# Factors Affecting Corruption–A Cross Country Analysis

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# Factors Affecting Corruption: A Cross-Country Analysis

## 1. Abstract

The developments in the fields of advanced technology, IT, communications and e-government have taken place to improving efficiency, productivity, transparency in delivery of government services. The demand for efficient and transparent government services has also increased. Thus, this study aims at deriving factors contributing to decrease in corruption based on literature review and to examine the relationship between e-government and government corruption through a cross-country analysis. The paper analyses how the government corruption is influenced by e-government development status and social, economic and governance factors in various countries. In addition, the mediating effects of ICT use and e-government development (i.e. telecommunication infrastructure, online service and e-participation) were assessed in order to define the relationship between various social, economic and governance factors o government corruption. In this study, data from 130 countries were analyzed using a three-stage method of mediating effects as suggested by Baron and Kenny, 1986. The results of analysis show a significant relationship between the identified social, economic and governance factors and corruption. In addition, the ICT and e-government developments mediated between these social, economic and governance factors like education level, openness of economy, political rights and civil liberties etc. in reducing corruption. These findings suggest most effective strategies required to curb corruption.

**Key words**: - Corruption, Mediating effects, e-government.

## 2. Introduction

Corruption has been defined in a number of ways. However, an often-quoted definition of corruption is the one by Nye, according to whom corruption is "…a behavior which deviates from the normal duties of a public role because of private-regarding pecuniary or status gains; or violates rules against the exercise of certain types of private-regarding influence" (Nye, 1967). However, this paper uses the definition of the Transparency International (TI) who has very simplistic definition i.e. abuse of public office for private gain. Despite the countries endorsing an anti-corruption plan, the governments are burdened by endemic corruption world-wide. It still remains

a highly emotive issue and it is also subject to normative judgements, which cannot provide enough reliable and objective data for any kind of rational planning against corruption that may lead to its curtailment. Each country pursues development of e-government and makes efforts to ensure service delivery through e-platforms in order to ensure speed and transparency and to reduce the chances of corruption and nepotism. Thus, this study aims to derive factors contributing to decreases in corruption and to examine the relationship between e-government and government corruption through a cross-country analysis.

This article looks at the effect of selected factors on the degree of corruption empirically across various countries of the world from various socio-economic backgrounds, at various levels of development, at various stages of IT penetration and e-delivery of government services. The article also examines the popular perception that increase in per capita GDP reduces the incidences of corruption. Other factors that are considered here include: -

1. Social and Cultural Factors—Social Progression Index, Education Index and Cultural Diversity Index.
2. Economic Factors---per capita GDP, Human Capital Index and Openness of Economy.
3. Governance—Political Rights and Civil Liberties, Economic freedom, Freedom of Press and E-Government Development Index.
4. Factors relating to e-govt— TII, OSI and e-participation.
5. Dependent Variable---Corruption Perception Index (CPI), 2019 is used in the analysis. These data are published by Transparency International every year.

This study first analyzed how government corruption in each country is influenced by the ability of the users to make use of the e-services offered by e-government, which is influenced by GDP per user Capita, Education index, other Social and Economic factors. It also analyzes governance issues like government size, Law enforcement and justice system of the country, economic freedom of the citizens, their political rights protection and civil liberties, compartmentalization based on ethnic, cultural and linguistic diversity, press freedom etc. With the increase in ICT use and advancement in development in e-government, their effect on increasing transparency becomes more apparent. The objectivity of the data is ensured by utilizing statistical data from Transparency International, International Telecommunications Union (ITU), OECD, UNDP, IMF, Freedom House and Fraser Institute. It is different from the past research in the sense that

actionable and more relevant variables have been selected so that based on the study, specific recommendations can be made on how the governments can take measures to reduce the incidences of corruption. Moreover, other major objective is to evaluate the mediating effect of the various ICT related independent variables on these social, economic and governance related factors to make them statistically significant when tested in a 3-stage regression analysis as per Baron and Kenny, 1986.

## 3. Literature Review

Empirical literature differs on whether or not the effect of corruption is harmful to an economy or not. Some studies have indicated that corruption "greases the wheels" of business and commerce, facilitating growth and investment (Leff 1964; Lui 1985), whereas Mauro 1995; Kaufmann and Kraay 2002, have held that corruption does the reverse i.e. it reduces economic growth, viewing corruption as a primary impediment to growth and having adverse consequences specially in the developing countries. Mauro (1995) found a strong relationship between per capita income and the average of indices of red tape, inefficient judiciary and corruption. Easterly (1999) showed that the quality of life across nations is positively associated with per capita income. The incident and the effect of corruption are attendant to – (1) how the market for corruption is organized and (2) nature of services provided by the public officials (Swaleheen). A single cross-section regression indicates that corruption slows down the growth significantly. Hence, Swaleheen has demonstrated that corruption has a non-linear but significant effect on the growth rate of real per capita income. The econometric literature, using regression models and other econometric models conclude that corruption imposes indirect impacts on military and government spending in addition to negative impact on economic growth. (d'Agostino et al). Discussions on IT and corruption have been mainly focused on administrative transparency. Many countries use ICT to increase transparency. Many countries establish E-government and also introduce e-delivery of government services to avoid physical interference, which is considered as one of the major situations creating chances of creation of incidence of corruption. Moreover, the discussions of transparency have shown that the internet significantly reduces costs involved in the collection and distribution of government information and also increasing transparency and accountability. Studies have been made on the extent to which corruption can be explained by low level of economic competition, Ades and Di Tella (1995 & 1997) concluded that fair economic competition lowers economic rents. Daniel Treisman (2000) in a functioning democracy, checks and balances limit government's powers and

reduces corruption. On the contrary, ethnic diversity could trigger nepotism and collusion is not positively correlated to occurrence of incidents of corruption but it can, at the same time, it can lead to political instability and civil war (Montalvo et al 2004). Mauro (1995) found that ethnic diversity found a lower level of investment that has negative relationship with economic growth (Easterly & Levine 1997). Bluedorn (2001) even shows that the cultural diversity could stimulate the opportunity for corruption. Hail and O'Neil's (2002) conclude that press freedom and democracy strengthen each other. Brunetti and Weder (1999) argue that press freedom is correlated with low overall corruption.

## 4. Data Collection and Methodology

The data used for this work are secondary data published by various organizations of repute, who have been doing this since very long and are being used for research purposes by many researchers. The details of the data, their scope and meaning, source of the data and the year to which they pertain are discussed in the next section named "Key variables affecting corruption". The data are collected for 130 countries around the world, based on their availability. In case of some countries, if the data are not available, they are excluded. An attempt has been made to collect the latest available data in respect of all countries.

A three-stage analysis has been carried out as per the methodology suggested by Baron and Kenny, (1986). In the first stage, multiple regression is carried out with CPI data as dependent variable and all the Social Factors as independent variables. Similarly, multiple regression is also carried out with Economic Factors as independent variables and CPI as dependent variable. Lastly, the governance factors are also regressed with CPI as dependent variable. It is found that in stage-1, some of the independent variables in Social Factors, Economic Factors and Governance Factors category are not statistically very significant. These insignificant factors from stage-1 are taken to stage-2 where they are regressed with Online Service Index, Telecommunication Infrastructure Index and e-Participation Index separately with later as dependent variables and it is observed if some of the insignificant factors of stage-1 become statistically significant. In stage-3 of the analysis, these stage-1 insignificant factors are subjected to multiple regression taking CPI as the dependent variable and also including each of the three ICT related factors as independent variable. At this stage-3 analysis also it is observed whether any of the stage-1 insignificant factors become statistically significant at stage-3. If a factor found insignificant at stage-1 becomes statistically

significant at stage-2 or stage-3, it is concluded that that independent variable is mediated by the ICT factors.

## 5. Key variables affecting corruption

The key variables affecting government corruption used in this study are divided into four major categories i.e. Social Factors, Economic Factors, Governance Factors and the factors related to ICT development in the country. Under each category, a few numbers of factors have been identified, which are considered relevant and whose data are reliable and readily available. Before proceeding further, it is important to define each of them briefly with the source of data.

(1) Social Factors: -

 a. Social Progress Index (2019)- This index is published by the non-profit organization named Social Progress Imperative and is based on writings of Amartya Sen, Douglass North and Joseph Stiglitz. It measures well-being of a society by observing social and environmental outcomes rather than the economic factors. Rather than emphasizing traditional measurements of success like income and investment, it measures 12 social and environmental indicators to create a clearer picture of what life is really like for everyday people. The index doesn't measure people's happiness or life satisfaction, focusing instead on actual life outcomes in areas from shelter and nutrition to personal rights and education. This exclusive focus on measurable outcomes makes the index a useful policy tool that tracks changes in society over time. The index has values from 0 to 100, with increasing score indicating higher social progress.

 b. Education Index (2015) – This index is published by the UNDP taking into consideration Mean Years of Schooling and Expected Years of Schooling. It has values 0 to 1 with values closer to 1 show higher level of education in respect of these two measures.

 c. Cultural Diversity Index (2020) – This is a list of countries ranked by ethnic and cultural diversity level and it is based on Fearon's analysis. It broadly exhibits the probability that two individuals drawn randomly from the country's groups are not from the same group (ethnic, religious or whatever the criteria are). The values vary from 0 to 1, where 0 is indicative of almost Nil fractionalization or zero groups.

(2) Economic Factors: -

    a.   Per Capita GDP in $ (2019) - This variable is published by the IMF every year.

    b.   Human Capital Index (2018) – Human Capital is a collection of all the knowledge, talent, and other capabilities developed so as to contribute to the economic activity with better productivity. Claudia Goldin, Department of Economics, Harvard University and National Bureau of Economic Research defined it as the stock of habits, knowledge, social and personality attributes, including creativity, embodied in the ability to perform labor so as to produce "economic value".

    c.   Openness of economy (2018) – This is sum of imports and exports as a percentage of GDP of a particular country.

(3) Governance Factors: -

    a.   Political Rights and Civil Liberties (2018) – The main issue in this study is whether some factors concerning governance affect corruption level. As there are a very large number of variables already used in many studies, in this study only a few ones are selected that directly or indirectly reflect governments' intentions to decrease corruption. One of these factors is Political Rights which are measured using Freedom House's Political Rights Index, obtained from analysis of the electoral process, political pluralism and participation and functioning of the government. Civil Liberties are measured using Freedom House's Civil Liberties Index, measuring factors like freedom of expression and belief and personal autonomy and individual rights.

    **b.**   Freedom of Press (2019) – Freedom of Press is also related to governance dimension, which is important to affect the incidences of corruption. It is also based on the data from the Freedom House. Nas, T.F.; Price, A.C.; Weber, C.T. in "A policy-oriented theory of corruption" (1986) concluded that solidifying of democracy contributes to a decrease in corruption. **A small score on the index demonstrates that there is more freedom of press in that country.**

    c.   Economic Freedom (2017) – These data are published by the Fraser Institute. The index used here considers the following factors and consolidates them into Economic Freedom Index used here in the study: Size of Government, Legal System and Political Rights, Sound Money (freedom to hold foreign currency bank accounts, inflation rates etc.), and freedom to trade internationally (consisting of revenue from trade taxes, non-

tariff trade barriers, compliance cost of importing and exporting, regulatory trade barriers, black market exchange rates, Foreign Investment restrictions, capital controls, freedom of foreigners to visit and Control of movement of capital and people) and Regulation (Business, Credit and Labor Regulations). Instead of using all these individual components as a separate variable as a property of government size and regulations, this study uses Economic Freedom as an important governance factor and it is considered more relevant and covers all important aspects studied in many studies in the past.

d. E-Government Development Index (EGDI) (2018) – This is a comprehensive scoring of the willingness and capacity of national administrations to use online and mobile technology in the execution of the Government functions[1]. The EGDI scores range from a maximum of one and a minimum of zero. It is important here to mention that this parameter is calculated by giving equal weightage to Online Service Index (OSI), Telecommunication Infrastructure Index (TII) and Human Capital Index (HCI). Thus, it can be seen that although it includes variables from ICT category and Economic Factors categories, there may be some problem of collinearity in considering economic indices and also while using ICT parameters for their mediation in affecting corruption level due to governance factors.

(4) ICT Factors[2]: -

a. Online Service Index (OSI) (2018) – In short, the OSI summarizes the online presence and performance of the countries in a single internationally comparable value. It assesses the quality of government's delivery of online services from 0 to 1 (Best).

b. Telecommunication Infrastructure Index (TII) (2018) – It is a measure that gives an idea about the telecommunications infrastructure's performance of a country relative to others. This index takes into consideration the number of PCs, number of internet users, number of mobile cellular subscriptions and number of fixed broadband subscribers per 100 persons. These data are published by International Telecommunications Union.

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[1] UNPAN 2018 (Division for Public Administration and Development Management (Department of Economic and Social Affairs), 'UN e-Government Survey 2018", UN, New York.
[2] UNPAN 2018, 'UN e-Government Survey 2018", UN, New York. UNPAN (Division for Public Administration and Development Management (Department of Economic and Social Affairs).

c. E-Participation Index (EPI) (2018) – It is an area of online services that opens up channels for online participation in public affairs. E-participation is about fostering civic engagement and open, participatory governance using ICT.

(5) Dependent Variable: - This study uses the Corruption Perceptions Index (CPI, 2019) of Transparency International (TI) as dependent variable.

## 6. Analysis

The final number of countries included in the analysis was 130 after excluding the missing values. As corruption is a very complex phenomenon, this study examines the impact of Social, Economic and Governance factors on CPI separately. In addition, another important aim of the paper is to find out the intermediating effects of the various ICT related factors on Social, Economic and Governance Factors. This is done by using multiple regression analysis and using a three-step process of analysis of the mediating effects (Baron and Kenny, 1986).

(A) Social Factors: - The multiple regression of Social Factors with the dependent variable CPI yields the following results as in Table-1. It can be seen from the data that SPI (p=<.001) and Cultural Diversity (p=< 0.05) indices are significantly correlated with the CPI. $R^2 =$ 68.4% variation in the value of CPI can be explained by these variables.

Table-1

| R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| .831a | .691 | .684 | 10.8494 | .691 | 94.076 | 3 | 126 | .000 |

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -31.061 | 5.836 | | -5.322 | .000 |
| | SPI 2019 | 1.257 | .145 | 1.039 | 8.640 | .000 |

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| | Cultural and Ethnic Diversity 2020* | 10.320 | 4.529 | .132 | 2.279 | .024 |
| | Education Index 2015 | -17.227 | 12.113 | -.165 | -1.422 | .157 |

Ethnic diversity is a key determinant of control of corruption. In fact, this variable has the largest value of B/beta. It is very unfortunate that although ethnic diversity may trigger nepotism, a root of corruption, but there is hardly anything that the government can do to change it (Treisman 2000 and Ransford Q. Churchill, William Agbodohu and Peter Arhenful, 2013). In an ethnically diverse country, people may abuse the public authority for private interest to favor their group members. However, it is seen that the residual values in the regression have a pattern showing relationship (Figure-1).

Figure-1



Scatterplot
Dependent Variable: CPI score 2019

$R^2$ Linear = 0.309

y=45.55+10.85*x
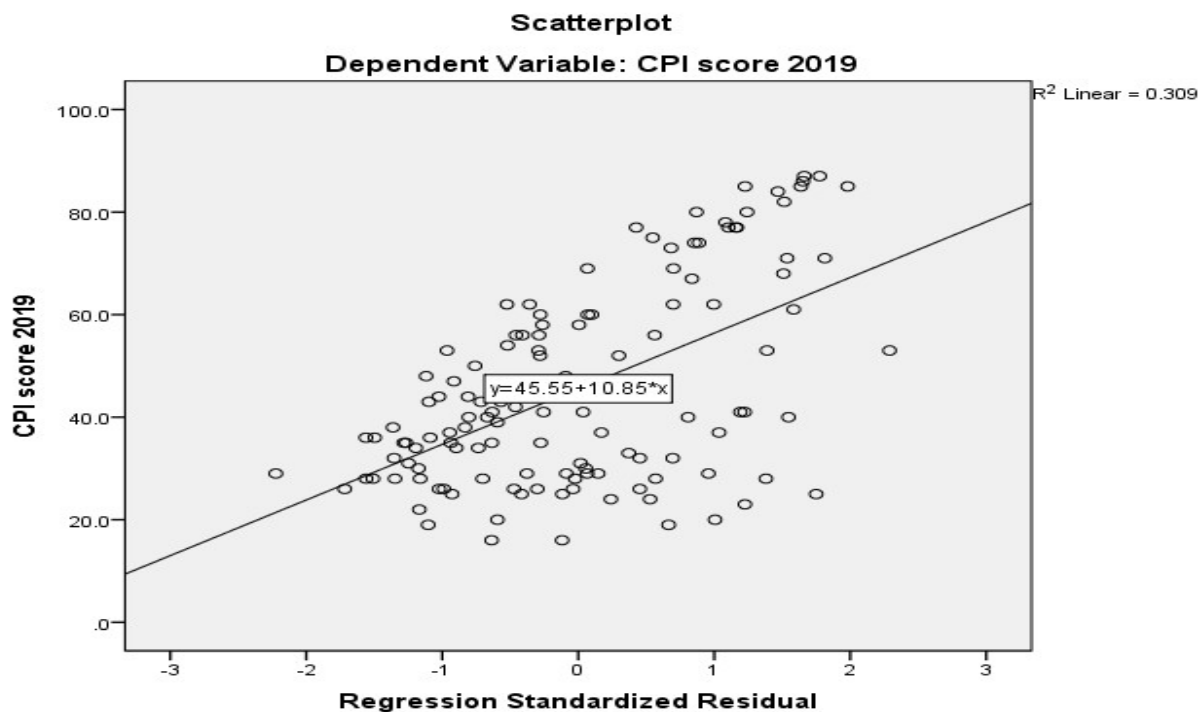
This shows that there is another variable which is responsible for this pattern and that is the one related to the ICT factors, which will be discussed later in the paper. However, it can also be observed that the corruption comes down as the fractionalization increases, explained by the positive correlation shown between cultural diversity index and the Corruption Perception Index (CPI), whereas it is normally expected to decrease corruption on decrease in the fractionalization. To find out the reason, Cultural Diversity Index was regressed with SPI as the dependent variable. It was seen that this correlation is statistically significant. The results are shown below.

Table-2

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 79.206 | 2.153 | | 36.791 | .000 |
| | Cultural and Ethnic Diversity 2020* | -33.564 | 4.884 | -.519 | -6.872 | .000 |

a. Dependent Variable: SPI 2019

It can be seen that increased fractionalization decreases Social Progress Index, which is as expected. Thus, there appears to be a collinearity between CPI vs SPI and CPI vs Cultural & Ethnic Diversity.

Similarly, Education Index is not statistically significantly related to CPI which will also be examined if it is mediated by any of the ICT parameters.

(B) Economic Factors: - The results of regression are shown below in the Table-2, from which it can be seen that $R^2$ is 69.2 and F value is 97.482, which show significant correlations.

Table-3

| R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| .836[a] | .699 | .692 | 10.7161 | .699 | 97.482 | 3 | 126 | .000 |

| | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| Model | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 16.200 | 3.840 | | 4.219 | .000 |
| | GDP per Capita, 2019(IMF, in $) | .001 | .000 | .602 | 9.250 | .000 |
| | Openness of Economy (Trade as % of GDP), 2018^ | .010 | .018 | .030 | .558 | .578 |
| | Human Capital Index, 2018 | 29.192 | 5.811 | .307 | 5.023 | .000 |

Among these three economic variables, GDP per Capita and Human Capital Index are statistically significantly correlated with the Corruption Index at significance level of $p=<0.001$. Moreover, the residual values here also show a trend (Figure-2), which may perhaps be explained by another variable related to ICT. This role of mediation of ICT factors will be discussed later in the paper.

Figure-2
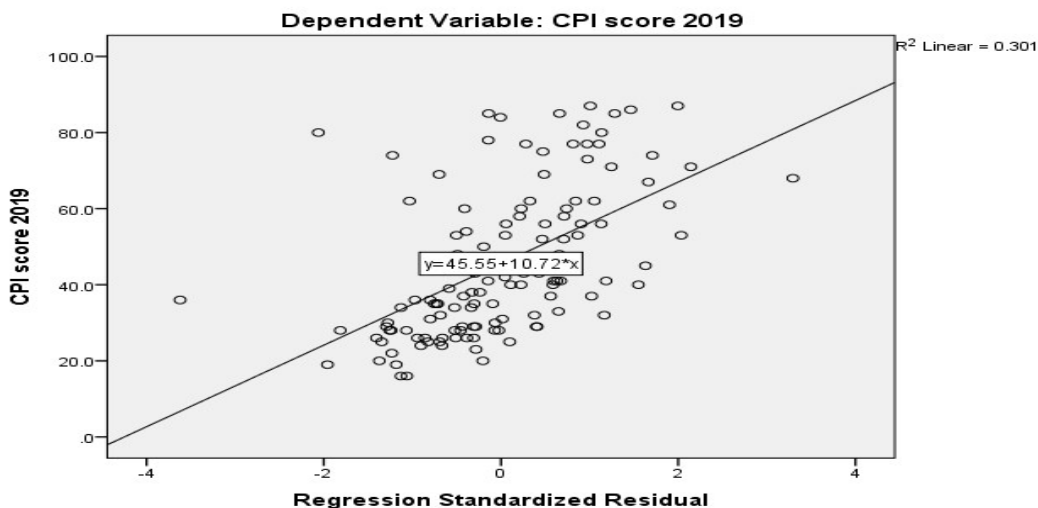


Openness of economy measured in terms of trade (export + import) as percentage of GDP is not statistically significantly correlated to corruption reduction. It will be examined if any of the ICT variable is mediating in this case.

(C) Governance Factors: - The Table-3a below shows the results of regression of CPI with the

<div align="center">Table-3a</div>

<div align="center">**Model Summary**</div>

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .847[a] | .717 | .708 | 10.4321 |

a. Predictors: (Constant), E-Government Development Index, 2018, Press Freedom Index, 2019, Economic Freedom Index 2017, (Fraser Institute), Political Rights and Civil Liberties total Score, 2018

<div align="center">**ANOVA[a]**</div>

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 34448.479 | 4 | 8612.120 | 79.134 | .000[b] |
| | Residual | 13603.645 | 125 | 108.829 | | |
| | Total | 48052.123 | 129 | | | |

a. Dependent Variable: CPI score 2019

b. Predictors: (Constant), E-Government Development Index, 2018, Press Freedom Index, 2019, Economic Freedom Index 2017, (Fraser Institute), Political Rights and Civil Liberties total Score, 2018

<div align="center">**Coefficients[a]**</div>

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 2.206 | 11.065 | | .199 | .842 |
| | Press Freedom Index, 2019 | -.387 | .120 | -.310 | -3.231 | .002 |
| | Economic Freedom Index 2017, (Fraser Institute) | 4.209 | 1.605 | .181 | 2.622 | .010 |
| | Political Rights and Civil Liberties total Score, 2018 | -.009 | .076 | -.013 | -.118 | .906 |
| | E-Government Development Index, 2018 | 47.195 | 6.494 | .532 | 7.268 | .000 |

a. Dependent Variable: CPI score 2019

governance related variables. Except the Political Rights and Civil Liberties Total Score, the other three variables are significantly correlated to the corruption index. The Press Freedom Index has a negative sign of correlation with CPI as lower value of the index represents higher freedom of press of the country. Here also the residuals show a linear pattern, indicating towards another

variable intermediating and that may perhaps from the ICT related variables. Figure-3 below shows this pattern.

Figure-3



Scatterplot
Dependent Variable: CPI score 2019
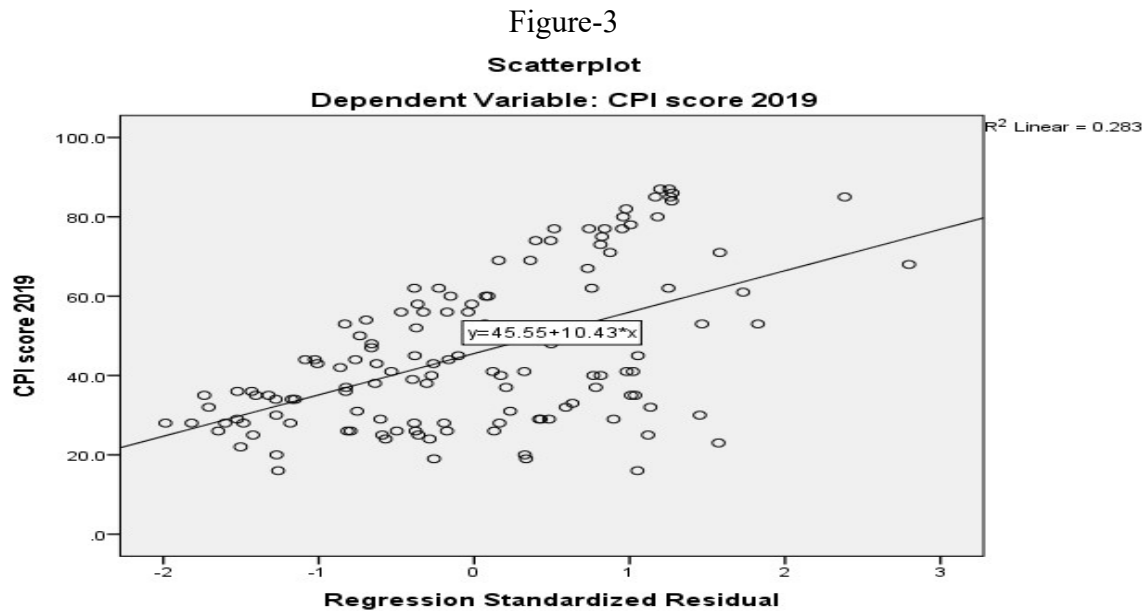
## 7. Analysis of the Impact of ICT variables

We have identified three variables under ICT which are supposed to impact the corruption incidence. It is believed that every country is digitizing delivery of public services through laying a wide telecommunication network and offering online services. They are also enabling the citizens to be able to use these services without any substantial physical contact with the bureaucracy. Different countries in the world are at different stages of this process. The main aims of the development are to expedite the service delivery, ensure accuracy and also to increase transparency so that the incidents of corruption can be minimized. Independent variables under category i.e. Social, Economic and Governance when regressed against CPI, one variable in each category was not found to be statistically significant. Moreover, the residual values were also showing a linear pattern indicating to existence of a possible variable related to ICT which may also be responsible for change in the value of CPI. As ICT affects every variable, it is concluded that the two, two and three variables from these three categories, which were found to be significantly related to CPI, may also be mediated by some of the three variables of ICT. However, for the purpose of this paper we will analyze the remaining variables which were not significantly correlated with CPI, to see whether they are correlated with any of the three ICT variables in stage-2 and then finally, whether they become significant when regressed again with CPI as the

dependent variable at stage-3 along with the concerned ICT variable also as an independent variable. In other words, in order to ascertaining the mediating effects of ICT variables, three steps proposed by Baron and Kenny (1986) were implemented.

## 8. Findings and results—

For the purpose of this paper, stage-2 and stage-3 regressions were performed for the variables that were found insignificant in Step-1 and discussed above. The results of Stage-2 and Stage-3 in respect of OSI are summarized in the table below: -

Table-4

| Serial No. | Variable | Stage-2 | | Stage-3 | |
|---|---|---|---|---|---|
| | Dependent Variable | Online Service Index (OSI) | | CPI | |
| | | B | t | B | t |
| 1. | Education Index | 1.001*** | 9.671 | 25.664** | 2.747 |
| 2. | Openness of Economy | 0.000 | -0.609 | 0.053** | 2.903 |
| 3. | Political Rights and Civil Liberties | 0.001 | 1.222 | 0.239*** | 5.212 |
| 4. | OSI | | | 20.133*** | 3.305 |

***P=<.001, **p=<0.01

These results in three steps show that all these three variables i.e. Education Index, Openness of Economy and Political Rights & Civil Liberties, which were statistically insignificant in stage-1, became significant in stage-3. Hence, it can be concluded that all these three variables are fully mediated by OSI.

Similarly, stage-2 and stage-3 regressions were carried out with Telecommunication Infrastructure (TII) as dependent and CPI as dependent variable in respective stages i.e. stage-2 and stage-3. The results were as follows.

Table-5

| Serial No. | Variable | Stage-2 | | Stage-3 | |
|---|---|---|---|---|---|
| | Dependent Variable | Telecom Infrastructure Index (TII) | | CPI | |
| | | B | t | B | t |
| 1. | Education Index | 1.037*** | 16.262 | -25.203** | -2.412 |
| 2. | Openness of Economy | 0.001** | 3.196 | 0.014 | 0.867 |
| 3. | Political Rights and Civil Liberties | 0.001* | 1.722 | 0.207*** | 5.349 |
| 4. | TII | | | 68.5*** | 8.257 |

***P=<.001, **p=<0.01, *p=<0.1

It can be seen that all these three variables become statistically significant in stage-2 and in stage-3 (in regression with CPI as dependent variable), only Education Index and Political Rights & Civil Liberties become statistically significant. Thus, Education Index and Political Rights & Civil Liberties are mediated by TII.

Finally, stage-2 and stage-3 regressions were carried out for e-participation and CPI as dependent variables in the respective stages. The results are shown below in the following table-

Table-6

| Serial No. | Variable | Stage-2 | | Stage-3 | |
|---|---|---|---|---|---|
| | Dependent Variable | e-Participation Index (EPI) | | CPI | |
| | | B | t | B | t |
| 1. | Education Index | 1.053*** | 10.236 | 27.257** | 2.816 |
| 2. | Openness of Economy | 0.000 | -1.504 | 0.057** | 3.053 |
| 3. | Political Rights and Civil Liberties | 0.001 | 1.467 | 0.238*** | 5.12 |
| 4. | EPI | | | 17.629** | 2.845 |

***P=<.001, **p=<0.01, *p=<0.1

The above results indicate that all the three indices, which were not significant in stage-1 i.e. Education Index, Openness of Economy and Political Rights & Civil Liberties, are mediated fully by the ICT index e-participation.

## 9. Conclusions and Policy Implications

In recent years, good governance has become the focus of the international community. Good governance refers to the delivery of minimum public service, including infrastructure, for basic education and health, roads, means of transport, and communication, rule of law and accountability. Good governance is not only the absence of corruption, but also the establishment of institutional arrangements, which help create an environment for sustainable economic development and for removal of abject poverty. Thus, good governance also includes an appropriate & effective legal framework for commerce, financial institutions, taxation, government expenditure, business competition and labor market regulation. With this moving from corruption to good governance, the emphasis has shifted to the following important areas.

1. Transparency in administration. The administration should develop transparent systems of procurement and decision-making. Development of IT and its application in all fields can help dissemination of information that is vital to the public. Many countries, including India, have passed specific legislations for divulging information of public interest. If implemented in the right spirit, it can help curb corruption largely.

2. Clarity of Rules & Procedures & Reduction of Discretionary Powers. Many rules and legislations in many countries infested most with corruption are ambiguously framed. This leads to differences in interpretations and bribes becoming one of the means to resolve the differences. Similarly, discretionary powers are a potential source of corruption. This has been a major source of corruption in many countries. In Indian context, many administrative authorities are having discretionary powers, which affect the public life and trade, including income tax & customs etc. More & more exemptions affecting the public life and trade etc. should be abolished in order to reduce the incidence of corruption. Educating the public about laws & rules is another very important factor to reduce corruption.

3. Weak Enforcement of Laws & Rules. If the implementation of laws & rules is not monitored or the culprits are not penalized, then the risk of sanction declines or the corruption margin increases. This can happen, for example, when the governing elite is not democratic or checks & balances in the society are weak (including weak or not independent public media, NGOs, widespread illiteracy). Developing countries often face serious constraints on their ability to implement projects or policies and are likely to suffer from corruptions. As the implementation machinery, including judicial system, strengthens, the corruption levels should come down.

4. The Corruption Tolerance. Because of historic reasons and inadequate education, many people accept corruption as the way of life. If the society as a whole does not oppose it out of fear of victimization at the hands of those in power, corruption can hardly be curbed. Strong institutions are the requirements for the same.

Among all these factors, as we have discussed, growth is the most important and significant factor which will increase individual wellbeing. Education is another weapon in the hands of the public. Moreover, there is a correlation between Openness to foreign trade, which makes local businesses competitive, encourages adoption of the best management practices, transfer of technology and exposes local business to the international business environment that values quality and discourages corruption. In essence, the policies of a country should be giving the highest priority to sustainable economic growth, which will in turn eliminate underlying corruption. This should be accompanied by policies to increase investment in education and health. In addition, they should implement policies bringing transparency in administration, clearly defined rules & laws without ambiguity, and a powerful enforcement infrastructure.

There are many political implications of this study. ICT use and e-government development were found to be major mediating factors for various social, economic and governance related factors as discussed above. As such, the results can serve as a valuable reference in the establishment of effective anti-corruption strategies. Since education level fully mediates the e-government's ICT use, telecommunications infrastructure, online services, and e-government participation, the level of education must be enhanced to decrease government corruption. Similarly, online services act as mediators between the political rights and civil liberties and reduction in corruption, we expect greater

involvement of citizens and media in government affairs to have a positive effect on online service accessibility and information acquisition, thereby resulting in reduced incidence of corruption.

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