CPI. The result, as shown in figure 6.2.2, is not very surprising: the larger the implementation gap, the worse the CPI score.

6.3 Results from the BEEPS survey

The main results from the BEEPS survey are presented mainly descriptively in [Hellman et al., 2000b] and more analytically in [Hellman et al., 2000a]. Interesting in the former is their test for possible perception biases. By comparing perceptions from the survey (e.g. perceptions on the quality of infrastructure) with actual data (e.g. data on infrastructure), they find that there is no systematical over- or underestimating of the extent of problems within the interviewee's countries.

²UNODC website, as of March 3, 2009

³The data used in the calculations here were rounded to integers on a 0-100 scale. The original dataset from Global Integrity provides data with 13 digits after the comma, which does not seem to be an appropriate level of precision for a perception-based index. Results may thus differ from any provided by Global Integrity.

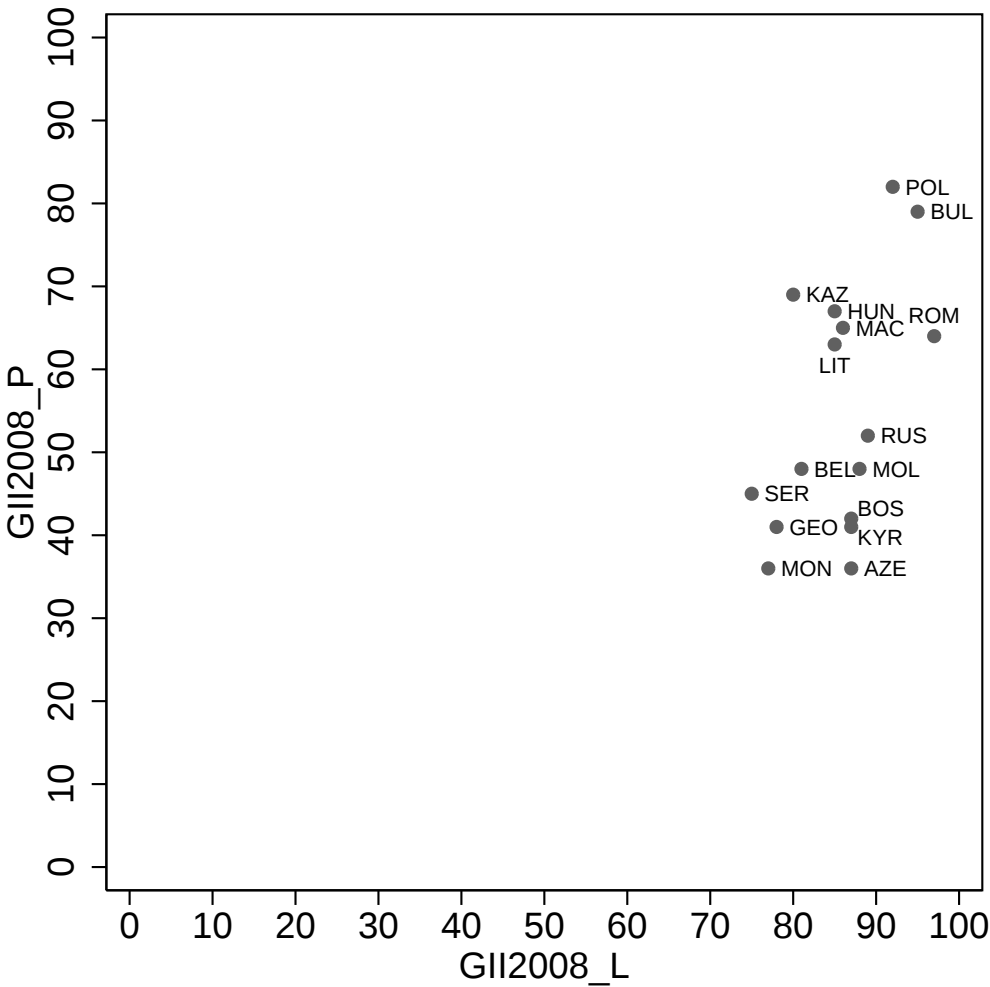


Figure 6.1: Anti-corruption measures in law and in practice as scored by the Global Integrity Index 2008

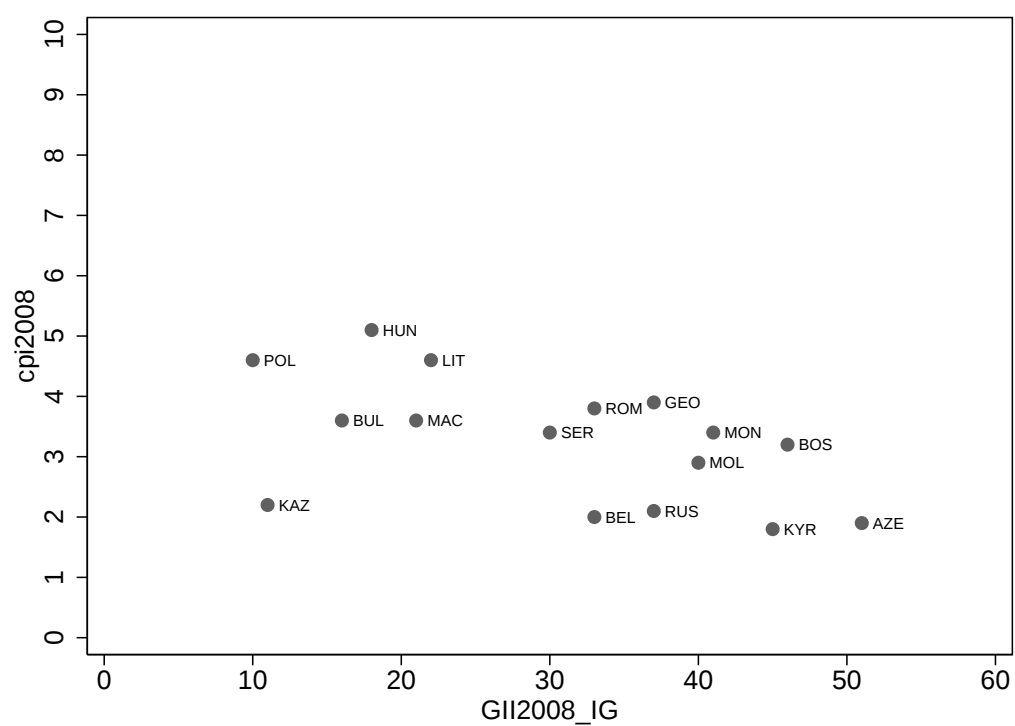


Figure 6.2: CPI and Global Integrity Index “implementation gap”

6.3.1 Constructing Indicators

Similarly to [Treisman, 2003], we can take the up to 71 questions asked and group them in categories. Treisman generates three variables: “frequency of state capture”, “bribe burden”, and “corruption obstacles” (ibid, 7).

“Frequency of state capture” can be derived from answers given to the question “How often do firms like yours nowadays need to make extra, unofficial payments to public officials for any of the following: to get connected to public services, to get licenses and permits, to deal with taxes and tax collection, when dealing with customs / imports, when dealing with courts, to influence the content of new laws, decrees, or regulations, other?” (1 = Always, 6 = Never). Since the averages of all sub-questions are very similar within each country, not much information is lost by using the average of the eight answers⁴.

To test the monopoly power of public officials, we can use answers to question Q31: “How often is the following statement true: ‘If a government agent acts against the rules I can usually go to another official or to his superior and get the correct treatment without recourse to unofficial payments.’” (1 = Always, 6 = Never). By taking the means for each country, we can construct an index (called POnopoly) to be included in the regressions⁵.

6.4 CPI and Global Competitiveness Report

The regression in table 6.2 tries to relate the six variables from the WEF survey to the CPI. Including all six leaves two of them being statistically insignificant, even though they are significant in other regressions. Note the R square of 97.7%.

6.5 CPI and other measures of corruption

The correlation between the CPI and other measures of corruption is relatively high (the correlation between the CPI and the World Bank’s corruption measure is 0.7063 for our sample). For this reason, only the CPI is used as a measure of corruption in the regressions (with the exception of those regressions that include data from the BEEPS survey, which provides its own measure).

⁴The averages exclude the possible answer “Don’t know/no answer”.

⁵For Bosnia, an average of Bosnia and Republica Srpska was used.)

Table 6.2: CPI and WEF indicators

Variable	Coefficient (Std. Err.)
Voice and Accountability	-12.272** (3.404)
Political Stability and Absence of Violence	0.304 (1.365)
Government Effectiveness	5.148* (1.819)
Regulatory Quality	5.771† (2.914)
Rule of Law	1.617 (4.011)
Control of Corruption	6.583* (2.752)
N	25
R ²	0.977
F _(6,19)	136.088
Significance levels : † : 10% * : 5% ** : 1%	

6.6 Extreme Bounds Analysis

As a first example of an extreme bounds analysis, we can try to relate the BEEPS “frequency of state capture” variable to the CPI. A problem in this regression is that data from different years are used. But since the change of CPI is relatively small even over a ten year period, this is not a serious issue (the correlation between CPI1999 and CPI2007 is 0.8897).

EBA 1 *Tests the effect of the “frequency of state capture” variable on the CPI, with government expenditure on education, household expenditure on power and water, Control of Corruption and FDI inflow.*

- **Dependent variable:** CPI2007
- **Variable of interest:** frequencystatecapture
- **Explanatory variables:** expedu exppowerwater GCB07CC FDIinflow2007
- **Result:** See table 6.3.

This result is consistent: the coefficient for frequencystatecapture is positive (remember that higher is better), meaning that the frequency of state capture in the BEEPS survey translates consistently into a corresponding CPI.

Table 6.3: EBA with CPI 2007, frequency of state capture, and Z(nx4) vector

Dvar = cpi2007							
F = frequencystatecapture							
Z = expedu exppowerwater GCB07CC FDIinflow2007							
	beta	t	p-val	.95 C.I.	VIF	Zs	
Min	1.6114	2.1029	0.0471	0.0222 3.2005	1.05	[z2]	
Max	1.8489	2.3318	0.0293	0.2045 3.4934	1.06	[z4]	

A total of 4 combinations of 1 regressor from the Z(nx4) vector were used.

6.7 Test of the hypotheses

6.7.1 Hypothesis 1

EBA 2 *Tests the effect of government expenditure and EBRD transition indicators on the CPI.*

- **Dependent variable:** CPI2007
- **Variable of interest:** govexp2007
- **Explanatory variables:** lprivatization sprivatization entrestruct prcelib
- **Result:** See table 6.4.

Table 6.4: EBA with CPI 2007, government expenditure, and Z(nx5) vector

Dvar = cpi2007							
F = govexp2007							
Z = lprivatization sprivatization entrestruct prcelib loggdppc2008							
	beta	t	p-val	.95 C.I.	VIF	Zs	
Min	0.0515	2.1555	0.0409	0.0023 0.1006	1.01	[z4]	
Max	0.0523	2.1637	0.0402	0.0025 0.1021	1.01	[z2]	

A total of 5 combinations of 1 regressor from the Z(nx5) vector were used.

Thus, the amount of government expenditure in percent of GDP consistently has a positive effect on the CPI, which disagrees with hypothesis 1. Also the regression `. regress cpi2007 govexp_2007 loggdppc2008` yields positive coefficients for both variables. This is probably due to the fact that richer countries also spend more in relative terms. If we now compare countries with similar GDP (e.g. the group of New Member States) and do the same regression again, that is,

`regress cpi2007 govexp_2007 loggdppc2008 if EU == 1,`

then government expenditure has a negative coefficient, though statistically not significant. Especially, the coefficient is positive for both the group of former Yugoslav republics and the group of former Soviet republics.

6.7.2 Hypothesis 2

It is suggested by [Kaufmann, 1998, 138] that highly populated countries, *ceteris paribus*, appear to be more likely to be corrupt. This puzzling result is contradicted by even more puzzling data on transition economies: high population density is linked with a high CPI (though only at the 90% significance level), that is, with lower corruption, even when controlling for GDP per capita (which is unrelated to density in the sample). Yet, Central European countries seem to be more densely populated than former Soviet Union countries. We therefore control for the groups EU, EXYU and CIS. By including those dummies, the coefficient for density becomes insignificant, while the dummies EU and EXYU are significant at the 1 percent level.

Table 6.5: CPI2008 and density

Variable	Coefficient
	(Std. Err.)
density	0.014 [†] (0.007)
Intercept	2.533** (0.564)
N	28
R ²	0.136
F _(1,26)	4.079
Significance levels : † : 10% * : 5% ** : 1%	

6.7.3 Hypothesis 3

EBA 3 *As an indicator for the quality of democracy, we use the “Voice and Accountability” variable (GCS08VA) and perform an EBA explaining the CPI for 2008.*

- **Dependent variable:** CPI2008
- **Variable of interest:** GCS08VA
- **Explanatory variables:** loggdppc2008 EXYU CIS EU
- **Result:** See table 6.9. Quality of democracy is related to a better CPI score, with the coefficient being lowest for the EXYU-subsample and highest for countries in the EU-subsample.

Table 6.6: CPI2008, density, and GDP

Variable	Coefficient (Std. Err.)
GDP2008TSD	0.169** (0.021)
density	0.010* (0.004)
Intercept	1.323** (0.333)
N	28
R ²	0.767
F (2,25)	41.097
Significance levels : † : 10% * : 5% ** : 1%	

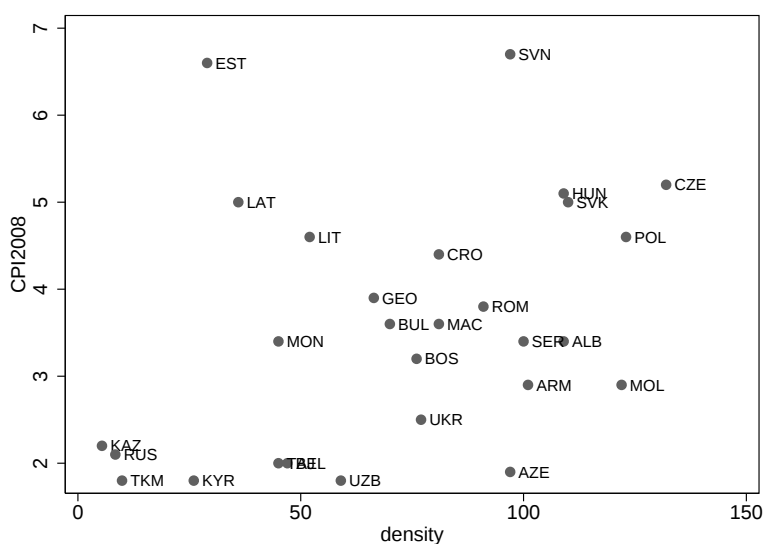


Figure 6.3: CPI 2008 and density. A weak, but positive relation, significant at the 90% level only.

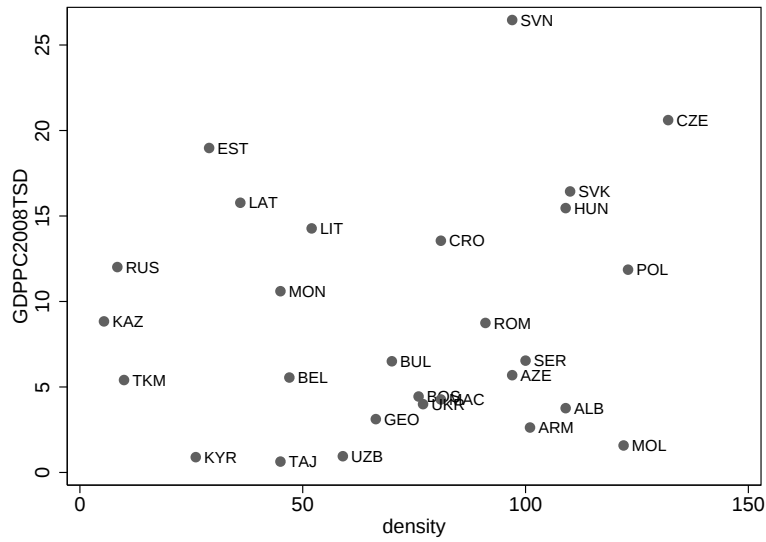


Figure 6.4: GDP per capita in 2008 (in thousand USD) and density. Regressions show no significant relation.

Table 6.7: GDP and density

Variable	Coefficient
	(Std. Err.)
density	24.505 (35.551)
Intercept	7158.228* (2851.909)
N	28
R ²	0.018
F _(1,26)	.475
Significance levels : † : 10% * : 5% ** : 1%	

Table 6.8: CPI, density, and dummies

Variable	Coefficient
	(Std. Err.)
density	0.003 (0.004)
EXYU	1.093 [†] (0.557)
CIS	-0.254 (0.607)
EU	2.245** (0.556)
Intercept	2.394** (0.664)
N	28
R ²	0.774
F _(4,23)	19.696
Significance levels : † : 10% * : 5% ** : 1%	

Table 6.9: EBA with CPI 2008, voice and accountability, and Z(nx4) vector

Dvar = cpi2008							
F = GCS08VA							
Z = loggdppc2008 EXYU CIS EU							
	beta	t	p-val	.95 C.I.		VIF	Zs
min	7.1503	2.6248	0.0151	1.5151	12.7855	1.09	[z4]
Max	11.2084	2.7907	0.0104	2.8999	19.5168	1.00	[z2]

A total of 4 combinations of 1 regressor from the Z(nx4) vector were used.

A similar result is achieved with RSF2007 as indicator for quality of democracy. The coefficients for RSF2007 are significant and negative (a higher RSF score means less freedom of the press).

6.7.4 Hypothesis 4

To check whether societies with the same institutional characteristics experience very different corruption levels, we can use the dummy variables EXYU, EU, and CIS as proxies for institutional arrangements. Table 6.1 gives the average CPI for each subsample with the standard deviation and minimum and maximum values. All groups show a certain spread: the former Yugoslav republics' is the largest, with the maximum value being more than the double of the minimum. The same is the case with the CIS subsample and it is almost the case for the new EU Member States.

As mentioned above, the measurement over time is difficult to perform, given that the methodology is not consistent and that mostly short-term data is available. A Fixed Effects Model estimation produces the result in table 6.10. An Arellano-Bond linear dynamic panel-data estimation produces the result in table 6.11. The result remains approximately the same if the variable SU (number of surveys used) is included (see table 6.12).

Table 6.10: Fixed Effects Model	
Variable	Coefficient
	(Std. Err.)
year	0.034** (0.009)
Intercept	-63.995** (18.093)
N	266
R ²	0.055
F (28,237)	13.892
Significance levels : † : 10% * : 5% ** : 1%	

6.7.5 Hypothesis 5

EBA 4 *As an indicator for the quality of regulation, we use the “Quality of Regulation” variable (GCS08RQ) and perform an EBA explaining the CPI for 2008.*

Table 6.11: Arellano-Bond linear dynamic panel-data estimation (lag = 1)

Variable	Coefficient
	(Std. Err.)
L.cpi	0.675** (0.051)
year	0.026** (0.006)
Intercept	-51.074** (12.437)
N	200
$\chi^2_{(2)}$	218.317
Significance levels : † : 10% * : 5% ** : 1%	

Table 6.12: Arellano-Bond dynamic panel-data estimation including number of surveys used (lag = 1)

Variable	Coefficient
	(Std. Err.)
L.cpi	0.655** (0.051)
year	0.032** (0.007)
su	-0.026** (0.010)
Intercept	-62.423** (13.080)
N	200
$\chi^2_{(3)}$	227.241
Significance levels : † : 10% * : 5% ** : 1%	

- **Dependent variable:** CPI2008
- **Variable of interest:** GCS08RQ
- **Explanatory variables:** loggdppc2008 CC07registry comppolicy govexp2007
- **Result:** See table 6.13. Quality of regulation is related to a better CPI score.

Table 6.13: EBA with CPI 2008, quality of regulation, and Z(nx4) vector

Dvar = cpi2008							
F = GCS08RQ							
Z = loggdppc2008 CC07registry comppolicy govexp2007							
	beta	t	p-val	.95 C.I.		VIF	Zs
min	7.2444	2.8076	0.0158	1.6225	12.8662	1.12	[z4]
Max	10.4097	7.0508	0.0000	7.3555	13.4638	1.01	[z2]

A total of 4 combinations of 1 regressor from the Z(nx4) vector were used.

6.7.6 Hypothesis 6

“Frequency of state capture” varies only slightly (between 4.9 and 5.5) across service industries as well as between manufacturing industries (between 5.2 and 5.7).

Surprisingly, also the variation between countries is very low. The average answer (over all observation, not by countries) is 5.150345 with a standard error of .0170929. The mean of the country means is 5.152801 with a standard deviation of .0676753.

6.7.7 Hypothesis 7

For this hypothesis, we use the BEEPS dataset again as it provides firm-level data. For the explained variable (variation in bribes), we can use Q30 “When firms in your industry do business with the government, how much of the contract value would they typically offer in additional or unofficial payments to secure the contract?” or Q27 “On average, what percent of

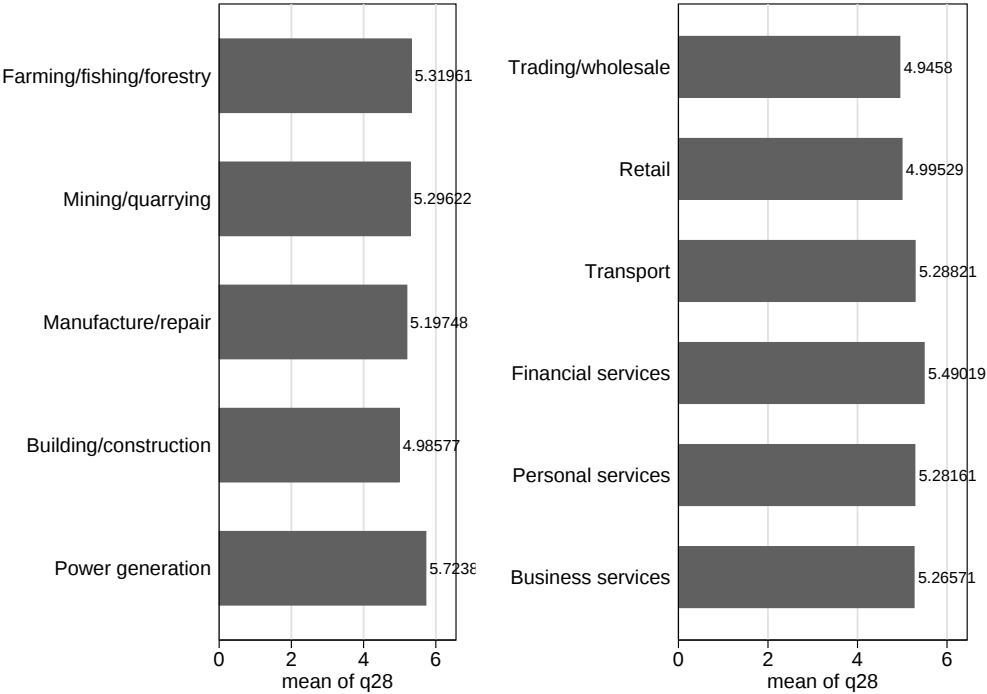


Figure 6.5: Frequency of state capture by sector

revenues do firms like yours typically pay per annum in unofficial payments to public officials?”. For the explaining variables, we can use Q24 “What percentage of senior management’s time per year is spent in dealing with government officials about the application and interpretation of laws and regulations?” and Q31 (see above).

All coefficients are highly significant: Bribes are higher the more time is or has to be spent with public officials and the better the officials’ negotiating position is (due to his or her monopoly power). The R squared is very low, though.

Table 6.14: BEEPS: Bribe incidence (Q27) and public officials’ control rights

Variable	Coefficient
	(Std. Err.)
q31	0.182** (0.021)
q24	0.218** (0.021)
Intercept	3.276** (0.149)
N	1719
R ²	0.099
F _(2,2489)	94.027
Significance levels : † : 10% * : 5% ** : 1%	

6.7.8 Hypothesis 8

Relevant for the Grabbing Hand Theory is question 26b: “If a firm pays the required additional payment to a particular government official, another government official will subsequently require an additional payment for the same service.” The coefficient is statistically significantly linked to higher bribe payments, with a very small R squared (about 12%).

6.7.9 Hypothesis 9

As shown in the introduction, GDP and CPI are highly correlated. A tempting thing to do would be to test how the CPI developed with GDP

Table 6.15: BEEPS: Bribe incidence (Q27) and public officials' control rights (ordered logit)

Variable	Coefficient (Std. Err.)
Equation 1 : q27	
q31	0.294** (0.032)
q24	0.313** (0.033)
Equation 2 : cut1	
Intercept	-2.359** (0.252)
Equation 3 : cut2	
Intercept	1.553** (0.169)
Equation 4 : cut3	
Intercept	2.535** (0.176)
Equation 5 : cut4	
Intercept	3.808** (0.189)
Equation 6 : cut5	
Intercept	5.008** (0.210)
Equation 7 : cut6	
Intercept	6.283** (0.262)
N	1719
Log-likelihood	-2554.322
$\chi^2_{(2)}$	173.608

Table 6.16: BEEPS: Bribe incidence (Q30) and public officials' control rights

Variable	Coefficient (Std. Err.)
q31	0.089** (0.025)
q24	0.120** (0.025)
Intercept	1.724** (0.128)
N	1152
R ²	0.03
F _(2,1149)	17.93

over time. Since poor countries are more corrupt than rich ones, and since transition economies grew strongly in the last 20 years, it could be expected that the CPI increased in the same time. Yet, here comes in the problem mentioned in Section 5.2.3, namely that the CPI is not easily comparable between years. This problem can be reduced a little bit by aggregating.

The situation almost ten years before the 2008 CPI, in 1999, was as summarized in table 6.18.

Again, comparing CPIs over time is problematic. Since we are comparing aggregate CPIs, we could assume that measurement errors cancel out on average. It can then be seen that corruption scores did not change much over time. This is quite a discrepancy with the hypothesis that corruption disappears when countries get richer. As a matter of fact, transition economies grew enormously between 1999 and 2008, as summarized in table 6.19. If we apply the results from the regression presented in table 6.20 to the GDP growth rates, then the CPI would had had to increase by values similar to those presented in column 3 in table 6.19, that is, $\log(\text{growthrate}) * \beta_{\log dppc2008}$.

EBA 5

- **Dependent variable:** CPI2008
- **Variable of interest:** log of GDP per capita 2008

Table 6.17: BEEPS: Bribe incidence (Q30) and public officials' control rights (ordered logit)

Variable	Coefficient (Std. Err.)
Equation 1 : q30	
q31	0.146** (0.038)
q24	0.171** (0.040)
Equation 2 : cut1	
Intercept	-0.222 (0.199)
Equation 3 : cut2	
Intercept	1.485** (0.203)
Equation 4 : cut3	
Intercept	2.844** (0.217)
Equation 5 : cut4	
Intercept	3.714** (0.233)
Equation 6 : cut5	
Intercept	4.635** (0.269)
N	1152
Log-likelihood	-1688.395
$\chi^2_{(2)}$	32.901

Sub-sample	Obs	Mean	Std. Dev.	Min	Max
Former Yugoslav Republics (incl. Slovenia)	4	3.5	1.749286	2	6
Former Yugoslav Republics (excl. Slovenia)	3	2.67	.6506407	2	3.3
CIS countries	10	2.38	.4709329	1.7	3.4
New EU Member States	10	4.32	1.00973	3.3	6
Albania	1	2.2	.	2.3	2.3
Total sample	24	3.22	1.196727	1.7	6

Table 6.18: Descriptive statistics for the CPI 1999 in the four sub-samples

Group	Combined GDP growth	Estimated increase in CPI
Slovenia, Croatia, Bosnia, and Macedonia	76.66%	0.06
New EU Member States	101.78%	0.07
CIS	167.18%	0.108

Table 6.19: GDP growth between 1999 and 2008

- **Explanatory variables:** government account 2007, government expenditure 2007, RSF 2007
- **Result:** log GDP per capita has a positive effect on the CPI. See table 6.21.

From these regressions we can conclude that high growth rates are only linked to a very small change in perceived corruption, probably an effect much smaller than the errors of measurement. Corruption levels are less explained by a flow variable like GDP, but rather by the dummies related to the institutional setting and historical background, that is, whether a country is a former Soviet republic, a Central and Eastern European country, or a former Yugoslav republic. For some reasons, ex-Yugoslavia and the new EU Member States were able to strongly improve their score despite lower growth rates than the CIS countries, which even though becoming relatively richer than the others, even saw a slight (though statistically probably insignificant) drop in the corruption score.

Table 6.20: CPI 2008, log GDP per capita, and dummies

Variable	Coefficient (Std. Err.)
loggdppc2008	0.253 (0.206)
EXYU	0.900 (0.561)
CIS	-0.308 (0.580)
EU	1.906** (0.607)
Intercept	0.598 (1.778)
N	28
R ²	0.783
F _(4,23)	20.689
Significance levels : † : 10% * : 5% ** : 1%	

Table 6.21: EBA with CPI 2008, log GDP per capita, and Z(nx3) vector

Dvar = cpi2008							
F = loggdppc2008							
Z = rsf2007 govexp2007 GA2007							
	beta	t	p-val	.95 C.I.		VIF	Zs
min	0.6819	4.5842	0.0001	0.3761	0.9876	1.24	[z1]
max	1.1024	6.3150	0.0000	0.7436	1.4612	1.02	[z3]

A total of 3 combinations of 1 regressor from the Z(nx3) vector were used.

6.7.10 Hypothesis 10

The regression `. reg fdiinflow2007 cpi2007` and related EBAs (with CPI as well as with TI's Global Corruption Barometer index) produce no statistically significant coefficient. The hypothesis can thus not be supported. Yet there is literature finding significant results using a worldwide sample (e.g. [Teksöz, 2005]). [Javorcik and Wei, 2009] find that corruption not only lowers inward FDI but also shifts the ownership structure towards joint ventures (though they use data from 1995). This supports the argument that corruption increases “the value of using a local partner to cut through the bureaucratic maze” (ibid).

Chapter 7

Conclusions

7.1 Data

Criticism of perceptions indexes in general, and the Corruption Perceptions Index in special has been presented. A recurring issue is the lack of “hard data” (as the WEF puts it) immanent to the topic; since data used by economists is mostly provided by state authorities (as the etymology of statistics suggests), this problem can hardly be solved, especially given that collecting data can be very expensive. The impossibility of intertemporal comparisons of some indexes is a big obstacle and can easily lead to wrong conclusions when nevertheless done (see for instance Gavrilentov’s theory on the link between corruption and the oil price). Maybe it would suffice to conduct extensive surveys only every couple of years, as corruption (an institutional problem) is unlikely to change significantly within a year. A bi- or tri-annual index that produces a wide sample and is comparable over time might give us more information than the yearly Corruption Perceptions Index with its high variance in the number of surveys used.

Nevertheless there are smart ways to find at least indicators for corruption taking place, be it only by looking at traffic violations in New York City.

All in all, it was possible to draw conclusions from the existing data, despite all shortcomings. Though some inconsistencies with the theory remained, much of it was nevertheless confirmed.

7.2 Causality

Causality is a “dangerous” word in the context of econometrics. Too easily, correlation is confused with causality. This thesis has presented several correlations, but has to remain somewhat vague or ambiguous about

causalities. One key to understanding causality is the time horizon. There is some reproducible, probably even undisputed, evidence that in the short run, corruption has detrimental effects on growth; at the same time, there is literature showing that the long-run causality is just the opposite. We should nevertheless always keep in mind that econometrics is maybe not the adequate tool to come to definite conclusion on this issue.

7.2.1 Elements specific to transition economies

Economic development is a tremendous factor in explaining corruption. Yet, there is not much literature on why exactly low economic development, as measured by GDP, is linked to corruption. It has furthermore been shown that there are specific transition-related elements and indicators explaining the incidence of corruption in former Socialist countries.

All in all, the statement in [Berglof and Bolton, 2001] that “ [a] growing and deepening divide has opened up between transition countries where economic development has taken off and those caught in a vicious cycle of institutional backwardness and macroeconomic instability” can only be confirmed.

7.3 Further research

Every country has its own idiosyncrasies and reasons for bad or good development; it would thus be necessary to do elaborate case-studies on each country, optimally combining economic, political scientist, sociological and other analyses. At the same time, there are patterns across countries, that should and could be explained further by theoretical frameworks.

A major factor that was left out in this thesis is corruption within companies and non-governmental organizations. This kind of corruption is almost unexplored and virtually uncontrolled [Levin and Satarov, 1999, 115]. Since transition is characterized by privatizations, it is reasonable to guess that patterns of corruption at state-owned firm level were transferred into the private sector, while it could also be argued that those privatizations were more often than not acts of corruption by themselves. Maybe research on how credits were obtained from commercial banks in exchange for bribes can contribute to explain parts of the current credit crunch in transition economies.

At the same time, we should also keep in mind some skepticism of anti-corruption rhetoric. [Levin and Satarov, 1999, 121] noted that compromising materials and accusations of corruption were used during the phase of privatization in Russia as powerful weapons against adversaries. Allegations

of corruption can easily be constructed in authoritarian countries, a prominent example being the case of former Malaysian deputy prime minister and now opposition leader Anwar Ibrahim, who was put in prison for a couple of years on very controversial and criticized¹ convictions of corruption and even “sodomy.” Levin, too, warns that high perceived levels of corruption might lead to an uprise of totalitarian movements that promise to fight corruption, but reminds us also of the fact that exactly such totalitarian regimes are in fact the most corrupt.

¹see for instance <http://www.amnesty.org/en/library/info/ASA28/015/2003>

Bibliography

- [Ades and Tella, 1997a] Ades, A. and Tella, R. D. (1997a). National champions and corruption: Some unpleasant interventionist arithmetic. *The Economic Journal*, 107(443):1023–1042.
- [Ades and Tella, 1997b] Ades, A. and Tella, R. D. (1997b). The new economics of corruption: a survey and some new results. *Political Studies*, 45:496–515.
- [Aidt, 2003] Aidt, T. S. (2003). Economic analysis of corruption: A survey. *The Economic Journal*, 113.
- [Andvig and Moene, 1990] Andvig, J. C. and Moene, K. O. (1990). How corruption may corrupt. *Journal of Economic Behavior and Organization*, 13:63–76.
- [Arndt and Oman, 2006] Arndt, C. and Oman, C. (2006). *Uses and Abuses of Governance Indicators*. OECD Development Centre, OECD Publishing.
- [Auriol and Warlters, 2002] Auriol, E. and Warlters, M. (2002). Taxation base in developing countries. *Economics Web Institute*.
- [Bardhan, 1997] Bardhan, P. (1997). Corruption and development. *Journal of Economic Literature*, 35:1320–1346.
- [Basu and Li, 1998] Basu, S. and Li, D. D. (1998). Corruption in transition. *Working Paper Number 161, The William Davidson Institute at the University of Michigan Business School*.
- [Berglof and Bolton, 2001] Berglof, E. and Bolton, P. (2001). The Great Divide and beyond: Financial architecture in transition. *William Davidson Working Paper Number 414*.
- [Campos and Giovannoni, 2006] Campos, N. F. and Giovannoni, F. (2006). The determinants of asset stripping: Theory and evidence from the transition economies. *The Journal of Law and Economics*, 49(2):681–706.

- [De Mello, 2004] De Mello, Luiz R., J. (2004). Can Fiscal Decentralization Strengthen Social Capital? *Public Finance Review*, 32(1):4–35.
- [Dixit, 2009] Dixit, A. (2009). Governance institutions and economic activity. *American Economic Review*, 99:5–24.
- [Easterly, 2002] Easterly, W. (2002). *The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics*. MIT Press.
- [Emerson, 2006] Emerson, P. M. (2006). Corruption, competition and democracy. *Journal of Development Economics*, 81:193–212.
- [Faccio, 2004] Faccio, M. (2004). Politically connected firms. *American Economic Review*, 96(1):369–386.
- [Fisman, 2001] Fisman, R. (2001). Estimating the value of political connections. *American Economic Review*, 91(4):1095–1102.
- [Fisman and Miguel, 2006] Fisman, R. and Miguel, E. (2006). Cultures of corruption: Evidence from diplomatic parking tickets. *NBER Working paper No. 12312*.
- [Fisman and Wei, 2004] Fisman, R. and Wei, S.-J. (2004). Tax rates and tax evasion: Evidence from “missing imports” in China. *Journal of Political Economy*.
- [Graf Lambsdorff, 2008] Graf Lambsdorff, J. (2008). *The Institutional Economics of Corruption and Reform*. Cambridge UP.
- [Gundlach and Paldam, 2000] Gundlach, E. and Paldam, M. (2000). The transition of corruption: From poverty to honesty. *Kiel Working Paper No. 1411*.
- [Hellman et al., 2000a] Hellman, J. S., Jones, G., and Kaufmann, D. (2000a). “seize the state, seize the day” - state capture, corruption, and influence in transition. *The World Bank Policy Research Working Paper 2444*.
- [Hellman et al., 2000b] Hellman, J. S., Jones, G., Kaufmann, D., and Schankerman, M. (2000b). Measuring governance, corruption, and state capture - how firms and bureaucrats shape the business environment in transition economies. *The World Bank Policy Research Working Paper 2312*.

- [Herzfeld and Weiss, 2003] Herzfeld, T. and Weiss, C. (2003). Corruption and legal (in)effectiveness: an empirical investigation. *European Journal of Political Economy*, 19:621–632.
- [Hillman and Katz, 1987] Hillman, A. L. and Katz, E. (1987). Hierarchical structure and the social costs of bribes and transfers. *Journal of Public Economics*, 34:129–142.
- [Jain, 2001] Jain, A. K. (2001). Corruption: A review. *Journal of Economic Surveys*, 15(1):71–121.
- [Javorcik and Wei, 2009] Javorcik, B. S. and Wei, S.-J. (2009). Corruption and cross-border investment in emerging markets: Firm-level evidence. *Journal of International Money and Finance*, 28(4):605 – 624. Emerging Market Finance.
- [Johnson et al., 1997] Johnson, S., Kaufmann, D., and Shleifer, A. (1997). The unofficial economy in transition. *Brookings Papers on Economic Activity*.
- [Johnson et al., 1998] Johnson, S., Kaufmann, D., and Zoido-Lobaton, P. (1998). Regulatory discretion and the unofficial economy. *American Economic Review*.
- [Judson and Owen, 1999] Judson, R. A. and Owen, A. L. (1999). Estimating dynamic panel data models: a guide for macroeconomists. *Economic Letters*, 65:9–15.
- [Karasulu, 2003] Karasulu, A. (2003). Review of: 'the economics of corruption: Causes, consequences and extent (Sitki Utku Teksöz. master's thesis, Bodazici University, 2002, pp. xviii, 270p.)'. *Journal of Historical Studies*, pages 60–63.
- [Kaufmann, 1998] Kaufmann, D. (1998). Research on corruption: critical empirical issues. In Jain, A. K., editor, *Economics of Corruption*. Kluwer Academic Publishers, Boston/Dordrecht/London.
- [Kaufmann and Wei, 2000] Kaufmann, D. and Wei, S.-J. (2000). Does “grease money” speed up the wheels of commerce? *Working Paper WP/00/64, IMF*.
- [Leeson and Sobel, 2008] Leeson, P. T. and Sobel, R. S. (2008). Weathering corruption. *The Journal of Law and Economics*, 51(4):667–681.

- [Levin and Satarov, 1999] Levin, M. and Satarov, G. (1999). Corruption and institutions in Russia. *European Journal of Political Economy*, 16:113–132.
- [Lui, 1985] Lui, F. T. (1985). An equilibrium queuing model of bribery. *Journal of Political Economy*, 93(4):760–781.
- [Mauro, 1999] Mauro, P. (1999). Corruption and growth. *Quarterly Journal of Economics*, 110:681–713.
- [Neumann, 1994] Neumann, P. (1994). Böse: fast alle bestechen. *Impulse, Hamburg*, 4:12–16.
- [Rose-Ackerman, 1978] Rose-Ackerman, S. (1978). *Corruption: A Study in Political Economy*. Academic Press.
- [Rose-Ackerman, 1999] Rose-Ackerman, S. (1999). *Corruption and Government: Causes, Consequences, and Reform*. Cambridge University Press.
- [Sala-i-Martin, 1997] Sala-i-Martin, X. (1997). I just ran two million regression. *AEA Papers and Proceedings*, 87:178–183.
- [Seldayo and de Haan, 2005] Seldayo, H. and de Haan, J. (2005). The determinants of corruption. *Paper prepared for the EPCS-2005 Conference*.
- [Serra, 2004] Serra, D. (2004). Empirical determinants of corruption: a sensitivity analysis. *Global Poverty Research Group GPRG-WPS-012*.
- [Shleifer and Vishny, 1998a] Shleifer, A. and Vishny, R. (1998a). Government in transition. In Shleifer, A. and Vishny, R., editors, *The Grabbing Hand - Government pathologies and their cures*. Harvard University Press.
- [Shleifer and Vishny, 1998b] Shleifer, A. and Vishny, R. (1998b). A theory of privatization. In Shleifer, A. and Vishny, R., editors, *The Grabbing Hand - Government pathologies and their cures*. Harvard University Press.
- [Shleifer and Vishny, 1993] Shleifer, A. and Vishny, R. W. (1993). Corruption. *Working Paper No. 4372, NBER*.
- [Shleifer and Vishny, 1994] Shleifer, A. and Vishny, R. W. (1994). Politicians and firms. *The Quarterly Journal of Economics*, 109(4):995–1025.
- [Svensson, 2003] Svensson, J. (2003). Who must pay bribes and how much? evidence from a cross section of firms. *The Quarterly Journal of Economics*, 118(1):207–230.

- [Svensson, 2005] Svensson, J. (2005). Eight questions about corruption. *Journal of Economic Perspectives*, 19(3):19–24.
- [Tanzi, 1998] Tanzi, V. (1998). Corruption around the world: Causes, consequences, scope, and cures. Working paper 98/63, International Monetary Fund.
- [Teksöz, 2005] Teksöz, S. U. (2005). Essays in development economics. Dissertation submitted to Ludwig Maximilians University Munich.
- [Treisman, 2000] Treisman, D. (2000). The causes of corruption: A cross-national study. *Journal of Public Economics*, 76:399–457.
- [Treisman, 2003] Treisman, D. (2003). Postcommunist corruption. In Fidrmuc, J. and Campos, N., editors, *Political Economy of Transition and Development: Institutions, Politics, and Policies*, pages 201–226. Kluwer Academic Publishers, Boston/Dordrecht/London.

Appendix A

Appendix: Stata code

Unless specified otherwise, all regressions in this paper use Stata’s `reg` command with dependent and independent variables as indicated in the respective table. Note that “>” in the beginning of a line indicates a line break and is not part of the code. All of the code was written for version 10.

A.1 Introduction

Table 1.1: For this table, the package `grand2` provided by StataCorp. was used to calculate an estimate of the grand mean and the differences therefrom.

```
. fit cpi2008 EXYU EU CIS other, hascons
. grand2 EXYU EU CIS other
. outtex, detail level below title(CPI2008: Estimates
> as grand mean/intercept and marginal impacts)
```

A.2 Evidence

The Extreme Bounds Analysis was performed using the `eba` package written by Gregorio Impavido of the World Bank. Its syntax is

```
. eba var1 var2 varlist [if exp] [in range], [x(varlist)
> type(#) level(#) vif(#) ci(#) details]
```

`var1` is the dependent variable (called Y in the specification in section 5.1.2), `var2` corresponds to the F variable (the variable of interest), and `varlist` is the list of variables forming the Z vector (the additional explanatory variables). The results given by the command are the respective

minimum and maximum bounds values for β , t-statistic, p-value, a 95% confidence interval, variance inflation factor (VIF), and Z variables used. The maximum VIF is set to 10,000 by default.

For the panel data analysis, the following code was used:

```
reshape long cpi su GA govexp_, i(index) j(year)
tsset index year
xtreg cpi year, fe
xtabond cpi year su
```

and the results were reported again with the `outtex` command.

Appendix B

Summary in German / Deutsche Zusammenfassung

Die Diplomarbeit gibt anfangs einen Überblick über die bestehende Literatur zur ökonomischen Analyse von Korruption und den Transitionsprozessen in Zentral- und Osteuropa (inklusive Albanien und den ehemaligen jugoslawischen Republiken) sowie den ehemaligen Sowjetrepubliken. Drei formale Modelle werden vorgestellt. Das erste folgt jenem Modell, das von [Aidt, 2003] beschrieben wird, und geht von der Annahme einer wohlmeinenden Regierung aus. Das zweite ist das Grabbing-Hand-Modell von [Shleifer and Vishny, 1993]. Das dritte betrachtet [Andvig and Moene, 1990] folgend eine Situation der sich selbst verstärkenden Korruption. Aus dem Literaturüberblick und den formalen Modellen werden mehrere Hypothesen abgeleitet. Zehn von diesen Hypothesen werden dann anhand eines Samples bestehend aus 28 Transitionsökonomien überprüft. Um die Auswirkung des Hinzunehmens von zusätzlichen Variablen auf den erklärenden Effekt einer bestimmten Variable (z.B. eines Korruptionsmaßes) zu testen, werden sogenannte Extreme-Bounds-Analysen durchgeführt. Die verwendeten Daten stammen u.a. von der NGO Transparency International und der Weltbank (insbesondere aus dem BEEPS-Datensatz).

Appendix C

Curriculum Vitae

Philip Cosmo Hanke

Contact

Schwaigergasse 22/7
1210 Vienna, Austria
E-mail: philip@hanke.com
Phone: +43-699-17 02 88 08

Born

June 24, 1983 in Vienna, Austria

Citizenship

Austrian

Education

- Mag. rer. soc. oec., Economics at the University of Vienna (expected graduation: Spring 2009)
- Mag. phil., Political Science at the University of Vienna (expected graduation: Summer 2009)
- Exchange semester at the Universidade Nova de Lisboa (2006/2007, through the ERASMUS program)
- Exchange semester at the University of Western Australia (2007, through the universities' joint study program)
- Lycée Français de Vienne, specialization on sciences (1989-2001)

Fields of interest and specialization

- Industrial Organization, Transition Economics, Development Economics, Macroeconomics, Law-and-Economics
- International Relations, Central and Eastern Europe, Political Theory

Professional experience (selection)

- Currently freelancer at the Austrian Institute of Economic Research (WIFO)
- Freelancer at eclareon GmbH (2008)
- Internship with the United States Mission to International Organizations in Vienna, Austria (2007/2008)
- Alternative civilian service at the German Resistance Memorial (2004/2005)

Spoken languages

English, French, German, Italian, basic Spanish and Portuguese

Other activities

- Participation in the Banking Summer College organized by the Management Academy at the Vienna University of Economics and Business Administration (Summer 2008)
- Participation in the Altenmarkt Seminar in American Studies on invitation by the Fulbright Commission (Spring 2006)
- Study trip to Bosnia-Herzegovina (Spring 2006)
- Study trip to the UN Headquarters in New York, to the International Monetary Fund and to the World Bank in Washington, DC (Spring 2004)
- Study trip to the European Parliament in Brussels, to UNESCO in Paris and to the International Court of Justice in The Hague (Fall 2003)