International Center for Public Policy
Working Paper 18-08
February 2018

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Decentralization and Governance in Europe: Evidence from Different Expenditure Components

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Abstract

In this article, we consider the impact of fiscal decentralization on government quality by way of disaggregated measures of the former. Specifically, we break down fiscal decentralization into sub-central expenditure on public procurement and compensation of public sector employees. We find that decentralizing public procurement is bad for government performance while the decentralization of public sector wages improves governance. We relate the negative effect to the rent-seeking activity of interest groups and the positive effect to the informational advantage of sub-central provision. Moreover, we explore the impact of the Great Recession on our results and find that it is associated with stronger negative and positive effects of decentralization on governance, something which is consistent with the observed increased in the degree of decentralization since 2007.

Key words Fiscal decentralization, public procurement, public service provision, good governance

JEL codes D72, D73, H11, H72

Acknowledgments

A previous version of this paper was presented at the 3rd International Conference on "Decentralization after the Great Recession: Fine-tuning or Paradigm Change?", Santiago de Compostela, 26-27 October 2017, organized by GEN (University of Vigo) . This conference was financially supported by the Spanish Ministry of Science and Innovation (CSO2013-40723-C2-1-R and CSO2013-40723-C2-2-R), AIReF (Independent Authority for Fiscal Responsibility), the University of Vigo and ECOBAS.

Introduction

Over the last several decades there has been a global trend towards the fiscal decentralization of the state with the aim of attaining a range of economic, social and political outcomes (see Martinez-Vazquez et al., 2017 for a comprehensive recent survey). One such objective is government efficiency or quality that includes the relative absence of corruption, the prevalence of rule of law and the efficient provision of public goods and services (La Porta et al., 1999; Kyriacou, 2014). In this vein, it has been suggested that fiscal decentralization, or the assignment of tax and spending autonomy to sub-central governments, has the potential to improve governance in the public sector. The basic idea is that at sub-central levels both government and citizens are better informed something which should improve the provision of public services. Moreover, decentralization can introduce an element of competition among sub-central governments, competition for tax base, to the benefit of efficiency. But proximity also has its dangers since it may increase the capacity of special interests to capture public officials. And competition can lead to a (tax) race to the bottom thus hollowing out state capacity.

The empirical evidence to date is strongly supportive of the expectation that fiscal decentralization can benefit government quality. Fiscal decentralization has been associated with lower corruption and better governance more generally defined. But this evidence is based on indicators of fiscal decentralization measuring total sub-national government spending or revenue as a percentage of total general government spending or revenue. To date, no study has considered how, and the extent to which, different components of public spending or revenue can impact on governance. That this may be the case on the revenue side, is suggested by the fiscal federalism literature that relates the degree of inter-jurisdictional competition to the mobility of the tax base. Competition and thus the disciplining effect on local governments are enhanced when taxes are levied on more mobile tax base through, for example, company or sales taxes.

In this article, we will focus instead on the expenditure side by analyzing the extent to which the potential effects of decentralization on governance depend on the nature of public expenditure. We argue that sub-central government spending on public procurement undermines government quality because this type of spending is subject to government discretion and involves projects that concentrate a large volume of rents and, as such, is more vulnerable to interest group capture. Alternatively, sub-central spending on public sector wages is likely to improve governance because it does not combine concentrated rents and discretion and, moreover, because it reflects public service provision and thus may pick up the information advantages of decentralization. We provide empirical evidence supporting this intuition from a sample of 31 European countries over the period 1995 to 2015. Our results are robust to the use of several governance and decentralization indicators, a host of control variables as well as methods that address reverse causality concerns.

Another contribution of this article is the consideration of the impact of fiscal decentralization on governance – based on disaggregated measures of the former – before and after 2007. That is, we explore the extent to which the Great Recession has affected the relationship between our key variables. We observe that the degree of fiscal decentralization of public procurement spending and public employee compensation has generally increased after 2007 something that, according to our reasoning, should both worsen the problems of capture and enhance the benefits expected from informational advantages. And indeed, our empirical evidence supports this expectation because we find that the negative impact on governance of decentralization of public procurement is larger and more robust during the period 2008-2015. Similarly, after 2007 the positive impact of sub-central expenditure of public employee compensation increases.

The paper is structured as follows. In the next section, we review theoretical and empirical work that has discussed how fiscal decentralization impacts on government quality and make the case for analyzing the components of decentralization. Having done so, we then discuss the key indicators employed in the paper to conduct the empirical analysis – focusing also on how these have evolved after 2007. We then present the empirical methodology adopted in the article as well as our empirical findings before concluding.

Theory and existing evidence

The theoretical arguments concerning the impact of fiscal decentralization on government quality are ambiguous. Thus, it has been argued that fiscal decentralization will improve government performance: because it empowers sub-central governments who are expected to be better informed about citizen needs (Oates, 1972); because it empowers citizens who may be better informed about local compared to central government performance (Seabright, 1992), perhaps because they can use the performance of other sub-central governments as a benchmark (Salmon 1987, Breton, 1996), and; because it launches a process of inter-jurisdictional competition for fiscal resources that disciplines local governments and drives them towards efficiency (Brennan and Buchanan, 1980). But fiscal decentralization can also potentially undermine government quality: proximity to citizens can lead to government capture by special interests since relations tend to be more intimate and personal in nature and because local government being less prestigious and powerful than central government may be less intensely monitored (Prud'homme, 1995; Tanzi, 1995; Bardhan, 2002); fiscal competition undermines the fiscal capacity of local governments (Keen and Marchand, 1997; Oates, 1999); the creation of additional government levels makes it more difficult for citizens to discern who is responsible for good or bad policy (Tavits, 2007) and can lead to fiscal or regulatory `overgrazing' (Shleifer and Vishny, 1993).

The empirical evidence overwhelmingly supports the expectation that fiscal decentralization will enhance government performance. A range of scholars have found that fiscally decentralized countries tend to be less corrupt (for example, Fisman and Gatti, 2002 and Fan, et al., 2009) while others have found that fiscal decentralization has a positive effect on a range of governance indicators besides control of corruption (De Mello and Barenstein, 2001; Enikolopov and Zhuravskaya, 2007, Kyriacou and Roca-Sagalés, 2011a, 2011b; Kyriacou, et al., 2017). When calibrating the relationship between fiscal decentralization and governance, scholars have employed aggregate measures of fiscal decentralization either on the expenditure or revenue sides, at times taking into account inter-governmental transfers in an effort to capture sub-central governments' fiscal autonomy.

To the best of our knowledge, no study has yet to explore the relationship between fiscal decentralization and governance by way of disaggregated measures of the former. But it could be that different expenditure items and revenue sources may behave differently. For example, decentralizing taxes on more mobile agents such as firms is likely to intensify inter-jurisdictional competition significantly more than taxes on less mobile actors such as wage earners or property owners. Or differences in excise taxes across regions may lead consumers to shop across jurisdictional boundaries thus enhancing inter-jurisdictional competition. The optimal taxation or revenue structure across different government levels refers, of course, to the "tax assignment problem" which has been identified and extensively studied in the context of classic fiscal federalism (see, Oates 1999 for a review of related work).

Rather than consider the revenue side, our focus here is to examine the possibility of differential effects emerging when decentralizing different components of public expenditure. Specifically, we break down fiscal decentralization into two different components: public procurement

spending and compensation of public sector employees. Public procurement refers to the acquisition of goods and services by the state. Specifically, general government procurement is defined as the sum of intermediate consumption, gross fixed capital formation and social transfers in kind via market producers. Compensation of public employees refers to the wage of government employees plus non-wage costs such as social contributions. Our measures of the degree of decentralization of public procurement and compensation of employees reflect public spending by sub-central governments as a percentage of total spending in these areas.

We expect public procurement spending to be the most vulnerable to misallocation. Misallocation would emerge when public procurement contracts are assigned to a closed network of insiders and denied to all others (Fazekas and Ferrando 2015). It may mean that the officials entrusted with the purchase choose the best briber rather than the supplier offering the best price-quality combination, something that will tend to inflate the cost of the purchase for the public purse at the same time as it undermines quality (Soreide 2002). One reason for the relative vulnerability of public procurement to misallocation is that this type of expenditure, which includes capital spending, is highly discretional (see, also, Tanzi and Davoodi, 1997). Another reason is that public procurement spending includes spending on large public projects whose cost may be difficult to ascertain thus making it vulnerable to rent-seeking activities (Shleifer and Vishny 1993; Mauro 1998)[1].

Based on this, one would expect the problem of capture by local actors alluded to by those warning of the dangers of fiscal decentralization, to be greater when decentralizing fiscal resources whose expenditure is discretionary and can involve large projects that provide opportunities for rent creation. Such is the nature of public procurement and we would therefore expect that, ceteris paribus, the decentralization of public procurement to have a negative impact on government quality. Alternatively, spending on public employee compensation is less vulnerable to capture because it is neither discretionary nor does it present an important and concentrated source of rents. Moreover, public sector wages are, by definition, paid to public employees working in administration, education, health and other sectors. As such, compensation of public employees is inherently linked to the provision of public services. Recall that one of the potential benefits of fiscal decentralization is that it empowers local governments and citizens who are better informed, thus allowing for more efficient provision. From this perspective, one would expect decentralized compensation of employees, as a proxy for decentralized public service provision, to be positively associated with government quality.

Key indicators

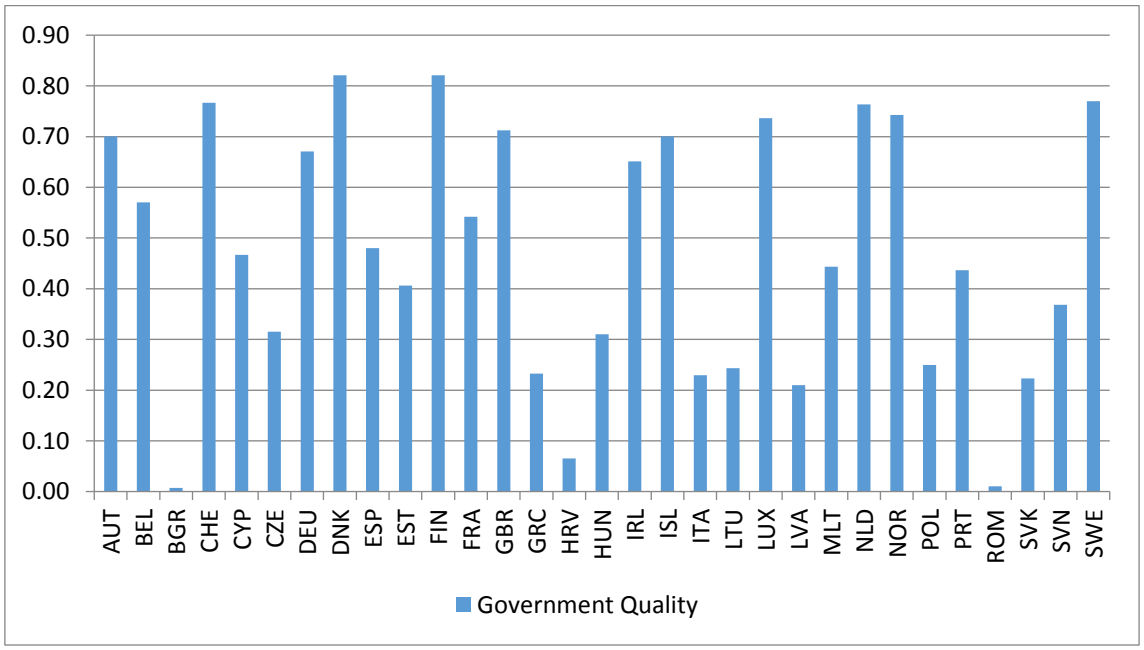
Good governance is impartial governance in that public officials implement laws and policies regardless of personal preferences and relationships (Rothstein and Teorell, 2008). This means that public resources are allocated according to impersonal criteria motivated by efficiency concerns rather than in response to the private interest of public officials and economic interest groups. It requires the rule of law or the application of law equally to all regardless of their position. It implies that the public administration is recruited meritocratically, that it is independent from political pressures, and that it provides public services efficiently.

Accordingly, we measure government quality by way of the World Bank Government Indicators that capture perceptions of experts across a range of governance dimensions (Kaufmann et al.,

[1] This same rationale – large projects combined with government discretion – has been used to explain the strong link between corruption and the importance of the natural resource (Ades and Di Tella 1999; Busse and Gröning 2013) and construction (private and public) sectors (Kyriacou et al. 2015).

2010). Specifically, we focus on four dimensions: control of corruption capturing perceptions of the extent to which public power is exercised for private gain; rule of law or the extent to which agents have confidence in, and abide by, the rules of society; regulatory quality or perceptions of the ability of the government to formulate and implement sound policies and regulations and; government effectiveness capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures. These government dimensions are likely to be inherently related since they capture the notion of good governance as impartial application of laws, regulations and policies. This may be one reason for the very high statistical correlations among these four dimensions (Langbein and Knack, 2010). Because of this, we take the mean value that results when combining these four dimensions to generate an aggregate measure of good governance that ranges from -1 to 1 with higher values reflecting better governance. In our sample, high values correspond to the Nordic countries and also the Netherlands and Germany, while the majority of the transition economies (especially Bulgaria, Romania and Croatia) and also Greece and Italy are assigned lower values (see Figure 1).

Figure 1. Government Quality (mean period 1995-2015)

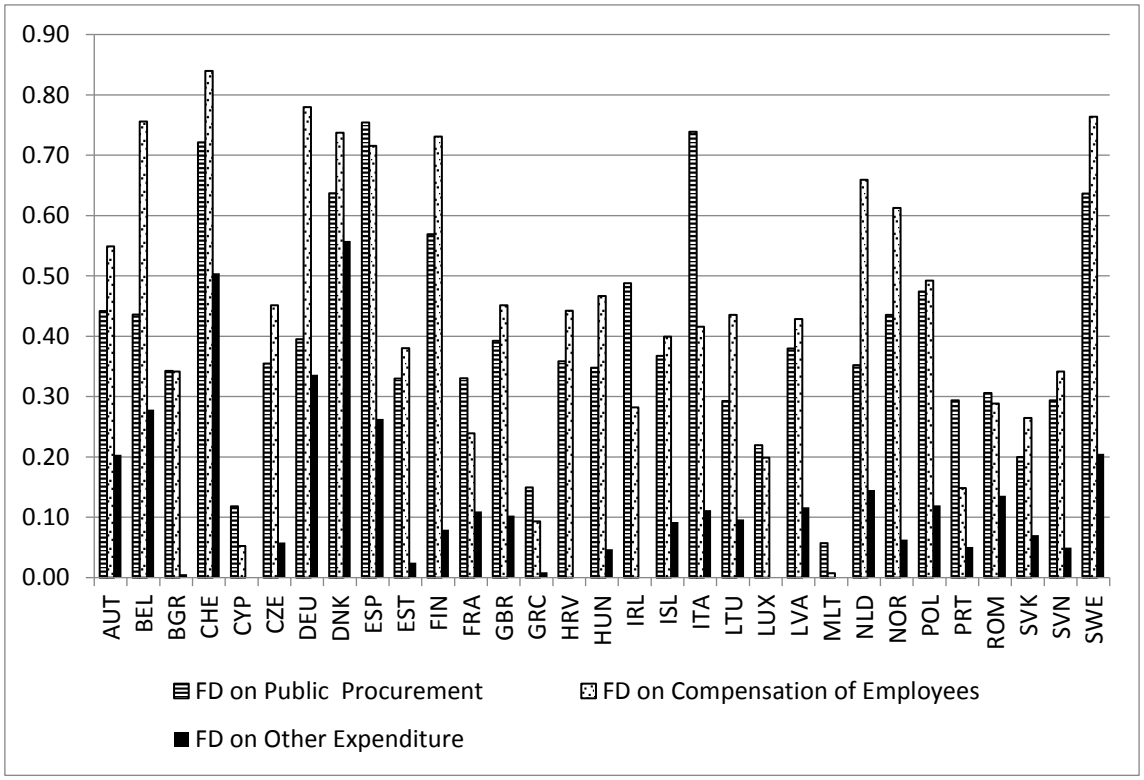


Source: World Governance Indicators.

To measure fiscal decentralization, we turn to Eurostat which reports both aggregate and disaggregate indicators. Fiscal decentralization in aggregate is sub-national expenditure as a percentage of general government expenditure. We break down this aggregate measure into three sub-components; public procurement spending, compensation of public employees and a residual catch-all category for the remainder of sub-national spending. Public procurement refers to the purchase of goods and services consumed by the government during its production process (intermediate consumption), acquisitions, less disposals, of fixed assets during a given period plus certain additions to the value of non-produced assets realized by the productive activity of producer or institutional units (gross fixed capital formation) and individual goods and services provided as transfers in kind to individual households by government units and purchased on the market (social transfers in kind via market producers). Compensation of public employees refers to the wages of government employees plus non-wage costs such as

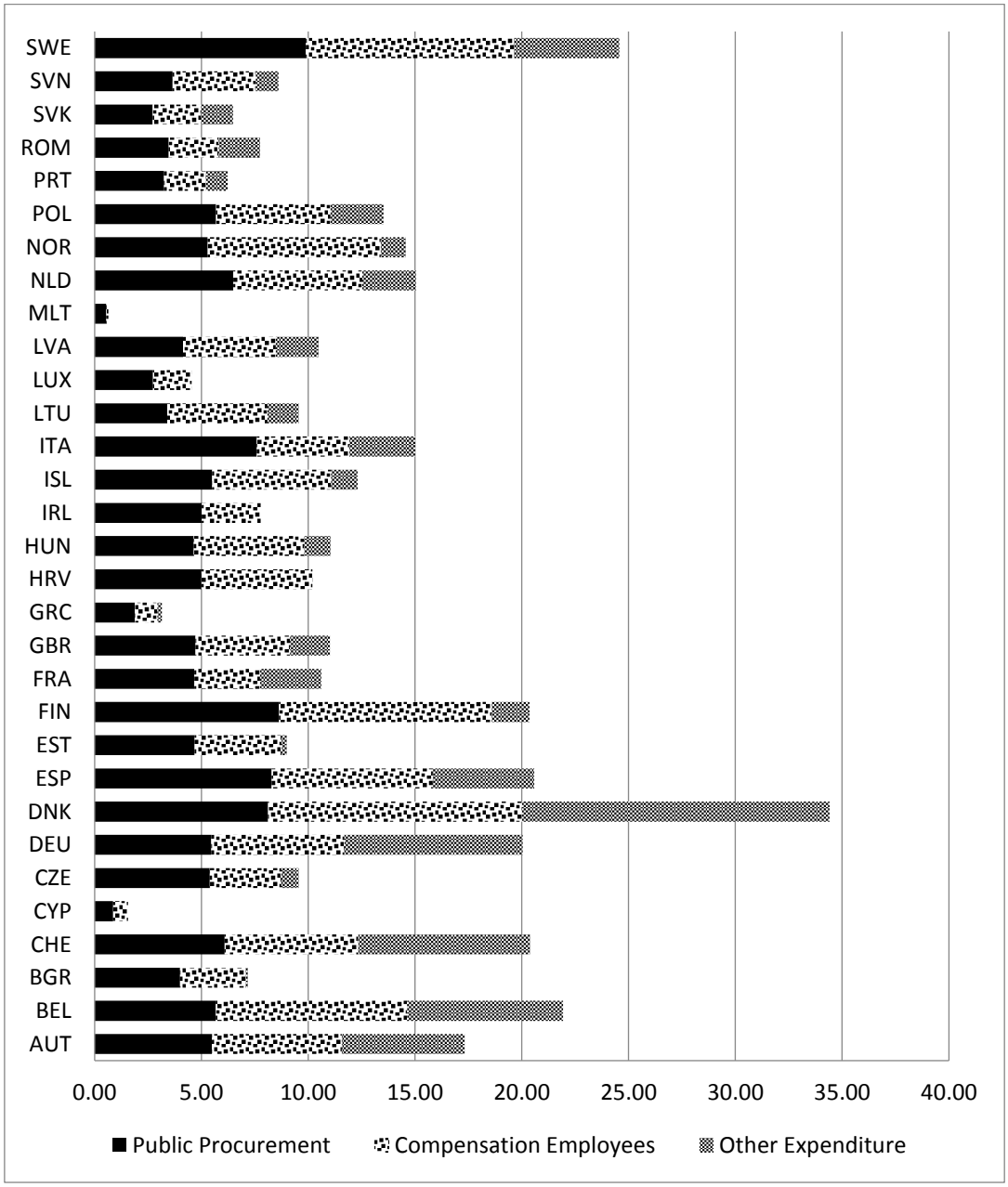
social contributions. The residual category includes a range of items such as social benefits other than social transfers in kind, subsidies and capital transfers payable. When combined with our chosen measure of governance, this data yields an unbalanced panel sample of 31 European countries, the 28 EU member states plus Iceland, Norway and Switzerland, over the period 1995 to 2015. It is notable that in this sample, decentralization refers exclusive to local government in 26 out of 31 countries. The exceptions are Austria, Belgium, Switzerland, Germany and Spain where decentralization also includes the regional level.

Figure 2. Fiscal Decentralization of Public Expenditure by Components (mean period 1995-2015)



Source: Eurostat.

Figure 3. Sub-central Public Expenditure as a % of GDP by Components (mean period 1995-2015)



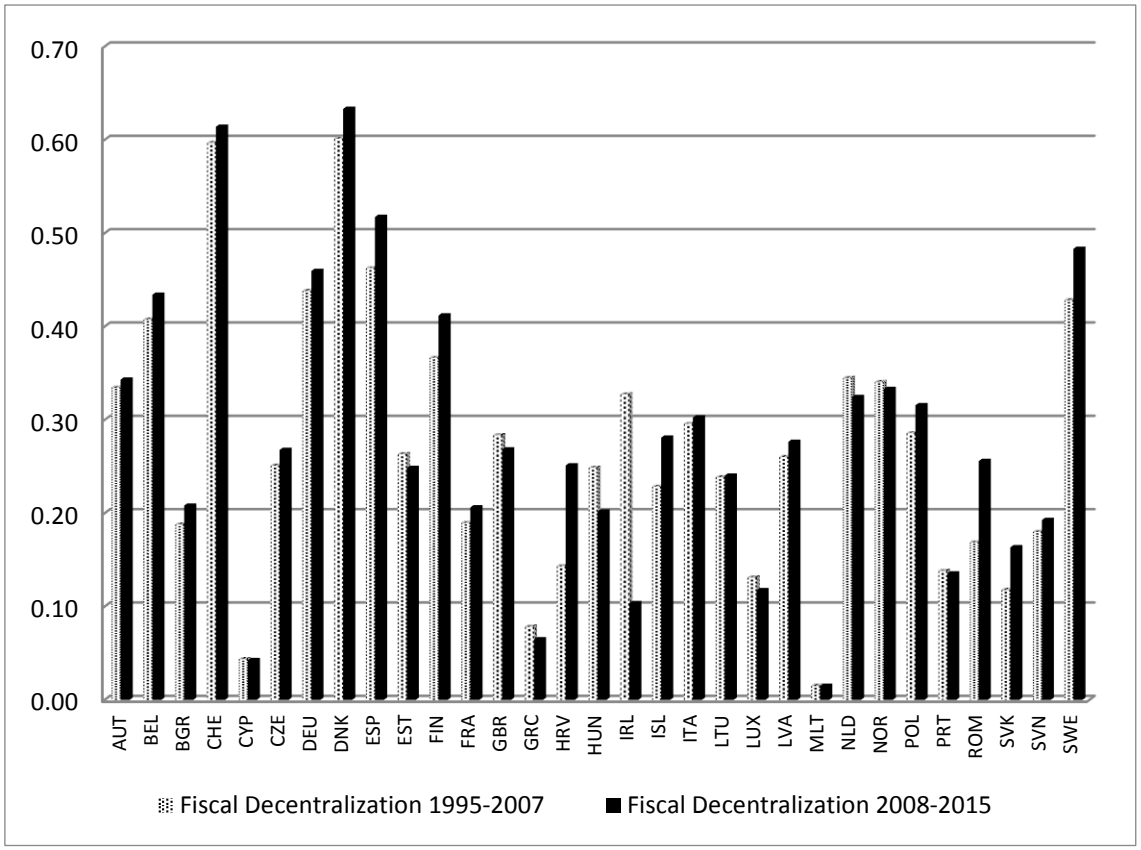
Source: Eurostat.

To present an overview of the importance of fiscal decentralization by country, in figure 2 we show the share of subnational expenditure by components in means for the whole period (1995-2015). We observe high levels of decentralization in the compensation of employees component across countries: in Switzerland, Germany, Sweden and Belgium more than 75% of public salaries are paid by subnational authorities, and in other 6 countries this percentage is higher than 50%. Decentralization is also high in the case of public procurement: in 6 countries, led by Spain and Italy, the subnational authorities spend more than half of the resources dedicated to public procurement, and in 16 countries they spend more than a third. By contrast, the levels of decentralization in the case of the rest of expenditure are clearly lower since this is below 10%

in 17 countries and just 3 countries have levels above 30%. Figure 2 also shows that subnational expenditure, no matter the component, is extremely limited in Malta, Cyprus and Greece.

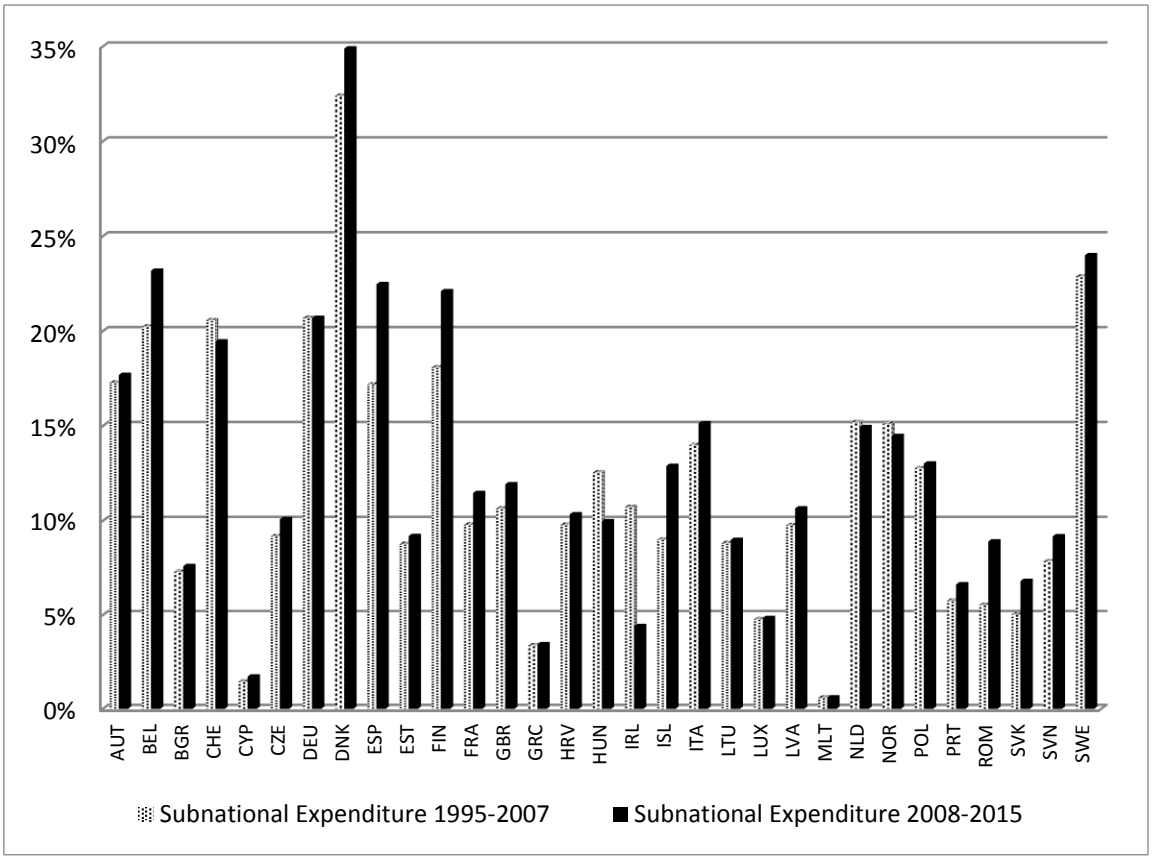
To illustrate the relative volume of resources spent by subnational governments, Figure 3 presents the amount of the three expenditure components in terms of share of GDP and in means for the whole period (1995-2015). Again, there are major differences across countries: in 7 countries, the subnational authorities spend a volume of resources representing more than 17% of their GDP (this group includes the 5 countries where regional expenditure decentralization is relevant as well as Denmark, Sweden and Finland), while on the other end in 4 countries the subnational authorities spend less than 5% of their GDP (this is the case of Malta, Cyprus, Greece and Luxembourg). On the other hand, Figure 3 shows that the public procurement and compensation of employees components are generally more important than the rest of expenditure with the exception of Denmark and, to a lesser extent, Germany, Switzerland, Belgium and Austria.

Figure 4. Fiscal Decentralization of Public Expenditure (means 1995-2007 and 2008-2015)



Source: Eurostat.

Figure 5. Sub-central Public Expenditure as a % of GDP (means 1995-2007 and 2008-2015)



Source: Eurostat.

In figure 4 we consider how aggregate fiscal decentralization evolves after 2007 or, in the context of the Great recession. We break down the mean values per country into two sub-periods namely 1995-2007 and 2008-2015. The figure is suggestive of a trend towards greater fiscal decentralization after 2007 in most countries. This pattern is confirmed when we break down fiscal decentralization into the two components we analyze in this article as can be seen in figures A1 and A2 in the appendix (respectively showing decentralized public procurement and compensation of public employee spending). We pursue the evolution of fiscal decentralization after 2007 further in figure 5 where we show aggregate fiscal decentralization in terms of GDP in the period 1995-2007 and during 2008-2015. Again, a general trend emerges showing an increase in the relative volume of resources spent by sub-central governments after 2007. And this pattern also emerges when considering sub-central spending on public procurement and compensation of employees in terms of GDP (see, respectively, figures A3 and A4 in the appendix). Taken together, figures 4 and 5 indicate that fiscal decentralization has increased since the Great Recession (for a similar finding, see also OECD/KIPF (2016) and De Mello and Jalles, 2018). Given our previous discussion in section 2, we would expect this to worsen the problem of capture by special interests in the case of public procurement. Moreover, by increasing the information available to sub-central government and citizens it should improve the efficient provision of public services, something that could be picked up by an increase in the degree of decentralization of public sector wages.

Empirical methodology and results

We estimate the following empirical model:

$$\text{Government Quality}_{it} = \beta_0 + \beta_1 DPP_{it} + \beta_2 DCE_{it} + \beta_3 X_{it} + \varepsilon_{it} \quad (1)$$

Where i and t refer to countries and years respectively, DPP is decentralization of public procurement spending, DCE is decentralization of compensation of public sector employees, X is a vector of control variables and ε an error term. We estimate the model with OLS based on panel corrected standard errors (PCSE) that are robust to heteroscedasticity and serial correlation between the residuals of a given cross-section (Period SUR). We always include period fixed effects to account for the impact of time varying factors affecting all countries. Country fixed effects are not employed because of the limited within-country variation compared to the cross-section variance (for example, our base governance indicator has a mean value of 4.716 and a within standard deviation of 0.522 compared to a between deviation of 2.548). We estimate the model using annual data and four-year averages, that latter, to control for the business cycle and focus on the structural relationship between the key variables of interest.

Our choice of control variables is inspired by previous work and is ultimately guided by the need to reduce omitted variable bias. We control for the degree of decentralization of remaining public expenditure, beyond public procurement and compensation of employees, to account for the total degree of fiscal decentralization. We also control for GDP per capita since both good governance and decentralization may be expensive (Islam and Montenegro, 2002 Wheare, 1964). We account for country size (here proxied by GDP) since it may be easier to govern small countries or, alternatively, there may be economies of scale in the provision of good governance (Knack and Azfar, 2003), and because large countries tend to be more decentralized (Panizza, 1999). Moreover, we control for total expenditure (in terms of GDP) on public procurement, employee compensation and other spending undertaken by central and sub-central governments since the size of the public sector determines the availability of rents that can be dedicated towards good governance or, alternatively, that can be employed inefficiently or even appropriated through corruption (Tanzi, 1998; Montinola and Jackman 2002). We control for membership of the European Union since EU laws and policies may have an impact on governance and public expenditure. Further, we account for the degree of political autonomy enjoyed by local governments since political decentralization may also impact on the quality of governance (Enikolopov and Zhuruvskaya, 2007; Kyriacou and Roca 2011a,b) and because most of the sub-central expenditure in our sample is undertaken by local governments. We also include in our matrix of control variables the percentage of the population affiliated with Protestantism since previous work has argued that this religion may promote values – individualism, egalitarian social relations, education – that make people more likely to challenge public officials (Treisman, 2000). Protestantism may also impact on the size and composition of public spending (La Porta et al., 1999) perhaps due to its emphasis on thrift and work. Finally, we control for the extent to which the country is ethnically fractionalized since heterogeneity may have a negative impact on governance because it makes agreement on government policy more difficult (Alesina et al. 1999) and because it can undermine social capital and facilitates secessionism (Alesina and Zhuruvskaya 2011; Kyriacou and Morral-Palacín, 2015). Ethnic heterogeneity may also impact on the degree of decentralization: either increasing it in response to demands by ethnic groups for more autonomy (Panizza, 1999; Alesina and Spolaore, 2003) or

decreasing it insofar as central governments resist decentralization to avoid secessionism (Arzaghi and Henderson, 2005; Tanzi, 2000).[2]

Table 1. Fiscal Decentralization and Government Quality.

Dependent variable: Government Quality (WGI)	(1) Annual All sample	(2) Annual All sample	(3) 4 year means All sample	(4) 4 year means All sample	(5) Annual 1996-2007	(6) Annual 1996-2007	(7) Annual 2008-2015	(8) Annual 2008-2015
FD Total Expenditure	2.764**		2.728*		3.102**		2.767*	
	(1,368)		(1,462)		(1,419)		(1,482)	
FD Public Procurement		-2.263**		-2.120*		-1.912		-2.861**
		(1.131)		(1.229)		(1.182)		(1.247)
FD Compensation of Employees		2.827***		2.965**		2.937***		3.567***
		(1,082)		(1,206)		(1,092)		(1,305)
Log of GDP	-0.272***	-0.238*	-0.270**	-0.247*	-0.281**	-0.244*	-0.308**	-0.235*
	(0.117)	(0.127)	(0.120)	(0.137)	(0.119)	(0.131)	(0.124)	(0.134)
Log of GDP per capita	2.554***	2.561***	2.564***	2.583***	2.386***	2.408***	3.010***	2.933***
	(0,227)	(0,210)	(0,237)	(0,225)	(0,230)	(0,215)	(0,264)	(0,248)
Total Expenditure	-0.011		-0.011		-0.008		-0.036	
	(0,020)		(0,022)		(0,022)		(0,023)	
Public Procurement		-0.013		-0.032		0.003		-0.078
		(0.052)		(0.061)		(0.058)		(0.060)
Compensation of Employees		0.016		-0.001		0.026		0.020
		(0,071)		(0,081)		(0,075)		(0,076)
Rest of Expenditure		-0.040*		-0.032		-0.049*		-0.048**
		(0,022)		(0,027)		(0,028)		(0,024)
FD Rest of Expenditure		1.928		1.459		2.045		0.877
		(1,386)		(1,445)		(1,494)		(1,474)
EU member	0.799***	0.818***	0.821***	0.849***	0.815***	0.837**	1.574***	1.552***
	(0,285)	(0,258)	(0,291)	(0,269)	(0,312)	(0,284)	(0,516)	(0,472)
Political Decentralization	-0.906	-0.913	-0.888	-1.078	-1.335	-0.097	-1.406	-1.425
	(1,149)	(1,114)	(1,184)	(1,208)	(1,202)	(1,142)	(1,222)	(1,234)
Protestant	1.555***	1.200**	1.542***	1.203**	1.474***	1.031**	1.747***	1.585***
	(0,510)	(0,484)	(0,535)	(0,517)	(0,503)	(0,499)	(0,561)	(0,521)
Ethnic Fractionalization	-1.412	-1.847*	-1.404	-1.938*	-1.579	-2.058**	-1.454	-1.622
	(1.004)	(0.996)	(1.049)	(1.078)	(1.016)	(1.026)	(1.085)	(1.055)
Adjusted R^2	0.88	0.90	0.88	0.90	0.89	0.91	0.89	0.91
Observations	604	602	151	151	356	354	248	248

Notes: Standard Errors in parentheses. *, **, *** measures statistical significance at the 10, 5 and 1% levels respectively. WGI refers to the World Governance Indicators. All regressions report OLS using Period SUR weights and include a constant (not shown).

Table 1 reports a first group of empirical results. In columns 1 (with annual data) and 3 (with four year means) we regress our preferred governance indicator on the aggregate measure of fiscal decentralization and, in line with previous work, find a positive and statistically significant association. Things change however when we disaggregate fiscal decentralization down to public procurement and compensation of public employees. The degree of decentralization of public procurement and compensation of employees spending are, respectively, negatively and positively associated with good government – and both associations are statistically significant as shown in columns 2 (annual data) and 4 (four year means). This is consistent with the expectation that spending on public procurement may be vulnerable to misallocation in more

[2] See the supplementary appendix for the data sources and definitions as well as the summary statistics and the countries included in the sample (Tables SA.1, SA.2 and SA.3 respectively).

decentralized settings while the decentralization of public services (proxied here by public sector wages) may improve delivery because of informational advantages. Insofar as the control variables are concerned the results indicate a robust negative association between good governance and the size of the economy and a positive association between the former and GDP per capita, EU membership and Protestantism[3].

In table 1 we also pursue the question of whether the relationship between fiscal decentralization and governance differs before and after 2007. As previously explained, the degree of fiscal decentralization generally increases somewhat after 2007. Given our theoretical discussion, this should translate to a stronger negative association between decentralized public procurement spending and governance after 2007 and a stronger positive association between decentralized public employee compensation and governance after this year. And indeed, this is what we observe in columns 5 to 8 of table 1 where we split the sample into two sub-periods: 1996-2007 and 2007-2014. While the association between governance and aggregate fiscal decentralization is positive and statistically significant in both periods (columns 5 and 7), the impact of the two components of fiscal decentralization changes. Decentralized public procurement is not statistically associated with governance in the period 1996-2007, while both the size and statistical significance of this (negative) association emerges during the period 2007-2014. With regards decentralized compensation of employees, the association is positive and statistically significant during the first half of the period and strength of this association increases in the second half of the period. These results are consistent with the expectation that decentralizing public procurement may be inimical to good government while decentralizing public service provision will tend to improve governance.

[3] Our measure of Protestantism comes from North et al. (2013) and reflects the percentage of population affiliated with this religion in 1900. The reason for using historical rather than more contemporary values is because religious affiliation has tended to fall over time, but the values represented by Protestantism may persist. Thus, using contemporary values of affiliation may underestimate the continuing impact of these values on governance and public spending.

Table 2. Fiscal Decentralization and Government Quality. Including Other Control Variables.

Dependent variable: Government Quality (WGI)	(1) All sample	(2) 1996-2007	(3) 2008-2014	(4) Means All sample	(5) All sample	(6) 1996-2007	(7) 2008-2014	(8) Means All sample
FD Total Expenditure	3.357**	3.452**	3.165**	3.439**				
	(1.338)	(1.413)	(1.533)	(1.456)				
FD Public Procurement					-2.058*	-1.918	-2.572**	-2.124*
					(1.124)	(1.195)	(1.252)	(1.247)
FD Compensation of Employees					3.375***	3.372***	4.086***	3.705***
					(1,112)	(1,152)	(1,363)	(1,273)
Log of GDP	-0.130	-0.130	-0.212	-0.114	-0.123	-0.112	-0.182	-0.097
	(0.136)	(0.154)	(0.145)	(0.142)	(0.172)	(0.202)	(0.182)	(0.189)
Log of GDP per capita	1.851***	1.793***	2.392***	1.838***	2.056***	1.986***	2.583***	2.042***
	(0,492)	(0,515)	(0,668)	(0,523)	(0,455)	(0,478)	(0,609)	(0,496)
Total Expenditure	-0.003	-0.002	-0.022	-0.005				
	(0.020)	(0.024)	(0.024)	(0.023)				
Public Procurement					0.026	0.039	-0.038	-0.002
					(0.054)	(0.062)	(0.067)	(0.063)
Compensation of Employees					0.072	0.070	0.074	0.071
					(0,079)	(0,087)	(0,090)	(0,092)
Rest of Expenditure					-0.035	-0.041	-0.042*	-0.032
					(0,022)	(0,030)	(0,025)	(0,028)
FD Rest of Expenditure					1.762	2.047	0.688	1.270
					(1,345)	(1,496)	(1,427)	(1,426)
EU member	0.560**	0.593*	1.188**	0.562*	0.458*	0.488*	1.096**	0.446
	(0,279)	(0,314)	(0,587)	(0,294)	(0,261)	(0,289)	(0,534)	(0,276)
Political Decentralization	-0.646	0.050	-1.493	-0.674	-0.484	0.223	-1.363	-0.615
	(1,115)	(1,185)	(1,203)	(1,174)	(1,126)	(1,220)	(1,248)	(1,256)
Protestant	1.777***	1.760***	1.804***	1.814***	1.263**	1.186**	1.436***	1.310**
	(0,498)	(0,528)	(0,538)	(0,534)	(0,489)	(0,535)	(0,535)	(0,531)
Ethnic Fractionalization	-1.960*	-2.002*	-1.854	-1.979	-2.442**	-2.512**	-2.487**	-2.548**
	(1.111)	(1.141)	(1.317)	(1.200)	(1.073)	(1.130)	(1.230)	(1.182)
Inequality	0.002	0.007	-0.010	-0.003	0.054	0.050	0.057	0.060
	(0,043)	(0,044)	(0,056)	(0,048)	(0,043)	(0,044)	(0,057)	(0,048)
Openness	0.880**	0.870*	0.556	0.917**	0.833*	0.816	0.609	0.903**
	(0,425)	(0,508)	(0,475)	(0,449)	(0,424)	(0,513)	(0,476)	(0,454)
Transition Economies	-0.621	-0.552	-0.436	-0.621	-0.500	-0.426	-0.295	-0.512
	(0,659)	(0,712)	(0,779)	(0,695)	(0,605)	(0,674)	(0,697)	(0,648)
Adjusted R^2	0.90	0.90	0.90	0.90	0.91	0.91	0.92	0.91
Observations	536	343	193	147	534	341	193	147

Notes: Standard Errors in parentheses. *, **, *** measures statistical significance at the 10, 5 and 1% levels respectively. WGI refers to the World Governance Indicators. All regressions report OLS using Period SUR weights and include a constant (not shown).

In table 2 we consider the robustness of these findings to the introduction of additional control variables. Specifically, we account for inter-personal income inequality, the degree of openness of the country's economy and whether a country was previously a member of the Soviet Union. Inter-personal inequalities may undermine good government because they may legitimate corruption in the eyes of relatively poorer individuals (You and Khagram, 2005) or lead to the capture of the state by the wealthy (Glaeser et al., 2003). Inequality may also affect the size and composition of public spending (Meltzer and Richard 1981; Milanovic 2000; Acemoglu et al., 2015). Economic openness – like interjurisdictional competition – may discipline government thus improving their performance (Wei, 2000) while it may also affect both the size and composition of government expenditure (Shelton 2007). And prior membership of the Soviet Union may continue to exercise an influence on governance and public spending insofar as it captures a continuing preference for strong government intervention or, it translates into a preference for a minimal state as a reaction against Soviet central planning. None of these variables have a significant and robust effect on governance although we do find some support that openness of a country's economy may improve government quality. More importantly, the inclusion of these variables does not alter our findings. Aggregate fiscal decentralization and the

decentralization of public employee compensation are positively associated to government quality while the decentralization of public procurement has a negative relationship. In table A1 of the appendix we pursue the robustness of our basic findings further by employing alternative measures of governance. In the first half of the table we use the International Country Risk Guide (ICRG) published by the Political Risk Services Group that provides information of several governance dimensions. We take the average of three dimensions namely: an assessment of corruption in the public sector; an assessment of the prevalence of law and order; and the perceived quality of the bureaucracy (Howell, undated). In the second half of the table, we check whether our results depend on the aggregation method used to generate the base governance measure we employ. Specifically, we use instead the first principle component of the four governance dimensions that make up the WGI. The first principle component explains 93 per cent of the variance of the four governance sub-components. Our findings are robust to the use of these alternative governance measures.

The findings so far speak of association or correlation and not causation. To talk of the latter, some effort needs to be made to deal with the possibility of reverse causality or, the possibility that government quality may affect the degree of decentralization; both overall fiscal decentralization and the decentralization of different components of public expenditure. Bad governments could resist the decentralization of fiscal resources, especially those that are easier to appropriate for private gain. Consistent with this, Kyriacou et al. (2017) report robust empirical evidence indicating that countries with better quality government tend to be more fiscally decentralized. In table A2 of the appendix we strive to deal with reverse causality by way of instrumental variables and two-stage least-squares regression employing lags of several periods of the key endogenous variables. Our results are maintained allowing us to suggest that the decentralization of public employee compensation tends to improve governance over the whole period and in both sub-sample periods while the decentralization of public procurement harms governance over the whole period and, especially, after the year 2007.

Table 3. Sub-national Expenditure by Components in % of GDP and Government Quality.

Dependent variable: Government Quality (WGI)	(1) All sample	(2) 1995-2007	(3) 2008-2015	(4) Means All sample	(5) All sample	(6) 1995-2007	(7) 2008-2015	(8) Means All sample
FD Total Expenditure	6.977**	8.449**	11.800***	6.445***	7.595**	9.108***	11.563***	8.491***
	(2.936)	(3.312)	(3.621)	(2.056)	(2.956)	(3.387)	(3.753)	(2.163)
Subnational Expenditure on Public Procurement	-0.253**	-0.307**	-0.445***	-0.277***	-0.253**	-0.322**	-0.411**	-0.326***
	(0.127)	(0.155)	(0.142)	(0.092)	(0.124)	(0.154)	(0.144)	(0.091)
Subnational Expenditure on Compensation of Employees	0.001	-0.006	0.036	0.029	0.031	0.009	0.060	0.046
	(0,103)	(0,103)	(0,116)	(0,067)	(0,108)	(0,111)	(0,125)	(0,075)
Log of GDP	-0.256**	-0.266**	-0.299**	-0.203***	-0.114	-0.106	-0.229	-0.095
	(0.112)	(0.114)	(0.117)	(0.068)	(0.131)	(0.144)	(0.139)	(0.083)
Log of GDP per capita	2.513***	2.362***	3.017***	2.443***	1.711***	1.676***	2.261***	1.370***
	(0,216)	(0,216)	(0,248)	(0,130)	(0,473)	(0,486)	(0,597)	(0,300)
Rest of Subnational Expenditure	-0.064	-0.096	-0.206**	-0.040	-0.094	-0.122	-0.213**	-0.104*
	(0,074)	(0,082)	(0,094)	(0,052)	(0,075)	(0,085)	(0,093)	(0,054)
EU member	0.925***	0.973***	2.223***	0.568***	0.728***	0.823***	1.847***	0.479**
	(0,263)	(0,296)	(0,522)	(0,207)	(0,273)	(0,309)	(0,582)	(0,242)
Political Decentralization	-1.462	-0.684	-1.949*	-1.734**	-1.053	-0.376	-2.016*	-1.605**
	(1,154)	(1,165)	(1,158)	(0,682)	(1,135)	(1,191)	(1,157)	(0,687)
Protestant	1.534***	1.385***	1.753***	1.468***	1.674***	1.617***	1.714***	1.614***
	(0,502)	(0,510)	(0,510)	(0,302)	(0,482)	(0,515)	(0,491)	(0,299)
Ethnic Fractionalization	-1.951**	-2.315**	-2.381**	-2.124***	-2.548**	-2.755**	-2.839**	-2.498***
	(0.993)	(1.010)	(1.048)	(0.614)	(1.088)	(1.126)	(1.238)	(0.699)
Inequality					-0.011	-0.015	-0.020	-0.028
					(0,043)	(0,044)	(0,053)	(0,030)
Openness					0.879**	0.849*	0.565	0.789***
					(0,406)	(0,473)	(0,432)	(0,265)
Transition Economies					-0.806	-0.661	-0.756	-1.365***
					(0,637)	(0,677)	(0,708)	(0,389)
Adjusted R^2	0.89	0.90	0.90	0.87	0.90	0.91	0.91	0.88
Observations	602	354	248	151	534	341	193	147

Notes: Standard Errors in parentheses. *, **, *** measures statistical significance at the 10, 5 and 1% levels respectively. WGI refers to the World Governance Indicators. All regressions report OLS using Period SUR weights and include a constant (not shown).

Our description of the data in section 2 indicates the usefulness of considering the estimated relationships by way of alternative measures that reflect the relative volume of the resources spent by sub-central governments. With this aim in mind, table 3 reports regressions including sub-national expenditure on public procurement and compensation of public employees, both as a percentage of GDP, and after controlling for aggregate fiscal decentralization. The results provide support for the argument that the greater the expenditure by sub-central governments on public procurement, the worse the quality of governance. This result stands for the whole sample period when using both annual data and four year means (columns 1 and 4) as well as when, moreover, additional controls are included (columns 5 and 8). Interestingly, the negative economic impact of decentralized public procurement increases after 2007, something that is consistent with the increase in the relative volume of resources dedicated to this type of spending by sub-central government after this year. On the other hand, the results in table 3 do not indicate that the relative size of spending of public employee compensation by sub-central governments impacts on government quality. One reason why this may be the case is that sub-central spending on public sector wages as a percentage of GDP speaks more to the volume of resources and does not capture the relative information advantage of sub-central government (versus central government). A better approximation of the latter is, arguably, spending in this area by sub-central governments as a percentage of total spending on public sector wages (tables 1 and 2). Alternatively, the use of sub-central spending as percentage of GDP is more

informative when considering public procurement because it captures the volume of resources that may be available for capture by special interests.

Conclusion

In this article, we extend previous work analyzing the impact of fiscal decentralization on government performance by breaking fiscal decentralization down to two components namely, spending by sub-central governments on public procurement as a share of total spending in this area and sub-central spending on public employee compensation again as share of total spending on compensation. We adopt this approach because of the theoretical expectation that these two expenditure components may relate to government quality differently. Specifically, we expect the decentralization of public procurement spending to have a negative impact on governance because it combines government discretion with voluminous and concentrated rents thus making it vulnerable to rent-seeking by special interests which, by definition, are closer to sub-central public officials. Alternatively, we expect the decentralization of public employee compensation to have a positive effect on governance since this spending is less discretionary and concentrated, but also because it will tend to overlap with the sub-central provision of public services which, classic fiscal federalism suggests, should be better provided at sub-central levels because of relative informational advantages.

Our empirical results are overwhelmingly supportive of these theoretical priors. We find, sub-central spending on public procurement and public sector wages to have, respectively, a negative and positive impact on government quality. Our results are robust to the use of alternative measures of governance, the introduction of a range of control variables and estimation techniques that attempt to deal with the problem of reverse causality. Our findings, with regards to the effect of decentralizing public employee compensation, are consistent with work reporting a positive effect on allocative and productive efficiency due to the decentralization of public service provision – especially the decentralization of education and health policies (see OECD, 2014 and Martinez-Vazquez et al., 2017 for recent reviews of these results).

We make another contribution with this article. We consider the extent to which (if at all), the Great Recession has altered the relationship between fiscal decentralization and government quality. We find that, broadly speaking, fiscal decentralization has increased after 2007 in our sample of 31 European countries. In line with the theoretical arguments, this creates the expectation of an increase of both the negative and positive effects of decentralization since relatively more resources spent by sub-central governments on public procurement increase the rents available to special interest and more spending on public sector wages implies more decentralized provision of public services. Consistent with this, we find that both the negative impact of public procurement on governance and the positive impact of decentralized public compensation are larger after 2007.

Our analysis, based on a sample of 31 European countries over the last two decades, draws attention to the diverse effects of decentralizing different components of public spending on government quality and suggests the need to adopt strict control measures when decentralizing public procurement expenditure at the same time as it highlights the beneficial effects of decentralizing the provision of public services.

Acknowledgements

We thank the participants of the 3rd International Conference on Decentralization after the Great recession: Fine-tuning or Paradigm Change? (26-27 October 2017, Santiago de Compostela, Spain), and especially our discussant, Luiz de Mello, for their productive comments on a previous version of this paper. Any errors or omissions are, of course, only our own. We also acknowledge financial assistance from Institut d'Estudis de l'Autogovern (Generalitat de Catalunya) and ECO2016-75623-R (Ministerio de Economía i Competitividad).

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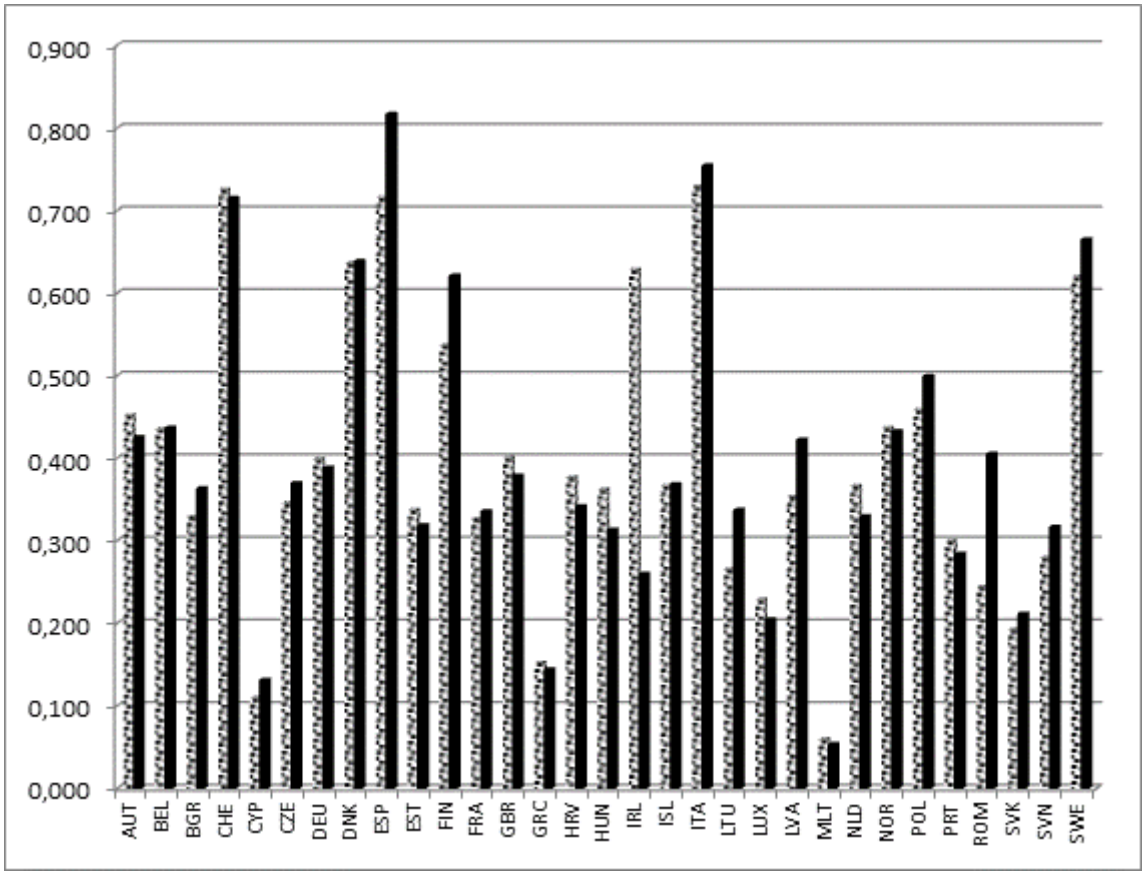
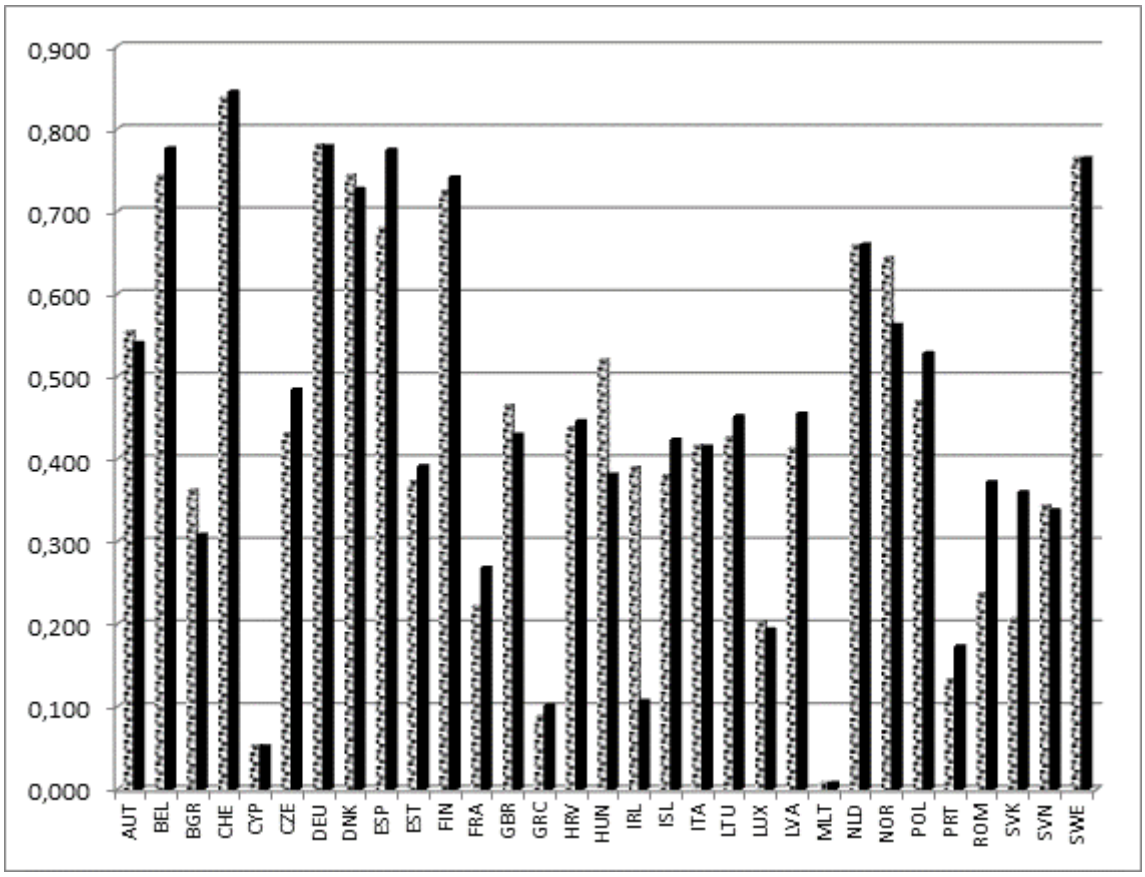
Appendix

Figure A1.-Sub-central Public Procurement Expenditure as a % of Total Expenditure in Public Procurement (means 1995-2007 and 2008-2015)



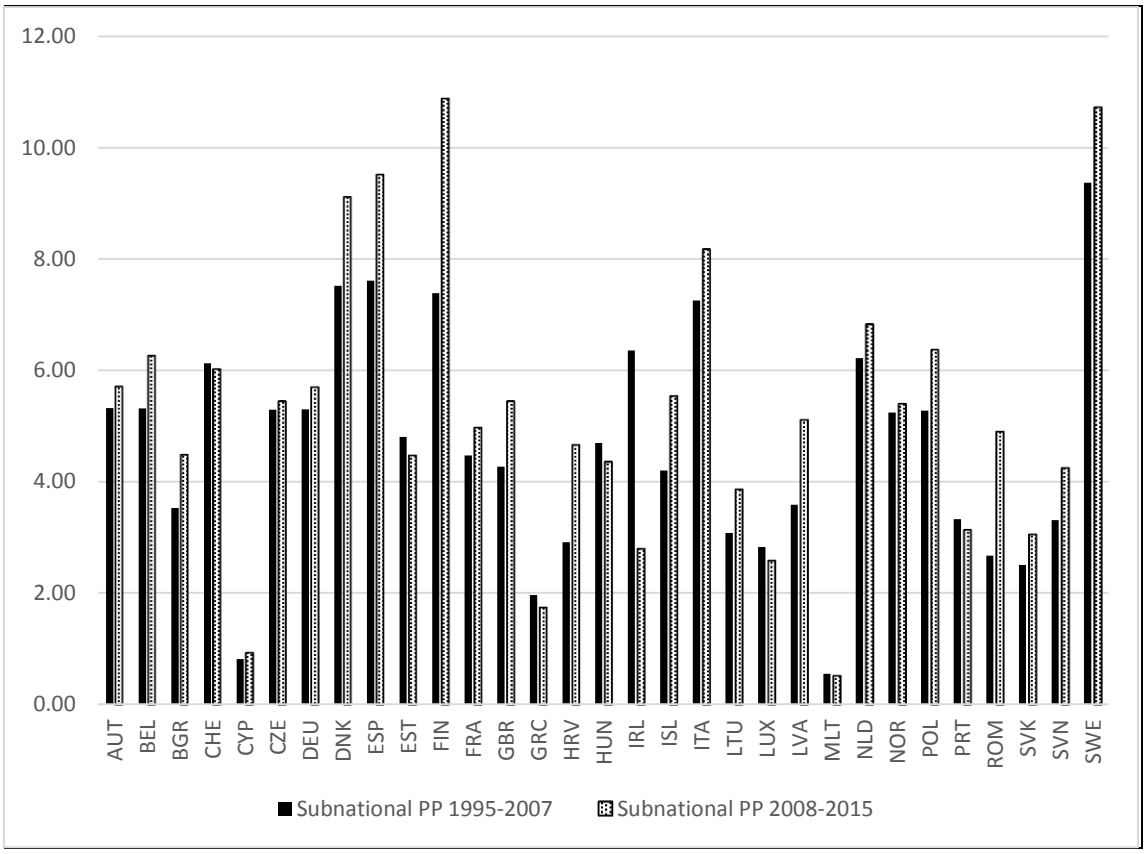
Source: Eurostat.

Figure A2.- Sub-central Expenditure on Compensation of Employees as a % of Total Expenditure on Compensation of Employees (means 1995-2007 and 2008-2015)



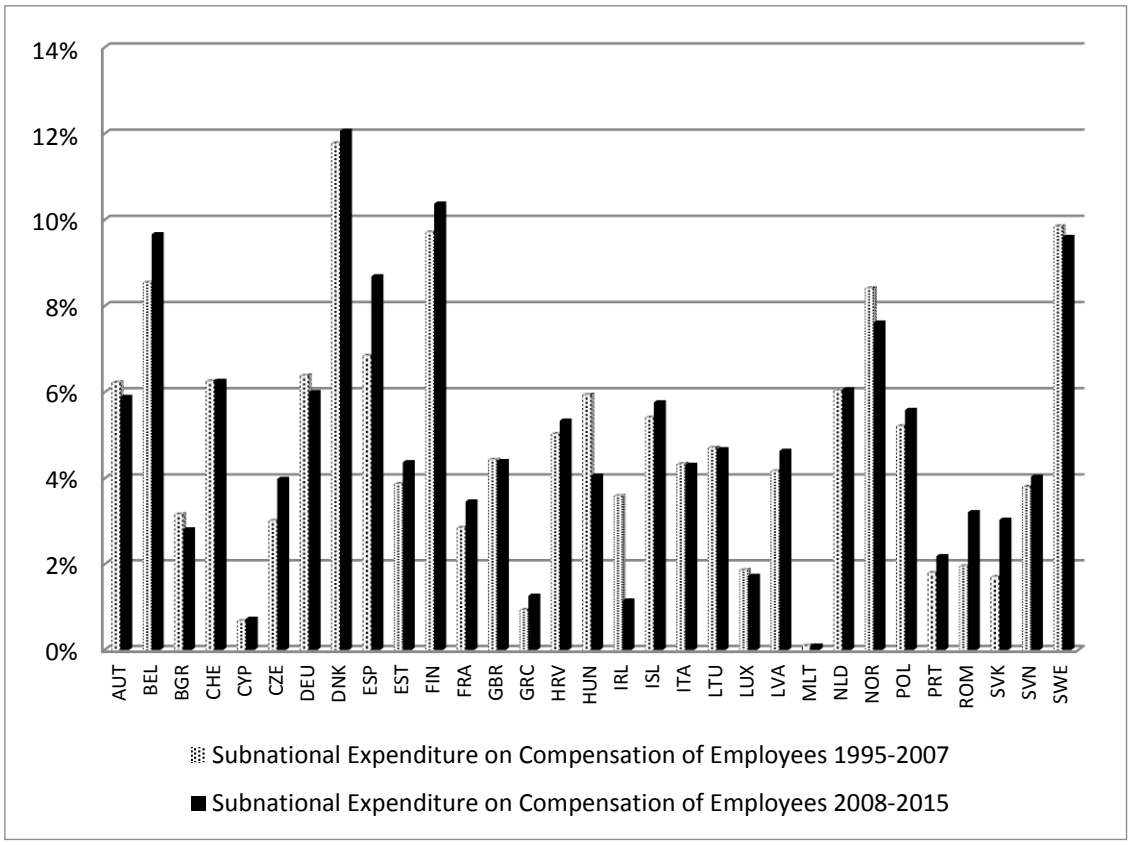
Source: Eurostat.

Figure A3. Sub-central Expenditure on Public Procurement as a % of GDP (means 1995-2007 and 2008-2015)



Source: Eurostat.

Figure A4. Sub-central Expenditure on Compensation of Employees as a % of GDP (means 1995-2007 and 2008-2015)



Source: Eurostat.

Appendix SA.1: Data sources and definitions

Variable	*Definition*	*Source*
Government quality - WGI	*Aggregate of control of corruption, rule of law, regulatory quality and government effectiveness dimensions, normalized between minimum possible value of -1 and maximum possible value of +1.*	*World Governance Indicators (WGI) as developed by the World Bank*
Government quality - ICRG	*Aggregate of corruption, law and order and bureaucratic quality dimensions each normalized between 0 and 1 and summed up. We use data over the period 1995-2013.*	*International Country Risk Guide (ICRG) as developed by the Political Risk Services Group*
Fiscal decentralization (FD)	*Subnational expenditure as a percentage of general government expenditure.*	*Eurostat*
Public procurement expenditure	*The sum of the components of general government expenditure Intermediate consumption (P.2), gross fixed capital formation (P.51g) and social transfers in kind purchased market production, payable (D.632), as a share of GDP.*	*Eurostat*
Compensation of employees	*The wages of government employees plus non-wage costs such as social contributions (D.1) as a share of GDP.*	*Eurostat*
Other expenditure	*Variable obtained subtracting public procurement expenditure and compensation of employees from general government expenditure, as a share of GDP.*	*Eurostat*
FD on public procurement	*State and local expenditure on public procurement divided by general government public procurement expenditure.*	*Eurostat*
FD on compensation of employees	*State and local expenditure on compensation of employees divided by general government expenditure on compensation of employees.*	*Eurostat*
FD on other expenditure	*State and local other expenditure divided by general government other expenditure.*	*Eurostat*
Size of government	*Expenditure of general government as a share of GDP.*	*Eurostat*
GDP per capita	*Real GDP per capita. The variable is used in logs.*	*Eurostat*
GDP	*GDP in real terms. The variable is used in logs.*	*Eurostat*
Protestants	*Protestants as a percentage of population in 1900.*	*North et al. (2013)*
Ethnic fractionalization	*The probability that two randomly selected individuals belong to different ethnolinguistic or religious groups, and so increases with the number of groups.*	*Alesina et al, (2003)*
Political decentralization	*The degree of political autonomy enjoyed by local governments: election of mayor and local council members and direct democracy provisions for major tax, spending and regulatory decision and the recall of public officials.*	*Ivanyna and Shah (2014).*
Trade openness	*Percentage of exports plus imports divided by Real GDP.*	*Eurostat*
Transition economies	*Dummy variable which takes the value of 1 if the country has undergone transition from a socialist to a capitalist system.*	*La Porta et al (1999)*
Inequality	*Gini coefficient based on net income inequality.*	*Solt (2016)*

Appendix SA.2: Summary statistics

	Mean	Maximum	Minimum	Std, Dev,	No. Obs.
Government quality- WGI	0.472	0.881	-0.166	0.256	620
Government quality – ICRG	2.356	3.000	1.167	0.477	569
Fiscal decentralization (FD)	0.274	0.653	0.000	0.150	651
Public procurement expenditure	0.125	0.217	0.055	0.252	642
Compensation of employees	0.110	0.175	0.054	0.221	642
Other expenditure	0.198	0.406	0.066	0.057	636
FD on public procurement	0.394	0.837	0.035	0.180	641
FD on compensation of employees	0.444	0.853	0.007	0.234	642
FD on other expenditure	0.113	0.592	0.000	0.131	630
Size of government	0.433	0.639	0.274	0.071	639
GDP per capita	25236	83700	2800	16952	637
GDP	411781	2791109	5392	627353	645
Protestants	0.299	0.995	0.001	0.383	31
Ethnic fractionalization	0.232	0.587	0.041	0.171	31
Political decentralization	0.659	1.000	0.420	0.123	31
Income Inequality	0.288	0.375	0.198	0.040	583
Openness	0.101	0.405	0.247	0.564	639

WGI refers to the World Governance Indicators and ICRG to the International Country Risk Guide.

Appendix SA.3: Countries and Codes

AUT	Austria	FRA	France	MLT	Malta
BEL	Belgium	GBR	United Kingdom	NLD	Netherlands
BGR	Bulgaria	GRC	Greece	NOR	Norway
CHE	Switzerland	HRV	Croatia	POL	Poland
CYP	Cyprus	HUN	Hungary	PRT	Portugal
CZE	Czech Republic	IRL	Ireland	ROM	Romania
DEU	Germany	ISL	Iceland	SVK	Slovakia
DNK	Denmark	ITA	Italy	SVN	Slovenia
ESP	Spain	LTU	Lithuania	SWE	Sweden
EST	Estonia	LUX	Luxembourg		
FIN	Finland	LVA	Latvia		

Table A1. Fiscal Decentralization and Government Quality. Using WGI and ICRG (First principle component)

Dependent variable:	WGI				ICRG			
	(1) All sample	(2) 1995-2007	(3) 2008-2013	(4) Means All sample	(5) All sample	(6) 1996-2007	(7) 2008-2015	(8) Means All sample
FD Public Procurement	-1.662*	-1.363	-2.184**	-1.566*	-0.425*	-0.287	-0.750***	-0.479*
	(0.872)	(0.918)	(0.939)	(0.947)	(0.243)	(0.243)	(0.271)	(0.259)
FD Compensation of Employees	2.079**	2.162**	2.698***	2.203**	0.538**	0.462**	0.988***	0.629**
	(0,835)	(0,849)	(0,983)	(0,939)	(0,234)	(0,230)	(0,286)	(0,256)
Log of GDP	-0.188*	-0.200*	-0.173*	-0.198*	-0.060**	-0.071***	-0.054*	-0.059**
	(0.098)	(0.101)	(0.101)	(0.107)	(0.027)	(0.027)	(0.029)	(0.029)
Log of GDP per capita	1.918***	1.803***	2.208***	1.954***	0.477***	0.425***	0.605***	0.498***
	(0,162)	(0,167)	(0,187)	(0,175)	(0,044)	(0,044)	(0,053)	(0,047)
Public Procurement	-0.012	0.001	-0.065	-0.028	0.010	0.010	-0.003	0.008
	(0.040)	(0.045)	(0.045)	(0.048)	(0.012)	(0.013)	(0.014)	(0.013)
Compensation of Employees	0.001	0.009	0.005	-0.015	-0.001	-0.010	0.020	0.001
	(0,055)	(0,058)	(0,057)	(0,064)	(0,015)	(0,016)	(0,016)	(0,016)
Rest of Expenditure	-0.032*	-0.038*	-0.039**	-0.026	0.005	0.004	0.001	0.005
	(0,017)	(0,022)	(0,018)	(0,021)	(0,005)	(0,006)	(0,005)	(0,006)
FD Rest of Expenditure	1.489	1.601	0.593	1.124	0.227	0.172	-0.018	0.151
	(1,068)	(1,159)	(1,111)	(1,124)	(0,296)	(0,300)	(0,322)	(0,305)
EU member	0.683***	0.696***	1.296***	0.718***	-0.057	0.001	0.053	-0.049
	(0,199)	(0,221)	(0,356)	(0,210)	(0,058)	(0,060)	(0,100)	(0,060)
Political Decentralization	-0.742	-0.108	-1.108	-0.884	-0.240	-0.101	-0.329	-0.297
	(0,859)	(0,886)	(0,930)	(0,941)	(0,238)	(0,235)	(0,265)	(0,253)
Protestant	0.935**	0.794**	1.260***	0.951**	0.129	0.188*	0.052	0.119
	(0,373)	(0,388)	(0,392)	(0,402)	(0,103)	(0,103)	(0,111)	(0,108)
Ethnic Fractionalization	-1.362*	-1.507*	-1.208	-1.448*	-0.544**	-0.556***	-0.554**	-0.551**
	(0.768)	(0.797)	(0.795)	(0.839)	(0.213)	(0.213)	(0.229)	(0.225)
Adjusted R^2	0.89	0.90	0.90	0.89	0.84	0.83	0.91	0.85
Observations	602	354	248	151	548	362	186	151

Notes: Standard Errors in parentheses. *, **, *** measures statistical significance at the 10, 5 and 1% levels respectively. ICRG refers to the International Country Risk Guide. All regressions report OLS using Period SUR weights and include a constant (not shown).

Table A2. Fiscal Decentralization and Government Quality. TSLS

Dependent variable: Government Quality (WGI)	(1) Annual All sample	(2) Annual 1996-2007	(3) Annual 2008-2015	(4) Annual All sample	(5) Annual 1996-2007	(6) Annual 2008-2015	(7) 4 year means All sample
Instrumenting with=>	1 lag	1 lag	1 lag	2 lags	2 lags	2 lags	1 lag
FD Public Procurement	-2.300*	-1.983	-2.798**	-2.291*	-1.955	-2.592*	-2.777**
	(1.178)	(1.235)	(1.290)	(1.228)	(1.295)	(1.364)	(1.362)
FD Compensation of Employees	2.887**	3.070***	3.480**	2.949**	3.215**	3.218**	3.508**
	(1,138)	(1,162)	(1,369)	(1,222)	(1,266)	(1,499)	(1,453)
Log of GDP	-0.227*	-0.236*	-0.184	-0.221	-0.232*	-0.140	-0.214
	(0.131)	(0.136)	(0.141)	(0.136)	(0.140)	(0.151)	(0.150)
Log of GDP per capita	2.553***	2.393***	2.999***	2.559***	2.388***	3.051***	2.639***
	(0,209)	(0,215)	(0,251)	(0,210)	(0,214)	(0,259)	(0,231)
Public Procurement	-0.014	0.006	-0.072	-0.017	0.011	-0.053	-0.025
	(0.057)	(0.065)	(0.065)	(0.064)	(0.074)	(0.075)	(0.081)
Compensation of Employees	0.026	0.035	0.076	0.036	0.045	0.129	0.057
	(0,076)	(0,080)	(0,087)	(0,084)	(0,087)	(0,103)	(0,099)
Rest of Expenditure	-0.051*	-0.059*	-0.087**	-0.057*	-0.065*	-0.118**	-0.070*
	(0,028)	(0,032)	(0,041)	(0,032)	(0,036)	(0,053)	(0,042)
FD Rest of Expenditure	2.076	2.217	0.887	2.058	2.199	0.927	1.871
	(1,440)	(1,567)	(1,519)	(1,489)	(1,623)	(1,583)	(1,667)
EU member	0.829***	0.836***	1.758***	0.855***	0.844***	1.903***	0.981***
	(0,259)	(0,284)	(0,492)	(0,262)	(0,283)	(0,517)	(0,297)
Political Decentralization	-0.844	-0.040	-0.716	-0.766	0.126	-0.044	-0.522
	(1,129)	(1,159)	(1,327)	(1,163)	(1,188)	(1,522)	(1,316)
Protestant	1.145**	0.961*	1.439***	1.139**	0.929*	1.304**	1.058*
	(0,488)	(0,510)	(0,527)	(0,497)	(0,525)	(0,548)	(0,552)
Ethnic Fractionalization	-1.884*	-2.099**	-1.567	-1.842*	-2.042*	-1.419	-1.906*
	(1.008)	(1.048)	(1.054)	(1.033)	(1.090)	(1.084)	(1.146)
Adjusted R^2	0.90	0.91	0.90	0.90	0.91	0.90	0.90
Observations	596	348	248	566	318	248	120

Notes: Standard Errors in parentheses. *, **, *** measures statistical significance at the 10, 5 and 1% levels respectively. WGI refers to the World Governance Indicators. All regressions report Two Stage LS using Period SUR weights and include a constant (not shown). FD and Expenditure variables are instrumented with lags.