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DECENTRALIZATION, CORRUPTION AND THE ROLE OF DEMOCRACY

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ABSTRACT

In this paper, I consider how the level of democracy moderates the relationship between decentralization and corruption. While there is an expectation within the policy community that decentralization prevents corruption, previous research on this relationship has been inconclusive. I argue that the potential for decentralization to curb corruption is dependent on the presence of institutions that give citizens information on government behavior and the capacity to act upon the given information. I therefore predict that decentralization promotes less corrupt activities in democratic countries, but not in authoritarian countries where no such institutions exist. Using numerous decentralization indicators in a cross-sectional regression with up to 72 countries in the sample, the data lend support to democracy's conditional effect on the relationship between decentralization and corruption. I find that fiscal decentralization and administrative decentralization are associated with lower corruption levels in democracies and higher corruption in authoritarian countries. There is, however, no robust impact of political decentralization upon corruption levels, which indicates that political decentralization overall is an ineffective tool for curbing corruption.

Key words: corruption, democracy, fiscal decentralization, political decentralization, administrative decentralization

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Introduction

Corruption — the abuse of official power or position for private gain — is a widespread phenomenon in both developed and developing countries. There is growing awareness that corruption is not just morally repugnant, but also one of the greatest obstacles to economic and social development (Bardhan 1997). Much attention has therefore been given in recent years to the causes of corruption and potential ways of preventing it. This paper explores one potential remedy and also possible cause of corruption: decentralization.

Decentralization refers to the transfer of responsibilities and resources from central government to local governments. Decentralizing reforms have been at the center of policy transformations not only within the developed world, but also in many developing countries in Africa, Asia and Latin America (Bardhan 2002). Today "*some 95 percent of democracies […] have elected subnational governments, and countries everywhere—large and small, rich and poor—are devolving political, fiscal, and administrative powers to subnational tiers of government*" (World Bank 1999: 107). The world-wide decentralization process has been envisaged by national governments, international organizations, and the civic society as a process that brings governments closer to people and thus improves accountability and transparency (Rodríguez-Pose and Ezcurra 2009; Pina-Sánchez 2014). Even though the motivations to decentralize respond to different issues for each country, there are some common elements behind the decentralization trend. One such element is the notion that centralized governments promote corrupt behavior and that vertical power-sharing is a way of reducing corruption. This notion has made commitment to decentralization reforms an important part of donor supported anti-corruption strategies in developing countries. Today, decentralization reform plays an important role in campaigns like the World Bank's anti-corruption and development strategy (Fjeldstad 2004: 1; Lessman and Markwardt 2009: 642).

But is decentralization an appropriate remedy for corruption? The academic literature is inconclusive. Among existing cross-country studies, some scholars have found that corruption is lower in decentralized countries (de Mello and Barenstein 2001; Fisman and Gatti 2000; Arikan 2004; Freille et al 2007; Altunbaş and Thornton 2012), while others have found that corruption increases with more decentralization (Treisman 2000; Gerring and Thacker 2004; Fan et al 2009). Evidently, more work is needed in this area to resolve these findings.

Previous studies have largely overlooked the domestic context, and especially the type of political regime under which decentralization occurs. This paper revisits the relationship

between decentralization and corruption and presents a more fine-tuned understanding on the importance of context. More precisely, the aim of this paper is to explore if the transfer of power to sub-national tiers of government may yield different results in democracies compared to authoritarian countries.

The key hypothesis driving this paper is that the relationship between decentralization and corruption is driven by the level of democracy within a country. The hypothesis is that the potentially good effects of decentralization upon corrupt behavior only occur in countries that have a certain level of democracy and that authoritarian countries are unable to harness the positive effects expected by decentralization. Decentralization is said to reduce corruption because it brings government closer to citizens and increases accountability and citizens' possibilities to monitor government officials. Decentralization is also said to increase competition between sub-jurisdictions, which will curb corruption. For these suggested mechanism to work, a country need democratic institutions that can provide citizens with information about the behavior of government officials and give citizens capacity to act upon the available information; institutions such as free and fair elections, press freedom, freedom of speech, and freedom of domestic movement. Without democratic institutions, it is unlikely that decentralization reforms will curb corruption. Thus, I argue that the political regime under which decentralization occurs is likely to have great impact upon its effectiveness.

Botswana and Zimbabwe offer anecdotal evidence supporting this hypothesis. Both of these countries undertook substantial decentralization reforms during the 1980s and 1990s. These reforms involved significant changes in expenditure, personnel, and service functions (Mutizwa-Mangiza 1990; Wunsch 2001). But while Botswana today is Africa's least corrupt country, the neighbor country Zimbabwe is heavily burden with corruption (Langa 2014). The use of local councils in Zimbabwe were meant to transform Zimbabwean society, but the outcomes of decentralization reforms have been largely disappointing, with local councils that have failed to effectively govern and instead have bred corruption and ineffectivity (Chatiza 2010). A major difference between Botswana and Zimbabwe is that Botswana is a stable democracy, while Zimbabwe is an authoritarian country. This difference might be crucial for how decentralization affect corruption levels.

To answer the question on whether the level of democracy determines the effect of decentralization on corruption, I employ a cross-sectional regression analysis where I test for several decentralization measures. Unlike most previous studies, I do not find any significant unconditional effects on corruption of the most common decentralization variables. I do however, in line with my hypothesis, find that fiscal and administrative decentral-

ization has a significant effect upon corruption when interacted with the level of democracy. Fiscally and administratively decentralized countries under authoritarian rule experience more corruption, while fiscally or decentralized democratic countries experience less corruption. There is, however, no robust impact of political decentralization on corruption levels. My results thus imply that the appropriateness of fiscal and administrative decentralization as a tool to prevent corruption depends on the level of democracy within a country, and that political decentralization overall is an ineffective tool for curbing corruption.

This paper is organized as follows. In section 2, I review previous theoretical and empirical contributions which have explored how decentralization may affect corruption. Thereafter I develop my theoretical argument and specify which research question and hypothesis that will be tested. In section 3, I present my data and method, and in section 4 I present the results of the empirical analysis. In the concluding part of the paper, I discuss the results and suggest directions for future research.

Previous research and theory

In the following section, I outline previous research on the relationship between decentralization and corruption. I begin the section with explaining central concepts, continue with outlining theory and empirical results from previous research, and build a theoretical argument as to why the level of democracy should matter to the relationship between decentralization and corruption. I conclude the section with the research question and hypothesis that will be tested.

What is decentralization?

People mean different things when they use the concept of decentralization and I therefore need to make some clarifications of how decentralization is defined in this paper. Here, decentralization refers to the transfer of authority and resources from the national government to sub-national levels of government. A decentralized government has levels of government at a disaggregated geographical level below the central government (Rodden 2004; Kolstad et al 2014). Decentralization can be used to describe either the static state of being decentralized or the process of becoming so (Treisman 2002). In this paper, decentralization is used to describe the state of being decentralized. Some scholars define decentralization dichotomously – either a country is decentralized or centralized – or it can, as in this paper, rather be defined as a matter of degree. In this understanding of the concept, a coun-

try can be more or less decentralized; sub-national governments can have more or less responsibilities and resources.

Different dimensions of decentralization can be distinguished. Researchers typically distinguish between political, fiscal, and administrative decentralization. *Political* decentralization refers to the presence of directly elected local governments and/or allocated decision-making powers at the sub-national levels of government. *Administrative* decentralization refer to local governments' powers to hire and fire local staff. Administrative decentralization can also mean a decentralized structure where sub-national governments are given resources to implement central government policy, but do not have power to decide policy. *Fiscal* decentralization gives local governments power to tax citizens and firms, and to decide how to spend the tax revenue through local budgets. (Kolstad et al 2014). In the previous literature, most attempts to measures decentralization have focused predominantly on fiscal decentralization.

It is useful to distinguish between these various types of decentralization in order to get a more comprehensible understanding of the concept of decentralization and to get a better appreciation of the practical variations in intergovernmental design. China and India are, for example, two countries with a decentralized government structure. But China has a high degree of fiscal decentralization and no form of political decentralization, while in India the case is the opposite (Bardhan and Mookherjee 2006). In practice, there is often an overlap between the different decentralization dimensions. Political, administrative and fiscal decentralization can also be designed in different ways not only across countries, but also within countries and even within sectors (World Bank 1999). The vertical design of governmental arrangement in decentralized countries is thus practically as varied as the number of countries.

The impact of decentralization on corruption

Corruption is defined as the abuse of official power for private gain, where "private gain" can be either to the individual official or to a certain groups to which the individual official belongs (e.g., Treisman 2007). In the literature, is it commonly distinguished between petty and grand corruption. *Petty* corruption includes activities when citizens pay small bribes to government officials in order to get a government service or to avoid a fine. *Grand* corruption refers to bribes paid by business or interest groups to gain influence in the decision-making of governments (Neudorfer and Neudorfer 2015). When corruption is discussed in relation to decentralization and the vertical organization of government, the focus is usually on grand corruption.

Several theoretical arguments have been developed to explore the question of whether decentralization leads to more or less corruption. There is no clear conclusion from the literature about the relationship between decentralization and corruption, and competing theories provide arguments both for and against decentralization's potential as a remedy against corruption. Scholars draw upon different mechanisms, but most arguments follow either a *competition* or an *accountability* logic. These two lines of reasoning will be discussed in turn in the following sections.

Jurisdictional competition

The *competition* logic follows the classic argument of Tiebout (1956) who claimed that decentralization allows for better realization of diverse individual demands. Tiebout argued that decentralization introduce competition between sub-jurisdictions and an opportunity for jurisdictions to offer varying government services and tax rates. This allow citizens to "vote with their feet" and move from one jurisdictions to another to maximize their personal utility. Local governments must tailor policies to attract residents and this, according to Tiebout, leads to more efficient provision of public goods. Based on this competition logic, other political economists have claimed that the competition among local governments for capital, labor and other factors of production forces local decision-makers and bureaucrats to reduce corruption. Bureaucrats and decision-makers that steal or waste resources will lose businesses and residents to other jurisdictions, which will reduce the local government's tax base. In this way, inter-jurisdictional competition will discipline local governments and contribute to a less corrupt government (Schleifer and Vishny 1993; Weingast 1995; Arikan 2004).

By contrast, some scholars argue that jurisdictional competition might instead increase corruption. The fear of losing mobile factors might lead to what Rose-Ackerman (1999: 151) calls "*destructive competition*". Competition among local governments may lead to a race to the bottom that will have negative effects on government quality and corruption levels (Keen and Marchand 1997). Local governments competing for business might be encouraged to promise firms to protect them from central law enforcement and thus corruption increases (Cai and Treisman 2004).

Accountability

The second line of reasoning about the relationship between decentralization and corruption, is that decentralization affects *accountability* - as in the ability to hold government officials responsible for their actions. Decentralization brings government closer to citizens,

and while some argue that this closeness increases accountability and reduces corruption, others claim that it rather reduces accountability and provides more opportunities and less obstacles for corrupt activities.

The idea that decentralization increases accountability comes with the assumption that the closeness in local communities makes it easier for citizens to get information about government behavior and to sanction "bad" behavior, which limits the possibility for rent-seeking in the local government. Smaller size of communities can make it clearer for citizens who is responsible for policies and their implementation. The smallness can also make it easier for citizens to monitor the behavior of public officials (Fan et al 2009). As Manor (2011: 4) argues, decentralization "*tends strongly to enhance transparency since even when elites dominates, information about local council proceedings usually reaches many more people than in the days when decisions were taken at higher levels*". The closeness at the local level might also make it easier to sanction corrupt behavior, and the relative small number of citizens at the local level might present less of a collective action problem in doing so through elections, protest, social sanctions or other types of influence (Kolstad 2014). The closeness on the local level might also, as Bardhan and Mookherjee (2001) argue, make local decision-makers more interested and effective in monitoring the activities of local government bureaucrats than distant auditors and civil servants ever will be.

There are some counter-arguments to the idea that decentralization improve accountability. The promise that decentralization brings accountability is considered hollow by Tanzi (1995), who argues that decentralization brings officials in *too* close contact with citizens. The close contact, according to Tanzi, promotes personalism which breeds corruption as officials pay greater attention to individual citizens needs rather than the public interest. Prud'homme (1995) agree with this opinion, arguing that decentralization is likely to increase corruption also because a greater influence of interest groups at the local level and that the long tenure of local officials at the same place makes it easier to establish unethical relationship. The intimate interactions at the local level can foster the formation of corruption networks (Fan et al 2009).

Another common counter-argument to the idea that decentralization improves accountability, is that decentralization fragments the political system and create more complicated decision-making. This allows for credit-taking and blame-shifting between different level of units in the system which might undermine accountability and increase corruption levels (Fisman and Gatti 2002; Gerring and Thacker 2004; Fan et al 2009). Fan et al (2009) emphasize that local corruption can be concealed at least as well as corruption at central level, especially since media generally tend to monitor national governments more closely

than local governments. There are less obstacles to corruption since "*[…] in a fragmented system there are fewer centralized forces and agencies to enforce honesty*" (Banfield 1979: 98).

Previous empirical results

The theoretical debate on the relationship between decentralization and corruption is not yet settled and it is also hard to draw any clear conclusions about the relationship from existing empirical studies. The empirical results from previous cross-country studies are inconsistent: while some studies have found that decentralized countries are less corrupt, other studies have found the opposite result. Existing studies use different measurements, time periods, and samples which might be one explanation for the inconsistent results. For an overview of previous empirical cross-country studies that have focused on fiscal, administrative and/or political decentralization, see table 1.

TABLE 1, SUMMARY OF PREVIOUS CROSS-COUNTRY STUDIES ON DECENTRALIZATION AND CORRUPTION

Authors	Dimensions of decentralization	Corruption measures	No. of countries	Main results
Treisman (2000)	Fiscal & political	CPI; WGI	55 to 89	Negative
de Mello and Barenstein (2001)	Fiscal	ICRG	66 to 78	Positive
Fisman and Gatti (2002)	Fiscal	CPI; ICRG	32 to 55	Positive
Arikan (2004)	Fiscal	CPI	24 to 40	Positive
Kolstad et al (2004)	Political	TI's GCB	36	Negative
Gurgur and Shah (2005)	Fiscal & administrative	CPI	30	Positive
Treisman (2007)	Fiscal	WGI	54	No relationship
Enikolopov and Zhuravskaya (2007)	Fiscal & political	CPI; WBC	45 to 75	Positive
Freille et al (2008)	Fiscal & political	CPI; ICRG; WBC	37 to 174	Positive with fiscal, negative with political
Fan et al (2009)	Fiscal & administrative	World business environment survey	25 to 67	Negative
Lessman and Markwardt (2009)	Fiscal	CPI; ICRG; WGI	44 to 64	Positive if there is press freedom, negative if not
Kyriacou and Roca-Sagalés (2011)	Fiscal & political	WGI	63 to 99	Positive with fiscal, but negative when combined with political
Altunbaş and Thornton (2012)	Fiscal & administrative	ICRG	Up to 64	Positive
Pina-Sánchez (2014)	Fiscal, political & administrative	CPI; ICRG; WGI	33	No relationship

Comment: *'Positive results' mean that decentralization is associated with less corruption. CPI = Transparency International's Corruption Perception Index. ICRG = the Political Risk Service Groups International Country Risk Guide. WGI = the World Bank's Worldwide Governance Indicators.*

Most studies on decentralization and corruption have focused on fiscal decentralization. Among those studies, de Mello and Barenstein (2001), Fisman and Gatti (2002), Arikan (2004) and Freille et al (2008) conclude in large cross-country studies that a larger sub-national share of government expenditure is associated with lower corruption levels. Treisman (2007), on the other hand, report that fiscal decentralization have an insignificant effect on corruption if one control for the percentage of Protestants in the population. When Treisman more recently returned to the relationship between fiscal decentralization and corruption, he and his colleagues find that fiscal decentralization reduces corruption, even controlling for the number of Protestants, but that more tiers of government increase corruption (Fan et al 2009). In another study by Pina-Sánchez (2014) the results indicate that there is no relationship at all between fiscal decentralization and corruption. As such, there are no straightforward answers about the effect of fiscal decentralization on corruption.

Few studies have focused on administrative decentralization. Among those that have, the findings are just as inconclusive. Gurgur and Shah (2005) find that decentralization measured by the sub-national share of government employment reduces corruption. In similar study, based on survey data on experience of businessmen, Fan et al (2009) find the opposite result: the larger the sub-national share of civilian government employment, the higher the amount of bribery.

Among studies that focus on the relationship between political decentralization and corruption the pattern is clearer. Although most scholar use different definitions and measurements of political decentralization, most studies find that politically decentralized countries have higher corruption levels. Treisman (2000), on the other hand, find no statistically significant effect between political (electoral and decision-making) decentralization and corruption. Recognizing that it might not be the degree of political decentralization in isolation, but rather how political decentralization interacts with the fiscal resources available to sub-national governments, he interacts fiscal and political decentralization but find no statistically significant results on this either. Kyriacou and Roca-Sagalés (2011), on the other hand, find such an interaction effect. They report that fiscal decentralization alone lead to higher government quality, but not if it is accompanied with political decentralization.

What's democracy got to do with it?

The theoretical and empirical literature on the relationship between decentralization and corruption has so far paid little attention to regime types and their impact upon this relationship. More focus need to be put upon the relevance of political regimes since they most likely condition the relationship between decentralization and corruption. If regime types

determine the effect of decentralization on corruption, it might be another explanation for the inconsistent results in the empirical literature on the relationship between decentralization and corruption: the relationship might not be linear, but conditioned on political regimes.

Political regime here refers to the form of government within a country, ranging from highly democratic to extremely authoritarian regimes. In democracies, there are "*institutional arrangements for arriving at political decisions in which individuals acquire the power to decide by means of competitive struggle for the people's vote*" (Schumpeter 2011[1947]: 269) and civil liberties are respected and protected. Authoritarian regimes are best thought of as a residual category to democracy; they are "*non-democracies*" (Alvarez et al 1996: 6).

I base my argument as to why political regimes probably condition the relationship between decentralization and corruption on previously developed theoretical models. There are, as presented above, theoretical arguments both for and against decentralization's potential to reduce corruption. Common for all the theoretical models claiming that corruption levels will be *lower* in decentralized countries, is that they all base their arguments on mechanisms that are only guaranteed in democratic countries. In order to achieve jurisdictional competition, for example, there must be institutions present supporting free information flows to citizens and firms. Without freedom of information, people cannot compare policy outcomes and government quality in their home region with other jurisdiction. For citizens to be able to "vote with their feet" citizens must have the liberty to move where they want – a freedom that is restricted in many authoritarian countries (Beyani 2000). For decentralization to improve accountability, citizens must have free access to information about the behavior of government officials and the capacity to act upon the information. For this, institutions such as press freedom, free and fair elections, civil liberties, responsive opposition groups, and independent non-governmental groups are crucial.

In short, the theoretical models that predict lower corruptions levels in decentralized countries assumes the presence of formal institutions that *give citizens information on government operations and the capacity to act upon the given information*. From the existing theoretical models, it seems very unlikely to expect decentralization to have a positive effect on corruption in a context where no such democratic institutions exist. The effect of decentralization is likely to be more benign in countries with democratic institutions, where elections, free media and civil liberties more effectively promote government accountability. The level of democracy is thus likely to condition the relationship between decentralization and corruption.

We know from previous research that political regimes significantly influence the level of corruption within a country. The general argument is that higher levels of democra-

cy and political freedom enhances checks-and-balances mechanisms which increase transparency in the public sector and forces decision-makers to be less corrupt. Many empirical studies have indeed found evidence that higher levels of democracy reduce corruption (e.g., Treisman 2000; Ades and Di Tella 1997; Kunicová and Rose-Ackerman 2005). Some findings do, however, suggest that the relationship between democracy and corruption is non-linear. Although there is some disagreement as to the reasons to the relationship, the general finding is that corruption is highest in partially democratizes countries, medium-high in authoritarian countries, and lowest in strong, older democracies (Keefer 2007; Bäck and Hadenius 2008; Charron and Lapuente 2010). Subsequently, stable democratic institutions are proven to be an effective deterrent factor against corruption, and thus it seems reasonable to expect the level of democracy to be influential to how decentralization affects corruption.

No scholar has yet convincingly tested if decentralization reforms yield different results upon corruption in democratic versus authoritarian countries. Two previous cross-country studies have empirically tested if some dimension of democracy might influence the relationship between decentralization and corruption. One of the studies (Kyriacou and Roca-Sagalés 2011) finds that there is no interaction effect, while the other study (Lessman and Markwardt 2009) find a significant interaction effect. In both studies, they interact decentralization with variables that do not adequately capture democracy, and thus they leave the question unanswered to whether the level of democracy condition the effect of decentralization on corruption or not.

In the first study, Kyriacou and Roca-Sagalés (2011) aim to test if the experience of democratic rule influences the relationship between fiscal decentralization and government quality (defined as control of corruption, bureaucratic quality, and rule of law). They claim that the effectiveness of decentralization as a tool to improve government quality might be affected by the experience of democratic rule and how deeply rooted democratic norms and practices are in the society. Kyriacou and Roca-Sagalés test this proposition with a simple dummy variable that takes the value 1 if the country has been classified as a democratic all years between 1950 and 1995, and the value 0 if not. They find no interaction effect, and therefore conclude that democratic maturity does not condition the relationship between fiscal decentralization and corruption.

I argue that Kyriacou and Roca-Sagalés' dummy variable is not a satisfying operationalizing of democracy or how deeply rooted democratic norms are among citizens. The results of their analysis where this dummy variable is used does not rule out the fact that there might be an interaction effect between decentralization and democracy. The time span

"1950 to 1995" of the dummy is arbitrary, and that a country has been classified as democratic since 1950 does not guarantee that the country has more well-functioning democratic institutions compared to a country that has been democratized for 40 years or 20 years[1]. This measurement does not capture the "depth" of a country's democratic institutions. Democratic "depth" is best captured with a continuous measure of the actual level of democracy within a country. Being democratic is not an either or factor, but rather a matter of degree. Thus, democracy is better operationalized with a continuous measure than a dichotomous as this allows for more variance (see Hadenius and Teorell 2005).

In the second study, Lessman and Markwardt (2009) focus on only one aspect of democratic rule: press freedom. Lessman and Markwardt argue that press freedom is a crucial pre-condition for successful decentralization programs and that the benefits of decentralization only occurs where there is a free press that monitor the behavior of bureaucrats. They test and also find an interaction effect of the level of press freedom and fiscal decentralization on corruption. What Lessman and Markwardt have overlooked in their model, however, is that if the information reaching the public is to actually affect the behavior of corrupt officials it must be paired with some sort of sanctioning mechanism available to the public. Publicity does not equal accountability (see Lindstedt and Naurin 2010). It is likely that it is not only free information flows, but also the capacity to *act* on information that increase accountability and might curb corruption. If citizens do not have the freedom to protest, elect, put sanctions or in other ways influence the way the local governments work, available information alone will do little to prevent corruption. I therefore take the argument Lessman and Markwardt make one step further and claim that a country need both institutions that give citizens information on government behavior (like press freedom) *and* institutions that give citizens the capacity to act upon the given information. Therefore, it is necessary to focus on the level of democracy, broadly conceived, in order to fully understand the relationship between decentralization and corruption.

In sum, no one has yet managed to convincingly answer the question of whether the level of democracy conditions the effect of decentralization on corruption. Nonetheless, I have reasons to believe that this is the case and I therefore aim to test this in a statistical analysis. In contrast to previous studies, I will employ an empirical analysis with a continuous measure that better capture the level of democracy. I will also employ a wider range of decentralization measures, moving the focus beyond just fiscal decentralization.

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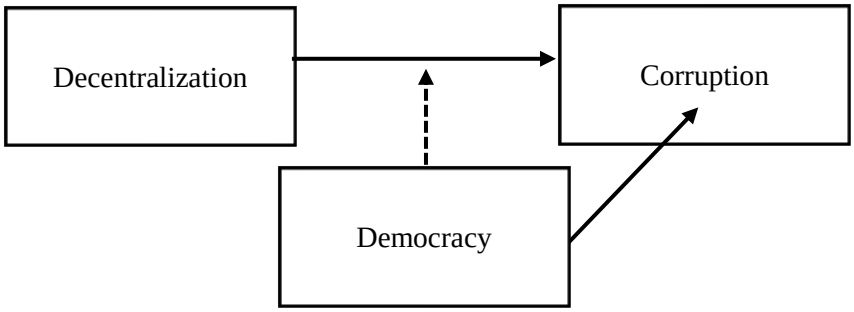
[1] In fact, Kyriacou and Roca-Sagalés' measure of democratic maturity is correlated at just 0.48 with the continuous democracy measurement I use in my analysis.

Research question and hypothesis

The aim of this paper is to determine if the relationship between decentralization and corruption depends on the level of democracy within a country. The research question that will be answered is *Does the level of democracy condition the relationship between decentralization and corruption?*

FIGURE 1, THE FOCAL RELATIONSHIP



In light of the literature reviewed, I expect that only democratic countries have the potential to harness the advantages of decentralization. Previous theoretical work emphasize on two types of mechanisms that might affect the relationship between decentralization and corruption: mechanisms affecting jurisdictional competition and mechanisms affecting accountability. I expect both types of mechanisms to be influenced by political regimes and have different effects depending on the country's level of democracy.

First, the accountability models assume decision-makers to be responsive to citizens' demands and that citizens have the ability to receive information about government behavior. This is by definition not the case in authoritarian countries. Autocrats are not (or at least, do not need to be) responsive to citizens' demands. Citizens in authoritarian countries thus have very limited possibilities to sanction government behavior they do not like. Additionally, in countries where press freedom and freedom of expression are restricted, as is the case in most authoritarian states, citizens will have limited opportunities to achieve information about government behavior no matter at which level of government powers are located. Consequently, achieving any of the corruption preventing mechanisms assumed by the accountability models is unlikely in authoritarian countries, but might be possible in democracies where leaders are responsive to voters and citizens can get information about government behavior.

Second, the jurisdictional competition models assume that citizens can compare government behavior in different sub-national jurisdiction and act on the given information.

This requires conditions for information to be spread and citizens to be able to move freely within the country. These conditions are more likely in a democratic country with free press and free civil society than in a country where information flows are restricted, which is the case in many authoritarian countries. It is also unlikely to achieve jurisdictional competition in an authoritarian country like, for example, Zimbabwe where the freedom of movement is severely restricted (US Dep. of State 2014) and citizens' abilities to "vote with their feet" are limited. As such, achieving jurisdictional competition is more likely in democracies than in authoritarian countries.

In sum, it seems unlikely that authoritarian countries are able to harness the potential positive effects of decentralization. Decentralization in authoritarian countries will likely be overweighed by the potential costs of decentralization. Positive effects of decentralization require the presence of formal institutions that give citizens information on the behavior of government and the capacity to act upon the given information. These institutions are present in democracies, and hence decentralization has a potential to curb corruption in those countries. I therefore expect there to be an interaction effect between political regime and decentralization and the following hypothesis will be tested:

H_1: *Decentralization is associated with lower corruption levels in democracies but not in authoritarian countries.*

Data and method

In this section, I discuss the operationalizations of the central concepts I use when I test the proposed hypothesis in a cross-country analysis. The strengths and limitations with the data are discussed and so are the methods of analysis.

The dependent variable: Corruption

Corruption is difficult to measure since the illegality of corrupt activities implies secrecy. There are two main types of corruption measures: perception-based and experienced-based. Perception-based measures are usually based on expert assessments, while data on experience-based indicators come from surveys among citizens or business men (Neudorfer and Neudorfer 2015). None of these two types of corruption indicators are perfect. The accuracy of perception indicators can be questioned since these indicators do not measure corruption itself, only experts' perception of corruption. Fan et al (2009) points out that country experts might be biased when they evaluate a country's corruption level and that this might

influence their assessment. On the other hand, citizens answering survey for experience-based indicator might also be biased, in the same way that expert are. Additionally, experience-based indicators are only able to measure petty corruption.

Since my hypothesis is mainly concerned with grand corruption, which is not effectively measurable with experience-based indices, a perception-based indicator is used to measure corruption. Following many other cross-country studies on decentralization and corruption (e.g., Treisman 2000; Fisman and Gatti 2002; Arikan 2004; Gurgur and Shah 2005; Lessman and Markwardt 2009) I use Transparency International's Corruption Perception Index (CPI) as my dependent variable. The CPI indicator measures the absence of corruption in the public sector, covering both administrative and political aspects of corruption. The variable is on a scale from 0-100, with higher values indicating less corruption.

To overcome the problem that expert rankings might be inconsistent or unreliable, the CPI index consists of aggregated indicators from several sources. Transparency International collects data on corruption from different places, standardize them and calculate averages by assigning them equal weights in the index. The CPI data are available from the year 1980, but due to some changes in the standardization procedure, comparisons over time might be a problem for some years (Rohwer 2009). I use CPI data from 2000-2009, which is after the changes in the composition of the index were made and comparisons over time should therefore be unproblematic.

The independent variable: Decentralization

There are different ways of capturing decentralization. My aim is to bring empirics closer to theory by recognizing that there are several different dimensions of decentralization. My goal is to capture more than one face of decentralization as "*researches who not explicitly look at each dimension […] will mismeasure the type and degree of decentralization and draw incorrect inferences about the relationship between decentralization and other phenomena*" (Schneider 2003: 35). Hence, I want to use a decentralization indicator that taps on the three main dimensions of decentralization: fiscal, administrative and political. No single measure of decentralization available for a sufficient number of both developing and developed countries adequately captures all of these dimensions. I therefore use four different measures of decentralization in the statistical analysis.

In the literature, the most widely used measure of *fiscal decentralization* (FISC.DEC) is provided by the International Monetary Fund's Government Finance Statistics (GFS). The indicator most commonly employed is the sub-national share in total government expenditure. The GFS data are based on national data that are reported by countries' national de-

partments of statistics. The GFS dataset covers a broad range of countries and time periods and are standardized to enable comparisons across time and space (Pina-Sánchez 2014: 13). To measure fiscal decentralization through the sub-national share of government expenditure has, however, received criticism for a number of reasons. First, this indicator fail to identify the degree of autonomy of sub-national government since it does not capture whether sub-national governments own the resources spend by them. The measure does not differentiate between tax and non-tax revenue and does not capture if transfers from central to local governments are conditional or discretionary (Rodden 2004; Pina-Sánchez 2014). This means that the indicator tends to overestimate the degree of fiscal decentralization within a country (Kyriacou and Roca-Sagalés 2011: 207). Second, Oates (1999) argue sthat the differences in sub-national share of government expenditure between countries not only reflect differences in the decentralization policy, but also in the national governments economic policy. Oates claims that two countries with the exact same decentralized structure will appear to have different decentralization structures if one of the countries, for example, spending more resources on the army nationally.

Although the GFS data on sub-national expenditure has its shortcomings, there is a lack of reliable alternatives. I therefore chose to use this indicator to measure fiscal decentralization before any other. Most existing cross-country studies on the relationship between fiscal decentralization and corruption have used this indicator. Employing this measure thus allow for comparisons of my results with those found in other studies.

To capture *administrative decentralization* (ADM.DEC), I follow Treisman (2002) and Arikan (2004) and use a measure of the sub-national government employment share of the total civilian government administration employment. The data come from the World Bank Cross-National Data on Government Employment and Wages, and cover a broad range of countries. A disadvantage with this data is that they are only available for a limited number of years.

TABLE 2, CORRELATION MATRIX FOR DECENTRALIZATION VARIABLES

	FISC.DEC	ADM.DEC	POL.DEC1-Authority	POL.DEC2-Electoral
FISC.DEC	1.000	0.687*	0.313	0.173
ADM.DEC		1.000	0.516*	0.331*
POL.DEC1-Authority			1.000	0.272
POL.DEC2-Electoral				1.000

***Comment**: *= correlation is significant at the 0.05 level*

Since *political decentralization* can refer both to the presence of elected local governments and to the allocation of decision-making powers to local governments, I use two indicators of political decentralization that capture these two different aspects. To measure the allocation of decision-making power (POL.DEC1-Authority), I use a dummy variable from the World Bank Database of Political Institution (DPI). This variable indicates whether sub-national governments have extensive taxing, spending, and/or legislating authority (Beck et al 2011: 175). This measure is a sharp test of sub-national agency and capture devolution of power better than any other available variable. To measure electoral decentralization (POL.DEC2-Electoral), I use a measure developed by Schneider (2003). This indicator is an index between 0 and 1 based on a confirmatory factor analysis of the existence of elections at local or regional levels in 1996. In this index, also non-competitive elections are included; such as local elections when only one party compete or the national government is authoritarian (Schneider 2003: 43).

Table 2 reports the correlations for all decentralization measures. As seen in the table, the correlations between the different decentralization types confirm the suspicion that these different decentralization measures taps into different aspects of decentralization. The correlation coefficients are relatively low and none of the decentralization types are strongly correlated. It is noteworthy that the two different measures of political decentralization (POL.DEC1-Authority and POL.DEC2-Electoral) are only correlated at 0.272, which confirms that they measure different facets of political decentralization.

Figure 2-5 illustrate the cross-country data on decentralization and each country's mean value on the different decentralization types. The maps illustrate how the level of

decentralization varies between and also within countries. The maps also illustrate that the data on the different decentralization measures cover a somewhat different sample of countries. I only have data on all four decentralization measures for 24 countries, which makes it difficult to include all decentralization indicators in the same analysis.

The moderating variable: Democracy

I measure the level of democracy with the combined Freedom House and Polity index from the QoG standard dataset (Teorell et al 2015). This measure is an eleven point index ranging from 0 (least democratic) to 10 (most democratic). The index is combination of first, the Freedom House measure of civil liberties and political rights and, second, indicators from the Polity IV Project data set. The Polity data are a combination of three independent elements of institutionalized democracy: (i) the presence of institutions and procedures through which citizens can express effective preferences about alternative politicians and leaders, (ii) the existence of institutionalized constraints on the exercise of power by the executive, and (iii) the guarantee of civil liberties to all citizens in their daily life and in acts of political participation. The two measures are averaged together. The Freedom House/Polity index thus tap into both dimensions of democratic rule that is central for my hypothesis: institutions that make information available to citizens and institutions that give citizens capacity to act.

Hadenius and Teorell (2005) have proven that the combined Freedom House/Polity index has several advantages compared to other measures of democracy. When compared with other well-established measures of democracy, Hadenius and Teorell find that the Freedom House/Polity index outperforms rival measures both in terms of validity and reliability. To control for the hypothesis of a non-linear relationship between democracy and corruption (Bäck and Hadenius 2008), I square the included democracy variable.

Control variables

To reduce the likelihood of spurious findings, it is important to consider alternative explanations other than decentralization and the level of democracy that may affect corruption levels. The literature on the causes of corruption mainly focuses on four different categories of determinants of corruption: (i) economic and demographic factors, (ii) political factors, (iii) cultural factors, and (iv) the effect of legal systems. Each of these categories recognize

FIGURE 2, DATA ON FISCAL DECENTRALIZATION (SUB-NATIONAL SHARE OF NATIONAL REVENUE)

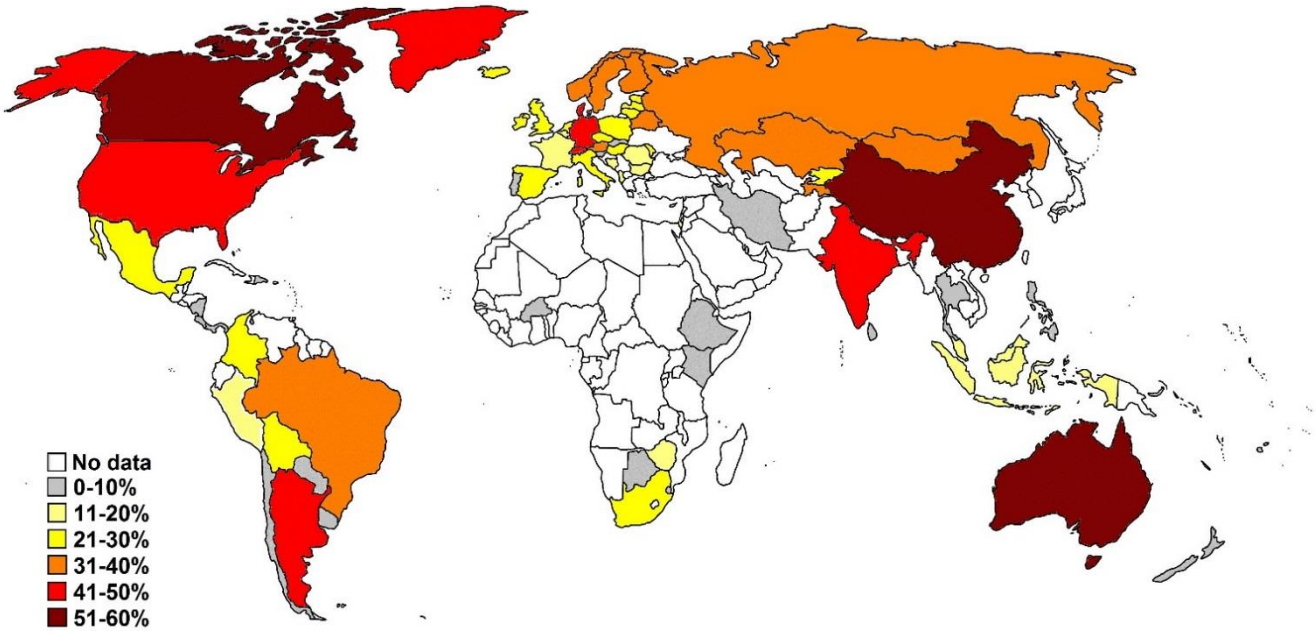


FIGURE 3, DATA ON ADMINISTRATIVE DECENTRALIZATION (SUB-NATIONAL SHARE OF GOVERNMENT EMPLOYMENT)

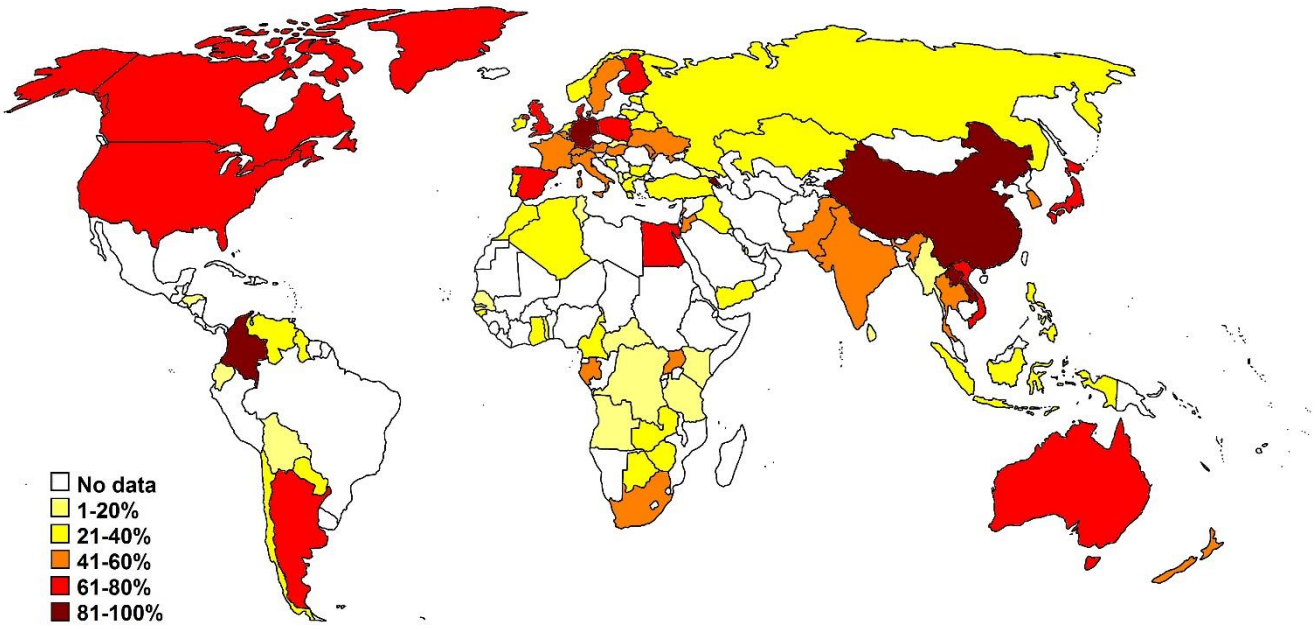


FIGURE 4, DATA ON POLITICAL DECENTRALIZATION1 (SUB-NATIONAL GOVERNMENTS' DECISION-MAKING AUTHORITY OVER TAXING, SPENDING AND LEGISLATION)

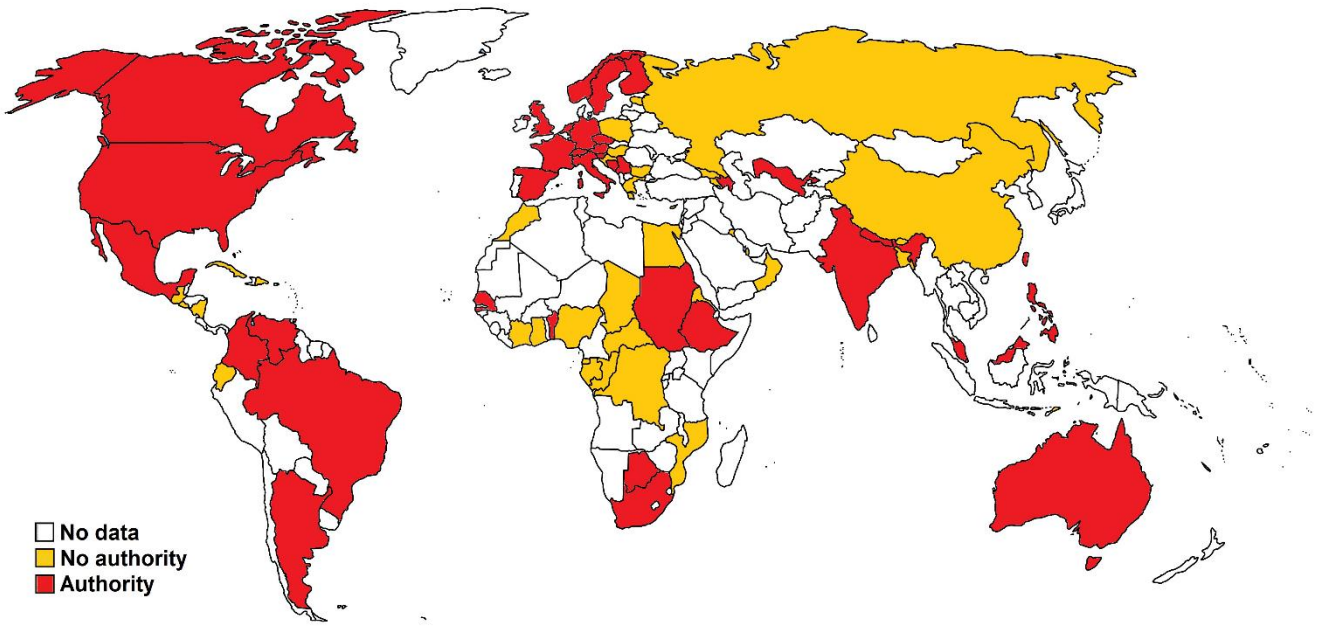
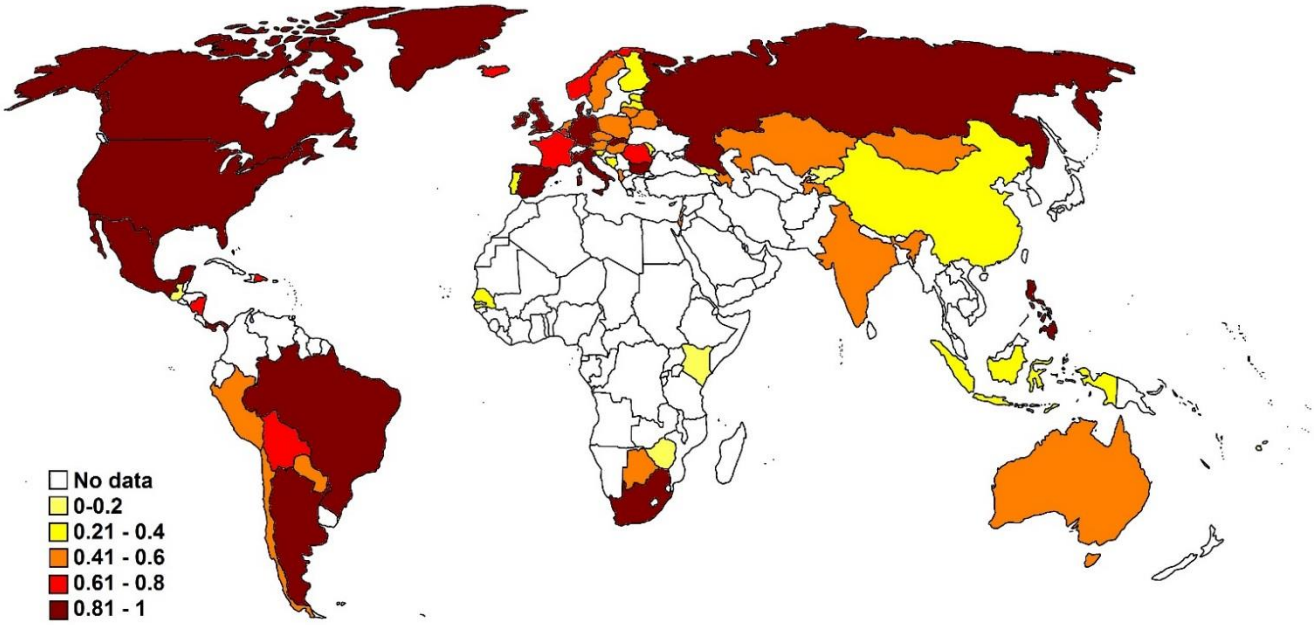


FIGURE 5, DATA ON POLITICAL DECENTRALIZATION2 (ELECTORAL DECENTRALIZATION, SCHNEIDER'S INDEX)



alternative explanations of corruption. In my empirical modes, I include a large number of control variables from each of these four categories.

Concerning the first category of determinants of corruption – economic and demographic determinants – scholars have found several variables that influence the level of corruption across countries. In particular, GDP per capita is found to be significantly linked with lower corruption levels. Wealthier countries, in terms of GDP, are less corrupt (e.g., La Porta et al 1999, Montinola and Jackman 2002, Persson et al 2003). Trade openness is another economic variable that various authors have claimed to explain corruption level (Treisman 2000; Fisman and Gatti 2002). Trade openness is defined as the ratio of the sum of exports and imports to GDP and more openness is claimed to lead to lower corruption. The argument is that trade openness imply lower trade barriers and thus more limited opportunities for government officials to interfere and demand bribes.

The demographic variable most commonly associated with corruption is human capital – usually proxied by education levels. Higher education levels are found to be associated with lower corruption. This is explained with education improving the ability of citizens to control governments and judge the performance of politicians (Ali and Isse 2003; Persson et al 2003). Further economic and demographic variables that might have an extra strong importance in terms of decentralization, are factors related to country size. Some scholars have found a pattern indicating that countries with larger populations are more corrupt (Root 1999; Fisman and Gatti 2000) and Ali and Isse (2003) show that larger government sectors are associated with higher corruption levels. These variables of country size are extra relevant in terms of decentralization, since larger countries might adopt a more decentralized state structure to better cater to diverse preferences of citizens. This at the same time as larger countries are more likely to exploit economies of scale in the provision of public services – hence having a low ratio of public services per capita – which might make those demanding these services more tempted to bribe bureaucrats to "get ahead of the queue" (Fisman and Gatti 2002: 330).

Turning to the second category, political institutions, there are several related variables that have been claimed to affect corruption levels. Many of those relate to democracy and other proxies for political freedom which's association to corruption already has been discussed in previous sections. Another aspect of political systems that previous studies suggest affect corruption is how the electoral system is designed. Some scholars report that having an open-list proportional system creates less corruption since this system creates a direct link between voters and politicians and makes it easier for voters to hold politicians accountable (Persson et al 2003). Another political aspect is whether a country has a presi-

dential system or a parliamentary system. Some suggest that presidential systems increase corruption by creating competition between different branches of government, while others suggest that separation of power and many checks and balances curbs corruption (Kunicová and Rose-Ackerman 2005). At last, members of the political elite might affect corruption. Previous studies on this factor have predominantly focused on the number of women in political assemblies and found that more women in national parliaments is associated with lower corruption levels (Dollar et al 2001; Swamy et al 2001).

Third, cultural factors are highlighted by some corruption studies. Specifically ethnolinguistic fractionalization is found to be negatively correlated with corruption. More fragmented and heterogeneous societies are generally more corrupt, hypothetically because people are less likely to be treated fairly and equally in those societies than in homogeneous ones (Ali and Isse 2003). Another cultural variable used to explain corruption levels, is the proportion of Protestants in the population. The theory is that Protestant traditions foster an egalitarian community, which results in a less corrupt society (La Porta et al 1999; Treisman 2000).

Lastly, the quality of the legal system and legal origin has proven to explain variation in corruption levels across countries. The world can be divided into two main legal traditions: the common law (originating in English law) and civil law (originating in Roman law) (Charron et al 2012). According to La Porta et al (2008) have common law countries experienced less corruption than civil law countries since legal origin influence how the government control the economy. In a similar manner, Treisman (2000) have found that corruption is lower in former British colonies that have adopted the British legal system compared to other former colonies.

In summary, the literature on corruption shows that corruption is a multi-causal and complex phenomenon. In order to robustly test the explanatory power of my hypothesis, it is necessary to test for alternative explanations to corruption in the empirical analysis. I therefore include control variable which operationalize these above-mentioned alternative explanations to corruption: GDP per capita, trade openness, education levels, population size, size of the government, the presence of open-list electoral system, parliamentarism, checks and balances, ethnic fractionalization, the proportion of Protestants in the population, and British legal origin. I have taken the natural logarithm of the variables GDP per capita and population size since both variables originally was skewed. More detailed description of the included control variables can be found in Appendix I.

Method of analysis

My aim is to test if there is support for the hypothesis that decentralization is more likely to curb corruption in democracies compared to authoritarian countries. The research design consists of multivariate ordinary least squared (OLS) regressions where the units of analysis are countries. An OLS regression is a simple and straightforward estimation strategy for establishing if there is a possible linear relationship between variables and this is a useful statistical method for testing my hypothesis. OLS regression analysis has become a common method within cross-country studies in political science over the years, signifying that it is an established estimation strategy. An alternative statistical method to test my hypothesis would be a time-series analysis. The availability of decentralization data over time is, however, too limited - especially for authoritarian countries which are central to include in the analysis in order to test the hypothesis. Thus, a cross-sectional OLS regression analysis will be preferred.

I adopt an empirical approach where the focal relationship is tested in stages. In the first stage, I estimate the relationship between the focal variables graphically. In the second stage, I provide a baseline for the statistical models by analyzing the general unconditional effect of the decentralization variables on corruption in simple additive regression models. As a third stage of the analysis, I report the full regression models with my interaction terms. I build one interaction term for each decentralization indicator by multiplying democracy with one of the decentralization indicators. If the effect on the interaction term is positive and statistically significant, it will indicate that there is support for my hypothesis and that the level of democracy does condition the effect between decentralization and corruption. The basic equation for the model that is being tested is the following:

$$\text{corruption} = a + \beta_{1\ \text{democracy}} + \beta_{2\ \text{decentralization}} + \beta_{3\text{democracy*decentralization}} + e$$

Where a is the intercept, β_1 the effect of the level democracy, β_2 the effect of the chosen decentralization indicator, and β_3 the effect of the interaction term. I test this model for each of the four decentralization measures. Fourth, as a final stage of the empirical analysis, I test the robustness of my findings with new model specifications and extra control variables. The OLS regression allows me to add multiple control variables to test my models for alternative explanations to corruption. The OLS regression is, however, sensitive for having too large a number of independent variables. This means that I cannot add all control variables in the same model but have to add them a few at a time in different models.

The effects I am studying are long-run factors that do not happen overnight. Following the advice of Stern (2010), I use averages for longer time spans to capture these long-run factors. All variables are country averages for ten-year periods and this makes my analysis less sensitive to short-term variations. Since some of the data are not available for all countries, the panel is unbalanced and the number of observations depends on which decentralization variable I use in the regression model.

To consider causality issues, I use a lag structure between the dependent and independent variables. For the dependent variable – corruption – I use the averages for the years 2000-2009. Data on the independent variables are the averages for the years 1990-1999. For a few of the independent variables (for example, political-electoral decentralization and administrative decentralization) data is not available for longer time-spans and on these instances I use data from the mid-1990s. Using a lag-structure is not a bulletproof method for ensuring the direction of the effect, but it is a certain way of at least decreasing the risk of reversed causality and endogenity bias. Detailed descriptions of all the individual variables and their sources are presented in Appendix I.

Results

In this section, the results from the statistical analyses are presented and discussed. I start with graphically illustrating my data, continue with testing the unconditional effect of the decentralization indicators in additive models, and then carry on with testing my hypothesized interaction effects. To check if my results are robust, I then do robustness checks and lastly, end with a discussion of the results and the strengths and weakness of the models.

4.1 Bivariate relationships

The aim of the analysis is to test if the level of democracy conditions the relationship between decentralization and corruption. For illustrative purposes, I begin the analysis with testing the bivariate relationship between the key variables. For this, I use a binary division of countries as either democracies or autocracies, instead of testing a scale of more or less democracy. This makes it easier to make a simple graphic assessment of the relationship.

The bivariate relationships between the key variables are illustrated in figure 6. The bar graphs show the mean corruption levels in decentralized and centralized democracies and authoritarian countries. Note that the CPI corruption measure reflects the absence of corruption and hence higher bars indicate lower corruption.

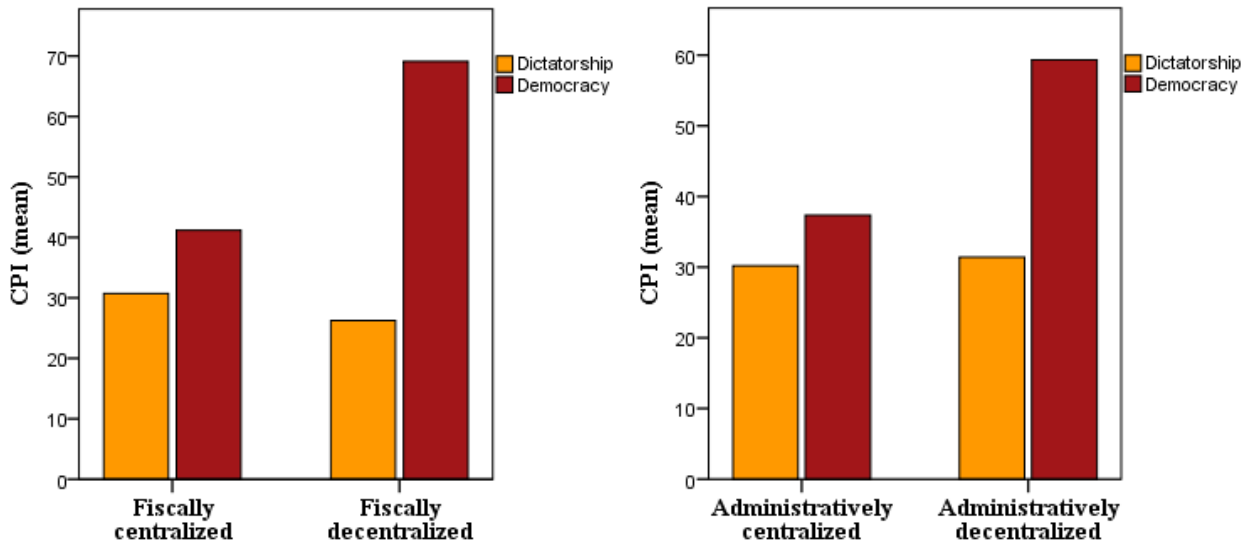
Figure 6a illustrates the difference in mean corruption levels between fiscally centralized and fiscally decentralized democracies and dictatorships. When the mean corruption

levels are compared, the bar graph shows that fiscal decentralization seem to have very different effects on corruption in democracies and dictatorships. Fiscally decentralized democracies are generally much less corrupt than centralized democracies. In dictatorships, on the other hand, the pattern is quite the opposite: fiscally decentralized dictatorships generally have higher corruption levels than centralized dictatorships. Figure 6b show a similar pattern for administrative decentralization as the one seen in figure 6a. Administratively centralized and centralized authoritarian countries seem to have the same corruption levels on average, while decentralized democracies are much less corrupt than centralized democracies.

In figure 6c and 6d the two variables operationalizing political decentralization are illustrated. For both types of political decentralization, we can see a difference between

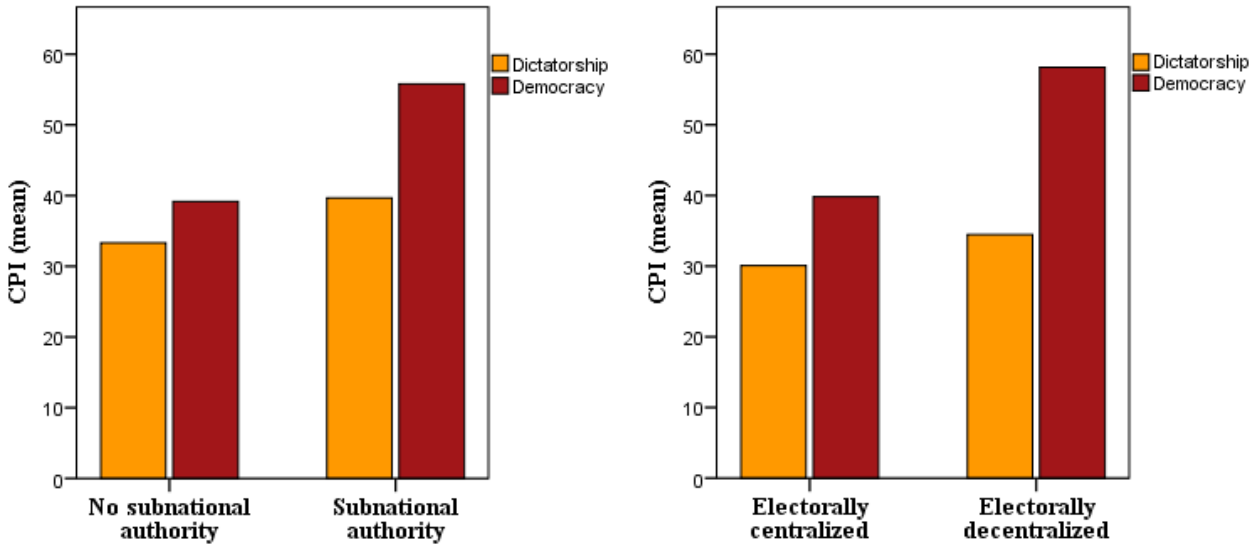
FIGURE 6, MEAN CORRUPTION LEVELS IN DEMOCRACIES AND AUTHORITARIAN COUNTRIES WITH DIFFERENT DECENTRALIZATION LEVELS

(a)



(b)

(c)



(d)

***Comment**: The binary division of political regimes into dictatorships and autocracies is originally from Cheibub et al (2010) and taken from the standard QoG dataset (Teorell et al 2015). Countries are classified as fiscally, administratively and electorally decentralized when they have a value above 30% on their respective scale.*

democracies and authoritarian countries. In these cases, however, decentralized countries are less corrupt no matter regime type, but the differences are larger among democracies.

The illustration of the data in figure 6 offer support to the hypothesis: political regimes seem to condition the effect of decentralization on corruption. These bivariate relationships do not, however, prove causality.

While the bar graphs in figure 6 are primarily illustrative, the scatterplots in figure 7 through 9 also show the extent to which the relationship is linear. Figure 7 plots the relationship between fiscal decentralization and corruption. The scatterplot shows how the regression slope varies between dictatorships and democracies. The slope of the regression line is positive among democracies, and negative among authoritarian countries. Thus there seems to exist a positive relationship between decentralization and corruption in democracies: the more decentralized, the less corruption. Among dictatorships, on the other hand, there seems to be a negative relationship: more decentralization is associated with more corruption. This confirms the findings in figure 6. The R^2 value for the regression line in figure 7 is much higher for democratic countries than for authoritarian countries: 0.187

compared to 0.048. The decentralization variable can thus explain more of the variance in corruption levels among democracies than among dictatorships.

FIGURE 7, SCATTERPLOT ON THE RELATIONSHIP BETWEEN FISCAL DECENTRALIZATION AND CORRUPTION

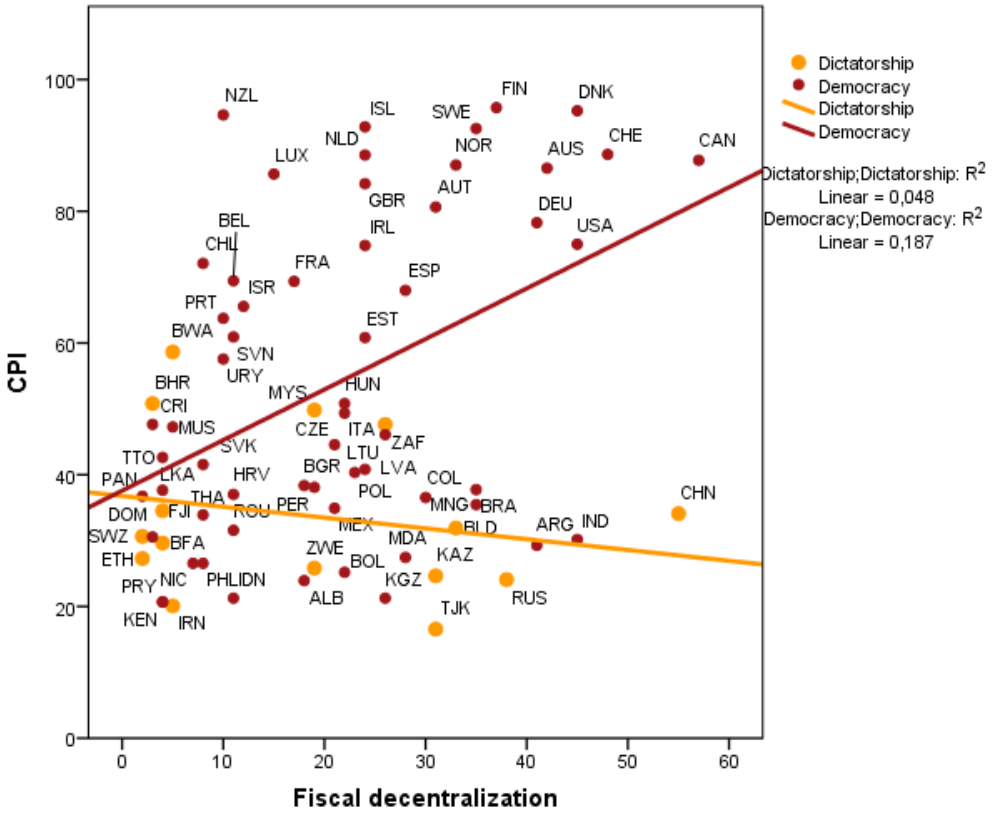
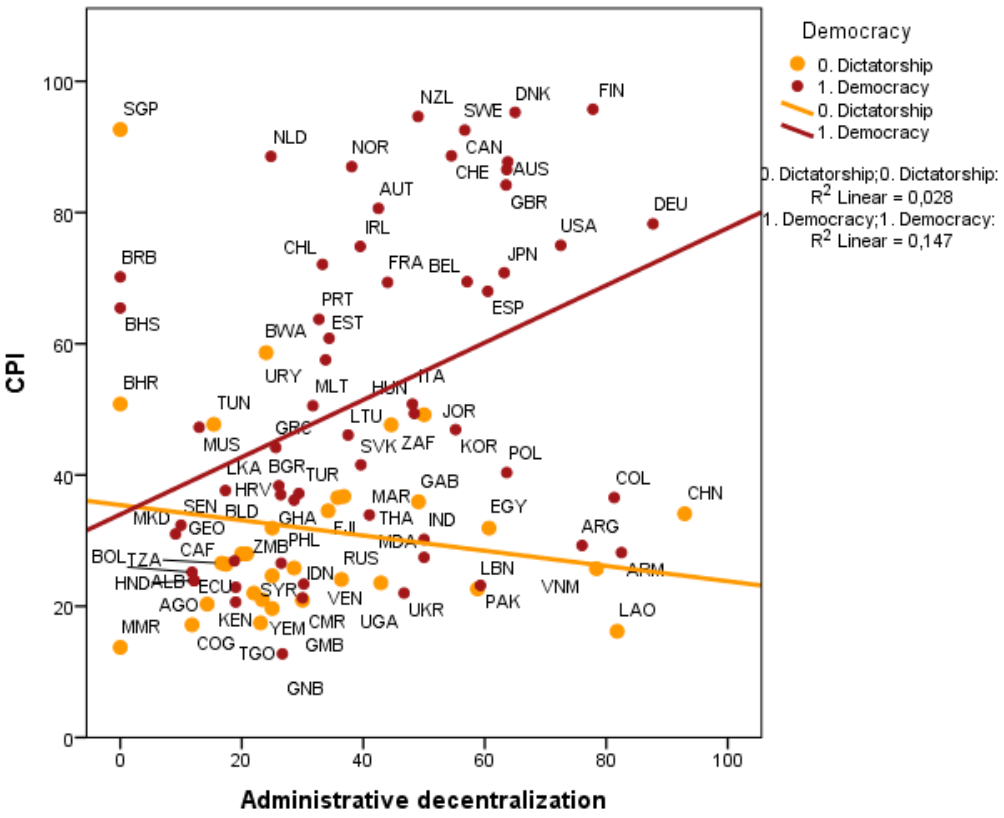


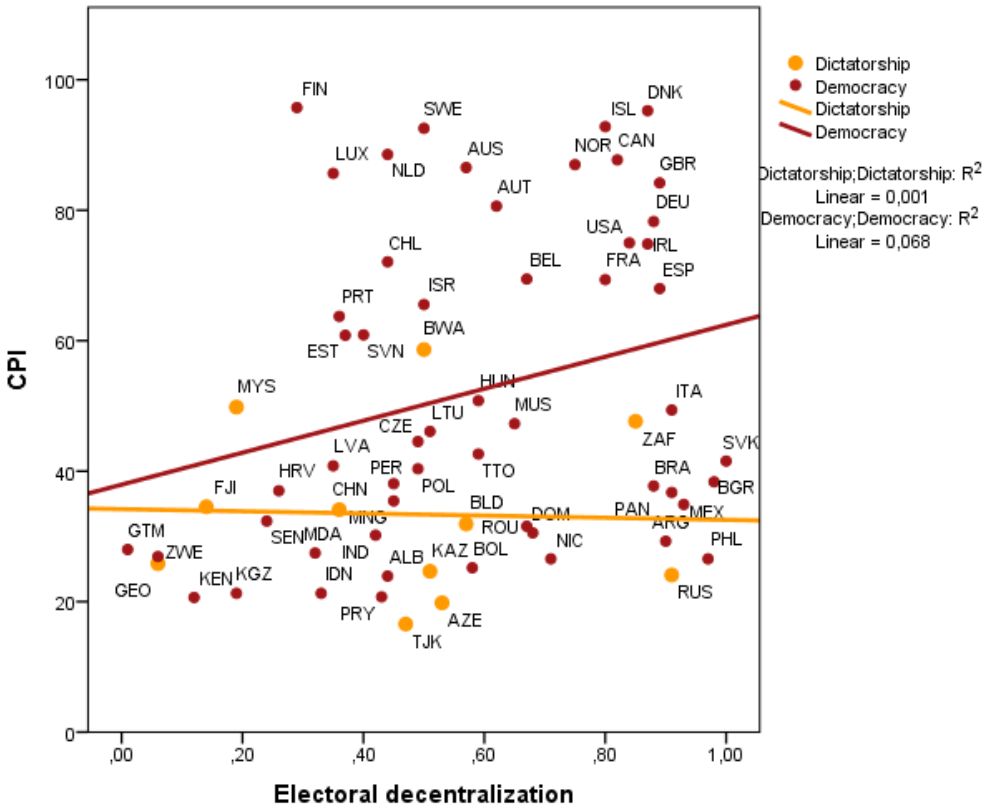
Figure 8 shows that the pattern for administrative decentralization looks very similar to the pattern for fiscal decentralization. There is a clear difference in the regression slopes between democracies and dictatorships, and administrative decentralization seems to be associated with the different corruption levels depending on regime type. Taking individual examples, we can see that the authoritarian Laos and the democratic Colombia have the same degree of administrative decentralization, but there is significantly less corruption in Colombia compared to Laos. By looking at the scatterplots, there again seems to be support for the hypothesis that the level of democracy conditions the effect decentralization on corruption, even though the scatterplots alone does not prove causality.

FIGURE 8, SCATTERPLOT ON THE RELATIONSHIP BETWEEN ADMINISTRATIVE DECENTRALIZATION AND CORRUPTION



Turning to the relationship between political decentralization and corruption, only the second political decentralization variables (POL.DEC2-Electoral) can be illustrated in a scatterplot since POL.DEC1-Authority is dichotomous. By a glance, the relationship between electoral decentralization illustrated in figure 9 seems to be less strong than the

FIGURE 9, SCATTERPLOT ON THE RELATIONSHIP BETWEEN POLITICAL DECENTRALIZATION2 (ELECTORAL DECENTRALIZATION) AND CORRUPTION



relationship between fiscal and administrative decentralization. The slopes in the scatterplot illustrating electoral decentralization are less steep than the slopes in the other scatterplots. There is still a difference in the slope of the two regression lines in figure 9, and thus there seems to be a difference between the effect of electoral decentralization on corruption in dictatorships and democracies, although smaller than for the other dimensions of decentralization. There seems to be a positive relationship between more electoral decentralization and less corruption among democracies. But among dictatorship there is a non-existing relationship; the regression line is straight and have a R^2 value of only 0.001.

In sum, when the bivariate relationship between the key variables is illustrated, there seems to be reason to believe that there is support for my hypothesis. Political regimes seem to condition the effect of decentralization on corruption. This seems to be most apparent in terms of fiscal and administrative decentralization. In order to define if these are causal relationships, I need to make more sophisticated analyses in a multivariate OLS regression analysis.

Additive models

I continue to analyze the relationships between decentralization and corruption in a multivariate framework. To get a baseline regression result, I first estimate the impact of decentralization on corruption without testing for the interaction effect. This allow me to compare my results and data from those from previous studies. The unconditional effect of decentralization might be positive, as Fisman and Gatti (2002) or Freille et al (2007) have found, or negative as in the studies of Treisman (2000) or Fan et al (2009).

For theoretical reason and comparison, the selection of baseline control variables follows Fisman and Gatti's (2002) pioneer study on decentralization and corruption. These control variables are GDP per capita, to control for that the results are not driven by whether the countries are poor or rich. I also include variables that have to do with the size of the country – population size and government size – to capture economies of scale in establishing effective institutions. I also control for the squared level of democracy.

TABLE 3, OLS CROSS-COUNTRY ESTIMATES. DEPENDENT VARIABLE: CPI

	Model 1	Model 2	Model 3	Model 4
Log GDP/capita	9.816*** (2.317)	12.411*** (2.110)	9.422*** (2.137)	12.889*** (2.602)
Log population	-1.221 (1.035)	-1.385 (1.234)	-1.992 (1.405)	0.485 (1.155)
Government size	0.101 (0.069)	0.024 (0.168)	0.280 (0.220)	-0.139 (0.174)
Democracy	-7.430*** (2.311)	-4.006 (2.826)	-2.465 (3.299)	-1.367 (2.880)
Democracy^2	0.933*** (0.209)	0.518** (0.253)	0.316 (0.300)	0.462* (0.261)
FISC.DEC	0.180 (0.128)			
ADM.DEC		0.028 (0.094)		
POL.DEC1-Authority			7.462 (4.799)	
POL.DEC2-Electoral				-18.185** (7.889)
Intercept	-48.968** (20.947)	-67.527*** (19.306)	-41.673* (21.646)	-81.183*** (24.533)
Obs.	66	72	58	57
Adj. R^2	0.759	0.667	0.548	0.768

Comment: **p<0.10; **p<0.05; ***p<0.01; Standard errors in parentheses.*

Table 3 reports the results from the additive OLS regression analysis. Again note that the CPI indicator measures the absence of corruption and thus a positive b-coefficient on the decentralization variables indicate that higher degrees of decentralization is associated with lower corruption levels. In table 3, we can derive that fiscal decentralization, administrative decentralization, and sub-national decision-making authority (POL.DEC1-Authority) have no significant effect on corruption levels. These results deviates from the lion share of the literature, as most studies have found significant effects of decentralization and corruption. The reason to why I get insignificant results of most of my variables might be because I, unlike scholars in most previous studies, use a lag-structure between the independent and dependent variables in my analysis. My data also allow my analysis to include more countries than in many previous studies. Other studies that use a lag-structure, like

Lessman and Markwardt (2009), also get a non-significant result when they test the relationship between decentralization and corruption.

The one decentralization variable that has a significant effect in table 3 is the POL.DEC2-Electoral variable, measuring electoral decentralization. This variable has a negative and significant effect upon corruption. In more detail, it suggest that the difference between a country that scores 1 on the electoral decentralization index will have a lower CPI value of 18.185 compared to a country that scores 0 on the index. This negative and significant effect of electoral decentralization on corruption goes in line with most previous studies.

The effect of the control variables are in line with past research, which gives support to my models. The coefficient on the GDP per capita is statistically significant and of the expected sign: wealthier countries are less corrupt. There is squared democracy variable is also, as expected, showing a significant non-linear effect of democracy on corruption.
The size of the country in terms of population and size of the government have no significant effect on corruption levels.

The insignificant effects of the decentralization variables in model 1, 2 and 3 in table 3 support the idea that the relationship between decentralization and corruption might not be linear. These baseline results thus give me reason to test if the relationship between decentralization and corruption is conditioned on the level of democracy, as the graphic illustrations have suggested.

Interaction models

In table 4, the hypothesis that the level of democracy conditions the relationship between democracy and corruption is tested in a multivariate regression analysis through four interaction terms. In each model in table 4, an interaction term including democracy and one of my four decentralization variables is tested. As hypothesized, there are indeed significant positive effects on the interaction variables for both fiscal, administrative and the two political decentralization indicators. This means that decentralization have a more positive effect on corruption levels the higher the level of democracy is in a country. Democracy thus seems to condition the effect of decentralization on corruption. The R^2 values in the models in table 4 are higher than for the equivalent models in table 3. The models in table 4 with the interaction effect thus have stronger explanatory power and represent a higher fit of the data. This gives further support for my hypothesis.

TABLE 4, OLS CROSS-COUNTRY ESTIMATES. DEPENDENT VARIABLE: CPI

	Model 1	Model 2	Model 3	Model 4
Log GDP/capita	10.302***	11.109***	8.428***	14.109***
	(2.112)	(2.064)	(2.156)	(2.750)
Log population	-1.697*	-2.407*	-2.415*	0.351
	(0.951)	(1.232)	(1.392)	(1.152)
Government size	0.072	0.009	0.218	-0.104
	(0.063)	(0.160)	(0.217)	(0.175)
Democracy	-7.655***	-4652*	-3.013	-1.961
	(2.103)	(2.701)	(3.237)	(2.897)
Democracy^2	0.749***	0.351	0.265	0.343
	(0.197)	(0.248)	(0.294)	(0.275)
FISC.DEC	-0.663**			
	(0.259)			
FISC.DEC * Democracy	0.116***			
	(0.032)			
ADM.DEC		-0.433**		
		(0.189)		
ADM.DEC * Democracy		0.076***		
		(0.027)		
POL.DEC1-Authority			-6.333	
			(8.819)	
POL.DEC1 * Democracy			2.392*	
			(1.295)	
POL.DEC2-Electoral				-41.963**
				(19.929)
POL.DEC2 * Democracy				3.364*
				(2.592)
Intercept	-40.241**	-42.339**	-27.017	-82.450***
	(19.206)	(20.517)	(22.592)	(24.387)
Obs.	66	72	58	57
Adj. R^2	0.800	0.698	0.569	0.771

***Comment**: *p<0.10; **p<0.05; ***p<0.01; Standard errors in parentheses.*

Focusing specifically on model 1, the negative sign of the fiscal decentralization variable means that fiscal decentralization leads to lower CPI (i.e. higher corruption levels) when the country is extremely authoritarian. On the contrary, the effect of decentralization reverses in more democratic countries, as the positive sign of the interaction term indicates.

That is, in highly democratic countries fiscal decentralization leads to lower corruption levels. The predicted value of a highly democratic country where 60% of the total government revenue is spend by sub-national governments (highly fiscally decentralized) is a CPI value on 88.2. The predicted CPI value for an equally fiscally decentralized but highly authoritarian country is 16.7.

Robustness analysis

To analyze how sensitive my results are, I need to do conduct several robustness checks. The results are considered robust first when the direction of the effects of the key variables does not change and remain significant when I try different model specifications. First, I test an alternative corruption measure to ensure that my results are not driven by a particular corruption measure. I therefore test my interaction term in identical models as seen in table 4, but with the World Bank's Worldwide Governance Indicators (WGI) as the dependent variable. The WGI measure is another perception-based corruption indicator. The detailed results from this analysis are found in Appendix II and they do not differ from those achieved with the Corruption Perception Index (CPI) measure. The interaction effects with all four decentralization variables are still positive and significant. This gives further credit to my findings.

Second, for robustness, I vary the indices of democracy. I replace the Freedom House/Polity democracy index with its respective components: the Freedom House index and the Polity index. The results remained largely unchanged, with the same direction and significance level on the effects. This confirms my findings.

Third, I need to test if my relationships hold under the control for other variables that previous research has found affect corruption levels. In table 5, two of the interaction terms – the one with fiscal decentralization and the one with administrative decentralization – are controlled for fewer than four different groups of rival explanations of corruption. Several control variables are added, one group at a time. In model 1, the interaction term with fiscal decentralization is tested under the control for several economic factors that have proven to affect corruption levels. In model 2, political control factors related to democracy and governance are included, in model 3 cultural factors including ethnic fractionalization and the proportion of Protestants in the population. In model 4, the interaction term is tested under control for the variable British legal origin together with GDP per capita, as legal origin might capture the economical sophistication of a country. In model 5-8, the interaction term with administrative decentralization is controlled for under the same groups of control variables.

As seen in table 5, the effect of the interaction term between fiscal decentralization and democracy remains robust to the inclusion of the alternative explanation variables. The size of the coefficient on the interaction variable is reduced somewhat and the

TABLE 5, OLS CROSS-COUNTRY ESTIMATES. DEPENDENT VARIABLE: CPI

	Model 1 Economy	**Model 2 Politics**	**Model 3 Culture**	**Model 4 Legal origin**	**Model 5 Economy**	**Model 6 Politics**	**Model 7 Culture**	**Model 8 Legal origin**
Democracy	-6.279**	-7.431***	-7.947***	-7.106***	-5.884**	-5.216*	-5.608**	-4.701*
	(2.453)	(2.544)	(2.251)	(1.974)	(2.764)	(2.964)	(2.555)	(2.387)
Democracy^2	0.712***	0.849***	0.970***	0.733***	0.471*	0.503*	0.562**	0.401*
	(0.215)	(0.230)	(0.194)	(0.184)	(0.255)	(0.262)	(0.222)	(0.216)
FISC.DEC	-0.353	-0.448	-0.296	-0.538**				
	(0.227)	(0.289)	(0.269)	(0.256)				
FISC.DEC * democracy	0.066**	0.106***	0.066*	0.105***				
	(0.029)	(0.036)	(0.035)	(0.031)				
ADM.DEC					-0.349*	-0.463**	-0.410**	-0.289
					(0.194)	(0.178)	(0.159)	(0.177)
ADM.DEC * democracy					0.074**	0.088***	0.064***	0.060**
					(0.028)	(0.026)	(0.023)	(0.025)
Log GDP/capita	10.803***			8.917***	10.785***			11.626***
	(2.719)			(1.966)	(2.933)			(1.850)
Trade openness	0.018				0.065			
	(0.032)				(0.041)			
Education level	0.625				-0.671			
	(0.986)				(1.034)			
Female representation		0.320*				0.594***		
		(0.186)				(0.202)		
Parliamentarism		3.818				4.432		
		(3.737)				(4.472)		
List PR		-2.736				-5.301		
		(3.417)				(4.208)		
Checks & balances		-0.198				-0.811		
		(1.568)				(2.029)		
Ethnic fractionalization			-5.498				-20.761***	
			(6.841)				(6.939)	
Protestants			0.231***				0.342***	
			(0.068)				(0.077)	
British legal origin				6.913**				10.484***
				(2.964)				(3.234)
Intercept	-61.892**	43.952***	44.990***	-31.155*	-41.901*	-47.510***	58.527***	-54.432***
	(23.180)	(7.929)	(8.257)	(17.486)	(23.000)	(10.128)	(9.424)	(18.921)
Obs.	69	68	67	68	71	77	76	75
Adj. R^2	0.774	0.739	0.801	0.816	0.705	0.619	0.703	0.741

Comment: **p<0.10; **p<0.05; ***p<0.01; Standard errors in parentheses.*

statistical significant level varies a bit, but the effect remains positive and statistically significant. The earlier conclusions do still hold: the level of democracy condition the relationship between fiscal decentralization and corruption.

Briefly, the effects of the control variables are again mostly as expected, although many of the variables are statistically insignificant. Among those variables that are statistically significant in table 5, GDP per capita have a strong positive effect and countries with a large proportion of Protestants are less corrupt. This goes in line with previous research.

The results of the identical models with the interaction term with administrative decentralization looks very similar to those achieved with the fiscal decentralization variable. As illustrated in table 5 are the coefficient of the interaction term with administrative decentralization a little bit smaller under control for alternative explanations, but still positive and statistically significant. The results are thus considered robust and there is a significant interaction effect of administrative decentralization and democracy.

In table 6, the results for the same models but with the interaction terms with both political decentralization variables are shown. These results tell a different story than the one seen with fiscal and administrative decentralization. Under control for alternative explanation, the interaction terms with these two decentralization variables lose significance. As such, trade openness, female representation, ethnic fractionalization, and the proportion of Protestants better explain corruption levels than any of the interaction term between political decentralization and democracy. The interaction effect of political decentralization and democracy are therefore not considered robust.

Discussion

The statistical analysis set out to answer the research question about whether the level of democracy condition the relationship between decentralization and corruption, and whether there was any support for the hypothesis that decentralization is more likely to curb corruption in democracies compared to authoritarian countries. The analysis lends support to this conditional effect of decentralization on corruption. I found no unconditional effect of fiscal and administrative decentralization on corruption in the baseline models, but when interacted with democracy, these decentralization types have a significant effect upon corruption. Fiscal and administrative decentralization is associated with lower corruption in democracies and higher corruption in authoritarian countries. Consequently, as predicted by the hypothesis, democracy is a necessary condition for fiscal and administrative decentralization to prevent corruption.

These results contradict the findings in Kyriacou and Roca-Sagalés' (2011) study. Kyriacou and Roca-Sagalés claim that there is no interaction effect between fiscal decentralization and the experience of democracy. But when democracy is measured with a continuous measure instead of Kyriacou and Roca-Sagalés' democracy dummy, the level of democracy do indeed condition the relationship between fiscal decentralization and corruption. In relation to Lessman and Markwardt's (2009) study, in which they claim that press freedom condition the relationship between decentralization and corruption, my findings contribute to a further understanding of the relationship. My findings support the notion that not only free information flows, but also citizen's capacity to act on information conditions the relationship between decentralization and corruption.

The puzzling part of my results is that not all decentralization types have the same impact upon corruption. Unlike fiscal and administrative decentralization, political decentralization does not have a robust effect on corruption – not in terms of whether sub-national decision-makers are elected, neither in terms of whether sub-national governments have decision-making authority on important aspects of governance. Most previous empirical studies have found that political decentralization have either a negative or a non-significant effect upon corruption, but it is surprising that the effect of political decentralization on corruption is insignificant also when interacted with the level of democracy. I would not expect a general unconditional effect of political decentralization upon corruption. But interacted with the level of democracy, it seems more probable that political decentralization has a significant effect on corruption in more democratic countries. However, my results indicate that it does not have a big impact on corruption whether or not sub-national governments are directly elected or have important decision-making powers – no matter the level of democracy. When it comes to intergovernmental design, what matters is at which government level fiscal and administrative resources are located. In light of the theoretical accountability models, these results are a bit puzzling. The accountability models predict that decentralization increases accountability and thus reduces corruption, but how is having resources *without* great decision-making authority at sub-national levels an improvement of accountability? These results might indicate that the models predicting that decentralization improves accountability are exaggerated and that it is other mechanisms that steer the relationship between decentralization and corruption.

The results of my analysis are limited to the quality of my data. As mentioned in the data section, my variable for fiscal decentralization does not capture if sub-national units own the resources spent by them. This data limitation matters to the interpretation of my findings. From this data, I can conclude that for explaining variation in corruption levels, it

matters where fiscal and administrative resources are located, but it is not possible to draw any further conclusions on whether it matters if sub-national governments *control* these resources and have the power to make expenditure and personnel decisions. Theoretically, this might be an important distinction. An intergovernmental design where central governments simply transfer conditional resources to sub-national governments might affect corruption levels in a different way than a governmental design where sub-national governments own the resources and can make expenditure and personnel decisions. In order to detangle which mechanisms of decentralization and exactly which form of intergovernmental design that affect corruption, we need to study the relationship between decentralization, corruption and democracy in a more disaggregated framework.

Another data limitation that have consequences for my analysis, is the fact that many authoritarian or weak democratic countries are excluded from the analysis due to lack of data. When the countries that are included in the analysis is compared with all the countries that are excluded, it is clear that the mean level of democracy is far lower among those countries excluded. This might have consequences for the generalizability of my results. It is hard to tell if the results of the statistical analysis would have looked different if more authoritarian countries were included in the sample.

Additionally, even though I use a lag-structure between my dependent and independent variables and have proven that my results are consistent with different model specification, I cannot completely exclude the possibility of reversed causality. It is, for example, possible that corrupt officials might choose to create more complex structures of government to shield their corrupt activities. If so, decentralized structures are caused by, rather than the causes of, corruption.

Conclusion

In this paper, I have examined the extent to which the level of democracy determines the effect of decentralization on corruption. While there is an expectation within the policy community that decentralization curbs corruption, previous research on the relationship has been inconclusive. I have emphasized the importance of context in understanding the relationship between decentralization and corruption, and hypothesized that the level of democracy might be an important determinant of this relationship. To test if the level of democracy conditions the relationship between decentralization and corruption, I have employed a cross-country regression analysis where I have tested for several decentralization measures. The findings show support for the hypothesis. Unlike the lion share of the

literature, I found no significant unconditional impact of fiscal and administrative decentralization on corruption. I did, however, find a strong effect of fiscal and administrative decentralization when interacted with democracy. My results hence support the notion that the impact of fiscal and administrative decentralization on corruption is contextualized, and that the appropriateness of fiscal and administrative decentralization as a tool to prevent corruption depends on the level of democracy within a country. Political decentralization, on the other hand, does not have robust impact on corruption and thus seem to be an ineffective tool for curbing corruption in general.

These results have interest both at a research and a policy level. The results complement the current academic literature on decentralization and corruption by introducing the determining effect of the level of democracy on this relationship. The study thus contributes to a deeper understanding of the complexity of this relationship. Focusing on only average effects of decentralization on corruption gives a misleading picture of the relationship and future research on decentralization and corruption need to account for democracy's determining role in the effect of fiscal and administrative decentralization on corruption. This is, however, only an initial study of a relationship that deserves further attention. The question about which exact mechanisms related to decentralization that affect corruption is left unanswered. In order to get a deeper understanding of the relationship, future research should be aimed at exploring the relationship between decentralization, corruption, and democracy in a more disaggregated framework.

On a policy level, there seems to be legitimate reasons to question assumptions that decentralization is an appropriate tool for curbing corruption in all contexts. One should always be careful to draw policy prescriptions from one study on a previously unverified relationship. However, if the results of this study are proven to be robust in future studies, organizations such as the World Bank should refrain from advising countries with weak democratic institutions to decentralize in order to keep corruption at bay. All types of decentralization seem to be an unfit tool for fighting corruption in countries without democratic institutions that give citizens information about government behavior and the capacity to act upon the given information. It should be noted, as Kyriacou and Roca-Sagalés (2011) point out, that countries may decentralize for other reasons than for curbing corruption. Countries in Central and Eastern Europe have, for example, decentralized in the efforts to convert from socialist system to market economy (2011: 214f). Other countries have decentralized in order to accommodate ethnic and linguistic diversity within the country (Charron 2009). But even when the motivations to decentralize respond to other issues than preventing corruption, fiscal and administrative decentralization are still likely to sig-

nificantly affect corruption. Granting sub-national governments in authoritarian countries with greater fiscal power or administrative resources is expected to increase corruption. Since corruption is a major impediment to economic and social development, this is an important finding that deserves attention.

REFERENCES

Ades, Alberto & Rafael Di Tella (1997) "The Causes and Consequences of Corruption: A Review of Recent Empirical Contributions". *IDS Bulletin* 27(2):6-11.

Ali, Abdiweli M. & Hodan Said Isse. 2003. "Determinants of Economic Corruption: A Cross-Country Comparison." *Cato Journal* 22(3):449–466.

Altunbaş, Yener and John Thornton (2012) "Fiscal decentralization and Governance". *Public Finance Review* 40(1):66-85.

Alvarez, Mike, José Antonio Cheibub, Fernando Limongi and Adam Przeworksi (1996) "Classifying Political Regimes". *Studies in Comparative International Development* 31(2):33-36.

Arikan, Gulsun G. (2004) "Fiscal Decentralization: A Remedy for Corruption?". *International Tax and Public Finances* 11:175-195.

Banfield, Edward C. (1979) "Corruption as a feature of governmental organization" in M. Ekpo (eds.) *Bureaucratic Corruption in Sub-Saharan Africa: Towards a Search for Causes and Consequences*. Washington D.C.: University Press of America.

Bardhan, Pranab (1997) "Corruption and Development: A Review of Issues". *Journal of Economic* Literature 35(3):1320-1346.

Bardhan, Pranab (2002) "Decentralization of governance and development". *Journal of Economic Perspectives* 16(4):185-205.

Bardhan, Pranab & Dilip Mookherjee (2006) "Decentralization, corruption and government accountability" in Rose-Ackerman, Susan (eds) "*International Handbook on the Economics of Corruption*". Cheltenham: Edward Elgar Publishing Limited.

Beck, Thorsten, George Clarke, Alberto Groff, Philip Keefer and Patrick Walsh (2001) "New tools in comparative political economy: The Database of Political Institutions". *World Bank Economic Review* 15(1):165-176.

Bäck, Hanna & Axel Hadenius (2008) "Democracy and State Capacity: Exploring a J-Shaped Relationship". *Governance* 21(1):1-24.

Beyani, Chaloka (2000) "*Human Rights Standards and the Free Movement of People within States*". Oxford: Oxford University Press.

Cai, Hongbin & Daniel Treisman (2004) "State Corroding Federalism". *Journal of Public Economics* 88:819-843.

Charron, Nicholas (2009) "Government Quality and Vertical Power-Sharing in Fractionalized States". The Journal of Federalism 39(4):585-605.

Charron, Nicholas, Carl Dahlström & Victor Lapuente (2011) "No law without a state". *Journal of Comparative Economics* 40:176-193.

Charron, Nicholas and Victor Lapuente (2010) "Does democracy produce quality of government?". European Journal of Political Research 49(4):443-470.

Chatiza, Kudzai (2010) "Can local government steer socio-economic transformation in Zimbabwe? Analysing historical trends and gazing into the future". In de Visser et al (2010) "*Local government reform in Zimbabwe*". Community Law Centre, University of the Western Cape.

Enikolopov, Ruben & Ekaterina Zhuravskaya (2007) "Decentralization and political institutions". *Journal of Public Economics* 91: 2261-2290.

de Mello, Luiz & Matias Barenstein (2001) "Fiscal Decentralization and Governance: A Cross-Country Analysis". IMF Working Paper 01/71, Washington DC: IMF.

Dollar, David, Raymond Fisman & Roberta Gatti (2001) "Are Women Really the 'Fairer' Sex? Corruption and Women in Government". *Journal of Economic Behavior and Organization* 46:423-429.

Fan, Simon C., Chen Lin & Daniel Treisman (2009) "Political decentralization and corruption: Evidence from around the world". *Journal of Public Economics* 93: 14-34.

Fisman, Raymond & Roberta Gatti (2000) "Decentralization and corruption: evidence across countries". *Journal of Public Economics* 83: 325-345.

Fjeldstad, Odd-Helge (2004) "Decentralisation and corruption: A review". CMI Working Paper 2004:10, Bergen: Chr. Michelsen Institute.

Freille, Sebastian, Mohammad E. Haque & Richard A. Kneller (2008). "Federalism, decentralisation and corruption". MPRA Paper No. 27535. Available at: http://mpra.ub.uni-muenchen.de/27535/ [accessed 2015-02-11]

Gerring, John & Strom C. Thacker (2004) "Political Institutions and Corruption: The Role of Unitarism and Parliamentarism". *British Journal of Political Science* 34(2): 295-330.

Gurgur, Tugrul & Anwar Shah (2005) "Localization and Corruption: Panacea or Pandora's Box?". World Bank Policy Research Working Paper 3486.

Hadenius, Axel & Jan Teorell (2005) "Assessing Alternative Indicies of Democracy", Concepts & Methods Working Papers 6, IPSA, August 2005.

Keefer, Philip (2007) "Clientelism, Credibility, and the Policy Choices of Young Democracies". *American Journal of Political Science* 51(4):804-821.

Keen, Michael & Maurice Marchand (1997) "Fiscal competition and the pattern of public spending". *Journal of Public Economics* 66: 33-53.

Kolstad, Ivar, Vincent Somville & Arne Wiig (2014) "Devolutionary delusions? The effect of decentralization on corruption". CMI Working Paper 2014: 10, Bergen: Chr. Michelsen Institute.

Kunicová, Jana, & Susan Rose-Ackerman (2005) "Electoral Rules and Constitutional Structures as Constraints on Corruption". *British Journal of Political Science* 35:573-606.

Kyriacou, Andreas P. & Oriol Roca-Sagalés (2011) "Fiscal and political decentralization and government quality". *Environment and Planning C: Government and Policy* 29: 204-223.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer & Robert Vishny (1999) "The quality of government". *Journal of Law, Economics and Organization* 15(1): 222-279.

La Porta, Rafael, Florencio Lopez-de-Silanes and Andrei Shleifer (2008) "The Economic Consequences of Legal Origins". *Journal of Economic Literature* 46(2):285-332.

Langa, Veneranda (2014) "Zimbabwe: One of the most corrupt countries". *NewsDay*, December 4 2014, available at www.newsday.co.zw/2014/12/04/zimbabwe_onecorrupt-countries, accessed May 12, 2015.

Lessmann, Christian & Gunther Markwardt (2009) "One Size Fits All? Decentralization, Corruption, and the Monitoring of Bureaucrats". *World Development* 38(4): 631-646.

Lindstedt, Catharina & Daniel Naurin (2010) "Transparency is not Enough: Making Transparency Effective in Reducing Corruption". *International Political Science Review* 31(3):301-322.

Manor, James (2011) "Perspectives on Decentralization". ICLD Working Paper No. 3, Visby: Swedish International Centre for Local Democracy.

Montinola, Gabriella R. & Robert W. Jackman (2002) "Sources of Corruption: A Cross-Country Study". *British Journal of Political Science* 32: 147-170.

Mutizwa-Mangiza, ND (1990) "Decentralization and district development planning in Zimbabwe". *Public Administration and Development* 104:423-435.

Neudorfer, Benjamin & Natascha S. Neudorfer (2015) "Decentralization and Political Corruption: Disaggregating Regional Authority". *Publius* 45(1): 24-50.

Oates, Wallace E. (1972) "*Fiscal Federalism*". New York: Harcourt Brace Jovanovich.

Persson, Torsten, Gerard Tabellini & Francesco Trebbi (2003) "Electoral Rules and Corruption." *Journal of the European Economic Association* 1(4): 958–989.

Pina-Sánchez, Jose (2014) "Decentralization as a multifaceted concept: a more encompassing index using bayesian statistics". *Revisita Española de Ciencia Política* 34: 9-34.

Prud'homme, Rémy (1995) "The dangers of decentralization". *The World Bank Research Observer* 10(2): 201-220.

Rodden, Jonathan (2004) "Comparative Federalism and Decentralization: On Meaning and Measurement". *Comparative Politics* 36(4): 481-500.

Rodríguez-Pose, Andrés and Roberto Ezcurra (2009) "Does decentralization matter for regional disparities? A cross-country analysis". *Journal of Economic Geography* 10: 619-644.

Root, Hilton (1999) "The importance of being small". Center for International Studies Working Paper no.99-13, University of Southern California.

Rose-Ackerman, Susan (1978) "*Corruption: A Study in Political Economy*". New York: Academic Press.

Rohwer, Anja (2009) "Measuring Corruption: A comparison between the Transparency International's Corruption Perceptions Index and the World Bank's World Wide Governance Indicators". CESifo DICE Report 3/2009.

Schneider, Aaron (2003) "Decentralization: Conceptualization and Measurement". *Studies in Comparative International Development* 38(3): 32-56.

Schumpeter, Joseph (2011[1947]) "*Capitalism, Socialism and Democracy*". Mansfield: Martino Publishing.

Shleifer, Andrei & Robert W. Vishny (1993) "Corruption". *Quarterly Journal of Economics* 108(3): 599-617.

Stern, David (2010) "Between estimates of the emissions-income elasticity". *Ecological Economics* 69:2173-2182.

Swamy, Anand, Stephen Knack, Young Lee, and Omar Azfar (2001) "Gender and corruption". *Journal of Development Economics* 64(1):25-55.

Tanzi, Vito (1995) "Fiscal Federalism and Decentralization: A Review of Some Efficiency and Macroeconomic Aspects". Annual World Bank Conference on Development Economics: 295-316.

Teorell, Jan, Stefan Dahlberg, Sören Holmberg, Bo Rothstein, Felix Hartmann and Richard Svensson (2015). The Quality of Government Standard Dataset, version Jan15. University of Gothenburg, The Quality of Government Institute, www.qog.pol.gu.se

Tiebout, Charles M. (1956) "A Pure Logic of Local Expenditures". *The Journal of Political Economy* 64(5): 416-424.

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

Treisman, Daniel (2002) "Defining and Measuring Decentralization: A Global Perspective". Unpublished manuscript.

Treisman, Daniel (2006) "Fiscal decentralization, governance, and economic performance: a reconsideration". *Economics and Politics* 18: 219-235.

Treisman, Daniel (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.

United States Department of State (2014) "2013 Country Reports on Human Rights Practices – Zimbabwe". Available at http://www.refworld.org/docid/532849c25.html, accessed May 24, 2015.

Weingast, Barry R. (1995) "The economic role of political institutions: Market-preserving federalism and economic growth". *Journal of Law, Economics, and Organization* 11:1- 31.

World Bank (1999) "*Entering the 21st Century: World Development Report 1999/2000*". New York: Oxford University Press.

Wunsch, James S. (2001) "Decentralization, local governance and 'recentralization' in Africa". Public Administration and Development 21:277-288.

APPENDICES

Appendix I: Description and source of variables

CPI: Cross-country corruption measure that relies on Transparency International's Corruption Perception Index (CPI). The variable is on a scale from 0-100 where 0 indicates a very corrupt government and 100 very little corruption. Averages for the years 2000-2009. Source: *the QoG standard dataset (Teorell et al 2015), originally the Heritage Foundation (2014).*

WGI: Measure of the control of corruption based on the World Bank's Worldwide Governance Indicators. Indicator with a score between -2 and 2, with higher scores corresponding to better outcomes. Averages 2000-2009. Source: *the QoG standard dataset (Teorell et al 2015), originally Kaufmann et al (2010).*

FISC.DEC: Fiscal decentralization. Revenue share of sub-central governments (local and state) in total (local, state and central) public revenues. Averages 1990-1999. Source: *IMF's Government Finance statistics*.

ADM.DEC: Administrative decentralization. Subnational government employment share: non-central government employment as % of total government employment, averages 1993-1995. Source: *Treisman (2002).*

POL.DEC1-Authority: Sub-national decision-making authority, a measure of political decentralizaiton. Dummy variable that takes the value 1 if state/provinces have authority over taxing, spending and/or legislating during 1990-1999. Authority over "cultural affairs" or "planning" in Communist systems does not qualify. Source: *The World Bank's Database of Political Institutions 2012, Beck et al (2001).*

POL.DEC2-Electoral: Electoral decentralization, a measure of political decentralizaiton. Index between 0 and 1 on the existence of elections at the municipal or state/provincial levels in 1996. Higher levels indicate higher electoral decentralization. Source: *Schneider (2003).*

Democracy: Democracy is measured in an eleven point index ranging from 0 (least democratic) to 10 (most democratic). The average of Freedom House is transformed to a scale ranging from 0-10 and Polity that is transformed to a 0-10 scale and these two measures are then averaged together. Averages 1990-1999. Source: *the QoG standard dataset (Teorell et al 2015).*

Political regime: Binary measure of democracy during the 1990s. Coded 1 if democracy, 0 if otherwise. A regime is considered a democracy if the executive and the legislature is directly or indirectly elected by popular vote, multiple parties are allowed, there is de facto existence of multiple parties outside of regime front, there are multiple parties within the legislature, and there has been no consolidation of incumbent advantage. Source: *the QoG standard dataset (Teorell et al 2015), originally Cheibub, Antonioi, Gandhi & Vreeland (2010).*

GDP per capita: Natural logarithm of a given country's gross domestic product per capita, averages 1990-1999. Source: *the QoG standard dataset (Teorell et al 2015), originally Gleditsch (2002).*

Population size: Natural logarithm of a given country's population size. Source: *the QoG standard dataset (Teorell et al 2015), originally The World Economic Outlook, IMF (2014).*

Government size: Total government expenditure divided by GDP, averages 1990-1999. Source: *the QoG standard dataset (Teorell et al 2015), originally The World Economic Outlook, IMF (2014).*

Trade openness: The sum of export and imports of goods and services measured as a share of GDP, averages 1990-1999. Source: *the QoG standard dataset (Teorell et al 2015), originally the World Development Indicators (Group 2012).*

Education level: Average schooling years for men and women (25+). Source: *the QoG standard dataset (Teorell et al 2015), originally Barro and Lee (2013).*

Female representation: Share of women in the lower house of parliament. Source: *the QoG standard dataset (Teorell et al 2015), originally the Inter-Parliamentary Union Data*.

Parliamentarism: Dummy variable taking the value 0 if the country was classified as a parliamentary democracy. Source: *the QoG standard dataset (Teorell et al 2015), originally Cheibub, Antonioi, Gandhi & Vreeland (2010).*

List PR: Dummy variable taking the value 0 if a country has an electoral system classified as list proportional representation, 0 if otherwise. Source: *the QoG standard dataset (Teorell et al 2015), originally Bormann and Golder (2013).*

Checks & balances: Checks and balances. Source: *the QoG standard dataset (Teorell et al 2015), originally the Database of Political Institutions (Beck et al 2001).*

Ethnic Fractionalization: The variable reflects the likelihood that two randomly selected persons from a given country will not belong to the same racial and linguistic group. Source: *the QoG standard dataset (Teorell et al 2015), originally Alesina, Devleeschauwer, Easterly, Kurlat &Wacziag (2003).*

Protestants: Protestants as percentage of the population. Source: *the QoG standard dataset (Teorell et al 2015), originally La Porta et al (1999).*

British legal origin: Dummy variable taking the value 1 if a country has British legal origin, 0 if otherwise. Source: *the QoG standard dataset (Teorell et al 2015), originally La Porta et al (1999).*

TABLE 7, SUMMARY STATISTICS FOR INCLUDED VARIABLES

Variable	Mean	Std. Dev.	Min.	Max.	N
CPI	39.163	21.387	8.64	95.73	181
WGI	-0.06	1.002	-2	2	191
FISC.DEC	20.712	14.257	2	57	73
ADM.DEC	37.84	22.359	0	93	90
POL.DEC1-Authority	0.5	0.503	0	1	78
POL.DEC2-Electoral	0.562	0.263	0.1	1	65
Democracy	5.293	3.584	0	10	180
Democracy^2	40.783	38.726	0	100	180
Log GDP/capita	8.820	1.285	5.71	11.60	189
Log Population	1.780	2.032	-4.51	5.74	163
Government size	9.10	17.438	-21	176	174
Trade openness	89.33	44.369	23	378	178
Education level	7.813	2.905	1.2	13.27	143
Female representation	15.79	10.168	0	49	189
Parliamentarism	0.269	0.445	0	1	193
List PR	0.290	0.455	0	1	193
Checks and balances	2.90	1.527	1	9	174
Ethnic fractionalization	0.44	0.257	0	1	187
Protestants	13.03	21.283	0	98	179
British colony	0.295	0.457	0	1	193
British legal origin	0.316	0.466	0	1	193

TABLE 8, COUNTRIES WITH DECENTRALIZATION DATA

FISC.DEC	ADM.DEC	POL.DEC1-Authority	POL.DEC2-Electoral
Albania	Albania	Argentina	Albania
Argentina	Algeria	Armenia	Argentina
Australia	Angola	Australia	Australia
Austria	Argentina	Austria	Austria
Bahrain	Armenia	Azerbaijan	Azerbaijan
Belarus	Australia	Bahrain	Belarus
Belgium	Austria	Bangladesh	Belgium
Bolivia	Bahamas	Belarus	Bolivia
Botswana	Bahrain	Belgium	Botswana
Brazil	Barbados	Belize	Brazil
Bulgaria	Belarus	Benin	Bulgaria
Burkina Faso	Belgium	Bhutan	Canada
Canada	Bolivia	Bosnia and Herzegovina	Chile
Chile	Botswana	Botswana	China
China	Bulgaria	Brazil	Croatia
Colombia	Cameroon	Bulgaria	Czech Republic
Costa Rica	Canada	Canada	Denmark
Croatia	Central African Republic	Central African Republic	Dominican Republic
Czech Republic	Chile	Chad	Estonia
Denmark	China	Chile	Fiji
Dominican Republic	Colombia	Colombia	Finland
Estonia	Congo	Comoros	France
Ethiopia	Croatia	Congo	Georgia
Fiji	Denmark	Democratic Republic of Congo	Germany
Finland	Ecuador	Costa Rica	Guatemala
France	Egypt	Cote d'Ivore	Hungary
Germany	Estonia	Croatia	Iceland
Hungary	Fiji	Cuba	India
Iceland	Finland	Cyprus	Indonesia
India	France	Czech Republic	Iran
Indonesia	Gabon	Dominican Republic	Iraq
Iran	Gambia	Ecuador	Ireland
Ireland	Georgia	Egypt	Israel
Israel	Germany	El Salvador	Italy
Italy	Ghana	Equatorial Guinea	Kazakhstan
Kazakhstan	Greece	Eritrea	Kenya
Kenya	Guinea Bissau	Estonia	Kyrgyzstan
Kyrgyzstan	Guyana	Ethiopia	Latvia
Latvia	Honduras	Finland	Lithuania
Lithuania	Hungary	France	Luxembourg
Luxembourg	India	Gabon	Malaysia
Malaysia	Indonesia	Georgia	Mauritius
Mauritius	Ireland	Germany	Mexico
Mexico	Italy	Ghana	Moldova
Moldova	Japan	Greece	Mongolia
Mongolia	Jordan	Grenada	Netherlands
Netherlands	Kazakhstan	Guatemala	Nicaragua
New Zealand	Kenya	Hungary	Norway
Nicaragua	Laos	India	Panama
Norway	Lebanon	Italy	Paraguay
Panama	Lithuania	Kuwait	Peru
Paraguay	Macedonia	Luxembourg	Philippines
Peru	Malta	Malaysia	Poland
Philippines	Mauritius	Mexico	Portugal
Poland	Moldova	Morocco	Romania
Portugal	Morocco	Mozambique	Russia
Romania	Myanmar	Nepal	Senegal
Russia	Netherlands	Nigeria	Slovakia
Slovakia	New Zealand	Oman	Slovenia
Slovenia	Norway	Philippines	South Africa
South Africa	Pakistan	Russia	Spain
Spain	Philippines	Senegal	Sweden
Sri Lanka	Poland	Serbia	Tajikistan
Swaziland	Portugal	Singapore	Trinidad and Tobago
Sweden	Russia	Slovenia	United Kingdom
Switzerland	Senegal	South Africa	United States
Tajikistan	Singapore	Spain	Zimbabwe
Thailand	Slovakia	Sudan	
Trinidad and Tobago	South Africa	Sweden	
United Kingdom	South Korea	Switzerland	
United States	Spain	Taiwan	
Uruguay	Sri Lanka	Timor-Leste	
Zimbabwe	Sweden	Trinidad and Tobago	

Switzerland	United Arab Emirates
Syria	United Kingdom
Tanzania	United States
Thailand	Uzbekistan
Togo	Venezuela
Tunisia	
Turkey	
Uganda	
Ukraine	
United Kingdom	
United States	
Uruguay	
Venezuela	
Vietnam	
Yemen	
Zambia	
Zimbabwe	

TABLE 9, SUMMARY STATISTICS FOR INCLUDED INDEPENDENT VARIABLES

	FISC.DEC	ADM.DEC	POL.DEC1-Authority	POL.DEC2-Electoral	Democracy	Log GDP/capita	Log population	Government size	Trade openness	Education level	Female representation	Parliamntarism	List PR	Checks & balances	Ethnic fractionalization	Protestants	British legal origin
FISC.DEC	1.000	0.687*	0.313	0.173	0.183	0.358*	0.255*	-0.051	-0.183	0.293*	0.314*	0.186	-0.003	0.221	-0.188	0.327*	-0.081
ADM.DEC		1.000	0.516*	0.331*	0.265*	0.299*	0.405*	0.197	-0.255*	0.305*	0.243*	0.168	0.109	0.233*	-0.316*	0.162	-0.136
POL.DEC1-Authority			1.000	0.272	0.429*	0.276*	0.353*	0.089	-0.118	0.242	0.257*	0.235*	0.109	0.409*	-0.125	0.156	0.087
POL.DEC2-Electoral				1.000	0.393*	0.416*	0.363*	-0.015	-0.171	0.349*	0.296*	0.091	-0.105	0.207	-0.271*	0.093	-0.073
Democracy					1.000	0.490*	-0.167*	0.006	0.078	0.612*	0.162*	0.591*	0.325*	0.611*	-0.460*	0.358*	0.141
Log GDP/capita						1.000	-0.016	-0.042	0.283*	0.775*	0.205*	0.320*	0.218*	0.139	-0.385*	0.096*	-0.069
Log Population							1.000	0.060	-0.391*	-0.132	0.186*	-0.222*	0.036	-0.015	0.179*	-0.292*	-0.206*
Gov. size								1.000	-0.010	0.118	-0.035	0.018	0.036	0.009	-0.058	-0.049	-0.081
Trade openness									1.000	0.208*	0.029	0.097	-0.014	0.032	-0.111	0.034	0.052
Education level										1.000	0.181*	0.377*	0.307*	0.285*	-0.469*	0.266*	-0.043
Female represe.											1.000	0.039	0.303*	0.098	-0.063	0.202*	-0.182*
Parliamentarism												1.000	0.075	0.445*	-0.278*	0.270*	0.240*
List PR													1.000	0.281*	-0.141	0.033	-0.336*
Checks & balances														1.000	-0.263*	0.325*	0.141
Ethnic fraction.															1.000	-0.205*	0.046
Protestants																1.000	0.278*
British legal origin																	1.000

Appendix 2: Robustness tests

TABLE 10, OLS CROSS-COUNTRY ESTIMATES. DEPENDENT VARIABLE: WGI

	Model 1	Model 2	Model 3	Model 4
Log GDP/capita	0.445*** (0.095)	0.445*** (0.094)	0.300*** (0.102)	0.653*** (0.123)
Log population	-0.087** (0.043)	-0.148*** (0.056)	-0.144** (0.062)	0.015 (0.052)
Government size	0.004 (0.003)	0.006 (0.007)	0.016 (0.010)	-0.004 (0.008)
Democracy	-0.352*** (0.095)	-0.230* (0.123)	-0.180 (0.150)	-0.045 (0.130)
Democracy^2	0.034*** (0.009)	0.020* (0.011)	0.017 (0.014)	0.011 (0.375)
FISC.DEC	-0.039*** (0.012)			
FISC.DEC * Democracy	0.006*** (0.001)			
ADM.DEC		-0.020** (0.009)		
ADM.DEC * Democracy		0.003** (0.001)		
POL.DEC1-Authority			-0.402 (0.416)	
POL.DEC1 * Democracy			0.118* (0.061)	
POL.DEC2-Electoral				-2.172** (0.893)
POL.DEC2 * Democracy				0.176 (0.116)
Intercept	-3.392*** (0.864)	-3.259*** (0.932)	-2.340** (1.063)	-5.773*** (1.093)
Obs.	66	72	59	57
Adj. R^2	0.801	0.702	0.544	0.777

Comment: **p<0.10; **p<0.05; ***p<0.01; Standard errors in parentheses*