

ABSTRACT

This paper aims to look into the relationship between Corruption and economic growth. Is corruption the ugly price we pay for economic growth? We then look into some case studies to see if the relationship actually holds true. Singapore has high levels of economic growth and low corruption, on the other hand, Japan has high levels of economic growth and high corruption. Some African countries have high corruption and low economic growth. Hence, it becomes difficult to have an unambiguous conclusion and the debate still goes on. We then develop a model to see what factors affect corruption by taking some countries and then see how we can combat corruption. We compare the results obtained with those of Transparency International done for various states in India.

CORRUPTION AND ECONOMIC GROWTH

Corruption is defined as “**use of public office for private gains.**”

According to Lui (1965) corruption minimizes waiting costs thus reducing inefficiencies in economic activity. Barro (1991) said that corruption negates economic growth through investment. Mauro* (1995) did econometric analysis and established a negative relationship between corruption and economic growth. Basically, we find that there are **two schools of thought** to Corruption-Economic Growth nexus.

First school of thought believes that corruption **greases** the engine of economic growth. It makes the economy more efficient by making the process of project approval to government officials more efficient. It increases economic growth by helping entrepreneurs to avoid bureaucratic delay by bribing officials. It is also helpful when regulation in the economy is rigid.

Second school of thought believes that corruption is very damaging for the economy. It is ANTI-poor, ANTI-development, ANTI-growth, ANTI-investment and inequitable. It adds to the cost of the business and introduces significant uncertainty in decision making process. Basically, it lowers Investment and reduces Economic Growth. Some say, it increases poverty, subverts the financial system and undermines the legitimacy of the state.

We are not specialist on corruption, but being economics students, we would like to use methods from economics to study corruption.

If we take an organized market economy and a corrupted economy, it is more likely that there will be an optimal allocation of resources in the former. The economic activities that will be started as a result of ‘greasing’ the wheels of the economy might not be the ones which contribute to the highest efficiency.

Also, looking at the argument of corruption being helpful in regulated markets, we believe, if there is corruption then there will be a greater incentive to introduce more regulations, as more regulations implies more gains through bribes. Thus, to us, the mixture of regulations and corruption seems combustible.

Also, suppose I am an entrepreneur who takes risks, well there are risks associated with every business! But what if I know that in future

there will be a ‘greater’ risk associated with any economic activity I undertake now because of corruption. Will I still take a chance? No. There will be a decline in risk taking entrepreneurial behavior and no doubt it will have a negative impact on economic growth.

In a nutshell, the relationship between corruption and economic growth is complicated. It is believed that corruption is a hindrance to India’s projected growth of 9% GDP growth. Above all, corruption increases income inequality (discussed later). Therefore, effective anti-corruption strategies need to be tailored to the social environment in which corruption occurs, so that in general, welfare can be increased.

However, it is not possible, or so to say, not advisable to have anti-corruption measures which will reduce corruption to 0%. While we are fighting corruption, we are moving towards 0%, away from 100% corruption point. As we move, the cost associated with fighting corruption also increases as attempts to remove smaller traces of corruption will be expensive. Therefore, we reach a point in between where benefits from reducing corruption by one point will outweigh the cost associated with anti-corruption strategies. Therefore, basic economics tells that it’s not sensible to get rid of all corruption. We will come to how to combat corruption later in the paper.

CASE STUDIES

Now we look at corruption in three countries, namely Japan, Africa and Singapore, all three having very different experiences regarding corruption and economic growth.

Japan represents the case of high corruption accompanied with high growth. It has been observed that the frequency of controversial scandals involving corrupt politicians and bureaucrats have gone up in Japan, especially post THE Second World War. These include Shipbuilding scandal 1954, Lockheed Scandal 1976, Kyowa Affair 1991, to name the few most serious ones. Most of these involved financing of political activities by corporate firms for their self-interest. While in some cases, the high profile politicians were sacked or arrested, in other cases the tainted politicians went on to become PM, win Nobel Prizes etc. However increased number of scandals does not necessarily imply increased corruption as a linear relationship cannot be assumed between the two.

Japan scores a mean of 7.1 in Transparency International Survey and 8.75 in Business International Survey. As stated illustrated earlier, the relationship between corruption and economic growth is rather complicated, this fact is corroborated by the Japanese experience.

*Mauro was the first to do an econometric analysis on Corruption, Investment and Economic Growth, and as many of us expect, he found a negative relationship between growth and corruption.

Despite having high levels of corruption for centuries, Japan has managed to experience high growth rates as well. One of the major reasons for this is that Japan is a case of “One stop corruption” that is, if a country wants to get a license for producing a product by paying a particular amount to a politician, then they will be willing to do this as it’s just like an additional cost for the license .However in other countries which are characterized by decentralized corruption, it’s not an easy task. Even after paying the bribe there is no surety that you have approached the right people.

On the other hand, the African case is the epitome of conventional wisdom supporting the theory that corruption’s negative effects outweigh the positives and overall it causes hampering of economic growth, both directly(by encouraging resource misallocation) and indirectly(by lowering investment in both physical and labor capital). In a study (Emmanuel Anoruo and Habtu Braha), 18 African countries were taken and it was seen that the average corruption Index for them is roughly 2.37 (which is on the high end of corruption scale).Economic growth on the other hand averaged about 2.07.Hence, this clearly shows that there exists a negative relation between these variable in Africa. The main results of this study show that:

- A) 1 unit increase in corruption retards Economic Growth by roughly 0.87 %.
- B) 1 unit increase in corruption translates to about 4.69% decrease in Investment share of GDP.

Thus, the African case unambiguously supports the conventional theory, which stipulates that corruption is detrimental to economic development and growth.

The next case in consideration is that of Singapore. It is a widely acknowledged fact that Singapore has witnessed a widely corruption free environment, especially in the past four decades. Empirically speaking, the CPI of Singapore is 9.3 according to Transparency International (implying very low levels of corruption).

The country has transformed a small island with only the resources of its people into a global city-state that is a model of economic success, social unity, educational superiority and technological achievement. It has a high developed free-market economy, enjoys stable prices and a GDP higher than that of many of the Western developed countries. The country is today seen as a vibrant alcove of creativity, thanks to its integrated national innovation policy that links education, global competitiveness, Research and Development (R&D) and workforce training behind a common innovative agenda. For example, Singapore gives thousands of scholarships to its students, funding their doctorates in foreign universities (a programme worth \$650million , started in 2000), which is now seeing its first PhD’s return to Singapore where they work in Government research labs for several years.

In short, Singapore again confirms to the conventional theory of low corruption and high economic growth.

Through these three case studies, one gets to see that there is no direct relation between corruption and economic growth and that the

equation is rather complicated. Moreover, one also gets to see that there are many parameters which can affect and determine the level of corruption in a country like literacy rates/ stress on education (in case of Singapore), decentralization (in case of Japan) etc.

HOW TO COMBAT CORRUPTION?

Thus, corruption needs to be tackled. It is often seen that many attempts to fight corruption fail. Basically, there are two broad ways to fight corruption:

1. Place the government agents in the centre of the reform, the advantage is that if there is political will to combat corruption, then it can be very effective and fast. This is what happened in Singapore. Till 1960, it was as corrupt as any other Asian country but within a period of 5 years it turned into one of the finest and cleanest bureaucracies in the world.
2. Place the people in the centre of the reform. Here, no pre-political will is required. It might take a long time because people don’t have knowledge to demand changes from the government.

In **India**, there is a lack of political will; hence the first approach seems far from possible. Therefore, we look into the second approach, i.e., placing citizens in the centre of the reform.

Therefore, to combat corruption, we should invest on **HUMAN CAPABILITIES**. It includes investment in (i) Human Capital- Skill and knowledge owned by individual citizens. (ii) Social Capital- Relationships that enable citizens to act together. (iii) Information Capital- Information about government available to people. Apart from these, there are some other factors which need to be taken while studying corruption. They are Democracy index and Fiscal Decentralization index.

So, we develop a model to study what factors affect corruption, perform econometric analysis and see if the correlation between those variables and Corruption Perception Index is significant.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

Here, Y is The Corruption Perception Index (CPI). α is the intercept, X_1 is Literacy Rates 2011. X_2 is Voice and Accountability Index. X_3 is Press Freedom Index 2011. X_4 is Democracy Index. X_5 is Fiscal Decentralization Index. $\beta_1, \beta_2, \beta_3, \beta_4,$ and β_5 are the coefficients of these variables. Note: Higher the corruption, lower the Corruption Perception Score.

HYPOTHESIS:

H₀: $\beta_i = 0$

H_a: $\beta_1 > 0$, Higher the Literacy Rate, Higher CPI, lower corruption.

$\beta_2 > 0$, Higher the Voice and Accountability Index, Higher CPI, lower corruption.

$\beta_3 < 0$, Higher the Press Freedom Index, Lower CPI, Higher Corruption.

$\beta_4 > 0$, Higher Democracy Index, Higher CPI, lower corruption.

$\beta_5 < 0$, Higher Decentralization Index, Lower CPI, Higher Corruption.

We test the hypothesis based on the data in the table in Appendix 2. To check the sources of these data, see Appendix 2.

EMPIRICAL ANALYSIS

Before running regressions for which we used MS Excel, all the variables have been scaled to a range of 100 for the simplicity of comparison. **(Note: It was not essential to do so. Scaling WON'T affect the P values and the R square, only coefficients and standard error will change.)** CPI and Democracy Index ranges from 0 to 10, hence were multiplied by 10. Press freedom Index, Literacy rates and decentralization Index ranges from 0 to 100. The Voice and Accountability Index range from -2.5 to 2.5 with mean=0 and standard deviation=1 index point. Hence we scaled them as follows:

$Z = -2.5 = (0-\mu)/\sigma$ and $Z = 2.5 = (100-\mu)/\sigma$. Solve to get, $\mu=50, \sigma=20$, Therefore, $X=\mu + z*\sigma = 50 + 20*z$

The results obtained in regression analysis are as follows:
It is based on 73 countries for which all data was available.

	[1]	[2]	[3]	[4]	[5]
α Intercept	-12.623	-8.296	79.82	-14.69	49.88
X ₁	0.6765				
X ₂		1.0064			
X ₃			-0.76		
X ₄				0.94	
X ₅					-0.027
R square*	0.181	0.705	0.61	0.65	0.01
P values**	0.0017	1.64E-20	3.46E-16	7E-18	0.811

***R square** explains what percentage of the change in dependent variable is explained by the independent variable.

NOTE: When we run a regression in MS Excel, they also show **Adjusted R square**, which is R square adjusted for number of explanatory terms in the model. It is more useful only if R square is calculated based on the sample and not the entire population

In statistical significance testing, the **p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true. One often "rejects the null hypothesis" when the p-value is less than the significance level α (Greek alpha), which is often 0.05 or 0.01. When the null hypothesis is rejected, the result is said to be statistically significant.

When linear regression is done, *ceteris paribus*, then we can see that except for X₅, null hypothesis is true for all. Also the P values are less than 0.05 and hence significant at 5% significance level, which means we can say with a probability of 95% of being correct, that these variables have an effect on CPI. However, we see there is hardly any correlation (β_5 almost 0) between decentralization and corruption, and it is also seen in Figure 5 of Appendix 2.

LITERACY RATE– Means to be able to read and write. Figure 1 in Appendix 2 shows that there is a positive relationship between literacy

rates and CPI, *ceteris paribus*. Hence countries having high literacy rates have low levels of corruption. But there are countries like Vietnam, Philippines, Indonesia, which inspite of having high literacy rates have high corruption. Thus, high literacy rates do not mean reduction in corruption. BUT, in most of the countries it does. Hence, improving literacy rates helps in controlling corruption, the thing is, corruption depends on other factors as well. "Literacy rate can be a vaccine against corruption." Countries need to invest more on education to address corruption successfully.

VOICE AND ACCOUNTABILITY- The Voice and Accountability Index is a measure of "various aspects of the political process, civil liberties and political rights, measuring the extent to which citizens of a country are able to participate in the selection of governments." Voice and Accountability is an important human capability in fighting corruption.

PRESS FREEDOM- Information Capital is a form of human capability which can address the problem of government corruption effectively. Media is one main source for information to flow. When people get to know about government's functions and operations because of the free flow of information, it helps to reduce corruption.

DEMOCRACY- It is believed that democracy acts as an 'invisible hand' to reduce corruption because people can vote out the corrupt politicians so that they stay away from such practices. Some economists argue that it is not the level of democracy that affects corruption but it is the longer experience with democracy that helps in reducing corruption.

DECENTRALIZATION- For Decentralization Index, we have used the sub-national transfers from government as a % of total transfers. Some believe that decentralization can help to reduce corruption through better monitoring and control of the local government by local people. Others argue that legal and monitoring institutions are often weaker and fewer at the local level, opening the door for more corruption. However, in our model, we find that there is almost no correlation between Decentralization and Corruption Perception Index. Some studies also say that within-country decentralization helps in controlling corruption.

Now, we look at the results obtained in multiple regressions.
No. of observations = 73

	α	X1	X2	X3	X4	X5
Coefficient	-54.599	0.0801	1.465	0.3941	-0.0153	-0.0554

R square	0.725
Adjusted R square	0.705

The value of coefficient of determination or R square is 0.725 which means 72.5% of the variations in CPI are explained by the 5 mentioned factors.

Voice and Accountability Index has a positive effect on corruption and P value for it is 0.002. However the P value associated with other

variables are greater than 0.05 and hence are not significant at 5% significance level.

We tried various combinations of the above 5 variables and for the following two variables, the result was found to be significant at 5% significance level. Thus rejecting the null hypothesis.

	Coefficients	P-value
X2 -Voice and Accountability	1.601220076	1.37E-06
X3 -Press freedom	0.503455956	0.046552

R Square	0.721560258
Adjusted R Square	0.713604837

When we took variables Democracy Index and Decentralization Index, the P value for Democracy Index came to be 3.77E-18 and that of Decentralization Index came to be 0.127049 with R square 0.662

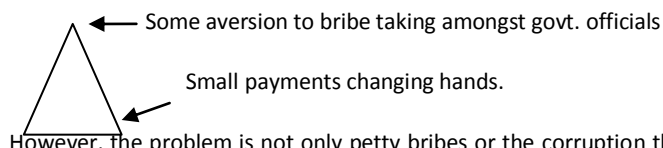
NOTE:

1. While running regression, we make a very strong assumption and that is absence of Multi-collinearity, i.e. the independent variables have no correlation between them. BUT, that is, in most cases a faulty assumption to make. Because, here also Multi-collinearity exists. Thus, the results are not very accurate, but only approximately correct.
2. What we have been trying to do is, fix a linear trend line for all the variables. However, if we fix a polynomial curve, the results are worth-mentioning.

We see that the curves for Literacy Rates, Voice and Accountability Index and Democracy Index are convex functions. So, initially there is a relatively weak correlation of these variables with CPI and after a point (threshold) the correlation is relatively stronger. It is interesting to note that India lies at this threshold and hence an improvement in Literacy rates, Voice and Accountability and Information Capital from now will lead to a significant decline in corruption. Same holds with Press freedom. We will focus now on Corruption in India.

CORRUPTION IN INDIA

The level of corruption in India is high. India is one of the largest democracies in the world. It has 10 states with population over 50 million (Census 2011). Hence, with such populous and diverse states, it becomes essential to look at corruption at the state-level. The pattern of corruption in India is shown below.



However, the problem is not only petty bribes or the corruption that I saw when I went to do a PDS survey in summers, but the problem is also of the huge scams that our country faces which, if not checked, has far reaching impacts. It is better than the situation in China of “inverted triangle” where low level officials are fearful of punishment

but higher ups rake in big money. According to us, we think, necessary steps should be taken so that the triangle doesn't get converted to a big square of corruption, which we believe, will have a detrimental effect on Investment and innovation.

In India, we have states like Kerala and HP having low corruption and Bihar and J&K having high corruption. Hence, it is necessary to look into factors which affect corruption before addressing the problems of corruption in India. A study in this, was done by TI (Transparency International) and CMS (Centre for Mass Studies) in 2005 in which 14,405 respondents were covered across 306 rural areas in 20 states and then econometric analysis was done. The null hypothesis is:

- H₀:**
- 1) Higher levels of income and education => lower corruption
 - 2) Higher levels of heterogeneity => higher corruption
 - 3) Higher income inequality => higher corruption
 - 4) Fiscal decentralization => lower corruption
 - 5) Media access and free press => lower corruption

How were these measured?

1. Literacy Levels- Data from IIPS (International Institute of Population Sciences) 2007
2. For Heterogeneity, Herfindel Index of religious fractionalization for each state in India. So, if N is no. of religious groups and S is proportion of each group in each state (Census data 2001). HI

$$H = \sum_{i=1}^N Si^2$$

Score=1-H, higher score=> high religious diversity

3. For inequality data was taken from University of Texas inequality Project (2008). Note: The data is in the form that for H₀ to be true the coefficient should be negative.
4. Decentralization -Data from Rao (2001)
5. Media- Based on people's response about exposure to media.

The reason why we have listed down the sources is to put light into the fact that the conclusions from this type of analysis might not be accurate.

1. We don't know how reliable the sources are?
2. Also CPI (corruption Perception Index) ENTIRELY depends on the survey (based on perception of the people), hence the question is whether the respondents of the survey were honest.

What we suggest is that, a better measure of Corruption in the various states of India will be T&D losses. It is highly reliable and accurate.

Note: When we found the correlation between the T&D losses and Corruption score, it was just 0.67, which means there is some error associated with Corruption Scores given by Transparency International which is based on people's perception and experience of corruption.

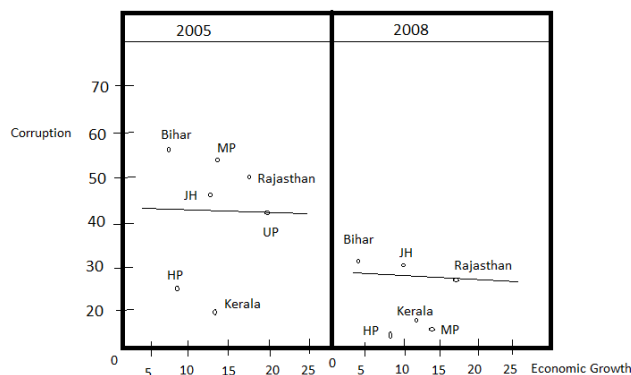
But, we guess, the survey done by TI and CMS is also often reliable, hence we look at the conclusions. For detailed tables and econometric analysis, look Appendix-3.

CONCLUSIONS

When OLS regression was done, the coefficients of Levels of income and education was -0.656 (null hypothesis accepted, high correlation). The coefficient of heterogeneity was 0.044 (no significance correlation). The coefficient of Income inequality was -0.214 (null hypothesis accepted, not very correlated). The coefficient of decentralization was -0.498 (null hypothesis accepted, high correlation) and coefficient of media exposure was 0.061 (not correlated). Thus, we see that High levels of income and education and decentralization have a significant impact on CPI. Wealthier and educated the state is and more self-reliant the state is, less the corruption. Corruption is higher in regions that are more reliant on federal transfers for their revenues. The idea is that a state government will be more accountable to citizens and will be more apt to provide better services. Also R^2 value is 0.68. Thus, 68% of the variations in CPI is explained by the five factors listed.

IMPACT OF RTI

All this was before RTI Act 2005* Thus, a question that follows is whether legal institutions such as RTI are effective in curbing corruption? A similar survey was done by TI and CMS in 2008 and the impact of RTI can be seen clearly.



*RTI Act 2005 states “An act to provide for setting out the practical regime of RTI for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority...”

RTI act has negative impact on corruption and its impact is uniform. The actual decline in Bihar after RTI act is 30%. There has been significant decline in corruption experience after RTI especially in Land Administration and PDS. In short, legislations like RTI act in India are important in curbing corruption. Earlier, there was some sort of ‘information monopoly’, but RTI act breaks this monopoly of public officials and empowers citizens, thereby preventing corrupt public officials from misusing this information to advance their own interests.

OPINION ON JAN LOKPAL BILL

We decided to do a project on Corruption as there has been a huge hue and cry in India as far as Jan Lokpal bill is considered. We saw that if certain acts like RTI if implemented properly can prove to be a vaccine against corruption. If the Lokpal bill is passed then no longer the cases against corrupt people will linger on for years anymore, investigations in any case will have to be completed within a year. Independent of ministers and bureaucrats, it can help to deter corruption to a great extent.

Whether the Jan Lokpal bill is adopted or not, will be clear with time. But what we would like to say is that it has surely managed to create great level of **consciousness and tremendous awareness** amongst people in the country. For the very first time since independence, the citizens are making use of the opportunity to **directly participate in the making of a law** that will have a significant and direct impact in their lives and the future of our country especially at the time when the country is ridden by corruption. This anti-corruption move by Anna and troops has **deepened democracy** in our country and people are **experiencing their rights**. People are becoming less tolerant towards any form of corruption and one can see many campaigns around the country where people take pledge to never give or take a bribe. It has **united** the nation. Voice and Accountability has improved tremendously.

Thus, the entire episode has had a positive impact till now, and in our opinion the positive effects will only be augmented exponentially if the UPA decides to pass the Bill. One thing that we would like to mention is that even though people have participated in the movement, most of them don’t know what it is; this is due to lack of knowledge and information, yet another area that we should focus on.

CONCLUSIONS

- ✚ Many research papers have been done to establish a relationship between corruption and economic growth. However, it is not possible to find a proper relationship between the two. But, according to majority of the analysis, corruption is bad for the economy. We must look into the fact that there is a two-way relationship between them. Economic growth helps in reducing corruption as more resources are available, just as decline in corruption fosters economic growth.
- ✚ We know that in India, there is a lack of political will to fight corruption; hence we focus on strengthening human capabilities. We saw that at the state-level in India, rise in Literacy rates helps to reduce corruption. Moreover, we also saw in the cross-country analysis that India is at the point from where a small change in Literacy levels will have significant impact on corruption. **But, these figures are fancy.** India has a very poor definition of 'being literate' – To be able to read and write own name. Some draw patterns, unaware that it's their name, and are called literate!
- ✚ In the cross-country analysis, the only highly significant variable was Voice and Accountability Index. The thing is, a **collective** effort by citizens is required to fight corruption because people as individuals can't be successful to fight corruption.
- ✚ Investment in Information Capital is a must. We saw how the RTI Act in India helped to reduce corruption drastically just within a period of 3 years.
- ✚ We didn't find significant correlation between democracy and corruption, but to some extent it is true that longer the experience of a country with democracy, it helps to fight corruption as people know the corrupt officials and can vote them out.
- ✚ The religious fractionalization or heterogeneity doesn't have a significant impact on corruption. However, income inequality increases instances of corruption.
- ✚ In the cross-country analysis we saw decentralization does not have an effect on corruption. But when we look at the state-level analysis in India, fiscal decentralization helps in reducing corruption. Increased fiscal decentralization is associated with enhanced quality of governance as measured by citizen participation, political and bureaucratic accountability, social justice, improved economic management and reduced corruption.
- ✚ Thus, investing in human capital, information capital and social capital, in short in human capabilities will give returns in future in the form of reduced corruption, And, this investment has zero-risk because even if it fails to directly reduce corruption, indirectly human development leads to growth which creates more resources which can be used to combat corruption. Atleast, investment in human capabilities will not lead people to grow like plants, which grow because they have no choice but to grow.
- ✚ Creating awareness about the seriousness of corruption, more surveys like the one done by TI as it would help in awareness, providing mass education, increasing media's effectiveness to provide information, or I would say, build up a network through internet, social networking, to provide information to people(ofcourse it has certain limitations), legislations like RTI, strong anti-corruption strategies, creating **independent** bodies for citizens' appeal against any form of corruption, and fiscal decentralization can act as a vaccine against corruption.

APPENDIX 1

HONG KONG, CHINA (SAR) Anti-Corruption Formula: To Learn

- ❖ “Nearly all of the major corruption cases I have dealt with were committed by people with high authority and good wealth. For them, they have certainly been educated about the evil of corruption and they may also be subject to certain degree of anti-corruption control. But what inspired them to commit corruption? The answer is simply greed, and they would weigh the fortune they could get from corruption with the chance of them being discovered. So how can we deter them from being corrupt? The only way is to make them realize that there is a high risk of them being caught, which is the Mission of the ICAC Operations Department – to make corruption a high risk crime.”

In a speech by Mr. Tony KWOK Man-Wai, visiting Professor of the PRC National Prosecutors College and Former Head of Operations, ICAC.

- ❖ Public attitudes can never be taken for granted. In Hong Kong, China (SAR) the transformation of the public attitude from resigned tolerance to extreme intolerance of corruption has been a slow and painstaking process, punctuated with successes and setbacks. Such a massive social campaign is demanding, yet the lessons drawn from it are invaluable. In the context of Hong

Kong, China (SAR) the shaping of a new social order called for:

- **Public identification with the cause** – Sustained community education campaigns are needed to raise public awareness of corruption. People should be made aware that corruption may have dire consequences if left unchecked. They must be convinced that ordinary citizens are in a position to do something about it, for their own interest and the common good. They should be shown in concrete terms that corruption only fuels other crimes to the detriment of the prosperity and economic wellbeing of the people.

- **Reporting in confidence** – Fear of retaliation discourages people from reporting. ICAC spares no effort in ensuring that nobody is victimized for reporting corruption. From the start, ICAC has enforced a rule of silence on all reports of corruption. For highly sensitive cases, a comprehensive witness protection programme is in place, which in extreme cases enables witnesses to change their identities and relocate.

- **Making corruption a high-risk crime** – Justice must be seen to prevail against corruption. Nothing could send a stronger message both to law-abiding citizens and criminals than the ability to bring to justice persons who have committed acts of corruption – regardless of their background and positions.

- **Credible checks and balances** – Because of the confidential nature of the work of ICAC and the extensive investigative powers that it enjoys, there is some potential for abuse. Since the inception of ICAC, therefore, an elaborate system of checks and balances has been in place to assure the public that if any abuse were to occur, it would be promptly rectified. The system safeguards the interest of the public by placing prosecution decisions solely in the hands of the Department of Justice. All aspects of ICAC: investigation, prevention, community education and overall management, are supervised by advisory committees comprising respectable citizens appointed by the Chief Executive of Hong Kong, China (SAR). The committees can discuss with the Chief Executive matters of concern and they publish annual reports

on their work. Moreover, all non-criminal complaints against officers of ICAC are vetted by an independent complaints committee that publishes its findings annually.

Source: UNODC 2004.

APPENDIX 2

X₁ is Literacy Rates 2011. X₂ is Voice and Accountability Index. X₃ is Press Freedom Index 2011. X₄ is Democracy Index. X₅ is Fiscal Decentralization Index.

No.	Name of Country	CPI	X1	X2	X3	X4	X5
1	Afghanistan	1.4	14	-1.45	75	2.48	
2	Albania	3.3	99.1	0.098	50	5.86	94.9
3	Algeria	2.9	69.9	-1.009	62	3.44	
4	Angola	1.9	67.4	-1.139	64	3.32	
5	Argentina	2.9	97.6	0.31	51	6.84	
6	Armenia	2.6	99.7	-0.852	65	4.09	
7	Australia	8.7	99	1.429	21	9.22	36.7
8	Austria	7.9	99	1.441	21	8.49	30.3
9	Azerbaijan	2.4	99.5	-1.272	79	3.15	36.5
10	Bahrain	4.9	88.8	-0.855	72		16.1
11	Bangladesh	2.4	56.5	-0.276	54	5.87	
12	Barbados	7.8	99.7	1.211	19		
13	Belarus	2.5	99.7	-1.554	93	3.34	23.5
14	Belgium	7.1	99	1.428	12	8.05	53.3
15	Benin	2.8	40.5	0.29	33	6.17	
16	Bhutan	5.7	84	-0.462	57	4.68	
17	Bolivia	2.8	90.7	-0.089	46	5.92	39.4
18	Bosnia	3.2	96.7	-0.116	48	5.32	
19	Botswana	5.8	82.9	0.432	40	7.63	83.2
20	Brazil	3.7	90	0.449	44	7.12	33.5
21	Brunei	5.5	94.9	-0.696	75		
22	Bulgaria	3.6	98.3	0.486	35	6.84	38
23	Burkina Faso	3.1	28.7	-0.24	41	3.59	23.5
24	Burma	1.4			94		
25	Burundi	1.8		-0.921	74	4.01	
26	Cambodia	2.1	76.3	-0.873	63	4.87	
27	Cameroon	2.2	67.9	-1.062	67	3.41	
28	Canada	8.9	99	1.379	19	9.08	22.2
29	Cape Verde	5.1	83.8	0.855	27	7.94	
30	Central African Republic	2.1	48.6	-1.124	61	1.82	
31	Chad	1.7	31.8	-1.383	75	1.52	
32	Chile	7.2	96.5	1.043	29	7.67	7.68
33	China	3.5	94	-1.65	85	3.14	39.9
34	Columbia	3.5	92.7	-0.186	56	6.55	53.1
35	Comoros	2.1	75.1	-0.4	48	3.41	
36	Costa Rica	5.3	95.9	1.027	18	8.04	5.42
37	Croatia	4.1	98.7	0.441	41	6.81	4.84
38	Cuba	3.7	99.9	-1.622	92	3.52	
39	Cyprus	6.3	97.7	1.064	22	7.29	7.66
40	Czech Republic	4.6	99	1.018	19	8.19	27
41	Dem. Republic of Congo	2	67.4		40	2.15	
42	Denmark	9.3	99	1.581	13	9.52	41.1

43	Djibouti	3.2	70.3	-1.14	73	2.2	
44	Dominica	5.2	88	1.012	23		
45	Dominican Rep	3		0.052		6.2	6.71
46	East Timor	2.5			35	7.22	
47	Ecuador	2.5	91	-0.279	52	5.77	11.2
48	Egypt	3.1	66.4	-1.204	65	3.07	
49	El Salvador	3.6	82	0.038	42	6.47	
50	Equatorial Guinea	1.9	87	-1.887	90	1.84	
51	Eritrea	2.6	67.2	-2.175	94		
52	Estonia	6.5	99.8	1.127	18	7.68	25.8
53	Ethiopia	2.7	35.9	-1.314	78	3.68	
54	Finland	9.2	99	1.538	10	9.19	25.6
55	France	6.8	99	1.226	23	7.77	34.6
56	Gabon	2.8	86.2	-0.924	69		
57	Gambia	3.2	46	-1.104	81	3.38	5.44
58	Gautemala	3.2	73.2	-0.355	59	6.05	
59	Georgia	3.8	100	-0.173	55	4.59	
60	Germany	7.9	99	1.345	17	8.38	24.1
61	Ghana	4.1	65	0.494	26	6.02	
62	Greece	3.5	97.1	0.898	30	7.92	42.5
63	Guinea	2	29.5	-0.901	59		
64	Guinea-Bissau	2.1	64.6	-0.891	57	1.99	
65	Guyana	2.7	99	0.04	30		
66	Haiti	2.2	62.1	-0.716	49	4	
67	Honduras	2.4	83.6	-0.479	61		
68	Hong Kong	8.4	94.6	0.583	32	5.92	
69	Hungary	4.7	99.4	0.917	30	7.21	53.1
70	Iceland	8.5	99	1.398	12	9.65	11.2
71	India	3.3	74	0.424	35	7.28	41
72	Indonesia	2.8	92	-0.055	53	6.53	70.3
73	Iran	2.2	82.3	-1.574	91	1.94	8.75
74	Iraq	1.5		-1.053	68	4	
75	Ireland	8	99	1.337	16	8.79	77.9
76	Israel	6.1	97.1	0.625	29	7.48	42.1
77	Italy	3.9	98.9	0.927	34	7.83	58.8
78	Ivory Coast	2.2	48.7		68		
79	Jamaica	3.3	86	0.439	18	7.21	
80	Japan	7.8	99	1.048	21	8.08	
81	Jordan	4.7	91.1	-0.833	63	3.74	
82	Kazakhstan	2.9	99.6	-1.143	80	3.3	23.5
83	Kenya	2.1	73.6	-0.231	54	4.71	1.1
84	Kiribati	3.2		0.689	27		
85	Kuwait	4.5	94.5	-0.504	57	3.88	
86	Kyrgyzstan	2	99.3	-0.957	70	4.31	
87	Laos	2.1	68.7	-1.634	85	2.1	
88	Latvia	4.3	99.8	0.81	26	7.05	24.8
89	Lebanon	2.5	89.6	-0.33	53	5.82	
90	Lesotho	3.5	82.2	-0.178	48	6.02	
91	Liberia	3.3		-0.226	59	5.07	
92	Libya	2.2	86.8	-1.912	94		
93	Lithuania	5	99.7	0.905	22	7.24	21.4
94	Luxembourg	8.5	99	1.561	12	8.88	36.8
95	Macau	5		0.608			
96	Macedonia	4.1	97	0.087	48	6.16	
97	Madagascar	2.6	70.7	-0.798	64	3.86	

98	Malawi	3.4	71.8	-0.158	55	5.84	4.53
99	Malaysia	4.4	91.9	-0.531	64	6.19	17.9
100	Maldives	2.3	97	-0.1	50		
101	Mali	2.7	26.2	0.153	24	6.01	
102	Malta	5.6	92.4	1.146	22	8.28	
103	Mauritiana	2.3		-0.892	53	3.86	
104	Mauritius	5.4	87.4	0.745	28	8.04	62.4
105	Mexico	3.1	92.8	0.08	62	6.93	33.5
106	Moldova	2.9		-0.07	55		30.6
107	Mongolia	2.7	97.3	0.003	39	6.36	40.6
108	Montenegro	3.7		0.205	37	6.27	
109	Morocco	3.4		-0.768	68	3.79	
110	Mozambique	2.7	44.4	-0.119	44	4.9	
111	Namibia	4.4	88	0.335	34	6.23	
112	Nepal	2.2		-0.533	59	4.24	
113	Netherlands	8.8	99	1.494	14	8.99	67.7
114	New Zealand	9.3	99	1.526	15	9.26	18.6
115	Nicaragua	2.5	78	-0.479	47	5.73	1.44
116	Niger	2.6	28.7	-0.464	59	3.38	
117	Nigeria	2.4	72	-0.823	52	3.47	
118	Norway	8.6	99	1.618	11	9.8	38
119	Oman	5.3	81.4	-1.051	71	2.86	
120	Pakistan	2.3	57.7	-0.816	61	4.55	26.2
121	Panama	3.6	93.4	0.48	44	7.15	1.12
122	Papua New Guinea	2.1	49.8	0.072	25	6.54	85.2
123	Paraguay	2.2	94.6	-0.129	60		4.46
124	Peru	3.5	89.6	0.033	43	6.4	75.3
125	Philippines	2.4	93.4	-0.092	46	6.12	57.4
126	Poland	5.3	99.3	1.033	25		33.8
127	Portugal	6	94.9	1.123	17	8.02	32.5
128	Puerto Rico	5.8		0.918			
129	Qatar	7.7	93.1	-0.966	66	3.09	
130	Republic of China	5.8				3.14	
131	Republic of Kosovo	2.8					
132	Republic of Congo	2.1	81.1			2.15	
133	Romania	3.7	97.6	0.447	42	6.6	34.5
134	Russia	2.1	99.5	-0.945	81	4.26	13.7
135	Rwanda	4	64.9	-1.335	84		
136	Samoa	4.1	98.7	0.463	30		
137	Sao Tome	3		0.135	29		
138	Saudi Arabia	4.7	85	-1.768	83	1.84	
139	Senegal	2.9	41.9	-0.315	54	5.27	0.25
140	Serbia	3.5	96.4	0.291	33	6.33	
141	Seychelles	4.8	91.8	0.115	56		
142	Sierra Leone	2.4	38.1	-0.176	53	4.51	
143	Singapore	9.3	87.9	-0.292	68	5.89	
144	Slovakia	4.3	99	0.891	22	7.35	13.7
145	Slovenia	6.4	99.7	1.017	25	7.69	22.3
146	Solomon islands	2.8	76.6	0.117	29		
147	Somalia	1.1		-2.002	84		22.5
148	South Africa	4.5	88	0.526		7.79	80

149	South Korea	5.4	99		33	8.11	
150	Spain	6.1	97.9	1.141	23	8.16	59.1
151	Sri Lanka	3.2	94.2	-0.508	71	6.64	35.9
152	Sudan	1.6	60.9	-1.705	78	2.42	77.8
153	Swaziland	3.2	79.6	-1.268	76		10.1
154	Sweden	9.2	99	1.583	11	9.5	17.7
155	Switzerland	8.7	99	1.617	13	9.09	24.3
156	Syria	2.5	83.1	-1.676	84		
157	Tajikistan	2.1	99.6	-1.356	78	2.51	36.9
158	Tanzania	2.7	72.3	-0.097	48	5.64	
159	Thailand	3.5	94.1	-0.588	62	6.55	28.7
160	Togo	2.4		-0.965	73	3.45	
161	Tonga	3	99.2	0.296	31		
162	Trinidad & T	3.6	98.7	0.522	24	7.16	96
163	Tunisia	4.3	77.7	-1.345	85	2.79	49.5
164	Turkey	4.4	88.7	-0.159	54	5.73	
165	Turkministan	1.6	99.5	-2.029	96	1.72	
166	UAE	6.3	90	-0.888	71	2.52	
167	Uganda	2.5	73.3	-0.477	54		25.6
168	Ukraine	2.4	99.7	-0.148	56	6.3	
169	United Kingdom	7.6	99	1.313	19	8.16	71.6
170	United States	7.1	99	1.162	17	8.18	29.1
171	Uruguay	6.9	97.9	1.145	25	8.1	8.41
172	Uzbekistan	1.6	96.9	-2.017	94	1.74	
173	Vanuatu	3.6	78.1	0.501	25		
174	Venezuela	2	95.2	-0.905	76	5.18	61.4
175	Vietnam	2.7	90.3	-1.43	83	2.94	
176	Yemen	2.2		-1.282	83		
177	Zambia	3	70.6	-0.264	61		34.1
178	Zimbabwe	2.4	91.2	-1.488	81	2.64	2.27

*Blank spaces means data NA

SOURCES:

1. The CPI data has been taken from the reports published by Transparency International in 2010. The 2010 CPI draws on 13 different surveys and assessments from 10 independent institutions which are African Development Bank, the Asian Development Bank, the Bertelsmann Foundation, the Economist Intelligence Unit, Freedom House, Global Insight, International Institute for Management Development, Political and Economic Risk Consultancy, the World Economic Forum, and the World Bank.
2. Literacy Rates data obtained from Wikipedia, WB
3. Voice and Accountability Index taken from World Bank's Governance Matters VIII report
4. Press Freedom Index 2011 is also taken from Transparency International survey.
5. Democracy index data taken from EIU (Economist Intelligence Unit)
6. Decentralization Index taken from WB group and is based on Transfers from other levels of Government (% of total sub-national revenues and grants)

FIGURE 1: X axis- Literacy rates, Y axis- CPI

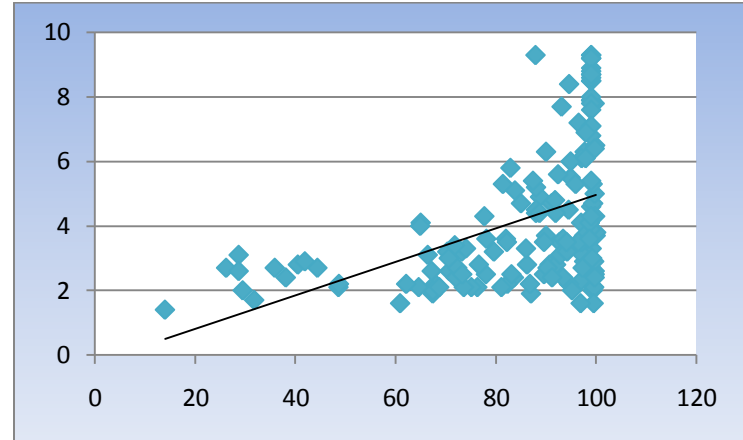


FIGURE 2: X axis- Voice and Accountability Index, Y axis- CPI

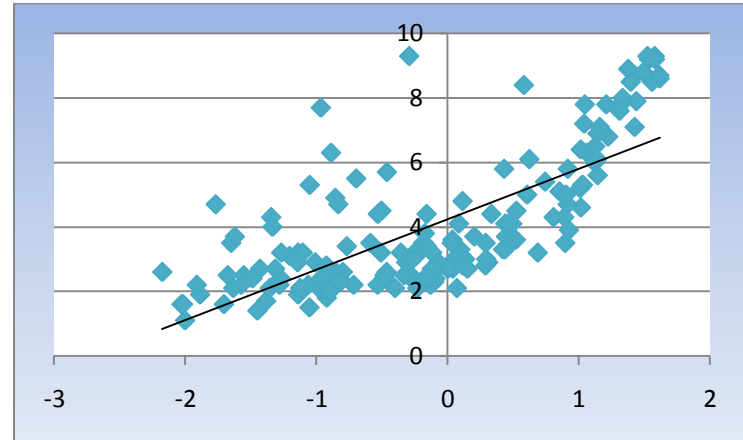


FIGURE 3: X axis- Press Freedom Index, Y axis- CPI

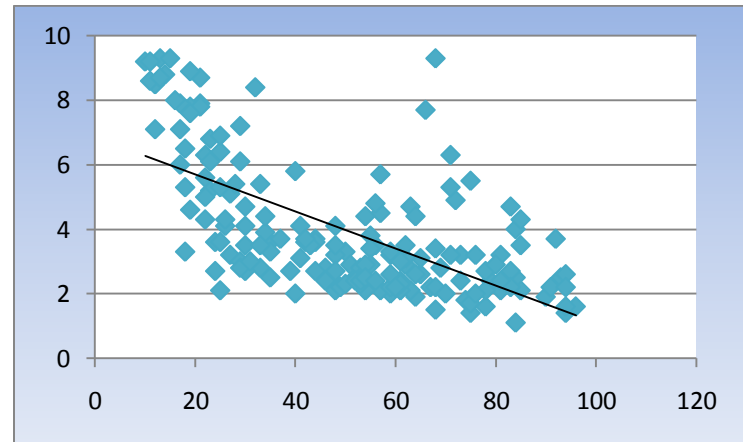


FIGURE 4: X axis- Democracy Index, Y axis-CPI

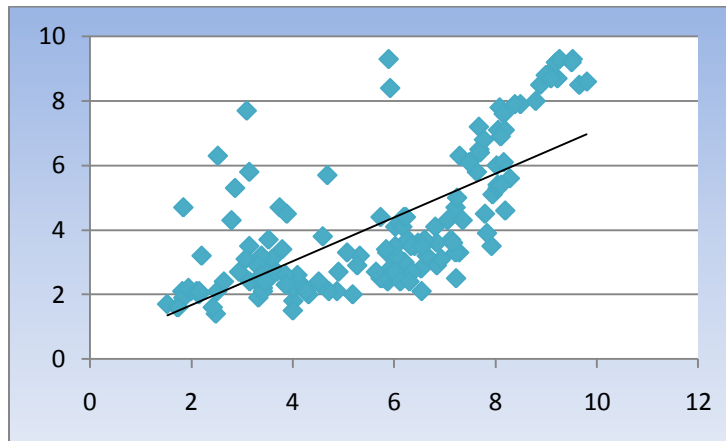
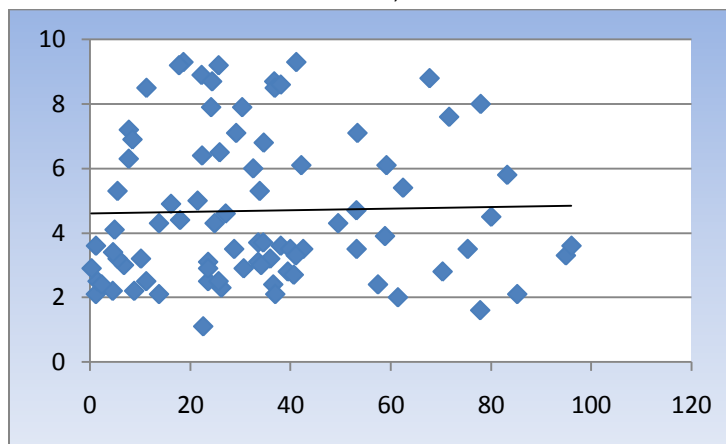


FIGURE 5: X axis- Decentralization Index, Y axis-CPI



APPENDIX 3

STATES	Composite Corruption Score	T&D losses
Kerala	2.4	19
Himachal Pradesh	3.01	15
Gujarat	4.17	24
Andhra Pradesh	4.21	18
Maharashtra	4.33	23
Chhattisgarh	4.45	33
Punjab	4.59	19
West Bengal	4.61	24
Orissa	4.75	NA
Uttar Pradesh	4.91	25
Delhi	4.96	NA
Tamil Nadu	5.09	18
Haryana	5.16	24
Jharkhand	5.2	39
Assam	5.42	32
Rajasthan	5.43	30
Karnataka	5.76	21
Madhya Pradesh	5.84	39
J&K	6.55	62
Bihar	6.95	37

MEAN SCORE=4.88, STANDARD DEVIATION=1.04

0-Least corrupt, 10-Most corrupt

The above table shows the Composite Corruption score given to various states surveyed under TI and CMS. The largest 20 states wrt population taken except Uttarakhand which is more populous than HP. This composite index was developed on the basis of Corruption experience and Corruption Perception. Corruption in Income tax bureaucracy, Municipal services, Judiciary, Rural Financial Institutions, Land Administration, Police, Public schools, water suppliers, electricity suppliers, government hospitals, and Ration Card suppliers were taken into account.

	[1]	[2]	[3]	[4]	[5]	[6]
Development	-0.701	-0.712	-0.735	-0.674	-1.03	-0.656
Heterogeneity		0.084				0.044
Income Inequality			-0.173			-0.214
Decentralization				-0.565		-0.498
Media exposure					0.0277	0.061
R SQUARE	0.47	0.49	0.55	0.67	0.58	0.68

When all factors are included together there is Multicollinearity issues. That's why OLS regression also looks at how each variable is correlated to the 'Y' variable, which is Corruption Score here. The last column is at 5% significance level*.

*The amount of evidence required to accept that an event is unlikely to have arisen by chance is known as the significance level.

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“Corruption and hypocrisy ought not to be inevitable products of democracy, as they undoubtedly are today.”

-MK Gandhi

THANK YOU

