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Fighting corruption  
with strategy



Frederico Cavazzini; Pedro Picaluga Nevado



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>> **FICHA TÉCNICA****FIGHTING CORRUPTION WITH STRATEGY**

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>> **RESUMO**

O artigo pretende discutir as diferentes concepções que actualmente rodeiam a luta contra a corrupção. A grande questão que carece de resposta é se existe ou não uma fórmula para combater a corrupção. Dada a complexidade do tema, o artigo discorre algumas das noções mais comuns do fenómeno da corrupção na óptica de diferentes e relevantes variáveis e procede a uma análise conjunta e interligada. A partir desta abordagem conceptual, o artigo apresenta uma adaptação da fórmula Klitgaard para a corrupção em que o nível de educação combinada com o acesso à informação desempenham um papel determinante na capacitação necessária da sociedade para reivindicar responsabilização política e social. O artigo conclui enfatizando que, apesar de não existir uma solução ideal para reduzir a corrupção, a combinação de algumas variáveis pode induzir ou reduzir a probabilidade de conduta corrupta.

>> **ABSTRACT**

*This article aims to discuss the different conceptions currently surrounding the fight against corruption. The main question to be answered is whether or not there is a formula for combating corruption? Given its complexity, the article breaks down some of the most common understandings of the corruption phenomenon into different and relevant variables and undertakes joint and interconnected analysis. Drawing upon this conceptual approach, the article presents an adjustment to Klitgaard's formula for corruption in which the level of education combined with access to information play a determinant role in providing the necessary capacity to claim political and social accountability. The article concludes by emphasizing that while there is no optimal solution to curb corruption, the combination of certain variables may induce or reduce the likelihood of corrupt conduct.*

**Keywords:** corruption; strategies; education; information

## >> 1. INTRODUCTION

Corruption is known for its many faces. It can also take various forms and meanings. Some term it a “tax on economic growth” and nobody knows for certain how much it is worth, but a conservative approach based on worldwide surveys of enterprises and other governance and anti-corruption diagnostic surveys, gives an estimate for annual worldwide bribery of about US \$1 trillion dollars<sup>1</sup>. This figure does not cover every form of corruption, such as the global extent of embezzlement in the public sector<sup>2</sup>, which means that a more comprehensive estimate of worldwide corruption would be even higher.

The first studies on the phenomenon, although important and a key step in raising the awareness of those less familiar with the subject, were weak in terms of its measurement and quantification. It was only after the mid 1990's that assessments based on perceptions of corruption and governance of a country began, mainly driven by the emerging market investment interests of large multinational companies. As a result of globalization and with multinational companies becoming aware of the hazardous impact of corruption on investment, growth and poverty reduction and, therefore, in successfully achieving their goals, the phenomenon of corruption became regarded as an effective barrier to global, regional and local economic development.

This will to study and combat corruption is also justified by the acknowledgement that the predominance of doubtful practices in a country undermines both confidence in its private sector and the quality of public institutions, which is neither good for investment nor for development. Generally, an honest investor prefers to leave the market that is colluding in illegal forms of wealth generation and invest in a more transparent market, rather than incurring the risk of international disapproval and loss of credibility associated with bribery, for example.

Thus, corruption is not only an obstacle to social development but also to economic growth because it drives the private sector out and when it does not, in most cases it makes investing in a corrupt country more expensive than in a transparent country. The improvement in quantitative studies and research in this field has made it possible to address the problem more frontally and, in fact, it appears that the emphasis placed in most public sector reforms of the last decade has actually been on anti-corruption. But is it possible to quantify a phenomenon that proliferates around the world largely due to its “transparency”, that is, invisibility? What are the conditions that favour the spread of

<sup>1</sup> World Bank

<sup>2</sup> Transparency International estimates that political leaders in countries such as Indonesia (Suharto), the Philippines (Marcos), Haiti (Duvalier) and Zaire (Mobutu) may have embezzled several billion dollars.

this socio-economic disease? Is there a trustworthy model that, to a certain extent, could identify these conditions and predict their occurrence?

In order to discuss this issue, the first section of the article reviews the theory on corruption related to the search for a formula for combating corruption, focusing on its most relevant causes and how it is currently measured. Furthermore, the article sets out and sustains an original conceptualized framework for understanding and fighting corruption in which the level of education combined with access to information play a determinant role in providing the necessary capacity to claim political and social accountability. Upon these main findings, the article provides a set of recommendations with practical implications.

It should be noted that this paper only informs the relation between the perception among experts in regards to the evaluation of corruption and the level of education and access to information for a sample of sub-Saharan African countries (SSA), as the effects of corruption tend to be more dramatic in these countries. It does not provide a one-size fits all formula nor does it aim to identify all other variables that influence the intensity of corruption in SSA as measured by the Corruption Perceptions Index. The corruption phenomenon is complex and hard to summarize at such a global level with the currently available data. Nevertheless, this study provides some preliminary evidence of the above mentioned relation which could be further explored in future empirical studies.

## >> 2. LITERATURE REVIEW

**Corruption: what is it and what are its causes?** According to Llaca (2005), Aristoteles was the first to use the word corruption to describe the tyranny, oligarchy and populism associated with the breakdown taking place in royalist and democratic governments. Cicero added the term bribe and the abandonment of good habits. In this philosophical line of thought, corruption is defined as the renunciation of the ethics, morality, law and good habits of the country where a person lives. Normally corruption is associated, as does Morris (1991), to the illegitimate use of public power to benefit a private interest. However, the UN Convention against Corruption typifies corruption as an illegal activity whether in the public or the private sector and therefore considers there is no definition for the concept. Corruption is, nevertheless, a concept that has been in existence since the very beginnings of humankind.

More recently, Senior (2006), after detailed research of more than one hundred definitions and studies on corruption from various authors in the past 30 years, condensed into his definition of corruption the five most representative elements identified: a) to secretly provide b) a good or a service to a third party c) so that he or she can influence certain actions d) which benefit the corrupt, a third party, or both e) in which the corrupt agent has authority. It is a definition somewhat independent of any values, laws, customs, which can therefore be applied to any public or private institution. Therefore, it values certain characteristics that for Ocampo (1993) are innate in humans, such as greed and selfishness, for example, although the author also adds contextual causes for corruption, such as elections, lack of control, and opportunity.

As Campos and Pradham (2007) state, if the expected benefits of a corrupt transaction outweigh its expected costs, an individual will be enticed to perform this transaction. This interpretation becomes important especially when subjective data is considered to be unreliable in the measurement of corruption. However Kaufmann et al. (2006) acknowledge the role of information as equally important, either objective or subjective, in the sense that either always includes some element of uncertainty.

The recognition that all information is relevant, including subjective information, refocuses the fight against corruption around the conditions by which it tends to become more powerful. According to Llaca (2005), corruption is fertilized by the asymmetry in the control of information between the public servant and the common citizen. Hence, personal power in excess may generate inefficiencies in the monitoring processes, therefore promoting corrup-

tion, as Batista (2000) said, as a result of judicial system inefficiencies and operational monitoring. In this regard, Klitgaard et al. (1996) believe that corruption is also the result of weak civil society participation, the discretion associated with the centralization of power and distortion of the electoral system, party system and financing of parties. In addition to these socio-economic, legal and political causes, there are also other factors, such as cultural, for example.

As a matter of fact, Klitgaard (1994) considers there to be cultures that encourage corruption and Llaca (2005) uses the Mexican example where there is some popular admiration for all employees who unlawfully enrich themselves. In this sense, the culture and maintenance of traditional forms of organization that reduce the quality and effectiveness of the state are also drivers of corruption (Senior, 2006). Furthermore, the idea of “white collar” impunity - that the disclosure of illegal behaviour will fall on shallow ground - and that justice is slow and ineffective are cultural products and pre-conceptions of developing societies and more affected by corruption after long years of bad governance and bad rulers.

However, in this relationship between the definition and cause of corruption, Rose-Ackerman (1978; 1999), Klitgaard (1998) and Klitgaard et al. (1996) pioneered the systematization of four factors tending to bring about corrupting situations: monopoly power; a wide margin of discretion, a lack of transparency in decision making and a lack of accountability for decisions made. This finding has both allowed the development of strategies to combat corruption and also the introduction of rational approaches to understanding the motivations that push its practice.

**Corruption: How is it measured today?** Looking at the benefits obtained, it seems that corruption is easily felt and perceived. However, it is difficult to trace and measure. In recent years, the World Bank has been actively trying to measure the phenomenon of corruption. Although, as Kaufmann (2005) acknowledges, there are still significant difficulties, with high margins of error, at the end of the 1990s, the World Bank Institute (WBI) developed a set of aggregate indicators that cover various areas of governance, such as control of corruption monitoring, rule of law, government effectiveness, quality of regulation, accountability, and peace and political stability<sup>1</sup>, enabling a macro level causal relationship between corruption and poor governance to be established.

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<sup>1</sup> Worldwide Governance Indicators. Washington, D.C.: World Bank, Sept. 2006.



On the other hand, the Corruption Perception Index (CPI), which has been disclosed annually by Transparency International<sup>2</sup> since 1995, even though it does not measure corruption in an objective way, ranks it objectively among approximately 180 countries, based on triangulated and demanding information from at least 3 different sources of information, on a scale from 0 to 10, where 0 means a country is perceived as highly corrupt and 10 means very transparent<sup>3</sup>. Thanks to the CPI, it has become clear not only that there is significant correlation between corruption and poverty but that corruption can also be high in developed countries (Transparency International, 2008).

The widely cited research on corruption by Mauro (1998) chooses the International Country Risk Guide (ICRG) as its indicator of corruption. Developed by the PRS Group, this index of corruption is based on people's perceptions of governments through a set of 22 components grouped into three major categories of risk: political, financial and economic. However, relying solely on people's perceptions may not provide the big picture in some countries, especially in those where corruption has become a cultural product or where the lack of access to information, civic participation and freedom of expression are high and, therefore, provide citizens with a biased perception of the real situation. Many of these countries are located in the target region of this study (SSA) which is why the ICRG was not chosen as the indicator of corruption.

The Ibrahim Index of African Governance, funded by the Mohamed Ibrahim Foundation, was designed to reflect and monitor the nature of governance in Africa. It uses a number of different indicators to compile an overall ranking of countries, including accountability, education and freedom of expression indicators.

Another contribution to the measurement of the phenomenon of corruption is put forward by Klitgaard (1994) who developed an equation that explains the likelihood of corruption to occur according to three variables: monopoly, discretion and accountability. As Klitgaard put it: corruption is a crime of calculation, not of passion, and people tend to engage in corrupt acts when risks are low, penalties are light and compensation is high (Klitgaard et al, 1996; Klitgaard et al, 2000). Based on this premise: **C** (corruption) = **M** (monopoly) + **D** (discretionary power) – **A** (accountability).

According to Klitgaard et al. (1996), corruption tends to be more evident when individuals wield monopoly power over a particular good or service,

<sup>2</sup> International NGO established in 1993, in Berlin, Germany.

<sup>3</sup> The CPI is criticized for two main reasons: the importance the media may give to isolated cases of corruption which influence popular perceptions and the constant change in countries participating in the survey.

unlimited discretion to decide who receives the good or service and how much they pay for it and when there is no form of accountability able to control (either by auditing or monitoring) how these decisions were made. And this rule applies for both the public and private sector, in rich or poor countries. Closely linked to the three variables that influence corruption in Klitgaard's formula is the concept of transparency that, when reinforced by greater participation, allows for the containment of monopoly power as well as perverse uses of discretion, while instilling greater accountability in decision making.

**A new strategy in the fight against corruption:** The variables considered by Klitgaard - monopoly, discretion, and accountability - are supported by our perspective and by most of the existing literature. In economics, the term monopoly (from Greek *monos*, one, and *polein*, to sell) is used "*when a specific individual or an enterprise has sufficient control over a particular product or service to determine significantly the terms on which other individuals shall have access to it* (Friedman, 2002: 208). This, thus, provides fertile soil for corruption to grow, particularly when combined with discretionary power, defined as the ability to make decisions in an arbitrary way, based on judgments and criteria defined by the one making the decision.<sup>4</sup>

Accountability is more than responsibility since it implies that other people are also involved. Accountability means that someone has a stake in whether or not the desired result is achieved. In other words, accountability is a promise to yourself and others to deliver specific, defined results and with consequences (Stagl, 2009). The greater the absence of rule of law able to hold individuals accountable for their actions and dissolve supremacy relations which jeopardize the right to equality and freedom between two parties, the greater corruption will tend to flourish.

Focusing only on the three original variables, Klitgaard's formula has importance and validity. It is a simple and easy-to-use equation. It draws attention to the importance of promoting transparency, participation and accountability at all levels (local, regional and national). Thirdly, it suggests that there are a number of activities that should be carried out by various actors at different levels, rather than concentrated in one or several at the same level. Finally, it claims that by changing the incentives, corruption is changed. In that sense, Klitgaard's formula is not intended to be a mechanism for detecting and punishing the unethical behaviour of individuals or even eradicating corruption. It rather serves to study and identify ways to change the environment that promotes the incidence of corruption.

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<sup>4</sup> The American Heritage Dictionary of the English Language, Fourth Edition copyright, 2000, by Houghton Mifflin Company

This framework of corruption can prove very useful for decision makers developing anti-corruption strategies that meet specific problems by identifying the circumstances that favour the formation of monopolies and discretion and situations where the lack of accountability and transparency increase the risk of corruption (Campos and Pradhan, 2007). Nevertheless, it remains too straightforward a mechanism for a phenomenon as complex as corruption as there are other crucial variables in addition to those mentioned by Klitgaard, which should be taken into consideration when implementing strategies to combat corruption.

Despite what Klitgaard's formula may suggest, the existence of only one decision maker or monopolistic supplier is not in itself a guarantee of high corrupt activity (monopolistic corruption) nor does market competition equal perfect transparency (competitive corruption). A good example is the procurement activity in the education sector for school construction or provision of equipment, meals, and learning materials, in which corruption can be found before contracts are awarded, as potential contractors (building contractors and suppliers) offer decision makers attractive packages, separately or coordinated as a cartel, in order to eliminate competitors.

Even though monopoly creates space for the occurrence of illicit and corrupt activities, perfect competition is not immune to illicit behaviours. As pointed out by Savona (1995), both monopolistic and competitive corruption exist and determine the amount of corruption: if the power to influence a decision is exercised by a small group of people, the amount of corruption will be higher than in the case where such power is divided among several decision makers.

On the one hand, as Stiglitz (2008) suggests, there are always distortions in the free market and, on the other hand, competition is never completely free, nor are consumers fully informed (Cox 2007). In this sense, equality in consumer decisions does not exist, i.e., the ability to choose is something that is not available to all equally, regardless of the market system operating. Thus:

**Proposition 1: Option of Choice.** Considering that “the will, in truth, signifies nothing but a power, or ability, to prefer or choose”,<sup>5</sup> the lack of that power due to the existence of a monopolistic control of goods and services or scarcity of resources means the individual will be deprived of pursuing his/

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<sup>5</sup> Locke, J. (1689). *An Essay Concerning Human Understanding* (1998, ed). Book II, Chap. XXI, Sec. 17. Penguin Classics, Toronto

her own interests and benefits and will be confined to the option(s) that is narrowed down for him/her.

As mentioned before, both monopoly and free market competition can lead to adverse and uneven situations. There is no pre-defined value for the optimal degree of state intervention or market openness for maximizing transparency and social welfare. More important than adopting a more interventionist or more liberal model, there have to be strong institutions, whether there is a minimal state or not, and it is the nature of the markets that defines the form and degree of intervention and not the other way around.

Poor choice options create dependence since without being able to choose, one is confined to the option(s) narrowed down by another (or others) in most cases under serious restrictions and often for illicit purposes. However, when there is freedom of choice there is often freedom of information. Hence:

**Proposition 2: Freedom of Information.** Less informed people, because of a greater deprivation of such information or difficulty in accessing it, are easily caught in the clutches of corruption. The presence of asymmetric information carries, for example, problems of moral hazard since it allows the emergence of certain “borrowers” that encourage institutions in trouble to invest in increasingly risky transactions, in turn increasing their dependence. It can actually be one of the key factors for corruption to proliferate. There can also be problems of adverse selection, in which less attractive investments and with a higher chance of being unsuccessful dismiss less risky ventures out of the market due to the high cost credit institutions have to face in order to obtain (accurate) information. And last, but not the least, there can also be “herd behaviour” situations in which the behaviour of an individual or group of individuals holding privileged information is followed by others.

Information brings knowledge and knowledge is power. Therefore, free and easy access to information is an important tool for individual empowerment. Since information and knowledge are two competitive advantage factors, it may be expected that well informed people will be in a better position to defend themselves against illicit offers with the knowledge of the most effective means to expose corrupt agents and demand rule of law.

Governments can restrict or facilitate information flows through the laws, regulations and codes of conduct they create. Several studies have shown that countries with better information flows often have better quality governance and less corruption.<sup>6</sup> Higher transparency and access to information are also good for the economy because they provide investors with a better knowledge

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<sup>6</sup> DiRienzi et al (2007); Islam (2006)

of the behaviors and operations of institutions in a given country and help reduce overall uncertainty, which have been shown to increase investment inflows. The right of access to information within government institutions also strengthens democratic accountability, prevents public power abuses, and improves national resource allocation (Roberts, 2002).

Looking at the relationship between democracy and corruption, Treisman (2006) did not find solid evidence that the actual frequency of corrupt interactions is related to democratic institutions. However, there is evidence showing that countries with high levels of democracy and strong free press are perceived to be less corrupt. Also “endogeneity is as great a concern as in the case of economic development. Corruption could itself weaken democratic institutions or could be caused by factors that also undermine democracy” (Treisman, 2006, p. 25).

The use of modern information and communication technologies (ICTs) to improve the efficiency and effectiveness of governance (e-government) has gained increasing popularity, in recent years, due to the acknowledgement of their role in reducing corruption. New technologies such as e-procurement and open data sources, if properly adjusted to the specificities of each sector and made available to the general public, represent a valuable tool for good governance. However, these tools are not just about applying technology to existing processes but they entail a more profound reform process which often changes or abolishes longstanding procedures, cultural myths and require a certain level of literacy. Hence:

**Proposition 3: Level of Education.** Many authors have discussed the impact of corruption in the education sector across the world but few have studied the impact that the level of education in a given country has in its perceived level of corruption. Education is a fundamental human right and a major driver of human and economic development. The moral causes of development lie in a constellation of virtues: labour, power, order, honesty, initiative, thrift, savings, spirit of service, honour, courage, work devotion (Moreira, 1996) and virtues such as these make a difference between societies and the extent to which they tolerate corruption.

While we often unfavourably contrast the selfishness of economic agents with the altruism that characterizes the politically and socially involved as a result of a romantic vision of politics, a society based on good habits, morality and ethical values will create an environment ruled by individuals inclined to take actions commonly considered to be good (Fernandes, 2009). In that sense, ethics is a tribute to life. It is what gives the fundamental principle

of morality, namely, that the right action consists in maintaining, promoting and strengthening life and that destroying, injuring, and restricting life is wrong<sup>7</sup>.

Ethics and education walk hand in hand because the teaching of ethical values and behavior is considered to be a central task of education. As children grow older, they become familiar with corrupt practices but their level of acceptance of such practices will be lower if they realize that bribery and fraud are unethical patterns of behavior. It should be noted, though, that in many developing countries, even among the most educated people, petty corruption tends to be more generally accepted (e.g. small bribes) whereas grand corruption (e.g. embezzlement of public funds) tends to be more criticized.<sup>8</sup>

Education strengthens personal integrity and empowers individuals, just as freedom of information; but while the latter permits access to information, the former helps understand it. Limited access to education - and poor quality - not only inhibits the effective use of accountability and good governance mechanisms but it also leads to a social acceptance of corruption.

The relation between education and economic growth has been the object of several studies in the past. One of the findings provided by the theories of human capital is that education offers a higher probability of obtaining employment, higher productivity and greater wage income. The natural assumption is that investment in education must accelerate economic growth (Blaug, 1970).

Notwithstanding the fact that the number of years of schooling is a leading indicator and contributes to the improvement of the level of instruction of an individual, the truth is that for economic growth to take place, it is necessary that this increase in education results in the formation of a skilled human capital better prepared to produce goods and services and that incorporates this aggregated knowledge in the productive process (Kenny, 2010). Theodore Schultz considers that when the growth of production exceeds the growth of productive factors, it must be the result of human capital investment; he adds that people's investment in education widens their range of choices and allows them to increase their level of well-being (Schultz, 1961).

Countries with a higher level of human capital tend to achieve higher productivity gains than countries with less human capital, and the rate of technological change and productivity improvement are directly related to the stock of human capital of the country (Hanushek, Woessmann, 2010).

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<sup>7</sup> Schweitzer, A. quoted in *Civilization and Ethics: The Philosophy of Civilization – II* (1946)

<sup>8</sup> Chapman (2002), p. 6.

The stock of human capital is, in turn, determined by the number of years of schooling and level of knowledge attained, among other factors.

For Hanushek, the average student in Angola or in Peru does not acquire the same level of knowledge of the average student in Finland or South Korea, in a given year of schooling, which is why a comparative analysis of this kind should not be conducted on a global scale but within a region. The use of the number of years of schooling as reference measure assumes that the knowledge acquired by both students is equivalent and comes from formal education which is not true, for example, in the SSA region. Studies in the field of knowledge formation and cognitive skills show that there are a number of external factors to school that have a strong influence; ignoring those factors will distort the analysis of economic growth.

Hanushek's work has shown that the cognitive skills are closely related with economic performance over time, not only for individuals but also for the countries, with cross-country variations in growth rates largely explained by the level of cognitive skills acquired (Hanushek, Woessmann, 2008). In short, the modern theories of growth highlight human capital as an important input in the creation of new ideas which is a strong enough justification for considering education as a determinant of economic growth rate.

The relevance of this assumption for our study is the fact that there also seems to be a relationship between corruption and growth, as corruption tends to proliferate in poor economies. The relationship works both ways because corruption increases costs, lowers productivity, discourages investors and concentrates public resources in unproductive projects, ultimately deepening social inequalities and increasing poverty (Mauro, 1995). Svendsen (2003) supports these conclusions, arguing that countries with low-level corruption have high GDP levels due to efficient resource provision and Ehrlich and Lui (1999) show that corruption has a negative impact on both growth and GDP per capita. Since corruption and growth are inter-connected and education is a determinant of economic growth, what can be said about the relationship between education and corruption?

Cheung and Chan (2008) used several endogenous independent variables (namely, educational, political and economic factors) to examine corruption perceptions in 56 countries and found that both enrollment in tertiary education and GDP per capita can strongly predict corruption perception scores. In other words, the effort educators put in teaching students about social and moral responsibility has a noticeable effect. Also, Bjørnskov (2003) finds a strong causal link between higher levels of social capital (where education is an indicator) and less corruption. He suggests that social capital can be built

by investing in education and other forms of social capital, and improving income redistribution, therefore, reducing corruption.

Again, the relationship between corruption and education can be a two-way type as corrupt practices have a negative impact on the quantity, quality and efficiency of educational services and, consequently, on learning results. Individuals who have a better understanding of their own culture and reality are better equipped to address the complexities of the relations that are established within the corruption phenomenon and therefore can be effective at the task of reducing it in their own country.

In that sense, civil society is a crucial element in the fight against corruption because it is itself involved – victim or agent - in corrupt practices. Civil society can, for example, play a monitoring role, disseminate information and demand that corrupt agents are held to account. Sirkku Hellsten and George Larbi (2006) suggest that civic education should be used to spread the values of public service, and the rights and obligations of citizens in society which reinforces the importance of education in the strategy to fight corruption.



## >> 3. METHODOLOGICAL CONSIDERATIONS

This paper strives to show that while there is not a specific formula to predict the occurrence of corruption, there are variables other than those identified in Klitgaard's equation (monopoly, accountability, discretion) which can and should be considered. It tests the hypothesis that the level of education combined with access to information play a determinant role in providing the necessary capacity to claim political and social accountability, thus reducing the perception of corruption in a given country.

In order to test this, one must choose a corruption index and regress it on a set of explanatory variables of both social and economic nature. In addition to education and freedom of expression indexes, other variables such as log GDP per capita, GDP growth and total natural resources rents as a fraction of GDP can be thought of variables that affect corruption.

It is expected that in countries with high GDP per capita levels and high growth rates there will be less incentives to engage in corrupt activities<sup>9</sup>, and that countries whose economies are dominated by resource extraction industries tend to be more repressive, corrupt and poorly regulated. Our primary interest is in the effects of education and freedom of expression over corruption but the results for the other variables will be discussed as well.

We used a sample of 45 SSA countries<sup>10</sup> (Somalia and Djibouti were excluded due to systematic lack of data or limited sources of information) for the multiple regressions. The choice for this region was based on the fact that the effects of corruption tend to be more dramatic in SSA in comparison to other regions; also, the level of knowledge of the average student in SSA and the source of that knowledge (formal, non-formal and informal learning) varies from one region to another which is why a comparative analysis on a global scale would be hard to conduct and misleading.

It would have been desirable to conduct a time series analysis but data for most variables did not change over time or were based in the most recent

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<sup>9</sup> Please note that "less" does not mean "absence", as there are countries with strong GDP growth (e.g. oil-based economies in SSA and Middle East) and high level of perceived corruption. The above mentioned expectation refers to the role of economic development in reducing poverty which is one important incentive to corruption.

<sup>10</sup> The countries are Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia and Zimbabwe

reports so we only gathered data for 2011 (or the closest year available) with that being the year of reference for this study.

As mentioned in the previous section, several measures of corruption have been used in modern studies but the most common is the CPI provided by Transparency International which ranks countries by their perceived levels of corruption, based on expert assessments and opinion surveys. The use of CPI as a solid indicator for empirical studies of corruption does not gather universal consensus, as some critics suggest that the definition of what is legal or illegal is unclear, its statistical value is uncertain and the use of subjective perceptions makes it unreliable.

Yet, the CPI is often used in today's published research for analyses of the relationships between corruption, education, and economic variables and their perception-based scores are believed to be just as strong or even more reliable than any other objective measures, especially in the study of corruption, which is by definition very hard to track and measure. Even when objective data are available, there is often a big gap between the *de jure* rules in which that data is based and the *de facto* reality that exists. For example, it is illegal for a public official to accept a bribe, whether it is a school teacher or a customs officer, but in many countries the reality on the ground is very different from what the official legislation determines.

Looking at the correlation coefficients between different corruption indexes (CPI by Transparency International, Accountability from the Ibrahim Index and Control of Corruption from the Worldwide Governance Indicators), based on the perceptions provided by enterprise, citizen and expert survey respondents in developed and developing countries (table 1) we see that these indicators are highly correlated, mostly because they use similar methodology of data collection. Therefore, the CPI will be used as the dependent variable of this analysis.

*Table 1: Correlation coefficients between different corruption indexes*

	CPI	Accountability	Control of Corruption
CPI	1		
Accountability	0.891	1	
Control of Corruption	0.948	0.935	1

Data on Education comes from the Ibrahim Index because its education indicator takes into account more variables (education provision and quality; ratio of pupils to teachers in primary school; primary school completion; pro-

gression to secondary school; tertiary enrolment) and can provide a more solid notion of how countries perform and differ from each other, whereas the education component of the Human Development Index strictly focuses on the mean of years of schooling for adults aged 25 years and on the expected years of schooling for children of school-entering age.

The indicator of choice for assessing freedom of expression was the Freedom of the Press produced by the Freedom House. We analyzed other relevant indicators such as the Voice and Accountability (Worldwide Governance Indicators) and the Freedom of Expression (Ibrahim Index) but since they were strongly correlated (table 2) we decided to choose the indicator provided by a new source (Freedom of the Press). It should be noted that higher scores in this indicator denote less freedom.

*Table 2: Correlation coefficients between different freedom of expression indexes*

	Freedom of Press	Freedom of Expression	Voice and Accountability
Freedom of Press	1		
Freedom of Expression	-0.894	1	
Voice and Accountability	-0.906	0.921	1

The World Development Indicators (World Bank) provided the data for log GDP per capita (GDPpc), GDP growth (GDPgrowth) and total natural resources rents as a fraction of GDP (resources). Data for the last variable was only available for 2010.

It should be noted that there is no agreement on the “best” indicators to use in the analysis of the corruption phenomenon. In fact, no single model has been developed that can fully cover all determining factors of corruption, in all its different forms and shapes and, once again, this study will not attempt to do so. Given the complexity and sectorial permeability of this phenomenon, it makes sense that many different factors will induce or reduce the likelihood of its occurrence and that full consensus on those factors will be hard to achieve. Indicators tend to be chosen based on the specific hypotheses being tested which is the aim of this study: to determine the impact, if any, that education and access to information in a given country have in the perception of corruption in that same country.

## >> 4. RESULTS

Before regressing the CPI on a set of explanatory variables, it makes sense to look at the level of correlation between these variables and the dependent variable. Table 3 shows that corruption is negatively correlated to education, freedom of expression, GDP per capita and positively correlated to the total natural resources rents as a fraction of GDP. The correlation between corruption and growth is also negative, although not as expressive as with the other indicators.

*Table 3: Correlation coefficients of the selected variables*

	CPI	Education	FreePress	LogGDPpc	GDPgrowth	Resources
CPI	1					
Education	0.674	1				
FreePress	-0.463	-0.318	1			
LogGDPpc	0.443	0.661	-.106	1		
GDPgrowth	.224	.069	-.027	-.037	1	
Resources	-0.383	-.176	.286	.233	.016	1

It makes sense that countries with higher levels of corruption should be poorer, present obstacles to freedom of expression and suffer from the resource curse, that is, the paradox that countries rich in natural resources tend to have worse development outcomes and engage in more corrupt activities than countries with fewer natural resources. However, one would expect that lower levels of corruption would be more strongly perceived in fast-growing economies. Mauro (1995) explain this phenomenon based on the convergence theory which argues that initially poorer economies tend to grow faster which opposes the findings of Ehrlich and Lui (1999) about the negative effect of corruption on both GDP and growth.

The explanatory variables are not strongly correlated among themselves which is good because the higher the correlation between independent variables, the greater the sampling error of the partials and the more difficult it will be to evaluate their relative importance. Figures 1 and 2 illustrate the connection between corruption and education and corruption and freedom of expression, which is much stronger in the former. However, it would be too premature to draw any conclusions before considering other variables and see how these two interact and significantly affect corruption or not.

Hence, Table 4 shows a set of regressions, each column representing a regression with a new added variable. In the first column, there is a regression using only education as explanatory variable and the results are positive and highly significant. In other words, countries with a higher level of education have a higher corruption index (which means less perceived corruption).

The next column adds the level of freedom of the press and the results again confirm the expectations: countries that score high in this indicator (which means the media is not free) tend to have low CPI, or to be perceived as being less transparent. Education remains a significant explanatory variable of corruption. Next, we consider an economic indicator (GDP per capita) which, as expected, turns out to have a positive effect but not significant. Adding another economic variable (GDP growth) does not affect the significance of education and freedom of the press and only confirms the previous conclusion: in this model, GDP per capita and GDP growth are not significant explanatory variables.

Figure 1: Correlation between Corruption and Education

$R^2$  Linear = 0.454

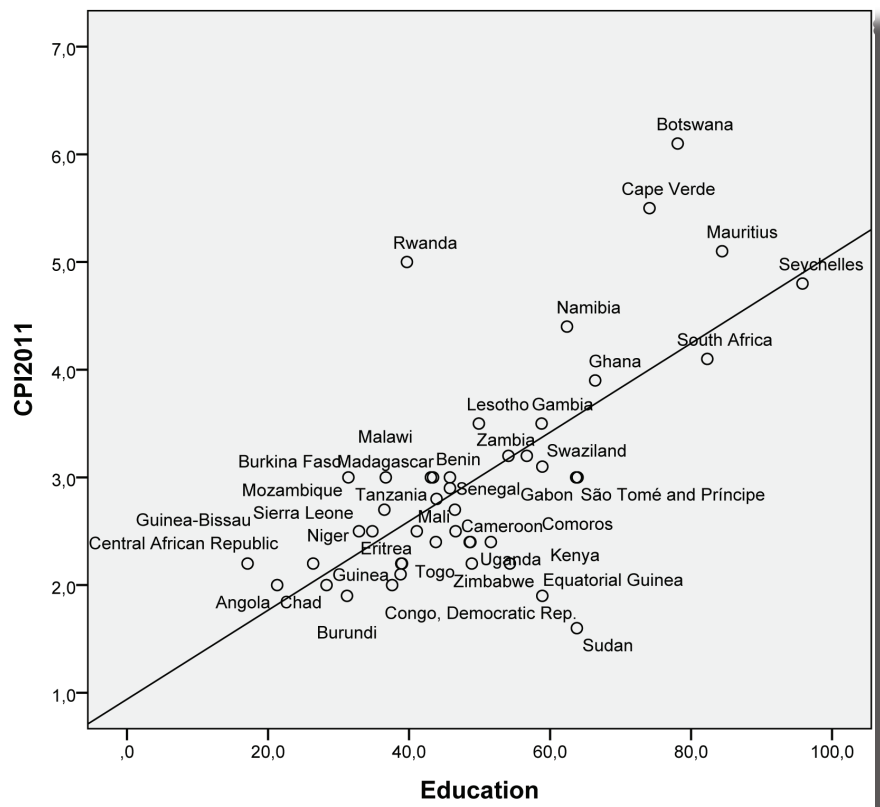
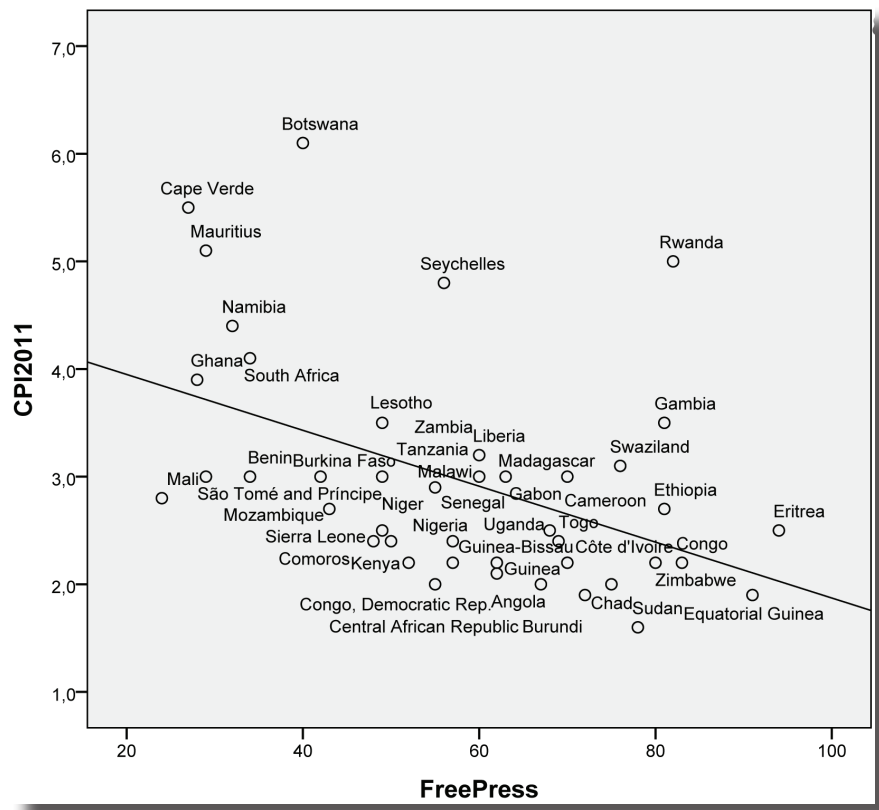


Figure 2: Correlation between Corruption and FreePress

R<sup>2</sup> Linear = 0,214

However, in the last column we take into account the resource curse factor (Resources) which proves to have a negative and significant effect on CPI, in the sense that countries whose economies heavily rely on natural resource extraction tend to be perceived as being more corrupt. While education and freedom of press remain significant explanatory variables, one interesting aspect is the change in the growth variable which can now provide a significant explanation for changes in perceptions of corruption across SSA countries, if the share of natural resources in those economies is taken into consideration.

Looking at table 4, it becomes clear that education and freedom of press are consistently two significant explanatory variables of corruption (the beta coefficients do not change sign and t statistics are always significant) and the inclusion of GDP per capita and growth indicate that there are factors other than income that affect this phenomenon, namely the importance that natural resources have in SSA economies.

*Table 4: Regressions of corruption (CPI) on education, freedom of expression and other variables*

	CPI	CPI	CPI	CPI	CPI
Education beta	.041	.036	.034	.032	.022
t statistic	5.98	5.21	3.63	3.47	2.24
FreePress beta		-.016	-.016	-.016	-.013
t statistic		-2.46	-2.46	-2.53	-2.11
LogGDPpc beta			.042	.066	.213
t statistic			.330	.529	1.64
GDPgrowth beta				.060	.067
t statistic				1.73	2.06
Resources beta					-.020
t statistic					-2.63
Constant beta	.940	2.10	1.92	1.58	1.05
t statistic	2.62	3.61	2.42	1.97	1.30
N	45	45	45	45	44
R Square	45%	52%	52%	56%	60%

## >> 5. CONCLUSIONS

This paper has studied the role of education and freedom of expression as explanatory variables of corruption, measured by the CPI, in a sample of 45 SSA countries for a specific year. The analysis has shown that both variables have, in fact, a significant effect on the countries' perceptions of corruption, as countries with high level of education and freedom of press tend to be perceived as being less corrupt.

The study also showed that major macroeconomic factors such as GDP per capita and GDP growth which have often been linked to the causes of this phenomenon do not provide the most significant explanations. Exception being made to the relative importance of natural resources in the economy which has reinforced the validity of the resource curse theory.

Overall, the variables considered in this study explain about 60 percent of the variability observed in the CPI which is not surprising since corruption is a complex cross-sectorial phenomenon that can take on many different forms and be both a push and a pull factor on several other variables. Education and information strengthen personal integrity and empower individuals to make effective use of accountability and good governance mechanisms but at the same time, the control of corruption enables a more effective resource allocation, for instance, in the education sector, or the attainment of good grades without involving bribes.

One should never forget that corruption is a social disease which affects different sectors of a country's economic structure. However, it is a disease that cannot be cured by some unique and magical therapeutics. One size does not fit all because there are cultural, social, historical, political and economic factors, which inhibit the emergence of a single solution. We can, though, combine some of these factors and identify scenarios propitious to a greater or lesser extent to the practice of corruption. As with any disease, prevention is the best medicine. When the opportunities for distortion are minimized or eliminated, it is then possible to focus on the most critical areas and fight corruption with strategy.

In spite of the existence of several explanatory variables in the corruption phenomenon, contributions such as Klitgaard's formula for analyzing the tendency for **corruption** remain a powerful and easy-to-use approach that can only benefit future researches. The analysis of such a complex disease requires different angles and approaches but they can all make a contribution and help decision makers develop a strategy that can change the incentives for corrupt behaviour, increase accountability and foster transparency with real and short term effects for society.



## References

- Batista, A. 2000. *Corrupção no Brasil: Corrupção fator de Progresso?* [Corruption in Brazil: Corruption as factor of progress?]. Letras & Letras, S. Paulo.
- Blaug, M. (1970), *An introduction to the economics of education* London: Allen Lane. The Penguin Press
- Bjørnskov, C. (2003). Corruption and social capital. *Aarhus School of Business Working Paper*.
- Chapman, D. 2002. Corruption and the Education Sector. Sectoral Perspectives on Corruption. Prepared by MSI, sponsored by USAID, DCHA/DG
- Cheung, H., & Chan, A. 2008. Corruption across countries: Impacts from education and cultural dimensions. *The Social Science Journal* 45 (2): 223-239.
- Cox, A. 2007. Trio norte-americano ganha Nobel de Economia 2007 [North American trio wins Nobel Prize in Economics 2007]. *Reuters*. Available from: URL: <http://noticias.uol.com.br/ultnot/reuters/2007/10/15/ult27u63147.jhtm>
- Campos, J.E. and Pradhan, S. 2007. *The Many Faces of Corruption: Tracking Vulnerabilities at the Sector Level*. The World Bank, Washington DC.
- DiRienzi, C., Das, J. Cort, K.T. and Burbridge Jr, J. 2007. Corruption and the Role of Information. *Journal of International Business Studies* 38 (2): 320-332.
- Ehrlich, I. and Lui, F. 1999. Bureaucratic Corruption and Endogenous Economic Growth, *Journal of Political Economy* 107 (6): 270-293.
- Fernandes, P.M. 2009. *Corrupção: Definição, Prevenção e Combate – O caso de S. Tomé e Príncipe* [Corruption: Definition, Prevention and Combat – The case of S. Tomé and Príncipe]. Master's Degree Thesis. University of Aveiro.
- Friedman, M. 2002. Monopoly and the Social Responsibility of Business and Labor. Pp. 119-136. In *Capitalism and Freedom*. The University of Chicago Press, Chicago.
- Hanushek, E., Woessmann, L. (2008), The Role of Cognitive Skills in Economic Development, *Journal of Economic Literature* 46 (3)
- Hanushek, E., Woessmann, L. (2010). *The high cost of low educational performance: The long-run economic impact of improving PISA outcomes*. Paris: OCDE
- Hellsten, S., and Larbi, G. a. 2006. Public good or private good? The paradox of public and private ethics in the context of developing countries. *Public Administration and Development* 26 (2): 135-145.

- Islam, R. 2006. Does More Transparency Go Along With Better Governance? *Economics and Politics* 18 (2): 121-167.
- Kaufmann, D. 2005. Ten Myths About Governance and Corruption. *Finance and Development* 42 (3). International Monetary Fund, Washington DC.
- Kaufmann, D., Kraay, A. and Mastruzzi, M. 2005. Governance Matters IV: Governance Indicators for 1996-2004. World Bank Policy Research Working Paper No. 3630. The World Bank, Washington, D.C.
- Kenny, C. (2010), Learning about Schools in Development. *CGD Working Paper 236*, Washington, D.C.: Center for Global Development
- Klitgaard, R. 1994. *A Corrupção sob Controle [Controlling Corruption]*. Editora Jorge Zahar, Rio de Janeiro.
- Klitgaard, R. 1998. Combating Corruption. *United Nations Chronicle* 35 (1), Department of Public Information.
- Klitgaard, R., MacLean-Abaroa, R. and Lindsey Parris, H. 1996. A Practical Approach to Dealing with Municipal Malfeasance, Urban Management Programme. UNDP/UNCHS/World Bank, Nairobi.
- Knack, S. and Azfar, O. 2000. Are Larger Countries Really More Corrupt?, World Bank Policy Research. Working Paper No. 2470, The World Bank, Washington DC.
- Llaca, E.G. 2005. *La Corrupcion: Patologia Colectiva [Corruption: Collective Pathology]*. INAP/CNDH/FCPSUAM, Ciudad de México.
- Locke, J. 1998 (London, 1690). *An Essay Concerning Human Understanding*. Penguin Classics, Toronto.
- Mauro, P. 1995, Corruption and Growth, *Quarterly Journal of Economics* 110 (3): 681-712.
- Mauro, P. 1998. Corruption and Composition of Government Spending. *Journal of Public Economics*, 69: 263-279.
- Moreira, J.M. 1996. *Ética, Economia e Política [Ethics, Economy and Politics]*. Lello e Irmão, Porto.
- Morris, S.D. 1991. *Corruption and Politics in Contemporary Mexico*. University of Alabama Press, Tuscaloosa.
- OCampo, L.M. 1993. *En Defensa Propia, como Salir de la Corrupción [In Self-Defense: How to avoid corruption?]*. Editora SudAmericana, Buenos Aires.
- Roberts, A. 2002. Access to Government Information: An Overview of Issues. In *Access to Information: A Key to Democracy*. The Carter Center. Available from: URL: <http://www.cartercenter.org/documents/1272.pdf>.
- Rose-Ackerman, S. 1978. *Corruption: A Study in Political Economy*. Academic Press, New York.

- Rose-Ackerman, S. 1999. *Corruption and Government: Causes, Consequences and Reform*. Cambridge University Press, New York.
- Savona, E 1995. Beyond criminal law in devising anticorruption policies: lessons from the Italian experience. *European Journal on Criminal Policy and Research* 3 (2): 21-37.
- Schultz, T. W. (1961). Investment in Human Capital *American Economic Review*
- Senior, I. 2006. *Corruption- The World's Big C*. Institute of Economic Affairs, London.
- Stagl, H. 2009. Lack of a Definition Renders Accountability Meaningless. *EzineArticles*. Available from: URL: <http://ezinearticles.com>
- Stiglitz, J. 2008. The End of Neo-liberalism?. Project Syndicate. Available from: URL: <http://www.project-syndicate.org/commentary/stiglitz101/English>
- Svendsen, G. 2003. Social Capital, Corruption, and Economic Growth, Working Paper 03 (21).
- Treisman, D. 2000. The causes of corruption: A cross-national study. *Journal of Public Economics* 76 (3): 399-457.
- Treisman, D. 2006. Fiscal decentralization, governance, and economic performance: a reconsideration, *Economics and Politics* 18 (2): 219-235.