In government we trust: The role of fiscal decentralization

Jenny E. Ligthart [a,1], Peter van Oudheusden [a,b,*]

[a] Tilburg University, CentER and Department of Economics, P.O. Box 90153, 5000 LE Tilburg, The Netherlands
[b] World Bank, Finance and Private Sector Development Research Group, 1818 H Street NW, Washington, DC 20433, USA

ARTICLE INFO

ABSTRACT

This paper looks whether fiscal decentralization is associated with trust of citizens in government related institutions. We expect a positive relationship based on the argument of governments' improved responsiveness to preferences of citizens that is perceived to result from more decentralized fiscal systems. Survey data from up to 42 countries over the period 1994–2007 confirm this positive relationship. It is robust to controlling for unobserved country heterogeneity and a wide array of other explanatory variables that are associated with trust in government related institutions. Moreover, we do not find that the positive association with fiscal decentralization extends to other, non-government related institutions.

© 2014 Elsevier B.V. All rights reserved.

1. Introduction

During the last decades, many governments in developed and developing countries have devolved parts of their fiscal policy-making authority to their sub-national levels. This process of fiscal decentralization has been promoted by changes in the geopolitical landscape—such as the enlargement of the European Union and the breakup of the former Soviet Union—dissatisfaction with the role of the central government in setting policies, and, to a smaller extent, the policy advice of international policy institutions (Tanzi, 1995). An important argument for fiscal decentralization follows from the subsidiarity principle as discussed by, for example, Tiebout (1956) and Oates (1999). They argue that the greater responsiveness of governments to their citizens' preferences, brought forth by more decentralized fiscal systems, is believed to enhance service delivery. This improved preference matching argument is often used to point out possible improvements in allocative efficiency as a result of fiscal decentralization.

Various empirical studies have measured the potential effects of fiscal decentralization on allocative efficiency. In particular, a lot of attention has been paid to the question whether fiscal decentralization can boost economic growth. So far, the empirical evidence on the fiscal decentralization and economic growth nexus is mixed.[2] The strong focus on allocative efficiency implies that other possible

---

favorable effects of fiscal decentralization, such as lower corruption or improved governance, have received less attention.[3] More importantly, other, more direct outcomes of fiscal decentralization, such as the effect on citizens' satisfaction with or trust in government related institutions—here defined as the 'judgment of the citizenry that the system and the political incumbents are responsive, and will do what is right even in the absence of constant scrutiny' (Miller and Listhaug, 1990, p. 358)—have not received any attention at all. This paper looks at such an outcome and investigates the relationship between fiscal decentralization and trust in government related institutions. To our knowledge, we are the first to analyze this relationship in a systematic way.

Most importantly, the existence of a relationship provides evidence in favor of, or against in case of a negative one, the use of the preference matching argument in studies that look at the possible consequences of fiscal decentralization. There are, however, also other reasons to look at trust in government related institutions, henceforth also called trust in government. From an economic perspective, a high level of trust in government may indirectly contribute to improved economic performance. Knack and Keefer (1997) show that a higher level of trust in government is associated with a higher level of social capital which in turn is found to be associated with a higher rate of economic growth.[4] From a political science perspective, trust in government is important for political leadership and governance. More specifically, a larger degree of trust in government makes it easier to commit resources that are needed for collective action or to obtain citizens' compliance with policy without coercion (Keele, 2007).

Using survey data covering up to 42 countries over the period 1994–2007, we find a positive relationship between fiscal decentralization and trust in government related institutions. Quantitatively, the relationship is only somewhat weaker than the strongest one we find, which is that with the respondent's view of the importance of politics in life, and compares well with more established relationships in the literature such as that between trust and income inequality. Moreover, we find evidence that is consistent with the causality running from fiscal decentralization to trust in government. The relationship is robust to controlling for additional explanatory variables, both at the individual and aggregate levels, and unobserved country heterogeneity.

Our analysis is related to studies analyzing the determinants of trust defined more generally, which can be either trust in persons or institutions.[5] Brehm and Rahn (1997), Alesina and La Ferrara (2002), Keele (2007), Gustavsson and Jordahl (2008), Dincer (2010), and Blanco (2013) study the determinants of trust using data for a single country. Except for Gustavsson and Jordahl (2008) and Blanco (2013), who use Swedish and Mexican data, respectively, all studies pertain to the United States. Knack and Keefer (1997) and Zak and Knack (2001) employ data for several countries to explain cross-country differences in trust.

Studies that explicitly look at the relationship between fiscal decentralization and trust are Dincer (2010) and de Mello (2011), where both authors look at trust in persons. Exploiting variation across states within the United States, Dincer (2010) finds that trust in persons is higher in states where there are a larger number of local governments or where revenue and expenditure decentralization rates are higher. For Brazil and Indonesia, de Mello (2011) uses decentralization reforms to show that fiscal decentralization is positively associated with provoice attitudes, which in turn are related to trust in persons. This approach identifies a specific transmission mechanism through which fiscal decentralization may promote social capital. Finally, Kincaid and Cole (2010) document public attitudes and trust in various orders of government for the three North American federations Canada, Mexico, and the United States.

This paper is also somewhat related to papers studying aggregate determinants of individual outcomes.[6] Of these studies, the one that comes closest to ours is that of Bjornskov et al. (2008) who analyze the relationship of fiscal decentralization with subjective well-being.

The remainder of this paper is organized as follows. Section 2 presents some theoretical considerations and discusses the data on trust in government related institutions and fiscal decentralization. Section 3 presents the results and addresses endogeneity concerns. Section 4 concludes the paper. The web appendix to the paper contains additional estimation and robustness results.

2. Trust in government and fiscal decentralization

This section sheds light on the relationship between fiscal decentralization and trust in government related institutions. We first present some theoretical considerations to support our hypothesis of a positive relationship. Subsequently, we provide a descriptive analysis of this relationship with the data we use in the formal analyses in Section 3.

2.1. Theoretical considerations

To our knowledge, there are no existing theories describing the relationship between fiscal decentralization and trust in government related institutions. In fact, the literature on the possible non-economic benefits of fiscal decentralization is sparse in general. However, the theories on the possible economic benefits of fiscal federalism provide a natural reference point in discussing the potential relationship between trust in government related institutions and fiscal decentralization. An important and fundamental argument in favor of fiscal decentralization is the subsidiarity principle as discussed by, for example, Tiebout (1956) and Oates (1972, 1999). They argue that governments that are closer to their citizens "will be more responsive to the particular preferences of their constituencies and will be able to find new and better ways to provide these services" (Oates, 1999, p. 1120). We propose the hypothesis

---

[3] Exceptions are for example Treisman (2000), Fisman and Gatti (2002), and Oto-Peralías et al. (2013) who look at the relationship between fiscal decentralization and corruption, Enikolopov and Zhuravskaya (2007), who study its relationship with governance and public goods provision, and Baskaran (2011) who studies its relationship with the size of the public sector.

[4] Not only Knack and Keefer (1997), but also Rodrik (1999) and Zak and Knack (2001) find that economic growth is positively associated with social capital. Peiró-Palomino and Tortosa-Ausina (2013) look at this relationship in more detail, while Dearmon and Grier (2011) look at the underlying mechanisms of this relationship.

[5] The definitions of trust in persons differ in the literature on trust but generally refer to citizens' confidence in each other as members of a community.

[6] See Mishler and Rose (2001), Tella et al. (2003), and Bjornskov et al. (2008).

that, regardless of any possible efficiency gains by improved service delivery, the improved responsiveness of governments to their citizens as a result of fiscal decentralization is associated with a higher trust of citizens in government related institutions.

Hypothesis. *Fiscal decentralization is positively related to trust in government related institutions.*

Of course, the motivation for the positive association of fiscal decentralization with trust in government is not limited to the improved preference matching argument that follows from the subsidiarity principle. Oates (1999, p. 1132) argues, for example, that "in a setting of imperfect information with learning-by-doing, there are potential gains from experimentation with a variety of policies for addressing social and economic problems" and that the conditions to do so may be better when sub-national governments have a higher degree of fiscal policy-making authority. In other words, fiscal decentralization creates an environment that may foster more effective public policies that possibly influence citizens' trust in government related institutions. Moreover, the latter may also be influenced by the size of the public sector, which Brennan and Buchanan (1980) argue is constrained by the jurisdictional competition that fiscal decentralization brings forth. On the other hand, Qian and Roland (1998) point to the possibility of soft budget constraints at the local government level which may cause excessive debt accumulation and possibly undermine the trust that citizens have in the government.

These theories on the possible effects, either positive or negative, of fiscal decentralization do not cover the whole literature. We are convinced, however, that especially the preference matching argument that follows from the subsidiarity principle is relevant and important since it has been used as a basis for many analyses that study fiscal decentralization issues. For example, Brueckner (1999, 2006) uses the preference matching argument in a theoretical framework to show the effect of fiscal decentralization on economic growth, and Besley and Coate (2003) use it to study the political economy of spending decisions in the presence of spillovers on the local government level. Evidence of a positive relationship between fiscal decentralization and trust in government related institutions would be consistent with the subsidiarity principle and lend further support for its use in these kinds of analyses.

2.2. Data on trust in government and fiscal decentralization

The measures of trust in government related institutions are obtained from the *World Values Survey* (WVS) of the World Values Survey Association. Our data are taken from three waves of interviews of this survey, which covers up to 42 countries over the period 1994–2007.[7] More specifically, we use data from the 1994–1999, 1999–2004, and 2005–2007 wave. We use data over the period 1994–1998 for the 1994–1999 wave given that none of the interviews held in 1999 belong to that wave, so we have three non-overlapping time periods; that is, 1994–1998, 1999–2004, and 2005–2007.

To capture trust in government, we study several government related institutions. This approach accommodates differences in the degree to which survey respondents may experience or have knowledge about these institutions. For instance, survey respondents may have a better grasp of the operations and performance of civil services rather than of the national government because they may have had direct dealings with civil servants in their town hall. In view of this approach, we employ four measures of trust in government, namely (i) confidence in national government, (ii) confidence in civil services, (iii) confidence in parliament, and (iv) confidence in political parties. We also look at institutions that, in our opinion, are not related to the government. Measures of trust in these other institutions are confidence in churches, confidence in the press, confidence in television, and confidence in armed forces.[8] They will serve as a counterfactual or control in the regression analyses. All measures are answers to the following question: 'I am going to name a number of organizations. For each one, could you tell me how much confidence you have in them?' Survey respondents had to indicate their level of confidence on the following scale: 'a great deal of confidence,' 'quite a lot of confidence,' 'not very much confidence,' or 'none at all.'

We follow Alesina and La Ferrara (2002) in defining confidence in organizations as trust in institutions. Moreover, since our selected organizations have in common that they all cover a dimension of government, we define confidence in those organizations as measures of trust in government. A somewhat similar approach is taken by Knack and Keefer (1997), who define confidence in government in a broad sense by taking an average of confidence in education, the legal system, the police, and the civil service rather than looking at these institutions individually. Mishler and Rose (2001) define political trust by taking the average of trust in parliament, the prime minister or president, courts, police, political parties, and the military.[9] Compared to these studies, we employ more narrowly defined concepts of government and do not average over government related institutions.

In line with most of the fiscal federalism literature, we measure fiscal decentralization as the share of sub-national government expenditures in general government expenditures. The data are taken from the *Government Finance Statistics* (GFS) of the International Monetary Fund (IMF). Based on the IMF's *GFS Manual (2001)*, sub-national expenditures are defined as expenditures on both the state and local government levels, where the state level refers to the largest geopolitical entity within a country and the local level describes the smallest governmental units.[10] General government expenditures encompass public expenditures on the central, state, and local government levels.[11]

---

[7] The data set covers the years 1981–2008. The subsequent, latest wave of surveys that covers the years 2010–2014 becomes publicly available in the year 2014.

[8] There are some discrepancies between the variable labels in the data set and the corresponding description in the code book of the WVS. For example, what we named 'confidence in national government' is labeled as 'confidence in the government' in the data, but the corresponding organization is described as 'the government (in your nation's capital)' in the WVS's code book. For 'confidence in churches', churches are replaced by religious leaders in non-Christian countries.

[9] Brehm and Rahn (1997) and Alesina and La Ferrara (2002) investigate confidence in the executive branch of the federal government.

[10] Some countries (e.g., the United States and Spain) have more than one level of government between the central level and the local level. In such cases, the *GFS Manual* groups the intermediate levels of government together with the level they are most closely associated with.

[11] Some studies use the share of sub-national revenue in general government revenues as an alternative measure (i.e., Enikolopov and Zhuravskaya, 2007). Typically, the revenue-based and expenditure-based decentralization measures are highly correlated. In the web appendix to the paper, we perform a robustness check with the alternative, revenue-based measure.

This measure of fiscal decentralization has been criticized by Martinez-Vazquez and McNab (2003) for possibly not accurately representing the degree to which sub-national governments have policy autonomy. The OECD (1999) and Thornton (2007) deal with this criticism and have developed an alternative measure of fiscal decentralization that takes into account various categories of tax autonomy of sub-national governments. However, this measure is not available for the whole sample of countries that we consider, and, therefore, we resort to the standard indicator used in the literature for our analyses.[12] We average the fiscal decentralization data over the years corresponding to the three aforementioned time periods since fiscal decentralization data are not always available for the specific years in which the interviews took place. Average decentralization ratios during 1994–2007 vary between 0.01 for Mali and 0.65 for China.

Fig. 1 displays the unconditional relationships between measures of trust in institutions and fiscal decentralization. To facilitate a graphical presentation, we use an aggregate measure of trust in institutions, the so-called confidence share, which is defined as the percentage of survey respondents of a country in a given wave that indicated to have either 'a great deal of confidence' or 'quite a lot of confidence' (cf. Knack and Keefer, 1997). Panels (a)–(c) of Fig. 1 show that confidence shares of government related institutions are positively associated with the degree of fiscal decentralization. The extent to which they do differs for each measure though. In contrast, panels (d)–(f) illustrate that for other non-government related institutions such a relationship does not hold, and a non-positive one is more appropriate. The next section formally explores these relationships.

3. Estimation results

Section 3.1 discusses the baseline estimation results. Possible endogeneity problems in the form of reverse causality or an omitted variable bias are discussed in Sections 3.2 and 3.3, respectively. The summary statistics of variables used in the analyses are presented in Tables A.1 and A.2 of the Appendix.

3.1. Baseline estimation results

Table 1 presents the baseline estimation results using trust measures at the aggregate level. These measures are constructed by taking country-level averages of the individual-level trust data and are the same as those used in Fig. 1. More specifically, they capture the share of people in a country that indicate to have trust, which include the categories 'a great deal of confidence' and 'quite a lot of confidence', in institutions for each wave. In columns (1)–(8), we regress each of our trust measures on fiscal decentralization, where the first four columns present the institutions that are related to the government, and the last four columns present the other institutions. In the regressions, we include wave fixed effects as well to absorb any shocks common to the countries in the sample in a particular wave. With the exception of trust in national government, fiscal decentralization enters with a positive and statistically significant coefficient for the government related institutions. For the other institutions, the evidence suggests a non-positive relationship.

The relationships of interest become stronger when we control for the average amount of trust people have in other institutions—here an average of trust in churches, the press, television, and armed forces—in columns (9)–(16) of Table 1. This specification allows us to verify that fiscal decentralization is not picking up a general trust attitude toward institutions. The estimation results in the even-numbered columns of the bottom half of the table further indicate that the relationship remains valid when we average over all waves to mitigate a possible bias arising from measurement errors. Based on the estimation results of Table 1 and our sample variation, the quantitative relationship between fiscal decentralization and trust in government related institutions is as follows. On average, a one standard deviation change in fiscal decentralization is associated with a change of between one-fourth and one-third of a standard deviation in trust in government.[13]

Using individual-level data on trust in institutions, we exploit information not only about the respondents' gender, age, education, social class and income but also about their views on politics and trust in other persons. Columns (1)–(8) of Table 2 use an ordered response model to regress individual's trust in institutions on the aforementioned individual characteristics, our fiscal decentralization measure, and wave fixed effects; see Section A.1 of the Appendix for more details on the ordered response model used. In addition, the even-numbered columns correct for the average amount of trust people have in other institutions at the country level. To ensure that the disturbances are robust to dependency across individuals within a country and wave, we cluster the standard errors at the country-wave level (cf. Moulton, 1990).[14]

Trust in other persons enters with a positive and statistically significant coefficient which is in line with findings of Knack and Keefer (1997), Brehm and Rahn (1997), and Alesina and La Ferrara (2002). Gender and age hardly affect trust in government related

---

[12] By using the autonomy measure suggested by Thornton (2007) for a reduced sample of countries, we discuss how the use of an alternative measure of fiscal decentralization may affect its relationship with trust in government related institutions.

[13] As mentioned in the previous section, the fiscal decentralization measure we use has been criticized for possibly not accurately representing the true policy making authority of local governments. In the web appendix to the paper, we perform a robustness check with the autonomy measure suggested by Thornton (2007) for a reduced sample of countries. For this reduced sample of countries, we find the same qualitative relationship between trust in government related institutions and both the alternative and standard measures of fiscal decentralization. The coefficients of the alternative fiscal decentralization measure are statistically more significant but somewhat smaller in size than those of the standard measure. Compared to the baseline estimation results, however, the relationship is less pronounced. Hence, even though the evidence suggests that the standard measure is a good approximation for an alternative measure that better reflects the true policy making authority of local governments, it only applies to the reduced sample. Although it is possible, we cannot say with certainty that this also holds for the larger sample corresponding to the baseline estimation results.

[14] Given that we have a time dimension as well, clustering at the country level may deal with possible problems of autocorrelation (cf. Bertrand et al., 2004). Doing so would lead to loss of degrees of freedom which is already low and is only suggested as a solution when the sample is sufficiently large. In the web appendix to the paper, we run a robustness check on some of our results and cluster standard errors at the country level. The corresponding results do not change qualitatively.
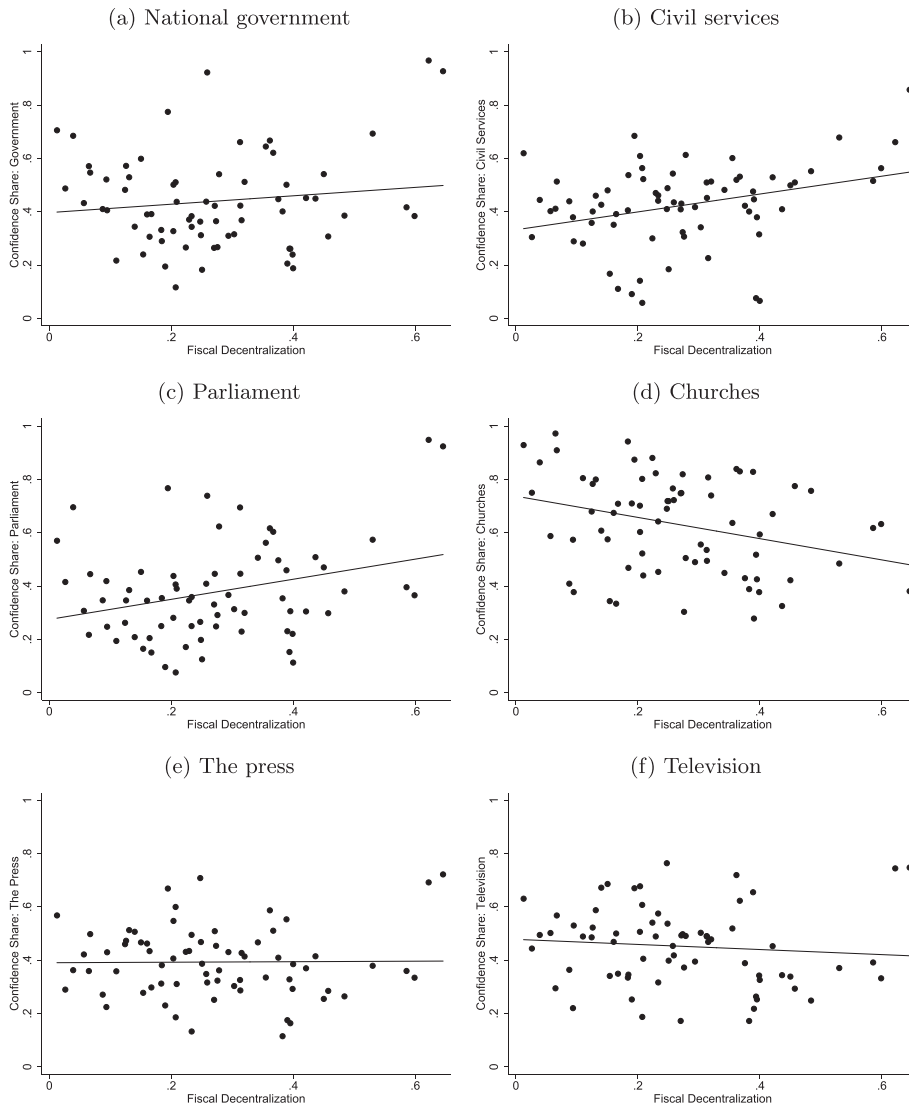
Fig. 1. Confidence in institutions and fiscal decentralization. *Notes*: The horizontal axis measures the degree of fiscal decentralization and the vertical axis represents the confidence share, which is defined as the percentage of survey respondents of a country in a given wave that indicated to have either 'a great deal of confidence' or 'quite a lot of confidence' in the corresponding institution or organization.

institutions. This finding does not mean that they have no effect on trust in institutions at all. In fact, we do find evidence that trust in other institutions is affected by gender and age.[15] These contrasting findings are in line with the literature. For example, Mishler and Rose (2001) find that trust is affected by age but not gender, Alesina and La Ferrara (2002) find that gender and age both affect trust, while Gustavsson and Jordahl (2008) find that neither of them affects trust. Of the remaining individual explanatory variables, only education and the importance of politics in life are related to trust in institutions, and the relationship is stronger and more consistent for the latter than the former.

The coefficient of fiscal decentralization always enters positively and is only not statistically significant for trust in the national government. Moreover, when we control for trust in other institutions, the point estimates of the coefficients become larger. These findings are in line with the estimation results at the aggregate level as shown in Table 1.[16] Since we use an ordered logit model to estimate our regression, the marginal effects cannot easily be derived from the estimated coefficients and have to be calculated.

When looking at the estimation results of column (4) for example, the relationship between trust in institutions and the importance of politics in life is the strongest of all at the individual level and quantitatively is as follows. Compared to a person who does not find politics important at all, a person who finds it very important is 3.5 percentage points more likely to have a great deal of

---

[15] See the web appendix to the paper for these results. We are confident that gender and age are exogenous so that we can speak of effects rather than relationships.
[16] When using individual-level data, the number of countries drops from 42 to 36. In the web appendix to the paper, we run the regressions from Table 1 again with data from these 36 countries. The qualitative results are the same, and the point estimates of the fiscal decentralization coefficients are somewhat higher.

Table 1
Trust in government and fiscal decentralization.
Aggregate level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variables							
	Trust in national government	Trust in civil services	Trust in parliament	Trust in political parties	Trust in churches	Trust in the press	Trust in television	Trust in armed forces
Fiscal decentralization	0.080	0.331**	0.332**	0.244**	− 0.414***	− 0.088	− 0.169	0.064*
	(0.151)	(0.134)	(0.147)	(0.109)	(0.147)	(0.115)	(0.129)	(0.150)
Constant	0.413***	0.334***	0.278***	0.153***	0.715***	0.414***	0.511***	0.566***
	(0.049)	(0.044)	(0.048)	(0.036)	(0.048)	(0.038)	(0.042)	(0.049)
Fixed effects: wave	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	67	67	67	67	67	67	67	67
R^2	0.006	0.094	0.076	0.078	0.183	0.023	0.042	0.053
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Dependent variables							
	Trust in national government		Trust in civil services		Trust in parliament		Trust in political parties	
Fiscal decentralization	0.212	0.190	0.458***	0.380***	0.445***	0.369**	0.345***	0.383***
	(0.129)	(0.160)	(0.111)	(0.125)	(0.132)	(0.165)	(0.091)	(0.123)
Trust in other institutions	0.868***	0.888***	0.838***	0.765***	0.742***	0.723***	0.663***	0.687***
	(0.166)	(0.215)	(0.143)	(0.169)	(0.170)	(0.223)	(0.117)	(0.167)
Constant	− 0.066	− 0.072	− 0.128	− 0.059	− 0.132	− 0.099	− 0.213***	− 0.225**
	(0.100)	(0.126)	(0.086)	(0.099)	(0.103)	(0.131)	(0.071)	(0.098)
Fixed effects: wave	Yes	No	Yes	No	Yes	No	Yes	No
Observations	67	42	67	42	67	42	67	42
R^2	0.311	0.309	0.418	0.406	0.294	0.262	0.392	0.378

Notes: OLS estimations. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels. Standard errors are in parentheses. The number of countries is 42. The web appendix to the paper repeats these analyses with a revenue-based measure of fiscal decentralization. The quantitative results are the same, but the strength of the relationship is somewhat lower. It also repeats the analyses with the two samples that experience a reduction in the number of countries as a result of either the use of individual-level data or the lag of fiscal decentralization as an instrumental variable. Finally, we also look at the consequences of using alternative measures of fiscal decentralization that may better reflect the true policy making authority of local governments.

confidence, and 11.5 percentage points more likely to have quite a lot of confidence, in civil services. When looking at trust in other persons, here measured as a respondent indicating that 'most people can be trusted', these numbers are around 2.5 and 7, respectively. In terms of our sample variation, a one standard deviation increase in fiscal decentralization is associated with almost a 1.5 percentage point higher probability to have quite a lot of confidence, and more than a 4 percentage point higher probability to have a great deal of confidence, in civil services. The strength of this relationship indicates that, at least compared to the strongest relationship we find at the individual level, the role of fiscal decentralization is certainly not negligible.

3.2. Endogeneity concerns: reverse causality

In absence of any randomized elements of fiscal decentralization, it is hard to establish clear causality of the relationship between fiscal decentralization and trust in government related institutions. It is possible that the amount of trust citizens have in their government influence the political process and in turn the degree of fiscal decentralization. The absence of a theoretical framework, either formal or informal, makes it impossible to identify the exact channels through which this causality should run though. We use standard approaches in the literature, such as the use of instrumental variables, to address this issue.

Columns (1)–(8) of Table 3 use two-stage least squares (2SLS) to regress trust in government related institutions on fiscal decentralization and wave fixed effects, where we use the lag of fiscal decentralization itself as an instrumental variable. More specifically, we measure the lag of fiscal decentralization as the average degree of fiscal decentralization in the three years preceding the wave in which the interviews took place. We repeat the analysis in columns (9)–(16) and add trust in other institutions as an additional control. In the even-numbered columns, we aggregate over waves to mitigate the possible bias resulting from measurement errors.

Apart from the fiscal decentralization coefficient in columns (7) and (8), where we look at trust in political parties, the estimation results are in line with our previous findings. The first-stage *F*-statistic is always larger than 10 and thus satisfies the criteria by Stock et al. (2002), which means that our instrumental variables are at least sufficiently correlated with fiscal decentralization.[17] The Wu–Hausman statistic indicates that we cannot reject the hypothesis of fiscal decentralization being exogenous.

There exists no straightforward procedure yet to use instrumental variables in an ordered response model. However, we can repeat the analysis of Table 2 and follow the approach suggested by Tella et al. (2003) to deal with possible reverse causality. They

---

[17] These results should be interpreted with caution since we only have one instrumental variable and our model is just identified. Hence, we cannot test whether our instrument is uncorrelated with the error term. In the web appendix to the paper, we take an alternative approach where we use less strong instrumental variables but are able to test for their correlation with the error term. Also here we find that the relationship between fiscal decentralization remains valid when using an instrumental variable approach.

Table 2
Trust in government and fiscal decentralization.
Individual level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variables							
	Trust in national government		Trust in civil services		Trust in parliament		Trust in political parties	
Fiscal decentralization	0.143	0.561	1.297***	1.742***	1.276**	1.668***	1.277**	1.581***
	(0.63)	(0.53)	(0.49)	(0.34)	(0.65)	(0.59)	(0.59)	(0.56)
Trust in other institutions		3.305***		3.434***		2.946***		2.283***
		(0.60)		(0.64)		(0.63)		(0.57)
Trust in other persons	0.340***	0.370***	0.387***	0.421***	0.415***	0.441***	0.340***	0.361***
	(0.07)	(0.05)	(0.06)	(0.05)	(0.07)	(0.06)	(0.06)	(0.05)
Male	0.009	0.005	−0.042*	−0.046**	0.042	0.037	−0.025	−0.029
	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)
Age 15–24	0.047	0.003	−0.055	−0.104*	0.102	0.065	0.129**	0.100*
	(0.09)	(0.08)	(0.06)	(0.06)	(0.08)	(0.08)	(0.06)	(0.06)
Age 25–34	0.040	0.010	−0.073*	−0.107***	0.041	0.015	0.064	0.044
	(0.06)	(0.05)	(0.04)	(0.04)	(0.06)	(0.06)	(0.05)	(0.04)
Education: lower	0.283***	0.236**	0.117	0.068	0.170	0.128	0.231***	0.200**
	(0.10)	(0.10)	(0.10)	(0.09)	(0.11)	(0.11)	(0.09)	(0.09)
Education: middle	0.154***	0.069	0.083*	−0.006	0.112*	0.038	0.153***	0.094**
	(0.06)	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.04)
Politics is very important	0.791***	0.756***	0.693***	0.664***	1.044***	1.022***	1.545***	1.532***
	(0.08)	(0.07)	(0.09)	(0.07)	(0.09)	(0.08)	(0.10)	(0.10)
Politics is rather important	0.642***	0.627***	0.590***	0.576***	0.856***	0.847***	1.196***	1.192***
	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)	(0.07)	(0.06)	(0.07)
Politics is not very important	0.344***	0.351***	0.325***	0.335***	0.472***	0.481***	0.648***	0.656***
	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)	(0.07)	(0.08)
Fixed effects: wave	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	62,765	62,765	62,765	62,765	62,765	62,765	62,765	62,765
McFadden's pseudo R^2	0.0130	0.0271	0.0183	0.0339	0.0270	0.0383	0.0397	0.0468

Notes: Ordered logit estimations. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels. Robust standard errors are clustered at the country-wave level and are in parentheses. The number of countries is 36. Additional explanatory variables at the individual level are self-reported social class and country-specific income deciles and are not shown. Base categories are female, age 35–44, higher education, income level 10, social class is lower, and politics is not at all important. The web appendix to the paper repeats the analyses with trust in non-government related institutions as dependent variables.

suggest to use the lag of the variable of interest instead of the contemporaneous measure. The estimation results of this approach are listed in Table 4, where the lag of fiscal decentralization is defined as above. The qualitative results remain exactly the same for all government related institutions, even though the number of countries is reduced by 11 due to the use of lags. The evidence in both Tables 3 and 4 supports, though are not definite proof of, the causality running from fiscal decentralization to trust in government.

3.3. Endogeneity concerns: omitted variable bias

The correction for a possible omitted variable bias is made by including country fixed effects in our regressions. Hereby, we only take countries in consideration for which we have more than a single observation of fiscal decentralization at the aggregate level.[18] This procedure reduces the number of countries to 20, but that by itself does not change the relationship between fiscal decentralization and trust in government; see the odd-numbered columns in Table 5. In fact, we find a slightly stronger relationship where, in terms of our sample variation, a one standard increase in fiscal decentralization is now associated with a 5.5, rather than 4, percentage point higher probability of having a great deal of confidence in civil services; based on column (3).

Controlling for unobserved country heterogeneity, that is the inclusion of country fixed effects in the even-numbered columns of Table 5, reduces the statistical significance of the previous found relationships somewhat. For trust in parliament, the fiscal decentralization coefficient is no longer significant, though, on the other hand, it now is so for trust in national government. A possible explanation for the lower statistical significance is the limited variation of fiscal decentralization over time. For example, the standard deviation based on the variation across countries is 0.14, while that based on the time variation within countries is only around 0.03. Overall, the positive relationship between fiscal decentralization remains valid after controlling for a possible omitted bias. Some caution is necessary though given the reduction in statistical significance.

We consider other explanatory variables that may be related to trust in government as well. Besides the degree of fiscal decentralization of the government, we now also control for the quality and size of the government. Government quality is measured by a government effectiveness indicator, which is taken from the World Bank's *Worldwide Governance Indicators*. This indicator captures the quality of public services, the capacity of the civil service and its independence from political pressure, and the quality of policy formulation. Government size is measured by the share of general government final consumption expenditures in Gross Domestic

[18]   Not excluding countries for which we only have a single observation of fiscal decentralization leads to too large degrees of freedom and underestimation of the standard errors' sizes. In the web appendix to the paper, we run a robustness check where we look at the omitted variable bias using solely data at the aggregate level.

Table 3
Trust in government and fiscal decentralization: Reverse causality.
Aggregate level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variables							
	Trust in national government		Trust in civil services		Trust in parliament		Trust in political parties	
Fiscal decentralization	0.186	0.186	0.481***	0.371*	0.417**	0.368*	0.151	0.168
	(0.171)	(0.193)	(0.175)	(0.218)	(0.168)	(0.196)	(0.102)	(0.120)
Constant	0.358***	0.334***	0.281***	0.309***	0.236***	0.235***	0.164***	0.152***
	(0.056)	(0.059)	(0.057)	(0.066)	(0.055)	(0.059)	(0.033)	(0.036)
Fixed effects: wave	Yes	No	Yes	No	Yes	No	Yes	No
Observations	50	29	50	29	50	29	50	29
R^2	0.043	0.024	0.152	0.062	0.147	0.107	0.080	0.069
First-stage F	365.187	245.808	365.187	245.808	365.187	245.808	365.187	245.808
p-Value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wu–Hausman F	0.042	0.193	0.053	1.104	0.445	0.109	1.192	0.001
p-Value	0.838	0.664	0.819	0.303	0.508	0.743	0.281	0.973
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Dependent variables							
	Trust in national government		Trust in civil services		Trust in parliament		Trust in political parties	
Fiscal decentralization	0.303**	0.276	0.600***	0.460**	0.509***	0.429**	0.225***	0.219**
	(0.149)	(0.172)	(0.153)	(0.201)	(0.156)	(0.190)	(0.086)	(0.109)
Trust in other institutions	0.692***	0.584***	0.708***	0.580***	0.548***	0.390*	0.439***	0.333***
	(0.163)	(0.191)	(0.168)	(0.223)	(0.171)	(0.210)	(0.094)	(0.120)
Constant	−0.021	0.018	−0.107	−0.004	−0.064	0.024	−0.077	−0.028
	(0.102)	(0.117)	(0.104)	(0.137)	(0.106)	(0.129)	(0.058)	(0.074)
Fixed effects: wave	Yes	No	Yes	No	Yes	No	Yes	No
Observations	50	29	50	29	50	29	50	29
R^2	0.297	0.261	0.373	0.233	0.297	0.200	0.367	0.265
First-stage F	344.062	230.094	344.062	230.094	344.062	230.094	344.062	230.094
p-Value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wu–Hausman F	0.007	0.097	0.175	0.967	0.369	0.054	1.276	0.017
p-Value	0.935	0.758	0.678	0.335	0.547	0.818	0.265	0.898

Notes: 2SLS estimations. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels. Standard errors are in parentheses. The number of countries is 29. In the even-numbered columns, we aggregate over waves to mitigate the possible bias arising from measurement errors.

Product (GDP), which is obtained from the World Bank's *World Development Indicators*. Finally, we control for income inequality measured by the Gini index taken from the *World Income Inequality Database* of the World Institute for Development Economics Research.

For the expected relationship with the government related variables, the literature provides little guidance, though this is different in the case of income inequality for which there is evidence of a clear relationship. Brehm and Rahn (1997), Knack and Keefer (1997), Zak and Knack (2001), Alesina and La Ferrara (2002), and Gustavsson and Jordahl (2008) all find that trust is negatively related with income inequality.

For each of the government related institutions, we first regress individual's trust in institutions on the whole array of individual characteristics, fiscal decentralization, and both country and wave fixed effects. Subsequently, we additionally control for trust in other institutions, and this specification corresponds to the even-numbered columns in Table 5. Finally, we control for government quality, government size, and income inequality. The additional explanatory variables lead to a further reduction in the number of observations so that the estimation results in Table 6 should be interpreted with caution.

In all of the regressions, the coefficient of fiscal decentralization is positive and statistically significant. These results imply that the relationship between fiscal decentralization and trust in government is robust. The relationship is also stronger than the one found in the baseline regression. In terms of our sample variation, a one standard deviation increase in fiscal decentralization is now associated with almost a 2.5 percentage point higher probability to have quite a lot of confidence, and around a 13 percentage point higher probability to have a great deal of confidence, in civil services; based on column (6). For income inequality, these numbers are around −2 and −11, respectively. The evidence thus suggests that the relationship between trust in government and fiscal decentralization is quantitatively comparable with more established relationships in the literature, in this case that with income inequality.

4. Conclusions

This paper looks whether the perceived improved responsiveness of governments to their citizens as a result of fiscal decentralization is associated with higher trust of these citizens in government related institutions. We indeed find a positive relationship between fiscal decentralization and trust in government. The relationship is not only statistically significant but economically relevant as well when compared to the relationships with the importance of politics in life—the strongest one we find at the individual level—or

Table 4

Trust in government and fiscal decentralization: Reverse causality.
Individual level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variables							
	Trust in national government		Trust in civil services		Trust in parliament		Trust in political parties	
Fiscal decentralization [lagged]	0.225	0.717	1.851***	2.390***	1.364**	1.833***	0.997**	1.339***
	(0.69)	(0.61)	(0.65)	(0.47)	(0.64)	(0.57)	(0.46)	(0.39)
Trust in other institutions		3.275***		3.399***		2.954***		2.213***
		(0.63)		(0.59)		(0.66)		(0.50)
Trust in other persons	0.358***	0.378***	0.401***	0.426***	0.464***	0.483***	0.371***	0.385***
	(0.08)	(0.06)	(0.08)	(0.06)	(0.09)	(0.08)	(0.07)	(0.06)
Male	0.010	0.009	−0.037	−0.039	0.065***	0.064**	−0.020	−0.022
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Age 15–24	−0.022	−0.023	−0.092	−0.101	0.075	0.076	0.073	0.072
	(0.12)	(0.10)	(0.08)	(0.06)	(0.10)	(0.08)	(0.07)	(0.05)
Age 25–34	−0.030	−0.029	−0.130**	−0.133***	0.000	0.004	0.017	0.018
	(0.07)	(0.06)	(0.05)	(0.04)	(0.07)	(0.06)	(0.05)	(0.04)
Education: lower	0.225***	0.230***	0.016	0.016	0.108	0.114	0.202***	0.205***
	(0.07)	(0.07)	(0.09)	(0.08)	(0.08)	(0.09)	(0.06)	(0.07)
Education: middle	0.126*	0.036	0.043	−0.055	0.073	−0.007	0.118**	0.056
	(0.07)	(0.05)	(0.06)	(0.06)	(0.07)	(0.05)	(0.05)	(0.04)
Politics is very important	0.794***	0.789***	0.668***	0.667***	1.061***	1.067***	1.624***	1.630***
	(0.10)	(0.08)	(0.11)	(0.08)	(0.12)	(0.10)	(0.14)	(0.12)
Politics is rather important	0.658***	0.676***	0.603***	0.624***	0.881***	0.904***	1.267***	1.285***
	(0.06)	(0.06)	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Politics is not very important	0.388***	0.412***	0.372***	0.402***	0.521***	0.547***	0.754***	0.776***
	(0.06)	(0.05)	(0.07)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)
Fixed effects: wave	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,297	47,297	47,297	47,297	47,297	47,297	47,297	47,297
McFadden's pseudo R^2	0.0143	0.0290	0.0235	0.0398	0.0303	0.0423	0.0424	0.0494

Notes: Ordered logit estimations. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels. Robust standard errors are clustered at the country-wave level and are in parentheses. The number of countries is 25. Additional explanatory variables at the individual level are self-reported social class and country-specific income deciles and are not shown. Base categories are female, age 35–44, higher education, income level 10, social class is lower, and politics is not at all important. The web appendix to the paper repeats the analyses with trust in non-government related institutions as dependent variables.

well established relationships in the literature such as that between trust and income inequality. Moreover, we find evidence that supports, but not proofs, the causality to run from fiscal decentralization to trust in government. Actual proof of causality would require an analysis with randomized elements in fiscal decentralization, which so far is lacking in the related literature and would be a useful avenue for future research.

Most importantly, our results lend further support to economic analyses that use the preference matching argument of the subsidiarity principle as a theoretical underpinning for their research. Additionally, policy makers that need to make recommendations on the fiscal decentralization process of a country can take into account the relationship of fiscal decentralization with trust in government and form a more complete assessment of its pros and cons.

Future research could usefully focus on providing a theoretical underpinning of more specific transmission channels concerning the relationship between fiscal decentralization and trust in government. Moreover, surveys that focus on governance issues in more detail and explicitly recognize the different levels of government within countries—examples are the AmericasBarometer surveys or the Life in Transition Surveys—could be used to study the relationship between fiscal decentralization and trust in government related institution in greater detail.

Table 5
Trust in government and fiscal decentralization: Omitted variable bias.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variables							
	Trust in national government		Trust in civil services		Trust in parliament		Trust in political parties	
Fiscal decentralization	0.825	2.496*	2.330***	2.693*	2.331***	1.841	1.849***	2.292*
	(0.56)	(1.48)	(0.38)	(1.48)	(0.62)	(1.56)	(0.44)	(1.20)
Trust in other institutions	3.188***	4.938***	3.479***	3.612***	3.006***	4.255***	2.421***	2.518**
	(0.59)	(0.94)	(0.60)	(1.20)	(0.61)	(1.05)	(0.46)	(1.23)
Trust in other persons	0.379***	0.355***	0.417***	0.327***	0.456***	0.398***	0.341***	0.303***
	(0.06)	(0.04)	(0.06)	(0.04)	(0.07)	(0.04)	(0.06)	(0.04)
Male	0.010	−0.011	−0.046**	−0.045*	0.037	0.014	−0.042*	−0.058**
	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)
Age 15–24	0.002	−0.050	−0.089	−0.015	0.053	0.023	0.068	0.053
	(0.09)	(0.08)	(0.06)	(0.05)	(0.08)	(0.07)	(0.06)	(0.05)
Age 25–34	0.001	−0.041	−0.097***	−0.068**	0.004	−0.029	0.015	−0.003
	(0.06)	(0.05)	(0.03)	(0.03)	(0.06)	(0.05)	(0.04)	(0.03)
Education: lower	0.263***	0.208***	0.043	0.070	0.126	0.065	0.184***	0.177***
	(0.07)	(0.05)	(0.08)	(0.05)	(0.08)	(0.05)	(0.07)	(0.04)
Education: middle	0.043	−0.029	−0.046	−0.050	0.013	−0.047	0.072	0.045
	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.04)	(0.04)
Politics is very important	0.737***	0.751***	0.648***	0.686***	1.015***	1.051***	1.563***	1.578***
	(0.08)	(0.07)	(0.08)	(0.06)	(0.09)	(0.07)	(0.12)	(0.11)
Politics is rather important	0.654***	0.700***	0.627***	0.607***	0.869***	0.918***	1.262***	1.283***
	(0.06)	(0.05)	(0.06)	(0.04)	(0.06)	(0.05)	(0.07)	(0.06)
Politics is not very important	0.400***	0.439***	0.389***	0.382***	0.532***	0.556***	0.757***	0.770***
	(0.05)	(0.05)	(0.06)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)
Fixed effects: country	No	Yes	No	Yes	No	Yes	No	Yes
Fixed effects: wave	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,508	47,508	47,508	47,508	47,508	47,508	47,508	47,508
McFadden's pseudo R^2	0.0277	0.0490	0.0392	0.0573	0.0442	0.0670	0.0511	0.0632

Notes: Ordered logit estimations. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels. Robust standard errors are clustered at the country-wave level and are in parentheses. The number of countries is 20. Additional explanatory variables at the individual level are self-reported social class and country-specific income deciles and are not shown. Base categories are female, age 35–44, higher education, income level 10, social class is lower, and politics is not at all important. The web appendix to the paper repeats the analyses with trust in non-government related institutions as dependent variables.

Table 6
Trust in government and fiscal decentralization: Additional explanatory variables.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Dependent variables											
	Trust in national government			Trust in civil services			Trust in parliament			Trust in political parties		
Fiscal decentralization	4.740***	4.309**	5.519***	4.310**	4.154**	5.346***	3.896**	3.725**	4.981***	3.933***	3.893***	4.643***
	(1.43)	(1.72)	(1.23)	(2.08)	(2.01)	(1.61)	(1.53)	(1.66)	(0.87)	(1.20)	(1.22)	(0.71)
Trust in other institutions		5.805***	7.307***		2.069*	2.371***		2.284***	4.171***		0.553	1.210
		(1.09)	(1.01)		(1.13)	(0.91)		(0.81)	(0.56)		(0.76)	(0.78)
Government quality			−0.075			0.770**			−0.323*			−0.213
			(0.21)			(0.31)			(0.17)			(0.19)
Government size			1.147			−2.715			2.247*			−3.057**
			(1.66)			(3.09)			(1.17)			(1.49)
Income inequality			−8.073***			−8.052***			−8.392***			−5.753***
			(0.94)			(1.03)			(0.97)			(0.91)
Fixed effects: country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects: wave	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	22,779	22,779	22,779	22,779	22,779	22,779	22,779	22,779	22,779	22,779	22,779	22,779
McFadden's pseudo R^2	0.0446	0.0493	0.0528	0.0609	0.0615	0.0656	0.0672	0.0679	0.0719	0.0537	0.0537	0.0562

Notes: Ordered logit estimations. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels. Robust standard errors are clustered at the country-wave level and are in parentheses. The number of countries is 11. The estimations contain all explanatory variables at the individual level that are discussed in the paper, but the corresponding results are not shown. The web appendix to the paper repeats the analyses with trust in non-government related institutions as dependent variables. We also repeat the analyses of columns (3), (6), (9), and (12), where we either cluster standard errors at the country level or look only at variables at the aggregate level.

Appendix A

A.1. The ordered response model

Because our dependent variable at the individual level is categorical and ordered, we use an ordered response model. To capture the repeated cross-sectional nature of our data—where households are different in each cross-section—we index individuals by $i(t)$, where $i(t) = 1, ..., I$ and $t = 1, ..., T$. More specifically, we estimate the following ordered logit model for individual $i(t)$ residing in country $j = 1, ..., J$ at time t:

$$y_{i(t)jt} = k \quad \text{if} \quad \mu_{k-1} < y^*_{i(t)jt} \leq \mu_k \quad \text{for} \quad k = 1, ..., K, \tag{A.1}$$

where k represents an index for the number of categories (where $K = 4$), μ_k is the upper cut-point for category k, and $y^*_{i(t)jt}$ is a latent dependent variable given by[19]

$$y^*_{i(t)jt} = \beta' \mathbf{x}_{jt} + \gamma' \mathbf{z}_{i(t)jt} + \eta_j + \phi_t + \varepsilon_{i(t)jt}, \tag{A.2}$$

where $\mathbf{x}_{jt}$ is a vector of variables at the aggregate level, including our measure of fiscal decentralization, $\mathbf{z}_{i(t)jt}$ is a vector of variables at the individual level, and β and γ are the vectors of parameters. The parameters η_j and ϕ_t are the country-specific fixed effects and wave fixed effects, respectively, and $\varepsilon_{i(t)jt}$ is a logistically distributed error term with mean zero and variance $\pi^2/3$.

The probability of individual $i(t)$ of country j choosing category k conditional on $\mathbf{x}_{jt}$ and $\mathbf{z}_{i(t)jt}$ is given by

$$\text{Prob}\left(y_{i(t)jt} = k | \mathbf{x}_{jt}, \mathbf{z}_{i(t)jt}\right) = F\left(\mu_k - \beta' \mathbf{x}_{jt} - \gamma' \mathbf{z}_{i(t)jt} - \eta_j - \phi_t\right) - F\left(\mu_{k-1} - \beta' \mathbf{x}_{jt} - \gamma' \mathbf{z}_{i(t)jt} - \eta_j - \phi_t\right),$$

where $F(\cdot)$ denotes the logistic cumulative density function of $\varepsilon_{i(t)jt}$. The corresponding log-likelihood function is given by

$$\ln L(\theta | \mathbf{x}, \mathbf{z}) = \sum_{i=1}^{I} \sum_{j=1}^{J} \sum_{k=1}^{K} \sum_{y_{i(t)jt}=k} y_{i(t)jt} \ln \text{Prob}\left(y_{i(t)jt} = k | \theta, \mathbf{x}, \mathbf{z}\right), \tag{A.3}$$

where $\theta \equiv [\beta \quad \gamma \quad \eta_j \quad \phi_t \quad \boldsymbol{\mu}]'$ is a row vector with parameters, and $\boldsymbol{\mu}$ is the vector of cut-points. For identification purposes, we set the constant to zero. Maximizing (A.3) gives the estimates of the coefficient vectors β and γ, the fixed effects η_j and ϕ_t, and the cut-points μ_k. Depending on the specification we may assume the fixed effects η_j to be zero.

A.2 Descriptive statistics

Table A.1
Descriptive statistics: Country level.

Variable	Obs	Mean	Std. dev.	Min	Max	Source
Trust in national government	67	0.43	0.17	0.12	0.93	WVS
Trust in civil services	67	0.42	0.16	0.06	0.86	WVS
Trust in parliament	67	0.36	0.17	0.08	0.92	WVS
Trust in political parties	67	0.22	0.13	0.05	0.88	WVS
Trust in churches	67	0.39	0.13	0.11	0.72	WVS
Trust in the press	67	0.39	0.13	0.11	0.72	WVS
Trust in television	67	0.45	0.15	0.17	0.76	WVS
Trust in armed forces	67	0.60	0.17	0.22	0.92	WVS
Trust in other institutions	67	0.52	0.11	0.28	0.74	WVS
Fiscal decentralization	67	0.27	0.14	0.01	0.65	GFS
Fiscal decentralization [lagged]	50	0.29	0.12	0.09	0.59	GFS
Government quality	25	0.61	1.04	−0.79	2.14	WGI
Government size	25	0.17	0.04	0.10	0.23	WDI
Income inequality	25	0.35	0.08	0.24	0.52	WIID

Notes: The sources are as follows:
WVS: World Value Survey 1981–2008 Aggregate Version, World Values Survey Association (2009), http://www.worldvaluessurvey.org/.
GFS: IMF's Government Finance Statistics, International Monetary Fund (2010), http://elibrary-data.imf.org/.
WGI: World Bank's Worldwide Governance Indicators, World Bank (2008), http://info.worldbank.org/governance/wgi/.
WDI: World Bank's World Development Indicators, World Bank (2010), http://data.worldbank.org/indicator.
WIID: World Income Inequality Database, UNU Wider (2008), http://www.wider.unu.edu/research/Database/.

---

[19] The category $y_{i(t)jt} = 4$ corresponds to the answer 'a great deal of confidence,' $y_{i(t)jt} = 3$ to 'quite a lot of confidence,' $y_{i(t)jt} = 2$ to 'not very much confidence,' and $y_{i(t)jt} = 1$ to 'none at all.' The categories $k = 1$ and $k = K = 4$ (i.e., the extreme categories) are open-ended intervals with $\mu_0 \to -\infty$ and $\mu_K \to \infty$. See Long (1997) for further details on the ordered logit model.

Table A.2
Descriptive statistics: Individual level.

Variable	Obs	Mean	Std. dev.	Min	Max	Source
Trust in national government	62,765	2.35	0.89	1	4	WVS
Trust in civil services	62,765	2.31	0.81	1	4	WVS
Trust in parliament	62,765	2.24	0.86	1	4	WVS
Trust in political parties	62,765	2.00	0.79	1	4	WVS
Trust in churches	62,765	2.88	0.97	1	4	WVS
Trust in the press	62,765	2.33	0.80	1	4	WVS
Trust in television	62,765	2.43	0.80	1	4	WVS
Trust in armed forces	62,765	2.65	0.89	1	4	WVS
Trust in other persons	62,765	0.26	0.44	0	1	WVS
Male	62,765	0.49	0.50	0	1	WVS
Age 15–24	62,765	0.28	0.45	0	1	WVS
Age 25–34	62,765	0.41	0.49	0	1	WVS
Age 35–44	62,765	0.31	0.46	0	1	WVS
Education is lower	62,765	0.30	0.46	0	1	WVS
Education is middle	62,765	0.47	0.50	0	1	WVS
Education is upper	62,765	0.23	0.42	0	1	WVS
Social class is upper	62,765	0.01	0.12	0	1	WVS
Social class is upper middle	62,765	0.19	0.40	0	1	WVS
Social class is lower middle	62,765	0.39	0.49	0	1	WVS
Social class is working	62,765	0.30	0.46	0	1	WVS
Social class is lower	62,765	0.11	0.31	0	1	WVS
Income level 1	62,765	0.11	0.31	0	1	WVS
Income level 2	62,765	0.14	0.34	0	1	WVS
Income level 3	62,765	0.14	0.35	0	1	WVS
Income level 4	62,765	0.14	0.34	0	1	WVS
Income level 5	62,765	0.14	0.34	0	1	WVS
Income level 6	62,765	0.10	0.31	0	1	WVS
Income level 7	62,765	0.09	0.28	0	1	WVS
Income level 8	62,765	0.07	0.25	0	1	WVS
Income level 9	62,765	0.05	0.21	0	1	WVS
Income level 10	62,765	0.04	0.20	0	1	WVS
Politics is very important	62,765	0.12	0.32	0	1	WVS
Politics is rather important	62,765	0.29	0.45	0	1	WVS
Politics is not very important	62,765	0.38	0.49	0	1	WVS
Politics is not at all important	62,765	0.22	0.41	0	1	WVS

Notes: The sources are as follows:
WVS: World Value Survey 1981–2008 Aggregate Version, World Values Survey Association (2009), http://www.worldvaluessurvey.org/.

Appendix B. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.ejpoleco.2014.11.005.

References

Alesina, A., La Ferrara, E., 2002. Who trusts others? J. Public Econ. 85, 207–234.
Baskaran, T., 2011. Fiscal decentralization, ideology, and the size of the public sector. Eur. J. Polit. Econ. 27, 485–506.
Bertrand, M., Duflo, E., Mullainathan, S., 2004. How much should we trust differences-in-differences estimates? Q. J. Econ. 119, 249–275.
Besley, T., Coate, S., 2003. Centralized versus decentralized provision of local public goods: a political economy approach. J. Public Econ. 87, 2611–2637.
Bjornskov, C., Drehe, A., Fischer, J.A., 2008. On decentralization and life satisfaction. Econ. Lett. 99, 147–151.
Blanco, L.R., 2013. The impact of crime on trust in institutions in Mexico. Eur. J. Polit. Econ. 32, 38–55.
Brehm, J., Rahn, W., 1997. Individual-level evidence for the causes and consequences of social capital. Am. J. Polit. Sci. 3, 999–1023.
Brennan, G., Buchanan, J.M., 1980. The Power to Tax: Analytical Foundations of a Fiscal Constitution. Cambridge University Press, Cambridge, U.K.
Brueckner, J.K., 1999. Fiscal federalism and capital accumulation. J. Public Econ. Theory 1, 205–224.
Brueckner, J.K., 2006. Fiscal federalism and economic growth. J. Public Econ. 90, 2107–2120.
Davoodi, H., Zou, H.-f, 1998. Fiscal decentralization and economic growth: a cross-country study. J. Urban Econ. 43, 244–257.
de Mello, L., 2011. Does fiscal decentralisation strengthen social capital? Cross-country evidence and the experiences of Brazil and Indonesia. Environ. Plan. C Gov. Policy 29, 281–296.
Dearmon, J., Grier, R., 2011. Trust and the accumulation of physical and human capital. Eur. J. Polit. Econ. 27 (3), 507–519.
Dincer, O., 2010. Fiscal decentralization and trust. Public Financ. Rev. 38, 178–192.
Enikolopov, R., Zhuravskaya, E., 2007. Decentralization and political institutions. J. Public Econ. 91, 2261–2290.
Fisman, R., Gatti, R., 2002. Decentralization and corruption: evidence across countries. J. Public Econ. 83, 325–345.
Gustavsson, M., Jordahl, H., 2008. Inequality and trust in Sweden: some inequalities are more harmful than others. J. Public Econ. 92, 348–365.
Iimi, A., 2005. Decentralization and economic growth revisited: an empirical note. J. Urban Econ. 57, 449–461.
International Monetary Fund, 2001. Government Finance Statistics Manual 2001. International Monetary Fund, Washington, D.C.
International Monetary Fund, 2010. Government Finance Statistics. International Monetary Fund, Washington, D.C.
Keele, L., 2007. Social capital and the dynamics of trust in government. Am. J. Polit. Sci. 51, 241–254.
Kincaid, J., Cole, R.L., 2010. Citizen attitudes toward issues of federalism in Canada, Mexico, and the United States. Publius J. Federalism 41, 53–75.
Knack, S., Keefer, P., 1997. Does social capital have an economic payoff? A cross-country investigation. Q. J. Econ. 112, 1251–1288.

Long, S.J., 1997. Regression models for categorical and limited dependent variables, Advanced Quantitative Techniques in the Social Sciences 2nd edition. Sage Publications, London.

Martinez-Vazquez, J., McNab, R.M., 2003. Fiscal decentralization and economic growth. World Dev. 31, 1597–1616.

Miller, A.H., Listhaug, O., 1990. Political parties and confidence in government: a comparison of Norway, Sweden and the United States. Br. J. Polit. Sci. 20, 357–386.

Mishler, W., Rose, R., 2001. What are the origins of political trust? Testing institutional and cultural theories in post-communist societies. Comp. Polit. Stud. 34, 30–62.

Moulton, B.R., 1990. An illustration of a pitfall in estimating the effects of aggregate variables on micro units. Rev. Econ. Stat. 72, 334–338.

Oates, W.E., 1972. Fiscal Federalism. Harcourt Brace Jovanovich, New York, USA.

Oates, W.E., 1999. An essay on fiscal federalism. J. Econ. Lit. 37, 1120–1149.

OECD, 1999. Taxing powers of state and local governments. OECD Tax Policy Studies No. 1 . OECD, Paris.

Oto-Peralías, D., Romero-Ávila, D., Usabiaga, C., 2013. Does fiscal decentralization mitigate the adverse effects of corruption on public deficits? Eur. J. Polit. Econ. 32, 205–231.

Peiró-Palomino, J., Tortosa-Ausina, E., 2013. Can trust effects on development be generalized? A response by quantile. Eur. J. Polit. Econ. 32, 377–390.

Qian, Y., Roland, G., 1998. Federalism and the soft budget constraint. Am. Econ. Rev. 88 (5), 1143–1162.

Rodrik, D., 1999. Where did all the growth go? External shocks, social conflict, and growth collapses. J. Econ. Growth 4, 385–412.

Stock, J.H., Wright, J.H., Yogo, M., 2002. A survey of weak instruments and weak identification in generalized method of moments. J. Bus. Econ. Stat. 20, 518–529.

Tanzi, V., 1995. Fiscal federalism and decentralization: a review of some efficiency and macroeconomic aspects. Annual World Bank Conference on Development Economics. World Bank, Washington, DC.

Tella, R.D., MacCulloch, R.J., Oswald, A.J., 2003. The macroeconomics of happiness. Rev. Econ. Stat. 85 (4), 809–827.

Thiessen, U., 2003. Fiscal decentralisation and economic growth in high-income OECD countries. Fisc. Stud. 24, 237–274.

Thornton, J., 2007. Fiscal decentralization and economic growth reconsidered. J. Urban Econ. 61, 64–70.

Tiebout, C., 1956. A pure theory of local expenditures. J. Polit. Econ. 64, 416–424.

Treisman, D., 2000. The causes of corruption: a cross-national study. J. Public Econ. 76, 399–457.

UNU Wider, 2008. World Income Inequality Database.

Woller, G.M., Phillips, K., 1998. Fiscal decentralization and LDC economic growth: an empirical investigation. J. Dev. Stud. 34, 139–148.

World Bank, 2008. Worldwide Governance Indicators. World Bank, Washington, D.C.

World Bank, 2010. World Development Indicators Online (WDI). World Bank, Washington, D.C.

World Values Survey Association, 2009. World values survey 1981–2008 aggregate version 20090901. Aggregate file producer: Asep/jds, Madrid. www.worldvaluessurvey.org.

Zak, P.J., Knack, S., 2001. Trust and growth. Econ. J. 111, 295–321.

Zhang, T., Zou, H., 1998. Fiscal decentralization, public spending, and economic growth in China. J. Public Econ. 67, 221–240.