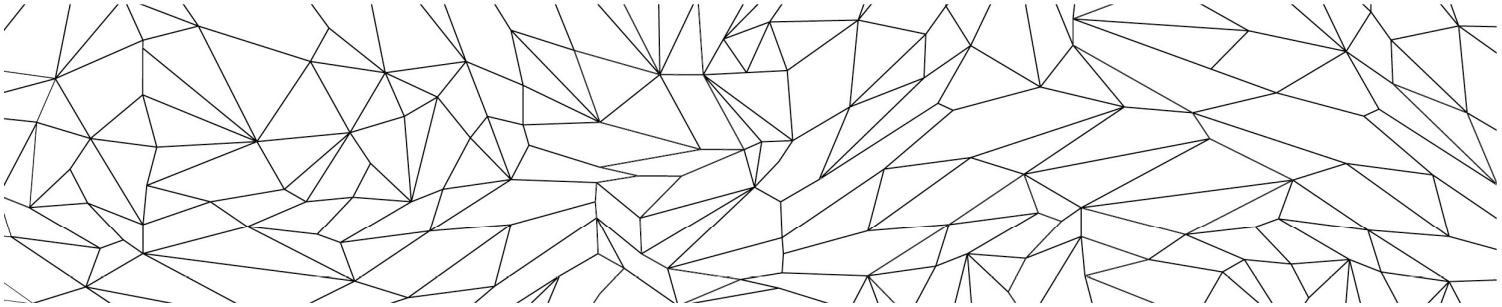
SOAS Department of Economics



Corruption: Public and Private

Lorenzo Pellegrini, Luca Tasciotti

Working paper
No. 220

Month 2019

SOAS University of London

The SOAS Department of Economics Working Paper Series is published electronically by SOAS University of London.

ISSN 1753 – 5816

Suggested citation
Pellegrini Lorenzo, Luca Tasciotti (2019), "Corruption: Public and Private", SOAS Department of Economics Working Paper No. 220, London: SOAS University of London.

Department of Economics
SOAS University of London
Thornhaugh Street, Russell Square, London WC1H 0XG, UK
Phone: + 44 (0)20 7898 4730
Fax: 020 7898 4759
E-mail: economics@soas.ac.uk
http://www.soas.ac.uk/economics/

Corruption: Public and Private

Lorenzo Pellegrini*

Luca Tasciotti†

Abstract

Corruption is recognised as a major stumbling block to development and is associated with injustice and abuse of power. The consensus on the detrimental effects of corruption stands in contrast with the lack of agreement on the set of phenomena that fall under the heading 'corruption' and there is little discussion on whether the economics of corruption should also include corruption in the private sector. This question is relevant since different foci will have different theoretical bases and policy ramifications. We analyse the issue from two complementary perspectives: whether the impacts of corruption are limited to corruption in the public sector and whether a large public sector is associated with more corruption.

First, we review theoretical and empirical perspectives on corruption, showing how concern over corruption in the private sector has a long history, dating back to Marshall and Coase. Second, we analyse corruption's determinants using a panel data approach. The econometric analysis demonstrates how our indicator of government involvement in the economy is a poor predictor of corruption prevalence. Finally, the paper highlights the policy implications of the one-sided focus on corruption in the public sector and proposes an explicit acknowledgment of the role of corruption in the private sector.

Keywords: corruption; public sector; private sector; pooled analysis.

JEL classification: D73; H50; M20.

* International Institute of Social Studies (ISS), Erasmus University. Pellegrini@iss.nl

† Corresponding Author: Department of Economics, School of Oriental and African Studies (SOAS), University of London. lt20@soas.ac.uk

Introduction

Corruption is recognised as a major stumbling block to socio-economic development and is associated with various forms of injustice and abuse of power (e.g. Aidt, 2009; Aligica and Tarko, 2014; Bardhan, 1997; Jain, 2001; Lambsdorff, 2003; Pellegrini and Gerlagh, 2004). As a consequence, anticorruption strategies and campaigns receive (almost) universal accolades and the threat of corruption can justify major policy changes (cf. Naím, 2005; Weitz-Shapiro and Winters, 2017). The consensus on the detrimental effects of corruption stands in contrast with the lack of consensus on the set of phenomena that fall under the heading 'corruption' (e.g. Pellegrini, 2011; Williams, 1999). In particular, there is little recognition of the question whether the economics of corruption is to be limited to corruption in the public sector or should include also the private sector (Hodgson and Jiang, 2007). This question is relevant since different foci, including or excluding corruption in the private sector, will have different theoretical bases and policy ramifications. That is, we are looking at a taxonomic definition of corruption that is functional to the study of the phenomenon from social science and policy perspectives. Our objective is to analyse the issue from two complementary -albeit different- perspectives: whether the detrimental impacts associated with corruption are limited to corruption in the public sector and, conversely, whether a large public sector is associated with higher levels of corruption.

While the economics literature on corruption has developed and expanded rapidly over the course of the last two decades, little effort has been devoted to defining corruption and deriving diagnosis of corruption's effects that are based on a clearly defined object (see Williams, 1999; Lambsdorff, 2007:15-16). Thus, the consensus on the detrimental socio-economic impacts of corruption is hiding the disagreement on what corruption actually is.

Corruption is a multifaceted concept that escapes monolithic characterizations, and common definitions have a strong moral component: the "impairment of integrity, virtue, or moral principle".[1] International institutions dealing with corruption have adopted less morally charged definitions, e.g. the simple definition used by the international NGO Transparency International and by the Danish Development Agency Danida -"the misuse of entrusted power for private gain"[2,3] stands in contrast with the one used by the World Bank Group which defines corruption as 'the abuse of public office for private gain'.[4]

In this paper, we begin by examining the role corruption plays in the private sector, through the lenses of theoretical analysis and case studies. We start with classical economists who discussed how corruption in the private sector affects economic development and how the theories concerning the impact of corruption also apply to corruption in the private sector. We then move on to the empirics of corruption and examine the question whether larger public sectors are associated with higher levels of corruption. While this is not the first study to investigate empirically the relation between the size of the public sector and corruption, the authors that found a negative association have not reflected on the implications of this finding for the definition of corruption (e.g. Holcombe and Boudreaux, 2015).

This paper has three main objectives. The first one is to offer the readers an overview of the main economic theories on the nexus between the private/public sector and corruption. The second objective is to test econometrically the sign and the magnitude of the association between corruption and government expenditure, measured across countries and time. The third objective is to discuss the implications of the evidence for anti-corruption strategies. To our knowledge, our study is the first to

examine the relationship between corruption and the private/public sector through the use of theoretical arguments and of econometric analysis.

The paper is organized as follows: the next section reviews the effects of corruption on the economy from a theoretical and empirical perspective, showing that the effects are not limited to corruption in the public sector. Section 3 introduces the data and descriptive statistics concerning the relationship between the size of the public sector and the level of corruption. Section 4 presents the econometric results and Section 5 concludes discussing the results and their implications for theory and policy.

Corruption and the private sector

The question whether corruption should be defined as a phenomenon including or excluding the abuse of power originating in the private sector (thus, including companies and NGOs) can be addressed by looking at the evidence on the effects of corruption and whether these effects include or exclude cases where all parties belong to the private sector.

In the first place, it is worth highlighting how corruption always involves multiple parties (typically the briber and bribee), and in most instances some of the parties will belong to the private sector (e.g. Shleifer and Vishny, 1993). Here, we argue that it is important to characterize corruption in a way that includes also cases where none of the parties exercises a public role. In other words, we want to include also transactions where all the parties in the deal belong to the private sector.

Thus, the nature of the power vested and abused can be of private nature. Simplistic policy recipes that recommend the expansion of the private sector vis–a-vis the public sector are problematic because privatized public service often creates new state-enterprise interfaces which are related to contracting, procurement and the associated obligations. Moreover, even in case some sectors could be fully privatized, private corruption could simply replace corruption in the public sector (Pellegrini, 2011).

When analysing the literature, it appears that the public at large, international organizations and social scientists usage of the term corruption includes cases pertaining to the private sector. This perception is exemplified by the findings of the *Global Corruption Barometer* (Hardoon and Heinrich, 2013): the survey -which reflects the opinions expressed by more than 114,000 people in 107 countries- reported that -in 3 countries- private businesses are perceived to be more corrupt when compared to political parties, parliament and legislature, military, NGOs, media, religious bodies, education system, judiciary, medical and health, police, public officials and civil servants.[5] In fact, this result is -by and large- a measure of how much corruption is perceived to be present in the private sector, as a consequence of the stunning levels of corruption affecting globally political parties, the police and the judicial system. At the global level, approximately half of the interviewees reported business and the private sector to be either 'corrupt' or 'highly corrupt'. These findings indicate that in the global public opinion, the problem of corruption is not confined to the public sector.

Transparency international itself –as mentioned above– endorses the operational definition of corruption as "the abuse of entrusted power for private benefit" that includes also the private sector; nevertheless its *Corruption Perception Index* uses sources that define corruption as the "the misuse of public power for private benefit".[6] The World Bank Group has come to play a prominent role as a global

anti-corruption actor as part of the new emphasis on governance; interestingly, while it defines corruption as something pertaining only to the public sector, it also discusses the problem of "corporate corruption".[7] On the one hand, these idiosyncrasies indicate that the issue of private corruption has not been discussed openly. On the other, when we go from the issue of corruption to many of its practices and impacts, the focus necessarily include the private sector.

While this study is trying to re-balance the view of corruption as something systematically associated solely with the public sector, the view that private corruption does matters is not a new one. The classical economist Alfred Marshall noted already at the end of the 19th century that:

"Every one is aware of the tendency to an increase in the size of individual businesses, with the consequent transference of authority and responsibility from the owners of each business to its salaried managers and officials. This would have been impossible had there not been a great improvement in the morality and uprightness of the average man: for even as late as the seventeenth and eighteenth centuries we find the great trading companies breaking down largely in consequence of the corruption and selfishness of their officials." (Marshall, 1897: 130).

Thus, in Marshall's view the lack of morality and the presence of corruption have a bearing in the structure of private companies since they limit their size. The role of firms as a basic unit of analysis in economics, the need to unpack them and the role of transaction costs in providing a rationale for their existence was later emphasised by Ronald Coase (1937). Thus, the effect of corruption within the firm is to increase internal transaction costs (and make the outsourcing of services relatively more convenient), affecting size and competitiveness of companies where the culture of corruption is commonplace.

Many of the problems associated with corruption can be explained by the principal-agent problem and are rooted in asymmetric information (Groenendijk, 1997; Shleifer & Vishny, 1993). Thus, the problem of political corruption can be seen as a problem between a principal (the voter) and an agent (the elected politicians), where the two parties have interests that do not coincide and the agent has privileged access to information. In a similar vein, the problem of bureaucratic corruption is related to the fact that the agent abusing its vested power (the bureaucrat in this case) cannot be directly observed by the principal (the elected politician) (Groenendijk, 1997: 210). The same behavioural model can be applied to the problem of corruption within enterprises, where the relevant information asymmetry can pit the management (the agent) with the shareholders (the principal), or the employees (the principal) with the management (the principal in this case). For example, when doing procurement or contracting out services for a private company, the employee faces incentives and enjoys information asymmetries that are very similar to the ones of a civil servant (Prager, 1994). Thus, the problem of corruption can be easily extended to the class of issues engendered in private companies by information asymmetries.

Similarly, some of the economy-wide consequences of corruption can be seen as including corruption in the private sector. For example, corruption has been found to lead to low investments because corruption would act as a tax (Mauro, 1995; Wei, 2000). In the same vein of public officials taxing company owners by extracting bribes, corruption within the company would add additional costs and weight on the baseline. Thus, the expectation of corrupt culture and practices within the company, and

their associated costs, would be taken into consideration in the moment the entrepreneur plans its investment decisions.

We would also like to introduce a real-world example of how a misplaced single focus on corruption in the public sector can obscure similar practices outside the state. The case of Paul Wolfowitz -former President of the World Bank Group- epitomizes a commitment to control corruption in the public sector and neglect corruption episodes in other sectors. On the one hand, under his leadership the World Bank Group stepped up its commitment against corruption in the developing world.[8] However, while the World Bank Group was increasingly committed to healing the public sector in developing countries, President Wolfowitz himself got entangled into accusations of corruption –essentially of promoting and giving an undue pay rise to his partner within the World Bank Group- that eventually led to his resignation.[9] The World Bank has since strengthened its ethical commitment to fight corruption within its organization and in the management of its funds, implementing a 'zero-tolerance policy'; however the definition adopted by the World Bank continues to be concerned only with corruption in the public sector.[10]

While the World Bank Group is clearly a 'special' bank, with the shareholders made up of member countries and represented by their governments, the management of private banks is not devoid of similar problems. Just as a recent example, the banking sector in Italy has been subject to a storm of criticism because the 'abuse of power for private interest' has been so extensive that it has undermined the profitability and lead to the near-bankruptcy of several banks.[11] In order to avoid the spread of bankruptcies in the financial sector, the government had to invest large sums through the so-called 'bank-saving decree' ('Decreto salva banche', in Italian). In fact, the problem of corruption in the private sector in Italy is particularly pressing since private companies, including those that are partially owned by the state, do not fall within the public corruption law and, as a consequence, for the judicial system it is more difficult to classify and prosecute corrupt behaviour as a crime.[12]

Within social sciences, economists stand out as critical of the state as considered to be a source of inefficiencies for the regulation and provision of economic goods and services, if compared to perfect markets. In fact, perfect markets are the preferred default option to allocate resources throughout the economy and state intervention is desirable only to overcome market failures –for sharp critiques of this approach (see Bromley, 2007; Kapp, 1953). Once corruption is included as a feature of the public sector, even in the event of market failures, state intervention would be not necessarily desirable since there would be a trade-off between state failure, in the form of corruption, and market failure (for an example see Acemoglu and Verdier, 2000). The omission of the corruption problem in the private sector is decisive in characterizing this trade-off. In any case, even limiting the focus on corruption in the public sector, but moving to the policy making level, the absence of regulation can itself be the result of political or 'grand' corruption when economic interests can unduly influence policy makers. That is, in the case of political corruption, market failures and corruption compound each other rather than being alternative to each other (Pellegrini, 2011). Our take on the famous "because government intervention transfers resources from one party to another, it creates room for corruption" (Acemoglu and Verdier, 2000: 194) is that "because government intervention *and non-intervention* transfers resources from one

party to another, it creates room for corruption". This view is especially salient when combined with the realization that externalities and market failures are a pervasive phenomenon rather than the exception to well-functioning markets (Dasgupta and Ehrlich, 2013).

Ultimately, our critical take on corruption as a phenomenon limited to the public sector extends to the simplistic conclusions that are based on this definition. Thus, we find that the recommendation that shrinking the public sector -and privatizing and limiting regulatory powers- would be sufficient to decrease corruption is based on this definitional fallacy (e.g. Acemoglu and Verdier, 2000). We now turn to an econometric examination of the relationship between the public sector and corruption.

Data description

The theoretical nexus between the public sector and corruption level has not been supported by consistent and robust econometric evidence –apart from few studies (for an overview, see Lambsdorff, 2007; Pellegrini, 2011). In this section, we introduce the first panel analysis exploring the determinants of corruption (in the medium-run) that includes a measure of the size of the public sector.

The empirical analysis on the determinants of corruption has proved to be challenging since the data sources typically used in econometric analysis present problems especially for intertemporal comparisons. As an example, the Corruption Perception Index of Transparency International -which has been sometimes used -as well as mis-used- (Voigt, 2017; Williams and Siddique, 2008) represents an ill-fit, as up until 2012 it was based on countries rankings -as opposed to average scores- and the sample of countries introduced in the index has been increasing in size over time. Therefore, the index might show spurious trends (Kaufmann *et al.*, 2011; Saisana and Saltelli, 2012; Transparency International, 2017).

Furthermore, also the data sources have been changing over time. Since 2012 a new methodology has been introduced and the more recent indexes can be used -although with some care- for intertemporal comparisons; however, econometric analysis which starts in 2012 until recent years leaves the researchers with only a couple of data points for the comparison. Our approach is to use the corruption indicators coming from the 'The Worldwide Governance Indicators (WGI) project' dataset provided by the World Bank,[13] that provide 'aggregate and individual governance indicators for over 200 countries and territories over the period 1990–2016, for six dimensions of governance: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law and control of corruption.

A comprehensive dataset has been assembled with the aim of inferring the causal influence of public expenditure -here measured as the percentage of the general government final consumption expenditure over the country GDP- on the level of corruption. We choose government expenditures as a share of GDP as a proxy for the size of the public sector (see for example Bergh & Henrekson, 2011; Holcombe & Rodet, 2011; Hopkin & Rodríguez-Pose, 2007). Our panel ranges from 1990 to 2016, reducing the likelihood that any year-specific phenomenon would influence the overall estimates.

While corruption -and many of its determinants (Treisman, 2000)- tend to be stable over time, a panel with 202 countries and 26 years of data points seems to produce enough variation to produce robust and consistent results. There is a widespread consensus in the economic literature to explain variations

in corruption level by means of a mixture of economic, political and socio-cultural variables (Jain, 2001). In examining the determinants of corruption, we explored the effects of time-invariant variables as well as those that vary over time in each country.

The first category of aggregate is represented by the e*conomic factors*; and in line with the literature we would expect that low levels of income are associated with high levels of corruption (e.g. Faria, Morales, Pineda, & Montesinos, 2012; Treisman, 2007: 224). We also expect that higher natural resource rents is positively associated with the level of corruption –a classic result from (Leite & Weidmann, 1999)– and that open economies are less corrupt (Treisman, 2007: 236). *Political factors* are also found to play a role in influencing the corruption levels (e.g. Arezki & Gylfason, 2013; Campos & Giovannoni, 2017). People living in countries with stable democratic institutions are more likely to express their dissatisfaction with corruption either by not re-electing or reducing the term in office of politicians who are corrupt themselves or unable to keep in check corruption throughout society (O'Donell, 1994). Lastly, the *socio-cultural and geographical factors*: empirical results have shown long term factors (such as ethnic and religious fragmentation) are likely to be associated with the level of corruption (e.g. (Treisman, 2000).

The major source of the economic, political and cultural factors is the World Bank's World Development Indicators[14], while data on democracy comes from the 'Integrated Network for Societal Conflict Research' (INSCR)[15]. Details and sources of the variables used are available in Table 1.

Table 1: List, source and type of the variables used

Variable	Source	Type of variable
Corruption level[16]	World Bank	Dependent variables
General government final consumption expenditure (% of GDP)	World Development Indicator	Economic determinants
GDP, PPP (constant 2005 international $)		
Total natural resources rents (% of GDP)		
Imports of goods and services (% of GDP)		
Democracy index	Integrated Network for Societal Conflict Research	Political determinants
Internet user	World Development Indicator	
Ethnic fragmentation	(Alesina, Devleeschauwer, Easterly, Kurlat, & Wacziarg, 2003)	Socio-cultural and geographical determinants
Religious fragmentation	(Alesina et al., 2003)	
Former European colony	(Daron Acemoglu, Johnson, & Robinson, 2002)	
Average latitude	(Masters & McMillan, 2001)	

The resulting panel dataset consists of 11 variables observed for 202 countries located in the five continents in a time period ranging from 1990 to 2016. The descriptive statistics regarding the variables used in the empirical analysis are in Table 2.

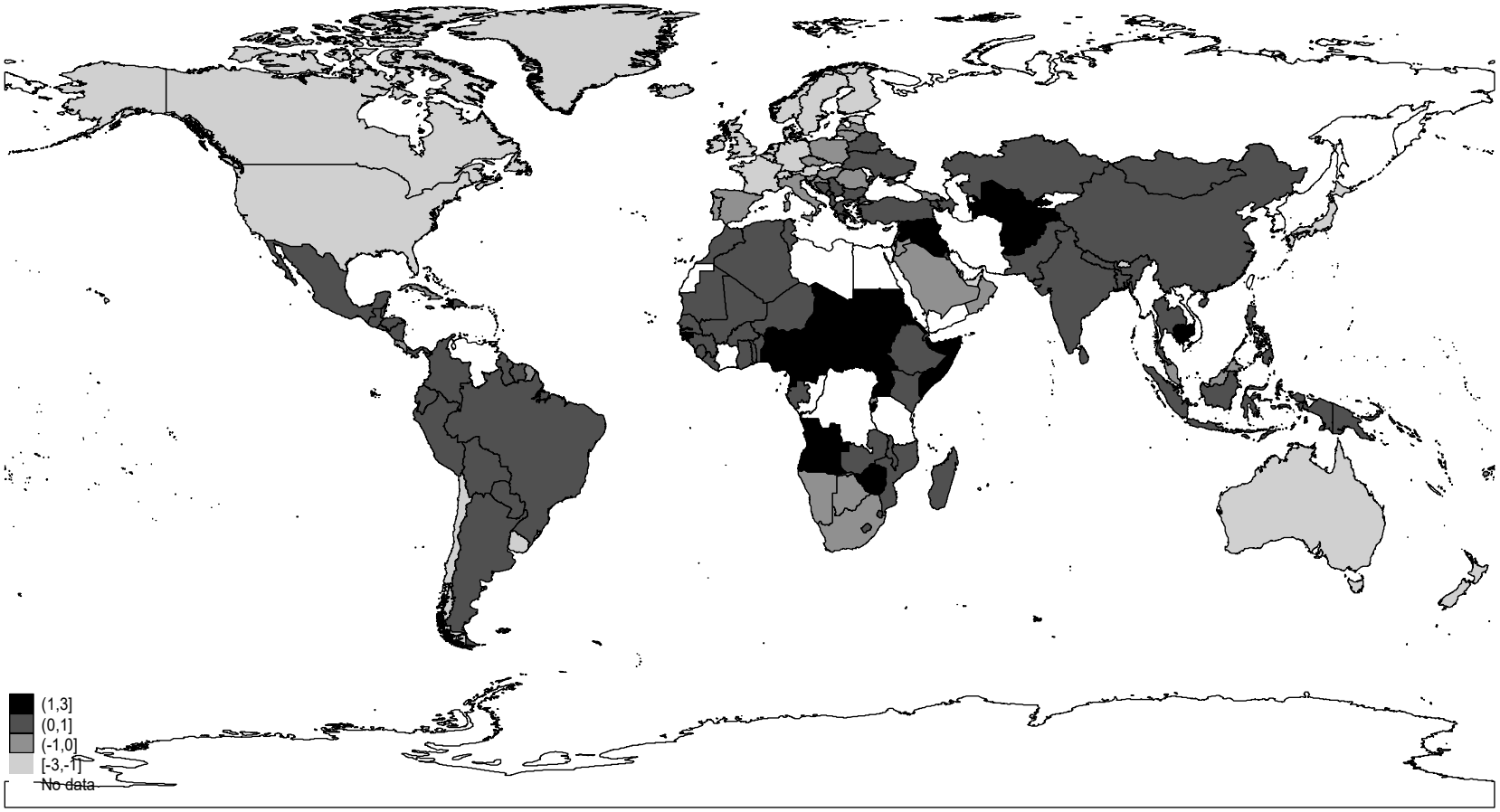
Table 2: Variables summary statistics

Variable	Observations	Mean	Std. Dev.	Min.	Max.
Corruption index	3,563	0.00	1.00	-2.47	1.87
General government final consumption expenditure (% of GDP)	4,424	16.43	8.24	2.05	156.53
Log. of GDP, PPP (constant 2005 international $)	4,709	8.94	1.25	5.51	11.82
Total natural resources rents (% of GDP)	4,913	7.24	11.66	0	89.17
Imports of goods and services (% of GDP)	4,632	47.51	30.46	0.02	427.58
Democracy index	3,726	6.18	3.60	0	10
Internet user	4,362	20.39	26.12	0	98.32
Ethnic fragmentation	153	0.43	0.26	0	0.93
Religious fragmentation	161	0.43	0.23	0.00	0.86
Former European colony	161	0.54	-	0	1
Average latitude	143	26.43	17.63	0.50	66.02

Sources: See Table 1.

The global spatial distribution of levels of corruption across countries is shown in Figure 1 where darker colours indicate higher corruption levels. The map shows that there are regional patterns and contiguous countries tend to share similar levels of corruption. Generally, the data show higher levels of corruption in Sub-Saharan Africa, with the exception of Botswana, Namibia and South Africa. Central, South America and Asia show relatively high levels of corruption.

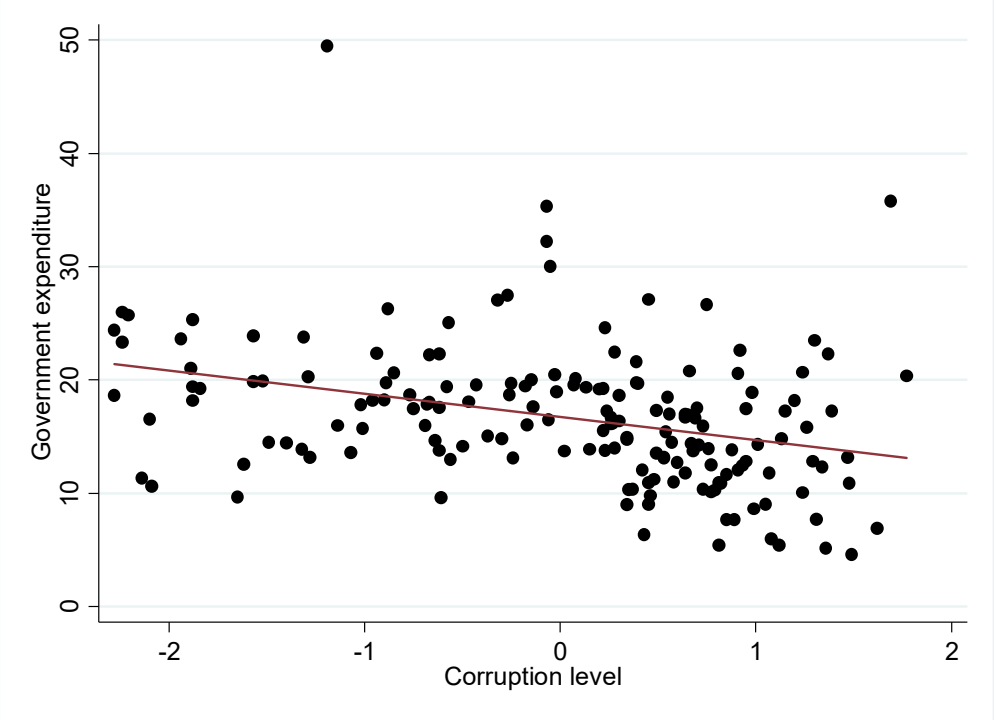
Figure 1: Corruption level, 2014



Note: Higher values of the corruption indicator –darker colours- indicate higher level of corruption.
Sources: See Table 1.

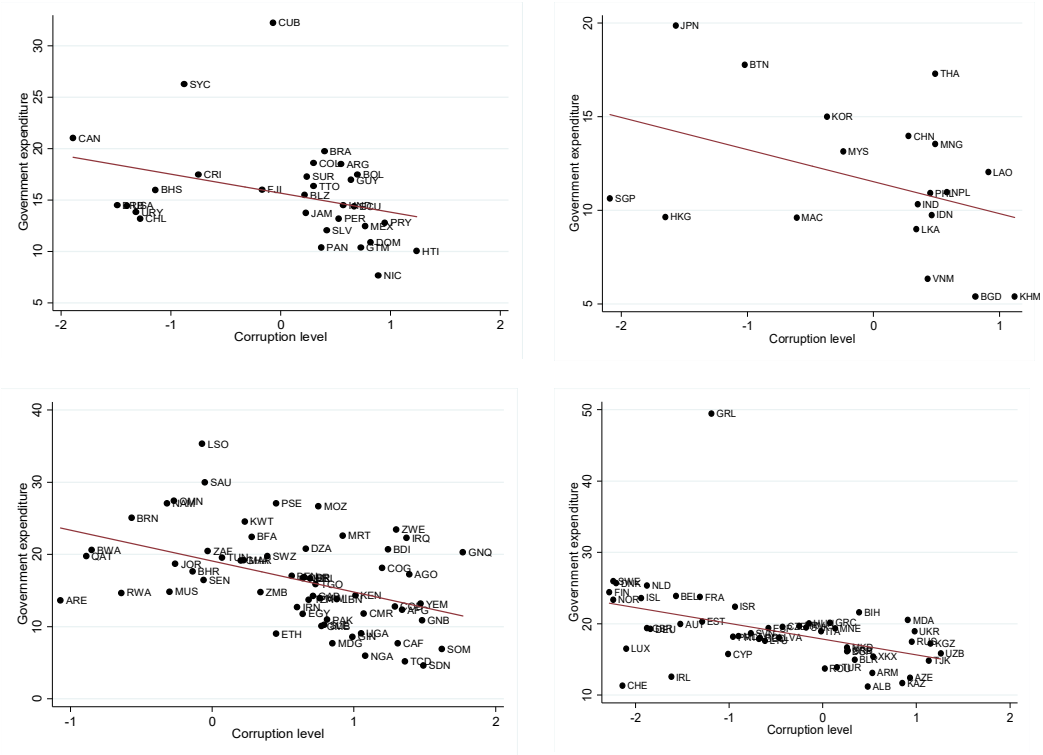
Figure 2 and Figure 3 show the relations between the government expenditure –measured as a share of the GDP- and the corruption level for the year 2016. Figure 2 represents the relation in the global sample, while Figure 3 shows the same relation but disaggregated at the continent level –America in the top left and then Asia, Africa and Middle East, and Europe. The pooled figure suggests a negative correlation between government expenditure and the severity of corruption; the figures disaggregated per continent also show a negative correlation between the two indicators. The negative correlation is stronger in the African and Middle East countries and in the European countries -bottom figures- if compared to the American and Asian countries. To test further the suggestive evidence regarding a weak and negative association between the involvement of the state in the economy and the prevalence of corruption, in the next section we employ a panel data approach.

Figure 2: Government expenditure and corruption level



Note: The graph represents the relation between the government expenditure as a share of the GDP (on the y-axis) and the corruption level (on the x-axis) in 2016 for all the countries included in the sample. Sources: See Table 1.

Figure 3: Government expenditure and corruption level, by geographic area



Note: Clockwise from top left, the graph represents the relation between the government expenditure as a share of the GDP (on the y-axis) and the corruption level (on the x-axis) in 2016 for the Americas, Asia, Africa and Middle East and Europe and the liner fit. Oceania is not represented due to the low numerosity. Greenland - standing out top left of the bottom right figure- has the highest level of government expenditure, moderate corruption and is clearly an outlier. The regression results presented in Table 3 and in Table 4 include Greenland, but omitting Greenland does not change the significance, nor the sign of the coefficients of the independent variables.

Sources: See Table 1.

Econometric results

Our empirical strategy is to run panel models to test the hypothesis that the involvement of the state in the economy, proxied by government expenditures as a share of GDP, is not positively associated in a statistically and economically significant way with the extent of corruption. We run a linear regression with a model with corruption as a dependent variable (*C*) and as independent variables a constant (α), government expenditure as a share of GDP (*Gov*) and a vector of economic, political, socio-cultural and geographic variables (Λ). The model is:

$$C_{it} = \alpha + \beta Gov_{it} + \gamma \Lambda_i + \epsilon_{it}$$

Where the subscripts *i* and *t* represent country and year, respectively.

Our estimation technique is a random effect model, since the models include variables that do not change over time –and would make fixed effects models unviable. This decision is based on the commonplace findings that long-term variables affect current institutional quality in general and corruption in particular (Acemoglu, Johnson, & Robinson, 2001; Treisman, 2007). Moreover, the random effect estimator is to be preferred to the simple pooled model (Clark & Linzer, 2015; Wooldridge, 2002).

We run models that are first very parsimonious and then include more control variables. The focus is on the public sector coefficients since they are the ones allowing to test whether there is a significant (in both a statistical and an economic sense) association between the size of the government and the prevalence of corruption. By including only the size of government expenses on the economy, as expected, we find a result that coincides with the tentative evidence presented above: there is a statistically significant and negative association between our variables of interest. The result is confirmed across the specifications and is robust to the inclusion of control variables regarding economic, political and socio-cultural and geographical factors.

When it comes to the size of the parameter of interest, it ranges between minus 0.007 and minus 0.014. That is, in an economic sense the magnitude of the coefficient is rather modest since one standard deviation increase in the government expenditure is associated with only a fractional decrease in corruption (cf. McCloskey & Ziliak, 1996). That is, our results indicate an economically insignificant association between the size of the public sector and corruption. These results corroborate the theoretical discussion above.

In terms of the control variables, the results of the models in Table 3 suggest a consistent and negative relation between the level of economic development -measured as the logarithm of GDP per capita- and corruption. The result is in line with the literature (e.g. Treisman,2007), but the risk of endogeneity suggests that the result should be interpreted carefully. Using the lagged variables -see Table 4 in the Appendix; all the six models using the 1 or 5 years lag GDP per capita confirm the negative relationship.

The relationship between corruption and trade, has been subject of theoretical and empirical examination (e.g. Pellegrini and Gerlagh, 2004) and our results confirm the negative association, but with a very small coefficient. Another common finding is that ethnolinguistic fractionalization is associated with higher level of corruption; the rationale being that ethic groups that come into power in ethnically heterogeneous countries tend to expropriate the other communities, restrict their freedom and preventing them from

benefitting the public goods; the final result is a less efficient state with reduced political freedom and higher degrees of corruption (Alesina et al., 1999). The evidence we find in the panel goes in the same direction and the variable 'ethnic fractionalization' has a positive and significant coefficient. When using 'religion' as a measure of fractionalization-the result is not statistically significant (cf. Alesina et el., 1999). Variables related to the colonial heritage are sometimes used to investigate the causes of corruption and some authors have suggested that colonial heritage can reduce corruption (e.g. Rose-Ackerman, 1999), however the empirical finding has been contested and also our result on former European colonies is statistically insignificant. Latitude has also been found to predict both institutional development and economic growth (e.g. Gallup et al. 1999; cf. Rodrik et al. 2004). We show that our main results are robust to the inclusion of a latitude variable and that, in line with previous findings, the coefficient is negative and significant. The issue of the relationship between information and corruption has been analysed in the past by looking at the role played by newspapers circulation and press freedom (e.g. Brunetti and Weder, 2003). Given the recent diffusion of online news outlets and the use of social networks as a source of news, our approach is to use internet users (as a share of the population) as a proxy for the access to the mass and social media. The somewhat surprising result indicates that higher access to the internet is associated with higher perceived corruption, albeit with a small coefficient (cf. Garcia-Murillo 2009). We find -in line with Leite and Weidemann (1999)- that relative abundance of natural resources creates opportunities for rent-seeking behaviour and increases the corruption level. In line with theories of democracy and several empirical studies (e.g. Khan, 2002), we find that contemporary democracy is associated with lower corruption levels and the result is confirmed in the lagged models.

The same model was run again with lagged independent variables and ameliorate the potential problems of reverse causality. The results with 1-year and 5-year lags are presented in the appendix and are not substantially different from the ones presented here (Table 3-4), showing that our main results are robust.

Table 3: Regression results

Independent variables	Dependent variable: corruption indicator									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Gov. expenditure (% of GDP)	-0.007***	-0.009***	-0.007***	-0.011***	-0.011***	-0.011***	-0.011***	-0.013***	-0.011***	-0.014***
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Log. of GDP per capita		-0.18***	-0.18***	-0.14***	-0.169***	-0.134***	-0.11***	-0.32***	-0.33***	-0.34***
		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Imports of goods and services (% of GDP)			-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-.002***	-0.001***
			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethnic fractionalization				1.25***		1.08***	0.70**	0.94***	0.81***	0.39*
				0.22		0.23	0.26	0.16	0.16	0.18
Religious fragmentation					-0.26					
					0.24					
Former European colony						0.20		0.03	0.04	-0.02
						0.12		0.09	0.09	0.09
Average latitude							-0.019***			
							0.00			
Internet user as % of population)								0.002***	0.002***	0.002***
								0.00	0.00	0.00
Natural resource rent as % of GDP									0.007***	0.005***
									0.00	0.00
Contemporary democracy										-0.082***
										0.01
Constant	0.14	1.76***	1.86***	0.99***	1.88***	0.921***	1.52***	2.76***	2.85***	3.70***
	0.07	0.17	0.17	0.22	0.21	0.23	0.26	0.24	0.24	0.24
Number of obs.	2947	2947	2900	2896	2416	2436	2416	2265	2370	2364

Notes: xt reg, random effects, level regressions. Standard errors in parentheses, * p<0.10, ** p<0.05, *** p<0.01. Sources: See Table 1.

Conclusions

The characterization of corruption has been a neglected theme in the burgeoning economic literature with this phenomenon. When explicitly defined, corruption is -in most cases- circumscribed to the public sector, and corrupt behavior is based on the premise of abuse of power vested in public office. As a consequence, anti-corruption campaigns are expected to focus on the behavior of public servants and on the involvement of the state in the economy at large. We found that the theoretical and empirical premises for such characterizations of corruption and of their policy implications are misleading.

From the theoretical perspective, relevant societal and economic problems associated with corruption are to be found also in cases where all involved parties belong to the private sector. Similarly, in the econometric analysis, we also find that state involvement in the economy, as measured by government expenditure as a share of GDP, is a poor predictor of the perceived prevalence of corruption.

Taken together, the arguments and evidence provided question the wisdom, common in the economic literature, of focusing solely on corruption that involves the public sector when it comes to explaining the phenomenon and designing anti-corruption strategies. Thus, strategies to fight corruption will have to acknowledge that corruption is "rooted in everyday social practice" (Arellano-Gault, 2016: 3) and these practice includes the private sector.

REFERENCES

Acemoglu, D. and T. Verdier (2000). "The choice between market failures and corruption." *American Economic Review* 90(1): 194-211.

Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The colonial origins of comparative development: An empirical investigation. *American Economic Review*, *91*, 1369–1401.

Acemoglu, Daron, Johnson, S., & Robinson, J. A. (2002). Reversal of fortune: Geography and institutions in the making of the modern world income distribution. *The Quarterly Journal of Economics*, *117*(4), 1231–1294.

Aidt, T. S. (2009). "Corruption, institutions, and economic development." *Oxford Review of Economic Policy* 25(2): 271-291.

Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., & Wacziarg, R. (2003). Fractionalization. *Journal of Economic Growth*, *8*(2), 155–194.

Alesina, A., Baqir, R. & Easterly, W. (1999). Public goods and ethnic division. Quarterly Journal of Economics, 114.

Aligica, P. D. and V. Tarko (2014). "Crony capitalism: Rent seeking, institutions and ideology." *Kyklos* 67(2): 156-176.

Arellano-Gault, D. (2016). Understanding the Trap of Systemic Corruption. *Governance*, 29(4), 463–465.

Arezki, R., & Gylfason, T. (2013). Resource Rents, Democracy, Corruption and Conflict: Evidence from Sub-Saharan Africa. *Journal of African Economies*, *22*(4), 552–569. https://doi.org/10.1093/jae/ejs036

Bardhan, P. (1997). "Corruption and development: A review of issues." *Journal of Economic Literature* 35(3): 1320-1346.

Bergh, A., & Henrekson, M. (2011). Government size and growth: a survey and interpretation of the evidence. *Journal of Economic Surveys*, *25*, 872–897.

Bromley, D. W. (2007). "Environmental regulations and the problem of sustainability: Moving beyond "market failure" " *Ecological Economics* 63(4): 676-683.

Brunetti, A., & Weder, B. (2003). A free press is bad news for corruption. *Journal of Public economics*, 87(7), 1801-1824.

Campos, N. F., & Giovannoni, F. (2017). Political institutions, lobbying and corruption. *Journal of Institutional Economics*, *13*, 917–939. https://doi.org/10.1017/S1744137417000108

Clark, T. S., & Linzer, D. A. (2015). Should I Use Fixed or Random Effects? *Political Science Research and Methods*, *3*(02), 399–408. https://doi.org/10.1017/psrm.2014.32

Coase, R. (1937). "The Nature of the Firm." *Economica* 4(16): 386-405.

Dasgupta, P. S. and P. R. Ehrlich (2013). "Pervasive externalities at the population, consumption, and environment nexus." *Science* 340(6130): 324-328.

Faria, H. J., Morales, D. R., Pineda, N., & Montesinos, H. M. (2012). Can capitalism restrain public perceived corruption? Some evidence. *Journal of Institutional Economics*, *8*, 511–535. https://doi.org/10.1017/S1744137412000070

Gallup, J. L., Sachs, J. D., & Mellinger, A. D. (1999). Geography and economic development. *International regional science review*, 22(2), 179-232.

Garcia-Murillo, M. (2009). The effect of internet access on government corruption. *Electronic Government, an International Journal*, 7(1), 22-40.

Groenendijk, N. (1997). A principal-agent model of corruption. *Crime, Law and Social Change*, 27(3), 207–229.

Grossman, S. J. and O. D. Hart (1983). "An analysis of the principal-agent problem." *Econometrica: Journal of the Econometric Society*: 7-45.

Hardoon, D. and F. Heinrich (2013). "Global Corruption Barometer 2013: Transparency International."

Hodgson, G. M. and S. X. Jiang (2007). "The economics of corruption and the corruption of economics: An institutionalist perspective." *Journal of Economic Issues* 41(4): 1043-1061.

Holcombe, R. G., & Rodet, C. S. (2011). Rule of law and the size of government. *Journal of Institutional Economics*, *8*, 49–69.

Holcombe, R. G., & Boudreaux, C. J. (2015). Regulation and corruption. *Public Choice*, 164(1–2), 75–85.

Hopkin, J., & Rodríguez-Pose, A. (2007). "Grabbing Hand" or "Helping Hand"?: Corruption and the Economic Role of the State. *Governance*, 20(2), 187–208.

Jain, A. K. (2001). "Corruption: A review." *Journal of Economic Surveys* 15(1): 71-121.

Jain, A. K. (2001). Corruption: A review. Journal of economic surveys, 15(1), 71-121.

Kapp, K. W. (1953). "The social costs of private enterprise."

Kaufmann, D. (2004). 'Corruption, Governance and Security: Challenges for the Rich Countries and the World' in *The Global Competitiveness Report 2004 2005*. World Economic Forum. Geneva.

Kaufmann, D., A. Kraay and M. Mastruzzi (2005). Governance Matters IV: Governance Indicators for 1996-2004. *World Bank Policy Research Working Paper Series*. World Bank. Washington DC.

Kaufmann, D., A. Kraay and M. Mastruzzi (2011). "The Worldwide Governance Indicators: Methodology and Analytical Issues." *Hague Journal on the Rule of Law* 3(2): 220-246.

Khan, M H. (2000). "Rents, Efficiency and Growth". In Mushtaq H. Khan, and Jomo K.S. [eds]. Rents, Rent-Seeking and Economic Development: Theory and Evidence in Asia. Cambridge University Press, Cambridge.

Lambsdorff, J. G. (2007). *The Institutional Economics of Corruption and Reform: Theory, Evidence, and Policy*. Cambridge and New York, Cambridge University Press.

Lambsdorff, J.-G. (2003). "How Corruption Affects Productivity." *Kyklos*- 56(4): 457-74.

Leite, C., & J. Weidmann. (1999). *Does mother nature corrupt? Natural resources, corruption, and economic growth* (IMF Working Paper). Washington DC.: International Monetary Fund.

Marshall, A. (1897). "The Old Generation of Economists and the New." *The Quarterly Journal of Economics* 11(2): 115-135.

Masters, W. A., & McMillan, M. S. (2001). Climate and Scale in Economic Growth. *Journal of Economic Growth*, *6*(3), 167–186.

Mauro, P. (1995). "Corruption and Growth." *Quarterly Journal of Economics* 110(3): 681-712.

McCloskey, D.-N., & Ziliak, S.-T. (1996). The Standard Error of Regressions. *Journal of Economic Literature*, *34*, 97–114.

Miller, G. J., & Whitford, A. B. (2006). The principal's moral hazard: Constraints on the use of incentives in hierarchy. Journal of Public Administration Research and Theory, 17(2), 213-233.

Naím, M. (2005). Bad Medicine: The war on corruption is leaving the world worse than we found it. Foreign Policy. March/April.

O'Donell, G. A. (1994). Delegative democracy. *Journal of democracy*, 5(1), 55-69.

Pellegrini, L. (2011). *Corruption, Development and the Environment*. Dordrecht, Springer.

Pellegrini, L. and R. Gerlagh (2004). "Corruption's effect on growth and its transmission channels." *Kyklos* 57(3): 429-456.

Prager, J. (1994). "Contracting out government services: Lessons from the private sector." *Public administration review*: 176-184.

Rodrik, D., Subramanian, A., & Trebbi, F. (2004). Institutions rule: the primacy of institutions over geography and integration in economic development. *Journal of economic growth*, 9(2), 131-165.

Rose-Ackerman, S. (1999), "Corruption and Government. Causes, Consequences and Reform." Cambridge: Cambridge University Press

Saisana, M. and A. Saltelli (2012). "Corruption Perceptions Index 2012 Statistical Assessment." *JRC Scientific and Policy Reports*.

Shleifer, A. and R. W. Vishny (1993). "Corruption." *The Quarterly Journal of Economics* 108(3): 599-617.

Transparency International (2014). Corruption Perceptions Index 2014: Full Source Description. Transparency International. Berlin, Germany.

Transparency International. (2017). *Corruption Perceptions Index 2017*. Berlin, Germany: Transparency International. Retrieved from https://www.transparency.org/news/feature/corruption_perceptions_index_2017

Treisman, D. (2000). The causes of corruption: a cross-national study. *Journal of Public Economics*, *76*, 399–457.

Treisman, D. (2007). What have we learned about the causes of corruption from ten years of cross-national empirical research? *Annu. Rev. Polit. Sci.*, *10*, 211–244.

Voigt, S. (2017). "How to measure informal institutions." *Journal of Institutional Economics* 14(1): 1-22.

Wei, S. J. (2000). "How taxing is corruption on international investors?" *Review of Economics and Statistics* 82(1): 1-11.

Weitz-Shapiro, R. and M. S. Winters (2017). "Can citizens discern? Information credibility, political sophistication, and the punishment of corruption in Brazil." *The Journal of Politics* 79(1): 60-74.

Williams, A. and A. Siddique (2008). "The use (and abuse) of governance indicators in economics: a review." *Economics of Governance* 9(2): 131-175.

Williams, R. (1999). "New concepts for old?" *Third World Quarterly* 20(3): 503-513.

Wooldridge, J. M. (2002). *Econometric analysis of cross section and panel data*. Cambridge and London: MIT Press.

Table 4: Regression results

Independent variables	Dependent variable: corruption indicator								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gov. expenditure	-0.012***	-0.014***	-0.009***	-0.009***					
	0.00	0.00	0.00	0.00					
Gov. expenditure lagged 1 year					-0.012***	-0.013***		-0.013***	
					0.00	0.00		0.00	
Gov. expenditure lagged 5 year							-0.01		-0.010***
							-0.01		0.00
Gov. expenditure squared lagged 5 years							0.00		
							0.00		
Log. of GDP per capita lagged 1 year	-0.215***	-0.340***						-0.346***	
	0.02	0.03						0.02	
Log. of GDP per capita lagged 5 years			-0.305***	-0.303***					-0.356***
			0.03	0.03					0.03
Log. of GDP per capita					-0.333***	-0.329***	-0.370***		
					-0.02	-0.02	-0.03		
Imports of goods and services (% of GDP)	-0.001***	-0.001***	-0.001**	-0.001**	-0.002***	-0.002***	-0.002***	-0.002***	-0.001***
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethical fragmentation	0.866***	0.532**	0.695***	0.587**	0.773***	0.652***	0.698***	0.753***	0.707***
	0.21	0.18	0.17	0.18	0.16	0.18	0.16	0.16	0.16
Former European colony					0.05	-0.13	0.00	0.03	0.01
					0.09	0.15	0.09	0.09	0.09
Internet user (% of population)		0.002***	0.001*	0.001*	0.002***	0.002***	0.002***	0.002***	0.001**
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural resource rent (% of GDP)	0.006***	0.007***	0.007***	0.007***	0.008***	0.008***	0.009***	0.008***	0.010***
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contemporary democracy	-0.015***	-0.017***	0.03	-0.019**					
	0.00	0.00	0.00	0.00					

Geographical dummy	NO	YES	NO	YES	NO	YES	NO	NO	NO
Constant	1.88***	3.18***	2.72***	2.819***	2.83***	3.02***	3.19***	2.98***	3.06***
Number of observation	1612	1567	1443	1439	2220	2138	1636	2220	1638

Notes: xt reg, random effects, level regressions. Standard errors in parentheses, * p<0.10, ** p<0.05, *** p<0.01. Sou

[1] "Corruption." Meriam -Webster online, accessed on 12/06/2018.
[2] http://www.transparency.org/news_room/faq/corruption_faq For Danida's definition see http://www.um.dk/en/menu/DevelopmentPolicy/AntiCorruption/ , accessed on 12/06/2018.
[3] For a review of alternative approaches to defining corruption, please see Pellegrini, 2011: 14-18.
[4] http://www1.worldbank.org/publicsector/anticorrupt/corruptn/cor02.htm, accessed on 12/06/2018.
[5] While we focus on businesses and the private sector here, it is worth mentioning that -depending on the country- more institutions (e.g. religious bodies or the education related institutions) might be of private nature.
[6] To further increase the complication on the ways corruption is measured, it seems that some of the sources used by Transparency International to calculate the Corruption Perception Index include also corruption in the private sector (cfr. Transparency International, 2014).
[7] Cfr. Kaufmann, 2004 and Kaufmann *et al.*, 2005.
[8] John Cassidy, "The Next Crusade: Paul Wolfowitz at the World Bank", online posting, The New Yorker, April 9, 2007, accessed on 12/06/2018.
[9] "End of the World Bank Scandal: Wolfowitz Resigns", online posting, Der Spiegel, May 18, 2007, accessed on 12/06/2018.
[10] "Helping Countries Combat Corruption: The Role of the World Bank", http://www1.worldbank.org/publicsector/anticorrupt/corruptn/cor02.htm, accessed on 12/06/2018.
[11] E.g., see: https://www.ilfattoquotidiano.it/2015/12/26/banche-corruzione-e-cittadini-indignati/2332855/; and http://contropiano.org/interventi/2017/12/05/scandalo-banche-corruzione-sistemica-098432; accessed on 12/06/2018.
[12] In fact, state existing sanction for corruption in the private sector were introduced only in 2012. See: http://www.altalex.com/documents/leggi/2014/02/26/legge-anticorruzione-il-testo-in-gazzetta ; http://www.diritto24.ilsole24ore.com/art/avvocatoAffari/mercatiImpresa/2014-03-18/fenomeno-corruzione-privati-180259.php, accessed on 12/06/2018.
[13] For more information, see: http://info.worldbank.org/governance/wgi/index.aspx#home , accessed on 12/06/2018.
[14] For more information, please visit the following website: http://data.worldbank.org/data-catalog/world-development-indicators, accessed on 12/06/2018.
[15] For more information, please visit the following website: http://www.systemicpeace.org/inscr/inscr.htm, accessed on 12/06/2018.
[16] The original 'corruption level' variable indicates the level of anticorruption, so higher value indicates lower level of corruption. In the analysis, the variable has been multiplied by the value '-1', so higher values of the indicator indicate higher level of corruption.