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Fiscal Capacity and Multiple-Equilibria of Corruption: Cross-Country Evidence

by

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The undersigned certify that they have read and recommend to the faculty of graduate studies for acceptance, a thesis entitled "Fiscal Capacity and Multiple-Equilibria of Corruption: Cross-Country Evidence" submitted by Mohammad Abdul Munim Joarder in partial fulfillment of the requirements for the degree of Master of Arts.

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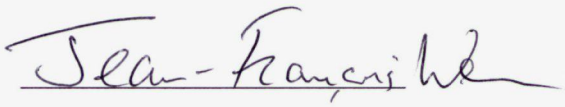

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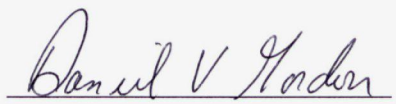

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Abstract

This study tests the proposition that higher initial fiscal capacity of a nation strengthens law and order and therefore inhibits corruption, and in a multiple-equilibria setting, the economy will move towards the low-corruption stable equilibrium. We find evidence of a significant relationship between more initial fiscal capacity and less corruption in a large cross-section of countries that became independent after World War II. This result is robust to specification and sample. Along with initial conditions, recent revenue capacity may also help explain current level of perceived corruption of a country. The empirical findings of this paper strongly suggest that higher initial revenue capacity is a necessary condition but not a sufficient condition to reduce corruption. A government's willingness (benevolence) is also needed to combat corruption. Both of these variables help the economy to converge towards a 'low-corruption stable equilibrium' and given its positive efficiency implications already established in the literature, should be considered beneficial to growth, equity and overall development of a country. Therefore, for the newly independent countries all the major international organizations such as World Bank, IMF, UNDP or the OECD should take policies that raise their revenue capacity, instead of giving direct financial assistance or project aid. In this regard, higher training programs such as improved technique of auditing, monitoring and collecting higher (tax and non-tax) revenue by the public officials should be undertaken. Moreover, financial assistance should be given to the fiscal department of a country on a priority basis to set up modern computerized technology following developed countries, so that they might efficiently collect more revenue.

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DEDICATION

This thesis is dedicated to *Dr. Jean-Francois Wen*, for his unwavering enthusiasm, support and inspiration and to my younger brother, *Mohammad Zakir Hussain Joarder*, who sacrificed his academic career for my higher study.

"You live in a society where everybody steals. Do you choose to steal? The probability that you will be caught is low, because the police are very busy chasing other thieves, and, even if you do get caught, the chances of your being punished severely for a crime that is so common are low. Therefore, you too steal. By contrast, if you live in a society where theft is rare, the chances of your being caught and punished are high, so you choose not to steal."

– Paolo Mauro [1998, p.12].

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1. INTRODUCTION

Corruption is regarded as one of the main obstacles to economic growth and development. According to World Bank (2000) "corruption weakens public service delivery, misdirects public resources, and holds back the growth that is necessary to pull people out of poverty." In April 2005, a Transparency International Bangladesh branch report says that every citizen of Bangladesh has to pay on average four-hundred eight-five taka yearly as bribe money, which, when multiplied by the population, is about ten percent of the total yearly budget of that country. This phenomenon is so multifaceted that White, Jr. (2001) says that "Corruption is so institutionalized in many countries that special terms for corrupt practices are routine jargon, such as baksheesh in the Middle East, la mordida in Latin America, la bustarella in Italy, speed money in India, dash in West Africa, and blat in Russia". Since the early 1990s considerable attention by researchers, academics, and policy makers were given to the phenomena of corruption and as a result, all the major international organizations such as IMF, World Bank, UNDP or the OECD gave the fight against corruption high priority.

In recent years, a large literature on corruption has developed based on the causes, consequences, and efficiency aspects of corruption from the viewpoint of socio-economic, political and cultural impacts (Klitgaard, 1988; Theobald, 1990; Shleifer and Vishny, 1993, Mauro,1995; Tanzi, 1998; Rose-Ackerman, 1999; Treisman, 2000; Jain, 2001; Brunetti and Weder, 2003; Gupta et al., 2002, Braun and Di Tella, 2004; Caiden, 1997; La Porta et al., 1999; Aidt, 2003; Doig and Riley, 1998; Goudie and Stasavage, 1998 and many others). At the same time a large portion of the literature deals with fiscal corruption such as tax evasion, extortion,

and rent-seeking (Basu et al. 1992; Murphy et al., 1993, Chander and Wilde, 1992, Pedersen, 1995; Vasina, 2003; Fjeldstad and Tungodden, 2003; Chen 2004; Chand and Moene, 1997; Tanzi and Davoodi, 1997; Ades and Di Tella, 1999), bureaucratic corruption (Kanck and Keefer, 1995; Leff, 1964; Bayar, 2005), and political corruption by the ruling class and the political parties (Nye, 1967; Ventelou, 2002; Lederman et al., 2005; Frye and Shleifer, 1997; Damania et al., 2004).

Based on the review of literature the most popular and widely used definition of corruption is the abuse of public power for private benefit[1]. This is the definition used by the World Bank, Transparency International and others. World Bank (1997) explains the definition by the following way: "Public office is abused for private gain when an official accepts, solicits, or exhorts a bribe. It is also abused when private agents actively offer bribes to circumvent public policies and processes for competitive advantage and profit. Public office can also be abused for personal benefit even if no bribery occurs, through patronage and nepotism, the theft of state assets, or the diversion of state revenues". Andrei Shleifer and Robert W. Vishny (1993) defined corruption as the sale of government officials of government property for personal gain. In their definition they restricted personal gain to the direct financial benefits accruing to government officials or politicians. Shleifer and Vishny distinguish further between "corruption without theft" and "corruption with theft". The former occurs when an official demands a bribe but passes on the regular payment to the government. This could happen if an official charged a bribe in addition to an import license fee, but then passed the license fee on to the state treasury. Corruption with theft involves instances where the regular payment is not made to the

[1] See Tanzi (1998); Andvig et al. (2000) for an extensive review of the definition of corruption.

government. An example here would be when customs officials let goods enter the country without paying a duty in exchange for a bribe.

Once corruption becomes endemic, it is extremely difficult to eradicate. A number of studies using principal-agent models and a game-theoretic approach explain this view. It should be pertinent to quote World Bank (2002) notes taken from Damania et al. (2004) that, "While much is known about the proximate causes and consequences of corruption, we know little about the economic, political and historical factors underlying the persistence of corruption."

It is often conjectured that as the proportion of a given total number of officials engaging in corruption increases the potential costs for any new officials to start engaging in corruption (reputation loss, chance of being detected, search cost in finding a briber etc.) decrease. This type of phenomenon gives rise to multiple-equilibria (Lui, 1986; Cadot, 1987; Andvig and Moene, 1990; Murphy, Shleifer and Vishny, 1993, Feichtinger and Wirl, 1994; Pedersen, 1995; Tirole, 1996; Dawid and Feichtinger, 1996; Manion, 1996; Johnson et al., 1997; Bardhan, 1997; Lizzeri, 1999; Freidman et al., 2000; Celentani and Ganuza, 2002; Ventelou, 2002; Aidt, 2003; Mauro, 2004; Rosser et al., 2004; Huang et al., 2004; Burdett et al., 2004). Most of these studies have relied on the theoretical analysis of multiple self-fulfilling equilibria of corruption using the interaction between individual incentives and group behavior mostly in principal-agent relationships. Typically there are three equilibrium points in models of corruption, two of which are stable (one is low corruption equilibrium and another is high corruption equilibrium) but the other one is unstable.

The idea of multiple-equilibria models of corruption is summarized by Goudie and Stasavage (1998): *"once a high-level corruption equilibrium is reached as a result of a temporary change in the nature of opportunities and incentives, widespread corruption may be very hard to eradicate even if the situation with regard to opportunities and incentives subsequently returns to normal."*

From the literature it can be inferred that multiple-equilibria can emerge at least in three ways:

(1) The higher the number of corrupt public agents or tax officers, the lower the probability of committing honest behavior. If the majority number of agents are engaged in corrupt activity then the fear of loss of reputation or the probability of being punished if detected decreases.

(2) When corruption is pervasive from the top to the bottom level in a public sector then it lowers the probability of corruption being revealed as the capacity of both the internal and external investigation units are largely constrained. This hierarchy makes it not only difficult to monitor corruption but also it is very expensive. A temporary shock may not be enough to change the equilibrium from its existing level.

(3) Corruption is to some extent contagious. If one sector of the economy becomes corrupted then it affects other sectors and gradually captures the whole economy. The political will, democratic ethos, fragmented countervailing power, legal administrative norms, inclusion of personal honesty and integrity, and effective enforcement of public ethics deteriorate as

corruption becomes widespread. So when corruption becomes endemic in a country; civic norms, moral values and public participation become weaker and it move towards a high corruption stable equilibrium. This point is nicely illustrated with a quote from Jain (2001) that explains the complexity of the relationship between corruption and the effectiveness of a country's legal system through a simple 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 juridical systems through manipulation of resource 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" (p. 72).

The existing theoretical works on the multiple-equilibria of corruption also reveals that the good equilibrium is a virtuous circle and the bad equilibrium is a vicious circle. Which equilibrium an economy ends up in depends on initial conditions and what is assumed about the underlying dynamic adjustment mechanism (Andvig and Moene, 1990; Dawid and Feichtinger, 1996; Bardhan, 1997). Therefore, this thesis undertakes an empirical investigation on the relationship between a country's historical origins or initial conditions and its current level of corruption. Of particular interest are the public finance effect of initial tax capacity or revenue-raising capacity of a government and the effect on future corruption.

Some recent cross-country empirical works on corruption also emphasize the role of initial conditions, policies and institutions in determining the inter-country corruption profiles.

Johnson et al. (1997) show how unofficial economy affects the official tax collection in the transitional countries by considering the initial conditions. The dependent variable in their regression is the total (official plus unofficial) GDP in 1995. Unofficial economy constitutes activity that is not reported to the state statistical office. The right hand side variables include along with other variables initial unofficial share (unofficial GDP as % of total GDP), initial official output change, initial total output change etc. They argue that small differences in initial conditions may bring large differences in the size and performance of unofficial economy more generally.

Along with other variables, to determine the relationship between corruption and income inequality, and corruption and poverty, S. Gupta et al. (2002) consider the following initial variables in their regression analysis: initial distribution of asset (the initial Gini coefficient for land ownership); initial natural resource endowment for the year 1970, initial income of the poor (real income of the bottom 20 percent of the population in 1980 measured in purchasing power parity U.S. dollars); initial secondary schooling (years of secondary education in population aged 15 and over in 1980); real per capita GDP; democracy data for the past 46 years from Treisman (2002); ethnicity for 1960 from Taylor and Hudson (1972); and various recent corruption indices.

Me'on and Sekkat (2005) use initial level of schooling, initial and recent population to determine the average growth rate of population, the average ratio of investment to GDP, and the degree of openness of the economy as control variables. One of the most relevant articles with our empirical strategy to use initial conditions, by which we mean the initial socio-economic and

political situation of country, is Asra et al. (2005). They assess quantitatively the impact of aid on poverty reduction using the initial condition based on the argument that a country's initial conditions significantly affect the allocation of aid. To control for the initial conditions of the country, they use the following variables (by taking the initial five years average values of the variables): poverty, per capita GDP, population, infant mortality rate, life expectancy and Gini coefficient. So the initial conditions might provide us not only a clear scenario of socio-economic and political determinants of corruption but also tells us the historical factors that compelled a country to remain in the vicious circle of corruption.

The revenue capacity of government largely determines its economic strength to enforce the rule of law and mitigate corruption. Friedman et al. (2000) argue that higher revenue capacity of the government results less corruption, less over-regulations and stronger legal institutions. In this paper we hypothesize that *higher fiscal capacity of a nation strengthens law and order and, therefore, inhibits corruption and in a multiple-equilibria setting the economy will move towards the low-corruption stable equilibrium.*

"Fiscal" refers to all issues pertaining to public resources, taxation and spending policies. The usual verbal explanation of fiscal capacity represents the 'financing capability of governments' or measures the 'inherent ability of a government to generate resources' (Reischauer, 1974). According to Barro (1986) 'in common usage, fiscal capacity is the ability of a jurisdiction to raise own source revenues for public services, independent of the level of taxes

the jurisdiction chooses to impose'[2]. In our paper, fiscal capacity is measured as revenue divided by GDP.

High fiscal capacity provides the government with resources to enforce law and order. If a country has low fiscal capacity at the time of its independence, it may not be capable of combating corruption, so that the country ends up reaching the high corruption equilibrium. Therefore, the initial fiscal capacity of a country's government may be an important variable to explain current corruption. In addition, other variables such as recent revenue capacity, GDP per capita, literacy rate, openness to trade, population, country size, political rights and civil liberties, legal origin, colonial affiliation, ethnolinguistic fractionalization, age of country etc. may also help explain corruption.

Friedman et al. (2000) use cross-section data for 69 countries to analyze the determinants of the unofficial activity. They find that higher tax rates largely undermine the share of the unofficial economy. Their result also shows that richer countries have both higher tax rate and a smaller unofficial economy. Tanzi and Davoodi (1997) find that high corruption is associated with low government revenue. They also argue that as corruption reduces tax revenue, public investment will be increased relatively while reducing its productivity which in turn reduces growth. Using 49 countries' tax compliance, La Porta et al. (1999) results show that less corrupt countries have fewer bureaucratic delays and higher tax compliance. Johnson et al. (1997) in the most careful econometric study on unofficial economy for the 25 transitional economies find that

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[2] For more detailed on fiscal capacity, see Akin (1979); Ferguson and Ladd (1986); and Aymar (1999).

low tax distortions and regulations, high government revenues, and sufficient provision of public goods in the official sector largely undermine the unofficial activity.

We include seventy five countries that became independent after 1945 in our dataset, and consider the revenue capacity of the government to explain multiple-equlibria of corruption. Both the initial revenue capacity at the time of a country's independence and the recent revenue capacity can be expected to influence current levels of perceived corruption. There are lots of variations in initial revenue capacity and recent revenue capacity across countries. To provide a complete picture, we plot initial revenue capacity and recent revenue capacity against the Transparency International's Corruption Perception Index (CPI), 2004 in figures 1 and 2. The negative relationship observed in the figures implies that higher revenue capacity is associated with less corruption. Inspection of the raw data also suggests that there exist no important outliers. In figure 3, we plot the % change in revenue capacity which suggests that there are lots of variations in change of revenue capacity.

We also believe that a government's willingness to fight against corruption is important. We will call this the 'benevolence' of the government in our thesis. A benevolent government tries to maximize social welfare by improving public sector efficiency, increasing public good provision, enhancing the size of the government, reducing the level of intervention, and by providing more political rights and civil liberties to the inhabitants (La Porta et al., 1999; Shleifer and Vishny, 1993; Banerjee, 1997). One of the most important indicators of the benevolence is the press freedom. Empirical evidence also support this idea (Brunetti and Weder, 2002; Ahrend 2002). In addition to these considerations, the benevolence of the government also largely

depends on the quality of the bureaucracy; rule of law and on democracy (Aidt, 2003; Treisman, 2000 and many others). We include a measure of political rights and civil liberties to capture benevolence.

Thus if the government of a country has the ability to raise the size and amount of its total collection of revenue but has the lack of benevolence to fight against corruption, then it is obvious that over time it will be in the 'vicious circle of corruption'. Once the country falls into this trap then it is really difficult for that country to move out of it. According to La Porta et al. (1999) *"poorly functioning governments tend to be relatively small, and collect fewer taxes, whereas well-functioning governments tend to be much larger, presumably at least in part with the consent of the governed."* Therefore, the revenue capacity is a necessary but not the sufficient condition for fighting corruption. The government must also have strong willingness to fight corruption.

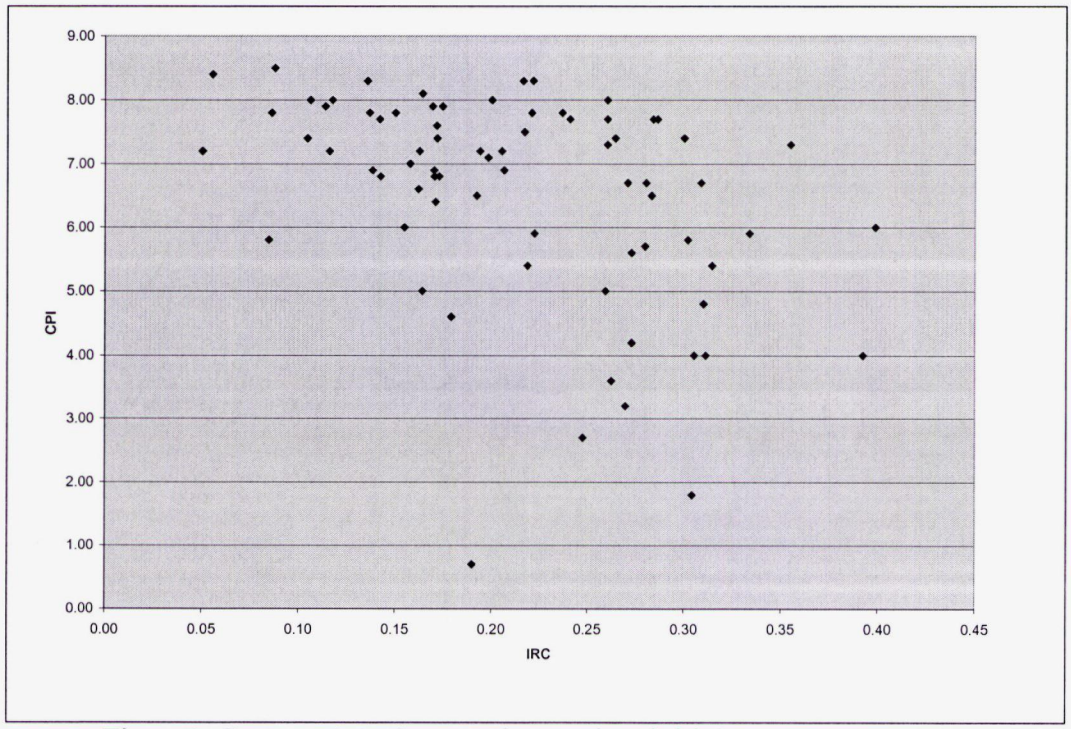

Figure1: Scatter plot of corruption against initial revenue capacity

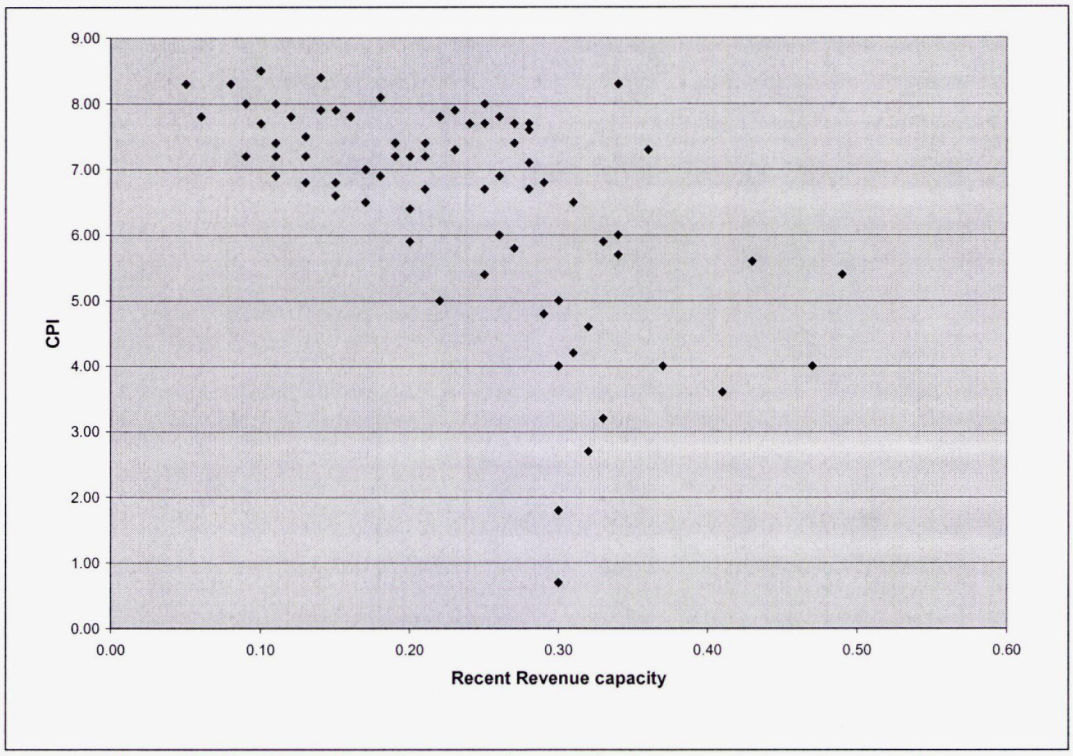

Figure2: Scatter plot of corruption against recent revenue capacity

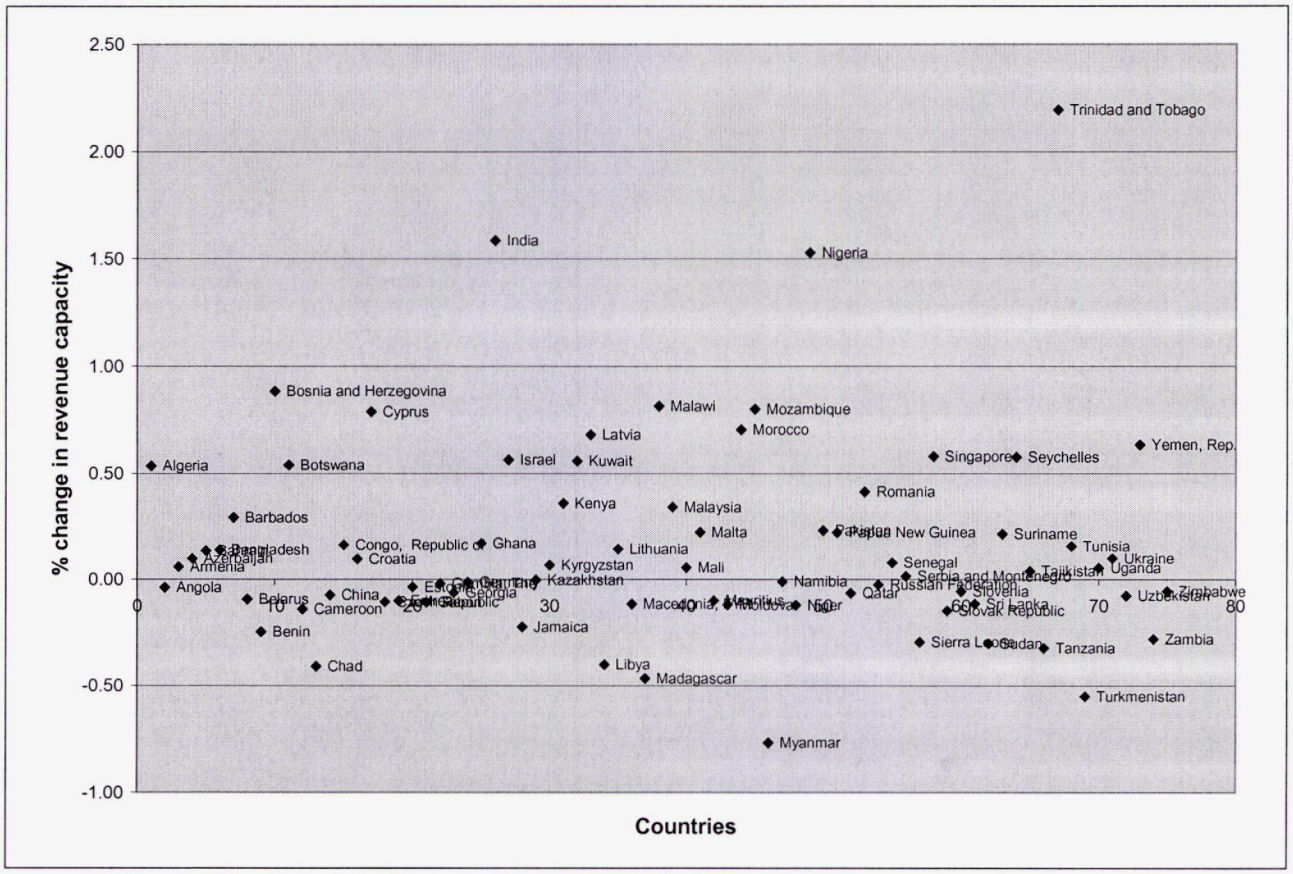

Figure: Scatter plot of corruption against % change in revenue capacity

Although recently there are a number of theoretical articles that explain the idea of multiple-equilibria, the empirical literatures are relatively scarce. Johnson et al (1997) and Freidman et al. (2000) explore the idea empirically. But both of these papers are concerned with and deal with the determinants of the unofficial economy. Moreover, although Johnson et al. (1997) show the multiple-equilibria of unofficial activity, these were only for the transitional countries. In this thesis, we are using cross-country evidence of perceived levels of corruption for those countries that became independent after World War II.

The rest of this thesis is organized as follows: in section 2 we present our empirical strategy and econometric technique. Section 3 describes variables used in our analyses. In section 4, we provide regression results on the relationship between initial revenue capacity and current levels of perceived corruption using cross-country data. Section 5 concludes the paper. We report the summary statistics in Annex-A. In Annex-B, we present the data description in a tabular form. Annex-C lists the countries included in the analysis and in Annex-D we show the correlations among different corruption indexes.

2. EMPIRICAL STRATEGY

2.1 Specification

Our basic hypothesis is that initial conditions affect current corruption. This general observation has been proposed and tested by other authors (Johnson et al., 1997; Freidman et al., 2000; S. Gupta et al., 2002; Me'on and Sekkat, 2005). The novelty of this paper is to examine the importance of initial revenue capacity as an explanatory variable.

Our specification is:

$$\text{Corruption} = \alpha + \beta_1 \text{ Initial Revenue Capacity (IRC)} + \beta_2 \text{ Recent Revenue Capacity (RRC)} + \beta_3 \text{ Initial Lack of Political Rights and civil liberties (ILPRCL)} + \beta_4 \text{ Initial Interaction Term (IRC X ILPRCL)} + \epsilon \quad (1)$$

We try to explain corruption levels through revenue capacity (RC) of the government. So we are mainly concerned about the sign and significance of initial revenue capacity (IRC) and recent revenue capacity (RRC), which we expect to be significantly negative. Therefore, the higher the IRC the lower should be the recent levels of perceived corruption. We include recent revenue capacity of the government (RRC) to see the impact of this variable on the coefficient for initial revenue capacity of government (IRC) and expect that the coefficient of this variable will not have much affect on the size and significance of IRC.

We include in the regression an index of the "lack of political rights and civil liberties" (LPRCL) to capture the extent to which a free press and free political associations might act as a check on a corrupt public sector. Higher values of LPRCL reflect less political rights and civil

liberties in a country. So we expect that the sign of the coefficient for initial lack of political rights and civil liberties (ILPRCL) should be positive which indicates countries that have less political rights and civil liberties ends up with a higher level of corruption. Ades and Di Tella (1999) use the lack of political rights as a regressor on the basis that it will capture and facilitate the functioning of independent political parties. A government that restricts the political rights, civil liberties, economic rights and the freedom of the press and media easily distorts the economy, inducing the search for illegal ways to circumvent regulations. This creates opportunities for higher corruption (Lambsdorff' 2003).

The interaction term in our regression analysis captures the idea that revenue capacity is more effective in reducing corruption when the government of a country exhibits some benevolence, as proxied by political rights and civil liberties. We define the variable called 'Interaction term' as the Revenue/GDP times the lack of political rights and civil liberties. So we expect that the sign of initial interaction will be positive and highly significant. Specifically, differentiating equation (1) with respect to IRC gives:

$$d\,\text{Corruption}/d\,\text{IRC} = \beta_1 + \beta_4\,\text{ILPRCL} \qquad \textbf{(2)}$$

with $\beta 1 < 0$ and $\beta 4 > 0$.

Equation (2) shows the effect of initial revenue capacity (IRC) on corruption. Higher IRC has two effects.

(1) higher IRC directly results in lower levels of perceived corruption and

(2) the higher the lack of political rights and civil liberties, the less effective is IRC in reducing corruption.

We also include a variety of control variables that capture the economic conditions of a country. We include initial GDP per capita (IGDPPC). GDP per capita largely determines income levels of the economy. The variable IGDPPC reflects the diversity in initial incomes among countries. We use initial share of imports on GDP to proxy for the initial trade openness (IOPENNESS). We expect that higher initial trade openness is associated with a lower level of incidence of current corruption. Thus like Fisman and Gatti (2002) we use the openness to trade as a measure of the exposure of an economy to foreign trade. Ades and Di Tella (1999) argue that openness will increase the competition between foreign firms and domestic firms and reduces monopolistic rents and thus reduces the rewards from corruption. Wei (2000) advocates greater openness to trade as a means of combating corruption.

We include initial foreign direct investment (IFDI) on the basis that higher initial inward foreign direct investment reflects more structural development of an economy which in turn helps to reduce corruption.

We add initial literacy rate (ILR) as an explanatory variable. Literacy rate can be regarded as the human capital development of a country. So the higher the initial literacy rate the lower will be the recent levels of perceived corruption. Thus the coefficient of ILR should be negative. We also include population as a control variable in the regressions. This variable can be used to determine whether there are country-scale effects in corruption. So the coefficients of

ILR and IP are therefore expected to be negative. The variables IGDPPC, IOPENNESS, IFDI, ILR, and IP therefore capture the initial productivity or the initial level of efficiency of the economy.

Later we add another regressor termed 'length of life' which is the number of years a country has existed. We predict that the greater the length of life of a country the lower will be the levels of corruption. So we expect that the sign of this variable will be negative and highly significant. We also include 'AREA' which is the physical size of a country in our regressions to examine the relationship between country size and the level of corruption and its impact on revenue capacity.

We progressively test a broad specification which includes a number of other variables that we believe to have an important impact on corruption in the time dimension and these variables are aimed at capturing structural and cultural differences across countries at the origin.

We use a dummy variable for Legal origin (LO) which is the origin of a country's legal system as suggested by Treisman (2000), La Porta et al. (1999) and Fisman and Gatti (2002). This variable measures the political heritage of a country. La Porta et al. (1999), claim that legal origin is one of the extremely important factors shaping government performance. Fisman and Gatti (2002) argue that legal origin primarily affects corruption through its influence on centralization. Legal origin (LO) takes the value of 1 if a country's legal origin is from a common law system or takes the value of 0 if it developed from a civil law system. We also add a dummy variable for former British colony (BC). Colonial affiliation measures whether the

colonizer has transplanted into her colony some of its key institutions. From this viewpoint it is worth mentioning that legal origin and colonial status are of course highly correlated.

The index of ethnolinguistic fractionalization (EF) captures the cultural background of a country which was pointed out by Mauro (1995) and Shleifer and Vishny (2003) and used in a number of cross-country empirical literature on corruption by La Porta et al. (1999), Treisman (2000), Fisman and Gatti (2002) and others. We are also expecting the coefficients for EF to be positive.

We use a number of other variables to check the robustness of our results. The variable initial female literacy rate (IFLR) captures the proportion of each community that is initially able or allowed to express their opinions and will also provide the extent of gender gap which in turn determines the socio-economic conditions of a nation. The higher the IFLR the lower will be the corruption score as it is widely believed that female public officials are less corrupt (Swamy et al. 2001). The variable initial urbanization (IUP) which is the total number of initial urban population of a country reflects the pattern of modernization of a country. When we check the robustness using IFLR and IUP, we drop ILR and IP from the regressions as the possibility of multicollinearity is very high.

The variable initial press freedom (IPF) reflects that the higher the IPF the lower will be the recent levels of perceived corruption. Brunetti and Weder (2003) test the proposition that a free press is a potentially powerful external control on corruption and find evidence of a

significant relationship between more press freedom and less corruption in a large cross-section of countries.

Religion is another indicator of historical tradition which might affect corruption as suggested by Treisman (2000). We exclude from the regression the percentage of each country's population reporting to be Protestants following La Porta et al. (1999). We also use a continental dummy to see the impact of revenue capacity on corruption in case of the variations in geographical effects following Treisman (2000). This dummy is equal to one for Asia and Africa and zero otherwise.

2.2 Econometric Technique

The dependent variable is the corruption measure from Transparency International's (TI) Corruption Perception Index (CPI) 2004, World Bank's control of corruption (CORR) 2004 compiled by Kaufman et al. (2004) and the World Audit Organization's corruption index (WAO), 2004. The dependent variable is a composite index, representing a "poll of polls" and is therefore a continuous variable. This allows estimation using ordinary least squares (OLS). According to Brunetti and Weder (2003) *"however, one could argue that averaging does not really change the discrete nature of the measure which could be interpreted simply as an ordering. This interpretation would be pertinent if the indicators were based on country rankings rather than numerical ratings, but most expert surveys provide explicit numerical ratings with the understanding that they are linear. Supposedly it is for this reason that the literature on the*

determinants of corruption has so far treated the corruption indicators as a continuous variable and has used OLS estimates."

We conduct tests to determine whether the model is correctly specified or not. Best fit is determined by examining the Theil's adjusted R-Squared, Akaike's statistics (AIC), and Schwartz Information Criterion (BIC). The Ramsey Reset Test is used to check if there were omitted variables. We reran our regressions progressively adding the control variables and we ran the same regressions without the transition countries. All standard errors of coefficients are calculated using White test.

The main problem with estimating our specification is that the level of perceived corruption is likely to be jointly determined with the recent revenue capacity (RRC) of the government. In this situation we may encounter endogeniety bias. So it is necessary to employ the two-stage least squares (2SLS) in order to cope with the possibility of a simultaneity problem. To address this issue, we need to instrument RRC in the analysis. The instrument, say, Z should satisfy following two conditions: (a) cov (Z, RRC) $\neq 0$ and (b) cov (Z, ϵ) = 0, i.e. the instrument should be highly correlated with the dependent variable (RRC) but uncorrelated with the error term (ϵ). A set of variables representing the initial conditions that could serve as instruments for the recent revenue capacity (RRC) are: Initial GDP (IGDP), Initial inflation (INF), Initial urbanization (IUP), Initial female literacy rate (IFLR), Initial Press freedom (IPF), Initial rule of law (IRL), religion, colonial and continental dummy. We will also test the assumption for over-identifying restrictions using the Hausman test. It should be said from the

beginning that we cannot fully resolve the issue of causality since we have only imperfect instruments.

However, we should not expect endogeniety between the initial revenue capacity (IRC) and the current level of perceived corruption because the IRC data is calculated taking a five years average revenue capacity after a country's independence, while recent corruption is measured for 2004. The temporal difference between measures of IRC and corruption precludes a simultaneity problem.

3. DATA DEFINITION AND DESCRIPTION

The dependent variable of our study is indexes of perceived corruption, which is drawn from different sources but which are all subjective indices of corruption. We run regressions using four reported measures of corruption. The first of these measures is the corruption perception index, CPI, which is developed by Transparency International (TI). This index reflects the degree to which public officials and politicians are believed to accept bribes, take illicit payment in public procurement, embezzle public funds and commit similar offences. This index is based on 17 different polls and surveys from 13 independent institutions. The index is constructed by a team of researchers at Gottingen University from a number of business people and country analysts, both foreigners and locals in each specific country. Most of these surveys are mainly from non-profit organizations working for measuring the business risk and economic forecasting institutions. None of these institutions works solely on corruption but rather on an

issue to which knowledge about corruption is important. The remaining sources included one study by an independent researcher; the Gottingen University team's own survey conducted over the internet; the World Bank; and one cross-national survey of populations by Gallup International. A condition to include a country in the CPI is that it must be covered by at least three polls or surveys. CPI ranked countries by estimating the level of corruption for each country with a score between zero and ten. In the Transparency International (TI) data higher score of CPI means low corruption. The reported CPI measure was reversed in our dataset so that a higher CPI means more corruption. For example, a CPI score of zero in the original data becomes a score of ten in the transformed data.

Secondly, we use the control of corruption indicator by the World Bank. We called it CORR. This is a composite index, represents "poll of polls" constructed by Kaufman et al. (2004) aiming at estimating the quality of government. This index covers 195 countries and based on 14 different institutions. The World Bank control of corruption index (CORR) data provides countries with a score ranging from -2.5 to +2.5 where high positive numbers reflect low levels of corruption. The reported CORR measure was reversed in our dataset so that a higher CORR means more corruption. For example, a CORR score of -1.09 in the original data becomes a score of {+2.5 – (-1.09)} 3.59 in our transformed data.

The third measure that we use as our dependent variable is the World Audit Organization's (WAO) corruption index. This index is a relative ranking of countries from least corrupt to most corrupt. WAO corruption index ranked countries ranging from 0 (least corruption) to 100 (most corruption).

Another commonly used corruption index in the economic literature is the International Country Risk Guide's (ICRG) corruption index, a publication by ICRG from 1982. The dataset for ICRG corruption index are obtained from Brunetti and Weder (2003). The data are the average for 1994-1998. We use this index only to check the robustness. ICRG corruption index provides countries with a score ranging from 0 to 6, with 6 indicating lowest corruption. We again reverse the original data so that higher number means more corruption. For example, an ICRGCOR score of zero in the original data becomes a score of six in the transformed data. According to Knack and Keefer (1995) to which the ICRG data source refers for definitions of its variables, "lower score indicate 'high government officials are likely to demand special payments' and 'illegal payments are generally expected throughout lower levels of government' in the form of 'bribes connected with import and export license, exchange controls, tax assessment, police protection, or loans' " (Wei; 2000).

Except the ICRG index of corruption, all other indices mentioned in this paper are available online. To maintain internal consistency and for intuitive purposes, we reverse the original rankings of CORR, CPI and ICRGCOR so that in each case *a higher number indicates more corruption.*

We measure the revenue capacity of the government as the ratio of government revenue to GDP. Government's revenue collection represents one of the core activities of the state. It includes both the tax and non- tax revenue but excludes capital revenue and grants. Tax revenue is derived from individual and corporate income taxes, social security contributions taxes on

property, domestic taxes on goods and services, and taxes on international trade. Non-tax revenue essentially comprises in property income, in particular the profit of the public enterprises. Initial Revenue Capacity (IRC) is the five years average revenue capacity starting with first available year of data after a country's independence.[3] Recent Revenue capacity (RRC) is the average revenue over GDP for the years 1998-2002. Government revenue and GDP data are drawn mainly from the International Monetary Fund's International financial Statistics (IFS) online database. For some missing countries, we use the data from World Bank's World Development Indicator, 2005 online database and Banks (1971) to measure IRC.

We use the political rights index and civil liberties index to construct the *"lack of political rights and civil liberties"* (LPRCL) in the regression, from Freedom House. Gastil (and now Freedom House) has conducted an annual survey of civil liberties and political rights in most countries of the world since 1973. The survey ranks all countries (and territories) according to over thirty specific criteria. Some of the criteria for political rights are: whether the government was free from pervasive corruption; whether the people's political choices were free from domination by the military, foreign powers, totalitarian parties, religious hierarchies, economic oligarchies or any other powerful group; whether the chief authority was elected by a meaningful process; whether there were fair election laws, whether there was a significant opposition vote etc. A partial listing of the criteria for civil liberties includes: freedom of the press, freedom of assembly and demonstration, freedom to organize unions, personal social rights - including those to property, internal and external travel, choice of residence etc. Two indices are one each for political rights and civil liberties, each ranging from 1 (most freedom) to

[3] IRC data are taken as an average of five years for China 57-61; Israel 60-64; Pakistan 53-57; and Tunisia 72-76.

7 (least freedom). There exists a high degree of correlation between the two - over 0.9. For those countries which existed before 1972 a simple average of political rights and civil liberties for the years 1972-1976 is used as the proxy for initial lack of political rights and civil liberties (ILPRCL) where higher number represent more lack of political rights and civil liberties and for the rest of the countries ILPRCL data are drawn for the initial five years average since the year of their independence. Recent lack of political rights and civil liberties (RLPRCL) are from 1999-2003.

We include a number of control variables: population, literacy rate, GDP per capita, the share of imports on GDP to proxy for openness to trade as suggested by Ades and Di Tella (1997), Fisman and Gatti (2002) and Treisman (2000) and inward foreign direct investment (FDI) considered by Wei (2000). GDP per capita, openness to trade and FDI data are from the World Bank's World Development Indicator (WDI) 2005 online database. Population data are from the International Monetary Fund's (IMF) International Financial Statistics (IFS) 2005, online database. Literacy rate data are drawn from different sources: WDI 2005, Cross-Polity Time-Series Data assembled by Arthur S. Banks (1971), and sixteen years of CIA World Fact book for those countries which became independent after 1990. We also use physical size of the country as suggested by Delerman et al. (2005) as 'AREA' and age of the country as 'length of life' from CIA World fact book, 2005.

We use a number of other control variables in our regressions to test the robustness such as initial urbanization (IUP), initial GDP (IGDP), initial female literacy rate (IFLR), and initial press freedom (IPF). The press freedom index measure the degree to which each system permits

the free flow of information to and from the public determines the classification of each countries index. In compiling the survey Freedom House measures the degree to which laws and legal institutions of the government influence the content of the news media, the degree of political influence or control over the content of news media such as the editorial independence of both the state-owned and private-owned media; access to information and sources; official censorship and self-censorship; the ability of both foreign and local reporters to cover the news freely and without harassment etc. over the news system, the economic influence of the media exerted either by government or private entrepreneurs, and the degree of oppression of the news media exhibited in many forms. Press freedom data start from 1980 as a proxy for IPF, from Freedom House. Countries scoring 0 to 30 are regarded as having 'Free' media, 31 to 60 'Partly free' media, and 61 to 100 'Not free media'. Both IUP and IFLR data are drawn from WDI online, IGDP data are from IFS online.

As one of our instruments in the two-stage least squares regressions, we use initial Consumer Price Index which is a measure of inflation from World Bank's World Development Indicator (WDI) 2005 online database. We also use rule of law (IRL) as an instrument, obtained from Brunetti and Weder (2003); originally from the International Country Risk Guide (ICRG). The data for rule of law are the average for 1982-1995. This variable marks the presence of "sound political institutions, a strong court system, and provisions for an orderly succession of power" and reflects the degree to which "citizens of a country are willing to accept the established institutions to make and implement laws and adjudicate disputes" (Brunetti and Weder 2003).

We include ethnolinguistic fractionalization (EF), a dummy variable for legal origin (LO), a dummy variable for former British colony or UK (BC) and also use the percentage of population of each country that belonged to Protestants, Catholic, Muslim and other religion. La Porta et al. (1999) initially compiled the ethnolinguistic fractionalization (EF) by taking the average value of five different indices. It measures the probability that two randomly selected people within a society would not belong to the same ethnolinguistic group, and would speak in different languages. EF and proportion of population belonging to a specific religion of a country are taken from La Porta et al. (1999). Legal origin (LO) takes the value of 1 if a country's legal origin is from a common law system (which is defined as company law or commercial code of English common law) or takes the value of 0 if it developed from a civil law system (which is the combination of French commercial code, German commercial code, Scandinavian commercial code and Socialist/Communist laws). The data for the legal origin (LO) and colonial heritage (BC) are taken from Treisman (2000). LO is initially compiled by La Porta et al (1999). The complete list of variables and data sources used in the analysis is cited in appendix.

4. The CROSS-SECTION RESULTS

4.1 OLS Estimation

Table 1 presents the cross section results. The dependent variable is the CPI 2004. A negative coefficient of revenue capacity implies that a higher revenue capacity is associated with a lower corruption score. Whereas a positive coefficient of initial interaction implies that along with the higher initial revenue capacity, the benevolence of the government is also important to fight against corruption. We report in the first column the results for ordinary least

squares (OLS) regressions, with only the IRC control variable and a constant. In the second column we include initial interaction. Both regression results show that the initial revenue capacity is significant at 1% level. When we include ILPRCL then the significance level of initial interaction reduces to 5% level.

Column (3) shows the regression results using equation (1) which includes IRC, RRC, ILPRCL and Initial Interaction term. It is our base specification. Based on the AIC, BIC and Ramsey RESET test we can say that column (3) remains our preferred specification. White's test for heteroskedasticity in the residuals of the basic specification rejects the null of no heteroskedasticity, thus all standard errors of coefficients are calculated using White test. Our measure of initial revenue capacity (IRC) and recent revenue capacity (RRC) enter the regression with a negative and strongly significant signs indicating that countries with more initial and recent revenue capacity have better corruption ratings. As for economic significance, this indicates that corruption is lower in countries in which government revenue is higher and in countries where productivity of the government is higher. The coefficient for the initial interaction, which captures the interaction between benevolence and revenue capacity, is highly significant at 1% level (p value is 0.000). The result indicates that countries with higher revenue capacity but poorly functioning governments are less effective in lowering corruption. The coefficient for the ILPRCL is, counter intuitively negative indicating that countries that have less political rights and civil liberties ends up with a lower levels of perceived corruption. However, in most cases, the coefficient is statistically insignificant. Treisman (2000) also finds the insignificant results for the coefficients of political instability. Fisman and Gatti (2002) find

the sign for the coefficient of civil liberties from positive to negative in both the OLS and 2SLS estimations and insignificant.

In column (4) the results of all the productivity variables with IRC, ILPRCL and Initial Interaction term are reported. This specification eliminates Qatar from the sample because data on Qatar's IOPENNESS and ILR are unavailable. In column (5), we include recent revenue capacity (RRC) with the specification that we reported in column (4). In this case the initial revenue capacity becomes significant at conventional confidence levels (p-value 0.012) and the interaction term is significant at 1%. The sign for the RRC is negative as expected and highly significant at 1%. The fact that IRC remains significant when RRC is included shown the importance of historical conditions in determining future corruption levels.

Column (6) shows the result for the specification for the sample including another explanatory variable called 'length of life'. Our measure of initial revenue capacity (IRC) and recent revenue capacity (RRC) again enter the regression with a negative and strongly significant signs (p value is 0.000). The interaction term is again significant at 1% level. The coefficients for the IGDPPC, IFDI, ILR and IP are negative as expected but insignificant in case of this specification. Brunetti and Weder (2003) also find the correct sign for GDP per capita and level of educational attainment but both are insignificant. Wei (2000) find that there is significant negative impact of corruption on inward FDI where as Alesina and Weder (1999) in a cross-country empirical work on corruption find no significant impact of FDI on corruption. FDI only represents a minor fraction of total inflows of capital of country (Lambsdorff, 2003). Most countries in our dataset belong to developing nations whose FDI may not be a strong variable to

have significant impact on corruption. A country immediately after its political independence may not be able to attract foreign investors to invest a considerable amount. In addition to this, these variables are the average of initial five years data. In that case, the transition economies might be the outliers. So we will analyze more when we check the robustness excluding the transition economies from our dataset. The coefficient for length of life is negative and highly significant at 1% level (p value 0.002), indicating that countries that are existed for a long time have a lower levels of perceived corruption.

Specification (6) also indicates that the coefficient of initial share of imports on GDP i.e. the openness to trade coefficient is negative and significant at a 5% level. As for economic significance this indicates that trade openness is an important instrument to fight against corruption as there is a positive cross-section correlation between trade openness and low corruption levels. Using cross-section of 52 countries Fisman and Gatti (2002) finds the correct sign for openness but insignificant. Using different corruption indices, Ades and Di Tella (1999) consider cross-sections of 30 to 52 countries, as well as panel with observations for two years in approximately 50 countries to show that the coefficient of the share of imports in GDP is negative and significant and indicates that a one-standard-deviation increase in the share of imports in GDP reduces 20% of a standard deviation in case of Business International corruption index (BICI) for 1980-83 and over 48% of a standard deviation of World Competitiveness Report (WCR) corruption index for the years 1989-1990. Their results indicate that increased competition from foreign imports reduces the level of corruption. Treisman (2000) using a number of different corruption indices also finds that opening up the economy decreases corruption although the level of significance of his results is weak. Brunetti and Weder (2003)

uses export plus imports as share of GDP to measure the trade openness find the expected sign but insignificant. Ahrend (2002) also measures the trade openness (export plus imports as share of GDP). His findings suggest that at least in the short and medium term openness increases corruption, only in the long term increased competition through opening up the economy might lead to lower the level of corruption.

In column (7), when we include the 'AREA' and all the productivity variables with our basic specification and exclude length of life variable and rerun the regression, we find that the coefficients for IRC, RRC, and the Initial Interaction term are again significant. Moreover, the variable AREA remains not only positive but also becomes significant at 10% level. Fisman and Gatti (2002) argue that large countries (countries with federal system) may be characterized by economies of scale and fewer public officials per citizen which might open up the door for higher corruption. With the inclusion of AREA we see that the IP variable becomes significant at 1% level indicating that higher population is significantly associated with lower ratings (i.e. less corruption). Column (8) reports the results including the length of life variable with specification (7). The results remain largely unchanged. In this case we see that the IFDI variable becomes significant at 5% level and IOPENNESS becomes significant at 1% level and the coefficient of AREA becomes more significant at a conventional confidence levels (p-value 0.013).

Column (9) shows the results of another sample test; where we drop 'AREA' that represents the physical size of a country a country and the length of life variable but include the British colonial heritage (BC) following Treisman (2000) to test whether it makes a difference for the level of corruption today and for the coefficients on initial and recent revenue capacity for

a nation. The coefficient of the ex-British colonies (BC) is negative and significant at 10% level, indicating that former British colonies have lower level of perceived corruption. To compare with the French colonies, we tried running regression including dummies for France, and find the sign positive but insignificant, meaning that French colonies are more corrupt compared to British colonies. More importantly the sign and significance levels for other variables remain unchanged. But interestingly the coefficient of initial population becomes significant at 5% level. Treisman (2000) also got a similar type of results and argue that the low perceived corruption of former British colonies might be explained by the relatively good government of the settlement colonies. Using 1995 to 1999 Transparency international's CPI data of cross-section of 40 to 98 countries and other indexes consisting 125 to 162 countries Knack and Azfar (2003) find that in the coefficient of Ex-British colonies is significant at 0.05 level for 2-tailed test.

In column (10), the inclusion of the variable AREA with BC and LO does not affect the sign and significance of IRC, RRC, and the interaction term. In that case we get the expected sign of the coefficient for LO but insignificant. We have already mentioned that LO and BC are highly correlated but not perfect. The level of significance for the BC increases to 1% level. Moreover, the coefficient of AREA has the expected positive sign and significant at 10% level.

The inclusion of another variable ethnolinguistic fractionalization (EF) to our regression shown is in column (11). EF has the expected sign but the coefficient is however insignificant. Lambsdorff (2003) argues that government officials are always inclined to serve their relatives and their ethnic groups in countries that ethnically heterogeneous and that this open up the way for corruption. Treisman (2000) has found the sign of the coefficient of EF generally changes

from positive to negative and becomes insignificant once GDP per capita is included. La Porta et al. (1999) also got similar type of result. But Mauro (1995) has found a positive correlation between EF and corruption. Now the variable AREA becomes highly insignificant but has the correct sign, meaning that there is no straightforward relationship between the physical size of a country and the level of corruption. The probable reason might be that the inclusion of EF drops our sample size significantly. Knack and Azfar (2003) show that in fact, there is no clear relationship between country size and corruption, and they argue that larger countries should have no reason to lower the corruption bar. Because arguments can be made in either way, the relationship between the levels of corruption and the physical size of the country is still wide open and ultimately it remains an empirical issue. In column (11) more interestingly, the addition of EF makes the coefficient for the initial GDP per capita (IGDPPC) highly significant. (p-value 0.002). *Although the inclusion of EF requires us to drops our sample size significantly, our results for the coefficient of IRC and RRC remain unchanged and are significant at 5% levels.*

The last column (12) includes all the variables for a broad specification. The coefficients of IRC and initial interaction remain the right sign and significant at 1% level, the coefficients RRC, Length of life and IGDPPC are again significant at conventional confidence level. But in this broad specification, we lose the significance of IOPENNESS. All other variables in this case have the expected sign but they are all insignificant. Although this broad specification marginally improves the fit of the regression, comes at the cost of reducing the sample size significantly from 74 to 50.

In table (2) the dependent variable is the World Bank control of corruption, CORR 2004. We run the similar regressions that we did in table (1). In this case, the results on IRC, RRC, Initial interaction, ILPRCL, IP, length of life, and IOPENNESS remain largely unchanged. When we rerun the specification including AREA shown in column (7) we find that all the estimates remain largely unchanged compared with the previous estimates. Moreover, the coefficients of AREA, IFDI and IP become significant at different confidence levels. In column (9) where we include BC and exclude both the AREA and length of life variables, the coefficient of BC becomes insignificant but when AREA and LO are added in column (10), BC again becomes significant at 1% level. Moreover, in this case the coefficient of LO is not only positive but also significant at conventional confidence levels indicating that the higher political the heritage of a country (LO) the lower will be the corruption score. Treisman (2000) find that countries that belong to both common law and a period of British rule have lower perceived corruption. La Porta et al. (1999) find that common law countries have better governments than French civil law or socialist law countries. The coefficient of AREA is again positive and significant at 5% level. The negative coefficient of EF is unexpected as shown in column (11) and (12). In our broad specification, all other variables remain unchanged and the IGDPPC becomes significant at the conventional levels of significance indicating that a higher level of initial GDP per capita inhibits corruption.

Table 3 shows the regression results using the World Audit Organization's corruption index (WAO-2004) as the dependent variable. In this case, the total numbers of observations drop from 75 to 59. In spite of this, the results are unchanged compared to our previous estimations. The only noticeable difference happens in column (10) where the AREA variable

has the expected positive sign but insignificant, which when compared with table (1) and (2) shows the reverse result.

Table 1: OLS Regressions--- Basic findings (Dependent Variable: Transparency International's Corruption Perception Index (CPI) 2004

VARIABLES	OLS (1)	OLS (2)	OLS (3)	OLS(4)	OLS (5)	OLS (6)	OLS (7)	OLS (8)	OLS (9)	OLS (10)	OLS (11)	OLS (12)
Constant	8.327	7.697	9.232	8.534	9.688	13.624	9.675	13.804	10.94	10.871	11.524	14.406
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
IRC	-8.425	-13.636	-9.078	-11.637	-9.247	-12.308	-8.911	-12.033	-11.255	-10.838	-11.817	-15.128
	(0.000)***	(0.000)***	(0.022)**	(0.003)***	(0.012)**	(0.000)***	(0.015)**	(0.000)***	(0.001)***	(0.001)***	(0.029)**	(0.002)***
Initial Interaction		1.9332	2.445	2.101	2.592	2.876	2.469	2.733	2.731	2.593	2.669	3.295
		(0.000)***	(0.001)***	(0.006)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.009)***	(0.000)***
ILPRCL			-0.212	-0.104	-0.271	-0.451	-0.276	-0.466	-0.39	-0.389	-0.538	-0.666
			(0.134)	(0.529)	(0.074)*	(0.011)**	(0.072)*	(0.009)***	(0.035)**	(0.044)**	(0.052)**	(0.020)**
IGDPPC				-0.00006	-0.00003	-0.00001	-0.00009	-6.35E-06	-0.00001	-4.39E-06	-0.0003	-0.0002
				(0.065)*	(0.393)	(0.553)	(0.436)	(0.725)	(0.625)	(0.866)	(0.002)***	(0.017)**
IFDI				-2.52E-10	-2.93E-10	-7.39E-10	-6.46E-10	-2.56E-02	-4.43E-10	-8.21E-10	9.22E-10	-1.55E-10
				(0.590)	(0.547)	(0.158)	(0.229)	(0.012)**	(0.390)	(0.147)	(0.158)	(0.860)
IOPENNESS				-0.0254	-0.017	-0.025	-0.017	-3.31E-09	-0.017	-0.017	-0.017	-0.028
				(0.050)**	(0.121)	(0.014)**	(0.126)	(0.001)***	(0.080)*	(0.093)*	(0.329)	(0.176)
IP				-2.42E-09	-2.15E-09	-7.33E-10	-4.21E-09	-1.06E-02	-2.21E-09	-4.34E-09	-5.74E-09	-5.46E-09
				(0.029)**	(0.032)**	(0.347)	(0.009)***	(0.001)***	(0.036)**	(0.009)***	(0.173)	(0.160)
ILR				0.0062	0.004	-0.0106	0.0047	-0.0105	0.0016	0.002	-0.002	-0.003
				(0.206)	(0.356)	(0.112)	(0.302)	(0.118)	(0.734)	(0.633)	(0.830)	(0.758)
RRC			-8.715		-7.017	-6.221	-6.964	-6.111	-7.1005	-7.079	-5.24	-5.259
			(0.000)***		(0.004)***	(0.002)***	(0.004)***	(0.002)***	(0.002)***	(0.002) ***	(0.012)**	(0.013)**
length of Life						-0.054		-0.056				-0.0474
						(0.002)***		(0.001)***				(0.051)**
AREA							1.42E-07	1.81E-07		1.47E-07	2.18E-07	2.66E-07
							(0.093)*	(0.013)**		(0.091)*	(0.427)	(0.324)
BC									-0.718	-0.94	-0.998	-0.4418
									(0.057)*	(0.003)***	(0.009) ***	(0.294)
LO										0.249	0.519	0.207
										(0.462)	(0.238)	(0.629)
EF											0.0761	0.004
											(0.909)	(0.993)
Observations	75	75	75	74	74	74	74	74	74	74	50	50
Adjusted R^2	0.16	0.35	0.47	0.42	0.49	0.61	0.5	0.64	0.52	0.52	0.58	0.62
Ramsey RESET test	0.9266	0.9658	0.4482	0.2573	0.0656	0.0029	0.0818	0.0023	0.0003	0.0017	0.2737	0.1444
AIC	273.2044	254.8593	248.1871	242.2015	238.2232	220.7531	237.4345	212.5715	234.2968	234.8812	164.0583	159.3604
BIC	277.8394	261.8118	268.9237	253.7889	258.9598	246.0978	260.4751	235.6121	257.3374	262.53	188.9146	186.1287

Note: P values in parentheses; White corrected standard errors. *** indicates significance at the 1% level, ** indicates significance at 5% level and * indicates significance at the 10% level.

Table2: Corruption Regressions – Basic Findings (Dependent Variable: World Bank Control of Corruption [CORR] 2004)

VARIABLES	OLS (1)	OLS (2)	OLS (3)	OLS (4)	OLS (5)	OLS(6)	OLS (7)	OLS (8)	OLS (9)	OLS (10)	OLS (11)	OLS (12)
Constant	3.674	3.362	4.028	3.433	4.069	5.622	4.061	5.717	4.416	4.33	4.563	6.036
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
IRC	-4.148	-6.729	-3.591	-5.076	-3.758	-4.966	-3.568	-4.819	-4.316	-4.016	-3.5317	-5.224
	(0.000)***	(0.000)***	(0.037)**	(0.004)***	(0.020)**	(0.002)***	(0.022)**	(0.002)***	(0.004)***	(0.004)***	(0.135)	(0.013)**
Initial Interaction		0.957	1.090	0.865	1.136	1.248	1.067	1.172	1.175	1.0887	0.976	1.297
		(0.000)***	(0.002)***	(0.014)**	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.036)**	(0.001)***
ILPRCL			-0.079	0.0029	-0.089	-0.16	-0.092	-0.168	-0.122	-0.116	-0.1637	-0.2293
			(0.275)	(0.970)	(0.252)	(0.074)*	(0.225)	(0.052)**	(0.203)	(0.207)	(0.203)	(0.073)*
IGDPPC				-0.00003	-0.00001	-0.00001	-0.00001	-7.43E-06	-0.00001	-4.61E-06	-0.0001	-0.00006
				(0.012)**	(0.194)	(0.250)	(0.187)	(0.270)	(0.300)	(0.66)	(0.024)**	(0.126)
IFDI				-1.03E-10	-1.25E-10	-3.02E-10	-3.25E-10	-5.53E-10	-1.67E-10	-3.88E-10	2.56E-10	-2.95E-10
				(0.610)	(0.555)	(0.206)	(0.099)*	(0.007)***	(0.462)	(0.076)*	(0.408)	(0.489)
IOPENNESS				-0.011	-0.007	-0.009	-0.006	-0.01002	-0.006	-0.006	-0.005	-0.0106
				(0.061)*	(0.166)	(0.050)**	(0.168)	(0.042)**	(0.138)	(0.166)	(0.571)	(0.332)
IP				-1.08E-09	-9.31E-10	-3.73E-10	-2.10E-09	-1.74E-09	-9.49E-10	-2.14E-09	-2.86E-09	-2.72E-09
				(0.010)**	(0.011)**	0.361	(0.000)***	(0.000)***	(0.015)**	(0.000)***	(0.078)*	(0.066)*
ILR				0.004	0.0029	-0.0028	0.003	-0.0028	0.002	0.003	-0.001	-0.0022
				(0.086)*	(0.153)	(0.317)	(0.119)	(0.314)	(0.334)	(0.247)	(0.716)	(0.611)
RRC			-4.743		-3.869	-3.554	-3.838	-3.497	-3.89	-3.9028	-3.251	-3.26
			(0.000)***		(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.002)***	(0.002)***
length of life						-0.0213		-0.022				-3.2603
						(0.007)***		(0.005)***				(0.002)***
AREA							8.02E-08	9.61E-08		8.36E-08	1.35E-07	1.59E-07
							(0.011)**	(0.001)***		(0.011)**	(0.176)	(0.109)
BC									-0.199	-0.468	-0.4835	-0.199
									(0.296)	(0.001)***	(0.005)***	(0.373)
LO										0.309	0.456	0.2973
										(0.046)**	(0.019)*	(0.218)
EF											-0.075	-0.111
											(0.803)	(0.666)
Observations	75	75	75	74	74	74	74	74	74	74	50	50
Adjusted R^2	0.17	0.36	0.52	0.45	0.54	0.62	0.56	0.65	0.54	0.56	0.54	0.59
Ramsey RESET test	0.9427	0.9623	0.4754	0.2312	0.0758	0.1278	0.6663	0.4767	0.0193	0.3552	0.9381	0.8626
AIC	164.2215	144.7036	126.2504	133.5104	121.643	108.5581	119.4019	103.0027	121.5491	119.43	92.2431	84.83425
BIC	168.8564	151.6561	137.8379	149.6389	140.0755	129.2947	140.1384	126.0433	142.2857	144.7747	117.0994	109.6905

Note: P values in parentheses; White corrected standard errors. *** indicates significance at the 1% level, ** indicates significance at 5% level and * indicates significance at the 10% level.

Table3: Corruption Regressions – Basic Findings (Dependent Variable: World Audit Organization Corruption [WAO] 2004)

VARIABLES	OLS (1)	OLS (2)	OLS (3)	OLS (4)	OLS(5)	OLS(6)	OLS(7)	OLS(8)	OLS(9)	OLS(10)	OLS(11)	OLS(12)
Constant	82.378	76.893	96.519	84.554	100.265	142.0007	99.647	142.817	110.504	109.4884	122.878	155.761
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
IRC	-76.582	-121.816	-75.1649	-97.1606	-65.358	-99.722	-59.882	-94.17	-81.008	-76.253	-96.28	-134.84
	(0.000)***	(0.000)***	(0.071)*	(0.049)**	(0.128)	(0.003)***	(0.174)	(0.006)***	(0.026)**	(0.048)**	(0.121)	(0.013)**
Initial Interaction		17.354	26.33312	13.7489	22.042	25.616	19.75004	22.88	22.7599	20.73609	25.034	29.0247
		(0.000)***	(0.001)***	(0.146)	(0.007)***	(0.001)***	(0.024)**	(0.004)***	(0.007)***	(0.024)**	(0.042)**	(0.021)**
ILPRCL			-2.623	-0.3048	-2.3709	-4.184072	-2.277	-4.13	-3.213	-3.092817	-5.4155	-6.553
			(0.098)**	(0.868)	(0.153)	(0.036)**	(0.179)	(0.043)**	(0.105)*	(0.129)	(0.116)	(0.06)*
IGDPPC				-0.0006	-0.0002	-0.0001	-0.00019	-0.00009	-0.000177	-0.00009	-0.00412	-0.00289
				(0.029)**	(0.385)	(0.495)	(0.404)	(0.577)	(0.538)	(0.739)	(0.026)	(0.079)*
IFDI				-3.36E-09	-3.31E-09	-7.37E-09	-6.71E-09	-1.18E-08	-4.38E-09	-7.87E-09	1.51E-08	6.06E-10
				(0.506)	(0.499)	(0.153)	(0.246)	(0.031)**	(0.398)	(0.197)	(0.158)	(0.957)
IOPENNESS				-0.303	-0.2147	-0.3052	-0.224	-0.32	-0.225391	-0.23507	-0.3588	-0.50363
				(0.281)	(0.356)	(0.096)*	(0.348)	(0.080)*	(0.298)	(0.301)	(0.230)	(0.101)
IP				-2.70E-08	-2.72E-08	-1.23E-08	-4.57E-08	-3.50E-08	-2.91E-08	-4.78E-08	-7.43E-08	-7.44E-08
				(0.099)*	(0.047)**	(.204)	(0.031)**	(0.010)**	(0.044)**	(0.026)**	(0.221)	(0.184)
ILR				0.1014	0.0643	-0.1044	0.0757	-0.0966	0.03727	0.0514169	0.0372	0.03746
				(0.210)	(0.338)	(0.228)	(0.297)	(0.283)	(0.571)	(0.480)	(0.762)	(0.796)
RRC			-110.613		-97.383	-85.775	-94.9444	-82.277	-94.6922	-93.13217	-82.47	-72.944
			(0.000)***		(0.004)***	(0.000)***	(0.006)***	(0.000)***	(0.003)***	(0.005)***	(0.005)***	(0.011)**
length of life						-0.5905		-0.613				-0.56164
						(0.010)**		(0.009)***				(0.041)**
AREA							1.26E-06	1.58E-06		1.28E-06	2.31E-06	3.15E-06
							(0.130)	(0.030)**		(0.139)	(0.518)	(0.381)
BC									-6.382	-8.24822	-8.7899	-2.535
									(0.204)	(0.050)**	(0.016)**	(0.62)
LO										2.170178	4.578	0.8747
										(0.642)	(0.308)	(0.850)
EF											1.218	-0.0597
											(0.863)	(0.991)
Observations	59	59	59	59	59	59	59	59	59	59	38	38
Adjusted R^2	0.14	0.28	0.45	0.33	0.45	0.60	0.46	0.62	0.47	0.47	0.53	0.60
Ramsey RESET test	0.9438	0.9834	0.2664	0.0683	0.0511	0.0131	0.2699	0.1141	0.0007	0.0072	0.132	0.1424
AIC	486.2021	476.8731	462.6172	478.2622	467.5522	450.0993	467.4455	447.4366	465.9852	467.5728	307.7711	301.8422
BIC	490.3571	483.1058	473.0049	496.9601	488.3276	472.9522	490.2984	472.367	488.8381	494.5808	330.6973	326.4059

Note: P values in parentheses; White corrected standard errors. *** indicates significance at the 1% level, ** indicates significance at 5% level and * indicates significance at the 10% level.

Table 4: Two-stage least squares cross-country estimates

VARIABLES	CPI (1)	CPI (2)	CPI (3)	CPI (4)	CORR (1)	CORR (20	CORR (3)	CORR (4)	WAO (1)	WAO (2)	WAO (3)	WAO (4)
Constant	9.222	9.7958	14.661	15.4178	4.373	4.1582	5.945	6.297	97.875	100.444	154.573	156.36
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
IRC	-9.652	-7.563	-11.982	-13.498	-3.0702	-2.042	-4.3709	-4.372	-71.213	-24.25	-94.466	-95.738
	(0.011)**	(0.045)**	(0.006)***	(0.078)*	(0.063)*	(0.099)*	(0.034)**	(0.231)	(0.071)*	(0.120)	(0.075)*	(0.232)
Initial Interaction	2.665	2.8068	3.94172	3.5932	1.3348	1.1036	1.428	1.30306	26.902	19.1813	18.9057	28.335
	(0.001)***	(0.003)***	(0.000)***	(0.016)*	(0.001)***	(0.008)***	(0.000)***	(0.042)**	(0.002)***	(0.038)**	(0.229)	(0.054)**
ILPRCL	-0.236	-0.31908	-0.68868	-0.8141	-0.1427	-0.10382	-0.2177	-0.271063	-2.7949	-2.1669	-4.777	-6.866
	(0.187)	(0.135)	(0.023)***	(0.085)*	(0.122)	(0.289)	(0.037)**	(0.192)	(0.109)*	(0.329)	(0.134)	(0.075)*
IGDPPC		-0.000015	9.13E-06	-0.00024		-7.83E-06	2.08E-07	-0.0001		-0.00011	-0.0004	-0.002
		(0.552)	(0.722)	(0.344)		(0.505)	(0.990)	(0.373)		(0.661)	(0.150)	(0.159)
IFDI		3.53E-10	-5.05E-10	-2.29E-10		1.87E-10	-5.62E-10	-2.29E-10		2.58E-09	-2.61E-08	-3.24E-09
		(0.175)	(0.722)	(0.906)		(0.119)	(0.012)**	(0.825)		(0.429)	(0.217)	(0.773)
IOPENNESS		-0.02746	-0.02951	-0.03123		-0.0096	-0.0099	-0.0154		-0.30514	-0.519	-0.435
		(0.101)*	(0.076)*	(0.301)		(0.197)	(0.271)	(0.351)		(0.301)	(0.137)	(0.107)*
IP		-2.41E-09	-2.17E-09	-6.40E-09		-1.01E-09	-1.65E-09	-3.52E-09		-2.89E-08	-5.76E-08	-6.59E-08
		(0.031)**	(0.402)	(0.315)		(0.008)***	(0.004)***	(0.188)		(0.084)*	(0.156)	(0.293)
ILR		-0.000019	-0.01322	-0.00436		0.00066	-0.003	-0.0009		0.01342	-0.036	-0.0273
		(0.998)	(0.218)	(0.840)		(0.862)	(0.423)	(0.919)		(0.888)	(0.836)	(0.880)
RRC	-8.4008	-6.93198	-9.6799	-9.558	-6.3814	-4.72517	-4.94917	-4.525	-118.9078	-109.653	-70.386	-112.926
	(0.042)**	(0.079)*	(0.031)**	(0.102)*	(0.001)***	(0.013)**	(0.107)*	(0.034)**	(0.004)***	(0.022)**	(0.162)	(0.034)**
length of Life			-0.05178	-0.0386			-0.0245	-0.019			-0.79	-0.521
			(0.050)**	(0.127)			(0.015)**	(0.111)			(0.049)**	(0.085)*
AREA			6.91E-08	2.72E-07			9.53E-08	1.75E-07			3.30E-06	2.87E-06
			(0.746)	(0.515)			(0.004)***	(0.284)			(0.267)	(0.505)
BC			-0.19823	-0.82606			-0.1103	-0.146			12.378	-0.7222
			(0.657)	(0.198)			(0.584)	(0.599)			(0.268)	(0.948)
LO			0.17034	0.5164			0.2576	0.1935			-11.995	-0.07
			(0.547)	(0.369)			(0.159)	(0.488)			(0.184)	(0.995)
EF				-0.1256				-0.1197				0.737
				(0.867)				(0.743)				(0.918)
Observations	75	55	55	41	75	55	55	41	59	45	34	36
Adjusted R^2	0.47	0.49	0.57	0.47	0.52	0.53	0.61	0.47	0.45	0.45	0.49	0.56
F-statistics in1st stage regressions	23.08	11.36	10.30	6.78	36.20	10.38	11.19	6.02	18.00	9.74	9.91	4.99
Over-identifying Restriction test	1.08	2.95	9.63	6.61	1.84	7.53	5.77	9.44	0.04	0.27	4.93	1.16
p-value	0.8972	0.8146	0.3813	0.7614	0.7653	0.2747	0.6727	0.4911	0.9998	0.9996	0.8405	0.9997

Note: P values in parentheses; White corrected standard errors. *** indicates significance at the 1% level, ** indicates significance at 5% level and * indicates significance at the 10% level.

4.2 Two-Stage Estimation

We have already mentioned in our econometric technique that our estimates of corruption and recent revenue capacity (RRC) might be potentially suffering from endogeneity bias. For example: corrupt revenue collectors of the government might be reluctant to allow raising the fiscal capacity of the government. This would attenuate the ability of the public sector to collect higher revenue. Moreover, corruption might affect the composition of revenue structure of the government, as different tax systems may have different potentials for rent extraction. So it is possible that due to higher levels of perceived corruption, the recent revenue capacity is low. It is also plausible that RRC is subject to mismeasurement problem, which would result in an attenuation bias in the OLS coefficient.

To correct for these potential problems, we use a set of variables representing the initial conditions that could serve as instruments for the recent revenue capacity (RRC) are: Initial GDP (IGDP), Initial inflation (INF), Initial urbanization (IUP), Initial female literacy rate (IFLR), Initial Press freedom (IPF), Initial rule of law (IRL), religion, colonial and continental dummy.

We should note, however, that the instruments perform remarkably well from a statistical perspective. As shown in table (4) by the F-test statistic on the joint significance in the first stage regression, instruments are good predictors of the recent revenue capacity (RRC). Moreover, the Hausman test for over-identifying restrictions indicates that we are far from being able to reject the null hypothesis of no correlation between the instruments and the

error in the regression of interest. The statistics of the Hausman test for over-identifying restrictions are reported in table (4), and the p-value are in the parenthesis.

The estimates from the two-stage least squares confirm our findings from OLS estimation. A higher revenue capacity is significantly associated with lower measured levels of perceived corruption for the Transparency International's Corruption Perception Index (CPI) and World Bank's Control of Corruption Index (CORR) and at a lower degree of confidence, for the World Audit Organization's corruption index (WAO). The association disappears in the two-stage procedure for column (8) and (10) in case of IRC and in column (11) for RRC where the dependent variables are CORR and WAO (Table 4).

Based on the preceding arguments, one would expect endogeniety to generate an upward bias on the coefficients for recent revenue capacity (RRC) when estimated with OLS. On the other hand, the likely mismeasurement in RRC would instead result in an attenuation bias, thereby making it difficult to sign the overall bias. Although the two-stage least squares produces larger coefficient estimates, the Hausman test cannot reject the difference between the OLS and the IV estimates is not systematic. This would suggest that although there might be a priori good reasons to believe a endogeniety and/or mismeasurement problem exists, the resulting bias in the OLS coefficient is not significant.

4.3 Robustness Checks

Table (5) shows, along with our preferred specification we include all the initial variables and recent variables of productivity to check the issue of the robustness of our results over time. In column (1) to (3) the dependent variable is the CPI 2004. In the first column, we regress all the initial and recent five years average data of the same variables, where both the IRC and RRC are significant, but IRC is now only weakly significant. The initial interaction term is significant at 10% level. The recent interaction term remain positive but insignificant. Initial GDP per capita, IGDPPC is significant at 5% level whereas the recent GDP per capita, RGDPPC becomes highly significant at 1% level, and the two terms have the opposite sign. When we include the variables length of life and AREA to the previous specification (reported in column 2). We find that the results on the coefficients for IRC, RRC, Initial Interaction, Length of Life, and IGDPPC are significant at the conventional confidence levels, RGDPPC is again significant at 1% level and the sign of the coefficient of the ROPENNESS is negative and significant at 10% level indicating that the trade openness is an enemy to the level of perceived corruption. Column (3) includes the broad specification plus all the recent data of those variables which are the proxy for the productivity of the economy. The results remain largely unchanged, only the 'length of life' variable becomes low robust.

Column (4) to (6) shows the results using CORR 2004 as the dependent variable. In all cases, the coefficients for IRC and Initial interaction term have the expected sign. Both coefficients are however, insignificant. The coefficient of RRC remains negative and highly significant at 1% level. Moreover, the sign the coefficient of Recent Interaction term is again

positive but now significant at 5% level as shown in column (4) to (6). ROPENNESS is significant at 10% and 5% in column (4) and (5) respectively, RGDPPC is again significant at 1% level, even in one case the recent population becomes marginally significant but IGDPPC and Length of Life variable have lost the level of significance. All other results remain the same as the previous estimates of CPI 2004.

Column (7) to (9) shows the results using the WAO corruption index as the dependent variable. In column (7) the IRC and Initial interaction term are shown to be insignificant but RRC is significant at 5% level. But in column (8), the coefficients for IRC and IOPENNESS is significant at 10% level; Initial Interaction and length of Life again become significant at 5% level; and the IGDPPC, RGDPPC, and the RRC becomes significant at 1%level. But the recent interaction term in all cases of WAO remain insignificant.

In table (5) we have seen that adding these explanatory variables improves the fit of the regression to a considerable extent as the adjusted R^2 from column (1) to (9) varies from 0.80 to 0.83. One might be inclined to suggest that these should be used as the base specifications. But the different corruption indices and recent GDP per capita is highly correlated (the correlation is -0.7951). In that case there is always the possibility of multicollinearity and the problem of endogeniety. Moreover, Lambsdorff (2003) argue that if the value of R^2 is 0.60, then it is high for cross-country investigations. When we use all the recent variables as controls, the IRC and initial interaction term remain significant in case of CPI and WAO but become insignificant only in case of CORR. But in all the corruption indexes, we see that the RRC remains highly significant.

In table (6) we include variables initial urbanization (IUP), initial press freedom (IPF), initial GDP (IGDP), initial female literacy rate (IFLR), religion as catholic, Muslim and others, and continental dummy which have been identified by other authors as influencing corruption as controls. We use all the three indexes of corruption CPI, CORR and WAO with the same specifications with and without continental dummy. In case of CPI, we find that the IRC, Initial Interaction, and the Length of life are significant at 1% level either with or without the continental dummy. The coefficient of RRC and IOPENNESS are significant at 5% level. All the other control variables are either insignificant or close to significance. We exclude the regression the percentage of each country's population reporting to be Protestants. La Porta et al. (1999) find that both Catholic and Muslim affiliations of the populations are more interventionist and their governments are more corrupt, less efficient but better paid. Treisman (2000) shows that countries with higher proportions of Protestants have lower levels of perceived corruption. Our results have the correct sign for all the religious affiliations but insignificant. Notice that only in case of WAO without continental dummy the variable Muslim is significant at 10% level indicating that countries with lower proportion of Muslim have the better levels of perceived corruption. The sign of the initial press freedom (IPF) is positive indicating that countries with higher the level of corruption have lower press freedom as we know that low scores of corruption indexes and press freedom indicate favorable government conditions. The coefficient of the initial female literacy rate (IFLR) has the expected negative sign indicating that the higher the IFLR the lower will be the perceived levels of corruption. The coefficient is however, insignificant. Notice that in case of continental dummies, the sign for Asia is negative and Africa is positive meaning that Asian countries are less corrupt than the African countries. In the cases

where we use CORR as the dependent variable we see that the results remain largely unchanged although the level of significance for IRC, Initial interaction, and Length of life drops from 1% to 5%, whereas the level of significance for RRC increases to 1%. More interestingly, the variable ILPRCL becomes insignificant either with continent or without continent. The last two column of table (7) report the results using WAO as the regressend. All estimates largely remain the same compared to the previous estimates of CORR.

We conducted additional tests of sensitivity by excluding the transitional economies from our dataset. The OLS results are reported in table (7) and the two stage least squares results for our base specification are reported in table (8). It is relevant to think that transitional economies might be the outliers. Moreover, we have selected those countries that became independent after World War II. But most of the transitional economies became independent after 1990 except Romania in our dataset. So the initial and recent five years average data might be highly collinear. It should be worth mentioning here that we do not exclude Germany, Namibia, and Yemen Republic from our dataset although they became independent in 1990. The reason behind this is that East and West Germany merged in 1990 as Germany. Yemen Republic did the same thing. Now it is our interest to see whether the IRC, RRC and Initial Interaction still remain significant or not. We again use all three corruption indexes as the dependent variable. Column (1), (4), and (7) represents our basic speciation test results and column (3), (6) and (9) report the broad specifications results using the CPI, CORR, and WAO respectively. Our base specification results show that the coefficient for IRC is significant for CPI and WAO but it is insignificant for CORR. The coefficient for RRC remains significant in all indices. Column (2) reveals that IRC, RRC, IOPENNESS, IP, AREA and length of life variables are significant at

different levels. The coefficient of the initial literacy rate also becomes significant indicating that the higher the initial literacy rate the lower the level of perceived corruption will be. Most importantly, the coefficient of IFDI not only remains negative but also in all corruption indexes, becomes significant at 1% level, suggesting that the higher the amount of initial inward foreign direct invest in a country the lower will be the level of perceived corruption. In this case we are in the same line with Wei (2000). Using the total net capital inflows as a broader substitute for FDI, Lambsdorff (2003) shows that corruption has a persistent effect on capital accumulation and argues that the negative impact of corruption ultimately prohibits capital imports. In column (3) where we regress the broad specification, we see that there is no change in the sign and level of significance of our IRC, RRC, IOPENNESS, and Length of life variables. When we use the CORR and WAO as our dependent variables from column (4) to (9) again the results are largely unchanged, although the significance of the indicator of initial revenue capacity (IRC) drops somewhat.

We have also examined the reverse causal relationship between revenue capacity and corruption to our base specification by excluding the transitional economies. The coefficients on RRC and Initial interaction variables are again significant at conventional confidence levels but the coefficient for IRC is now significant at 10% levels for all the corruption indices. All the coefficients have the expected sign but somewhat larger than the OLS counterparts. Above all, the two stage least squares results (reported in table 8) presents suggestive evidence in this case that we are not capturing reverse causality.

We also use the data of the International Country Risk Guide (ICRG) corruption indexes for the years 1994-1998 obtained from Brunetti and Weder (2003). In this case we were only able to run the specification IRC and all the productivity variables to check the robustness of IRC and Initial Interaction for the five years average continuous score of the perceived level of corruption. The results are reported in table (9). It is evident that the sign of the coefficient for IRC remains negative and again significant at 5% level and the initial interaction term is also significant at 10% level. Moreover, we are interested in doing this as the correlation between the ICRG corruption index and other indexes are comparatively less. The correlations among corruption indices are shown in annex D.

Table 5: Corruption Regressions – Robustness Test

VARIABLES	CPI--(1)	CPI--(2)	CPI-- (3)	CORR--(1)	CORR--(2)	CORR--(3)	WAO-(1)	WAO-(2)	WAO-(3)
Constant	8.597	9.925	9.893	3.567	4.017	3.925	93.671	109.698	108.822
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
IRC	-4.683	-5.888	-5.847	-0.915	-1.318	-1.325	-35.445	-54.96	-55.877
	(0.068)*	(0.032)**	(0.035)**	(0.490)	(0.399)	(0.384)	(0.218)	(0.071)*	(0.071)*
Initial Interaction	1.0003	1.192	1.1608	0.2114	0.2762	0.301	10.654	14.292	14.722
	(0.077)*	(0.047)**	(0.056)**	(0.499)	(0.420)	(0.361)	(0.154)	(0.050)**	(0.046)**
ILPRCL	-0.0940	-0.16229	-0.16475	-0.00127	-0.02415	-0.01633	-0.99175	-2.0047	-1.9704
	(0.402)	(0.171)	(0.166)	(0.985)	(0.742)	(0.815)	(0.488)	(0.184)	(0.187)
IGDPPC	0.00004	0.000039	0.00004	9.58E-06	7.40E-06	0.00001	0.00043	0.00037	0.00042
	(0.011)**	(0.027)**	(0.030)**	(0.386)	(0.496)	(0.304)	(0.000)***	(0.004)***	(0.011)**
IFDI	1.78E-10	8.36E-11	1.12E-10	-2.29E-11	-5.03E-11	-5.09E-11	1.29E-09	2.92E-10	6.38E-10
	(0.427)	(0.795)	(0.727)	(0.812)	(0.737)	(0.749)	(0.625)	(0.947)	(0.888)
IOPENNESS	-0.0058	-0.00903	-0.0087	-0.0022	-0.0033	-0.0037	-0.1031	-0.12825	-0.125
	(0.485)	(0.286)	(0.298)	(0.598)	(0.458)	(0.425)	(0.244)	(0.131)	(0.149)
IP	-2.63E-09	5.40E-09	5.93E-09	2.04E-09	4.99E-09	5.72E-09	-4.37E-08	4.80E-08	6.03E-08
	(0.663)	(0.593)	(0.581)	(0.394)	(0.213)	(0.175)	(0.514)	(0.636)	(0.571)
ILR	0.0041	-0.00601	-0.0057733	0.002	-0.0010	-0.0011	1.01E-01	-0.0349	-0.0353
	(0.538)	(0.450)	(0.471)	(0.466)	(0.796)	(0.778)	(0.290)	(0.778)	(0.778)
RRC	-3.967	-4.234	-4.403	-3.203	-3.3009	-3.259	-51.892	-54.042	-55.4119
	(0.029)**	(0.018)**	(0.017)**	(0.001)***	(0.001)***	(0.001)***	(0.011)**	(0.007)***	(0.008)***
Recent Interaction	0.4915	0.41663	0.44115	0.41732	0.3924	0.36207	1.0637	0.1351	0.0379
	(0.151)	(0.244)	(0.257)	(0.015)**	(0.030)**	(0.052)**	(0.75)	(0.97)	(0.992)
RGDPPC	-0.0002	-0.0002	-0.0002	-0.00009	-0.00008	-0.00008	-0.0028	-0.002	-0.002
	(0.000)***	(0.000)***	(0.000)***	(0.002)***	(0.005)***	(0.007)***	(0.000)***	(0.000)***	(0.000)***
RFDI	-1.09E-11	-2.41E-11	-2.70E-11	-5.89E-12	-1.08E-11	-1.14E-11	-4.19E-11	-1.81E-10	-2.12E-10
	(0.309)	(0.205)	(0.200)	(0.365)	(0.234)	(0.249)	(0.649)	(0.390)	(0.360)
ROPENNESS	-0.010	-0.011	-1.20E-02	-0.005	-0.0059	-0.0049	-0.1552	-0.156	-0.1521
	(0.155)	(0.081)*	(0.096)*	(0.084)*	(0.053)**	(0.155)	(0.075)*	(0.053)**	(0.069)*
RP	4.31E-10	-2.17E-09	-2.30E-09	-1.15E-09	-2.10E-09	-2.36E-09	7.94E-09	-2.17E-08	-2.55E-08
	(0.853)	(0.526)	(0.526)	(0.222)	(0.124)	(0.096)*	(0.764)	(0.521)	(0.469)
RLR	0.002	0.0089	0.0090	0.0018	0.004	0.0043	-0.0267	0.058	0.0608
	(0.824)	(0.363)	(0.377)	(0.669)	(0.373)	(0.372)	(0.829)	(0.673)	(0.669)
Length of Life		-0.0196	-0.017		-0.006	-0.0073		-0.2407	-0.2328
		(0.026)**	(0.084)*		(0.170)	(0.184)		(0.035)**	(0.060)*
AREA		-5.14E-08	-6.01E-08		-1.97E-08	-2.01E-08		-5.33E-07	-6.31E-07
		(0.56)	(0.52)		(0.599)	(0.623)		(0.601)	(0.560)
BC			-0.1451			-0.1235			-2.075
			(0.595)			(0.523)			(0.657)
LO			0.0323			0.2077			2.231
			(0.883)			(0.254)			(0.616)
Observations	74	74	74	74	74	74	59	59	59
Adjusted R^2	0.82	0.83	0.82	0.80	0.80	0.80	0.81	0.82	0.81
Ramsey RESET Test	0.2118	0.2653	0.2880	0.4690	0.4402	0.3355	0.0917	0.2769	0.2295
AIC	162.2263	160.7894	164.4384	63.61898	65.23802	67.36713	407.9827	405.1175	408.728
BIC	192.1792	195.3504	203.6075	93.57183	99.799	106.5362	439.1458	440.4356	448.2012

Note: P values in parentheses; White corrected standard errors. *** indicates significance at the 1% level, ** indicates significance at 5% level and * indicates significance at the 10% level.

Table 6: Corruption Regressions – Robustness Test

VARIABLES	CPI--(1)	CPI--(2)	CORR-(1)	CORR-(2)	WAO-(1)	WAO-(2)
Constant	14.550	14.485	5.7325	5.6847	154.661	156.596
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
IRC	-16.89	-17.79	-5.29	-5.535	-136.44	-140.52
	(0.000)***	(0.000)***	(0.020)**	(0.018)**	(0.012)**	(0.013)**
Initial Interaction	3.944982	4.043132	1.366474	1.388748	32.96147	31.36649
	(0.001)***	(0.001)***	(0.015)**	(0.016)**	(0.014)**	(0.011)**
ILPRCL	-0.60143	-0.68594	-0.1507	-0.1748	-4.9727	-5.7163
	(0.004)***	(0.004)***	0.156	0.14	(0.051)**	(0.036)**
IGDPPC	-3.61E-06	5.73E-06	-6.96E-06	-4.43E-06	-0.00005	0.00005
	(0.843)	(0.742)	(0.269)	(0.516)	(0.810)	(0.775)
IFDI	-1.38E-10	-2.54E-10	2.28E-12	-2.92E-11	-2.52E-09	-4.33E-09
	(0.776)	(0.615)	(0.992)	(0.912)	(0.637)	(0.426)
IOPENNESS	-0.0359	-0.0342	-0.0141	-0.0136	-0.4557	-0.4649
	(0.014)**	(0.011)**	(0.041)**	(0.036)**	(0.075)*	(0.042)**
Length of Life	-0.04229	-0.041408	-0.016035	-0.015831	-0.528604	-0.527105
	(0.004)***	(0.006)***	(0.020)**	(0.025)**	(0.014)**	(0.014)**
RRC	-5.63	-6.1143	-3.395	-3.523	-80.002	-83.124
	(0.023)**	(0.011)**	(0.001)***	(0.002)***	(0.013)**	(0.009)***
Initial Urbanization	-4.85E-09	-2.61E-09	-2.05E-09	-1.37E-09	-8.93E-08	-7.55E-08
	(0.531)	(0.742)	(0.569)	(0.733)	(0.288)	(0.309)
Initial Press Freedom	0.0081	0.0124	0.0035	0.0046	0.0519	0.1155
	(0.535)	(0.269)	(0.573)	(0.401)	(0.671)	(0.239)
Initial GDP	4.60E-13	4.96E-13	-5.77E-14	-3.84E-14	8.63E-12	8.87E-12
	(0.431)	(0.405)	(0.765)	(0.849)	(0.254)	(0.252)
Initial Female literacy rate	-0.0033	-0.00141	0.00114	0.00193	-0.03806	-0.025
	(0.587)	(0.862)	(0.701)	(0.673)	(0.600)	(0.784)
Catholic	-0.007	-0.007	-0.005	-0.005	-0.137	-0.163
	(0.520)	(0.538)	(0.335)	(0.356)	(0.209)	(0.159)
Muslim	-0.016	-0.011	-0.007	-0.006	-0.175	-0.122
	(0.118)	(0.322)	(0.139)	(0.289)	(0.092)*	(0.228)
Others	-0.016	-0.012	-0.007	-0.006	-0.151	-0.1019
	(0.214)	(0.321)	(0.230)	(0.306)	(0.232)	(0.353)
Asia		-0.538		-0.1150		-9.047
		(0.281)		(0.627)		(0.111)
Africa		0.1089		0.0675		-0.924
		(0.826)		(0.806)		(0.866)
Observations	59	59	59	59	48	48
Adjusted R^2	0.58	0.58	0.58	0.57	0.53	0.55
Ramsey RESET Test	0.1657	0.1145	0.4905	0.5914	0.0011	0.0101
AIC	182.7471	183.879	96.96442	100.1794	373.6176	371.9802
BIC	211.8326	217.1196	126.0499	133.42	401.6856	403.7906

Note: P values in parentheses; White corrected standard errors. *** indicates significance at the 1% level, ** indicates significance at 5% level and * indicates significance at the 10% level.

Table 7: Corruption Regressions ----Robustness Test excluding the transitional economies

VARIABLES	CPI	CPI	CPI	CORR	CORR	CORR	WAO	WAO	WAO
Constant	9.430031	16.2732	15.549	3.991621	6.7771	6.491	98.7976	174.6467	172.324
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
IRC	-12.0392	-14.469	-13.323	-3.82205	-5.27289	-4.263	-107.1333	-112.117	-109.626
	(0.083)*	(0.003)***	(0.012)**	0.218	(0.015)**	(0.063)*	(0.041)**	(0.027)**	(0.046)**
Initial Interaction	2.517	3.3482	3.319	0.949	1.3546	1.291	28.236	24.787	27.891
	(0.037)**	(0.001)***	(0.001)***	(0.092)*	(0.002)***	(0.003)***	(0.040)**	(0.056)**	(0.016)**
ILPRCL	-0.2227	-0.8213	-0.808	-0.0637	-0.3109	-0.286	-2.96	-7.6624	-8.339
	(0.265)	(0.003)***	(0.009)***	(0.524)	(0.016)**	(0.052)**	(0.200)	(0.024)**	(0.017)**
IGDPPC		7.26E-06	-0.0001		-3.15E-06	-3.18E-05		0.00003	-0.0012
		0.606	0.285		0.563	0.611		0.844	0.428
IFDI		-1.62E-09	-5.29E-10		-7.48E-10	-4.67E-10		-1.78E-08	-6.18E-09
		(0.000)***	0.631		(0.000)***	0.395		(0.000)***	0.613
IOPENNESS		-0.0276	-0.023		-0.0123	-0.009		-0.4256	-0.436
		(0.016)**	0.216		(0.029)**	0.363		-7.19E-08	(0.030)**
IP		-6.26E-09	-6.66E-09		-3.20E-09	-3.19E-09		0.145	-9.17E-08
		(0.067)*	0.12		(0.015)**	(0.063)*		-0.206712	0.166
ILR		-0.0215	-0.021		-0.006167	-0.009		(0.096)*	-0.227
		(0.079)**	0.122		0.324	0.175		-85.4577	0.138
RRC	-7.979	-6.734	-6.508	-4.516533	-3.788	-3.908	-103.3228	-85.457	-85.302
	(0.006)***	(0.004)***	(0.003)***	(0.001)***	(0.001)***	(0.000)***	(0.005)***	(0.002)***	(0.002)***
length of life		-0.066	-0.059		-0.02826	-0.027		-0.792	-0.796
		(0.000)***	(0.029)**		(0.002)***	(0.053)**		(0.000)***	(0.011)**
AREA		4.30E-07	4.49E-07		2.12E-07	2.23E-07		4.58E-06	5.99E-06
		(0.088)*	0.158		(0.037)**	(0.095)*		0.158	0.184
BC			-0.039			-0.082			4.618
			0.942			0.772			0.458
LO			0.243			0.319			1.053
			0.544			0.167			0.816
EF			0.023			-0.152			1.196
			0.967			0.556			0.833
Observations	50	49	47	50	49	47	36	36	35
Adjusted R^2	0.44	0.69	0.67	0.52	0.67	0.64	0.47	0.72	0.72
Ramsey RESET test	0.9274	0.0023	0.064	0.8463	0.1595	0.4907	0.5377	0.0924	0.1058
AIC	175.3713	96.45124	296.8039	148.5655	75.72376	274.3116	147.8445	77.9997	268.2639
BIC	184.9314	106.0114	304.7215	171.2674	96.53378	293.3138	175.5967	175.5967	291.5942

Note: P values in parentheses; White corrected standard errors. *** indicates significance at the 1% level, ** indicates significance at 5% level and * indicates significance at the 10% level.

Table 8: Two-stage estimations ----Robustness Test excluding the transitional economies

VARIABLES	CPI-- 2SLS	CORR-- 2SLS	WAO-2SLS
Constant	9.371012	3.817	95.62225
	(0.000)***	(0.000)***	(0.000)***
IRC	-11.662	-4.8435	-117.9878
	(0.091)*	(0.106)*	(0.098)*
Initial Interaction	2.595	1.047412	27.009
	(0.046)**	(0.081)*	(0.045)**
ILPRCL	-0.23968	-0.04956	-2.523693
	(0.266)	(0.635)	(0.257)
RRC	-7.654	-3.36063	-84.758
	(0.048)**	(0.008)***	(0.041)**
Observations	44	44	34
Adjusted R^2	0.40	0.45	0.39
F- test statistic for joint significance in the first stage regressions	16.22	23.17	10.20
Hausman's over-identifying restrictions test	0.20	2.46	0.23
p value	0.9955	0.6512	0.9937

Note: P values in parentheses; White corrected standard errors. *** indicates significance at the 1% level, ** indicates significance at 5% level and * indicates significance at the 10% level. Over-identifying restriction test is distributed as a χ^2 under the null hypothesis of instrument validity.

Table 9: Corruption Regressions – Robustness Test (International Country Risk Guide [ICRG], years—94-98)

VARIABLES	OLS (1)	OLS (2)	OLS (3)	OLS (4)	OLS(5)
Constant	3.459	3.235	4.437	4.432	5.217
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
IRC	-3.398	-5.257	-10.044	-9.845	-7.818
	(0.047)**	(0.007)***	(0.007)***	(0.006)***	(0.021)**
Initial·Interaction		0.685	1.758	1.765	1.466
		(0.069)*	(0.043)**	(0.042)**	(0.077)*
ILPRCL			-0.257	-0.262	-0.311
			(0.114)	(0.110)	(0.057)**
IGDPPC				-7.42E-06	-0.000011
				(0.682)	(0.533)
IFDI					-1.04E-10
					(0.789)
IOPENNESS					-0.007
					(0.346)
IP					-1.58E-09
					(0.021)**
ILR					-0.008
					(0.258)
Observations	53	53	53	53	52
Adjusted R^2					0.31

Note: P values in parentheses; White corrected standard errors. *** indicates significance at the 1% level, ** indicates significance at 5% level and * indicates significance at the 10% level.

5. SUMMARY AND CONCLUSION

This paper develops a simple empirical framework for understanding the relationship between fiscal capacity and corruption in a multiple-equilibria setting considering the initial and recent conditions of a country. The empirical evidence presented in this paper suggests that there is a strong association between the revenue capacity and the level of perceived corruption across countries.

Many theoretical works on multiple-equilibria of corruption emphasize that initial conditions of a country may determine which equilibrium (low or high corruption) a country winds up in. An important result of this paper is that country's initial revenue capacity is one of the crucial determinants for the recent perceived level of corruption. In some countries (such as Bangladesh, India, Nigeria, Mozambique, Sudan etc.) initial revenue capacity were so small that even after thirty five years of their political freedom, they remain highly corrupted. We have also found that Myanmar's initial revenue capacity was relatively much higher than its recent revenue capacity but only due to the poor performance of its government it not only loses its revenue capacity but also fall into the highly corrupted countries list. On the other hand, we see that those countries whose initial revenue capacity were relatively high such as Germany, Singapore, Israel, Botswana etc. in our dataset and maintained a sustained growth of their fiscal capacity, are lying in the low corruption stable equilibria.

It appears that along with higher initial revenue capacity, economies with higher recent revenue capacity, better provision of public goods, more openness of the economy, and to some

extent higher level of foreign direct investment will also largely undermine corruption. These may not enough for an economy to reach the low-corruption stable equilibria, however.

In addition to these variables, the most important determinant for an economy to be in the 'good equilibrium' is the quality of the government. The government of a country might be able to collect a higher share of total government revenue as a percent of GDP but due to the lack of 'willingness of the government' to reduce corruption and higher lack of political rights and civil liberties would deter the economy to reach the low corruption equilibrium. On the other hand, countries that have good governance but relatively low tax capacity, poor provision of public goods would be unable to fight against corruption. In both cases, an economy will be stuck in the vicious circle of widespread corruption. It is also established in the literature that when corruption becomes endemic, income inequality and poverty increases, which in turn increases social and political unrest and criminal activity, reduces growth, investment, government revenue, GDP per capita and gradually deteriorate the economy as a whole. Thus corruption acts, in effect, as a tax on the returns to human capital.

A central message of this paper is that higher initial revenue capacity is a necessary condition but not a sufficient condition to reduce corruption. Another necessary condition is the government's willingness (benevolence) to combat corruption. Both of these variables help the economy to move towards a 'good equilibrium' and given its positive efficiency implications already established in the literature, should be considered beneficial to growth, equity and overall development of a country. In this paper, we find that the greater the lack of political rights and civil liberties, the less effective is revenue capacity in reducing corruption.

Policies that increase the tax capacity will most likely reduce the level of corruption. Instead of taking gradual reforms, a comprehensive 'big push' type reform should be undertaken. It may be harsh in the short run but will be effective to lower the level of perceived corruption in the long run. One of this may be to increase the level and size of productive income taxes in countries where corruption is pervasive. Besides, political rights, civil liberties, economic rights and press freedom must be ensured by the government in its part to foster the benevolence. Thus along with these, sufficient domestic resource mobilization by reforming the design of taxes and expenditures and their administration, a country might be able to eradicate corruption.

The results of thesis strongly suggest that for the newly independent countries, even for the highly corrupt countries, all the major international organizations such as World Bank, IMF, UNDP or the OECD should take policies that raise their revenue capacity, instead of giving direct financial assistance or project aid. In this regard, higher training programs such as improved technique of auditing, monitoring and collecting higher (tax and non-tax) revenue by the public officials should be undertaken. Moreover, financial assistance should be given to the fiscal department of a country on a priority basis to set up modern computerized technology following developed countries, so that they might efficiently collect more revenue. These policies of revenue-raising capacity of a country will largely determine its economic strength to enforce the rule of law and mitigate corruption and over time it will be in the low-corruption stable equilibrium.

APPENDIX

Annex– A: *Summary Statistics, Cross- Country Data*

Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
Corruption (TI)—CPI-2004 (Revised)	75	6.56	1.610355	0.7	8.5
Corruption (WB) CORR-2004 (Revised)	75	2.803733	0.7811561	0.06	3.99
Corruption (WAO) WAO-2004	59	66.71186	15.86805	6	87
Corruption (ICRG) -'94-98 (Revised)	53	2.773585	0.9535664	0	5
IRC	75	0.2097333	0.0791163	0.05	0.4
ILPRCL	75	4.461733	1.708544	1	7
INITIAL INTERACTION	75	0.8908	0.4266993	0.15	2.13
RRC	75	0.2293333	0.0970975	0.05	0.49
RLPRCL	75	3.917333	1.74196	1	7
RECENT INTERACTION	75	0.8354667	0.4724242	0.3	2.21
IGDPPC	75	2515.012	6750.445	75	54282.85
RGDPPC	75	3416.827	5537.631	131.38	25759.13
IFDI	74	1.51E+08	4.68E+08	-7.13E+08	2.67E+09
RFDI	74	2.28E+09	9.32E+09	-7.72E+07	6.67E+10
IOPENNESS	75	41.236	21.98491	2.88	105.76
ROPENNESS	74	46.23932	20.0523	1.58	97.71
IP	75	2.30E+07	7.85E+07	61958	5.67E+08
RP	75	4.90E+07	1.89E+08	79556	1.28E+09
IUP	75	7357973	2.14E+07	23677.07	1.12E+08
RUP	75	1.85E+07	6.39E+07	52762.62	4.67E+08
ILR	75	59.25733	33.83716	5.7	99.9
RLR	75	78.69787	22.57496	16	99.9
LENGTH OF LIFE	75	32.2	15.68783	11	57
AREA	75	803872.9	2276076	316	1.71E+07
IGDP	75	1.44E+11	3.94E+11	226204.4	2.55E+12
IPF	75	52.97267	21.08356	14.4	97.2
IFLR	60	54.72483	35.96596	1.47	99.8
EF	50	0.490918	0.308819	0	0.8902
LO	75	0.36	0.4832324	0	1
BC	75	0.3733333	0.4869467	0	1
INFLATION (INF)	69	24.69065	26.06279	0.0002	92.4689
INITIAL RULE OF LAW(IRL)	52	3.942308	1.289679	2	6
PROTESTANT	75	9.952	16.30498	0	66
CATHOLIC	75	18.20667	24.84913	0	97.3
MUSLIM	75	32.13387	37.54979	0	99.5
OTHERS	75	39.66347	31.22788	0.4	100
ASIA	75	0.28	0.4520225	0	1
AFRICA	75	0.4133333	0.4957477	0	1
OTHERS	75	0.3066667	0.4642149	0	1

Annex – B: *VARIABLE DEFINITIONS AND SOURCE*

VARIABLE	DEFINITION	UNIT	SOURCE
CPI 2004—TI	Corruption perception index (CPI).Index relates to perceptions of the degree of corruption as seen by business people and country analysts and ranges between 10 (highly clean) and 0 (highly corrupt). Inverted from 0 to 10 with 0= least corruption. For methodology, see www.transparency.org	Index number	Transparency International -- 2004
CORR 2004— WB	Control of corruption index compiled by the World Bank. Measures perception of corruption, conventionally defined as the exercise of public power for private gain. Originally ranging from -2.5 (most corrupt) to +2.5(least corrupt). Inverted the index so that high positive number reflects high corruption.	Index number	Kaufman et al. (2004)
WAO 2004 — Corruption	Corruption index. Data ranging from 0 (Least corruption) to 100 (most corruption).	Index number	World Audit Organization
ICRG— Corruption	Corruption Index originally ranging from 0 to 6, with 6 indicating lowest level of corruption. Transformed the variable by subtracting it from 6 so that 6= higher incidence of corruption. Average corruption 1994-1998.	Index number	Brunetti and Weder (2003),originally from International Country Risk Guide
Revenue Capacity (RC)	Revenue Capacity (RC) is the ratio of revenue over GDP. Initial Revenue Capacity (IRC) is the five years average revenue capacity starting with the first available year of data after a country's independence. Recent Revenue capacity (RRC) is the average revenue over GDP for the years 1998-2002.	Percent	International Financial) Statistics (IFS), IMF (2005), World Development Indicators (WDI), World Bank (2005).
Lack of Political Rights and Civil Liberties (LPRCL)	Gastil Index of (lack of) political rights and civil liberties. Each index ranges from 1(most freedom) to 7 (least freedom). The index is available from the year 1972. For those countries which existed before 1972 a simple average of (lack of) the Gastil index for the years 1972-1976 is used as the proxy for initial lack of political rights and civil liberties (ILPRCL) and for the rest of the countries ILPRCL data are drawn for the initial five years average since the year of their independence. Recent lack of political rights and civil liberties (RLPRCL) are from 1999-2003. For methodology, see www.freedomhouse.org	Index number	Freedom House.
GDP per capita	Initial GDP per capita data (IGDPPC) = average GDP per capita of 1960-1964 for those countries which existed before 1960 and after 1945 but for the rest of the countries IGDPPC data are drawn for the initial five years average since the year of their independence. Average GDP per capita for the years 1999-2003 stands for Recent GDP per capita (RGDPPC).	Real per capita GDP at constant 2000 US dollar.	WDI online, 2005.
Population	Initial population (IP) is the initial five years average population from the country's independence year. Recent	Total number	International Financial Statistics

	population is the average population of 1999-2003.		(IFS), IMF online, WDI online.
Literacy Rate	Initial literacy rate (ILR) is the five years average literacy rate starting from the country's date of independence. However, for many countries the literacy rate is not available from the earliest years after independence. In this case, the literacy rate starting with the first available year of data after a country's independence. Recent literacy rate (RLR) is average literacy rate for the years 1999-2003.	Percent	WDI online, (World Bank); UNICEF online; Banks (1971), CIA Fact book online.
Foreign Direct Investment (FDI)	Foreign direct investment is net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows total net, that is, net FDI in the reporting economy less net FDI by the reporting economy. 1970-74 average stands as a proxy for the countries that existed before 1970 as IFDI and for the rest of the countries IFDI data are drawn for the initial five years average since the year of their independence.. Average of 1999-2003 represents the RFDI.	Current US Dollar	World Development Indicators (WDI) online, World Bank; International financial statistics (IFS) online, IMF
Openness	Share of imports on GDP. Initial openness (IOPENNESS) = average ratio of imports to GDP from 1970-1974 for those countries which existed before 1970 and after 1945 but for the rest of the countries IOPENNESS data are drawn for the initial five years average since the year of their independence. Average Share of imports on GDP for the years 1999-2003 stands for Recent openness to trade (ROPENNESS).	Percent	WDI online, World Bank
Area	Physical size of the country.	Square Kilometer	CIA Fact Book, 2005.
Legal Origin (LO)	Origin of a country's legal system.	0,1	Treisman, (2000).
Initial Female Literacy Rate (IFLR)	Adult female literacy rate is the percentage of female people ages 15 and above who can, with understanding , read and write a short, simple statement of their everyday life. IFLR data average 1970-1974 as a proxy for initial.	Percent	WDI online, World Bank, 2005.
Initial GDP	Initial GDP (IGDP) is the initial five years average GDP starting with the first available year of data after a country's independence. In most countries, however, the first data point is 1960.	LCU	International Financial statistics (IFS) online, IMF (2005)
Initial Urbanization	Total number of urban population. Initial urbanization (IUP) data = average urban population of 1960-1964 for those countries which existed before 1960 and after 1945	Total Number	WDI online, World Bank, 2005.

	but for the rest of the countries IUP data are drawn for the initial five years average since the year of their independence.		
Press Freedom	The degree to which each country permits the free flow of information determines the classification of each country's index. Countries scoring 0 to 30 are regarded as having 'Free' media, 31 to 60 'Partly free' media, and 61 to 100 'Not free media'. The press freedom data are the average of 1980-84, considered as proxy for the initial press freedom.	Index	Freedom of the world, Freedom House online.
British Colony (BC)	Indicators of colonial affiliation	0,1	Treisman, (2000).
Religion	Identifies the percentage of the population of each country that belongs to the three most widely spread religions: (1) Roman Catholic; (2) Protestant; and (3) Muslim. The residual is called other religions.	Percent	La Porta et al. (1998).
Ethnolinguistic fractionalization (EF)	EF measures the probability that two randomly selected persons from a country would come from different ethno linguistic backgrounds.	Index	La Porta et al. (1998)
Continental Dummy	Asia, Africa, others.	0,1	CIA World Factbook, 2005 online.
Length of life	Length of life measures the number of years the country has existed. It is the difference between year 2004 and the year of independence of a country.	Year	CIA World Factbook, 2005 online.
Inflation (INF)	Consumer Price Index	Index	World Bank's World Development Indicator (WDI) 2005 online
Rule of Law (IRL)	This variable marks the presence of "sound political institutions, a strong court system, and provisions for an orderly succession of power" and reflects the degree to which "citizens of a country are willing to accept the established institutions to make and implement laws and adjudicate disputes". The data for initial rule of law (IRL) are the average for 1982-1995.	Index	obtained from Brunetti and Weder (2003); originally from the International Country Risk Guide (ICRG)

Annex – C: *LIST OF COUNTRIES*

Algeria, Angola, Armenia, Azerbaijan, Bahrain, Bangladesh, Barbados, Belarus, Benin, Bosnia and Herzegovina, Botswana, Cameroon, Chad, China, Congo, Republic of, Croatia, Cyprus, Czech Republic, Eritrea, Estonia, Gabon, Gambia, Georgia, Germany, Ghana, India, Israel, Jamaica, Kazakhstan, Kenya, Kuwait, Kyrgyzstan, Latvia, Libya, Lithuania, Macedonia; FYR, Madagascar, Malawi, Malaysia, Mali, Malta, Mauritius, Moldova, Morocco, Mozambique, Myanmar, Namibia, Niger, Nigeria, Pakistan, Papua New Guinea, Qatar, Romania, Russian Federation, Senegal, Serbia and Montenegro, Seychelles, Sierra Leone, Singapore, Slovak Republic, Slovenia, Sri Lanka, Sudan, Suriname, Tajikistan, Tanzania, Trinidad and Tobago, Tunisia, Turkmenistan, Uganda, Ukraine, Uzbekistan, Yemen Republic, Zambia, Zimbabwe.

Annex – D: *Correlations among Corruption Indices*

	RCPI	RCORR	WAO	ICRG
RCPI	1			
RCORR	0.9566	1		
WAO	0.9797	0.9467	1	
ICRG	0.5865	0.5684	0.5583	1

REFERENCES

Ackerman-Rose, Susan, 1975. The Economics of Corruption. *Journal of Public Economics*, Vol. 4, pp.187-203.

----------, 1997. The Political Economy of Corruption. In: Elliot, Kimberly Ann (ed.) *Corruption and the Global Economy*, pp. 83-107.Institute for International Economics, Washington D.C.

--------, 1999. Corruption and government: Causes, Consequences and Reform, Cambridge University Press, Cambridge.

Ades, Alberto, and Di Tella, Rafael, 1999. Rents, Competition and Corruption. *American Economic Review*, 89 (4), pp. 982-993.

Ahrend, Rudiger, 2002.Press Freedom, Human Capital and Corruption. *DELTA Working Paper*, No. 2002-11 DELTA.

Aidt, Toke S., 2003. Economic Analysis of Corruption: A Survey. *Economic Journal*, 113 (491), pp. 632-52.

Akin, John S., March 1979. Estimates of State Resource Constraints derived from A specific utility Function: An Alternative Measure of Fiscal capacity. *National Tax Journal*, Vol. 32 (1), pp. 61-71.

Alesina, A., Weder, B. 1999. Do corrupt Governments receive less foreign Aid? *National Bureau of Economic Research (NBER) Working Paper* No. 7108.

Andvig, Jens Chr., and Moene, Karl Ove, 1990. How Corruption May Corrupt. *Journal of Economic Behavior and Organization,* 13, pp. 63-76.

Andvig, Jens Chr., Fjeldstad, Odd-Helge, Amundsen, Inge, Sissener, Tone, and Søreide, Tina, December 2000. Research on Corruption: A policy oriented survey. *Chr. Michelsen Institute (CMI) & Norwegian Institute of International Affairs (NUPI), Commissioned by NORAD.*

Arikan, G. Gulsun, 2004. Fiscal Decentralization: A Remedy for Corruption? *International Tax and Public Finance*, Vol. 11, pp. 175–195.

Asra, Abuzar; Estrada, Gemma; Kim, Yangseon; and Quibria, M. G., March 2005. Poverty and Foreign Aid Evidence from Cross-Country Data. *ERD Working Paper* No. 65, Asian Development Bank.

Aymar, Christine, 1999. The Political and Tax Capacity of Government in Developing Countries. *Kyklos,* 52(3), pp. 391-413.

Banerjee, Abhijit V., August, 1992. A Simple Model of Herd Behavoir. *The Quarterly Journal of Economics*, Vol. 107 (3), pp. 797-817.

----------, Nov.1997. A Theory of Misgovernance. *The Quarterly Journal of Economics*, Vol. 112 (4), pp. 1289-1332.

Banks, Arthur S., 1971.Cross-Polity Time-Series Data. The MIT Press.

Bardhan, Pranab, 1997. Corruption and Development: A Review of Issues. *Journal of Economic Literature*, 35(3), pp. 1320-1346.

Barreto, Raul A. and Alm, James; 2003. Corruption, Optimal Taxation and Growth. *Public Finance Review*; Vol. 31(X).

Barro, Stephen M., 1986. State Fiscal Capacity Measures: A Theoretical Critique. In: Reeves, Clyde H. (ed.) *Measuring Fiscal Capacity*, pp. 51-86.Oelgeschlager, Gunn & Hain, Publishers, Inc. with Lincoln Institute of Land policy, Boston, USA.

Basu, Kaushik, Bhattacharya, Sudipto, and Mishra, Ajit, 1992. Notes on bribery and the control of corruption. *Journal of Public Economics*, 48, pp. 349-359.

Bayar, Gu¨zin, 2005. The Role of Intermediaries in corruption. *Public Choice*, Vol. 122, pp. 277-298.

Bayley, David H., 1966. The Effects of Corruption in Developing Nation. *The Western Political Quarterly*, 19 (4), pp.719-732.

Becker, Gary S., 1968. Crime and Punishment: An Economic approach. *The Journal of Political Economy*, Vol. 76 (2), pp.169-217.

Bliss, Christopher, and Di Tella, Rafael, 1997. Does Competition Kill Corruption? *The Journal of Political Economy*, 105(5), pp.1001-1023.

Braun, Miguel and Di Tella, Rafael, March 2004. Inflation, Inflation Variability and Corruption. *Economics and Politics*, Vol. 16 (1), pp. 77-100.

Brunetti, Aymo, and Weder, Beatrice, 2003. A free press is bad news for corruption. *Journal of Public Economics*, 87, pp. 1801-1824.

Burdett, Kenneth, Lagos, Ricardo, and Wright, Randall, August 2004. An On-the-Job Search Model of Crime, Inequality, and Unemployment. *International Economic Review,* Vol. 45 (3), pp. 681-705.

Cadot, Olivier, 1987. Corruption as a Gamble. *Journal of Public Economics*, Vol. 33, pp. 223-244.

Celentani, Marco and Ganuza, Juan-Jose', 2002.Organized vs. Competitive Corruption. *Annals of Operations Research,* Vol. 109, pp. 293-315.

Chand, Sheetal K., and Moene, Karl O., August 1997. Controlling Fiscal Corruption. *IMF Working Paper* No. WP/97/100, International Monetary Fund, Fiscal Affairs Department.

Chander, Parkash, and Wilde, Louis, 1992. Corruption in tax administration. *Journal of Public Economics*, 49, pp. 333-349.

Chen, Kang, 2004. Fiscal centralization and the form of corruption in China. *European Journal of Political Economy,* Vol. 20, pp. 1001-1009.

Dahlby, B. and Wilson, L.S., 1994. Fiscal capacity, Tax effort and optimal equalization grants. *Canadian Journal of Economics*, Vol. XXVII, No. 3, pp. 657-672.

Damania, Richard, Fredriksson, Per G. and Mani, Muthukumara, 2004. The persistence of corruption and regulatory compliance failures: Theory and evidence. *Public Choice*, Vol.121 pp.363–390.

Dawid, Herbert, and Feichtinger, Gustav, 1996. On the Persistence of Corruption. *Journal of Economics*, 64 (2), pp. 177-193.

Doig, Alan, 1998. Dealing with corruption: the next steps. *Crime, Law & Social Change, Vol.* 29, pp. 99–112.

Doig, Alan, and Riley, Stephen, 1998. Corruption and Anti- Corruption Strategies: Issues and Case Studies of developing Countries. *Corruption and Integrity Improvement Initiatives in Developing Countries, UNDP*, pp. 45-62.

Dollar, David and Kraay, Aart; 2002. Growth is Good for the Poor. *Journal of Economic Growth*; Vol. 7, pp. 195-225.

Durlauf, Steven N., and Johnson, Paul A., 1995. Multiple Regimes and Cross-Country Growth Behaviour. *Journal of Applied Econometrics*, 10, pp. 365-384.

Ehrlich, Isaac and Lui, Francis T., December, 1999. Bureaucratic Corruption and Endogenous Economic Growth. *The Journal of Political Economy,* Vol. 107 (6), pp.S270-S293.

Feichtinger, Gustav, and Wirl, Franz, 1994. On the stability and potential cyclicity of corruption in governments subject to popularity constraints. *Mathematical Social Sciences*, 28, pp. 113-131.

Ferguson, Ronald F. and Ladd, Helen F., 1986. Measuring the Fiscal capacity of U.S. Cities. In: Reeves, Clyde H. (ed.) *Measuring Fiscal Capacity*, pp. 141-168.Oelgeschlager, Gunn & Hain, Publishers, Inc. with Lincoln Institute of Land policy, Boston, USA.

Fisman, Raymond, and Gatti, Roberta 2002. Decentralization and Corruption: evidence across countries. *Journal of Public Economics*, 83, pp.325-345.

Fjeldstad, Odd-Helge and Tungodden, Bertil, 2003. Fiscal Corruption: A Vice or Virtue? *World Development,* Vol. 31 (8), pp. 1459-1467.

Friedman, Eric, Johnson, Simon, Kaufman, Daniel, and Zoido-Lobaton, Pablo, 2000.Dodging the grabbing hand: the determinants of unofficial activity in 69 countries. *Journal of Public Economics,* 76, pp.459-493.

Frye, Timothy, and Shleifer, Andrei, 1997. The Invisible Hand and the Grabbing Hand. *The American Economic Review,* Vol. 88 no. 2 Papers and Proceedings of the Hundred and Tenth Annual Meeting of the American economic Association pp.354-358.

Glaeser, Edward L., Sacerdote, Bruce and Scheinkman, Jose A.; May, 1996. .Crime and Social Interactions. *The Quarterly Journal of Economics*, Vol. 111(2), pp.507-548.

Goel, Rajeev K. and Nelson, Michael, A., 1998. Corruption and government size: A disaggregated analysis. *Public Choice*, Vol. 97 pp. 107–120.

Goudie,A.W. and Stasavage, David, 1998. A framework for the analysis of corruption. *Crime, Law & Social Change*, Vol. 29, pp. 113–159.

Groenendijk, Nico, 1997. A principal-agent model of corruption. *Crime, Law & Social Change,* Vol. 27, pp. 207–229.

Gupta, Sanjeev, Davoodi, Hamid, and Alonso-Terme, Rosa, 2002.Does Corruption affect income inequality and poverty? *Economics of Governance*, Vol. 3, pp. 23-45.

Hatcher, Aaron and Gordon, Daniel, February 2005. Further Investigations into the Factors Affecting Compliance with U.K. Fishing Quotas. *Land Economics*, Vol. 81 (1), pp. 71-86.

Huang, Chien-Chieh, Laing, Derek, Wang, Ping, 2004. Crime and Poverty: A Search-Theoretic Approach. *International Economic Review,* 45 (3), pp. 909-938.

Jain, Arvind K., 2001. Corruption: A Review. *Journal of Economic Surveys*, Vol. 15 (1), pp. 71-121.

Johnson, Simon, Kaufman, Daniel, Shleifer, Andrei, Goldman, Marshall I., and Weitzman, Martin L., 1997. The unofficial Economy in Transition. *Brookings Papers on Economic Activity,* 2, pp. 159-240.

Johnson, Simon; Kaufman, Daniel; and Zoido-Lobaton, Pablo; May, 1998. Regulatory Discretion and the Unofficial Economy. *The American Economic Review*, Papers and Proceedings of the Hundred and Tenth Annual Meeting of the American Economic Association, Vol. 88 (2), PP.389-392.

Kaufmann, Daniel, Kraay, Aart, and Mastruzzi, Massimo, June 2005. Governance Matters IV: Governance Indicators for 1996-2004. *World Bank Policy Research Working Paper* 3630, the World Bank.

Klitgaard, Robert, 1988.Controlling Corruption. University of California Press, Ltd. London, England.

Knack, Stephen and Keefer, Philip; 1995. Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures. *Economics and Politics,* Vol. 7(3), pp. 207-227.

---------; November, 1997. Does Social Capital Have an Economic Payoff? A Cross-Country Investigation. *The Quarterly Journal of Economics,* Vol. 112 (4), pp.1251-1288.

Knack, Stephen and Azfar, Omar, 2003. Trade intensity, country size and corruption. *Economics of Governance*, Vol. 4, pp. 1-18.

Krueger, Anne O.; June, 1974. The Political Economy of the Rent-Seeking Society. *The American Economic Review,* Vol. 64 (3), pp. 291-303.

Laffont, Jean-Jacques, and N'Guessan, Tchetche; 1999. Competition and corruption in an agency relationship. *Journal of Development Economics*, Vol. 60 pp.271–295.

Lambsdorff, Johann Graf; 2002. Corruption and Rent-Seeking. *Public Choice*, Vol. 113, pp. 97–125.

---------, 2003. How corruption affects persistent capital flows. *Economics of Governance,* Vol. 4, pp. 229-243.

Lancaster, Thomas D., and Montinola, Gabriella R.; 1997. Toward a methodology for the comparative study of political corruption. *Crime, Law & Social Change*, Vol. 27, pp 185–206.

La Porta, Rafael, Lopez-de-Silanes, Florencio, Shleifer, Andrei, and Vishny, Robert, 1997. Legal Determinants of External Finance. *The Journal of Finance*, Vol.52 (3), pp.1131-1150.

---------, 1999. The Quality of Government. *The Journal of Law, Economics and Organization,* 15(1), pp. 222-279.

Lederman, Daniel, Loayza, Norman V., and Soares, Rodrigo R., March 2005. Accountability and Corruption: Political Institutions Matter. *Economics and Politics,* Vol 17 (1), pp. 1-35.

Leff, Nathaniel H., 1964. Economic Development through Bureaucratic Corruption. *The American Behavioral Scientist*, 8(2), pp. 8-14.

Lui, Farncis T., August, 1985. An Equilibrium Queuing Model of Bribery. *The Journal of Political Economy*, Vol. 93 (4), pp.760-781.

----------, 1986. A Dynamic Model of Corruption Deterrence. *Journal of Public Economics,* Vol.31,pp. 215-236.

Macrae, John, 1982. Underdevelopment and the Economics of Corruption. *World Development,* Vol. 10 (8), pp. 677-687.

Matsuyama, Kiminori, 2002. Explaining Diversity: Symmetry-Breaking in Complementarity Games. *The American Economic Review,* Papers and Proceedings, 92(2), pp. 241-246.

Mauro, Paolo, 1995. Corruption and Growth. *The Quarterly Journal of Economics,* Vol. 110, pp. 681–712.

----------,1997. The Effects of Corruption on Growth, Investment and Government expenditure: A Cross-Country Analysis. In: Elliot, Kimberly Ann (ed.) *Corruption and the Global Economy*, pp. 83-107.Institute for International Economics, Washington D.C.

---------, March, 1998. Corruption: Causes, Consequences, and Agenda for Further Research. *Finance and Development,* Vol. 35, pp. 11-14.

---------,1998. Corruption and the Composition of Government expenditure. *Journal of Public Economics*, Vol. 69, pp. 263-279.

---------, 2004. The Persistence of Corruption and Slow Economic Growth. *IMF Staff Papers,* 51 (1), pp. 1-18.

Me'on, Pierre-Guillaume and Sekkat, Khalid, 2005. Does corruption grease or sand the wheels of growth? *Public Choice,* Vol. 122, pp. 69-97.

Murphy, Kevin M., Shleifer, Andrei and Vishny, Robert W., October, 1989. Industrialization and the Big Push. *The Journal of Political Economy,* Vol. 97 (5); pp. 1003-1026.

----------,1991. The Allocation of Talent: Implications for Growth. *The Quarterly Journal of Economics,* 106, pp. 503-530.

----------,1993. Why is Rent-Seeking So Costly to Growth? *The American Economic Review*, 83 (2), pp. 409-414.

Nye, N. S., 1967. Corruption and Political Development: A Cost-Benefit Analysis. *The American Political Science Review*, 61(2), pp.417-427.

Paldam, Martin; 2001. Corruption and Religion Adding to the Economic Model. *Kyklos*, vol. 54, pp. 383-414.

Pedersen, Karl R., March 1995. Rent-seeking, political influence and inequality: A simple analytical example. *Public Choice*, Vol. 82, pp. 281-305.

Rauch, James E. and Evans, Peter B.; 2000. Bureaucratic structure and bureaucratic performance in less developed countries. *Journal of Public Economics*, 75 , pp. 49–71.

Rosser Jr, Barkley J., Rosser, Marina V. and Ahmed Ehsan; 2003. Multiple unofficial economy equilibria and income distribution dynamics in systemic transition. *Journal of Post Keynesian Economics,* Vol. 25(3).

Sah, Raaj K., 1991. Social Osmosis and Patterns of Crime. *The Journal of Political Economy*, Vol. 99(6), pp. 1272-1295.

Sarte, Pierre-Daniel G., 2000. Informality and rent-seeking bureaucracies in a model of long-run growth. *Journal of Monetary Economics,* Vol. 46, pp. 173-197.

Shleifer, Andrei and Vishny, Robert W., 1993. Corruption. *The Quarterly Journal of Economics*, 108(3), pp. 599-617.

Sung, Hung-En, 2002. A convergence approach to the analysis of political corruption: A cross-national study. *Crime, Law & Social Change*, Vol. 38, pp. 137–160.

----------, 2004. Democracy and political corruption: A cross-national comparison. *Crime, Law & Social Change*, Vol. 41, pp. 179–194.

Swamy, Anand, Knack ,Stephen, Lee, Young, and Azfar, Omar, 2001.Gender and corruption. Journal of development economics, Vol. 64, pp. 25-55.

Tanzi, Vito, 1998. Corruption Around the World, Causes, Consequences, Scope, and Cures. *IMF Staff Papers,* 45 (4), pp. 559-594.

Tanzi, Vito, and Davoodi, Hamid, October1997. Corruption, Public Investment and growth. *IMF Working Paper* No. WP/97/139, International Monetary Fund, Fiscal Affairs Department.

Theobald, Robin, 1990. Corruption, Development and Underdevelopment. The Macmillan Press LTD.

Tirole, Jean, 1996. A Theory of Collective Reputations (with Applications to the Persistence of Corruption and to the Firm Quality). *The Review of Economic Studies*, 63 (1), pp. 1-22.

Toye, John and Moore, Mick, 1998. Taxation, corruption and Reform. *The European Journal of Development Research,* Vol. 10(1), pp. 60-84.

Transparency International, Bangladesh Branch Report, April 2005. Published in the National English Newspaper *'Daily Star'*, April 20, 2005.

Treisman, Daniel, 2000. The causes of corruption: a cross-national study. *Journal of Public Economics*, 76, 399-457.

Tullock, Gordon, July 1996. Corruption Theory and Practice. *Contemporary Economic Policy,* Vol. XIV, pp. 6-13.s

Vasina, P. A., 2003. Optimal Tax Enforcement with imperfect Tax Payers and Inspectors. *Computational Mathematics and Modeling,* Vol. 14 (3), pp. 309-318.

Ventelou, Bruno, 2002.Corruption in a model of growth: Political reputation, competition and shocks. *Public Choice*, Vol. 110, pp. 23-40.

Wei, Shang-Jin, 2000.How taxing is Corruption on International Investors? *The Review of Economics and Statistics,* 82(1), pp.1-11.

White Jr, Richard D., 2001. Corruption in the United States. In: Caiden, Gerald E.; Dwivedi, O.P., and Jabbra, Joseph (ed.) *Where Corruption Lives*, pp. 39-55.Kumarian Press, Inc., USA.

World Bank, 2000. Anticorruption in Transition: A Contribution to the Policy Debate. *The World Bank,* Washington, DC.

Zipparo, Lisa, 1999. Factors which deter public officials from reporting corruption. *Crime, Law & Social Change*, Vol. 30, pp. 273–287.