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CORRUPTION AND DOING BUSINESS IN EMERGING MARKETS



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ABSTRACT

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Corruption is a serious international problem with many damaging effects particularly in emerging market countries. We investigated to what degree overregulation and inadequate legal institutions contributed to corruption of small and medium-sized enterprises (SME) in emerging markets. Unlike other studies, we used data from the World Bank's Doing Business annual series which provides indicators of the regulatory and legal environments facing SME. We had three major research questions. (1) Which government obstacles to conducting business in the form of overregulation and inadequate legal institutions contribute most to corruption? (2) Which are more closely linked to corruption, excessive regulations or weak legal institutions? (3) Which of the components, from which the World Bank's indicators are derived, have the largest impact on corruption? We regressed Transparency International's Corruption Perception Index on the nine World Bank indicators and five control variables for 51 emerging market countries from 2007 to 2015. This study concludes that all five regulation indicators, but only one of four legal indicators, contributed to corruption. While past studies have linked regulation and corruption, our contribution was identifying specifically which of the World Bank's measures of the regulatory and legal environment cause corruption. In addition, our results also corroborate those of previous studies regarding our five control variables. Policy wise the World Bank has long advocated reducing regulations to improve SME operating efficiency. Our results further support such a policy because of its important additional benefit of reducing corruption and its many toxic effects.

Contribution/ Originality: This study contributes to the existing literature by investigating to what degree overregulation and inadequate legal institutions contributed to corruption of small and medium-sized enterprises (SME) in emerging markets.

1. INTRODUCTION

Public sector corruption is a serious global problem. This study employs the Corruption Perceptions Index (CPI) that was developed by Transparency International, a non-governmental organization established and headquartered in Berlin in 1993. As [Transparency International \(TI\) \(2011\)](#) points out, corruption by its very nature is hidden and relying solely upon actual publicized cases of corruption could greatly understate the degree of corruption. Moreover, countries with the most aggressive and effective anti-corruption policing might mistakenly be perceived as the most corrupt. Consequently, relies upon perceptions data gathered by surveys and expert opinions which it has found were highly correlated with more evidence-based measures.

In 2015, data from 12 separate surveys from 11 different institutions were employed to measure the CPI. The CPI assigned scores to countries that ranged from 100 (very clean) to 0 (very corrupt). In 2015, out of 168 countries, Denmark and New Zealand, with scores of 91 were the cleanest while Somalia and North Korea each had scores of 8 and so were tied for last. Of the 168 countries, 114 or two-thirds had scores below 50 demonstrating serious levels of public sector corruption. To state the obvious: it's a very corrupt world.

While past studies have investigated the relationship between regulation and corruption, our study, unlike others, used data from the World Bank's Doing Business annual series which provides indicators of the regulatory and legal environments facing SME. Our study's goal is to contribute to the existing literature by identifying specifically which of these World Bank (WB) indicators of overregulation and inadequate legal institutions, causes corruption among SME in emerging market countries. We have three major research questions. (1) Which government obstacles in the form of overregulation and inadequate legal institutions contribute most to corruption? (2) Which are more closely linked to corruption, excessive regulations or weak legal institutions? (3) Which of the components from which the WB's indicators of government obstacles are derived have the largest impact on corruption?

2. THE CAUSES AND EFFECTS OF CORRUPTION

2.1. Causes of Corruption

"Corruption is a complex phenomenon that is almost never explained by a single cause. If it were, the solution would be simple." (Tanzi, 1998). While there are numerous political, cultural, ethnic, income, regional, educational, and other causes (Lambsdorff, 2006) this study will focus on how regulatory obstacles and weak legal institutions may contribute to corruption. Additional causes such as GDP per-capita, inflation, government spending, freedom of press and civil liberties are discussed in the control variable section.

Several studies have found that intrusive government control and regulation have led to corruption (Manzetti and Blake, 1996; Snider, 2003; Lash and Batavia, 2013). For example, corruption was found to be associated with the promotion of industrial policy (Ades and Tella, 1997) the size of state-owned enterprises in nonagricultural activity (Elliott, 1997) and the centralization of government expenditures (Huther and Shah, 1998). While there are several definitions, SME, are most commonly defined as having between 1 to 250 employees (Ayyagari *et al.*, 2007).

2.2. The Effects of Corruption

Research has shown that corruption has numerous toxic effects such as retarding economic growth (Mauro, 1997; Mo, 2001) and reducing the growth of the private sector (Nguyen and Dijk, 2012). It also reduces both the quantity of and productivity of investment (Knack and Keefer, 1995; Mauro, 1995;1997; Tanzi and Davoodi, 1997) discouraging foreign direct investment (Wei, 2000; Alesina and Weder, 2002) contributing to income inequality and poverty (Gupta *et al.*, 2002). Aidt (2009) found bribery reduced the growth of wealth. In addition, it reduced expenditures on health and education (Mauro, 1995;1997). Moreover, it reduces education quality and raises income inequality by channeling scarce educational resources to students from high-income families. Breen and Gillanders (2012) also found that corruption weakens regulation quality and undermines trust in government, the WB and the International Monetary Fund (IMF). Though corruption has been compared to a tax, its burden is substantially higher due to higher transactions costs and the risk of being discovered (Johnson *et al.*, 1998). Accordingly, Fisman and Svensson (2007) found that corruption reduces growth more than taxation. Moreover, the World Bank (2010) found that female-owned businesses in Uganda are forced to pay significantly more bribes and are at greater risk of harassment than male-owned businesses.

3. THE EASE OF DOING BUSINESS FOR SMALL AND MEDIUM-SIZED ENTERPRISES

3.1. The Importance of Small and Medium-Sized Enterprises (SME)

Ayyagari *et al.* (2014) found that small firms in developing countries create most jobs and that 50% of the employees in developing countries work for SME. Gemechu *et al.* (2015) found this to be especially true in non-agricultural and nonfinancial private sectors both in developed and developing countries. Small business entrepreneurship also contributes to innovation which is an important source of economic performance (Cumming *et al.*, 2009). However, entrepreneurs may face high startup costs requiring illicit payoffs to officials. Gray and Kaufman (1998) found that corruption falls most heavily on small enterprises.

3.2. Global Rankings of Ease of Doing Business (EDB)

Since 2003, the WB has been compiling and publishing its annual *Doing Business* reports such as *Doing Business: Going Beyond Efficiency 2015* that measure regulatory costs, procedures and requirements as well as legal institutions facing SME. It found that regulations varied significantly among countries and concluded that countries in which it was most difficult for SME to do business were those with complicated, expensive regulations and weak legal institutions. In 2014, it ranked 183 countries which ranged from Singapore, having the world's best business regulatory environment for SME, to Chad which was 183rd.

The ranking was a simple average of the individual ranking of 10 indicators such as starting a business or getting credit which were derived from an economy's largest business city. Each indicator, in turn, was a simple average of several components that include measures such as number of procedures and costs of regulation for SME conducting business. See Table 1. The WB (2017) found that more complex procedures did not produce any better results than the simple averages. The indicator components are derived from laws, regulations, and time- and motion studies. The indicators measure both the complexity and cost of regulations, regulatory indicators, and the strength of legal institutions, legal indicators see Table 1. This study focuses on the causality between these indicators and corruption. The following section offers a brief description of the EDB indicators from *Doing Business: Going Beyond Efficiency 2015* and studies of their link to corruption. The WB (2011) separated the indicators into regulatory and legal indicators.

Table-1. Doing business: 2015 indicators and components.

Indicator	Indicator components
Regulatory indicators	
Starting a business	Procedures, time, cost and paid-in minimum capital to open a new business
Dealing with construction permits	Procedures time and cost
Registering property	Procedures, time and cost, public and private coverage
Paying taxes	Payments, time, cost, and tax rate
Trading across borders	Documents, time and cost to export and import
Legal indicators	
Getting credit	Strength of legal rights index, depth of credit information index
Protecting investors	Extent of disclosure index, extent of director liability index, ease of shareholder suits index and investor protection index
Enforcing contracts	Procedures, time and cost
Resolving insolvency	Time, cost, recovery rate in bankruptcy

WB (2014).

4. EDB VARIABLES

4.1. Regulatory Indicators

1) Starting a Business: It has been reported that business registration can be very time consuming in corrupt countries (Djankov *et al.*, 2001; Svensson, 2005) which could incentivize bribery to speed the process. In India and Bangladesh women were especially targeted for speed payments (WB, 2010). Dreher and Gassebner (2013) found

that corruption assisted firm entry in highly regulated economies. In addition, Djankov *et al.* (2001) found that high entry barriers could be the result, as well as a cause, of corruption.

2) Dealing with Construction Permits: (Eigen, 2005) Transparency International's founder has stated: "Nowhere is corruption more ingrained than in the construction sector." (2005 p.1). The WB (2012) found that excessively complicated rules encourage operating illegally as it estimated that 60% to 80% of construction projects in developing countries lack permits. It further found a relationship between the complexity of obtaining construction permits and the share of firms expecting to pay bribes.

3) Registering Property: Private property rights are essential both as the most important guarantee of freedom (Hayek, 1944) and as a fundamental source of economic growth and development (Soto, 2000). Yet, property markets will not operate efficiently if the prospective borrower is without title or formal property transfer is overly costly or complicated. Soto (2000) found that unreasonably time-consuming property registration procedures drive businesses underground. Dong and Torgier (2011) found that inadequate property rights lead to corruption. However, because of wealth and power considerations, judges are a target for illicit payoffs to undermine property rights.

4) Paying Taxes: The WB (2010) reported that high tax rates are among the top constraints SME face thereby encouraging bribery for tax evasion. In Africa, Rose-Ackerman (1999) found countries that lost over half their tax revenue to graft. Also the complexity of paying taxes creates problems. The WB (2010) cited an example of a Columbian business woman, who prior to recent reforms, had to make 69 payments of 13 different types of taxes and spend 57 days (456 hours) to comply with tax regulations.

5) Trading across Borders: A significant consideration for SME viability is whether they are able to benefit from international trade. Yet, lengthy customs procedures, excessive documentation requirements, along with insufficient infrastructure, impedes trade and encourages corruption such as illegal payoffs to buy import and export licenses (Rose-Ackerman, 1999). Moreover, import barriers provide economic rent for local producers that could be used to bribe local legislators. Accordingly, Gerring and Thacker (2005); Ades and Tella (1997) found international openness reduced corruption.

4.2. Legal Indicators

1) Getting Credit: The WB (2011) cites a survey of business managers in 108 economies who consider a lack of access to credit to be their most important constraint. Credit information registries provide valuable information that incentivizes more bank lending including to SME. Beck *et al.* (2006) and Barth *et al.* (2009) found evidence that transparency and information-sharing reduces corruption in bank lending.

2) Protecting Investors: Protecting investors refers to protecting minority shareholders from corporate insider self-dealing. Curbing corruption requires effective legal and regulatory measures including transparency, disclosure and director liability. Yet, corporate insiders may bribe government officials to resist reform.

3) Enforcing Contracts: Without an efficient means of contract enforcement, SME will limit their business strictly to acquaintances and may pay bribes to speed up the process. Graeff and Mehlkop (2003) found that enforcing contracts combined with the rule of law reduces corruption. A critical factor is the quality and integrity of the judiciary. Rose-Ackerman (2006) has pointed out, "Many countries have exemplary anticorruption statutes that are irrelevant in the real world. Even if a nation's prosecutors are actively engaged, this will mean little unless the country has an honest judicial system." (1999, p.147).

4) Resolving Insolvency: An efficient bankruptcy system separates the hopeless from the viable, and insufficient insolvency procedures discourage both domestic and foreign investors. The WB (2014) found economies with better insolvency procedures have more credit available for private businesses. However, bankruptcy courts could be subject to corruption as owners and creditors alike might pay bribes to hasten the distribution of assets.

5. MACROECONOMIC AND FREEDOM VARIABLES

1) GDP per-capita: Countries with higher levels of per-capita income may have less corruption because they can afford better institutions and higher paid workers, and are associated with higher levels of education. Treisman (2000;2007); Graeff and Mehlkop (2003) and Svensson (2005) all found that a better educated public is more aware and less tolerant of corruption.

2) Inflation: Braun and Tella (2004) found that high and variable inflation impedes the monitoring of prices paid by government officials thereby contributing to bribery. This finding is also supported by studies by Gerring and Thacker (2005) although Graeff and Mehlkop (2003) did not find any such relationship.

3) Government Spending: The empirical evidence of the relationship between government spending and corruption is mixed. In addition to Goel and Nelson (2010;1998); Tanzi and Davoodi (1997) found that government spending contributed to corruption and government spending. Yet, Graeff and Mehlkop (2003); Elliott (1997) and Themudo (2014) all found the opposite.

4) Freedom of the Press: Press freedom reduces corruption as shown by Altunbas and Thornton (2011); Shen and Williamson (2005); Brunetti and Weder (2003); Treisman (2000;2007) and Graeff and Mehlkop (2003). Also, Pellegrini and Gerlagh (2008) found that greater dissemination of newspapers reduces corruption.

5) Civil Liberties: Studies both by Brunetti and Weder (2003) and Shen and Williamson (2005) found evidence suggesting that corrupt authorities would be more readily be challenged in countries with strong civil liberties.

Table 2 summarizes the control variables used in this study.

Table-2. Control variables: Macroeconomic and freedom variables.

Control variables: Macroeconomic and freedom
Gross Domestic Product per-capita
Inflation
Government spending
Freedom of the press
Civil liberties

6. MODEL SPECIFICATION AND ESTIMATION

6.1. Data

The data for the all of the variables in the tests were described previously. The dependent variable data, CPI, are derived from Transparency International. For the macroeconomic and freedom independent variables, which appear in Table 2, we used WB data for GDP per-capita, inflation, and government spending and Freedom House data for free press and civil liberties. For the EDB indicators and components, which appear in Table 1, we used the WB's *Doing Business* annual publications which started in 2003. Thus, we could not incorporate earlier data. Also, many countries were eliminated because of missing data for indicators and indicator components. We used nine rather than ten indicators because getting electricity was omitted as its series does not start until 2006. Given these constraints, we ended up with 51 emerging market countries for the period 2007 to 2015 with 454 observations. Therefore our model has cross section, time series data with 14 independent variables: nine EDB variables and five control variables.

6.2. Multicollinearity

A potential problem with our model as specified above is multicollinearity. It can arise if highly interrelated predictors are examined together in a regression model. The basic assumption in the econometric literature is that predictor variables are not collinear in the population. Therefore, any observed collinearity in empirical data is construed as a sample-based problem rather than as representative of the underlying population relationship. When data are analyzed with regression analysis, multicollinearity has several potentially undesirable consequences: parameter estimates that fluctuate dramatically with negligible changes in the sample, parameter estimates with

signs that are incorrect in terms of theoretical considerations, theoretically important variables with insignificant coefficients, and the inability to determine the relative importance of collinear variables. One of the procedures for dealing with multicollinearity would be to respecify the regression model such that the variable or variables contributing to multicollinearity are removed from the model. In order to determine the presence of multicollinearity among independent variables used in the study, two widely used measures of the degree of multicollinearity methods (Variance Inflation Factor and Tolerance) were used (Greene, 2016). The Variance Inflation Factor (VIF) indicates whether a predictor has a strong linear relationship with other predictors. Related to the VIF is the tolerance statistic, which is its reciprocal ($1/\text{VIF}$). Belsley *et al.* (1980) pointed out that there is not a clear cutoff point to distinguish between high and low VIFs. In this study, we will use 2.0 as the cutoff point for VIF, which is often used in the literature.

VIF_j is the variance inflation factor for the jth predictor and can take on values from unity to infinity and is given by the formula:

$$\text{VIF}_j = \frac{1}{1-R_j^2}, \text{ where } R_j^2 \text{ is the } R^2 \text{ of } j^{\text{th}} \text{ variable on the remaining independent variables.}$$

Thus, if R_j^2 increases, then VIF_j also increases.

$$\text{Var}(\hat{\beta}_j) = \frac{\sigma^2}{\sum_j (x_j - \bar{x}_j)^2} \left(\frac{1}{1-R_j^2} \right) = \frac{\sigma^2}{\sum_j x_j^2} \left(\frac{1}{1-R_j^2} \right)$$

Thus the $\text{Var}(\hat{\beta}_j)$ depends on σ^2 and $\sum_j x_j^2$ and also R_j^2 . For example, if the variance inflation factor of a predictor variable were 5.00 this means that the standard error for the coefficient of that predictor variable is 2.24 ($\sqrt{5.0} = 2.24$) times as large as it would be if that predictor variable were uncorrelated with the other predictor variables. A related measure of multicollinearity is tolerance. The tolerance of the jth regression coefficient, denoted as TOL_j is computed as the reciprocal of VIF_j. Tolerance is the proportion of variance in the jth predictor not associated with the remaining predictors in a regression model and has a range of zero to unity. As VIF_j approaches infinity, TOL_j approaches zero. Smaller tolerance values denote increasing likelihood of multicollinearity.

Tolerance (TOL_j)

$$\text{TOL}_j = \frac{1}{1-\text{VIF}_j} = 1-R_j^2$$

6.3. Procedure

Our procedure was a two-step process: 1) regress CPI on the EDB indicators and macroeconomic control variables and then 2) regress CPI on the components of the statistically significant, at the 5 % level, indicators and statistically significant control variables from step 1.

In our first test, we regressed the corruption variable (CPI) on the nine EDB indicators and five control variables. We employed the following model:

$$\text{CPI}_{it} = a + b_1 I_{it} + b_2 M_{it} + e_{it}$$

Where CPI is corruption, I is a set of EDB indicators, M is set of macroeconomic and freedom control variables, i refers to country and t to time period.

7. RESULTS

7.1. EDB Indicators, Control Variables and Corruption

Five indicators were above 2.0 and the indicators civil liberties and press freedom had relatively high VIF values of 6.32 and 5.81. Consequently, the regression model was respecified by dropping the variables with the highest VIF values until all variables with a VIF above 2.0 were deleted. As shown in Table 3, these results for the regulatory indicators signal that dealing repeatedly with officials to resolve regulatory issues could encourage bribery more than do weak legal institutions. In fact, Clarke (2012) has found that managers who spend more time with government officials are more likely to admit that they pay bribes. Duvanova (2014) found that red tape devised by high levels of bureaucratic discretion leads to bribery and Fredriksson (2014) further found that intermediaries or go-betweens strengthen incentives for bureaucrats to create red tape. Also, SME might find it easier to operate, and so have less incentive for bribery, in an environment with inadequate legal institutions than in one with costly and complex regulations.

Of the five control variables, three were found to be statistically significant. Our finding that economies with higher levels of GDP per-capita, less inflation, and greater press freedom had less corruption corroborates studies we previously cited. Our findings that inflation encourages corruption, were similar to those of Gerring and Thacker (2005) and Braun and Tella (2004) but contrast with those of Graeff and Mehlkop (2003) who found no relationship.

Table-3. Regression of CPI on EDB indicator and control variables.

Indicator	Revised VIF	Coefficient.	Standard error	T value
Regulatory indicators				
Starting a business	1.98	- 0.0373	0.009224	-4.05 ***
Construction permits	1.22	-0.0152	0.007915	-1.92 *
Registering property	1.47	-0.0163	0.007532	-2.17 *
Paying taxes	1.39	-0.0397	0.008003	-4.96 ***
Trading across borders	1.72	-0.0366	0.008755	-4.18 ***
Legal indicators				
Protecting investors	1.79	0.0240	0.008931	2.69 **
Resolving insolvency	1.25	- 0.0222	0.009829	-2.26 *
Control variables				
Press freedom	1.53	-0.2195	0.023326	-9.41 ***
GDP per-capita	1.61	0.00078	0.000109	7.16 ***
Inflation	1.07	- 0.1016	0.037055	-2.74 **
Constant		57.87	2.282117	25.36 ***

R² = 0.564 Adjusted R² = 0.554

*, ** and *** Significance at the 10, 5, and 1% levels, respectively.

Our results showing that government spending has no influence on corruption conflicts with both those who showed that government spending increases corruption (Tanzi and Davoodi, 1997; Goel and Nelson, 2010) and those who showed that spending reduces it Graeff and Mehlkop (2003) and Themudo (2014). Civil liberties were found to be statistically insignificant contrary to Brunetti and Weder (2003) and Shen and Williamson (2005). Our results that freedom of the press decreases corruption corroborates those of Altunbas and Thornton (2011); Shen and Williamson (2005); Brunetti and Weder (2003); Treisman (2000;2007) and Graeff and Mehlkop (2003). While both are crucial for good governance, press freedom, which spotlights corruption, may be more effective than civil liberties in reducing it.

7.2. EDB Components, Control Variables and Corruption

Because the EDB indicators, are simply averages of the components presented in Table 1, we further investigated which components were most closely linked to corruption. As before, we first checked for multicollinearity as we did previously for the indicators by calculating each variable's VIF. Thirteen indicators had

VIF values over 2.00 and import cost and export cost had especially high VIF values of 14.38 and 13.74 respectively. We deleted the components one-by-one until all of the remaining had VIF values below 2.0 such that multicollinearity no longer was an issue. We employed a regression model similar to the one used for indicator tests:

$$CPI_{ij} = a + b_1 I_{ij} + b_2 CM_{ij} + e_{ij}$$

We then regressed the corruption variable on the remaining components and control variables and the results are presented in Table 3. Our goal was to identify those specific areas or components that should be targeted by anti-corruption forces. The five regulatory indicators each had three components: number of procedures or import documents, time and cost. We found that for four out of five regulatory indicators, the components of number of procedures including import documents were significant at the 5% level. Time (construction permits) and cost (registering property) each appeared once with the expected sign. The number of procedures may be the most burdensome and thus most subject to corruption.

In contrast to the regulatory components, the legal indicators had more diverse and idiosyncratic components and the results were problematic. Whereas the resolving insolvency indicator had the expected negative sign, its sole significant component, the recovery rate in bankruptcy, paradoxically had the opposite sign. Also, the two significant components of the protecting investor indicator, director liability and ease of shareholder suits, had signs that were the opposite of each other. As this issue concentrates on protecting corporate investors, it may be less relevant to SME as a whole. In any case, while the model clearly shows the impact of the five regulatory indicators on corruption, the results for the legal indicators are much weaker.

Table-4. Regression of CPI on EDB indicator components.

Indicator Component	Revised VIF	Coefficient	Standard error	T value
Regulatory indicator Components				
Small business- procedures	1.28	-0.5280	0.0961	-5.49 ***
Construction permits – procedures	1.30	-0.1271	0.0502	-2.53 *
Construction permits – time	1.31	-0.0115	0.0021	-5.58 ***
Construction permits – cost	1.28	-0.0018	0.0005	3.32 ***
Registering property – cost	1.43	-0.02513	0.0683	-3.68 ***
Paying taxes –procedures	1.19	-0.0482	0.01440	-3.34 ***
Import- documents	1.37	-0.3590	0.1290	-2.78 *
Legal indicator components				
Protecting investors – extent of director liability	1.15	0.2804	0.1311	2.14 *
Protecting Investors – ease of shareholder suits	1.25	-0.9041	0.1641	-5.51 ***
Resolving insolvency-bankruptcy recovery rates	1.35	0.1032	0.027816	3.76 ***
Control variables				
GDP per-capita	1.79	0.0010	0.0001	9.78 ***
Inflation	1.10	-0.0734	0.0349	-2.10 *

R² = 0.625 Adjusted R² = 0.614

*, ** and *** Significance at the 10, 5, and 1% levels, respectively.

8. SUMMARY, CONCLUSION AND POLICY IMPLICATIONS

The WB contends that while efficient, carefully designed regulations are essential, they actually are often unduly complex, burdensome and costly thereby significantly impeding the ability of SME to conduct business. Our study additionally and importantly found that such impediments, as measured by the WB's indicators of doing business, cause corruption. One of our principle contributions to the literature is our finding that the major cause of corruption is overregulation and not weak legal institutions. Excessive regulation was found to contribute to corruption in five areas: starting a business, dealing with construction permits, registering property, paying taxes, and engaging in international trade. In contrast, of the four measures of weak legal institutions, only resolving insolvency was linked to corruption.

Consequently, the policy implications of our study for SME in emerging market countries reinforce the WB's recommendations to streamline and reform all areas of the regulatory process with particular attention to reducing the number of required procedures. Strengthening legal institutions to resolve insolvency may also be useful though our finding is less decisive. Our results support the wisdom of the reforms in a number of countries that have focused much more on improving regulation than upgrading legal institutions (WB, 2010). Continuing these reforms not only nurtures the development of the SME, that play such an important role in providing employment, competition and fostering innovation, but, as our study shows, they also have the important additional benefit of reducing corruption and its many toxic effects on economies and their social structures. While the reforms have been welcome, the unsettling results reported by Transparency International, show that much more remains to be done.

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