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Measuring Control of Corruption by a New Index of Public Integrity

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Abstract While the last 20 years saw the invention of corruption rankings, allowing comparison between countries and the shaming of corrupt governments, such measurements are largely based on the perceptions of experts, lacking both specificity and transparency. New research, based on a comprehensive theory of governance defined as the set of formal and informal institutions determining who gets what in a given context, allow for more specific and objective, albeit indirect, measurements of control of corruption. Such measurements focus on the institutional framework which empowers public integrity and eliminates many current anti-corruption tools, while validating others. Most importantly, it provides a broader specific context which can empower reforms based on evidence and a clear measure to determine status and progress of corruption control.

Introduction

One day in October 2015, the Prime Minister of Moldova, a splinter Republic from the former USSR, a country with four million inhabitants, decided to sack the head of the national anti-corruption centre. This decision came soon after this agency had arrested a party boss, who had previously served as Prime Minister. So far a common gesture—heads of anti-corruption agencies are frequently dismissed especially if they take their job seriously and arrest top people, but Prime Minister Valeriu Strelet was most inventive in his supposed motivation for

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dismissing his official. Strelet claimed that he had the top anti-corruption job reshuffled because Moldova had not progressed in Transparency international's (TI) Corruption Perception Index (CPI) over the previous year.[1]

The first problem with the idea of the Moldovan Prime Minister is that the CPI, as most other measurements of corruption, is not sensitive to change, especially over such short periods of time. Therefore, it is safest to use it for comparisons between countries and not across time. The second issue is that neither the corruption measurement from TI, nor its counterpart, the Control of Corruption indicator from the World Bank (WB), provide evidence regarding what works or does not in the fight against corruption: These two measurements only aggregate subjective assessments of national corruption, but provide no evidence regarding what countries have done right or wrong or even *who* has done something right or wrong. An anti-corruption agency cannot therefore be blamed, nor should its boss be sacked for not acting on such intransparent and imprecise data.

The Moldovan example exemplifies what is missing from the existing anti-corruption indices. First, a more transparent index would allow actors to trace the evolution of anti-corruption efforts from one year to another, while maintaining comparability between countries. Second, a higher degree of concreteness and specificity would enable observation in areas where the evolution ostensibly takes place, i.e. the judiciary, the administration, etc. Tracing trends to specific developments or sectors would bring great value for policy action, especially since we know that formal developments, like adoption of legislation, has in itself no impact and that only practice influences corruption (Lambsdorff 2008).

By and large, there are three major criticisms towards the existing corruption perception indicators:

- *Lack of validity of underlying theoretical concepts and of a unitary theory of corruption and governance:* The WB and TI measurements are not based on a thoroughly systematized concept as they rely on various sources with different definitions. Instead, they are defined implicitly by the surveys used for their construction (Knack 2006; Voigt 2009). Although the composition of the WB index is based on the (unobserved) component analysis, which extracts the common factor out of different sources thereby making the index comparable across countries. The aggregate index, however, cannot naturally distinguish particular frames of corruption by original sources, constraining its usefulness for policy purposes.[2] The index developers themselves acknowledge this potential limitation (Kaufmann et al. 2007).

- *Lagging nature of governance indicators*: As noted by Knack (2006) and Hawken and Munck (2011), changes in the assessments of governance might reflect corrections of errors done in the past. A notable example in this context is the worsening of the Control of Corruption scores in Greece, Spain, Italy and Portugal in the aftermath of the recent financial crisis. This development might have resulted from different individual sources reassessing the governance context in these countries. A similar behaviour was observed in

[1] See M. Draghici (2015, October 16th), "Premierul Republicii Moldova a inițiat procedura pentru demiterea procurorului-șef anticorupție", Mediafax.ro (Retrieved from http://www.mediafax.ro/externe/premierul-republicii-moldova-a-initiat-procedura-pentru-demiterea-procurorului-sef-anticoruptie-14850525) and Stirile PRO TV (2016, January 27th), "Moldova, mai corupta in 2015 decat in 2014. Cu cat a crescut indicele de perceptie a coruptiei si pe ce loc suntem in lume". (Retrieved from http://go.protv.md/90C5)
[2] The construction of the CPI is based on simple averaging, which makes the problem of aggregation of different concepts even more severe.

Indonesia, where corruption indicators worsened following the 1997 financial crisis after having constantly improved prior to it (Hawken and Munck 2011).[3]

- *The non-actionable nature of the corruption indicators*: The previous two points imply that the possibility to use these indicator for guiding policymakers and thus to monitor the effectiveness of any anti-corruption policies is very limited. As mentioned before, the CPI only allows for limited comparisons across time and while the Control of Corruption indicator permits this, its scores exhibit large time persistence. As a result, these indicators might even be harmful for policymakers since their insensitivity to change can provide the wrong feedback about the outcome of the corresponding reforms (Galtung 2006).

While criticism of these indices is plentiful, attempts to replace them or improve on them have been less frequent. This study seeks to build on the state of the art in corruption studies, in particular the work of Bretton Woods institutions (Tanzi 1994; Mauro 1995; Kaufmann et al. 1999, 2011; Huther and Shah 2000) and ours (Mungiu-Pippidi 2006, 2014, 2015), to develop and validate a new proxy of control of corruption. There are three major aspects of construct validation: (1) specifying the domain of observables related to the construct; (2) determining the extent to which observables tend to measure the same thing from empirical research and statistical analyses; and (3) performing subsequent individual difference studies and/or experiments to determine the extent to which supposed measures of the construct are consistent 'best guesses' about the construct (Nunnally and Bernstein 1994: 86–87).

Following this strategy, in our previous research we:

- Studied the drivers of corruption and identified theoretically relevant and statistically significant factors through a careful and thorough review of the literature and econometric analysis (see Mungiu-Pippidi 2014, 2015 and ACR 2013).
- Defined and adopted further the categories of factors based on the theorization of Mungiu-Pippidi (2006). Within this framework, control of corruption is conceptualized as a continuum ranging on one dimension from absolute particularism (all allocation of public resources and goods in a society is based on some particular connection between the power holders who authorize the allocation and the receiving party) to absolute ethical universalism (allocation is impartial and impersonal, based on equality). Accordingly, in corrupt societies, transactions based on particularism are on the majority, in less corrupt ones ethical universalism is the norm and particularism the exception. This theory further argues that the position of a society on this continuum results from the equilibrium determined by specific institutional factors that can be grouped into *resources* (opportunities for spoiling public resources) and societal *constraints* (legal and normative limitations that prevent corruption). It was also tested empirically and proven robust in cross-sectional and time-series model covering over 120 countries (see Mungiu-Pippidi et al. 2011; ACR 2013 and Mungiu-Pippidi 2015; Ch. 4).

In this paper we seek to take our previous research a step further and contribute to the existing measurements of corruption by developing a new indicator that tackles some of the weaknesses of the existing ones. In order to do so, this paper:

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[3] However, Kaufmann et al. (2007) do not find systematic evidence that proves this argument.

- Identifies the most statistically robust and policy-relevant indicators able to operationalize the institutional factors previously identified as determinants of corruption control. The selected indicators aim to have a broad geographical coverage, be publicly available, continuously updated and, whenever possible, based on objective or "hard" data so that the resulting measurement can be used to derive specific anti-corruption policies and also track changes over time.
- Shows the complex mechanisms in which diverse institutional factors interact. We offer evidence that the indicators identified from the group corruption *resources* and *constraints* are not only statistically meaningful on their own, but amplify their effects when they interact between them.
- Combines selected indicators into a new measurement of control of corruption, which we label as the Index of Public Integrity (IPI) and tests the validity of the IPI by correlating it with existing corruption measurements and development indicators.

As a result, our composite index includes the following components: the degree of the *judicial independence*, the extent of *administrative discretion*, the level of *trade openness*, the degree of *budget transparency*, the *endowment of citizens with electronic means*, and the degree of *free media*. The IPI covers 105 countries and explains more than 75 % of cross-national variation of control of corruption as measured by the corresponding World Bank's indicator. It further highly correlates with some other popular corruption measurements. Unlike those measurements, however, the Index of Public Integrity allows one to trace back a country's performance to specific actionable components that can help policy makers identify reform areas for improvement. Although the IPI is strongly correlated with the development level of countries, its variation cannot be mainly explained by the income differences between the countries, which means that it is leaving sufficient room for policy action. Moreover, with exception of the Western societies, which unsurprisingly show on average the highest scores on the public integrity scale, the mean IPI values of other regions do not differ significantly across them. This additionally suggests that policies that can promote better control of corruption are not bounded by the geographical differences across countries.

This paper is structured as follows: the next section introduces the categories at the basis of IPI and their theoretical foundation. "Test and Results" offers statistical evidence of the validity of the IPI components. "Index of Public Integrity" section presents the construction of IPI and the global distribution of the scores. The last section concludes with the possibilities opened for each country to design its own evidence-based good governance strategy.

Control of Corruption as Equilibrium Point on a Governance Continuum

The academic field has been divided between *micro-theoretical* models, which primarily conceptualize corruption from the principal-agent perspective, and *macro-empirical* models at the country level; and there is insufficient communication across disciplines. A bridge is, however, both possible and necessary. This section briefly summarizes the two perspectives and presents a framework that seeks to unify an equilibrium theory of control of corruption at the macro level.

The **micro-theoretical** understanding of corruption is mostly based on the *principal-agent* framework, which explains corrupt activity as a result of individual behaviour by the self-

interested agents, typically bureaucrats, who abuse their post for individual gains and thereby betray the principal's, typically a top-level policy-maker, interests. An important underlying assumption behind this approach is the existence of information asymmetry that prevents the principal from effectively monitoring and controlling the agent's behaviour. Corruption at the individual level is thus attributed to individuals' weighing of the expected costs and benefits of their actions. Klitgaard (1988) formalized this approach in his well-known formula that explains corruption as a function of monopoly power over a good or service, the discretion to decide who receives it, and the degree of accountability of public authorities. The principal-agent framework has become a dominant approach to explain corruption and its consequences. In their seminal paper, Shleifer and Vishny (1993) take the principal-agent problem as given and analyse how corrupt activities, in this case bribery, arise among bureaucrats depending on the types of public services they provide and the organizational structure of the administrations. Acemoglu and Verdier (2000) ask how the ability of a government to control and punish its bureaucrats feeds back into corruption and misallocation of resources; and Ades and Di Tella (1999) look at the incentives to become more corrupt when economic rents are high. As summarized by Aidt (2003), corruption in the public sector is therefore mainly the result of three factors: Discretionary power of the relevant public officials, economic rents and weak administrative institutions.

Consequently, the design of the most anti-corruption policies in developing countries has largely followed the principal-agent framework (Persson et al. 2013). Huther and Shah (2000), for example, developed an evaluation framework for the WB's anti-corruption programmes based on the incentives for opportunistic behaviour by public officials. Effective anti-corruption programmes should accordingly aim to minimise "the number of transactions involving public officials, reducing the scope for gains from each transaction, increasing the probability of paying a penalty, or increasing the penalty from corrupt behaviour" (Huther and Shah 2000). Moreover, the principal-agent framework implies that the implementation of anti-corruption policies not only requires the existence of a non-corrupt principal, but also that only some specific and mostly incremental institutional changes are necessary to curb and prevent corruption (Rothstein 2011). This is the background of the policy approach centred on repression of corruption as a deviation from the norm. In fact, the international anti-corruption community and inter-governmental organizations developed and promoted a number of must-have anti-corruption instruments and legal standards, which have been adopted *en masse*. The establishment of an anti-corruption agency (ACA) has been one of the most prominent recommendations in this context. Arguments that ACAs are as likely to be affected by the same problems as any other public sector institution failed to convince donors and governments (Doig et al. 2006) and by 2008, 98 countries had already adopted an ACA by the OECD categorization. Scholars found, however, that countries that established ACAs did not progress more than countries that did not (Mungiu-Pippidi et al. 2011). This was especially the case in countries which had not historically attained rule of law and had weak law enforcement bodies. Reports from the past few years have started to warn that ACAs should not be created without a "systematic assessment of the local (political) context" (USAID 2006). Other related studies also suggest that the success of the anti-corruption efforts based on legal instruments and constraints alone has been very limited (see Fjeldstad and Isaksen

2008; Johnsøn et al. 2012; Persson et al. 2013). Furthermore, as documented by Global Integrity, countries with the best legal equipment are far from the least corrupt.[4] This lack of impact points to the crucial problem of addressing corruption from a principal-agent perspective: This approach largely ignores the importance of context. In most developing countries, where particularism is the norm, predatory elites control law enforcement and have often managed to capture natural resources and public budgets. Why would the ruling class in countries where particularism remains the norm want to change such a profitable status quo? In such situations, designing 'incentives' for individuals to be less corrupt has not worked because societies have nothing else to offer to these players in order to make them change their behaviours. It is therefore not realistic to expect and ACA to be insulated from politics and act as an objective and effective principal. In sum, the principal agent model only works at the individual level, i.e. when corruption is an exception and the broader norm is ethical universalism.

At a **macro level**, the dominant model of control of corruption relies mainly on two sets of factors: structural and cultural (population, legacies, religion, past regimes, level of development) on one hand, and constitutional and policy factors on the other. Given the limited policy relevance of the former set of factors, the construction of our measurement relies on the latter category. Moreover, the first set of factors also serves as determinant of the second. There is therefore no reason to consider structural variables as something other than a contextual control: Planning and implementing actions for better governance is possible in every context, but the chances of success vary widely (Heidenheimer and Johnston 2002).

The summary of a country's social and economic history is embodied in the variable known as *level* of development—best proxied by the Human Development Index which, in addition to the income level, comprises measurements of education and life expectancy. While the consensus seems to bend towards those who claim that development does not occur when predatory elites are in charge and spoil resources without restraint, what Acemoglu and Robinson (2012) call "extractive institutions", there is also broad consensus on the complex causality of this relation (Bardhan 1997).[5]

The association between corruption and political development is equally complex. Montinola and Jackman (2002) and Treisman (2007) find a significant nonlinear relationship between democracy and corruption noting that this is potentially driven by older and consolidated democracies. The association of the extent of corruption with more specific democratic institutions, such as protection of personal autonomy (measured by the data from the Freedom House) or with the physical rights integrity index (a measure of basic political rights by Cingranelli and Richards 1999) seem to be more robust and strong (Mungiu-Pippidi 2014, 2015; ch. 4). On the other hand, mixed results exist for political competition—in our large time series sample we found no consistent evidence on the effects of electoral competition, electoral systems or state organization and contradictory reports abound (Mungiu-Pippidi et al. 2011). In other words, what matters to a democracy in terms of control of corruption is not elections

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[4] The last relatively large scale Global Integrity report was produced in 2011. Since then the organization has been struggling to continue its work. Reports and further information can be accessed here: https://www.globalintegrity.org/global-report/what-is-gi-report/. See also Lambsdorff (2008) for an assessment of the gap between anti-corruption legal framework and the actual practice; and a related joint study on the implementation gap by the Center for International Private Enterprise and Global Integrity: http://www.cipe.org/sites/default/files/publication-docs/GI%20CIPE_Implementation%20Gap_for%20web.pdf

[5] Treisman (2007) shows that the significant relationship between income levels and corruption also holds using historical GDP per capita data as an instrument for its current realization. Other strand of literature focuses on the growth and corruption nexus where the causality might be reversed with high corruption reducing long-term growth rates (see, e.g., Mauro 1995; Aidt et al. 2008).

as one-time mechanisms for selecting between candidates, but rather the permanent capacity to ensure that whoever is elected respects individual rights, autonomy, and voice (Persson and Tabellini 2003). Not surprisingly, *judicial independence* has been often reported to significantly affect the extent of corruption (Ali and Isse 2003; Herzfeld and Weiss 2003; Damania et al. 2004). Similarly, scholars found a positive impact of *press and media freedom* on effective corruption control (Brunetti and Weder 2003; Kalenborn and Lessmann 2013). Both factors belong to a cluster of elements measuring constraints, the capacity of a society to constrain government action, which seem influential in most tests.

Certain policies have also been shown to impact control of corruption. The statistical evidence points to a robust positive relationship between the *degree of economic freedom* as well as *openness* (in particular, trade) and control of corruption. In general, less regulation of economic activities create less room for administrative discretion and thereby reduces the possibilities for rent-seeking. The room for corrupt activities is also reduced by the higher level of economic competition resulting from less administrative burden (see Ades and Di Tella 1999; Treisman 2000; Park 2003; Gurgur and Shah 2005; Sequeira 2013; Badinger and Nindl 2014). *Transparency tools* and access to information are assumed to prevent the discretionary use of administrative power and are negatively related to the national level of corruption (Islam 2006; DiRienzo et al. 2007). In this context, recent works focus on the ability of new information technologies to promote transparency and social accountability thereby providing better governance. For example, Elbahnasawy (2014) shows that e-government services significantly improve control of corruption. While individual determinants are explored far more in the literature, we argue that the equilibrium described in *micro* studies, between crime and punishment (Becker 1968) is equivalent to *resources* (opportunities) or *constraints* (costs) in the *macro* level (Mungiu-Pippidi et al. 2011; Mungiu-Pippidi 2014, 2015). By doing this we reunite important and disparate findings regarding the causes of corruption under a unified concept of control of corruption that can be observed, explained and measured. Following Mungiu-Pippidi's (2006) definition of governance as a set of formal and informal rules determining who gets what in a given society, we describe corruption as an equilibrium determined by the *resources* available for spoiling by the government and its clients and the *constraints* that the rest of the society can inflict to prevent such an occurrence. The *outcome* of the balance between opportunities or resources and constraints is equilibrium in social allocation that oscillates between particularism and universalism in government transactions.

It is now necessary to define what we consider to be *resources* and *constraints* for corruption. *Resources* in this concept are by no means restricted to pure material assets. We also consider opportunities for rent creation that often result from power discretion. In short, under opportunities or resources we find:

- *Discretionary power* resources due not only to monopoly, but also to privileged access under power arrangements other than monopoly or oligopoly—for example, status groups, negative social capital networks, social orders, cartels and so on. Red tape or poor regulation provide authorities with undue power discretion. Violence or economic inequality are major sources of power inequality. The acceptance of differences in power status in a society was described by social psychologist Geert Hofstede as *power distance*. Its measurement is closely associated with control of corruption (Mungiu-Pippidi 2015).
- *Material resources*, such as natural resources, public sector jobs, or the funds available for discretionary distribution such as external aid, subsidies and any other public resources which can be turned into spoils or generate rents.

Constraints, on the other hand, are defined as societal restrictions that impose limitations on the ability of public authorities to extract rents or grant unequal or particularistic access to public resources. These restrictions can be present in the form of an independent, impartial and effective judiciary (legal constraints), an active and autonomous civil society or a free and independent media (normative constraints). Under *constraints* we therefore consider:

- *Legal constraints* that include an autonomous, accountable, and effective judiciary, an effective judiciary review of legislation and an autonomous basis for horizontal account-ability more generally (such as courts or audit agencies).
- *Normative constraints* imply that existing societal norms endorse ethical universalism and permanently and effectively monitor deviations from that norm (through public opinion, media, civil society, critical citizens/voters, etc.). For effective sanctions we need a popu-lation of autonomous and critical citizens capable of collective action, not a mass of citizens merely conforming to the corrupt rules of the game (Norris and Zinnbauer 2002).

To sum up the theory so far, our understanding of control of corruption is captured by the following synthetic expression:

$$\textbf{Control of Corruption} =$$
$$\textbf{Constraints} \, (\textbf{Legal} \, + \, \textbf{Normative}) - \textbf{Opportunities} \, (\textbf{Power discretion} \, + \, \textbf{Material Resources})$$

A graphic illustration of our concept is provided in Fig. 1 with structural factors as background and the more immediate institutional and policy factors capturing resources and constraints. Structural factors determine both resources and constraints, which also interact to a high degree. A satisfactory disaggregation of this framework by statistical means is not possible. However, we argue that sufficiently robust evidence exists to prove this causal framework, which actually shows that governance should be understood as a complex path model, not in terms of one exogenous dependent variable versus the rest. By selecting only the most robust and actionable elements in each category, we arrive at the inner circle of the figure, divided into six areas, three roughly covering constraints: electronic empowerment of citizens (e-citizens), judicial independence and freedom of the media, and three covering resources, with red tape as proxy for power discretion, trade openness for economic rents and budget transparency capturing both material resources and power discretion. In the next section, we show how these elements are operationalized and significantly affect control of corruption.

Tests and Validation

The general validity of our "equilibrium" approach was tested employing cross-sectional and panel data analysis and using various measures of corruption as well as different proxies for the explanatory variables (Mungiu-Pippidi et al. 2011; Mungiu-Pippidi 2014, 2015). These proxies have also been tested in related empirical literature. However, instead of examining disparate causes of corruption, our approach proposes a framework that puts all of them in a certain context, thereby offering a meaningful and comprehensive theoretical model of control of corruption. The balance between factors can be the result of different combinations between resources and constraints, and sub-optimal equilibria with poor control of corruption are frequent. Behind the model, the historical evolution of a country provides the explanatory
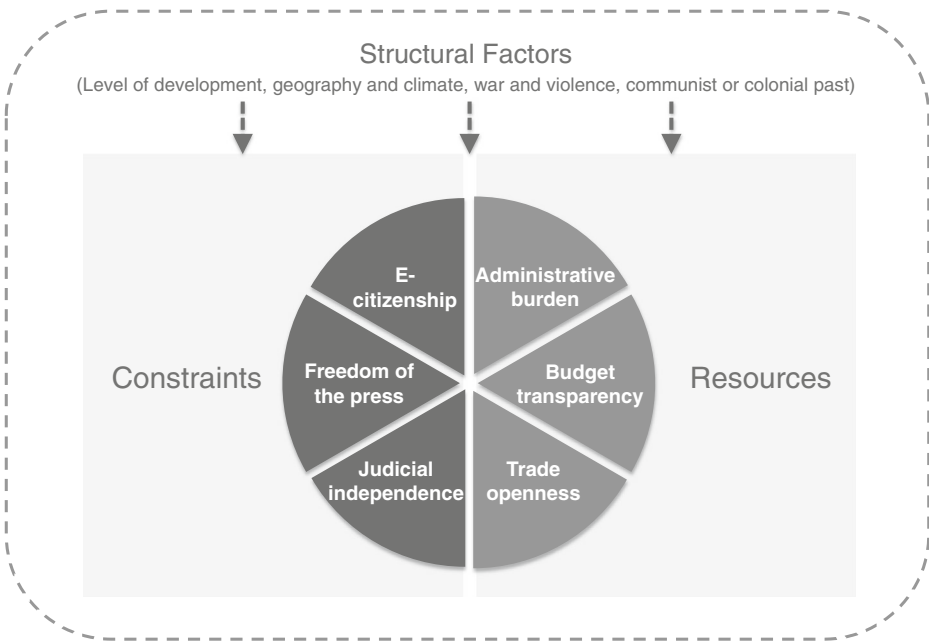
Fig. 1 Structural and policy determinants of control of corruption

background of why the balance was set in a certain way. If a country has managed to reach the optimal balance where control of corruption works, as in Norway for instance, it is unlikely the discovery of natural resources will affect it negatively. However, if governance is poor when such resources are available, their existence will further subvert the possibility that a powerless society will manage to constrain the elites that manipulate such resources. The model cuts across state and society, suggesting that formal institutions which constrain rulers are a consequence of the society's normative constraints, and not the other way around.

Relying on our theoretical framework and on the evidence from other studies discussed in the previous section, we present a basic regression model to illustrate the main significant components of control of corruption for a sample of 105 countries. Table 1 shows simple OLS regression results that test the relationship between the World Bank's Control of Corruption measure and our selected indicators. The selection of these particular indicators can certainly be debated and there is no claim here that the indicators currently offer a complete overview. However, this selection is an outcome of a long decision and research process that also had to consider the problem of data availability for each of the variables in terms of country coverage and regular updates and the objectivity and actionability of the measures, as well as their consistency with the theoretical framework and the corresponding empirical literature. All regressions additionally control for the level of socio-economic development measured by the Human Development Index (HDI).[6] The results show that each variable is significantly associated with control of corruption.

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[6] All the results presented in Table 1 also statistically hold when we use alternative measures of corruption such as, for example, CPI from Transparency International or the ICRG corruption scores.

Table 1 Control of corruption and its determinants

	(1)	(2)	(3)	(4)	(5)	(6)
HDI	3.873***	2.973***	4.431***	2.436***	−0.291	3.031***
	(0.497)	(0.542)	(0.484)	(0.336)	(1.177)	(0.378)
Administrative burden	0.162***					
	(0.038)					
Trade openness		0.188***				
		(0.034)				
Budget transparency			0.051*			
			(0.029)			
Judicial independence				0.329***		
				(0.022)		
E-citizenship					0.312***	
					(0.074)	
Freedom of the press						0.194***
						(0.025)
Constant	−4.087***	−3.470***	−3.560***	−3.576***	−1.442**	−3.310***
	(0.345)	(0.336)	(0.391)	(0.221)	(0.507)	(0.273)
Countries	105	105	105	105	105	105
Adj. R-squared	0.549	0.581	0.511	0.831	0.584	0.680

OLS regressions. The dependent variable is the WGI Control of Corruption 2014. Robust std. err. clustered by country are in parentheses: *$p<0.1$; **$p<0.05$; ***$p<0.01$

The explanatory variables included in Table 1 can be summarized as follows:

1. *Red tape*. Excessive administrative and regulatory burden open the doors for discretionary implementation and non-compliance, resulting in a high risk of corruption. Captured by the number of procedures and time needed to start a business and pay corporate taxes from the World Bank's Doing Business dataset, our measure of red tape or administrative burden therefore refers to the extent of bureaucratic regulations of *domestic* entrepreneurial activities, and is indeed significantly and strongly associated with control of corruption (Model 1). Note that a high value for this indicator means a *low* degree of administrative burden.

2. *Trade barriers*. Although correlated, the extent of regulations covering a country's *external* economic activities does not overlap with the extent of bureaucratic regulations of *domestic* entrepreneurial activities. However, we obtain the same relationship between control of corruption and *de jure* trade openness (Model 2). Open countries can control corruption better, eliminating room for discretion at the level of administrative trade barriers and thus allowing free competition. The measure combines the average number of procedures and time for exporting and importing using data from the Doing Business datasets.

3. *Transparent Budget*. Budget transparency measures the extent of, and the quality of, public accessibility of the executive's budget proposal in order to provide a control mechanism for discretionary public spending. The component is based on selected questions, which are used for the Open Budget Survey provided by the International

Budget Partnership. Note that this measure does not fully correspond to the Open Budget Index but captures some of its key concepts. Its significant association with control of corruption is shown in Model 3.

4. *A non-corrupt and independent judiciary.* Impartiality and independence of the overall judiciary system constitute legal constraints and thus are key elements of an effective control of corruption. The indicator on judicial independence from the Global Competitiveness Database developed by the World Economic Forum strongly and positively correlates with control of corruption (Model 4).

5. *Electronic empowerment of citizens.* E-citizenship (Model 5) captures the ability of citizens to use online tools and social media and thus exercise social accountability. There is evidence that internet media in general and social networks in particular are indispensable components of citizen empowerment. The component is constructed by combining the number of broadband subscriptions and internet users with the share of Facebook users relative to the population. The data stems from the International Telecommunication Union and Internet World Stats.

6. *Free Media.* Transparency tools work best if they are implemented in a society with a strong overall capacity and environment for collective action. Free media serves as an important monitoring indicator for democratic institutions, public accountability and good government and thus lays the ground for such an environment. The indicator on Freedom of the Press measures the degree of media independence thereby capturing the national legal, political and economic environment in which print, broadcast and internet-based media operate, and is unsurprisingly significantly associated with better control of corruption (Model 6). The measure stems from the Freedom House.

The first three variables listed above, i.e. red tape, trade barriers and budget opacity, measure the extent of bureaucratic regulations and lack of transparency and capture potential resources for administrative power discretion. The last three variables in the list look at the capacity of the society to develop constraints in the form of engaged citizens and autonomous magistrates and journalists.

After having selected the most relevant variables with the largest possible coverage, our final country sample comprises 105 countries and evenly covers every all geographical regions. The data for components stems from 2014 and the sources are continuously updated at least every second year, thus offering the possibility to record changes over time. Most importantly, the selected variables are either based on hard data or result from an evaluation of clearly defined and very specific questionnaires. The *budget transparency* index, for example, is based on a detailed 14-item questionnaire taken from the Open Budget Survey. The questions mainly refer to the scope and the form of information on different types of government expenditures presented in the *Executives' Budget Proposal (EBP).*[7] Similarly, the *press freedom* indicator results from 23 questions and 132 subquestions that characterize the legal, political, and economic environment in which the local media operates. Only our measure of *judicial independence* is an outcome of an expert assessment of a single question compiled by the World Economic Forum (WEF). However, objective measures of judicial

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[7] The Open Budget Survey consists of 109 questions covering the Executives' Budget Proposal (EBP) and other documents of the budgetary process. We focused on the EBP because it is one of the most important policy documents that a country issues each year, for it is through the budget that governments translate many of their key policy goals into action, and because a score based on the EBP explains most of the variation of the overall Open Budget Index. For more information see Table 8 and http://integrity-index.org.

independence, which significantly explain its *de facto* performance, are currently available for too few countries.[8] A more detailed description of the six components with respective data sources is provided in Table 8.

Our empirical results from Table 1 imply that *each* component partially affects the level of control of corruption. From a theoretical point of view, our "equilibrium model" should not be understood in terms of separate variables but rather more generally as a complex mechanism with certain interdependencies and interactions between resources and constraints as well as within groups of similar factors. For example, negative consequences of discretionary power resources are likely to be amplified in an environment with weak legal and normative constraints. By contrast, resources used for investments in social and physical infrastructure can contribute to the improvement of governance once sufficient transparency and accountability mechanisms to control, these investments are established. On the other hand, a policy targeted at strengthening normative constraints, for example, via improving transparency tools, is likely to be more effective if it is implemented in an environment with a sufficient mass of critical and active civil society or open and free media, which can effectively monitor the consequences resulting from improved transparency. As Mungiu-Pippidi (2014, 2015) argues, a "path model" needs to be developed which would better illustrate all the relationships in the "equilibrium model" and the historical factors behind them. Just as an example Table 2 presents a few parsimonious regressions to illustrate the empirical relevance of some possible interaction mechanisms. In Model 1 we interact the index on *administrative burden* with *judicial independence* to capture the interdependencies between opportunities, which may arise from administrative discretion, and legal constraints. Indeed, once the interaction term is included, the individual coefficients of *judicial independence* and *administrative burden* become insignificant but the interaction itself is significantly positive: a lesser bureaucratic burden together with impartial and independent legal system result in better control of corruption. The marginal effect of *administrative burden* calculated with the common Delta-method that uses the sample means of the respective interacted term (here *judicial independence*) is significantly positive, too. This implies that even for a given (sample average) degree of judicial independence, administrative reforms targeting at deregulation of entrepreneurial activities improve control of corruption. We get similar relationships when looking at the interaction between *budget transparency* and *freedom of the press* to capture another potential link in the balance between resources and constraints (Model 2). According to these results, the positive effects of the transparency tools to control corruption are stronger if they meet an environment of free and independent media. Finally, we illustrate interdependencies within the cluster of normative constraints by interacting *E-citizenship* with *freedom of the press* and obtain, as expected, a significantly positive impact (Model 3). Note that the marginal effect of both budget transparency and E-citizenship are significant, too.

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[8] See Melton and Ginsburg (2012) on the relationship between de jure and de facto judicial independence. Furthermore, the so-called Rule of Law Index (http://worldjusticeproject.org/rule-of-law-index) provides an alternative and more comprehensive assessment of the de facto judiciary system. We decided to use the WEF indicator because it highly correlates with the Rule of Law Index ($r \approx 0.80$) and covers far more countries in our sample.

Table 2 Control of corruption and interaction of its determinants

	(1)	(2)	(3)
HDI	1.989***	−0.376	1.056
	(0.372)	(1.037)	(0.986)
Administrative burden	−0.099		
	(0.060)		
Judicial independence	0.012		
	(0.117)		
Administrative burden x	0.037***		
Judicial independence	(0.013)		
ME administrative burden	0.101***		
	(0.036)		
Budget transparency		−0.129**	
		(0.062)	
E-citizenship		0.055	−0.111
		(0.121)	(0.112)
Budget transparency x		0.035**	
E-citizenship		(0.013)	
ME Budget transparency		0.053*	
		(0.029)	
Freedom of the press			−0.064
			(0.071)
E-Citizenship x			0.041***
Freedom of the press			(0.012)
ME E-citizenship			0.118*
			(0.072)
Constant	−2.381***	−0.478	−1.208*
	(0.574)	(0.687)	(0.639)
Countries	105	105	105
Adj. R-squared	0.845	0.632	0.742

OLS regressions. The dependent variable is the WGI Control of Corruption 2014. Robust std. err. clustered by country are in parentheses: $*p < 0.1$; $**p < 0.05$; $***p < 0.01$. *ME* stands for the average marginal effect calculated with the Delta-method

Index of Public Integrity

From individual components and the evidence of interaction, we move on to build our composite Index of Public Integrity (IPI). Its construction is very straight-forward. To obtain the six components listed in Table 1, we first standardized the raw data to equalize the mean values and standard variations of each variable thereby making their units comparable. The so-called *z-scores* with zero means and unit variance for every variable were constructed to avoid that the composite index (IPI) would depend too strongly on the component with greatest dispersion. In the case of factors with several sub-components, the same procedure was applied at the disaggregated level and then a simple mean of the sub-components' z-scores was built to obtain the final value. The measure of *administrative burden*, for example, is a simple mean of

Table 3 Summary statistics of IPI

	Mean	Std. Dev.	Min	Max	Nr. of countries
IPI	6.09	1.92	1.00	10.00	105

z-scores of number of procedures to open a business, as well as of the time it takes to start business and pay corporative taxes. In the next step, the standardized values of each component were normalized to range between one and ten using the min-max-transformation, and making sure that for each component higher values were associated with better performance.

In combing the components into a single index, the natural question of a proper aggregation and weighting method arises. The relevance of possible interaction mechanisms between the variables might suggest that a kind of geometric aggregation, which multiplicatively link the individual components, can be adapted. Obviously, this method would then neglect the isolated importance of an individual component implying a quite strong assumption given the empirical evidence for the significant partial effects of certain variables. Besides, we cannot empirically prove the relevance of all possible interactions, and even theoretically these mechanisms need to be further elaborated. Moreover, choosing weights for the components is, to a certain degree, always normative and requires some arbitrariness.

To deal with both challenges —aggregation and weighting—in our context, we explore the statistical observation that all six components show some positive significant correlation among them (Table 5) and use principal component analysis (PCA) to derive the overall IPI. The PCA retrieves the common latent factor(s) that our six components jointly share thereby using the factor loadings of each variable for the corresponding individual weights. As a result, the first principal component explains around 56 % of the variation in the data and is the only one with an eigenvalue larger than one (Table 6). Moreover, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy shows that only one component (the *budget transparency* index) falls slightly below 0.7, a value that is commonly assumed to be an upper bound for mediocre variables. All other indices have KMO values close to, or larger than, 0.8 indicating meritorious variables (Table 7). These statistical results confirm the notion that the usage of the first principal component to retrieve the data for the IPI can be justified. The principal component scores for the IPI have then been normalized to range between one and ten. Table 3 shows its key summary statistics.

It should also be noted, however, that using an arithmetic mean with equal weighting as an aggregation method yields a value that correlates with the first princal component at 99 %. In fact, our research team has used this method to develop an online interactive tool that visualizes the IPI and the component scores providing various options for country comparisons as well as additional material including the full dataset.[9]

The strong and positive relationship between the Index of Public Integrity and Control of Corruption is illustrated in Fig. 2, which also reveals that more than 75 % of the variation in control of corruption across 105 countries can be explained by the

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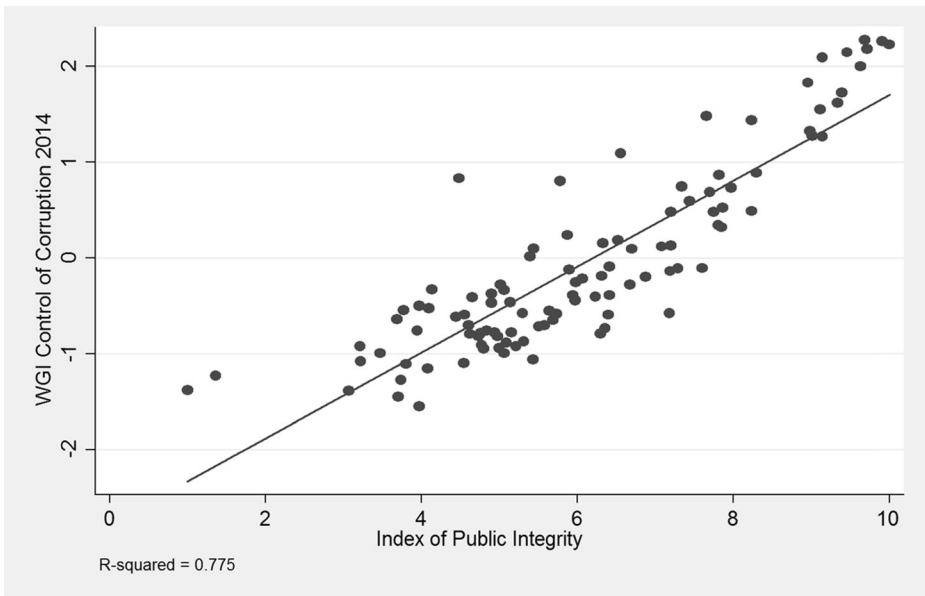[9] The tool is available at http://integrity-index.org.

Fig. 2 The Index of Public Integrity (IPI) and control of corruption

IPI. The IPI is not only highly correlated with the World Bank's measure on Control of Corruption but with several other corruption indicators (Table 4) including CPI, the ICRG's corruption risk and a more specific expert assessment on the extent of diversion of public funds. The IPI also correlates (to a less extent) with the Public Administration Corruption Index (PACI) developed by Escresa and Picci (2015). The PACI is constructed using official judicial statistics on positive and ongoing cases of bribing public officials by foreign companies. Contrary to the perception-based indicators, this index is thus a purely objective one capturing, however, only administrative aspects of corruption. In our sample, the PACI correlates with other perceived corruption indicators less strongly than with the IPI (correlation coefficients varying, in absolute values, between 0.36 and 0.42) supporting the notion that the IPI is more related to objective corruption measures than the commonly used perception-based ones. This is further confirmed by the last correlation presented in Table 4: IPI strongly correlates with the so-called "single bidding" indicator, a purely objective

Table 4 Correlations between the Index of Public Integrity (IPI) and other corruption indicators

	WGI Control of Corruption 2014	ICRG Corruption 2014	TI Corruption Perception Index 2014	WEF Diversion of Public Funds 2014	PACI Escresa and Picci (2015)	Single bidding Fazekas and Tóth (2016)
Correlation Coefficients	0.880	0.830	0.891	0.701	−0.458	−0.775
Countries	105	94	105	101	89	27

Correlations are significant at $p < 0.01$

procurement-related corruption risk measurement proposed by Fazekas and Tóth (2016). Single bidding is calculated for European countries and indicates that only one bid is submitted in a public tender in a supposedly competitive market. The lack of genuine competition generally allows the award of contracts at higher than market values and can facilitate the extraction of corrupt rents. Single bidding might be permissible in exceptional cases, but at the high contract values reported in the EU Tender Electronic Database, which is used for its calculation, it should actually be extremely rare, as all tenders above a certain value are officially required to be competitive. Single bidding can therefore be considered to be a valid proxy for high-level corruption in the award of public contracts for it correlates with perceived levels of corruption at the national level and with other 'objective' risk indicators in public procurement (e.g. procedure types, length of submission period etc.; see Fazekas and Tóth 2016). Note that the TI's, ICRG's and WEF's indices are scaled in a way that higher values imply less corruption while the PACI and "single bidding" apply a reversed scale. Therefore the respective correlation of IPI with the latter two indices is negative.

Figure 3 displays the mean values of the IPI among the four income groups of countries according to the World Bank's classification. Not surprisingly, high income countries exhibit on average highest IPI scores while the countries in the lowest income group perform worst on the public integrity scale. The mean values between the three income groups do not differ significantly, suggesting that differences in IPI cannot be purely attributed to the differences in income levels. IPI correlates with the Gross Domestic Income (GNI) per capita (measured in constant terms and PPP adjusted) at a value of 0.66 implying that in a simple bivariate relationship, GNI per capita explains only around 44 % of the sample variation of IPI. The correlation between IPI and a broader measurement of the level of socio-economic development, HDI, is stronger (0.76) and illustrated in Fig. 4. In line with our general theoretical
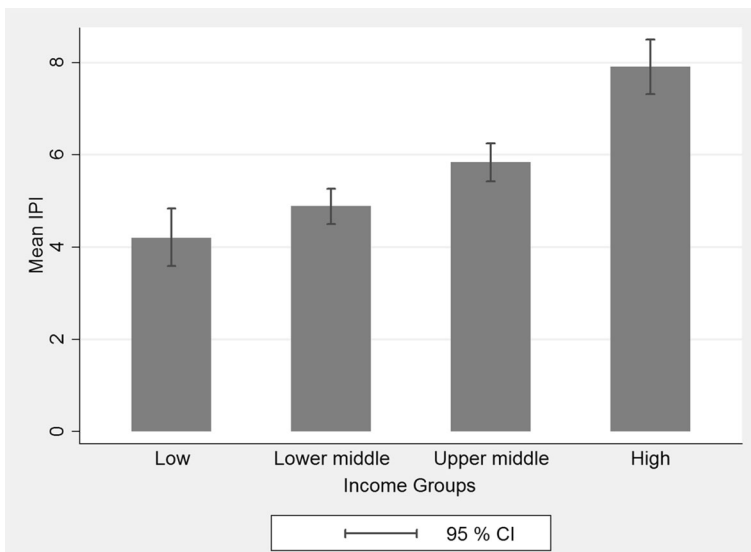

Fig. 3 Means of the Index of Public Integrity by income groups
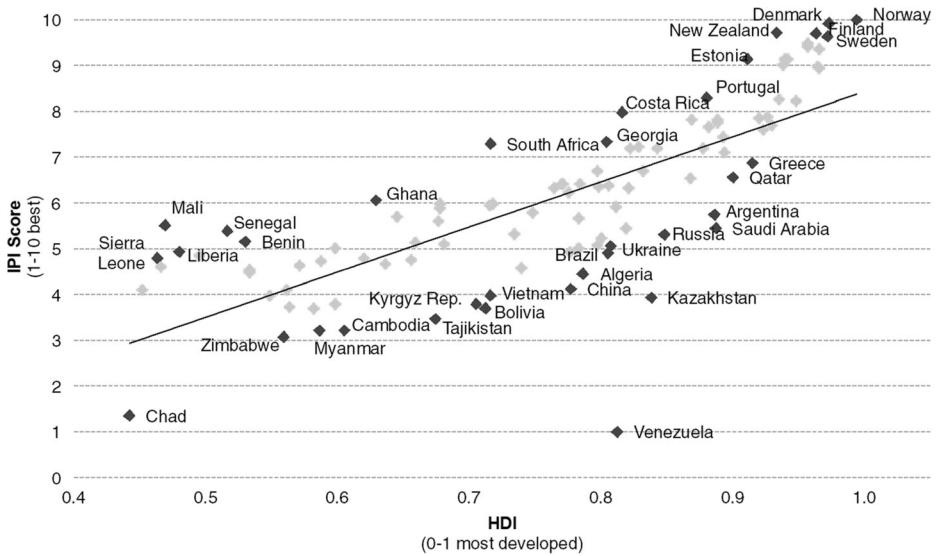
Fig. 4 Index of the Public Integrity and Human Development Index

framework, it verifies the positive association between good governance and modernization.

However, the relationship additionally shows that some countries perform better on the public integrity capacity relative to their development level (e.g. Nordic countries, Estonia, Costa Rica and Mali), and some others relatively worse leaving room for policy reforms (Chad, Venezuela and Kazakhstan among others). Finally, when looking at the geographical distribution of the mean values of the IPI, only the region that includes the European countries and the USA clearly shows the highest scores, while the IPI does not significantly differ on average across other regions (Fig. 5).
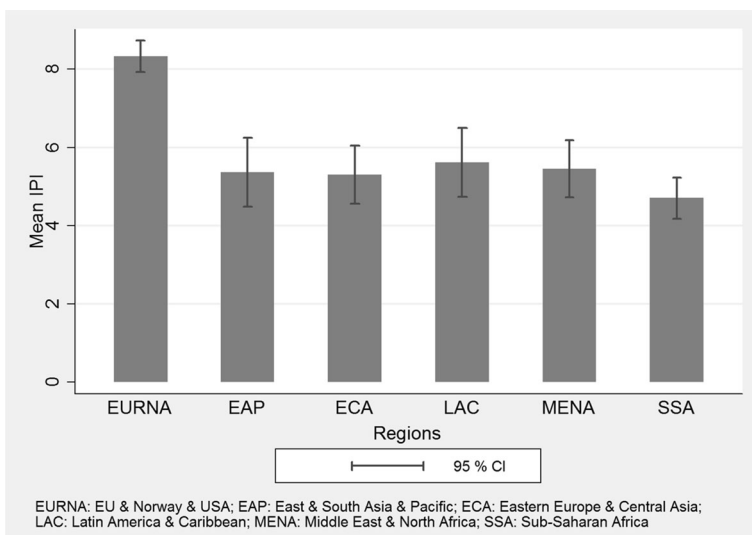

EURNA: EU & Norway & USA; EAP: East & South Asia & Pacific; ECA: Eastern Europe & Central Asia;
LAC: Latin America & Caribbean; MENA: Middle East & North Africa; SSA: Sub-Saharan Africa

Fig. 5 Means of the Index of Public Integrity by regions

Conclusions

In this paper we presented an alternative approach to capture and measure the national level of control of corruption—the Index of Public Integrity, (IPI). The main contribution of the IPI is its use of mostly objective and actionable data to measure control of corruption. Accordingly, the components of the IPI are more sensitive to change over time than the popular aggregated perception-based indicators and enable thus to trace developments in the specific areas relevant for corruption control. Figure 6 shows changes in the aggregate IPI scores on the example of ten countries with highest absolute improvements and ten with largest declines between 2014 and 2012. Taking into account that the IPI is ranged in the interval (1, 10), an absolute change of more than 1.00 can indicate a quite significant progress in the control of corruption performance within two years.

From a national perspective, the IPI could serve as a starting point for the design of good governance strategies. For that purpose the online interactive tool created for its visualization can be a helpful instrument to identify potential areas for reforms. The index, however, should not be interpreted narrowly: although making advances in its underlying indicators should be the primary target of countries willing to improve their governance, the strategies should envisage an improvement of the entire area, and not just the indicator. Below, we briefly outline how the different components of the IPI can be translated into significant policies to improve governance by cutting back resources or opportunities for corruption and strengthening constraints.

The first component of the IPI is administrative burden. If a country does badly on this count, reducing red tape should be a priority. Focusing on reducing the number of procedures to register a business and the time to pay taxes has been found to be an effective anticorruption strategy, but the efforts should not stop there. Countries high on red tape frequently have regulations meant to create legal privileges, and those should be replaced, too. As a ground rule, every regulation which will end up in discriminatory implementation should be skipped, as it will only increase corruption.
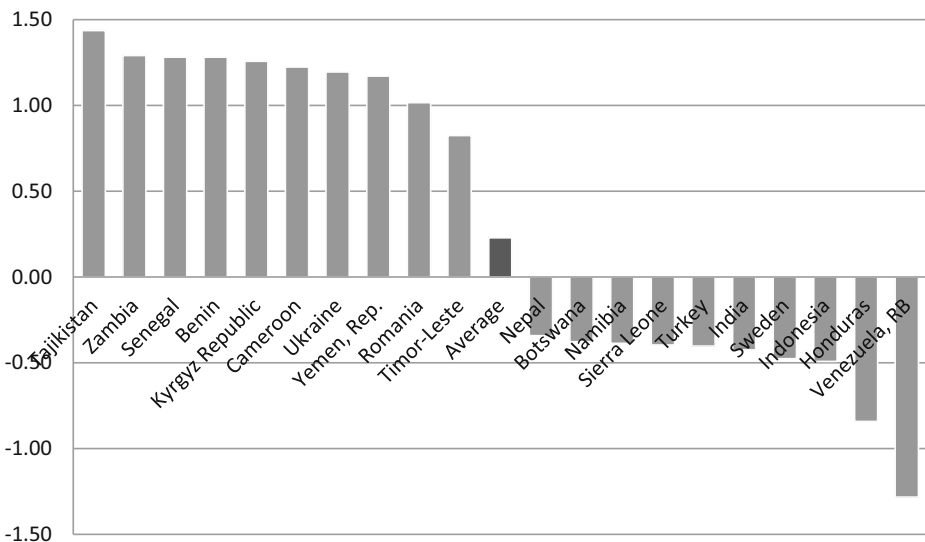

Fig. 6 Absolute changes in IPI from 2014 to 2012 for selected countries

Second, enabling competition is important. Burdensome procedures at the borders are key obstacles for both importing and exporting (OECD 2016). Benefits of open trade policies frequently fail to materialize because weaknesses in customs administration keep transaction costs high. Reducing trade barriers and reforms of the custom service are enablers of competitions which reduce corruption, creating a virtuous circle. Such reforms include simplified procedures and selective controls, more use of technology and enhanced transparency and partnerships with the private sector: best practices do exist (see, e.g. Cantens et al. 2010).

In order to make improvements in the third IPI component, budget transparency, publishing budgets in time and allowing consultation are crucial steps for sound government. Digitalization has helped good financial management a lot, and even poor countries can have transparent budgets—a school budget posted on the door of a school or a hospital, if not on a website, is a tremendous step forward for accountable public services. In order to prevent and detect favouritism, government agencies and companies should also post all procurement budgets and contracts.

Fourth, social accountability exercised by the general population of autonomous and critical citizens can amplify the transparency effects in combating corruption. Digital citizens are critical and empowered citizens amplify the effects of transparency regulation through social scrutiny. As an example, the existence of a freedom of information or financial disclosure laws is not in itself a significant determinant of good governance. Such laws, however, become significant when the civil society requests for information and litigations translate these laws into real transparency. What the IPI component on e-citizenship captures, is the *potential* for social scrutiny, which can translate into practical tools such as digital whistle blowing (as Xnet in Spain, with secure mailboxes asking for citizen leaks on corrupt activity), digital auditing and monitoring (see DIGIWHIST project), digital activism (as the CleanRomania watchdog, with 14,000 monthly users in 2015 of an e-template to report corrupt activity to the anti-corruption prosecuting office), digital consultation, evaluation and audit of public services. Digital tools are powerful. When they are missing, due to extreme poverty, they can be replaced with more traditional transparency means serving the same purpose. However, they are catching up fast and even in poorer societies Facebook or its equivalents provide a tool to mobilize people if needed.

The next factor, press freedom, also requires strategies from both governments and civil society. It is a considerable achievement for the government not to repress the media, but this achievement is insufficient: in corrupt countries the media also tends to be corrupt and its business model, including advertising, is centred on white or black PR (blackmail) and not information. Traditional media needs sound investors, transparent ownership and advertising from both private and government sources, impartial audience measurements and civil courts able to defend individuals from libel and blackmail. These conditions are, however, challenging to meet in difficult environments. New media is increasingly a better alternative, easier to fund and distribute in repressed and highly corrupt environments, but not violent ones. Charities and international donors have a lot of work to do in helping investigative journalists to be able to bring their work to light. Bravery in journalism seems to exist everywhere, but sometimes it needs servers or broadcasting stations outside the country to be able to disclose top level corruption.

Finally, the sixth factor, independence of the judiciary is the one where most work is generally done with meagre results, as there is no recipe on how to create effective and accountable magistrates. Some cases, like Ukraine have received a lot of investment from

donors with poor results. In others—like Ghana—judges and clerks remain so poorly paid that any assistance does not bring much progress. Each country has a different legal tradition and strategies for creating an accountable magistracy and empowering it and these strategies have to be national. However, a few contemporary successes, as in Botswana, Estonia and Romania do exist, at different quality but all worth learning lessons. We cite these three cases because of their very different backgrounds, proving that not one factor—for instance, common lawmeagreis responsible for progress. The World Justice Project and the American Bar Association have developed great micro tools and intervention instruments to improve the quality of the judiciary, but the bottom line seems to be that people are essential: countries need a reservoir of sound people, from law schools, the legal profession, even from repatriation. In Estonia, the most successful case of judicial reform in Eastern Europe, the main strategy was to replace the entire judiciary to get rid of Soviet habits. As to the anti-corruption tools needed by these magistrates, many of them are ineffective and countries that adopt them do not seem to progress more than those that do not. The bare essential remains some clear private-public separation enshrined in law, for instance conflict of interest legislation and rules against nepotism.

We have argued that the IPI is a more transparent and objective way to measure corruption control than the existing alternatives. Each of its components can be translated into specific policy actions with the potential to improve governance. The IPI, however, also has its limitations and most of them lie in the original data sources. More specific data on judicial independence (or more generally on legal constraints) would certainly increase the actionability of our measurement, yet the construction of theoretically and empirically valid indicators in this area remains challenging (see Ríos-Figueroa and Staton 2014). We are also missing a good measure of associativity around the world, for which we try to compensate by including Facebook users as a proxy for collective action. This decision is backed by a recent research project on global digital activism by the University of Washington, which shows that social networks are the most widely used digital media application in activism campaigns around the world. Moreover, "the most dominant platform across all categories is Facebook, since 99 % of all the campaigns that used social networks used that application" (Edwards et al. 2013). This proxy for collective action, however, is far from ideal. The second limitation is more conceptual in nature. While the six areas are actionable and effective, they do come with one caveat: they are highly dependent on development, particularly civil society and e-citizenship. However, we chose to use the electronic citizens proxy rather than just an enlightened citizens proxy (e.g. newspaper readers), because electronic empowerment is a contemporary phenomenon, where donors can act. Furthering access to the Internet in every village is a direct contribution to good governance, and many donors might be more tempted to do that than engage in open political anti-corruption.

Most of the anti-corruption strategies in the last years have been driven by the promotion of specific legal instruments, generally overestimating the power of formal rules and institutions to preserve clean politics or encourage whistle blowing. The results of these policies tend to confirm an old Latin saying that warns that the most corrupt republic is the one with the most laws. With the Index of Public Integrity we hope to contribute to more evidence based political debate on mechanisms to bring about effective and sustainable good governance. We are, however, the first to acknowledge the imperfection of our work.

Appendix

Table 5 Correlations between the components of the Index of Public Integrity

Indices	Judicial independence	Administrative burden	Trade openness	Budget transparency	E-citizenship	Freedom of the press
Judicial independence	1.00					
Administrative burden	0.472[a]	1.00				
Trade openness	0.505[a]	0.442[a]	1.00			
Budget transparency	0.223[b]	0.386[a]	0.371[a]	1.00		
E-citizenship	0.545[a]	0.466[a]	0.721[a]	0.282[a]	1.00	
Freedom of the press	0.542[a]	0.359[a]	0.612[a]	0.508[a]	0.601[a]	1.00

number of observations: 105

[a] significant at $p < 0.01$

[b] significant at $p < 0.05$

Table 6 Results of the principal component analysis

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	3.39	2.54	0.56	0.56
Comp2	0.85	0.16	0.14	0.70
Comp3	0.69	0.17	0.11	0.82
Comp4	0.52	0.22	0.09	0.90
Comp5	0.30	0.04	0.05	0.95
Comp6	0.26		0.04	1.00

Number of observations: 105

Table 7 Kaiser-Meyer-Olkin measure of sampling adequacy

Indices	KMO
Administrative burden	0.80
Trade openness	0.82
Budget transparency	0.68
Judicial independence	0.82
E-citizenship	0.80
Freedom of the press	0.78
Overall	0.79

Table 8 Variables and sources

Component	Variables and measurement	Sources for raw data
Administrative burden	Simple mean of standardized values of: • number of procedures required to start up a business • time needed to start up a business • number of tax payments per year • time to pay taxes This value has then been transformed to be in range between 1 and 10 with 10 implying the *lowest* administrative burden.	Doing Business Dataset 2016, World Bank
Trade openness	Simple mean of standardized values of: • total number of documents required to export and import • time for exporting and importing This value has then been transformed to be in range between 1 and 10 with 10 implying the highest trade openness.	Doing Business Dataset 2015, World Bank
Judicial independence	"judicial independence" indicator from the Executive Opinion Survey that asks the question "To what extent is the judiciary in your country independent from influences of members of government, citizens, or firms? [1 = heavily influenced; 7 = entirely independent]. The indicator has been standardized and transformed to be in range between 1 and 10 with 10 implying the highest judicial independence.	Global Competitiveness Dataset 2015–2016, World Economic Forum
Budget transparency	Simple mean value of the scores resulting from 14 specific questions that cover transparency of the Executive's Budget Proposal. This value has then been standardized and transformed to be in range between 1 and 10 with 10 implying the highest budget transparency.	Open Budget Survey 2015, International Budget Partnership and own data[a]
E-citizenship	Simple mean of standardized values of the: • Fixed broadband subscriptions (% population) • Internet users (% population) • Facebook users (% population) This value has then been transformed to be in range between 1 and 10 with 10 implying the highest score for E-Citizenship.	First two measures: ICT Dataset 2015; International Telecommunication Union Third measure: Internet World Stats 2015
Freedom of the press	Freedom of the Press score that has then been standardized and transformed to be in range between 1 and 10 with 10 implying the highest freedom of the press.	Freedom of the Press Dataset 2015; Freedom House

[a] The *budget transparency* score is based on the coding of the questions number 1–7, 9, 15, 19, 33, 35, 37, 53 from the Open Budget Questionnaire 2015. Using the same questions, our research team collected data for 12 EU member states, which are not covered in the Open Budget Survey: Austria, Belgium, Denmark, Estonia, Finland, Greece, Ireland, Latvia, Lithuania, Luxembourg, Malta and the Netherlands

References

Acemoglu, D., & Robinson, J.A. (2012). *Why nations fail: the origins of power, prosperity, and poverty.* Crown Business.

Acemoglu, D., & Verdier, T. (2000). The choice between market failures and corruption. *American Economic Review, 90*, 194–211.

ACR (2013). Controlling corruption in Europe. In A. Mungiu-Pippidi (Ed.), *The anticorruption report*, Vol. 1. Leverkusen: Budrich.

Ades, A., & Di Tella, R. (1999). Rents, competition and corruption. *American Economic Review, 89*, 982–993.

Aidt, T. S. (2003). Economic analysis of corruption: a survey. *Economic Journal, 113*, 632–652.

Aidt, T., Dutta, J., & Sena, V. (2008). Governance regimes, corruption and growth: theory and evidence. *Journal of Comparative Economics, 36*, 195–220.

Ali, M. A., & Isse, H. S. (2003). Determinants of economic corruption: a cross-country comparison. *Cato Journal, 22*, 449–466.

Badinger, H., & Nindl, E. (2014). Globalisation and corruption, revisited. *The World Economy, 37*, 1424–1440.

Bardhan, P. (1997). Corruption and development: a review of issues. *Journal of Economic Literature, 35*, 1320–1346.

Becker, G. (1968). Crime and punishment: an economic approach. *The Journal of Political Economy, 76*, 169–217.

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

Cantens, T., Raballand, G., & Bilangna, S. (2010). Reforming customs by measuring performance: a Cameroon case study. *World Customs Journal, 4*, 55–74.

Cingranelli, D. L., & Richards, D. L. (1999). Measuring the level, pattern, and sequence of government respect for physical integrity rights. *International Studies Quarterly, 43*, 407–417.

Damania, R., Fredriksson, P., & Muthukumara, M. (2004). The persistence of corruption and regulatory compliance failures: theory and evidence. *Public Choice, 121*, 363–390.

DiRienzo, C. E., Das, J., Cort, K. T., & Burbridge, J. (2007). Corruption and the role of information. *Journal of International Business Studies, 38*, 320–332.

Doig, A., Watt, D., & Williams, R. (2006). Hands-on or hands-off? anti-corruption agencies in action, donor expectations, and a good enough reality. *Public Administration and Development, 26*, 163–172.

Edwards, F., Howard, P. N., & Joyce, M. (2013). *Digital activism and non-violent conflict report*. Digital activism research project. Seattle: University of Washington.

Elbahnasawy, N. G. (2014). E-government, internet adoption, and corruption: an empirical investigation. *World Development, 57*, 114–126.

Escresa, L., & Picci, L. (2015). A new cross-national measure of corruption. *The World Bank Economic Review*. doi:10.1093/wber/lhv031.

Fazekas, M., & Tóth, I. J. (2016). From corruption to state capture: a new analytical framework with empirical applications from Hungary. *Political Research Quarterly, 69*, 320–334.

Fjeldstad, O-H., & Isaksen, J. (2008). *Anti-corruption reforms: challenges, effects and limits of World Bank support report in external series*. Independent Evaluation Group (IEG), World Bank Working Paper No. 7.

Galtung (2006). Measuring the immeasurable: boundaries and functions of (Macro) corruption indices. In Sampford, C. J., Shacklock, A. H., Connors,C., & Galtung, F. (Eds.). *Measuring corruption*. Farnham: Ashgate.

Gurgur, T. & Shah, A. (2005). *Localization and corruption: panacea or pandora's box?* World Bank Policy Research Working Paper No. 3486.

Hawken, A. & Munck, G. L. (2011). *Does the evaluator make a difference? Measurement validity in corruption research*. IPSA Committee on Concepts and Methods Working Paper Series # 48.

Heidenheimer, A, J., & Johnston, M. (2002). *Political corruption: concepts and contexts*. New Brunswick, NJ: Transaction Publishers.

Herzfeld, T., & Weiss, C. (2003). Corruption and legal (In)-effectiveness: an empirical investigation. *European Journal of Political Economy, 19*, 621–632.

Huther, J., & Shah, A. (2000). *Anti-corruption policies and programs: a framework for evaluation*. World Bank Policy Research Working Paper No. 2501.

Islam, R. (2006). Does more transparency go along with better governance? *Economics & Politics, 18*, 121–167.

Johnsøn, J. Taxell, N., & Zaum, D. (2012). *Mapping evidence gaps in anti-corruption. assessing the state of the operationally relevant evidence on donors' actions and approaches to reducing corruption*. U4 Anti-Corruption Resource Centre, U4 Issue, No. 7, CMI, Bergen.

Kalenborn, C., & Lessmann, C. (2013). The impact of democracy and press freedom on corruption: conditionality matters. *Journal of Policy Modeling, 35*, 857–886.

Kaufmann, D., Kraay, A., & Zoido-Lobatón, P. (1999). *Aggregating governance indicators*. World Bank Policy Research Working Paper No. 2195.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2007). *The worldwide governance indicators project: answering the critics*. World Bank Policy Research Working Paper 4149.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The worldwide governance indicators: methodology and analytical issues. *Hague Journal on the Rule of Law, 3*, 220–246.

Klitgaard, R. (1988). *Controlling corruption*. Berkley CA: University of California Press.

Knack, S. (2006). *Measuring corruption in Eastern Europe and Central Asia: a critique of the cross-country indicators*. World Bank Policy Research Department Working Paper 3968.

Lambsdorff, J. (2008). *The organization of anti-corruption: getting incentives right!* Passauer Discussion Paper Series No V-57-08.

Mauro, P. (1995). Corruption and growth. *The Quarterly Journal of Economics, 110*, 681–712.

Melton, J., & Ginsburg, T. (2012). *Does De Jure judicial independence really matter? A reevaluation of explanations for judicial independence.* Institute for Law and Economics Working Paper No. 612.

Montinola, G. R., & Jackman, R. W. (2002). Sources of corruption: a cross-country study. *British Journal of Political Science, 32*, 147–170.

Mungiu-Pippidi, A. (2006). Corruption: diagnosis and treatment. *Journal of Democracy, 17*, 86–99.

Mungiu-Pippidi, A. (2014). Why control of corruption works – when it does. In Mungiu-Pippidi (Ed.) *The anticorruption report Vol 2.* Leverkusen: Budrich.

Mungiu-Pippidi, A. (2015). *The quest for good governance. How societies develop control of corruption.* Cambridge: Cambridge University Press.

Mungiu-Pippidi, A. (editor and main author), Loncaric, M., Vaz Mundo, B., et al. (2011). *Contextual choices in fighting corruption: lessons learned.* NORAD, Report 4/2011.

Norris, P., & Zinnbauer, D. (2002). *Giving voice to the voiceless: good governance, human development and mass communications.* Human Development Report 2002, Ch. 5.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory.* New York: McGraw-Hill.

OECD. (2016). *Fighting the hidden tariff: global trade without corruption. Background document for the 2016 OECD integrity forum.* Paris: OECD Publication.

Park, H. (2003). Determinants of corruption: a cross-national analysis. *Multinational Business Review, 11*, 29–48.

Persson, T., & Tabellini, G. E. (2003). *The economic effects of constitutions.* Cambridge: MIT Press.

Persson, A., Rothstein, B., & Teorell, J. (2013). Why anticorruption reforms fail—systemic corruption as a collective action problem. *Governance, 26*, 449–471.

Ríos-Figueroa, J., & Staton, J. K. (2014). An evaluation of cross-national measures of judicial independence. *Journal of Law, Economics, and Organization, 30*, 104–137.

Rothstein, B. (2011). Anti-corruption: the indirect 'Big Bang' approach. *Review of International Political Economy, 18*, 228–250.

Sequeira, S. (2013). *Tariffs and corruption: evidence from a tariff liberalization program.* London: The London School of Economics and Political Science.

Shleifer, A., & Vishny, R. W. (1993). Corruption. *The Quarterly Journal of Economics, 108*, 599–617.

Tanzi, V. (1994). *Corruption, governmental activities and markets.* IMF working paper 94/ 99. Washington, DC: International Monetary Fund.

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? *Annual Review of Political Science, 10*, 211–244.

USAID (2006). *Anti-corruption agencies (ACAs).* Anti-corruption Program Brief, Office of Democracy and Governance, USAID.

Voigt, S. (2009). *How (not) to measure institutions.* Joint discussion paper series in economics, No. 2009, 37.