Does Trust Matter? An Empirical Investigation Into The Relationship Between Trust And Corruption

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Abstract

The study examines the relationship between social values measured as trust and corruption using the cross sectional data for a sample of 84 countries for the period 1984 to 2014. The study employs OLS as well as instrumental variable techniques for the estimation purposes while includes economic development, economic freedom and trade openness as control variables. Consistent estimates of social values are obtained with alternative estimation techniques confirming the negative relationship between social values and corruption. Additionally, the study finds that economic development and economic freedom have significant negative impact on corruption however, the study could not document any significant evidence for trade openness. The empirical findings of the study have important implications for policymakers while designing policies to curb corruption. The findings suggest that social values along with economic freedom are quite helpful in controlling corruption and therefore, social values should be focused in educational programs and in the planning of human capital investments along with traditional determinants of corruption.

Keywords: Corruption, Social values, Trust, Economic freedom, Trade openness, Cross sectional Analysis

JEL Classifications: D73, A13, F10, C31

1. Introduction

Corruption is a "widespread phenomenon and it generally transfers resources from the masses towards the rich and especially to unproductive activities (Tanzi, 1998). According to Arrow (1972) almost every economic transaction within itself contains an element of trust while Xin and Ruden (2004) explain that low levels of trust (social value) provide rationalization for the materialization of corrupt transactions. The incidence of corruption is of high concern because of its detrimental effects (Saha and Ben Ali, 2017) while, social values are considered important ingredients for economic decision making (Banerjee, 2016) yet most of the studies exploring the causes of corruption have been disinclined towards the role of

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social values.[1] Therefore, an examination of the determinants of corruption together with social values is required to address the issue more effectively.

Corruption is defined as the abuse of public office for private benefits and it dates back to the fourth century B.C. in India (Bardhan, 1997). Corruption appears in different forms while the most popular are bribes, kickbacks, under the table fees and embezzlements (Danilo et al., 2016). It is considered as a major threat to economic development and social welfare (Das at al., 2011). The reported estimates of corruption add up to 2.6 trillion US $ and it is roughly 4 percent of the global income (OECD, 2014). Corruption shows exceptionally complicated social behavior of individuals and therefore, this phenomenon is not only a structural problem of the economy but also a social and moral problem of the individuals (Andving et al., 2000).

Social values are part of social capital and refer to trust, norms and trustworthiness (Banerjee, 2016). The importance of social values is widely recognized in literature as it reduces the costs of implementing contracts (Sobel, 2002; Graeff and Svendsen, 2013). Additionally, social values are also associated with a number of other macro-economic variables ranging from economic growth to investment and trade (Guiso et al., 2009). Hence, there is a key role of values in improving governmental performance and the quality of economic policies by affecting the level of political participation (Knack and Keefer, 1997).

The survey of existing literature shows that although much research on the subject has been inclined either towards the detrimental effects of corruption (Othman et al., 2014) or towards the economic growth (Danilo et al., 2016) but a part of corruption literature has always been reserved for the exploration of the causes of corruption (Pellegrini and Gerlagh, 2008). Treisman (2000) explains that corruption is a multi-dimensional and complicated concept and only economic factors are insufficient to explain the phenomenon and therefore, some cultural variables may be included. But culture remains stable over time and little space is left for the policies designed for the control of corruption (Bjornskov, 2003).

The search for the roots of corruption has led researchers to consider even a broader framework that includes a complete set of variables (Husted, 1999). Social values which show the depth of honesty in the society are also recognized as a determinant of corruption as corruption implies dishonest attitude (Uslaner, 2002). Paldam and Svendsen (2002) explains that social values with positive externalities for others are difficult to measure, therefore, the concept of social values can be used as social trust. However,

[1] Survey of corruption literature presented in Treisman (2007) and Pellegrini and Gerlagh (2008).

there are very few studies which have focused on social trust and corruption.

Given the apparent importance of trust as well as corruption to an economy, it should come as no surprise that the relationship between trust and corruption is of high priority among policy makers. In spite of this, most of the research on trust and corruption is either meant for a case study of a single country (Morris and Klesner, 2010; Othman et al., 2014) or for a small group of countries (Graeff and Svendsen, 2013). In either case, the study considers the contexts where the study has been conducted and therefore, the recommendations of the study have limited scope (Husted, 1999).

All this makes necessary to investigate the determinants of corruption including social values for a large number of countries because the case has not been examined yet at the global level where generalization of the recommendation may be possible. So, in this paper an effort has been made to identify the determinants of corruption including trust at the world level however, it is subject to the data availability. The study conducts analysis for a panel of 84 countries over the period 1984 to 2014 and employs OLS and instrumental variable (IV) techniques for the estimation purpose.

This study has major contributions as it includes social values as determinant of corruption that is a relatively less examined variables and secondly, it addresses the problem of endogeneity in the model by using 2SLS techniques whereas,many studies on the determinants of corruption usually employ OLS technique without handling the issue of endogeneity of the variables (Kalenborn and Lessmann, 2013) and lastly, the analysis has been done for a large number of countries, so its suitability is relatively high".

The study is structured as follows. Section 2 presents a review of literature on the determinants of corruption including social values. Section 3 describes the methodology for the study while Section 4 includes data and variables. Section 5 presents the discussion of the results followed by conclusion in Section 6.

2. Review of Literature

The definition of corruption varies from the broad terms of 'misuse of public office' to strict legal definitions of corruption as an act of bribery involving a public servant and a transfer of some obvious resources (Anwar and Shabbir, 2007). There are at least three different approaches to define corruption. "These are the public interest approach, the public opinion approach and formal-legal approach (Danilo, 2016). The public interest approach states that any act of public officials which is against the interest

of public can be considered as inappropriate. However, this approach is criticized on the basis of identification of public interest, which is quite difficult (Theobald, 1990). The second approach, public opinion approach reveals that corruption is what the public believes it is (Gibbons, 1989). This approach is also criticized however, on the basis of the word "public" because it is not clear that the word public either stands for the elite class or for the entire population? While according to the third approach, the corrupt actions are those that violate some particular rules and involve illegal exchanges of political goods for personal gains (Manzetti and Blake, 1996).

It suggests that the definition of corruption should include three elements. Firstly, it should differentiate between public and private sector (Palmier, 1985). Secondly, it should involve some exchange. It may be a case when someone offers incentives to public officials in response to a special advantage (Manzetti and Blake, 1996) and lastly, such exchanges should deviate from the prevailing norms. Therefore, considering these three elements it may be stated that corruption is the behavior adopted by a public official that deviates from the accepted norms. The most widely used definition of corruption includes all these three elements and it defines corruption as "the misuse of public office for private gains" (Bardhan, 1997).

The economics of corruption became a highlighted area of research after mid-1990s, may be because of the availability of internationally comparable data.[1] Many factors are affected from corruption i.e it hinders economic development, manipulates government spending, damages productivity and leads to losses of human as well as social welfare (Treisman, 2007; Das at al., 2011). The empirical evidence suggests that corruption is destructive at all levels including individuals, firms, and country levels in terms of its consequences.

There is a long history of models attempting to identify the causes of corruption. Pellegrini and Gerlagh (2008) argue that empirical literature on the causes of corruption mostly focuses on a single theory that is usually based on a specific variable. In spite of this, corruption literature considers a variety of economic as well as non-economic determinants of corruption. For example La Porta *et al*. (1999) finds that a country's dominant religious tradition may impact corruption while Treisman (2000) identifies culture whereas, Andving et al. (2000) establishes colonialism as an important determinant of corruption. Although Treisman (2007) among others suggest that economic development has an impact on corruption yet Kalenborn and Lessmann (2013) have focused democracy for the control of

[1] Transparency International started construction of Perceived Corruption Index for different countries in the 1990s.

corruption. However, trust (social values) remained relatively a less examined determinant of corruption.

One cannot deny the importance of social values in economic decision making. Knack and Keefer (1997) explain that two important indicators of social capital are trust and civic norms and both play significant role in economic performance. This importance of social values has given rise to a literature that has searched for the correlates of trust including corruption. La Porta et al. (1999) explain that trust supports coordination among individuals that improves the quality of the economic environment and finally, decrease in corruption level is possible. Whereas, Rothstein and Uslaner (2005) explain that regions, cities and countries with trusting people are more likely to have efficient democratic institutions and less crime rates coupled with low levels of corruption. Another study by Bjornskov (2011) has shown that countries with high level of trust produce strong institutions which combat corruption".

The review of literature suggests that empirical literature on corruption although considers the possible effect of trust on corruption however, it is relatively less focused variable. Whereas, the relationship between corruption and trust is an ongoing topic of debate within academia as well as among policy makers and therefore, comprehensive analysis is required for a larger set of countries with suitable estimation techniques to completely understand the situation.

3. Methodology

The study focuses on the identification of the major determinants of corruption including social values. The baseline model for trust and corruption can be written as follows:

$$Corr_i = \alpha_0 + \alpha_1 trust_i + \mu_i \quad (1)$$

$$Corr_i = \alpha_0 + \alpha_1 trust_i + \alpha_2 X_i + \mu_i \quad (2)$$

Our empirical approach starts with a baseline model where in equation 1, Corr is corruption, u is error term and i indicate cross section. To check the robustness of our results, the study introduces control variables X_i in equation 2.

$$Corr_i = \alpha_0 + \alpha_1 trust_i + \alpha_2 gdppc_i + \alpha_3 ef_i + \alpha_4 tr_i + \mu_i \quad (3)$$

The "study has included the most common determinants of corruption as control variables following (Treisman, 2000). The control

variables represent economic development, economic freedom and trade openness. The study has included economic variables following Anwar and Shabbir (2007) because their study exploring the causes of corruption in a sample of 41 countries conclude that economic determining factors play more impressive role in the control of corruption than non-economic determining factors.

Equation 3 is the final equation of our cross sectional analysis for trust and corruption where trust has been used as a focused variable. According to the literature, in societies where trust level is high, corruption level is low and therefore, the expected sign of the coefficient of trust is positive or $\alpha_1 > 0$. It suggests that positive coefficient is meant for the control of corruption as the higher is the corruption score for a country in corruption index, the lower is the level of corruption in that country.

Our first control variable is economic development (proxied by GDP per capita). According to the theory, when GDP per capita income increases then more resources are available and control of corruption is relatively easy so corruption will be lower with higher levels of income (Treisman, 2007). Therefore, the expected sign is also positive $\alpha_2 > 0$. The second control variable is economic freedom. It is generally believed that economic freedom lowers rent for economic transactions and subsequently minimizes the incentives for politicians as well as government officials to accept bribes (Ades and Di Tella, 1997; Anwar and Shabbir, 2007). Its expected sign is positive which shows negative impact on corruption.

Last control variable is trade openness. It is usually argued that trade openness supports competition and transparency of transactions and hence, lowers corruption level (Shabbir and Butt, 2014). However, Tanzi (1998) reports that trade liberalization create new opportunities for corruption. To obtain foreign contracts or private access to markets or some other tax incentives, firms pay bribes to politicians. It suggests that openness may accelerate corruption because when there are heavy regulations in a country firms may offer bribes to public official to avoid government controls. Theoretically its relation with corruption is not clear. It can either increase or decrease the level of corruption. Therefore, the expected sign for the coefficient of trade could be positive or negative $\alpha_5 > 0$ or $\alpha_5 < 0$.

The study applies OLS on cross section data set as most of the previous studies have used OLS technique as discussed earlier however, OLS is efficient and unbiased if there is no autocorrelation, heterosecedasticity and endogeneity problem. OLS estimates become inconsistent and biased in case of endogenous explanatory variables in the model. Endogeneity arises (i) when independent variables in our model are correlated with error term (ii) due to measurement error (iii) due to omitted

variable problem. There is a single solution to these problems, which is the use of instrumental variable or two stage least square (2SLS) technique.

We have endogeneity problem between trust and corruption as trust are endogenous variables on right hand side in equation 3 and it may be correlated with the error term. So the study employs two stage least square technique to counter the problem of endogeneity. In first stage, we predict endogenous variables with instruments which must be strongly correlated with endogenous variables but should be uncorrelated with error term. An instrumental variable is valid if two conditions are satisfied:

i) $Cov\ (z, u) = 0$
ii) $Cov\ (z, x) \neq 0$

where z is instrumental variable and x is endogenous variable. In the second stage of 2SLS we use predicted value of endogenous variable in the model. After using instruments, problem of endogeneity removes".

$$Corr_i = \alpha_0 + \alpha_1 trust_i + \alpha_2 gdppc_i + \alpha_3 ef_i + \alpha_4 tr_i + \alpha_5 iv_i + \mu_i \quad (4)$$

The equation 4 has been used in instrumental variable approach where *iv* represents instrumental variables used in our cross sectional analysis.[1]

4. Data

To accomplish our analysis we use a comprehensive data set of 84 countries over the time period 1984–2014 for exploring the impact of social values (trust) on corruption.

Table 4.1 Summary table of variables, definitions and data sources

Variables	Definitions	Sources
Corruption Index	It measures corruption in the political system that discourages foreign investment and reduces the efficiency of the government and businesses sectors. It also disturbs the economic environment by authorizing people to assume positions through backing instead of capability.	*Political Risk Services, International Country Risk Guide* (*ICRG*)

[1]Instrument used in equation equation 4 are mean elevation, population density, British legal origin, socialist legal origin and share of population identified as Muslim, catholic and Protestants.

	The index is constructed on a scale from 0 (most corrupt) to 6 (least corrupt).	
Trust	It is based on one of the questions in WVS that describes the degree of trust by asking: ''Would you say that most people can be trusted?''. The respondent chooses either of the two options and the answer would be in binary form where value 1 suggests that ''people can be trusted'' and 2 suggests otherwise.	*World Values Survey* (*Different Waves*)
Economic Freedom	It shows the basic right of every individual to manage his labour as well as property. It suggests that decision making units are free to make any decision about consumption, production, investment in any way they prefer. It is measured on scale from 0 (min freedom) and 100 (max freedom).	*The Heritage Foundation Index*
Education	It is gross enrolment at secondary school level as a percentage of the population from age group for secondary school level.	*World development indicator* (*WDI*)
Economic Growth	It is GDP per capita, (constant 2010 international $).	*WDI*
Trade Openness	It is the sum of imports and exports as a percentage of GDP.	*WDI*
Population Density	It explains the concentration of land use and it is shown as total number of individuals per square mile. It is measured in persons per km square.	*International Database of US Census Bureau*
Mean Elevation	It is calculated in geographic projection and it shows "mean elevation (meters above sea level)".	*www.cid.harvard.edu/ciddata/geographydata.html.*
British legal origin	It distinguishes the origin of the law system. It is a dummy variable with value 1(British law) and 0 (otherwise).	*La Porta et al. (1999) (LP)*
Socialist legal origin	It distinguishes the origin of the law system. It is a dummy variable with value 1(Socialist law) and 0 (otherwise).	*LP*
Protestant	It is the percentage of "population belonging to the protestant church".	*LP*
Catholic	It is the % of the "population recognized as Catholic".	*LP*
Muslim	It is the % of the "population recognized as Muslim".	*LP*
Government Effectiveness	It reflects the "perceptions of the quality of public and civil services, the degree of independence from political pressures and the credibility of the government's commitment to formulated policies". It has a scale from -2.5 (min effectiveness) to +2.5 (max effectiveness).	*Worldwide Governance Indicator (WGI)*
Rule of Law	It shows the quality of contract enforcement, property rights, the police, the courts, and the likelihood of crime and violence. It also reflects	*WGI*

	the perceptions of the extent to which agents abide by the rules of society. It has a scale between -2.5 (worst performance) to +2.5 (best performance).	
Regulatory quality	It shows the perceptions of the ability of the government to formulate and implement policies that promote private sector development. It has a scale between -2.5 (worst performance) to +2.5 (best performance).	*WGI*
Democracy	The existence of institutionalized constraints on the power of the executive and the guarantee of civil liberties to all citizens. It has a scale from -10 (least democratic) to +10 (most democratic regimes).	*Polity IV*

4.2 Descriptive and Statistical Analysis

The summary statistics of all the variables used in our analysis is given in Table 4.2. The average corruption Index is the lowest for Haiti and its value is 1.3 while for Finland its value is maximum and it is around 6. It indicates that Finland is least corrupt and Haiti is most corrupt country in our sample. The average trust level is minimum (3.5) in Trinidad and Tobago and maximum (69.3) in Norway. Average economic freedom is lowest in Korea Democratic Republic with the value of 5.7 and the highest in Hong Kong with a value of 89.5. The average gross enrollment ratio is the lowest in Suriname and the highest in Australia. While average trade to GDP ratio is minimum in Myanmar and maximum in Singapore.

Table 4.2: Descriptive Statistics

Variable	Observations	Minimum	Maximum	Mean	Std. Deviation
Corruption Index	138	1.3	6.0	3.0	1.1
Trust	95	3.5	69.3	24.4	13.3
Economic Freedom	180	5.7	89.5	58.4	11.4
Gross Enrollment ratio	200	6.7	139.0	62.0	31.4
GDP per capita	199	167.1	106172.8	9915.4	15488.9
Trade Openness	194	9.4	342.6	83.5	43.8
Democracy	162	-10.0	10.0	1.4	6.1
Govt. Effectiveness	211	-2.2	2.1	0.0	1.0
Regulatory quality	211	-2.4	1.9	0.0	1.0
Rule of law	213	-2.4	2.0	0.0	1.0

Democracy has interesting descriptive stats as Qatar shows minimum score (-10) for average democracy while the maximum score (10)

is meant for a large number of countries including Austria, Australia, Austria, Costa Rica, Canada, Denmark, Finland, Germany, Italy, Ireland, Japan, Luxemburg, Lithuania, Norway, Netherlands, New Zealand, Slovenia, Switzerland, Sweden, United Kingdom and United States. While average government effectiveness, regulatory quality and rule of law scores are minimum in South Africa and maximum in Slovak Republic and Faeroe Islands.

4.3 Correlation Matrix of Variables

The Table 4.3 shows correlation matrix among variables. Corruption has a scale from 0 (maximum corruption) to 6 (minimum corruption) therefore, the correlation among trust and corruption which is 0.53 suggests a strong negative relationship between trust and corruption. Correlation among corruption and economic development (represented by GDP per capita) is 0.73 which also means that development and corruption have a negative link.

Table 4.3. Correlation Matrix of the Variables

Variables		1	2	3	4	5	6	7	8	9	10
Corruption Index	1	1									
Trust	2	0.53	1								
GDP per Capita	3	0.73	0.52	1							
Economic Freedom	4	0.65	0.15	0.55	1						
Trade Openness	5	0.13	0.04	0.12	0.27	1					
Democracy	6	0.58	0.17	0.4	0.46	-0.12	1				
Govt. Effectiveness	7	0.45	0.33	0.46	0.26	0.13	0.32	1			
Role of law	8	0.44	0.32	0.48	0.3	0.11	0.31	0.95	1		
Regulatory Quality	9	0.4	0.26	0.43	0.26	0.07	0.26	0.96	0.92	1	
Gross Enroll. Ratio	10	0.18	0.07	0.05	0.01	-0.05	0.19	0.33	0.28	0.35	1

Correlation of economic freedom with corruption and trust is 0.65 and 0.15. It means that corruption is less severe in more free societies. Similarly, correlation of trade with corruption and trust is 0.13 and 0.04. Correlation of trade and corruption indicates that as trade increases although it decreases corruption level but value is relatively low.

5. Results and Discussions

This section explains the empirical results of cross sectional regression analysis. "The rationale behind using cross sectional analysis is data constraint for the variable trust that is available in the forms of different waves and therefore, cross sectional analysis looks more suitable. Secondly, most of the studies for corruption analysis are cross sectional (Pellegrini and Gerlagh, 2008) so to facilitates the comparison of other studies with our study, we have used cross sectional data. The main problem of cross sectional data is heteroscedasticity, for this purpose we have used all robust regressions so problem of heterosecedasticity is solved in this way". Empirical models are estimated by Ordinary Least Square and Two Stage Least Square methods.

5.1 Empirical Finding of OLS

Table 1 reports OLS estimation results for the variables specified in equation 3. The 1st column of table 1 shows the relationship between corruption and trust. "The table reports that trust has a negative impact on corruption and the impact is significant as well. The table also shows that 1% point increases in trust tends to decrease corruption by 0.044 points. It means a lack of trust in an economy may create opportunities for corrupt deals (Hetherington, 1998; Graeff and
Svendsen, 2013). Uslaner (2004) also discusses that efficient control of corruption is possible when individuals have confidence (trust) in other people because trust support strong legal standards which are required for the deterrence of corruption.

The study introduces GDP per capita as control variable to investigate its impact for trust as well as for corruption. The result reported in the 2nd column of table 1 show that trust remains economically significant however, its magnitude decreases from 0.04 to 0.02 while GDP per capita shows negative and significant impact for corruption. Paldam (1999) finds that the most effective variable that can minimize corruption is 'the move from poor to rich'. Since wealthier (developed) country can offers more funds as well as resources towards the detection and prevention of corruption. Literature also supports this result (Pellegrini and Gerlagh, 2008).

The study has added economic freedom as control variable along with trust, and GDP per capita in 3rd column of the table. In the presence of economic freedom, coefficient of trust shows that higher trust leads to decrease in corruption. The coefficient of economic freedom is 0.0383 which is significant both statistically and economically. Paldam, (2002) also

discusses that increased levels of economic freedom leads to lower level of corruption. It is generally believed that economic freedom lowers the incentives for government officials to accept bribes (Ades and Di Tella, 1997; Treisman, 2000)".

Finally, the study adds trade as control variable and the results are given in column 4. The table shows that trust remains significant with expected sign while inclusion of trade openness shows positive impact however, this impact is insignificant.

This result is supported by Tanzi (1998) and Majeed (2014) in their studies. Tanzi (1998) argues that trade openness may introduce new channels for corrupt activities. For example, business sector may pay bribes to politicians for foreign contracts or for some tax evasion. Politicians need money to finance their election campaigns, while firms need business incentives. Therefore, trade openness may encourage corrupt deals.

Our cross sectional results with OLS technique clearly show that trust is an important determinant of corruption along with GDP per capita and economic freedom.

Table 1. CS OLS Estimation Results for Trust and Corruption

VARIABLES	Corruption	Corruption	Corruption	Corruption
Trust	0.0439***	0.0161**	0.0178***	0.0181***
	(0.00780)	(0.00731)	(0.00646)	(0.00647)
GDP per capita		5.43e-05***	3.49e-05***	3.42e-05***
		(7.68e-06)	(7.86e-06)	(7.89e-06)
Economic Freedom			0.0383***	0.0409***
			(0.00782)	(0.00825)
Trade				-0.00159
				(0.00163)
Constant	1.942***	2.075***	-0.111	-0.152
	(0.224)	(0.178)	(0.473)	(0.475)
Observations	84	84	84	84
R-squared	0.279	0.554	0.657	0.661
Functional form test (hat sq p-value)	0.398	0.546	0.424	0.023
Multicollinearity test (Mean VIF)	1.41	1.90	1.60	1.13
Heteroscedasticity test (P>chi2)	0.3635	0.0092	0.0355	0.1791
Normality (JB test chi2)	5.5e-04	0.2944	0.1526	0.0125

Robust standard errors in parenthesis
***p<0.01, **p<0.05, *p<0.1

5.2 Empirical Findings of Two Stage Least Square

The results for 2SLS regressions of corruption and trust are summarizes in Table 2. "Once again trust shows positive and significant impact on corruption at 1% level of significance in first column of table 2. It is interpreted as 1% point increase (decrease) in trust causes 0.0316 points decrease (increase) in corruption. La Porta et al. (1997) also mention that the relationship between trust and corruption, after controlling for GDP per capita, is significantly negative for their sample of 33 countries. The study further explains that trust can fight against corruption, because it may improve the behavior of officeholders towards private citizens. Bjornskov (2011) employing the instrumental variables technique for a sample of 74 countries also highlight that corruption is more effectively controlled in countries with high levels of social trust because institution are more efficient with high level of trust. It suggests that trust simplifies deals and promotes cooperation among all the members of a society and improves the quality of governments which can efficiently control corruption.

The relationship between corruption and trust after controlling for GDP per capita is shown in the next column which shows significant and positive relationship between corruption and trust. Coefficient of trust is positive but insignificant which means trust reduces corruption but not significantly when GDP per capita is introduced in our model. Results indicate that coefficient of GDP per capita is positive and significant. The empirical work also shows that the lower levels of corruption are closely linked with higher levels of development in an economy (La Porta et al. 1999, Treisman 2000). Bai *et al.*, (2013) covers data for 13,000 firms in Vietnam and finds that higher growth rate reduces corruption level, in particular when there are well established property rights.

In column 3 of table 2, economic freedom is added as control variable. Column 3 gives similar results explaining that increase in trust tends to decrease corruption at 1% significance level. Economic freedom is also significant and positive at 1% level of significance. Economic freedom has corruption reducing impact. The empirical studies also support this hypothesis that economic freedom lowers rent for economic transactions and subsequently minimizes the incentives for politicians and public officials to accept bribes (Anwar and Shabbir, 2007). Saha *et al.*, (2009) also finds that economic freedom is negatively associated with corruption".

Table 2: CS 2SLS Estimation Results for Trust and Corruption

Variables	(1) Corruption	(2) Corruption	(3) Corruption	(4) Corruption
Trust	0.0316***	0.0107	0.0197**	0.0194**
	(0.0110)	(0.0104)	(0.00931)	(0.00926)
GDP per capita		4.98e-05***	3.00e-05***	3.07e-05***
		(8.86e-06)	(9.02e-06)	(9.00e-06)
Economic Freedom			0.0397***	0.0399***
			(0.00946)	(0.00941)
Trade				-0.00247
				(0.00286)
Constant	2.297***	2.273***	-0.120	0.0317
	(0.291)	(0.233)	(0.603)	(0.625)
Observations	61	61	61	61
R-squared	0.238	0.499	0.619	0.623
Sargan test	0.22	0.43	0.17	0.17
Durbin	0.11	0.24	0.50	0.58
Wu-Hausman	0.12	0.26	0.51	0.50

Robust standard errors in parenthesis
***p<0.01, **p<0.05, *p<0.1

In column 4, trade is used as control variable to observe either impact of trust changes or not. Coefficient of trade is negative and insignificant implying that 1% point increase in trade openness causes 0.0003% increase in corruption level. The theory is also supported by empirical studies as discussed earlier (Tanzi, 1998). Torrez (2002) however, argues that the relationship between trade openness and corruption depends on the choice of data set and in particular, the choice of corruption index. While Uslaner (2004) discuss that trade openness may increase corruption level when bribes are offered to politicians to avoid foreign companies to enter domestic markets.

Our cross sectional results for both models shows strong role of values in determining global corruption level across countries. Ordinary least square and two stage least square results confirm theoretical relationship between trust and corruption that when a society becomes more trustworthy then corruption level will be low in that society. Although, we have also included some control variables but our results largely remains the same.

5.3 Sensitivity Analysis

Table 3 reports sensitivity analysis results for equation 3. The variables used for sensitivity analysis are government effectiveness,

regulatory quality, rule of law, democracy and gross enrollment ratio. Result indicates that in presence of government effectiveness, our main result of trust does not change. It shows that increase in trust tends to decrease corruption more efficiently. All other variables except trade show consistent results, however trade becomes insignificant and has positive impact on corruption. Government effectiveness, regulatory quality and rule of law have insignificant and negative impact, while democracy and gross enrollment ratio have negative and significant impact on corruption.

Table 3. Sensitivity Analysis

VARIABLES	Corruption	Corruption	Corruption	Corruption	Corruption
Trust	0.0186*** (0.00653)	0.0195*** (0.00652)	0.0159** (0.00662)	0.0191*** (0.00617)	0.0183*** (0.00648)
GDP per capita	2.94e-05*** (8.01e-06)	3.01e-05*** (8.03e-06)	3.33e-05*** (8.28e-06)	2.98e-05*** (7.61e-06)	3.36e-05*** (7.88e-06)
Economic Freedom	0.0389*** (0.00809)	0.0387*** (0.00812)	0.0384*** (0.00841)	0.0302*** (0.00855)	0.0413*** (0.00827)
Trade	-0.00158 (0.00160)	-0.00134 (0.00159)	-0.00149 (0.00165)	5.05e-05 (0.00171)	-0.00149 (0.00164)
Govt. Effectiveness	0.127 (0.0793)				
Regulatory quality		0.106 (0.0776)			
Rule of Law			0.0647 (0.0821)		
Democracy				0.0460*** (0.0134)	
Gross Enroll Ratio					0.00442* (0.00255)
Constant	0.0209 (0.472)	-0.0128 (0.473)	0.0472 (0.492)	0.290 (0.489)	-0.460 (0.509)
Observations	81	81	83	83	81
R-squared	0.677	0.674	0.649	0.701	0.674

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6. Conclusion

The study analyzes the impact of different factors including social values on corruption using the cross sectional data for a sample of 84 countries for the period 1984 to 2014. "The study measures the level of

corruption by the corruption index provided by the International Country Risk Guide and for the level of trust, the data has been taken from the different waves of World Values Survey. The control variables include economic development, economic freedom and trade openness. The study documents the inverse relationship between social values (trust), economic development and economic freedom with corruption however it is positive insignificant for trade openness. The study utilizes 2SLS method besides OLS technique to address the endogeneity problem, which arises due to reverse causality between corruption and trust.

The empirical findings of the study have important implications for policymakers while designing policies to curb corruption. The findings suggest that social values along with economic growth and economic freedom are quite helpful in controlling corruption and therefore, social values should also be focused in educational programs and in the planning of human capital investments". The result also shows important role of education as well as role of democracy for the control of corruption, so effort should be made for improving enrollment ratio and for the strengthening of democracy though public awareness programs .

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