

INTERNATIONAL  
CENTER FOR  
PUBLIC POLICY

**International Center for Public Policy**  
**Working Paper 23-11**  
**May 2023**

## **The Many Forms of Decentralization and Citizen Trust in Government**

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**ANDREW YOUNG SCHOOL**  
OF POLICY STUDIES



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# The Many Forms of Decentralization and Citizen Trust in Government

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May 2023

## Abstract

This paper contributes to the literature on the nexus between decentralization and citizen trust in government through the use of a comprehensive set of decentralization measures that have been recently developed. Using measures of autonomy at both the regional and local (municipal) levels of government, and responses from five recent waves of the World Values Survey on citizen trust/confidence in their national government, the civil service, and the police, several interesting insights emerged from the analysis. First, giving regional governments a voice in policy making for the country as a whole promotes trust in government at the national level and in the civil service. Second, deconcentration—central government offices at the regional level as opposed to autonomous regional governments—appears to be an effective strategy to generate greater confidence in government activities. Third, affording regional and local governments complete autonomy in the delivery of government services without at least some oversight by higher levels of government is not found to be trust promoting. Finally, giving local governments authority to levy at least one major tax is associated with greater government trust, a finding that is consistent with others who have found tax decentralization to be linked with better outcomes in the public sector. Overall, the analysis suggests that the caution researchers sometimes give when using one-dimensional measures of the authority/autonomy measures of subnational governments such as a fiscal decentralization is warranted.

**Keywords:** decentralized governments, government trust, fiscal decentralization

**JEL codes:** H11, H72, H77

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## **I. Introduction**

Public trust and confidence in government varies widely across countries and over time. In the US, it has declined over the past two decades and today it stands well below what it was during the last half of the 20<sup>th</sup> century. For example, one recent poll showed that only about 20 percent of Americans trusted the federal government in Washington to do “what is right” most of the time, down from 34 percent at the turn of the century (Pew Research Center, 2022). However, Americans tend to place greater faith in state and local governments, particularly the latter, presumably because they are closest to the people and are perceived to be more accountable to their citizens (O’Leary, et al., 2021; Gallup, 2022). Internationally, confidence/trust in government also varies widely across countries. For example, recent surveys by the Gallup World Poll of Scandinavian countries revealed that over 80 percent of the respondents expressed confidence in the national government, while in Chile and Romania the corresponding percentage stood at around 20 percent (Gallup World Poll, 2020). Trust in government in OECD countries has generally increased since 2007, although more recent surveys have shown that this has begun to decline (Gallup World Poll, 2020 as reported in OECD, 2021).

Broadly defined, trust has been shown to have a causal influence on economic performance (Algan and Cahuc, 2014; Bargain and Aminjonov, 2020). Trust in political institutions has also been demonstrated to have an important influence on outcomes of public policy. For example, public trust has been linked to the level of compliance on policies to control and contain COVID-19 in Europe (Bargain and Aminjonov, 2020), and earlier, to combat the Ebola outbreak (Blair, et al., 2017). More recently, Koumpias, et al. (2021) link trust in government to tax morale. Given its importance in effective policy making, international

institutions such as the OECD have argued that building trust should be an important objective of public institutions (OECD, 2017).<sup>1</sup>

An analysis as to what drives public trust and the role that governance plays generally focuses on competency in the delivery of government services and the process of policy making. The former refers to efficiency issues surrounding service delivery while the latter refers to the integrity of government officials, transparency of decision making, and the degree to which outcomes satisfy societal norms of equity (OECD, 2017). As a strategy to achieve competency and improve the process of policy making, it has been argued the decentralized political regimes can promote efficiency and accountability in the delivery of public services, accommodate heterogeneous preferences among citizens for public services, and assuage ethnic conflict, thereby improving citizen trust in government.

Decentralization refers to the transfer of power and authority from the central government to subnational units of government. It can take several general forms, including the devolution (transfer of responsibility for service delivery), fiscal (transfer of financial resources), and deconcentration (transfer of administrative responsibilities to regional or local branches of the central government).<sup>2</sup> Of these, outcomes associated with fiscal decentralization have received the most attention in the academic literature, largely because it is relatively straightforward to measure given the availability of data on tax and spending by central and subnational units of government. Using measures of fiscal decentralization, for example, several recent papers have concluded that fiscally decentralized government structures tend to promote citizen trust in

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<sup>1</sup> See Bargain and Aminjonov (2020) for additional references from the literature on the link between political trust and government performance.

<sup>2</sup> For a further discussion of these strategies towards government decentralization, see Seabright (1996), World Bank Institute (2002), and World Bank (2013). A fourth possible form of decentralization involves privatization or the transfer of government functions to private entities. This is not considered in the analysis below.

government, at least in some circumstances. However, it has been well understood that fiscal decentralization measures paint an incomplete picture of the extent of decision-making decentralization in a given country, and in recent years more comprehensive sets of country-level measures have been developed. These measures are multifaceted in nature and more nuanced in capturing what is actually meant by each of three general forms of decentralization referenced above. They offer a more complete assessment of how political power and responsibilities for the delivery of government services are shared between the central and local/regional tiers of government.

This paper contributes to the literature on the nexus between decentralization and citizen trust in government through the use of the more comprehensive set of decentralization measures that have been recently developed. Overall, the results suggest that caution should indeed be exercised when using one-dimensional measures of the authority/autonomy of subnational government, such as fiscal decentralization, in drawing conclusions as to how decentralization reforms might affect citizen trust in government. Such measures overlook important institutional details about that power-sharing arrangement, and this can matter when it comes to quality governance and citizen trust in government.

In recent decades there has been a general trend towards greater decentralization globally, although the form and extent vary by country. A majority of OECD nations have moved towards more decentralized government structures over this time period (OECD, 2019). Spain, for example, transitioned from a centralized to a federal system in 1978 and has continued to devolve powers to its autonomous regions since that time. Garman, et al. (2001) reported that over 80 percent of the 75 developing countries they analyzed had adopted some form of fiscal decentralization of government authority in recent decades. Hooghe, et al. (2010) determined

that 32 out of 42 democracies and semi-democracies they studied decentralized some authority to regional governments since 1950. However, not all decentralization reforms have persisted over time. Uganda, for example, has recently taken steps to recentralize political power following reforms introduced in the mid-1990s (Dickovick and Eaton, 2004; Dickovick, 2011; Lewis, 2014; Malesky, et al., 2014).

It is beyond the scope of this paper to evaluate how successful these initiatives have been towards accomplishing the stated goals of these reforms. Rather the goal is to understand better how government decentration, in its various forms, directly influences citizen trust and confidence in their government in service delivery.

The structure of the remainder of this paper is as follows: Section II provides an overview of the literature linking decentralization to government performance. Section III summarizes the literature on the drivers of trust in government. The regional and local decentralization measures used in this analysis are presented in Section IV, followed in Section V with a discussion of the empirical model, data, and estimation strategy used in this analysis. The presentation of the results and robustness analysis is in Section VI. Section VII offers concluding remarks.

## **II. Decentralization and government performance**

The theoretical and empirical relationship between decentralization and government performance has received considerable attention in the literature and will only be briefly reviewed here. For more comprehensive literature surveys on this general topic, see White (2011) and Martinez-Vazquez, et al. (2017). Theories of federalism from an economic perspective date at least back to Tiebout (1965) and Oates (1972, 1999). Each argued that the decentralization of certain functions of government can promote allocative efficiencies in the

provision of public goods with limited spatial incidence (local public goods) because it permits a better matching heterogeneous citizen preference for such goods via Tiebout-like mobility (de Mello, 2004). Further, subnational governments are “closer to the people,” which lowers monitoring costs of government officials who have their own objective functions (Oates, 2005), thereby promoting greater accountability of their actions (Klitgaard, 1988; Tanzi, 1995; Murphy, et. al, 1995; Shah, 2006).

A decentralized government structure also fosters competition among jurisdictions to attract citizens and other mobile resources and makes “yardstick” assessments of government performance easier (Salmon, 1987; Bretton, 1996). Yet, while this competition might improve allocative efficiency, it might also encourage a “race to the bottom” via lower taxes and service levels in order to attract mobile resources (Wilson, 1986; Zodrow and Mieszkowski, 1986). On the other hand, Qian and Roland (1998) have argued that such competition, along with decentralization of fiscal authority, can harden budget constraints at the local level and discourage these units of government from taking on excessive debt.

Decentralized government structures may also promote citizen interest in local decision-making processes, encourage political participation (Dabla-Norris, 2006; Tang and Huhe, 2016), and make it easier to coordinate strategies to remove underperforming government officials (Fan, et al., 2009). However, Adams, et al. (2014) and Purd’homme (1995) have also argued that decentralized government structures empower local interest groups to better drive their own agendas and makes attracting qualified applicants for government jobs difficult. It has also been noted that local units of government may not be able to take full advantage of scale economies in the provision of government services and that the spatial incidence of the benefits provided by

local public goods may not align with political boundaries, thereby leading to potential benefit spillovers and the under-provision of such goods (Oates, 1972, 1999; Besley and Coate, 2003).

In summary, there are strong arguments in favor of assigning subnational units of government the lead to provide (and finance) certain local public goods. However, this is not to say that some administrative oversight and intervention by authorities at the central/regional level in carrying out these functions of government is unwarranted. The benefit spillovers of many locally provided goods and services may be substantial and require subsidies of higher level of governments to achieve allocative efficiency objectives. Minority groups may need protection from democratic choices made locally, and certain national goals (e.g., prevention of racial discrimination, equitable distribution of income, achieving public health goals) may require some involvement/oversight by central authorities of decisions made at the local level.

From the perspective of empirical research, a sizable literature has emerged on the economic consequences of decentralization, such as how it affects economic growth, income inequality, and government corruption. See Martinez-Vazquez, et al. (2017) for a recent review of this literature as it pertains to fiscal decentralization. Less has been done on the influence that decentralization may have on the behavior of individuals as citizens with respect to their attitudes towards their government and the level of confidence they have in the officials charged with the responsibility of the delivery of these services. It is this issue we turn to next.

### **III. What drives trust?**

Understanding what drives the level of trust in a society has received considerable attention in both the economics and political science literature. Most address the general level of interpersonal trust in a community, not directly with trust in government. Many focus on a single country, including Alesina and La Ferra (2002), Gustavsson and Jordahl (2008), and Dincer (2010), while some analyzed cross-country data sets (e.g., Zak and Knack, 2001).

Several studies have addressed the determinants of trust in government and institutions more generally without considering a possible role for government decentralization. These include Alesina and La Ferra (2002) who analyzed individual-level data drawn from U.S. localities, Keele (2007) who addressed the influence of government performance and social capital on trust in government using macro-level data from Sweden, and Blanco (2013) who used survey data to analyze the impact of crime on trust in institutions in Mexico. Zhao and Hu (2017) identified factors that determine trust in government in urban China using a phone survey of adults in 34 Chinese metropolitan cities. Finally, Knack and Keefer (1997) investigated the role that education, economic performance, and ethnic diversity play in citizen confidence in government using a sample drawn from 29 market economies. These studies will be used to inform the selection of control variables in the empirical analysis presented below.

The nexus between decentralized government structures and trust has received some attention in recent literature. Dincer (2010) reported a positive association between fiscal decentralization and the share of trusting people in the U.S. states. He did not consider citizen trust in government directly. Similarly, de Mello (2016) concluded the survey respondents in federalist countries are more “provoice” in government decisions and this is associated with greater social trust.

More relevant to the present study, Lighthart and van Oudheusden (2015) examined the relationship between fiscal decentralization and citizen trust in several government-related institutions, using panel data for 42 countries over the years 1996–2007. They report a positive and statistically significant relationship between fiscal decentralization and citizen trust in civil services, parliament, and political parties, but statistically weaker evidence when it came to trust in the national government.

Tang and Huhe (2016), using data drawn from the Asian Barometer Survey for over 20 Asian countries, concluded that fiscal decentralization promotes trust in the national government in autocratic regimes, but not in democracies. In contrast, a positive association between decentralization and trust in local governments was observed for democracies, while a negative relationship was found for autocracies. More recently, Kim et al. (2022) focused on trust at the local level of government and finds that fiscal decentralization promotes trust at that level of government in the case of South Korea.

All of the papers cited above that have addressed the nexus between decentralization and public trust have accomplished this by using some measure of fiscal decentralization (i.e., subnational government share of total spending or tax revenues) in their analysis.<sup>3</sup> More recently, Ladner (2019) reported that a positive association between the “Local Autonomy Index”—described further below—and “trust in local and regional government” based on a Eurobarometer survey of public opinion in European Union countries in 2013.<sup>4</sup>

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<sup>3</sup> An exception is de Mello (2016) who used countries classified as federalist to identify a decentralized government structure. He also analyzed two case studies (Brazil and Indonesia) that introduced significant decentralization reforms during the years 1988–93.

<sup>4</sup> The analysis presented below will also make use of this same index as a decentralization measure (along with others) and its components in characterizing government decentralization. It builds on the Ladner (2019) analysis in several ways, including considering a broader set of countries for a longer time period, a more complete model of trust in government, a separate analysis of regional and local government authority, and the various dimensions to

In summary, most of the extant literature has concluded that decentralized government structures tend to promote citizen trust in government, at least in some circumstances. The goal of the present analysis is to see if similar conclusions hold using more comprehensive measures of decentralization that are better grounded in how political power and responsibilities for the delivery of government services are shared between the central and local/regional tiers of government.

#### **IV. Measuring Decentralization**

In this analysis, the decentralization of government will be evaluated from both the perspectives of regional and local governments. While there are at least 25 decentralization indexes that could be used for such an analysis, the Regional Authority Index and the Local Autonomy Index are selected for this purpose, as they have been judged by others as best in complying with quality standards, including validity and reliability (Harguindéguy, et al., 2021) and have been used in the literature in other contexts that what is presently being addressed. These measures of the authority/autonomy are discussed in turn below.

*Regional Authority Index.* The Regional Authority Index (*RAI*) is a measure of government decentralization or authority at the regional level. It encompasses intermediate units of government between the local and national level, both standard and non-standard. In the United States, for example, this includes the 50 states, the District of Columbia, and Indian Tribes. The unit of analysis is the individual regional government, with scores for each region aggregated to

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authority/autonomy at each level of government. It will also address citizen trust for several categories of government services.

the country level on an annual basis. Data are available for 95 countries over 1950–2018 (Hooghe, et al., 2021).<sup>5</sup>

Regional authority is evaluated annually along to two domains, 10 dimensions, and an overall RAI. “*Shared-rule*” and “*Self-rule*” comprise the two domains of authority enjoyed by regional-tier governments. The former refers to “the authority that a subnational government co-exercises in the country as a whole” (Hooghe, et al., 2021, p. 23) while the latter is defined as “the authority that a subnational government exercises in its own territory.” *Shared-rule* considers five other dimensions to regional authority, including the extent to which the regional government co-determines national legislation, national policy in intergovernmental meetings, the distribution of national tax revenues, national borrowing constraints, and constitutional change. *Self-rule* is comprised of five other dimensions, including the extent to which a regional government is autonomous rather the deconcentrated, policy autonomy, fiscal autonomy, borrowing autonomy, and the level of independence the regional legislature and executive have from the central government. An overall Regional Authority Index (*RAI*) is the sum of the *Self-rule* and *shared-rule* measures.<sup>6</sup>

In the econometric modelling presented below, the overall *RAI* will be used as the primary measure of the autonomy of regional governments in the model setup. However, to gain additional insights into the nexus between citizen trust in government and regional government authority, the *Shared-rule* and *Self-rule* measures will also be considered separately, since each

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<sup>5</sup> Included in the data set are all EU and OECD countries, all Latin American countries, 10 other European countries that are not part of EU, and 11 nations located in the Pacific and South-east Asia.

<sup>6</sup> For further details and each of these dimensions to regional authority and how the overall country-level Regional Authority Index is calculated, see [https://garymarks.web.unc.edu/wp-content/uploads/sites/13018/2021/02/RAI\\_country-codebook-1.pdf](https://garymarks.web.unc.edu/wp-content/uploads/sites/13018/2021/02/RAI_country-codebook-1.pdf). Also see (Hooghe, et al., 2016).

addresses different aspects of regional authority.<sup>7</sup> Finally, the five dimensions to the *Self-rule* measure will also be considered separately below as most can be roughly mapped into the three forms of decentralization discussed in the introduction. In particular, *policy autonomy* most closely aligns with the devolution perspective of decentralization, *fiscal* and *borrowing autonomy* with fiscal decentralization, and *institutional depth* with deconcentration. Further details of all the *RAI* measures used in this analysis can be found in Table 1 below.

*Local Autonomy Index.* The Local Autonomy Index (*LAI*) measures the degree of local autonomy in 57 countries over 1990–2020. In the construction of the index, the analysis is restricted to local government units that are the “...lowest and the most important one where self-government is most effective .... and cover the whole territory of a country” (Ladner, et al., 2021, pp.7–8). In most cases, that is taken to be municipalities.<sup>8</sup>

Measuring the autonomy of local governments is carried out in a somewhat similar way to the Regional Authority Index in that it considers two domains, “self-rule” and an “interactive rule.” The latter, corresponding to the “*Shared-rule*” of the *RAI*, is comprised of three components: *legal autonomy*, administrative supervision (a component of *non-interference* as summarized in Table 1), and local government *access* to the regional and central government. The “self-rule” domain consists of *organizational autonomy*, *policy scope*, *effective political discretion*, and *fiscal autonomy*. The latter measure approximates the degree of fiscal decentralization at the local level, while most of the others offer various perspectives on the devolution of authority to local governments. In its final form, the overall *Local Autonomy Index*

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<sup>7</sup> The correlation between the *Self-rule* and *Shared-rule* measures used in this analysis was 0.65, indicating that each provides a somewhat different perspective on regional government decentralization.

<sup>8</sup> Included in the data set are all EU member states, most Council of Europe member states and OECD countries, along with Argentina, Belarus, Kosovo, and South Africa.

is a weighted sum of seven different dimensions to local autonomy, as summarized in the bottom portion of Table 1.

In the econometric analysis that follows, the overall *LAI* will be used as the primary measure of the autonomy of local governments. However, as each of the seven dimensions represents a different aspect to local government decentralization, the nexus between citizen trust in government and each of the seven components that make up the overall *LAI* will be considered in separate analyses as well.<sup>9</sup>

*Correlations between decentralization measures.* Correlations between the various governmental decentralization measures discussed above are presented in Table 2. The statistics are based on the mean value for a country using all available data over 2010–20. From the perspective of the aggregate measures of regional and local decentralization discussed above, the correlation between *RAI* and *LAI* is relatively low (0.18), demonstrating that they represent different perspectives on decentralization (Panel A). It is also of interest to show how each of these summary indices compares to the two most common fiscal decentralization measures found in the literature: subnational government shares of total tax and spending. The correlations are the strongest between the tax/spending shares and the *RAI* (0.57 and 0.66, respectively), but it is still evident that the *RAI* reflects more than simply fiscal decentralization. In particular, it shows the importance of considering regional government authority/autonomy in discharging their responsibilities as well as the scope of services they have responsibility for when it comes to evaluating the extent to which government decision making is actually decentralized in a given country. The importance of doing so is shown to be even more relevant for local governments,

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<sup>9</sup> Indeed, as the developers of the *LAI* acknowledge, two countries with similar overall *LAI* scores can arrive at that outcome with much different scores for individual dimensions that make up the overall Index.

given the relatively low correlations between the *LAI* and the tax/spending shares (0.25 and 0.34, respectively).

The point that governmental decentralization is comprised of different dimensions or perspectives beyond simply subnational government spending and tax shares is also illustrated by the correlations between the *Regional Authority* and *Local Autonomy* indices and each the various dimensions that comprise these indices. Panel B summarizes the correlations between the various components that make up the *RAI* that are considered in this analysis. While most of the correlations are fairly high, there are differences that stand out. For example, the correlation between that *Shared-rule* and *Self-rule* indicators is only 0.65. The correlation between *Policy Autonomy* and *Fiscal Autonomy* is 0.78. These differences indicate that each measure is conveying a somewhat different perspective on the decentralized regional government structure of a country.

The differences in correlations between the various components that make up the *Local Autonomy Index* are even more striking (Panel C). For example, the correlation between *Financial Autonomy* and *Policy Scope* is only 0.19. The highest correlation between any of the seven components that make up the *LAI* is only 0.43 (*Fiscal* and *Organizational Autonomy*). All of this suggests that it is a worthwhile exercise to see what impact regional and local decentralization and the individual components that make up each of these indices has on citizen trust in government. These issues will be explored next.

## V. Model, data and estimation

### V.1 Model

The general form of the model used to explore the nexus between the decentralization measures discussed above and citizen trust/confidence in government can be summarized by equation (1) below. It will be estimated using a pooled data set consisting of several waves of the World Values Survey (WVS) and questions they asked regarding citizen trust in their government.

$$(1). \text{Confidence}_{ijk} = F[\text{Decentralization}_k, \text{GDP\_growth}_k, \text{Gov't\_size}_k, \text{Respondent\_characteristics}_{ik}, \text{Country}_k, \text{Survey\_Wave}],$$

where,

$\text{Confidence}_{ijk}$  = survey respondent  $i$ 's degree of confidence/trust in their government in area  $j$  and country  $k$ ,

$\text{Decentralization}_k$  = a lagged measure of government decentralization in country  $k$ ,

$\text{GDP\_growth}_k$  = real GDP growth in country  $k$ ,

$\text{Govt\_size}_k$  = relative size of the overall government in country  $k$ ,

$\text{Respondent\_characteristics}_{ik}$  = survey respondent  $i$ 's in country  $k$  characteristics (gender, educational attainment, household income, age, trust in people),

and fixed effects for the  $\text{Country}_k$  where the survey respondent lives and the time period when the survey ( $\text{Survey\_Wave}$ ) was conducted.

In this setup, trust is measured by survey respondents answer to questions about the confidence they have in in their government three areas (j): the national government, the civil service, and the police. For each of these areas of government, the respondent can select from

four ordered response options ranging from “a great deal” to “none at all.” The World Values Survey and further details on the specific survey questions used in this analysis will be discussed further in the data section below.

The government decentralization variables (*Decentralization<sub>k</sub>*) are drawn from Regional Authority Index and the Local Autonomy Index, and the components of each, as summarized in Table 1. As Martinez-Vazquez, et al. (2017) observe, any empirical research dealing with the consequences of decentralization, such as citizen trust in government considered here, needs to acknowledge potential reverse causality issues and parameter estimation bias, and take steps to address this in the empirical modelling. In the present case, for example, citizens who are distrustful of government may put pressure on the political system to bring government policy making closer to the people and improve transparency via decentralization reform measures. The use of instrumental variables is a standard approach to address two-way causality issues; however, this is problematic in the present case because no straightforward estimator is available that can employ instrumental variable techniques in an ordered response model (Lighthart and van Oudheusden, 2015). Further, identifying appropriate variables that meet the relevance and exogeneity requirements for a valid instrument is problematic.<sup>10</sup> Given this, and following Iimi (2005), Gemmell (2013), Lighthart and van Oudheusden (2015), and others, to address potential issues of reverse causality between decentralization and citizen confidence in their government,

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<sup>10</sup> Geographic variables (e.g., land area, habitable land) as instruments have been considered by some (Canavire-Bacarrea and Martinez-Vazquez, 2012), however such time-invariant variables cannot be used in models that already include country-specific fixed effects variables.

three-year average lagged values of each decentralization measure are used in the analysis below (see also, Tella, et al., 2003).<sup>11</sup>

Based on the relevant literature (Knack and Keefer, 1997; Dincer, 2010; Lighthart and van Oudheusden, 2015; Tanf, et al., 2016; Kim et al., 2022), the control variables used in the empirical setup include country-level macro variables where the survey respondent is located and characteristics of the person responding to the survey. The former includes real GDP growth and the relative size of the government in the economy during the year the survey was conducted. Country-level fixed effects variables are also included as a proxy for the political, economic, and social factors of each country not otherwise accounted for in the model.

In addition to these country-level control variables, several variables describing the socio-economic characteristics of the survey respondent are included in the model, including their gender, level of educational attainment and age (Knack and Keefer, 1997; de Mello, 2004; Dincer, 2010). Further, following Knack and Keefer (1997), Keele (2007), Lighthart and van Oudheusden (2015), de Mello (2016) and Zhao and Hu (2017), the respondent's level of "trust in other people" is also added as a control variable.

## **V.2 Data**

Data on citizen confidence/trust in their government are drawn from the World Values Survey (WVS). The WVS conducts interviews of people about their values and norms on a wide variety of topics including their attitudes towards the government in the country where the survey respondent lives. A representative sample of all people within private households age 18

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<sup>11</sup> Using lagged values of endogenous variables has been criticized if their values stay stable over time and therefore may still be correlated with the error term. To some degree this is mitigated given the general trends towards greater decentralization over the time period considered in this analysis.

and over in each country regardless of their nationality, citizenship, or language forms the basis of the survey. Typically, around 1,000 interviews are conducted in a given country during each WVS “wave.” A separate wave occurs approximately every five years, with the earliest wave conducted in 1981–84 and the most recent wave in 2017–22, a total of seven waves at the time of this writing.<sup>12</sup> In the most recent wave, surveys were conducted in 120 countries. Survey data from all available WVS waves and countries where decentralization data are available are pooled for the purpose of this exercise. That precluded the use of the 1981–94 and 1989–93 waves and limited the number of countries to between 42 and 58, depending upon the specific decentralization measure used in the analysis. Further details on the specific countries included in the analysis can be found Table A1 in the Appendix. In all, sample sizes ranged from around 110,000 to 2000,000 depending on the specific model estimated.

The data on citizen confidence/trust in their government is based on the respondents answer to the following WVS questions: “Could you tell me how much confidence you have in (i) the government (in your nation’s capital)?<sup>13</sup>, (ii) the civil service?, (iii) the police?” Answers for each are coded as 1 = “A great deal”, 2 = “Quite a lot”, 3 = “Not very much”, and 4 = “None at all.”<sup>14</sup>

Respondent demographics are also drawn from the WVS data set, including their gender, age, educational attainment, and household income. Following similar categorizations used by WVS, the age of the recipient is assigned to one of three categories: 15–29 years, 30–49 years, or

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<sup>12</sup> <https://www.worldvaluessurvey.org/WVSContents.jsp>

<sup>13</sup> Koumpias, et al. (2021) point out there may be some ambiguity as to how respondents perceived “confidence in government” other than it was intended to mean the national government. Respondents may have different interpretations as to what the national government encompasses. It might be taken to include agencies within the central administration, service-oriented organizations such as the military, even the Supreme Court. Further, the wording of the question was not always consistent across survey waves.

<sup>14</sup> Other possible responses, including “Don’t know” and “No answer” were deleted from the dataset. These responses represented less than 5 percent of the total number of observations in this dataset.

aged 50 and over. Similarly, the respondent is placed in one of three categories with respect to their educational attainment and with respect to their household income. See Table 3 for further details. The measure of the respondent's general level of trust is based on their answer to the following question: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" The person interviewed is given a binary option in answering this question which is coded for the purpose of this analysis as = 1 if the "Most people can be trusted" option is selected, and = 0 if the alternative option "Need to be very careful" is chosen.

The country-level control variables, including real GDP growth and government size are taken from the World Development Indicators. Further details on the data used in this analysis, including descriptive statistics and sources can be found in Table 3.

### **V.3 Estimation**

Since the dependent variable in the model is based on an ordinal response of the survey respondent, and ordered logistic regression is used in model estimation. Hypothesis testing is conducted using robust, heteroskedasticity-consistent standard errors. This specification of the model assumes that the specific numerical one to four response values of the dependent variable contain no information beyond the ordinal ranking of the possible responses from "a great deal" (1) to "none at all" (4). This estimation strategy assumes that the error term is i.i.d normal and unit variance for all observations and that the marginal effects of each explanatory variable or the same across different parts of the ordered outcome distribution are the same. In robustness analysis presented later in this paper, these assumptions will be relaxed.

## VI. Results

### VI.1 Baseline Results

Baseline model results using the overall Regional Authority Index (*RAI*) and Local Autonomy Index (*LAI*) are summarized in Table 4. Generally, results show a positive and statistically significant relationship between both decentralization measures and citizen trust in government for the civil service and the police categories, although the conclusions regarding the latter do not hold when only the *RAI* index is included in the model (Model 1.7). A similar positive relationship is found regarding trust in the national government, but only when both decentralization measures are included in the same model (Model 1.3). Collectively, these findings imply that lower citizen trust (*higher values* of the ordinal response variable) is associated with more decentralized regional and local government structures.

Greater insights can be obtained through an interpretation of the average marginal effects implied by the parameter estimates of the decentralization variables reported in Table 4. These are summarized in Table 5, using (to conserve space) the results for Models 1.3, 1.6, and 1.9. Each entry in the table can be interpreted as the effect of a one-point increase in the decentralization measure on the probability (expressed as a fraction) that a response will fall into the trust category listed across the column headings, other factors held constant. For example, the average marginal effects reported in Panel A for the *Regional Authority Index* implies that a one standard deviation increase in the *REI* measure (9.96—see Table 3) lowers the likelihood of a “great deal” of trust in the (national) government by 5.8 percent, and a 14.3 percent lower probability of being in the “quite a lot” trust category. In contrast, the *REI* increase leads to a 5.5 percent and 14.5 percent greater likelihood of falling into the “not very much” and “not at all” response categories, respectively. Similar results are obtained, albeit somewhat smaller

magnitudes, across the four response categories when using a one standard deviation change in the *LAI* measures along with the average marginal effects for that decentralization measure reported in Table 5.

As to confidence/trust in the civil service (Panel B), the estimated marginal effects are smaller, ranging from -2.9 percent (great deal of trust) to +1.6 percent (no trust) stemming from a one standard deviation increase in *REI* measure, and from -1.1 percent to +8.3 percent with a similar change in the local autonomy index. However, the average marginal effects of changes in the *LAI* measure are not statistically significant. Regarding confidence in the police (Panel C), the impacts of changes in *REI* are similar to civil service confidence, although smaller in absolute value, while the effects changes at the local level are statistically significant (-3.9 percent to +3.5 percent for a one standard deviation increase in that index).

Regarding the respondent characteristics control variables reported in Table 4, males place less confidence across all three categories of government considered. The results for educational attainment paint a mixed picture, respondents with middle levels of education tended to place less trust in government across the board relative to those in the (omitted) lower attainment category. Similar results hold for those with upper education attainment with the exception of the civil service category. The negative relationship between educational attainment and citizen trust contrasts with Dincer (2010) and Lighthart and van Oudheusden (2015) but is consistent with Tang and Huhe (2016).

Interestingly, lower-income individuals (omitted category) show less confidence in government than those in higher income groups. Older individuals tend to have more confidence in government relative to their younger counterparts, consistent with Tang and Huhe (2016). Finally, similar to Knack and Keefer (1997), Alesina and La Ferrara (2002), Keele (2007)

and Lighthart and van Oudheusden (2015), respondents that answered “most people can be trusted” also tended to place greater trust in their government, at least for the areas of government responsibility considered here.

As to the country-level variables in the models presented in Table 4, the association between a country’s overall economic performance, measured by the GDP growth rate, and confidence in government is mixed. The strongest evidence of a positive association between the two variables is for the civil service category. These findings are consistent with what has been found by others (e.g., Keele, 2007). The relative size of government also produced mixed results.

## **VI.2 Citizen trust and alternative perspectives on decentralization**

As noted above, regional decentralization and local autonomy are comprised of several different dimensions or domains, not all of which necessarily can be expected to have the same implications for how much trust citizens place in their government. In this subsection, this issue is explored further using various components of the *Regional Authority* and *Local Autonomy* decentralization indices with the goal of identifying which factors may be most relevant in driving citizen trust in government.

*Decentralization involving regional governments.* Table 6 presents the results when the focus is on the various dimensions to regional decentralization. Each regional decentralization component (variable) listed in the left-hand column in the table is alternatively included in equation (1) in exchange for the overall *REI* indicator. Further details of each of these components can be found in Table 1. To conserve space, only the regional decentralization results are reported for each of the three government categories listed along the top row.<sup>15</sup> To

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<sup>15</sup> With a few exceptions (notably government size for the national government), the results for the control variables are qualitatively similar to what is reported in Table 4. Complete model results are available upon request.

begin, the *Self-rule* and *Shared-rule* domains of regional-tier authority are alternatively included in the model set up. Recall that the former is defined as the authority a subnational government exercises within its own territory while the latter refers to the authority that a subnational government co-exercises in the country as a whole. Interestingly, results show that nations where regional governments have more shared authority with the central government tend to be associated with greater citizen trust for all three categories of government, although the evidence is statistically weak in the case of police trust. For example, the negative parameter estimate on the *Shared-rule* variable reported in Table 6 for the civil service category (-0.090) implies that a one standard deviation increase in the *Shared-rule* domain of regional government authority increases the likelihood of a “great deal” of trust in the civil service response by 2.1 percent, and a 4.0 percent higher probability of being in the “quite a lot” trust category, other things being equal.<sup>16</sup>

Regarding the *Self-rule* domain, the positive (and statistically significant) parameter estimates for the national government and civil service categories indicates that citizens tend to have less trust when regional governments have more independent authority over those who live in the region. In the case of police, the relationship between regional decentralization (both *Self-rule* and *Shared-rule*) and most of the individual components comprising *Self-rule* considered below, are statistically significant at conventional levels. These outcomes may reflect that the police are typically considered to be more in the domain of local rather than regional governments.

Insights into why greater self-rule of regional governments might be associated with more distrust of the central government and civil servants can be gained by looking at the results

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<sup>16</sup> Average marginal effect calculations based on a sample standard deviation of the *Shared-rule* variable of 3.15.

for the five individual dimensions that make up the *Self-rule* domain. First, it appears that citizen trust is positively associated with deconcentrated forms of decentralization (*Institutional Depth*). The positive parameter estimate on this decentralization measure indicates that the extent to which a regional government is autonomous rather than deconcentrated is not associated with greater citizen trust of the civil service, nor confidence of government in the nation's capital.

Further, citizens have less trust in the civil service when regional governments are responsible for and have authority over a broader range of policies (*Policy Autonomy*). Such autonomy of regional governments can be thought of as roughly pertaining to the devolution perspective on decentralization. Greater policy responsibilities at the regional level, including economic policy, cultural-educational policy, and welfare policy, specifically referenced in the construction of this decentralization measure, may imply that the portfolio of functions carried out at the central level is smaller and perhaps carried out more efficiently, thus promoting greater trust of government officials at that level. It does not promote citizen trust of the civil service, however, perhaps reflecting some doubt on the competency of regional government to conduct the activities referenced in the survey question.

Interestingly, citizen confidence in the civil service and the national government is not positively associated with direct elections of the regional assembly and executive (*Independent Representation*).

Turning to areas that might be captured by fiscal decentralization, citizens place less trust in the civil service when regional governments enjoy greater *Fiscal Autonomy* and greater *Borrowing Autonomy*. Regarding the former, which addresses the responsibility of setting the tax base and rates on major regional taxes, this result might suggest that citizens perceive that central government oversight of major regional taxes will lead to more country-wide consistency and

equity in the administration of these taxes. In terms of magnitudes, the parameter estimate on the *Fiscal autonomy* variable reported in Table 6 for the civil service category (0.120) implies that moving from a system where the central government sets the base and rate of all regional taxes to one where the regional government sets the base and rate of at least one major tax reduces the likelihood of responding that one has a “great deal” of trust in the civil service by 6.1 percent, and a 4.1 percent lower probability of being in the “quite a lot” trust category, other things being equal.

*Local government autonomy.* Table 7 summarizes the results when the focus is on autonomy at the local government level. Seven different dimensions to local autonomy (see bottom panel of Table 1 for details) are alternatively included in equation (1) in exchange of the overall *Local Authority Index* found in Models 1.2, 1.5 and 1.8 in Table 4. These measures are listed in the left-hand column of Table 7. Again, to conserve space, only the results for the local autonomy components are reported, full model results are available upon request.

While the composite *LAI* index generally shows a positive relationship with citizen distrust in governance, the analysis of the different dimensions that make up that index show a more nuanced picture. First, the results for the *Policy Scope* and *Effective Political Discretion* variables are similar to what was found for the *Policy Autonomy* measure using the *RAI* index. Assigning local governments the responsibility and independent authority over a broader range of functions, and thereby narrowing the portfolio of government functions carried out by central/regional governments, is associated with greater citizen confidence at the national level and reduced confidence in the civil service, although the evidence for the latter is not statistically

strong.<sup>17</sup> Further, to the extent that local government have the constitutional or legal means to assert local autonomy (*Legal Autonomy*), and can decide on their own electoral and staff and local structures (*Organizational Autonomy*), citizen trust in the civil services appears to decline, while the evidence regarding trust/confidence at the national level is mixed.<sup>18</sup>

Unlike the finding for regional governments, citizens tend to place more trust in the civil service if local governments have sole authority to levy one of the major taxes and set tax rates, more borrowing authority latitude, and more overall financial self-reliance (*Financial Autonomy*). For example, the negative parameter estimate on the *Financial Autonomy* variable reported in Table 7 for the civil service category (-0.008) implies that a one sample standard deviation increase in that indicator increases the likelihood of responding that one has a “great deal” of trust in the civil service by 1.0 percent, and a 3.5 percent higher probability of being in the “quite a lot” trust category, other things being equal.<sup>19</sup>

Regarding the *Access* dimension to *LAI*, this refers to the extent to which local authorities have channels to influence higher levels (either regional or central) of governments’ policy making. This comes perhaps closest to the *Share-rule* measure associated with *RAI*, but local governments, unlike some of their regional counterparts, cannot directly take part in the overall governance of a country (Ladner, et al., 2021, p. 53). Nevertheless, they could still indirectly influence the policy making of higher levels of government. This distinction appears to be

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<sup>17</sup> The range of general government functions used to construct the policy scope measure include education, social assistance, health, land use, public transport, housing, police, and caring functions. Arguments can be made that most, if not all of these functions, are more efficiently carried out by subnational governments (Fisher, 2016).

<sup>18</sup> The results regarding the *Non-interference* dimension are problematic to interpret because it is comprised of two components that are difficult to disentangle: the extent that local governments (1) have more latitude in spending (intergovernmental) transfers from central/regional governments and (2) face less obtrusive administrative supervision from higher level governments.

<sup>19</sup> Average marginal effect calculations based on a sample standard deviation of the *Financial Autonomy* variable of 24.88.

important as we find that survey respondents were less positive across all three areas of government when local governments have more opportunities to have influence on policy making by higher government authorities. This finding stands in contrast to the results for the *Share-rule* measure of regional autonomy.

Finally, regarding citizen trust of the police, results show that more oversight by regional/national authorities with respect to (1) how local governments carry out their responsibilities (*Legal Autonomy, Non-interference, Effective Political Discretion*), (2) their local organizational structure (*Organizational Autonomy*), and (3) the specific tasks local authorities want to perform (*Effective Political Discretion*) promotes trust.<sup>20</sup> As with the other areas of government considered, greater local *Financial Autonomy* is also associated with greater trust of the police.

*Summary.* Characterizing the extent to which government is decentralized in a country is a complex matter, one that not best understood along any single dimension, as each of the many elements that comprise the subnational government structure can have different implications for the level of trust and confidence that citizens place in their government. The analysis presented above has revealed several interesting insights in that regard.

First, shared rule in the determination of national policies, at least between the central and regional governments, promotes citizen trust of the national government and the civil service. Second, deconcentration, or the transfer of administrative responsibilities to regional or local

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<sup>20</sup> The proper role of regional/national governments in the oversight of local police departments has received increased attention in the United States after recent high-profile shootings and allegations of excessive use of force. See, for example, Congressional Research Service (2020).

branches of the central government, appears to be an effective decentralization strategy to improve citizen trust in government.

Third, regional and local governments that are responsible for a larger portfolio of general government services (greater policy autonomy/scope) is associated with lower confidence in subnational government and undermines citizen trust. In contrast, confidence in national government seems to improve when they are responsible for a smaller set of general services that results from greater policy autonomy at the subnational level. Fourth, at least some oversight of by the central/regional government on the activities of lower levels of governments promotes trust in the civil service and police.

Finally, greater financial/fiscal autonomy enjoyed by regional/local governments promotes trust at the local level of government, although not so at the regional level. In particular, allowing local governments to set tax rates and base (and hence revenue take) of at least one major brings tax policy decision making closer to the people, and this fosters a more trusting environment locally, as well as centrally.

### **VI.3 Robustness Analysis**

In this section several tests of robustness are conducted, two dealing with model estimation strategy and a third that expands on the base model by considering additional control variables drawn from the literature that may be relevant in explaining citizen trust/confidence in their government.

*Generalized Ordered Logit Model.* The ordered logit model assumes that the marginal effects of the explanatory variables are the same across different parts of the ordered outcome distribution, the so-called “parallel lines” or proportional odds assumption. As Williams (2006,

2016) notes, this assumption is often violated, and he offers a generalized ordered logit model (GOLOGIT2 in Stata) that relaxes this assumption. The procedure uses an iterative process to identify the partial proportional odds model that best fits the data. Specifically, the procedure uses a Brandt test (1990) to identify variables where the parallel-lines variables are violated and retains that constraint for the remainder of the variables in the model.

Models 1.3, 1.6, and 1.9 from Table 4 are re-estimated using the GOLOGIT2 estimator and the results for the two key decentralization variables are summarized in Table A2.<sup>21</sup> Comparing the estimates presented in Table A2 with the corresponding results in Table 4, it is apparent the effect of greater regional decentralization has less influence on those with the most positive attitudes towards government (“Great deal of trust”). In fact, trust actually improves for those who already had a strong positive attitude towards police (0.37 versus -0.26). Regarding local autonomy, the strongest effects of greater decentralization are found for those with relatively negative attitudes towards the national government and the civil service. In the case of police, results for the for the *Local Autonomy Index* across all response categories are virtually identical to the estimated parameter in Model 1.9 for this index.

*Heteroskedastic Ordered Probit Regression.* This estimator fits a maximum-likelihood ordered probit model, which is a generalization of the ordered probit model in that it relaxes the assumption that error variances are the same in all cases. Violation of this assumption can lead to incorrect standard errors and biased parameter estimates (Williams, 2010). Heteroskedastic ordered probit regression addresses potential heteroskedasticity in the observations by allowing the variance to be modeled as a function of independent variables and to differ between subjects

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<sup>21</sup> Results for the control variables in the models are not reported to conserve space but are available upon request.

or groups in the population.<sup>22</sup> In using this estimator, *hetoprobit* in Stata, the potential determinants of the heteroskedasticity must be identified.<sup>23</sup> In the present case, two different sets of potential heteroskedasticity are considered, one being the two decentralization measures (*Regional Authority* and *Local Autonomy*) and the other the set of individual country control variables used in all models presented above (*Country Controls*). Re-estimating Models 1.3, 1.6, and 1.9 using this estimator, and specifying the two different sets of variables that may have unequal variances across observations, did not qualitatively change the general conclusions regarding the key decentralization measures that were drawn above. Further details of these results are not reported here to conserve space but are available upon request.

*Accounting for corruption, democratic institutions, and an alternative perspective on local government decentralization.* As further robustness analyses, consideration is given to expanding the baseline models presented in Table 4 by including additional control variables identified in the literature as possible drivers of citizen trust/confidence in their government. Specifically, two variables are alternatively added to the baseline models, one pertaining to the perceived level of corruption within the country and the second describing the state of its democratic institutions.<sup>24</sup> Beyond this, consideration is also given to another measure of local

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<sup>22</sup> An example that is unrelated to the current focus could arise when modelling self-reported health status of individuals (e.g., poor, fair, good, excellent) the researcher might expect the variance in the response given by individuals to vary directly by the age of the respondent.

<sup>23</sup> Estimation using the cumulative logistic distribution for the error terms was not available.

<sup>24</sup> A sizeable literature also exists on the relationship between ethnic diversity and social trust more generally, with the preponderance of the evidence the people trust less others who are “different from themselves” (Alesina and La Ferrara 2002; Delhey and Newton, 2005; Putnam, 2007; Gustavsson and Jordahl, 2007; Dinesen, et al., 2020) and this could plausibly extend to the perceived actions of government officials that function in diverse communities. However, ethnic diversity variables used in the empirical literature tend to be time invariant and will be indirectly accounted for by the country dummy variables in the model. Inclusion of these dummy variables also addresses potential omitted variable bias more generally stemming from unobserved heterogeneity at the country level.

government decentralization found in the literature—the average size of local units of government in a country in terms of population they serve.

The potential influence of corruption on public trust in government has been addressed by others (e.g., Morris and Klesner, 2010) and is a motivating factor behind good governance initiatives of international organizations such as the International Monetary Fund (Lagarde, 2018; IMF, 2022) and the United Nations (Guterres, 2020). In this analysis a country-level corruption measure is drawn from the International Country Risk Guide (ICRG) Index added to the empirical setup. It is based on an assessment of actual or potential corruption as it may relate to business activity in a country using a methodology that permits comparisons among nations and over time. The corruption index can take on values from zero to six, where higher index values are associated with a *lower* corruption assessment. Adding this *Corruption* variable to the baseline models of 1.3, 1.6, and 1.9 from Table 4, the results show that a “cleaner” government promotes trust in the national government, but that there is not a statistically significant association between corruption and trust in either the case of the civil service or the police (see Models 1.3A, 1.6A, and 1.9A in Table A3 in the Appendix). Importantly, for the purposes of the present analysis, the conclusions drawn for the regional and local decentralization measures remain unchanged from before, with the exception that the parameter estimate on the *Local Autonomy* measure in the civil service category becomes statistically significant (Model 1.6A).

As noted earlier, Tang and Huhe (2016) concluded that fiscal decentralization promotes trust in the national government in autocratic regimes, but not in democracies. In the case of local governments, a positive association between decentralization and trust is observed for democracies, but not for autocracies. To consider the role that democratic institutions might play in the present analysis, a *Regime Authority* variable is added to the baseline set of models using

the “polity2” score produced by the Center for Systematic Peace. This score captures the regime’s authority spectrum on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy). Results are presented as Models 1.3B, 1.6B, and 1.9B in Table A3 in the Table A3 in the Appendix. Surprisingly, for all three government categories, countries with stronger democratic institutions are associated with lower trust, relative to autocracies and anocracies. However, results for the key regional and local decentralization measures remain unchanged from what were drawn above.

Finally, the baseline models presented earlier are expanded to consider another perspective on decentralization at the local level—the typical size of a unit of local government in a country. The number of units of local government varies considerably across nations, even after adjusting for population or geographic area. Further, administrative unit proliferation has been an outcome of decentralization reforms in many sub-Saharan African countries and elsewhere (Lewis, 2014). How all this might affect government outcomes has a long history, dating at least back to Oates (1985). Smaller or more fragmented units of local government offer certain advantages as well as disadvantages when it comes to delivering services to its citizens and therefore might indirectly impact citizen trust (Dincer, 2010; Nelson, 2013; McDonnell, 2020; Goodman, 2019).<sup>25</sup> For present purposes, the *Local Government Size* for a country is calculated as the average number of local governments serving 100,000 population. For the sample of countries considered here, the mean value for this size measure was 11.57, with a low of 0.16 (Russian Federation) and a high of 60.6 (Czech Republic). Results, summarized as Models 1.3C, 1.6C, and 1.9C in Table A3, suggests that a more fragmented local government

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<sup>25</sup> See Treisman (2007) and Nelson (2013) for a further discussion of this in the context of local government size and corruption.

does not promote trust, at least in the case of the national government and civil service. As before, the conclusions drawn for the *Regional Authority* and *Local Autonomy* variables remain unchanged from above.

## **VII. Concluding Remarks**

Many nations around the world have looked towards decentralization as a strategy to improve government outcomes and to promote citizen confidence and trust in their government. However, undertaking decentralization reform is a complex matter in that can alter the relationship between units of government at different levels in many possible ways, and not all possible reforms can be expected to lead to better governance. Given the many possible domains and dimensions to decentralized government structures, it is important to understand what specific strategies can be expected to improve government outcomes and how intergovernmental relationships should be structured and coordinated to increase the likelihood of success. Using recently developed comprehensive measures of government decentralization, the principal contribution of the paper is to provide insights as to what types of institutional reforms holds the most promise for success.

Using measures of autonomy at both the regional and local (municipal) levels of government and responses from five recent waves of the World Values Survey on citizen trust/confidence in their national government, the civil service, and the police, several interesting insights emerged from the analysis. In particular, giving regional governments a voice in policy making for the country as a whole promotes trust in government at the national level and in the civil service. Deconcentration—central government offices at the regional level as opposed to autonomous regional governments—appears to be an effective strategy to generate greater

confidence in government activities. Affording regional and local governments complete autonomy in the delivery of government services without at least some oversight by higher levels of government is not found to be trust promoting. For example, a lack of any oversight by regional/national authorities with respect to how local governments carry out their responsibilities and giving them wide latitude/discretion in what tasks they perform was not found to build public trust of law enforcement.<sup>26</sup> Finally, giving local governments authority to levy at least one major tax is trust promoting, a finding that is consistent with others who have found tax decentralization is associated with better outcomes in the public sector (Lighthart and van Oudheusden, 2015; Martinez-Vazquez, et al., 2017).

While examining trust in government with a comprehensive set of decentralization measures represents the principal contribution of the paper to the extant literature, there are a number of caveats to the analysis that are worth noting. First, it would have been desirable if the wording of the WVS trust questions made it clearer as to the specific government activities the question pertained to, and by what level of government. For example, the conclusion drawn above regarding trust in police presumed that the respondent was thinking about their local police and not law enforcement carried out by the central government. Second, the measures of local autonomy employed in this analysis focused entirely on municipal government and did not consider other tiers of government between the municipal and regional levels, nor did it consider inter-municipal cooperation bodies and special purpose jurisdictions. Third, citizen confidence in government is presumably based on their perceptions of governance quality and transparency in decision-making, assessments that may or may not closely match with the reality of the de facto

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<sup>26</sup> This finding is consistent with increased calls for outside independent oversight law enforcement in the United States. See, for example, [https://www.nacole.org/oversight\\_models](https://www.nacole.org/oversight_models) and <https://www.vox.com/22295749/policing-reform-federal-oversight-voting-rights-act-mazzone-rushin>.

performance of government authorities. Finally, the possibility of reverse causality between citizen trust and the various decentralization measures was only crudely accounted for by using lagged values of the latter. Thus, any causal interpretation of the results should be done with caution.

A natural extension of the present analysis would be to consider the linkages between the decentralization measures used here with other more objective measures of government performance. One promising avenue along these lines would be to conduct pre- and post-event studies of countries that instituted major decentralization reforms with respect to changes in various government performance indicators. Finally, as noted above, a number of countries took measures to recentralize their government after having previously instituting decentralization reform. Understanding why greater decentralization did not achieve the intended objectives in these countries could yield useful insights that would be relevant more generally.

For now, the analysis presented here suggests that the caution researchers sometimes give when using one-dimensional measures of the authority/autonomy measures of subnational government such a fiscal decentralization is warranted. It overlooks important institutional details about that power-sharing arrangement and those details can matter when it comes to quality governance.

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**Table 1**  
**Subnational government decentralization measures used in this analysis**

<b>Measure</b>	<b>Scale</b>	<b>Description</b>
<i>Regional level<sup>1</sup></i>		
<i>Regional Authority Index</i>	0 - 30	Sum of <i>Self-rule</i> and <i>Shared-rule</i> measures.
<i>Shared-rule</i>	0 - 12	The authority exercised by a regional government or its representatives in the country as a whole. Considers the extent to which the regional government co-determines national legislation, national policy in intergovernmental meetings, distribution of national tax revenues, subnational and national borrowing constraints, and constitutional change.
<i>Self-rule</i>	0 - 18	The authority exercised by a regional government over those who live in the region. Considers institutional depth, policy autonomy, fiscal autonomy, borrowing autonomy, independence of assembly and executive.
<i>Policy autonomy</i>	0 - 4	0 = very weak authoritative competence in a). economic policy; b). cultural-educational policy; c). welfare policy; d). one of the following: residual powers, police, own institutional set-up, local government. 4 = authoritative competencies in d) and at least two of a), b), or c) plus authority over immigration or citizenship.
<i>Fiscal autonomy</i>	0 - 4	0 = central government sets base and rate of all regional taxes. 4 = regional government sets base and rate of at least one major tax.
<i>Borrowing autonomy</i>	0 - 3	0 = regional government does not borrow. 3 = regional government may borrow without centrally imposed restrictions.
<i>Institution depth</i>	1 - 4	1 = deconcentrated, general-purpose administration. 4 = non-deconcentrated, general-purpose administration, not subject to central government veto.
<i>Independent representation</i>	0 - 4	0 = no regional assembly, nor regional executive appointed by the central government. 4 = directly elected assembly, regional executive appointed by a regional assembly or directly elected.
<i>Local level<sup>2</sup></i>		
<i>Local authority index</i>	0 - 100	Weighted sum of the seven dimensions of local autonomy described below.
<i>Legal autonomy</i>	0 - 100	Existence of constitutional or legal means to assert local autonomy.
<i>Organizational autonomy</i>	0 - 100	The extent to which local government is free to decide about its own organization and electoral system.
<i>Policy scope</i>	0 - 100	Range of functions where local government assumes responsibility of the delivery of services.
<i>Effective political discretion</i>	0 - 100	The extent to which local government is formally autonomous and can choose the tasks they want to perform and the extent to which they can make final decisions over these functions.
<i>Financial autonomy</i>	0 - 100	The extent to which local government can independently tax its own population, the proportion of local government revenues are derived from own/local sources, and the extent to which local government can borrow.
<i>Non-interference</i>	0 - 100	The proportion of unconditional financial transfers to total financial transfers received by local government and the extent to which administrative supervision of local government is (un)obtrusive.

<i>Access</i>	0 - 100	The extent to which local authorities have channels to influence higher levels of governments' policy making.
Notes:		
<ol style="list-style-type: none"> <li>1. For further details on each of the regional measures, see <a href="https://garymarks.web.unc.edu/wp-content/uploads/sites/13018/2021/02/RAI_country-codebook-1.pdf">https://garymarks.web.unc.edu/wp-content/uploads/sites/13018/2021/02/RAI_country-codebook-1.pdf</a>. Scale refers to theoretical range for an individual government, the scale at the country level can be higher in countries with more than one regional tier of government.</li> <li>2. For further details on each of the local measures, see (Ladner, et al., 2021).</li> </ol>		

**Table 2**  
**Correlation between decentralization variables**  
(mean values of decentralization measure over year 2010-2020)

<b>Panel A – Summary measures</b>				
	RAI	LAI	Tax Share	Expenditure Share
RAI	1.00			
LAI	0.18	1.00		
Tax Share	0.57	0.25	1.00	
Expenditure Share	0.66	0.34	0.81	1.00

Notes: Pairwise correlations using all available data over the 2010-2020 time period. Tax and expenditure data are drawn from Lledó, et al. (2020). See Table 1 for variable definitions.

<b>Panel B – Regional Authority Index components</b>								
	RAI	Self-rule	Shared-rule	Policy Aut.	Fiscal Aut.	Borrow Aut.	Inst. Depth	Ind. Rep.
RAI	1.00							
Self-rule	0.97	1.00						
Shared-rule	0.82	0.65	1.00					
Policy Autonomy	0.93	0.96	0.65	1.00				
Fiscal Autonomy	0.87	0.84	0.72	0.78	1.00			
Borrowing Autonomy	0.86	0.89	0.58	0.84	0.81	1.00		
Institutional Depth	0.88	0.92	0.57	0.86	0.67	0.73	1.00	
Independent Representation	0.88	0.94	0.50	0.91	0.65	0.79	0.89	1.00

Notes: See Table 1 for variable definitions.

<b>Panel C – Local Autonomy Index components</b>								
	LAI	Legal autonomy	Organiz. autonomy	Policy scope	Political discretion	Financial autonomy	Non-interfer.	Access
LAI	1.00							
Legal autonomy	0.35	1.00						
Organizational autonomy	0.69	0.11	1.00					
Policy scope	0.57	-0.01	0.37	1.00				
Political discretion	0.70	0.15	0.39	0.71	1.00			

Financial autonomy	0.72	0.11	0.43	0.19	0.18	1.00		
Non-interference	0.50	0.25	0.23	0.07	0.25	0.27	1.00	
Access	0.35	0.13	0.09	-0.13	0.12	0.23	0.32	1.00
Notes: See Table 1 for variable definitions.								

**Table 3**  
**Variable definitions, summary statistics and data sources**

<b>Variable</b>	<b>Mean (standard deviation)</b>	<b>Source</b>
Regional Authority Index, average value for preceding three years: (0 – 37.6, where higher values imply greater overall regional authority). [ <i>RAI</i> ]	16.24 (9.96)	[1]
Local Autonomy Index, average value for preceding three years: (0 – 37.6, where higher values imply greater overall local government authority). [ <i>LAI</i> ]	52.74 (13.57)	[2]
Confidence in government (nation’s capital): (1 = a great deal to 4 = none at all).	2.65 (0.92)	[3]
Confidence in the civil service (1 = a great deal to 4 = none at all).	2.63 (0.86)	[3]
Confidence in the police (1 = a great deal to 4 = none at all).	2.46 (0.92)	[3]
Gender of World Values Surveys respondent: (= 1 if male, 0 otherwise). [ <i>Male</i> ]	0.49 (0.50)	[3]
Educational attainment category of World Values Surveys respondent: <ul style="list-style-type: none"> <li>• No education, primary education or lower secondary [<i>Low</i>]</li> <li>• Upper secondary or post-secondary non-tertiary [<i>Middle</i>]</li> <li>• Short-cycle tertiary or higher [<i>High</i>]</li> </ul>	0.27 (0.45) 0.45 (0.50) 0.28 (0.45)	[3]
Household income of World Values Surveys respondent: <ul style="list-style-type: none"> <li>• One of 3 lowest income groups in the county [<i>Low</i>]</li> <li>• In income groups 4 – 7 in the country [<i>Medium</i>]</li> <li>• One of the 3 highest income groups in the country [<i>High</i>]</li> </ul>	0.34 (0.47) 0.54 (0.50) 0.12 (0.32)	[3]
Age of World Values Surveys respondent: <ul style="list-style-type: none"> <li>• [<i>15 – 29 years</i>]</li> <li>• [<i>30 – 49 years</i>]</li> <li>• [<i>50 years and older</i>]</li> </ul>	0.26 (0.44) 0.41 (0.49) 0.33 (0.47)	[3]
Respondent: “Most people can be trusted” (=1), “Need to be careful in dealing with people” (=0) [ <i>Trust</i> ]	0.27 (0.44)	[3]
GDP growth: Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2015 prices, expressed in U.S. dollars. [ <i>GDP_Growth</i> ]	3.60 (3.4)	[4]
Government size: General government final consumption expenditure (% of GDP). [ <i>GovtSIZE</i> ]	15.12 (4.5)	[4]
Assessment of corruption within political system, (0 to 6 index, with higher values implying less corruption). [ <i>Corruption</i> ]	3.58 (1.2)	[5]
Regime Authority: Captures regime authority on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy). [ <i>Democracy</i> ]	8.29 (2.4)	[6]
Local Government Size: Number of local governments per 100,000 population. [ <i>Local Government Size</i> ]	11.57 (12.24)	[2]

Notes: Statistics pertain to observations used in the first model that the variable appears.

Sources:

- [1]. EUI Research Data, 2021, Robert Schuman Centre for Advanced Studies, <https://cadmus.eui.eu/handle/1814/70298> (accessed June 2022).
- [2]. Council of Europe and OECD Countries, 2021, <http://local-autonomy.andreasladner.ch/downloads/> (accessed January 2023).
- [3]. World Values Survey, WVS\_TimeSeries\_1981\_2022\_Stata\_v3.0. <https://www.worldvaluessurvey.org/WVSEVStrend.jsp> (accessed July 2022).
- [4]. World Development Indicators. <https://databank.worldbank.org/source/world-development-indicators> (accessed July 2022).
- [5]. The PRS Group, International Country Risk Guide (ICRG) <https://epub.prsgroup.com/products/icrg/international-country-risk-guide-icrg> (accessed July 2020).
- [6]. Center for Systemic Peace, <http://www.systemicpeace.org/inscrdata.html> (accessed July 2022).

**Table 4**  
**Regional and local decentralization and citizen trust in government**

Confidence in →	national government			civil service			police		
Model →	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
<b>Regional Authority</b>	.003 (1.0)		.091** (13.2)	.035** (13.3)		.063** (9.0)	-.003 (1.1)		.037** (5.4)
<b>Local Autonomy</b>		-.003 (1.5)	.023** (7.0)		.009** (4.7)	.004 (1.1)		.005** (3.0)	.024** (7.4)
<i>Respondent Characteristics</i>									
Male	.031** (3.6)	.052** (5.2)	.055** (5.0)	.037** (4.3)	.045** (4.5)	.044** (3.9)	.080** (9.7)	.116** (11.9)	.121** (11.1)
Education: Middle	.212** (17.6)	.208** (13.6)	.204** (12.3)	.086** (7.0)	.051** (3.4)	.047** (2.9)	.176** (14.9)	.195** (12.7)	.187** (11.4)
Education: Upper	.206** (15.2)	.191** (11.1)	.184** (9.9)	.018 (1.3)	-.044** (2.6)	-.061** (3.3)	.273** (20.7)	.277** (16.3)	.272** (14.9)
Age: 30-49 years	-.031** (2.9)	-.059** (4.5)	-.064** (4.4)	.033** (3.0)	-.004 (0.3)	-.006 (0.4)	.005 (0.5)	-.061** (4.6)	-.048** (3.3)
Age: 50 and older	-.141** (11.7)	-.201** (14.4)	-.200** (12.8)	-.055** (4.5)	-.135** (9.6)	-.129** (8.2)	-.146** (12.5)	-.245** (17.6)	-.216** (14.0)
Income: Medium	-.023** (2.3)	-.111** (9.3)	-.126** (9.5)	-.045** (4.4)	-.118** (9.9)	-.131** (9.8)	-.035** (3.6)	-.089** (7.6)	-.096** (7.4)
Income: High	-.107** (7.2)	-.160** (9.3)	-.184** (9.7)	-.073** (4.8)	-.112** (6.4)	-.133** (6.9)	-.054** (3.7)	-.074** (4.4)	-.059** (3.1)
Trust in people	-.378** (38.0)	-.423** (37.1)	-.452** (35.8)	-.352** (34.2)	-.422** (35.8)	-.440** (33.7)	-.314** (32.1)	-.366** (32.4)	-.379** (30.3)
<i>Country/Time Characteristics</i>									
GDP growth	-.005** (2.2)	-.003 (1.6)	.009** (3.4)	-.012** (6.3)	-.014** (7.3)	-.011** (4.3)	.003 (1.4)	-.002 (0.9)	.000 (0.2)
Gov't Size	-.032** (7.9)	.012** (3.2)	-.043** (7.2)	-.012** (3.3)	.002 (0.5)	-.007 (1.3)	-.015** (4.1)	-.018** (5.2)	-.051** (9.0)
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Survey Wave Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obsv.	191,068	139,314	112,917	193,215	140,444	114,660	200,740	144,693	117,938
Wald $\chi^2$	34,401**	10,060**	9,661**	36,851**	15,150**	13,738**	35,023**	22,813**	19,056**
Pseudo R <sup>2</sup>	0.07	0.03	0.03	0.08	0.05	0.05	0.07	0.07	0.07

Notes: Ordered logit estimation strategy in all models presented above using lagged decentralization measures. Absolute values of heteroskedasticity-robust standard errors reported in the parentheses. Country and survey wave control variables and estimated categorical cutoff coefficients not reported to conserve space. \* denotes statistical significance at the 10% level or better, \*\* 5% level or better.

**Table 5**  
**Ordered logit average marginal effects of decentralization**

Trust Level →	<b>Great Deal</b>	<b>Quite a Lot</b>	<b>Not Very Much</b>	<b>None at All</b>
<i>Panel A – Confidence in (national) government</i>				
<b>Regional Authority</b>	-.006**	-.014**	.006**	.015**
<b>Local Autonomy</b>	-.001**	-.004**	.001**	.004**
<i>Panel B – Confidence in civil service</i>				
<b>Regional Authority</b>	-.003*	-.011*	.005*	.009*
<b>Local Autonomy</b>	-.000	-.001	.000	.001
<i>Panel C – Confidence in police</i>				
<b>Regional Authority</b>	-.004*	-.003*	.004*	.004*
<b>Local Autonomy</b>	-.003**	-.002**	.003**	.003**

Notes: Based on results for Models 1.3, 1.6, and 1.9 reported in Table 4. \* denotes statistical significance at the 10% level or better, \*\* 5% level or better.

**Table 6**  
**Perspectives on regional decentralization and trust in government**

<b>Regional decentralization measure</b>	<b>national government</b>	<b>civil service</b>	<b>police</b>
<i>Self-rule</i>	.013** (4.7)	.041** (15.1)	-.003 (1.0)
<i>Policy Autonomy</i>	-.032** (3.2)	.016** (15.0)	-.014 (1.5)
<i>Fiscal Autonomy</i>	-.139** (8.4)	.120** (6.9)	.010 (0.6)
<i>Borrowing Autonomy</i>	.005 (0.4)	.059** (5.2)	-.075** (7.0)
<i>Institutional Depth</i>	.166** (9.6)	.284** (15.9)	.014 (0.9)
<i>Independent Representation</i>	.081** (11.5)	.118** (16.7)	.000 (0.1)
<i>Shared-rule</i>	-.226** (18.6)	-.090** (7.3)	-.007 (0.6)

Notes: Ordered logit estimation strategy using same control variables from Models 1.1, 1.4, and 1.7 reported in Table 4 and lagged decentralization measures. Results for control variables not reported conserve space. Regional decentralization measures defined in Table 1. Absolute values of heteroskedasticity-robust standard errors reported in the parentheses. \* denotes statistical significance at the 10% level or better, \*\* 5% level or better.

**Table 7**  
**Perspectives on local decentralization and trust in government**

<b>Local decentralization measure</b>	<b>national government</b>	<b>civil service</b>	<b>police</b>
<i>Legal Autonomy</i>	.005** (7.5)	.001** (2.1)	.001 (1.4)
<i>Organizational Autonomy</i>	-.006** (6.7)	.010** (10.7)	.005** (6.1)
<i>Policy Scope</i>	-.023** (17.6)	.002 (1.6)	-.001 (1.1)
<i>Effective Political Discretion</i>	.003** (2.0)	.008** (5.6)	.014** (10.5)
<i>Financial Autonomy</i>	-.001 (1.1)	-.008** (7.5)	-.014** (12.9)
<i>Non-interference</i>	-.002 (1.6)	-.002* (1.8)	.003** (3.0)
<i>Access</i>	.008** (12.6)	.004** (6.7)	.006** (8.9)

Notes: Ordered logit estimation strategy using same control variables from Models 1.2, 1.5, and 1.8 reported in Table 4 and lagged decentralization measures. Results for control variables not reported conserve space. Local decentralization measures defined in Table 1. Absolute values of heteroskedasticity-robust standard errors reported in the parentheses. \* denotes statistical significance at the 10% level or better, \*\* 5% level or better.

**Table A1**  
**Countries in the data set**

	<b>Regional Authority Index</b>	<b>Local Autonomy Index</b>		<b>Regional Authority Index</b>	<b>Local Autonomy Index</b>
Albania	X	X	South Korea	X	X
Argentina	X	X	Latvia	X	X
Armenia		X	Lithuania	X	X
Australia	X	X	Macedonia	X	X
Bangladesh	X		Malaysia	X	
Belarus		X	Mexico	X	X
Bolivia	X		Moldova		X
Bosnia and Herzegovina	X		Netherlands	X	X
Brazil	X		New Zealand	X	
Bulgaria	X	X	Norway	X	X
Canada	X	X	Pakistan	X	
Chile	X	X	Peru	X	
China	X		Philippines	X	
Colombia	X	X	Poland	X	X
Cyprus	X	X	Romania	X	X
Czech Republic	X	X	Russia	X	X
Dominican Republic	X		Serbia	X	X
Ecuador	X		Singapore	X	
El Salvador	X		Slovakia	X	X
Estonia	X	X	Slovenia	X	X
Finland	X	X	South Africa		X
France	X	X	Spain	X	X
Georgia		X	Sweden	X	X
Germany	X	X	Switzerland	X	X
Greece	X	X	Thailand	X	
Guatemala	X		Türkiye	X	X
Haiti	X		Ukraine	X	X
Hungary	X	X	United Kingdom	X	X
India	X		United States	X	X
Indonesia	X		Uruguay	X	
Italy	X	X	Venezuela	X	
Japan	X	X		N = 58	N = 42

<b>Table A2</b>			
<b>Decentralization and citizen trust in government: Generalized order logit model estimation</b>			
Trust Level →	<b>Great Deal</b>	<b>Quite a Lot</b>	<b>Not Very Much</b>
<i>Panel A – Confidence in (national) government</i>			
<b>Regional Authority</b>	.026**	.079**	.111**
<b>Local Autonomy</b>	.006	.011**	.049**
<i>Panel B – Confidence in civil service</i>			
<b>Regional Authority</b>	.026	.062**	.093**
<b>Local Autonomy</b>	-.000	-.002	.024**
<i>Panel C – Confidence in police</i>			
<b>Regional Authority</b>	-.026**	.034**	.067**
<b>Local Autonomy</b>	.024**	.024**	.024**

Notes: Generalized order logit estimation based on the Stata GOLOGIT2 procedure using Models 1.3, 1.6, and 1.9 reported in Table 4 and lagged decentralization measures. Results for control variables not reported conserve space. Default response category: “None at all.” \* denotes statistical significance at the 10% level or better, \*\* 5% level or better based on heteroskedasticity-robust standard errors.

**Table A3**  
**Regional and local decentralization and citizen trust in government: Robustness analysis**

Confidence in →	national government			civil service			police		
Model →	1.3A	1.3B	1.3C	1.6A	1.6B	1.6C	1.9A	1.9B	1.9C
<b>Regional Authority</b>	.042** (5.4)	.036** (4.8)	.094** (13.5)	.021** (2.6)	.052** (6.9)	.068** (9.6)	.014* (1.9)	.018** (2.4)	.036** (5.2)
<b>Local Autonomy</b>	.035** (9.2)	.026** (7.9)	.022** (6.6)	.019** (4.6)	.004 (1.2)	.002 (0.5)	.032** (8.4)	.025** (7.6)	.024** (7.4)
<b>Local Government Size</b>			.012** (3.2)			.021** (5.2)			-.002 (0.7)
<i>Respondent Characteristics</i>									
Male	.069** (5.7)	.056** (5.1)	.055** (5.0)	.048** (4.0)	.044** (3.9)	.044** (4.0)	.137** (11.6)	.121** (11.2)	.121** (11.1)
Education: Middle	.236** (13.0)	.193** (11.6)	.205** (12.4)	.066** (3.7)	.045** (2.7)	.049** (3.0)	.222** (12.3)	.184** (11.2)	.187** (11.3)
Education: Upper	.218** (10.7)	.171** (9.2)	.184** (9.8)	-.053** (2.7)	-.063** (3.4)	-.061** (3.3)	.309** (15.5)	.268** (14.6)	.272** (14.9)
Age: 30-49 years	-.068** (4.2)	-.065** (4.5)	-.065** (4.4)	-.035** (2.2)	-.007 (0.4)	-.007 (0.4)	-.066** (4.1)	-.048** (3.3)	-.048** (3.3)
Age: 50 and older	-.216** (12.7)	-.203** (13.0)	-.200** (12.8)	-.161** (9.5)	-.129** (8.3)	-.129** (8.3)	-.236** (14.1)	-.217** (14.1)	-.216** (14.0)
Income: Medium	-.0147** (10.2)	-.117** (8.8)	-.126** (9.4)	-.143** (9.9)	-.129** (9.7)	-.130** (9.8)	-.112** (7.9)	-.093** (7.1)	-.096** (7.4)
Income: High	-.214** (10.3)	-.169** (8.9)	-.184** (9.7)	-.171** (8.0)	-.130** (6.7)	-.132** (6.8)	-.095** (4.6)	-.054** (2.9)	-.059** (3.2)
Trust in people	-.454** (33.7)	-.449** (35.5)	-.451** (35.7)	-.439** (31.6)	-.439** (33.7)	-.439** (33.6)	-.385** (28.8)	-.378** (30.2)	-.379** (30.3)
<i>Country/Time Characteristics</i>									
GDP growth	-.014** (4.5)	-.003 (1.3)	.009** (3.4)	-.006** (2.1)	-.012** (4.7)	-.011** (4.4)	-.003 (1.1)	-.001 (0.5)	.000 (0.2)
Gov't Size	-.045** (5.7)	-.037** (6.2)	-.042** (7.1)	-.013* (1.9)	.005 (1.0)	-.006 (1.0)	-.066** (9.0)	-.048** (8.6)	-.051** (9.0)
Corruption	-.0108** (6.3)			.019 (1.1)			.022 (1.4)		

Regime Authority (democracy)		.074** (15.4)			.015** (3.1)			.026** (5.5)	
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Survey Wave Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obsv.	96,395	112,197	112,917	98,551	114,660	114,660	101,313	117,938	117,938
Wald $\chi^2$	8,397**	9,947**	9,687**	9,010*	13,753**	13,787**	12,589**	19,166**	19,057**
Pseudo R <sup>2</sup>	0.03	0.03	0.03	0.04	0.05	0.05	0.05	0.07	0.07

Notes: Ordered logit estimation strategy in all models presented above using lagged decentralization measures, additional control variables are added to Models 1.3, 1.6, and 1.9 from Table 4. Absolute values of heteroskedasticity-robust standard errors reported in the parentheses. Country and survey wave control variables and estimated categorical cutoff coefficients not reported to conserve space. \* denotes statistical significance at the 10% level or better, \*\* 5% level or better.