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Sociopolitical Institutions and Corruption: Does Conditionality Matter?

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Abstract

This study estimated the impact of social and political institutions on corruption, and also explored whether conditional cooperation matters or not. The study has used GMM method to estimate the panel data model for Developing Eight countries. The empirical results indicate that education affect corruption negatively, whereas urbanization positively. The interaction term shows that press freedom positively impacts corruption in countries having poor democratic norms, and negatively in case of higher degree of democracy such as Indonesia and Bangladesh. Although, these empirical findings are based on only Muslim countries, but have important implications for policy makers. Economic managers should focus the nation's educational system, democracy, and liberty of speech and media to restraint the corruption.

Keywords: Corruption, Democracy, Press Freedom, Law & Order, Urbanization, Education, Conditionality

JEL classification: C33, D02, D40, D72, H8, K4

1 Introduction

Corruption is a universal phenomenon that has affected global human society all over the time. The contemporaneous scandals of the world sparked the public annoyance and concentration of prudent media has played a very essential role in forming the people's electoral behaviour. Public sector corruption is the biggest hindrance in the development of a country because it has negative impact on investment and economic growth (Mauro, 1995). Therefore, anticorruption policies are an urgent need of the time to save the economies from corruption detriments but for effective anticorruption strategies, thorough understanding of the factors that impact corruption is very essential.

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Previous research on determinants of corruption indicates that democracy, press freedom, education, law & order, economic freedom, government size and economic development have negative impact on corruption (Shabbir and Anwar, 2007; Blackburn and Forgues-Puccio, 2010; Ata and Akif, 2011; Blackburn, 2012; Kotera, Okada, and Samreth, 2012). Persson and Tabellini (2000) proposed a channel (press freedom) through which democracy can influence the level of corruption. In this framework, existence of press freedom highlights the cases of public corruption to the voters and in turn voters punish the corrupt politician by throwing them out of public offices under the umbrella of democracy. Thus, elected politicians curb corruption to react the voters. Kalenborn and Lessmann (2013) investigated the joint impact of press freedom and democracy on corruption, and argued that these institutions are complements rather than substitute in curbing the corruption.

The survey results of the Transparency International (TI) indicate that countries having strong democratic norms and liberty of media are least corrupt in the world e.g. Denmark, Finland, New Zealand, Iceland, etc. Almost all developing countries and especially Muslim nations are at the lower edge of the TI corruption scale and these economies are more smashed from corruption. For example, Pakistan has lost more than Rs8.5 trillion (US$94 billion) in corruption, tax evasion and bad governance during the last four years of Pakistan People Party (PPP) tenure (Transparency International Pakistan, 2012). African Union estimates show that about 25% of Africa's GDP (US$148 billion annually) is paid in the form of illegal payments. Besides, some governments in developing countries have resigned from their office on corruption allegations like Rajiv Gandhi's government in India, Chuan Leekpai's government in Thailand, Suharto and Abdur Rehman Wahid's governments in Indonesia, General Sani Abacha's administration in Nigeria and Muslim League (N) and Pakistan People Party governments in Pakistan. In addition, religion especially Islam has very crucial role in founding the cultural values. Thus, This study has considered the case of Developing Eight (D-8) to analyse the role of sociopolitical institutions in determining the level of corruption, as these are practicing the Western Democracy, liberalizing their press & media and still having higher level of corruption relative to the rest of the world.

The rest of the study is organized as follows. Section 2 gives brief review of exiting literature on the subject. Section 3 deals with the theoretical background and analytical framework. Section 4 demonstrates the panel data models and econometric methodology. Section 5 gives detail of data description.

Section 6 is specified for empirical results and discussion. Last section 7 presents study's conclusions and policy implications.

2. Literature Review

Empirical literature has identified a number of factors that significantly impact the corruption, and also include the linkages between corruption and sociopolitical institutions. For example, Treisman (2000) has mentioned the determinants of corruption such as Protestant traditions, British rule's history, democratic norms' strength, economic development and quantity of imports. But, according to Shleifer and Vishny (1998), "the biggest cause of corruption is undoubtedly the political leadership at the helm of affairs in the country". Brunetti and Weder (2003) argued that freedom of media hurts corruption. Similarly, Glaeser and Saks, (2006) documented "economic development and education decrease corruption, whereas income inequality and racial fractionalization raises the level of it". Goel and Nelson, (2010) reported that historical and geographical factors, size and scope of government have significant impact on corruption rates. Dong, Dulleck and Torgler (2012) documented that larger cities are more corrupt than smaller ones.

Besides, empirical literature documented that the impact of formal institutions on corruption is only possible at macro level in the cross-country context. Theoretical models of democracy predict that it lowers the level of corruption mainly due to political competition. According to Treisman (2000), "in democratic systems, competitors for office have an incentive to discover and publicize the incumbent's misuse of office whenever an election beckons". Therefore, it increases the probability of detection of corruption. Ades and Di Tella (1999) investigated the relation between democracy and corruption using political rights as a measure of democracy and found that fewer political rights are correlated with lowers level of corruption. Goldsmith (1999) found that political democratization is significantly adversely correlated with political corruption. The other studies that supported these findings are Chowdhury (2004), Goel and Nelson (2005), Emerson (2006), Billger and Goel (2009). On the other hand, Ades and Di Tella (1997) failed to found any significant impact of political rights on corruption. Fisman and Gatti (2002) examined this relation using civil liberties as a proxy for democracy and failed to provide any evidence for this relationship. Triesman (2000) also did not find a significant relationship between democracy and corruption; however he predicted that length of democracy may be help in curbing the corruption.

On the other hand, Persson and Tabellini (2000) proposed a different channel (press freedom) through which democracy can influence the level of corruption. In this framework, existence of press freedom highlights the cases of public corruption to the voters and in turn voters punish the corrupt politician by throwing them out of public offices under the umbrella of democracy. Thus, elected politicians curb corruption to react the voters. Following, Persson and Tabellini (2000), Chowdhury (2004) documented that press freedom affects the state of corruption through voters' knowledge about democracy and selection of political parties. Kalenborn and Lessmann (2013) estimated the effect of democracy on corruption through media liberty. They argued that institutional features such as press freedom and democracy are complements rather than substitute in curbing the corruption. In addition, they documented that mechanism of democratic elections in curbing corruption work only, if the country has achieved certain level of media freedom and vice versa. But recent literature on the relation between institutional factors and corruption with few exceptions has failed to explain it in the presence of their interaction term. Therefore, focus of the study in hand is to empirically analyse the impact of socioeconomic factors and political institutions on corruption through interaction term between these institutions.

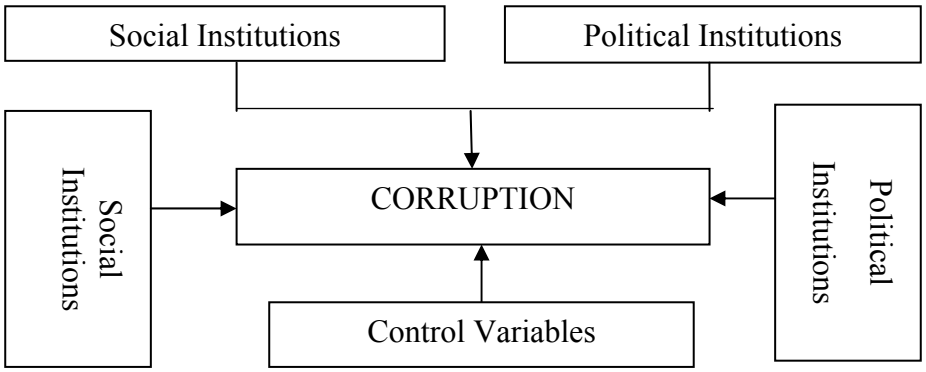
3. Theoretical Background and Analytical Framework

The earlier theoretical models of corruption are primarily based on principal–agent relationship between public servants and society, according to which rational individuals (bribe taker /giver) consider the relative costs and gains of committing the corrupt act (Becker, 1968; Becker & Stigler, 1974). Prospective gains of corruption include disproportionate favours that public servant may be able to provide (Shleifer and Vishny, 1993) or they may involve cutting bureaucratic red tape (Guriev, 2004). Potential costs of illegal activities include the costs of detection and penalty. The rational and corruptible public officials always equalize the marginal gains of legal activities with the marginal gains of illegal activities. The net gains depend on the size of expected gains from illegal activities minus the probability of detection and penalty. Therefore, reduction in corruption can be materialized either by increasing the gains from legal activity or increasing the possibility of corruption detection and the magnitude of penalty.

The role of sociopolitical institutions can be described through conceptual framework shown in the Figure 1. The figure shows that social and political institutions have direct impact on corruption, and indirect through their interaction term. The level of corruption is inversely related to political institutions such as

democracy, press freedom and law & order. This implies that higher democratic norms, higher degree of press freedom and improvement in law & order lowers the level of corruption through increasing the probability of the detection of corrupt act and, then punishment. Similarly, social institutions such as urbanization, education and female labour participation also significantly contribute in controlling the corruption.

Figure 1: Sociopolitical Institutions and Corruption



The direct effect of sociopolitical institutions on corruption can be presented with the help of function shown in Equation (1).

$$CORR = f\left(\bar{DM}\ ,\ \bar{PF}\ ,\ \bar{LO}\ ,\ \bar{FP}\ ,\ \bar{EU}\ ,\ \overset{+}{UR} \right) \qquad (1)$$

Where, CORR shows the level of corruption, DM democracy, PF press freedom, LO law & order, FP female labor force participation, EU education, and UR urbanization. Equation (2) is used to estimate the effects of social and political institutions on corruption.

$$CORR_{it} = \alpha_0 + \sum \alpha_c X_{itc} + \sum \delta_j Y_{itj} + \mu_{it} \qquad (2)$$

Where, X_{itc} indicates a set of control variables (economic factors) to estimate the impact of social and political institutions on corruption. The most important and commonly used control variable is economic development that is used to remove the mediation effect (Mauro, 1995; Chowdhury, 2004 and Aidt, 2010). In addition, following Saha, Gounder, and Su, (2009), we used unemployment, income inequality, and government size as control variables. Thus:

X_1= Economic development (ED) X_2 = Unemployment (UN)

X_3 = Income inequality (II) X_4 = Government Size (GS)

And Y_{itj} is the set of sociopolitical institutions that include:

Y_1 = Press freedom (PF) Y_2 = Democracy (DM)

Y_3 = Education (EU)

Y_4 = Female labour force participation (FP)

Y_5 = Urbanization (UR) Y_6 = Law & Order (LO)

Subscript i is used to present the country (i = 1, 2,….., n) and t is used for time (t = 1, 2,…..,T), and μ is an error term. The focus of study is on the impact of sociopolitical institutions, so δ_1 to δ_6 are the coefficients of main interest. The expected sign of the coefficient of democracy is negative ($\delta_1<0$). This means, corruption can be lowered by strengthening democratic norms, as it requires more transparency and accountability that increases the costs of rent-seeking and corruption. Thus, strengthening democracy norms lowers the returns of rent-seekers and public servants (Mohtadi and Roe, 2003). The value of δ_2 is expected to be negative ($\delta_2 <0$). Because, media liberty in democratic societies empower the public in approaching to information, ask questions, demand inquiries and share their findings and in some countries, communicate their grievances directly to the responsible authorities (Shabbir and Anwar, 2007).

The relationship between level of education and corruption is expected to be negative, i.e., $\delta_3<0$.An incidence of corruption depends on probability of detection and punishment, as higher education level enables people to explore corrupt activities and punish corrupt officials. One more cultural variable that effects corruption is female labour participation. The expected sign of the coefficient of female labour participation is negative ($\delta_4<0$). This means, an increase in the proportion of female in labor hurts corruption.

Urbanization is another socio-cultural variable that has significant effect on corruption. Various studies concluded that increase in urbanization promotes corruption, so the expected value of the coefficient associated with urbanization is positive ($\delta_5 >0$). As, in urban environment, family and religion norms become weaker and lose their control required to take countervailing actions against corruption. Dong, Dulleck,and Torgler, (2012) argued that larger cities are more corrupt as compare to smaller ones. Moreover, in larger cities, public servants

may be less personal than those in smaller ones, which lower the bribery opportunity costs (Mocan, 2008).

Literature also reveals that law and order conditions prevailing in the country play role in determining the corruption level. Ali and Isse (2003) conclude that nation's corruption level depend on the government effectiveness in law enforcement. In addition, lax legal and judicial systems are unable to identify illegal payments and fruitfully punish the corrupt agents. According to Elbahnasawy and Revier, (2012), improvements in law and order conditions increases the possibility of discovering and punishing mal-practices. Similar findings are reported by La Porta et al. (1998) and Treisman (2000). Therefore, countries having lax laws and incompetent judicial systems are likely to be corrupt, and expected sign of the coefficient of law and order is negative ($\delta_6 < 0$).

Following Saha, Gounder, and Su, (2009), and Kalenborn and Lessmann, (2013), we introduce the interaction term in the model to examine the marginal impact of one institution in the presence of other institution. For example, we make use of interaction term (democracy × press freedom) in the model as shown in equation (3) below.

$$CORR_{it} = \alpha_0 + \sum \alpha_c X_{itc} + \gamma_1 Y_{it1} + \gamma_2 Y_{it2} + \gamma_3 (Y_{it1} \times Y_{it2}) + \mu_{it} \qquad (3)$$

Where, α_c shows the coefficients of control variables, γ_1, γ_2 and γ_3 are the main coefficients of our interest. The interpretation of γ_1 and γ_2 is as usual as they indicate marginal effects. But the explanation of coefficient of interaction expression (γ_3) is not as usual. We used equation (4) to calculate the impact of interaction term's coefficient and its relevant marginal effects.

$$\frac{\partial CORR_{it}}{\partial Y_{it1}} = \gamma_1 + \gamma_3 Y_{it2} \qquad (4)$$

The coefficient γ_3 captures the interaction effect of socio-political institution such as press freedom and democracy. Equation (4) indicates that press liberty effect on corruption depends on the conditional variable (democracy).

4. Panel Data Models and Econometric Methodology

We used panel data models such as Fixed Effects (FE) model and Random Effects (RE) model to estimate the impacts of sociopolitical institutions on corruption. Because panel data set combines the data for N cross-sections and T time periods. The panel data analysis is a good deal in addressing the multi-collinearity problem and the issue of measurement error of various variables. Panel data models investigate the fixed and/or random effects of individual unit or

time. The FE effects model captures all effects that are definite to a particular entity and not vary over time. Thus, FE consider all the things like geographical factors, natural gifts and any other fundamental feature that vary among nations but remain constant over time. On the other hand, the core assumption of RE model is individual effect (heterogeneity) that is not correlated with any regressor and estimates error variance specific to cross-section units (or times). Thus, RE model is named as 'Error Component Model'. In random effects model, intercept for each section is not fixed, rather a random parameter. RE model specification also assumes that the effect is uncorrelated with the idiosyncratic residual. The selection of FE/RE model is based on the test, called Hausman test.

In addition, we used F-test to test the null hypothesis that all dropped dummy parameters are zero, against the alternative hypothesis that at least one dummy parameter is not zero. The p-value of the F-test supports to rejection of null hypothesis and concludes that we should include fixed effects in the model, which implies that intercepts are not same and fixed effects model is better than pooled OLS. The least square estimation method assumes exogeneity of regressors, which implies that the disturbances are not correlated with any regressors. The violation of this assumption creates the problem of endogeneity, which makes OLS estimators inconsistent. According to Kotera et al., (2012), "the OLS estimator may be biased due to endogeneity issues resulting from reverse causality, omitted variables and measurement error". Following Mauro (1995), we examine the causality between corruption and its determinants, and found reverse causality between corruption and income per capita. It is not easy to identify appropriate instruments for all variables (Kotera et al., 2012). Thus we have used GMM estimation, as it uses lagged values of the variable as instruments.

In addition, it also controls the time invariant components (religion, geographic and historical factors), taking the first-difference. Griliches and Hausman (1986) pointed out that panel data with measurement error provides consistent estimators of the parameters without any external information such as validation or replicate data set. We also used the Wald-test for the test either instrument is highly correlated with explanatory variable or not. We used Hansen J-statistic to test the over identification of restrictions (whether the extra included instruments are uncorrelated with the error term or not).

5. Data Description and Sources

We have used panel data set for D-8 nations for the period 1995-2013 to estimate the impact of sociopolitical institutions on corruption. We have used two

subjective measures of corruption International Country Risk Guide's (ICRG) corruption index and Corruption Perception Index (CPI).The ICRG index measures the risk involved in corruption and estimates the degree of political corruption in a political system. International Country Risk Guide's (ICRG) corruption index is compiled by the Political Risk Services (PRS). ICRG's corruption index indicates the views of analysts about each nation, regarding the amount of illegal money which government officials demand. The index ranks the world community on a scale from 0 to 6. This implies that a score of 0 represents the nation is totally corrupt while the value of 6 indicates totally clean. We have rescaled the index by subtracting each country's scores from 6for the ease in interpretation of results. Second measure of corruption used by the study is CPI, constructed by Transparency International (TI). This index is based on a 'poll of polls' that shows the feelings of businessmen, local population, and risk analysts, who are included in the survey. It is an 'index of indices' that take the mean value of scores of sixteen different surveys and it is necessary for a nation to be included in the index that it has been included at least in two of the surveys. This index scaled the world's nations from 0 to 10[2]. The higher value of scale indicates lower level of corruption; 10 indicate totally clean nation and 0 totally corrupt one. This index is also rescaled by subtracting nation's scores from 10 to direct relationship between its value and corruption level.

The other variables used by the study are economic development or economic prosperity measured by the per capita GDP, government size measured by the real general government final consumption expenditure, urbanization measured by the ratio of urban population to total population, female participation in labour force measured by female labour force participation rate, education measured by the gross secondary school enrolment rate, income inequality measured by Gini coefficient and unemployment. The institutional variables are democracy, press freedom and, law and order situation. Variables' description and data sources are shown in the Table 1.

6. Empirical Results and Discussion

The countries' averages shown in the Table 2 indicate that the countries having more democratic norms are enjoying the lower level of corruption such as Indonesia, Malaysia, Turkey and Bangladesh. The nations with poor democratic performance are facing higher corruption level, for example Nigeria, Pakistan and

[2] Transparency International survey 2013 has scaled the index from 0 to 100.

Egypt. Iran is a single country in the sample that has lower corruption level in spite of poor democratic norms.

Table 1: Variables and Data Sources

Variable	Description and Data Sources
CORR	Corruption is measured by the log of Transparency International (TI) corruption index. This index is a "poll of polls", which indicate impressions of businessmen, local population of relevant countries and risk analysts, who have been surveyed. We have rescaled and higher value show higher level of corruption and vice versa. Source: TI corruption perception index (1995-2013).
ED	Economic development measured by the log of Gross Domestic Product (GDP) per capita based on purchasing power parity[3]. Source: World Development Indicator (WDI-2013).
IN	Inflation, consumer prices (annual %). Source: WDI (2013).
II	Income inequality measured by the log of GINI index. Source: WDI (2013).
UR	Urbanization measured by the share of the total population living in areas defined as urban by each country. Source: WDI (2013).
GS	Government size measured by the log of government consumption expenditure, 1984-2013. Source: International Financial Statistical (IFS-2013).
EU	Education measured by the log of gross secondary school enrolment rate. Source: WDI (2013).
UN	The data on unemployment is collected from World Economic Outloook (WEO), IMF publication.
EF	Economic Freedom is measured by the log of globalization index commonly used for economic competition through openness. Source: Dreher, Axel (2006), Does Globalization Affect Growth?
FP	Female participation in the labour force measured by the log of female labour force participation rate, (% of female population ages 15-64). Source: WDI (2013).

The correlation between corruption and media liberty indicates that the nations with more press freedom are having lower corruption level such as Iran and Malaysia; whereas the countries that have less freedom of speech and media are facing the problem of higher corruption level, for example Pakistan, Bangladesh and Nigeria. Indonesia and Turkey are the nations that have less press freedom

[3] Purchasing power parity based gross domestic product means GDP that is converted into international dollars using purchasing power parity rates. Whereas, an international dollar has the same purchasing power over GDP as the US dollar has in the United States.

and lower corruption level as well. On the other hand, Egypt is single country in the sample that has more freedom of media and also having higher corruption level. Thus, the relationship between corruption and press freedom does not predict a systematic pattern. The relationship between corruption and law & order reveals that the countries with better law & order conditions are successful in controlling the corruption level such as Iran, Malaysia and Turkey. The nations with poor law & order situations are also facing the problems of higher corruption level like Nigeria, Bangladesh and Pakistan. But Egypt is the nation that has higher corruption level along with having better law & order conditions. Thus, it is concluded from these relationships that corruption has inverse association with democracy and law & order; whereas it has no systematic pattern in relation with press freedom.

Table 2: Countries' Average of Corruption and Institutional Factors

Countries	Corruption (1)	Democracy (2)	Press Freedom (3)	Law & Order (4)
Bangladesh	3.97	5.85	59.73	2.29
Egypt	4.02	4.21	68.05	3.75
Indonesia	3.76	6.18	57.52	2.92
Iran	3.47	3.25	81.52	4.33
Malaysia	3.13	5.53	65.84	3.94
Nigeria	4.58	3.98	60.42	2.25
Pakistan	4.01	4.09	60.42	3.18
Turkey	3.55	5.24	57.53	4.09

Source: calculated by the researchers

We have applied causality test proposed by Dumitrescu-Hurlin (2012) before estimating the panel data models such as fixed effects model and random effects model, as it assumes that all coefficients are different across cross-sections. The panel causality test results indicate a reverse causality between corruption and GDP per capita, which is the one of the reasons for endogeneity. We have estimated model of socio-political determinants of corruption without and with the mutual impact of sociopolitical institutions.

6.1 Sociopolitical Institutions and Corruption

We have used GMM estimation method using the log of corruption indices as dependent variable and log of all other variables as well. We opted two

stage least square (TSLS) weighting matrix and panel corrected standard error (PCSE) robust covariance methodology to address the problem of cross-section correlation (period clustering). The results of fixed effects model and random effects model are reported in the Table 3.

Table 3: Sociopolitical Institutions and Corruption

	Fixed Effects		**Random Effects**	
	GMM		**GMM**	
Variable	**CPI**	**ICRG**	**CPI**	**ICRG**
Constant	3.6451 (8.566)***	4.6457 (3.719)***	3.4856 (11.013)***	1.6432 (3.668)***
Eco. Development	-0.5124 (-4.015)***	-1.1241 (-3.265)***	-0.4579 (-4.134)***	0.0518 (0.341)
Education	-0.0020 (-2.662)***	-0.0038 (-2.254)**	-0.0015 (-2.572)***	-0.0015 (-1.117)
Urbanization	0.0069 (2.722)***	0.0077 (4.149)***	0.0054 (2.171)**	0.0053 (2.564)***
Press Freedom	0.0014 (1.854)*	0.0351 (6.602)***	0.0014 (2.477)***	0.0033 (1.045)
Democracy	-0.0207 (-2.508)***	-0.4854 (-6.162)***	-0.0189 (-1.952)**	-0.2437 (-3.878)***
Law & Order	-0.0182 (-1.710)*	-0.1582 (-5.881)***	-0.0186 (-1.894)*	-0.1665 (-5.521)***
R-squared	0.9075	0.6554	0.3171	0.3541
Adj. R-squared	0.8971	0.6168	0.2838	0.3207
J-statistic (P-Value)	9.4768 (0.1485)	6.3612 (0.3839)	8.7009 (0.1911)	7.4274 (0.3857)
Wald-Test (P-Value)	(0.0000)***	(0.0000)***	(0.0000)***	(0.0000)***
Observations	130	130	130	130
Hausman Test Stat. (P-Value)	-------	------	11.7717 (0.0673)*	36.4172 (0.0000)***

The asterisks ***, **, and * indicate 1%, 5%, and 10% level of significance, respectively. In parentheses, robust t-statistics based on panel corrected standard error (PCSE) are reported.

The p-value of Hausman test predicts that fixed effects estimates are better than random effects estimates in both cases (CPI) and (ICRG). This prediction is also confirmed by the values of R-square and adjusted R-square reported in column of fixed effects model and random effects model. The values of random effects model's R-square and adjusted R-square are 0.3171 and 0.2838,

respectively, whereas these are much higher in case of fixed effects model, i.e., 0.9075 and 0.8971, respectively. The p-value of Wald-test shows that instruments are highly correlated with the endogenous explanatory variable and J-statistic's p-value has confirmed the validity of instruments.

The results of column (CPI) indicate that all variables have expected sign and significant. The value of the coefficients of economic development predicts that 10% increase in GDP per capita lowers corruption level by 5.12%; and similar increase in secondary school enrolment rate reduces the corruption by 0.02% only. This might be the result of the allocation of more resources for the detection and prevention of corruption because of rise in per capita income. Because countries that have higher GDP per capita are enjoying lower corruption level such as Malaysia and Turkey in the sample countries. Education is generally considered as a driver of moral perspectives and actions in a society, and some studies have also measured human development by secondary school enrolment rate. Thus, higher moral norm and human development lower the corruption level. The urbanization coefficient's value suggests that 10% increase in the urban population increases the corruption level by 0.06%. This might be the result of urban environment that affects the family and religion control over norms. Urbanization lowers the control of family and religion over norms, required to take countervailing actions against corruption, so raises the level of corruption. In addition, Dong, Dulleck,and Torgler, (2012) has argued that larger cities are more corrupt as compared to small ones due to larger scale of economic activities. The previous studies findings such as Graeff and Mehlkop (2003), Seldadyo and Haan, (2006), Treisman (2007), Billger and Goel,(2009) and, Saha and Gounder, 2013) support the study's results.

The results also reveal the importance of political factors like democracy, law & order and press freedom. The coefficient of democracy variables shows that a 10% increase in the value of democracy index lowers the corruption level by 0.20%. In well documented democracies, citizens are in better position to throw out corrupt politicians from their offices than other forms of political regimes (North, 1990; Bueno de Mesquita et al., 2001). The countries that have larger value of democracy index in the sample such as Indonesia (6.18) and Malaysia (5.53) have lower values of corruption indices (3.76) and (3.13), respectively. On the other hand, the nations which have smaller values of democracy index such as Nigeria (3.98) and Pakistan (4.09) have larger values of corruption indices (4.58) and (4.01), respectively. This might be the result of democratic system; in democratic regimes, citizens have a chance to remove the corrupt politicians through election process. Thus, the relationship between

corruption and democracy is negative; and a similar relation is found by the studies of Chowdhury(2004), Saha et al., (2009) and, Kalenborn and Lessmann, (2013).

The next political factor is the law & order conditions prevailing in the country. The coefficient of law & order indicate that 10 points improvement in the law & order reduces the corruption level by 0.18%. It is confirmed by the patterns of countries in the sample; the countries having larger values of law and order index such as Malaysia (3.94), Iran (4.33) and Turkey (4.09) have smaller value of the corruption index (3.13), (3.47) and (3.55), respectively as compared to the nations with smaller value of law and order index like Nigeria (2.25) and Bangladesh (2.29). This might be the result of nation's law and judicial system; as the lax laws and judicial system always promote corrupt activities. Treisman (2000) argued that the biggest cost of corruption is in the form of detection and punishment that further depends on the effectiveness of the national legal system. The empirical findings of this study support those of La Porta et al. (1998), Ali and Isse (2003), Elbahnasawy and Revier, (2012).

The last political factor included in the study is press freedom. The coefficient of the press freedom indicates that 10 points increase in the press freedom index promotes the corruption by 0.01%. The value of magnitude is very small and also significant at 10% level of significant. This might be the result of non-systematic pattern existing in the relationship in the sample countries. Therefore, we have included the interaction term between democracy and press freedom for further analysis of this institution.

We have also estimated the impact of these institutions on corruption using the ICRG corruption index and results are presented in the same table with column (ICRG). The results are almost similar to CPI, except economic development coefficient, which is almost double. The size and significance level of political factors' coefficients are increased when ICRG is used as a measure of corruption. For example, the level of significance of press freedom coefficient is increased from 10% to 1%; the value of democracy coefficient is increased from 0.02 to 0.48; and significance level as well as the value of the law & order coefficients are increased from 10% to 1% and 0.018 to 0.158, respectively.

6.2 Mutual Impact of Press Freedom and Democracy

Following Kalenborn and Lessmann, (2013), we have introduced an interaction term between press freedom and democracy in the model and results are presented in the Table 4. All variables are having expected signs and

significant except urbanization. Economic development, enhancement in the level of education and improvement in the law & order lower the corruption level. The impact of democracy on corruption depends on the liberty of press and media, as interaction term is negative and significant.

Table 4: Sociopolitical Institutions and Corruption:

(Press Freedom × Democracy)

Variable	Fixed Effects	Random Effects
	GMM	GMM
Constant	3.2102 (7.594)***	3.1785 (18.413)***
Economic Development	-0.4416 (-3.438)***	-0.5683 (-10.559)***
Education	-0.0018 (-2.464)***	0.0007 (1.596)
Urbanization	0.0029 (1.091)	0.0038 (3.578)***
Press Freedom	0.0058 (3.301)***	0.0105 (6.219)***
Democracy	0.0657 (1.827)*	0.1145 (4.559)***
Law & Order	-0.0228 (-2.250)**	0.0014 (0.165)
Press Freedom × Democracy	-0.0010 (-2.206)**	-0.0021 (-5.692)***
R-squared	0.9113	0.6820
Adj. R-squared	0.9005	0.6638
J-statistic (P-Value)	9.5846 (0.2133)	4.8648 (0.6764)
Wald-Test (P-Value)	(0.0000)***	(0.0000)***
Observations	130	130
Hausman Test Stat. (P-Value)	-------	115.72 (0.0000)***

The asterisks ***, **, and * indicate 1%, 5%, and 10% level of significance, respectively. In parentheses, robust t-statistics based on panel corrected standard error (PCSE) are reported.

The p-value of Hausman test predicts that fixed effects estimates are better than random effects estimates and also confirmed by the values of R-square and adjusted R-square. The p-value of Wald-test shows that instruments are highly correlated with the endogenous explanatory variable and J-statistic's p-value has confirmed the validity of instruments. The results shown in Table 4 indicate that

the mutual impact of democracy and press freedom is significantly negative that implies conditionality matters. We insert the value of estimated coefficients in the equation (4) to calculate the marginal effect as below:

$$\frac{\partial CORR_i}{\partial PF_i} = 0.0058 - 0.001\, DE_i \qquad (5)$$

Equation (5) indicates that the marginal effect of press freedom on corruption depends on the degree of democracy. The press freedom has positive association with corruption for those nations having poor democratic norms, and negative having strong democracies. The sign of the marginal effect of press freedom on corruption changes at a degree of democracy of about 5.8 index points. The net effect of press freedom on corruption will be negative when democracy index value exceeds 5.8 points, which implies that press freedom is helpful in reducing corruption. In our sample countries there are only two countries Indonesia and Bangladesh that exceed 5.8 index points. Therefore, the performance of press freedom variable in reducing the corruption in the sample countries remained poor. Thus, for the proper working of press liberty to curb corruption depends on nation's democratic values.

7. Conclusions and Policy Implications

This study has explored whether conditional cooperation matters or not. For this purpose, we have estimated the sociopolitical model of corruption that incorporates the interaction term between sociopolitical institutions for D-8 countries. The results of fixed effects model show that education affect corruption negatively, whereas urbanization positively. The political factors democracy and law & order have negative impact on corruption whereas press freedom has direct correlation with it. This implies that increase in democratic norms along with improvement in law & order conditions lower the corruption level in the country. The results also confirm that conditionality matters, as the interaction term is significant and negative. This implies that press freedom has positive association with corruption level when democratic norms are poor, and negatively related to the corruption level in case of stronger democracies. Two countries Indonesia and Bangladesh are in the sample, which have the average value of democracy index above the threshold level.

The empirical results of the study also have important implications for the policymakers, especially for developing eight countries in dealing with corruption phenomenon. The economic managers should focus the sociopolitical institutions, as, liberty of speech and media plays an important role in curbing the corruption

but it is conditional to democratic values. Therefore, it is very essential for economic managers of the country to focus the policies that promote democratic norms in the society along with the liberalization of press freedom.

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