Democracy and Corruption: An Empirical Analysis in a Cross-Country Framework[*]

Shrabani Saha

Ph.D. candidate in Economics
Department of Economics and Finance
Massey University
Palmerston North, New Zealand

S.Saha@massey.ac.nz

Abstract

This study tests the impact of democratisation on corruption. In particular, does democracy necessarily reduce a country's level of corruption? Using panel data estimations several indicators of democracy have been utilised to examine the impact on corruption. The results suggest that an 'electoral democracy', represented by 'political rights' is not sufficient to reduce corruption. An advanced fully-formed mature democracy, where the probability of being caught if acting corruptly is high, is crucial to combat corruption. The coefficients of the non-linear regressions suggest that democracy increases corruption in the early stage of democratic reforms; once past the threshold point however, corruption level decreases substantially in a well-functioning matured democracy. The results remain robust under the alternative panel estimations and with alternative corruption indices.

Keywords: Democracy, Corruption, Panel data

JEL classification: C23; K42; O50

1. Introduction

Greater democracy, i.e. an expansion of political freedom, has dampening effects on the level of corruption. Barro (1999) argues that democratic institutions provide checks on governmental power which, in turn, limits the potential of public officials to accumulate personal wealth and to carry out unpopular policies. In contrast, Doig (2000) points out that in many electoral democracies, under the mask of political participation, political elites continue to manipulate the electoral process to legitimize retention of power and use the state machinery in pursuit of their own interests. Consequently, the early research on the relationship between democracy and corruption produces some differing results. Some studies find democracy prevents corruption while others believe that democracy enhances corruption. Hence, an important question to be resolved is whether democracy necessarily reduces a country's level of corruption.

The motivation of this study derives from the growing concern about corruption, particularly in the context of developing countries. Recent empirical research on the consequences of corruption corroborates the detrimental effects of corruption which lead to a common view that corruption is one of the central issues in development policies.[1] However, research on what causes corruption and why some countries are more corrupt than others is rather scanty. This study pays attention to the causes of corruption, and more importantly, the focus is on the role of democracy by examining aggregated and disaggregated conceptualisation of democracy to explain the level of corruption.

The worldwide evidence reveals that there is an inverse relationship between democracy and corruption; countries with democratic governments lean towards low levels of corruption. The idea that democracy has a negative impact on corruption seems indisputable (Sung, 2004). However, the degree of influence of democratic reform on corruption level is not straightforward and uniform. The main reason for the disagreement among researchers resides in the multidimensionality characteristics of "democracy" or "democratisation" (Coppedge, 2002; Sung, 2004). The empirical analyses mostly support the negative democracy-corruption association (Goldsmith, 1999; Sandholtz and Koetzle, 2000; Treisman, 2000; Montinola and Jackman, 2002; Sung, 2004; Bohara et al., 2004). Yet, some of these studies

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[1] Corruption - the misuse of public offices for private gains - undermines economic development by weakening the institutional foundation on which economic growth depends (Klitgaard (1988); Bardhan (1997)). It also discourages investment, reduces tax revenues and lowers the quality of infrastructure and public services (Knack and Keefer (1995); Mauro (1995); Wei (1997); Gupta et al. (2002)). Corruption is problematic particularly for developing and post-communist countries (Shleifer (1997); Johnson (1998)).

differ in regard to the directions of the impact of democratic reforms on the level of corruption. For example, democracy viewed as freedom of speech nurtures an investigative journalism that exposes and deters corrupt public activities (Giglioli, 1996; Brunetti and Weder, 2003). Alternatively, other studies find a non-linear relationship between democracy and corruption. Despite the upsurge of corruption among intermediate democracies, the consolidation of advanced democratic institutions eventually reduces corruption. Ultimately, the initial political conditions and the final democratic achievements determine the magnitude of political corruption (Montinola and Jackman, 2002; Sung, 2004). Moreover, Treisman (2000) points out that the long exposure to democracy predicts lower corruption than the current acquisition of democracy. On the contrary, Ades and Di Tella (1999) find that political rights have no significant impact on corruption because countries like Hong Kong and Singapore experience very low corruption even though they have relatively moderate political rights.

There is no cross-country evidence that captures the comparative analysis based on aggregate measure of democracy, as well as its various components separately to find what aspect of democracy contributes more in controlling corruption. This study differs from earlier literature in three ways: first, following Barro (1999) it develops the idea of "narrow democracy" and "broad democracy". Accordingly, the study has constructed two different democracy indices. A narrow democracy index includes only political rights whilst a broad democracy index is constructed by combining political rights, civil liberties and press freedom. Second, it evaluates the impact of other components of democracy on controlling corruption. Third, it examines the democracy-corruption relationship in a non-linear functional form for various components of democracy indicators by controlling several relevant economic factors. Panel data estimations have been utilised to examine the degree of influence of democratic reform on corruption levels. This analysis extends and updates the sample size to 100 nations for the period 1995 to 2004.

The paper is organised as follows: the following section briefly outlines the theories of democracy-corruption relationship. Section 3 describes the data, the empirical models and methodology. Section 4 discusses the panel estimation results for various specifications. Sections 5 and 6 test the robustness of the results. First, an 'electoral democracy' represented by 'political right' is not sufficient to reduce corruption.[2] An advanced fully-formed mature

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[2] Tronquist, O., *Politics and Development* (London: Sage, 1999), 98.

democracy, where the probability of being caught if acting corruptly is high, is crucial to combat corruption. Second, the coefficients of the non-linear regressions reflect that democracy increases corruption in the early stage of democratic reforms; once past the threshold point however, corruption level reduces substantially in a well-functioning matured democracy. Third, the threshold level (where corruption starts declining) decreases as a country develops towards matured democracy. The conclusions are stated in the final section.

2. Democracy-corruption association: An overview

Theoretically, autocratic systems are characterised by the monopolisation of power in the hands of a small elite, with few or no constraints to prevent the small elite exercising their own interest and, thus, a high level of corruption prevails in the autocratic regimes. In contrast, democratic systems are characterised by diffuse authority, where the executive branches of government are balanced by an elected parliament and an independent judiciary, and where open elections allow actors to alternate in power, it acts as a threat to the corrupt political elites, and has a lowering effect on the level of corruption. The transformation from autocratic regime towards democracy through political liberalisation is often presumed to reduce the level of corruption. However, the generally agreed increase in corruption levels in transition countries is not consistent with the view that democracy has a positive impact on controlling corruption. The increased corruption level in transition countries has been described as 'decentralized corruption' by Shleifer and Vishny (1993), where transformation towards democracy represents a transformation from joint monopoly power to individual monopoly power of the political elites. The transformation towards individual monopoly power tends to increase the amount of bribe charged by each government official. Accordingly, countries in East Asia, Latin America and Eastern Europe that experienced high levels of corruption during their democratic transition in the late 1980s and early 1990s.

The weak institutional frameworks in the newly democratised countries also increase the opportunities for high level corruption. The newly democratised countries are mostly characterised as electoral democracies and they typically belong to the low-end of 'free' category of nations as tracked by the Freedom House records.[3] Political institutions in a newly formed electoral democracy lack the institutional resources to restrict corrupt political elites from furthering their own interests. In this context, Dahl (1971) argues that democracy without participation is an absurdity but participation without an effective institutional

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[3] See Freedom House (2003) for details.

framework would be futile and chaotic. Supporting the idea Doig (2000) points out that democracy represents institutional arrangements to secure rule of law, participation of the people in the activities of the state, and, the institutional embodiment of a concern with the identification and realisation of public interest at least in principle.

In describing the role of democracy on combating corruption Sandholtz and Koetzle (2000:38) argue that in a democracy the populace acquires more extensive and effective means of detecting and punishing corrupt activities. Furthermore, fundamental democratic freedoms, like those of assembly, speech and press expose hidden information, stipulate inquiries, and publicise discoveries. Corrupt acts are by nature secret, and secrets are harder to keep in an open society. Once the public is aroused over a corruption scandal, the organs of government have powerful incentives to prosecute and punish miscreants or at least to be seen to do so. In this context, Rose-Ackerman (1999), Schwartz (1999), Jamieson (2000) and Moran (2001) point out that the defence of civil liberties and the materialisation of an independent judiciary the key elements that define a "liberal democracy" can restrain corruptive influences and maximise the efficacy of anti-corruption campaigns.[4]

Thus, an advanced mature and durable democracy is the most probable end-point of the democratisation process (Hegre et al., 2001). This is an ideal state with well-functioning and effective institutions along with active participation of the people. It describes a situation where the combination of free media, an independent judiciary and people's participation represent a viable threat to the corrupt behaviour and accelerate the process of anti-corruption reforms. In other words, extensive democratic freedoms and effective democratic institutions are vital for controlling corruption. Accordingly, despite an increase in the level of corruption in the early stage of democratisation, a consolidated well-functioning mature democracy can reduce a country's level of corruption.

3. Data, models and methodology

3.1. Data definition

Major obstacles to the comparative study of corruption have been the lack of a general definition of corruption and the absence of objective cross-national data on corrupt behaviour. Therefore, the dependent variable in this study is a subjective measure of corruption based on

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[4] Liberal democracy secures the rule of law, a separation of powers and protection of liberties. See the link: http://en.wikipedia.org/wiki/Democracy.

perceptions. Transparency International's (TI) annual corruption perceptions index (CPI) is used as a principal measure of corruption.[5] The CPI measures the degree of corruption as seen by business people, academics and risk analysts. This index has been most commonly used in empirical studies in the economics literature.[6] For simplicity and ease of exposition, the original ranking of CPI has been converted into a scale from 0 (least corrupt) to 10 (most corrupt). It should be noted that the Transparency International first published the CPI in 1995. Therefore, the study covers the period from 1995 to 2004. In addition, we use a complementary measure of corruption, the control of corruption index, as an alternative measure of corruption constructed by Kaufmann et al. (2005).

Like corruption, the measurement of democracy is also disputed due to the problem of conceptualization, measurement and aggregation (Munck and Verkuilen, 2002). Munck and Verkuilen (2002) and Coppedge (2002) further point out that no single index offers a satisfactory response to all the three problems. Even the best indices have significant weaknesses. In order to capture the impact of broadly defined democracy following Jackman (1985), where democracy is defined as an "umbrella concept" that combines multiple components into a single unidimensional variable, the Freedom House subjective indexes of political rights, civil liberties and press freedom are utilised to construct a broad-democracy index. Where, political rights include electoral process, political pluralism and functioning of government, the civil liberties encompass freedom of expression and belief, associational and organisational rights, rule of law and personal autonomy and individual rights, and the components of press freedom are laws and regulations, political controls and economic control. Each of the components of political rights, civil liberties and press freedom is based on multiple criteria.[7] Some of the empirical research uses the Freedom House political rights and civil liberties to represent the democracy index.[8] However, in this study press freedom is incorporated with political rights and civil liberties to measure broad democracy index as the components of press freedom reflect the legal and enforcement capabilities of the government which strengthen and accelerate the anti-corruption reforms. Following Vanhanen (2000a), broad democracy index (DEMO2) is constructed by multiplying political rights, civil liberties

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[5] For details see http://www.transparency.org/policy_research/surveys_indices/cpi.

[6] See for example, Ades and Di Tella (1997); Johnson et al. (1998); Sandholtz and Koetzle (2000); Treisman (2000), Montinola and Jackman (2002); Gupta, Davoodi and Alonso-Terme (2002); Ali and Isse (2003); Chowdhury (2004); You and Khagram (2005); and Emerson (2006).

[7] See http://www.freedomhouse.org for details.

[8] See Nelson and Singh (1998); Ades and Di Tella (1999); Sandholtz and Koetzle (2000); Gounder (2002); Ali and Isse (2003); Bohara et al. (2004); Sung (2004) for details.

and press freedom as all the three attributes are equally important for democracy.[9] The broad democracy index is scaled from 0 to 10, where a higher score indicates a higher level of freedom.

As an umbrella concept, democracy combines multiple components however, Jackman (1985) further suggests that it is imperative to focus on their separate components as well. Therefore, it is analytically more constructive to begin the analysis by measuring the attributes separately in order to estimate the individual effects on controlling corruption. In this way this study provides a more comprehensive and rigorous test of influence of individual components as well as combined democracy indicators on corruption for comparative study. For this purpose the Freedom House indexes of political rights (PR), civil liberties (CL) and press freedom (press) are utilised separately. Like the broad democracy index, separate individual indexes are also scaled from 0 to 10, where a higher score indicates a higher level of freedom.

A set of standard economic variables i.e., per capita real gross domestic product (RGDP), unemployment rate (UNEM), gini index (GINI) of inequality and adult literacy rate (ALR) are incorporated as control variables in the basic regression model. These economic indicators are obtained from Groningen Growth and Development Centre (2004), World Institute of Development Economic Research (2004) World Income Inequality Database, Political Risk Services Group (2004) and World Bank (2005) World Development Indicators. Finally, Heritage Foundation economic freedom index (EF) is included as a control variable to measure the impact of amount of regulation on economic activities in a country on corruption.[10] Appendix Table A1 provides a detailed description of the variables and data sources.

3.2. Model Specification

We begin the analysis by focusing on narrowly defined democracy represented by political rights (PR) and its influence on controlling corruption. To estimate the impact of political rights as a measure of democracy on corruption the basic regression model is specified as:

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[9] Arat (1991) and Alvarez et al. (1996) also combine several attributes of democracy following multiplicative aggregation rule.

[10] The index of economic freedom is equally weighted index based on eight individual freedoms: business freedom, trade freedom, monetary freedom, freedom from government, fiscal freedom, property right, investment freedom and financial freedom (we have taken out freedom from corruption component from the original economic freedom index constructed by the Heritage Foundation, 2005, as corruption is the dependent variable). The index is re-scaled from 0 to 10, where 10 represents the maximum level of freedom.

$$CPI_{i,t} = \beta_0 + \beta_1 \, PR_{i,t} + \beta_2 \log (RGDP)_{i,t} + \beta_3 \, GINI_{i,t} + \beta_4 \, UNEM_{i,t} + \beta_5 \, ALR_{i,t} + \beta_6 \, EF_{i,t} + \varepsilon_{i,t},$$

(1)

where ε is error term, i is country, t is time. The sign and significance of β_1 is of interest, which is expected to be significantly positive since a higher value of CPI means more corruption and a higher value of PR means more political rights. The reason behind the positive sign is that when a country transform towards democratization, in the beginning it manifests only 'electoral democracy' represented by political rights but deficient in many important aspects of democracy that are more crucial to reduce corruption. RGDP and ALR measure the level of real per capita GDP, and the educational attainment. Both the variables tend to increase the level of economic development which itself reduces corruption (Ades and Di Tella, 1999; Treisman, 2000). We therefore expect β_2 and β_5 to be negative. Income inequality measured by GINI can increase the level of corruption because with the increased inequality, the richer people have greater resources for paying bribes to buy public services (Glaeser, Scheinkman and Shleifer, 2003; You and Khagram, 2005). UNEM is the measure of unemployment rate which is high particularly in developing countries that increases corruption due to the high demand for stable sources of income (Kristiansen and Ramli, 2006). Therefore, β_3 and β_4 are expected to be positive. EF measures the degree of openness of an economy. Ades and Di Tella (1999) argue that the amount of corruption is determined partially by the level of competition, and competition and corruption are negatively related. Hence, β_6 is expected to be negative.

In the next step we estimate civil liberties and press freedom separately; then the combined effects of political rights and civil liberties (DEMO1) and finally the broad democracy index (DEMO2) with control variables to measure the degree of influence of different components of democracy and their combined effects on controlling corruption. In addition, we test the democracy-corruption relationship in a non-linear framework for different components of democracy separately and for the combined democracy indexes. The non-linear models are estimated using the following form:

$$CPI_{i,t} = \beta_0 + \beta_1 \, DEMO_{i,t} + \beta_2 \, (DEMO_{i,t})^2 + \beta_3 \, EF_{i,t} + \beta_4 \log (RGDP)_{i,t} + \beta_5 \, GINI_{i,t} + \beta_6 \, UNEM_{i,t}$$
$$+ \beta_7 \, ALR_{i,t} + u_{i,t},$$

(2)

where u is error term. For the estimation of non-linear relationship the signs of β_1 and β_2 in equation (2) are of interest and we expect β_1 to be positive and β_2 to be negative. The expected sign of β_1 and β_2 represents a parabolic relationship between democracy and corruption i.e., at the early stage of democratisation, democracy increases corruption, after a certain level it has a damaging impact on corruption.

3.3. Econometric methodology

In order to estimate the impact of separate components of democracy and the combined democracy indexes on corruption, the panel estimation methodologies are used based on equation (1) and (2) for the period 1995 to 2004. It also confirms the relationship between indicators of democracy and corruption are not affected by outliers. For the robustness checks two-way fixed effects (country and period), period fixed effects with regional dummies are estimated. Moreover, following Dawson (2003), and Nelson and Singh (1998) a two-periods (5-year average for two periods: 1995-1999 and 2000-2004) and three-periods (3-year average for three periods: 1995-1997, 1998-2000 and 2001-2004) panels are also estimated to eliminate potential business cycle effects that would be present in annual data.

As an alternative econometric methodology this study estimates ordinary least square (OLS) for the average period 1995-2004 as a single year. In addition, an alternative measure of corruption is estimated as dependent variable to confirm the democracy-corruption relationship besides testing non-linear models.

4. Panel Estimation Results

The impact of various components of democracy and the combined democracy indices on corruption are estimated utilising panel least squares (PLS), two-way fixed effects (FE) and period fixed effect with regional dummies (PFERD) in the base equation (1). The dependent variable in equation (1) is the corruption perception index for 100 countries over the period 1995 to 2004.

The panel estimation results of democracy-corruption relationship are presented in Table 1. Columns (1), (2), and (3) show the results for narrowly defined democracy index. The panel least squares result of column (1) indicates that the coefficient of political rights has the expected positive sign and is significant at the 1% level. The coefficients of control variables also show the expected signs, except for literacy rate, and are all significant at the conventional confidence levels i.e., at 5%. The result confirms the observed high level of corruption in transition countries. The specification in column (1) explains more than three-fourth of the variation in the levels of corruption across countries. Column (2) and (3) report the relationship between political rights and corruption after controlling for country and period fixed effects,

and period fixed effects with 12 regional dummies.[11] The two-way fixed effects in column (2) do not alter the expected sign of political rights, however, the magnitude and the significant level decreases from 1% to 10% level. Column (3) also displays similar results and the coefficient of political rights is significant at 1% level suggesting that the significant relationship between political rights and corruption is not driven by the regional differences.[12] The adjusted R^2 increases in column (2) and column (3) in comparison with column (1) indicating that the inclusion of the period, country and regional dummies improves the fit of the regression.

Columns (4), (5), and (6) show the results for broadly defined democracy index (DEMO2) for PLS, FE and PFERD based on equation (1). The coefficients of the broad democracy index (DEMO2) in column (4), (5), and (6) indicates the expected negative sign demonstrating that a mature democracy where the presence of political rights, civil liberties and press freedom along with institutional back up restrains the level of corruption of a country. The coefficient of DEMO2 is significant at the 1% level in column (4), however, in column (5) and (6) the magnitude of the coefficients have declined and lost the significance. Two-period and three-period panel estimation results also confirm that narrow democracy increases corruption whereas, broad democracy reduces corruption.[13]

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[11] Two-way fixed effects estimate the effects putting the dummies for each country and each period which reduces the degrees of freedom of estimation. Instead, period fixed effects with regional dummies insert dummies for each region and each period that increases the degrees of freedom and improves estimation results.

[12] Regional dummies also portray the cultural differences among regions. The results further show that high levels of corruption in transition economies are not affected by any cultural differences.

[13] The coefficient of DEMO2 is significant at 1% level for both the two-period and three-period PLS estimations. However, the coefficient of PR is significant at 5% for three-period PLS estimation. The results can be obtained from the author on request.

Table 1 Impact of narrow and broad democracy on controlling corruption: Corruption perception index as dependent variable

	All Countries						Excluding Outliers			
	(1) PLS	(2) FE	(3) PFERD	(4) PLS	(5) FE	(6) PFERD	(7) PLS	(8) PFERD	(9) PLS	(10) PFERD
PR	0.082***	0.040*	0.065***				0.061***	0.036**		
	(0.017)	(0.022)	(0.017)				(0.018)	(0.018)		
DEMO2				-0.095***	-0.018	-0.004			-0.170***	-0.067***
				(0.021)	(0.034)	(0.022)			(0.023)	(0.023)
L(RGDP)	-0.967***	-0.323	-0.809***	-0.920***	-0.359	-0.80***	-1.015***	-0.751***	-0.934***	-0.711***
	(0.082)	(0.261)	(0.087)	(0.083)	(0.260)	(0.089)	(0.082)	(0.090)	(0.081)	(0.090)
GINI	0.041***	0.119***	0.045*	0.032***	0.118***	0.045***	0.039***	0.046***	0.028***	0.045***
	(0.005)	(0.010)	(0.006)	(0.006)	(0.010)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)
UNEM	0.012**	0.005	0.019***	0.017***	0.006	0.018***	0.014***	0.021***	0.021***	0.021***
	(0.005)	(0.008)	(0.004)	(0.005)	(0.006)	(0.004)	(0.005)	(0.004)	(0.005)	(0.004)
ALR	0.023***	-0.021*	-0.007	0.032***	-0.021*	-0.003	0.025***	-0.007*	0.035***	-0.003
	(0.003)	(0.012)	(0.004)	(0.003)	(0.012)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)
EF	-0.768***	-0.117***	-0.559***	-0.596***	-0.114***	-0.508***	-0.724***	-0.499***	-0.488***	-0.431***
	(0.039)	(0.039)	(0.037)	(0.039)	(0.039)	(0.036)	(0.041)	(0.038)	(0.040)	(0.037)
Latin America			0.996***			0.977***		0.996***		1.021***
			(0.375)			(0.378)		(0.368)		(0.368)
Middle East			0.505			0.325		0.435		0.296
			(0.371)			(0.371)		(0.365)		(0.361)
East Asia			1.914***			1.811***		1.846***		1.831***
			(0.412)			(0.415)		(0.405)		(0.404)
South East Asia			1.219***			1.023***		1.541***		1.450***
			(0.385)			(0.385)		(0.385)		(0.382)
South Asia			1.029***			1.147***		1.124***		1.271***
			(0.396)			(0.399)		(0.390)		(0.389)
Eastern Europe			2.030***			2.051***		2.071***		2.144***
			(0.390)			(0.394)		(0.387)		(0.387)
Central Asia			1.573***			1.30***		1.649***		1.475***
			(0.420)			(0.418)		(0.416)		(0.410)
Africa			-0.162			-0.221		-0.118		-0.083
			(0.369)			(0.372)		(0.364)		(0.364)
Western Europe			0.627			0.689*		0.566		0.779**
			(0.401)			(0.410)		(0.394)		(0.399)
Northern Europe			-0.709*			-0.669		-0.80**		-0.533
			(0.410)			(0.423)		(0.403)		(0.412)
North America			-0.341			-0.322		-0.468		-0.240
			(0.448)			(0.459)		(0.440)		(0.446)
Australasia			-0.946**			-0.933**		-1.065**		-0.807*
			(0.451)			(0.464)		(0.443)		(0.451)
Constant	13.358***	5.899**	12.654***	12.478***	6.511***	12.46***	13.561***	12.012***	12.182***	11.425***
	(0.677)	(2.549)	(0.849)	(0.691)	2.544	(0.867)	(0.680)	(0.866)	(0.681)	(0.876)
Observations	981	981	981	981	981	981	959	959	959	959
Countries	99	99	99	99	99	99	96	96	96	96
Adj R-squared	0.757	0.956	0.837	0.756	0.956	0.835	0.755	0.841	0.766	0.841

Standard errors are in parenthesise. ***, **, * indicate significance level at the 1%, 5% and 10% respectively.

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The impact of narrow and broadly defined democracy in controlling corruption by excluding outlier countries are depicted in column (7), (8), (9) and (10) for PLS and PFERD estimations.[14] Columns (7) and (8) illustrate similar results shown in column (1) and (3). Likewise, columns (9) and (10) portray similar results reported in columns (4) and (6), moreover, the coefficients of DEMO2 are significant at the 1% level in both the cases. Noticeably, in the case of excluding outlier countries, the magnitude of the coefficient of PR is much less in comparison with all country case. In contrast, the magnitude of the coefficient of DEMO2 is far greater when outlier countries are excluded. The result suggests that a mature democracy manifested by broad democracy index has a stronger and more significant effect on controlling corruption. The removal of the outliers also marginally improves the fit of the regression (the adjusted R^2 increases from 0.756 to 0.766 and from 0.835 to 0.841 for broadly defined democracy based on equation (1) for PLS and PFERD estimations respectively).

We now turn to the estimation of the other components of democracy i.e., civil liberties and press freedom, and the combined index of political rights and civil liberties (DEMO1) keeping other control variables same as earlier. The estimation results are presented in Table 2. Like the earlier results of political rights, the civil liberties and press freedom also have a positive effect on corruption for all countries. The coefficient of civil liberties is significant at the 10% and 5% level for PLS, and PFERD estimation, respectively. However, the coefficient of press freedom is significant at the 1% level only in the PFERD estimation.

Table 2 Impact of other indicators of democracy on controlling corruption [a]

	All Countries			Excluding Outliers		
	CL	Press	DEMO 1	CL	Press	DEMO 1
PLS	0.038[*]	0.031	-0.012	-0.003	-0.021	-0.060[***]
	(0.022)	(0.028)	(0.019)	(0.024)	(0.030)	(0.020)
PFERD	0.051[**]	0.085[***]	0.020	0.011	0.030	-0.025
	(0.022)	(0.026)	(0.018)	(0.023)	(0.027)	(0.019)

Standard errors are in parenthesise. [***], [**], [*] indicate significance level at the 1%, 5% and 10% respectively. The adjusted R^2 ranges between 0.75 and 0.96 for the eighteen specifications.
[a] All estimates include a constant as well as all the control variables incorporated in the base equation (not reported).

Conversely, PLS and period and regional dummies estimation results, by the excluding outlier countries, show some mixed results for civil liberties and press freedom. Where the coefficients of civil liberties and press freedom are negative for PLS, however, the coefficients become positive for PFERD estimations. The estimation results for the individual

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[14] Outlier countries are Hong Kong, Malta, Serbia and Montenegro and Singapore.

components of democracy suggest that political rights, civil liberties and press freedom alone can not produce enough support to control corruption. Moreover, political rights even confirm the significant increase in corruption in various specifications.

In the next step, the study combines political rights and civil liberties represented by DEMO1 to see the combined effects of political rights and civil liberties on controlling corruption. The coefficient of DEMO1 is negative in both the cases (i.e., all countries and excluding outliers) for the PLS estimation and it is significant at 1% level for excluding outlier countries. The PLS estimation results by excluding outlier countries indicate that the combined democracy index (DEMO1) has a greater impact on controlling corruption as the magnitude of the coefficient and the significance level have increased in comparison with civil liberties and press freedom alone. Likewise, DEMO2 which combines political rights, civil liberties and press freedom has a much stronger effect on controlling corruption than DEMO1. More interestingly, the magnitude of the coefficient increases from 0.060 to 0.170 and this increase in the coefficient is solely due to the effect of press freedom indicator added in broad democracy index. Indeed, the broad democracy index DEMO2 generates a much sharper estimate of the effect of democracy on controlling corruption than DEMO1 for all the estimation specified above i.e., for excluding outlier countries as well as for all countries. The result strongly supports the findings of Knack and Keefer (1995), which state that Freedom House political rights and civil liberties indicators are insufficient proxies for the quality of institutions. Finally, political rights (i.e. the narrowly defined democracy) increases corruption at a higher rate compared to the other components of democracy in all specification noted earlier.

5. Sensitivity Analysis

5.1. Cross-section results

This section presents the ordinary least square (OLS) analysis of democracy-corruption relationship using a 10-year average of the period from 1995 to 2004. It is of interest to note here that corruption perception index varies more across countries than over time. For this reason it is important to estimate the cross-sectional effect which most of the empirical studies have examined to measure the causes of corruption.[15]

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[15]See for example, Sandholtz and Koetzle (2000), Treisman (2000), Brunetti and Weder (2003).

The OLS estimation results are reported in Table 3. Columns (11), (12) and (13) show the political rights index, and columns (14), (15) and (16) are DEMO2 i.e. the broad democracy index. Column (11) estimates the base specification in equation (1) and the result indicates that the coefficient of political rights is positive and significant at the 1% level and the magnitude of the coefficient is greater than the PLS estimation shown in column (1). Column (12) includes four regional dummies i.e. Asia, Latin America, Africa and Eastern Europe as further control variables. The British colony and federal states are further incorporated as additional control variables with the base equation shown in column (13). However, the inclusion of these additional control variables does not change the sign of political rights coefficient although the significance level decreases. It is worthwhile to note that the sign of the coefficients of federal state and British colony in column (13) confirm the claim and findings of Shleifer and Vishny (1993), and Treisman (2000) that federal state increases the opportunities of corruption. On the contrary, British colonies are less corrupt.

Table 3 Democracy and corruption: OLS estimation
Dependent variable: corruption perception index

	PR			DEMO2		
	(11)	(12)	(13)	(14)	(15)	(16)
PR	0.133***	0.116**	0.125**			
	(0.052)	(0.047)	(0.053)			
DEMO2				-0.069	-0.003	-0.077
				(0.063)	(0.059)	(0.064)
Log(RGDP)	-0.832***	-0.577***	-0.868***	-0.856***	-0.647**	-0.919***
	(0.235)	(0.269)	(0.243)	(0.242)	(0.277)	(0.247)
Gini index	0.036**	0.042**	0.036**	0.027*	0.034*	0.025
	(0.02)	(0.018)	(0.016)	(0.016)	(0.019)	(0.017)
Unemployment	0.007	0.014	0.005	0.013	0.018	0.010
	(0.015)	(0.013)	(0.015)	(0.015)	(0.014)	(0.015)
Literacy rate	0.020**	-0.006	0.019*	0.031***	-0.010	0.030***
	(0.010)	(0.011)	(0.010)	(0.010)	(0.012)	(0.010)
EF	-0.953***	-0.815***	-0.927***	-0.069***	-0.650***	-0.693***
	(0.120)	(0.123)	(0.123)	(0.120)	(0.119)	(0.121)
Asia		1.189***			1.133***	
		(0.353)			(0.372)	
Latin America		0.756			0.964*	
		(0.508)			(0.517)	
Africa		-0.155			-0.228	
		(0.519)			(0.535)	
Eastern Europe		1.482***			1.552***	
		(0.368)			(0.384)	
Federal state			0.104			0.298
			(0.330)			(0.336)
British colony			-0.268			-0.347
			(0.277)			(0.281)
Constant	13.294***	11.923***	13.749***	12.713***	12.239***	13.486***
	(1.924)	(2.334)	(2.015)	(2.008)	(2.426)	(2.080)
Observations	99	99	99	99	99	99
Adjusted R-squared	0.821	0.848	0.808	0.799	0.837	0.799

Standard errors are in parenthesise. ***, **, * indicate significance level at the 1%, 5% and 10% respectively.

Likewise columns (14), (15) and (16) results are with OLS estimations for the broad democracy indicator DEMO2. The results show that the sign of DEMO2 remains same as expected, however, the significance level decreases. The OLS estimation results strongly confirm our hypothesis that a narrow democracy measured by political rights is not sufficient to reduce corruption; instead it may increase corruption during the transition period. On the contrary the result finds a slightly weaker support that a broad democracy is crucial for combating corruption.

5.2. Alternative corruption index

The panel and cross-section estimations show the results for the specific measure of corruption. It raises the question whether these results are the characteristics of specific data since corruption perception indices are based on subjective measurement. In order to address this issue the study uses an alternative measure of corruption indicator as a control of corruption constructed by Kaufmann et al., (2005).

Table 4 Democracy and an alternative measure of corruption (dependent variable: average control of corruption index for the period 1996 – 2004)[b]

	PR	DEMO2
Democracy indicator	0.046	0.201[***]
	(0.041)	(0.045)
Observations	99	99
Adjusted R-squared	0.846	0.872

Standard errors are in parenthesise. *** indicates significance level at the 1%, level.
[b] Both estimates include a constant as well as all the control variables incorporated in the base equation (not reported).

Table 4 manifests the OLS estimation results of the impact of two different indicators of democracy on the control of corruption index. In both the cases the coefficients of democracy indicators are positive suggesting that a high level of democracy increases control of corruption and only DEMO2 coefficient of is significant at the 1% level. The coefficient of narrow democracy is not statistically significant and the magnitude of the coefficient is far less than the coefficient of DEMO2. The results strongly support the hypothesis that broad democracy plays more effective and significant role on combating corruption than narrow democracy.

6. Non-linear estimation

From the earlier evidence noted above it is seen that narrow democracy increases corruption and broad democracy reduces corruption. The results suggest that the non-linear relationship may exist between democracy and corruption. Because, as democracy expands the various components of it develop and interact with each other which in turn make the effect of democracy more strong and effective. Thus, in the beginning of democratisation, narrow democracy along with weak institutional structure increases the opportunity of corruption, however in the process of democratisation the level is reached where democracy exhibit a stronger impact on controlling corruption. To evaluate this possibility systematically the study re-estimates the model based on equation (2) by utilising PLS and PFERD for various components of democracy and the combined democracy indices. The estimation results of the interested variables (democracy and democracy^2) are presented in Table 5.

Table 5 Estimated results for the non-linear relationship between corruption and various components of democracy and combined democracy indicators: Corruption perception index as dependent variable[c]

	PR	PR^2	CL	CL^2	Press	Press^2	Demo1	Demo1^2	Demo2	Demo2^2
PLS	0.572***	-0.048***	0.648***	-0.058***	0.937***	-0.091***	0.604***	-0.064***	0.606***	-0.082***
	(0.051)	(0.005)	(0.054)	(0.005)	(0.074)	(0.007)	(0.047)	(0.005)	(0.051)	(0.013)
PFERD	0.330***	-0.025***	0.292**	-0.023***	0.471***	-0.040***	0.306***	-0.030***	0.294***	-0.038***
	(0.050)	(0.004)	(0.056)	(0.005)	(0.078)	(0.008)	(0.053)	(0.005)	(0.059)	(0.007)

Standard errors are in parenthesise. ***, **, * indicate significance level at the 1%, 5% and 10% respectively. The adjusted R^2 ranges between 0.75 and 0.84 for the ten specifications.
[c] All estimates include a constant as well as all the control variables incorporated in the base equation (not reported).

Both estimation results confirm non-linear relationships between democracy and corruption as the two democracy variables retain the expected sign and the same statistical significance level of 1% for different components of democracy and the two combined democracy indicators. In addition, the inclusion of the second-order polynomial term improves the model's goodness of fit by about 6% for the PLS. The negative sign obtained for the second-degree polynomial democracy indicator reveals that a concave function better fits the data than the linear function. The turning points of the non-linear model where the relationship changes its direction from positive to negative for different democracy indicators are shown in Table 6. The turning points for narrow democracy and broad democracy indicators are in the range of 6 and 4, respectively, in the democracy scale of the sample. The results in Table 5 and Table 6 suggest that undemocratic countries with extremely low scores on the democracy index experienced an increase in the corruption level in the early stage of democratisation. The corruption level increases until they reach the turning point at which the average level of

corruption is at its maximum and once past the turning point corruption level is substantially lower at the mature stage of democracy with consolidated democratic institutions.

Table 6 Turning points of various democracy indicators

	PR	CL	Press	DEMO1	DEMO2
OLS	5.958	5.586	5.148	4.719	3.695
PFERD	6.6	6.348	5.888	5.1	3.868

The turning points of various democracy indicators in Table 4 demonstrate that the level of turning point decreases as a country shifts from narrow democracy towards broad democracy. For example, the turning point of DEMO2 (broad democracy) is about 4 which is the lowest value compared to other democracy indicators. The transition stage can be best portrayed by 'early childhood' of democracy where transition countries retain the political rights, however, the lack of presence of other components of democracy i.e., civil liberties, press freedom, legal system, democratic institutions, etc. In the context of democratic transition, Herge et al. (2001) find that intermediate regimes are less stable than autocracies and which, in turn, are less stable than democracies. They further point out that durable democracy is the most probable end-point of the democratisation process. In that advanced level of democracy, countries can retain high levels of political rights, civil liberties and press freedom with strengthening democratic institutions and reap the benefits of anti-corruption reforms much earlier. The interesting point to note here is that the stage of advancement of democracy runs in a direction presented in Table 6. This direction of democratic reforms is also quite evident from the various democracy indicators in the sample. The observed direction can be expressed as high level of press freedom that also implies high level of political rights but not the other way round. Table 7 confirms that no country exists where press freedom is high but political rights are low.

Table 7 Number of countries possesses different levels of political rights and press freedom in the sample

High PR High press freedom	54	High PR Low press freedom	11
Low PR High press freedom	0	Low PR Low press freedom	33

The average political rights and press freedom score of 5, or more than 5 indicate high freedom and less than 5 indicates low freedom.

Overall the estimation results presented in Table 5 and 6 indicate that there exist a non-linear relationship between democracy and corruption which is robust to various specifications and for the alternative democracy indicators. The coefficients of the nonlinear regressions suggests that corruption is slightly lower in autocracies than in narrow democracies and once

past a threshold point corruption is substantially lower in broad democracies. It is also worth noting that the strength of anti-corruption effects increases with democratic reforms and it is most effective in advanced, matured and consolidated broad democracy.

7. Conclusions

The empirical analysis presented in this paper reveals that an 'electoral democracy' represented by 'political right' does not produce sufficient checks against corruption. Instead, it aggravates the level of corruption in transition countries when compared with autocratic regimes. By way of contrast, an advanced mature democracy significantly restrains corruption levels. The results remain robust under various estimations and for alternative measures of corruption. The non-linear regression results also confirm that democratisation increases corruption in the early stage of democratic reforms; once past the threshold point the corruption level decreases substantially in a well-functioning matured democracy.

The empirical evidence obtained in this analysis is also coherent with the earlier studies. It confirms that the number of years of democracy plays an important role in reducing corruption rather than current level of democracy. The road to democracy is complicated and transition countries do not become mature consolidated democracies overnight. As democratisation is a prolonged process hence, well-functioning advanced mature democracy requires years to build up. This study also finds that political rights play no significant role on curbing corruption. Moreover, political rights framed as narrow democracy increases corruption in transition countries. In addition, the results support the non-linear relationship between democracy and corruption. Despite the high level of corruption among intermediate democracies where democracy is narrowly formed, the consolidation of advanced democratic institutions along with political rights, civil liberties and press freedom eventually reduces corruption. Ultimately, the initial narrow democracy with the process of democratisation achieves the final democratic ends over time, which reduces corruption.

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Appendix Table A1: Description of Variables and Data Sources

Variables	Data Source
Corruption Perceptions Index	Transparency International http://www.transparency.org/policy_research/surveys_indices/cpi.
Real GDP Per Capita (1990 US dollars)	Groningen Growth and Development Centre http://www.ggdc.net/index-dseries.html.
Gini Coefficient	WIDER World Income Inequality Database http://www.wider.unu.edu/wiid/wiid.htm.
Unemployment Rate	Political Risk Year Book, Political Risk Services, The PRS Group, Inc., 2005. http://www.prsgroup.com/
Adult Literacy Rate	World Bank (2005) World Development Indicators.
Democracy Indicators	Freedom House http://www.freedomhouse.org/uploads/fiw/FIWAllScores.xls.
Economic Freedom	The Heritage Foundation http://www.heritage.org/index/ , 2006.
Federal States	Treisman (2000)
British Colony	Treisman (2000)
Control of Corruption	World Bank (2005), Governance Database.

Appendix Table A2: Description of Variables and Data Sources

	CPI	CONCR	PR	CL	Press	RGDP	ALR	GINI	UNEM	EF
Mean	5.553	4.857	6.232	5.904	5.460	9102.440	87.812	38.556	12.254	4.832
Median	6.300	4.320	6.667	6.667	5.350	6463.000	95.740	37.550	9.250	4.875
Maximum	10.00	9.440	10.000	10.000	9.500	36341.00	100.000	63.700	42.000	9.275
Minimum	0.000	0.140	0.010	0.100	0.010	204.000	33.590	20.000	0.400	0.000
Std. Dev.	2.669	2.305	3.663	3.165	2.556	7702.218	16.311	8.970	9.847	2.078
Observations	1000	603	982	982	1000	1000	1000	1000	1000	999

	RGDP	UNEM	GINI	ALR	ECONF	PR	CL	MEDIA
RGDP	1.000000	-0.461014	-0.489911	0.485131	0.802983	0.616750	0.680389	0.711891
UNEM	-0.461014	1.000000	0.196256	-0.414917	-0.460696	-0.324730	-0.341442	-0.362504
GINI	-0.489911	0.196256	1.000000	-0.287164	-0.339636	-0.358312	-0.408463	-0.395141
ALR	0.485131	-0.414917	-0.287164	1.000000	0.404930	0.501018	0.523053	0.494124
ECONF	0.802983	-0.460696	-0.339636	0.404930	1.000000	0.710753	0.748960	0.762098
PR	0.616750	-0.324730	-0.358312	0.501018	0.710753	1.000000	0.939979	0.923257
CL	0.680389	-0.341442	-0.408463	0.523053	0.748960	0.939979	1.000000	0.933238
MEDIA	0.711891	-0.362504	-0.395141	0.494124	0.762098	0.923257	0.933238	1.000000

	CORR	POLR	RGDP	GINI	UNEM	ALR	ECONF
Mean	5.561448	6.236266	9019.762	38.54852	12.32712	87.72498	4.818336
Median	6.300000	6.666667	6439.000	37.50000	9.300000	96.00000	4.875000
Maximum	10.00000	10.00000	36341.00	63.70000	42.00000	100.0000	8.650000
Minimum	0.000000	0.010000	204.0000	20.00000	0.400000	33.59000	0.000000
Std. Dev.	2.654438	3.662200	7639.436	9.007044	9.907989	16.44402	2.032601
Observations	981	981	981	981	981	981	981