

Fiscal decentralization, democracy and government size: Disentangling the complexities

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Abstract

This paper examines the mediating effect of democracy in explaining the relationship between decentralization and government size for the period 1970–2013. We proxy decentralization by fiscal decentralization, use total spending as our primary measure of government size and adopt the V-Dem high-level democracy indices as measures of democracy. Our main finding is that the relationship between fiscal decentralization and government spending differs under different types of democracy. From the interaction term, the negative effect of fiscal decentralization diminishes as the democracy level gets higher, particularly for participatory democracy irrespective of whether government size is measured by spending-to-GDP or employment.

KEYWORDS

democracy, fiscal decentralization, government size, Leviathan, V-Dem

JEL CLASSIFICATION

H1; H50; H77; O50

1 | INTRODUCTION

Why have many countries decentralized? Several reasons may explain the increasingly common feature of decentralization found in both developed and developing countries in recent decades (see Garman et al., 2001; Hooghe et al., 2010). We note a few. First, decentralization may be welfare improving and enhance government accountability

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(Tiebout, 1956). Second, subnational governments are seen to be efficient and effective at resource allocation given that they are closer to the citizenry and are likely to better determine and anticipate the needs and preferences of their residents. Hence, subnational governments are expected to provide a good match between the preferences of their residents and the available bundle of goods and services. In particular, fiscal decentralization assumes that subnational governments possess the needed autonomy both to raise revenues and to fund their expenditures with little or no central government interference.

Governments can manage the effect of decentralization by changing the level of government size. However, the effect of decentralization on government size depends on whether the government is a 'benevolent agent' or a monolithic 'Leviathan'. As a benevolent agent, government is assumed to act in the interest of the citizenry by readily and accurately meeting the needs of citizens (Oates, 1972; Tiebout, 1956; Weingast, 2009). Further, as noted earlier, a decentralized system is characterized by improved efficiency and accountability, making it possible for the citizenry to demand more public goods. Therefore, for a benevolent agent, decentralization is associated with a larger government size. On the other hand, the Leviathan hypothesis assumes that greater decentralization leads to smaller government size. Governments (both central and local governments) are assumed to be monolithic Leviathans, and the major interest of public servants is to maximize revenues. Residents are assumed to possess information advantages in addition to being mobile. A 'race to the bottom' may occur as subnational governments compete among themselves to fix the lowest tax rates to attract and retain mobile financial capital. The effect of the latter will be lower tax revenues; hence, the 'beast' is starved, and government size is reduced (Brennan & Buchanan, 1980).

Does democracy play any role in the relationship between decentralization and government size? First, it may be easier for decentralization to be a political decision under a democracy as it involves reducing the concentration of power with the central government. One of the most valued assets of nondemocracies or authoritarian governments is the concentration of power at the centre (Beyani, 2000), which is at variance with the motivations for decentralization. Therefore, there is likely to be a minimal preference for decentralization in nondemocracies (see Karlström, 2015; Qiao et al., 2019). Second, the assumptions of both the benevolent and Leviathan hypotheses seem plausible under a democracy. For instance, the incentive of a government to be benevolent may be borne out of a desire to meet the tastes, preferences and needs of voters in order to retain power in a democracy (see Boix, 2001; Hicks & Swank, 1992; Isham et al., 1997). Furthermore, information advantages, demand for efficient provision of public goods and services and 'voting with the feet' may require conditions such as free elections, freedom of speech, fundamental human rights, public demand for accountability, effective institutions among others, which are essential characteristics of a democracy (Karlström, 2015). Also, democracy in itself may be an effective tool to 'starve the beast' under a Leviathan. Therefore, assuming the earlier arguments are valid, examining the mediating role of democracy in the decentralization–government size relationship may provide an explanation for the divergent and conflicting empirical evidence on the effect of decentralization on government size.¹ There are implications of the relationship between fiscal decentralization, democracy and government size for development. Democracy is expected to create an efficient government. Hence, by limiting the predatory nature of central governments, fostering accountability and efficiency, reducing the cost of providing public goods and services and encouraging innovation, decentralization is expected to lead to equitable levels of development at the subnational level. For instance, Bossert et al. (2003) indicate that increased equity in resource allocation through decentralization is associated with improved health outcomes, health coverage and the administration of health systems in Colombia. Similarly, Bardhan et al. (2008) indicates that decentralization is associated with a reduction in the biases in public service delivery in West Bengal, India. Conversely, decentralization may lead to soft budget constraints, macroeconomic instability, clientelism and partisanship which may hinder development.

Crucially, any attempt to consider the role of democracy in explaining the relationship between fiscal decentralization and government size must note the importance of the different conceptions of representative

¹Note that variations in the extent of both decentralization and democracy can affect the decentralization–government size relationship. Such variations may be in the form of transitions within or between political regime types which create changes in political constraints (e.g., fiscal rules and independent central banks) and in the behaviour of public servants (Marlow, 1988).

democracy. In that case, measures of democracy in its broad sense (such as a simple binary 0,1 indicator of democracy and autocracy), a simple measure of a country's political regime, or using institutional quality to gauge the level of democracy may not be enough as the relationship may be more nuanced than direct. Various conceptions of democracy may have varying implications given the differences in the characteristic principles of democracy they measure: electoral, liberal, participatory, deliberative and/or egalitarian democracies. While the electoral principle of democracy is an essential component of any other conception of representative democracy, such conceptions retain their unique characteristics in principle which likely have implications for the relationship being considered here. For instance, one bedrock of the electoral principle of democracy is the delegation of authority to representatives which is not exactly the same as a preference for, where practicable, a direct involvement of the citizens in decision making under a participatory democracy. Added to this, a more liberal democracy may provide limits on central government power, allowing devolution of power to local governments. The egalitarian principle of democracy expects that resources are distributed equally among all social groups. These and other characteristics are essential not only for decentralization but also to demonstrate voter preferences for public goods and its consequent effect on government size.

This paper provides an extension to existing findings on the role of democracy in mediating the relationship between fiscal decentralization and government size. The paper looks beyond just the broad concept of democracy and uses varieties of democracy indices for 76 developed and developing countries for the years 1970–2013. The sample mirrors that of Qiao et al. (2019) and extends the study with the new indicators of democracy. We adopt the V-Dem high-level democracy indices (see Coppedge et al., 2020) in measuring democracy: electoral, liberal, participatory, deliberative and egalitarian democracy indices. We introduce an interaction term of fiscal decentralization and the varieties of democracy indices to capture the mediating effect of democracy. This is a unique approach compared to a similar study on the mediating effect of democracy in the relationship between decentralization and government size discussed later in the literature review. Our primary measure of government size is real per capita total (central plus local) government expenditure to GDP from the World Bank World Development Indicators (WDI). We proxy decentralization by fiscal decentralization–expenditure decentralization measured as the ratio of state and local government spending to general government spending from the World Bank's Decentralization indicator database. We make use of the fixed effects estimation technique with Driscoll–Kraay standard errors to account for cross-sectional and time dependence. Our robustness analysis includes an estimation with a subsample of developed and developing countries, an estimation with the log of public sector employment as an alternative measure of government size, an estimation in first differences with regime change lag as an alternative measure of democracy and an instrumental variable estimation to address endogeneity concerns.²

Finally, in another unique contribution, we examine non-linearity to determine if the extent (intensity) of decentralization matters for the effect of decentralization on government size. Conceptually, if intensity matters, then both the direct and indirect effects of decentralization on government size may differ at both higher and lower levels of either decentralization or democracy. For instance, if indeed decentralization starves the beast, then at the peak of decentralization, government size should be smaller. However, given that government welfare spending increases as a country becomes more democratic, there is likely to be a higher demand for bigger government size in advanced democracies. These two scenarios although contradictory suggest that if the rate of change in the degree of decentralization differs from the rate of change in the size of government, then the relationship between decentralization and government size may be non-linear or nonmonotonic and may have peaks or troughs.

To summarize our results, our baseline results clearly establishes effects of fiscal decentralization and democracy on government size: negative for both variables and for all measures of democracy, and this is confirmed by our main results. Our main finding is that the relationship between fiscal decentralization and government spending differs under varieties of democracy. For democracy, we find that an increase in participatory democracy more strongly affects government size than increases in other types of democracy. Hence, the most important features of democracy relevant to the democracy–government size relationship are those that are captured within the participatory

²The data set is freely available for other researchers to use and is available on request from the author.

democracy index. The interaction term shows that the negative effect of fiscal decentralization diminishes as the democracy index gets higher, particularly for the participatory democracy index irrespective of whether government size is measured by spending-to-GDP or employment. The results for the interaction term are consistent in all cases except for developing countries where we find a negative interaction term for the liberal democracy index and no statistically significant effect of the interaction term for all other concepts of democracy. We do not find a non-linear relationship between decentralization and government size.

The remainder of the paper is structured as follows. The next section provides a brief literature review. We discuss methodology and estimation results in Sections 3 and 4, before turning to conclusions and policy recommendations in Section 5.

2 | LITERATURE REVIEW

Empirical evidence on the relationship between government size and fiscal decentralization is mixed, although the balance seems to tilt in favor of the Leviathan hypothesis (Golem, 2010; Stegarescu, 2005). Early research on the subject matter do not find statistically significant results (see Forbes & Zampelli, 1989; Nelson, 1986; Oates, 1985) although these studies are deficient in their definition and measurement of the relevant concepts (see Marlow, 1988). As expected, there are empirical studies with evidence for the benevolent agent hypothesis (Cassette & Paty, 2010; Jia et al., 2014; Martinez-Vazquez & Yao, 2009; Wu & Lin, 2012) and the Leviathan hypothesis (see Feld et al., 2010; Grossman, 1989; Liberati & Sacchi, 2013; Marlow, 1988).³

Curiously, only a few papers control for democracy in examining the effect of decentralization on government size. While Boix (2001), Feld et al. (2010), Jin and Zou (2002) and Liberati and Sacchi (2013) include measures of democracy or political/institutional variables as controls in examining the relationship under consideration, they do not examine the mediating effect of democracy. For instance, in examining the effect of fiscal decentralization on aggregated, national and subnational government sizes, Jin and Zou (2002) uses four variables to measure the political/institutional factors. The first, a dummy variable measuring 'political central bank'(lack of central bank independence) equals 1 if there is a change in the governor of the central bank within 6 months of a change in government and 0 otherwise. The second, a dummy variable measuring unitary state versus federal state equals 1 if a federal state and 0 otherwise. The third, a dummy variable for elected versus non-elected subnational governments equals 1 if the elected and 0 otherwise. Finally, a dummy variable equals 1 if there are borrowing restrictions on subnational governments and 0 otherwise. Similarly, Liberati and Sacchi (2013) controls for (i) federal countries using a dummy variable equals 1 if a federal country and 0 otherwise and (ii) left-wing political parties using a dummy variable equals 1 for ruling left-wing political parties and 0 otherwise.

Two papers are closely related to our study. Baskaran (2011) examines the mediating role of ideology in the effect of fiscal decentralization on government size for 18 OECD for the period 1980–2000. Two measures of ideology are used. First, an index for OECD countries equals 1 if the government is a far-right and 5 if it is considered to be a far-left.⁴ Second, the *gov1rlc* variable measures the ideology of the largest government party on a three-digit scale, right-wing parties equal 1, centrist parties equal 2 and left-wing parties equal 3, with parties that cannot be classified using the left-right scale coded as 0.⁵ The CPDS I ideology measure provides a detailed data for countries with relatively similar institutional structure although it covers a small sample size. The *gov1rlc* variable is also weak as it is less precise (adopts a three-digit scale) and possibly narrower (captures the ideology of the largest government party only). The paper interacts ideology with two measures of decentralization, expenditure and revenue

³Other studies with evidence for the Leviathan hypothesis include Jouffaian and Marlow ((1990), (1991)), Ehdai (1994), Grossman and West (1994), Shadbejian (1999), Jin and Zou (2002), Rodden (2003) and Fiva (2006).

⁴Source: CPDS I database, Armingeon et al. (2008).

⁵Source: Database of Political Institutions, Beck et al. (2001).

decentralization. The paper finds a positive effect of decentralization on government size irrespective of the ideology of the central government, with the effect larger for left-versus right governments.

To a large extent, the current paper is an extension of Qiao et al. (2019) to consider varieties of democracy and nonmonotonicity. Qiao et al. (2019) provide empirical evidence for the mediating role of democracy in the decentralization–government size relationship for 76 developed and developing countries over the period 1972–2013. The paper uses two measures of democracy. First, an average of political right and civil liberties index from Freedom House rescaled to take values between 0 and 10, where higher values imply more democratic governments and lower values otherwise. Second, an index for political democracy equals 1 and 0 otherwise and for political autocracy equals 1 and 0 otherwise from the PolityIV data set. The paper finds a positive effect of the interaction term, implying that at higher levels of democracy, fiscal decentralization is associated with bigger government size. The results are robust across alternative measures of government size, decentralization and democracy; alternative data frames; alternative specifications and accounting for endogeneity issues. However, the measures of democracy used do not capture the nuances of the concept of democracy described earlier.

2.1 | V-Dem as a measure of democracy

Beyond the classical description of democracy as *rule by the people*, there are great debates on both the descriptive and normative aspects of the concept of democracy. For instance, there is no consensus on *what political regimes are and what they ought to be*, making it impossible to obtain a single measure of democracy that is universally accepted (Coppedge et al., 2017). Admittedly, the most popular measures of democracy are the Freedom House and Polity indices. Some indices of democracy such as the binary democracy–dictatorship (DD) index of democracy provide a narrow definition of democracy, considering the electoral properties of democracy only. The Polity2 index for instance has been criticized as masking the realities of its component—the United States—is described as a fully democratic polity in almost all periods of the index although the extent to which women, most blacks, and many poor formed part of the electorate differs in the nineteenth and twentieth centuries.⁶ Further, for some indices, specific components or attributes included in their computation do not directly relate to democracy (e.g., the level of civilian control of the police as an attribute of the Civil Liberties index of Freedom House). In addition, other indices of democracy ignore the multidimensional nature of the concept of democracy, focus on the competitive or liberal aspects of democracy and ignore other properties such as deliberative or egalitarian democracy (e.g., the Economic Intelligence Unit [EIU] index of democracy). Another critique of known measures of democracy is that while they may help create a clear distinction between ‘better or worse’ democracies, they may be inadequate in substantively determining the actual conditions of democracy that exist. There are other weaknesses with known democracy indices attributable to their sources, the level of disaggregation, coverage, discrimination, aggregation and their validity and reliability.⁷

Why the V-Dem indicator? The V-Dem data provides a new approach to the conceptualization and measurement of democracy. The V-Dem data are orthogonal to other popular measures of democracy such as the Polity and Freedom House indices, providing a wide-ranging database made up of different conceptions of democracy, a large array of mesolevel indices of various components of the concepts of democracy, in addition to about 350 specific indicators. The V-Dem index has a longer historical span (from 1789 for 173 countries). To ensure validity and reliability, multiple, independent coders are used for each (nonfactual) question. The index construction process involves the incorporation of intercoder reliability tests within a Bayesian measurement model. There are confidence intervals constructed for all point estimates associated with nonfactual questions. Finally, the aggregation procedures are

⁶See Keyssar (2000), Paxton (2000) and Coppedge et al. (2017).

⁷Specifically, (i) some are not comprehensive, comparable or regular and may be subjective and inconsistent; (ii) some are not highly and systematically disaggregated which makes them fairly abstract in their approach; (iii) some are limited in country and time coverage; (iv) some are unable to precisely and reliably distinguish between greater and lesser degrees/levels of democracy; (v) some are unclear or inconsistent approaches to aggregation and (vi) the choices in definition, sources of data and aggregation create potential validity and reliability problems (see Coppedge et al., 2017 for a detailed discussion).

transparent, and data are freely available for all indicators and original coder-level judgments. Essentially, V-Dem considers seven properties of democracy with distinct set of core values: *electoral*, *liberal*, *majoritarian*, *consensual*, *participatory*, *deliberative* and *egalitarian*.⁸ The core values of these principles/properties of democracy are (i) *electoral*: contestation and competition; (ii) *liberal*: individual liberty, protection against tyranny of majority and state repression; (iii) *majoritarian*: majority rule, governing capacity and accountability; (iv) *consensual*: voice and representation of all groups, possibly sharing power; (v) *participatory*: direct, active participation in decision making by the people; (vi) *deliberative*: reasoned debate and national arguments and (vii) *egalitarian*: equal political empowerment. It is worth stating that V-Dem considers the electoral principle as fundamental to and important for all other principles of democracy under its conceptual scheme. Hence, a regime without elections is not considered democratic, bearing in mind that incomplete polyarchies may possess some form of democratic qualities. The electoral dimension of democracy is considered as a continuum. Therefore, V-Dem provides a broader range of ideals of democracy, taking into consideration the possible contradictions in the core values that make up the properties of democracy described earlier. Most importantly, 'having separate indices that represent these different facets of democracy will make it possible for policymakers and academics to examine potential trade-offs empirically' (Coppedge et al., 2017, p. 24). The current study adopts five concepts of democracy from the high-level indices (HLIs) of the V-Dem measures as data for the *majoritarian* and *consensual* principles of democracy were not available at the time of the study. Notwithstanding, the remaining five concepts significantly cover varieties of democracy, hence offering a fairly comprehensive description of the concept of democracy. In terms of recent empirical applications, the V-Dem index has been adopted to examine extrajudicial violence and autocratic rule, to measure citizen ownership of the state, to examine the impact of democracy on social and economic development and to examine political regimes and refugee entries. In addition, the V-Dem indices have been used to examine courts and the constitutional erosion of democracy in Latin America, citizen demonstrations in Russia, political networks across the globe, autocracies and human development, electoral systems and income inequality, the political effects of decolonization, electoral democracy and corruption, authoritarian notions of democracy and autocratic legislatures and party institutionalization.⁹

3 | EMPIRICAL STRATEGY AND DATA

3.1 | Model specification

We examine the fiscal decentralization–government size relationship considering the mediating role of democracy as follows:

$$Govsize_{it} = \alpha + \sigma FD_{it} + \nu DEM_{it} + \rho (FD * DEM)_{it} + \tau X_{it} + \mu_i + \eta_t + \epsilon_{it}, \quad (1)$$

where *Govsize* refers to government size: our primary measure of government size is total government expenditure as a percentage of GDP, used in natural logarithm form. Later, we introduce the log of total public sector employment as an alternative measure of government size. Country and year are represented as *i* and *t*, respectively. The fiscal decentralization indicator is given as *FD* and is measured in natural logarithm, *DEM* refers to the democracy measure and *FD * DEM* represents the interaction term between decentralization and democracy. The coefficients of interest are σ , ν and ρ . In their respective cases, we expect negative effects of fiscal decentralization and democracy on government size but a positive effect of the interaction term on government size a priori, following previous literature. The latter suggests that as the level of democracy increases, fiscal decentralization will be associated with an increase in government size. *X* represents control variables: real GDP per capita, urbanization, the share of young

⁸These are discussed in detail in Section 3.2.3.

⁹The V-Dem Institute Users' Working Papers series provides a comprehensive list of papers submitted by users of the V-Dem data. The working papers can be found here.

population and the share of old population given in natural logarithms; others are the KOF globalization index, central bank independence, monetary union and fiscal rules. Year dummy, country dummy and the error term are given as μ_i , η_t and ϵ_{it} , respectively. Cross-sectional dependence is possible in any panel data as panel groups (countries in our case) are independent, heterogeneous and susceptible to shocks from each other. For instance, countries in an economic block or grouping such as the European Union may benefit from the spill-over effects of democracy as it permeates through the block. Also, fiscal decentralization may be similarly adopted by neighbouring countries or countries with common interests. Therefore, shocks associated with both fiscal decentralization and democracy in a given country may be experienced in other closely linked countries.¹⁰ We adopt the two-way fixed effects estimator with Driscoll–Kraay standard errors to account for general forms of temporal and cross-sectional dependence since panel data sets are prone to incidents of cross-sectional dependence (Driscoll & Kraay, 1998). This makes the fixed effects estimation results more robust.

3.2 | Data

Summary statistics of all variables are provided in Table A1. We show the correlation between the varieties of democracy variables in Table A2. Clearly, the varieties of democracy variables are highly correlated which lends support to individual estimations with each of them as proxy for democracy in their respective cases.

3.2.1 | Dependent variable

The primary measure of government size is total expenditure measured as the share of total government expenditure to GDP, which is sourced from the World Bank WDI database. The spending measure used here is comprehensive as it captures all local and central government spending, making it an appropriate measure of government size in this case. Similarly used by Rodden (2004), Prohl and Schneider (2009) and Kotera et al. (2012). As an alternative measure, we use the log of total public sector employment from the International Labour Organization (ILO) as proxy for government size (see Martinez-Vazquez & Yao, 2009; Qiao et al., 2019)

3.2.2 | Fiscal decentralization

Fiscal decentralization is proxied by expenditure decentralization measured as the ratio of subnational (state and local) government spending to general government spending. It is the measure commonly used in the literature as it adequately accounts for total government intrusion (see Davoodi & Zou, 1998; Golem, 2010; Marlow, 1988; Oates, 1985). Data on expenditure decentralization are from the World Bank's Decentralization Indicator database.

3.2.3 | Democracy

As noted earlier, similar studies fail to capture the various conceptions of democracy. Hence, we adopt an approach which encompasses the varieties of democracy. We account for electoral democracy, liberal democracy, participatory democracy, deliberative democracy and egalitarian democracy. Data on our democracy indices are sourced from the V-Dem data set (see Coppedge et al., 2020; Pemstein et al., 2020). A full description of the properties of the V-Dem is shown in Table A6.

¹⁰An example in recent years is the Arab spring of the 2010s.

3.2.4 | Electoral democracy index

The electoral principle of democracy captures the principle that democracy creates an enabling atmosphere for rulers to be responsive to citizens, which can be achieved through competition for citizenry vote of approval in an election, a process that must allow an extensive level of usual suffrage. The electoral democracy index is constructed with an interval of low to high, represented as 0–1, respectively.¹¹

3.2.5 | Liberal democracy index

The concept of liberal democracy considers the extent to which democracy successfully limits the power of governments, providing room for the protection of individual and minority rights against the ‘tyranny’ of the majority. At the core of the liberal principle of democracy are constitutionally protected civil liberties, strong rule of law, an independent judiciary and effective checks and balances which must succeed in limiting the excessive use of executive power. The index is calculated taking the level of electoral democracy into consideration. It is an index with an interval 0–1 representing low to high, respectively.

3.2.6 | Participatory democracy index

The participatory principle of democracy has at its core value, an active citizenry participation in all political processes which may be electoral or non-electoral. Here, delegating authority to elected representatives may not be enough as it is expected that where possible, other platforms are created for citizenry direct involvement. This could be ensured through engagement with civil society organizations, direct democracy and elected bodies at the sub-national level. The index is on an interval of 0–1 representing low to high participatory democracy, respectively, and takes electoral democracy into account.

3.2.7 | Deliberative democracy index

The deliberative democracy index is an index of the process of decision making in a polity. The expectation is that political decision making is driven by public reasoning aimed at ensuring common good as against emotional appeals, solitary attachments, parochial interests or coercion. Hence, democracy must involve respectful dialogue at all levels of the decision-making process, from conceptualization to implementation rather than a summation of known preferences. The deliberative democracy index is given on an interval of 0–1 representing low to high, respectively, and considers the level of electoral democracy.

3.2.8 | Egalitarian democracy index

Finally, the egalitarian democracy index measures the extent to which the ideal of egalitarian democracy is achieved. The egalitarian principle of democracy considers the potential of material and immaterial inequalities to limit the enjoyment of formal rights and liberties, placing limits on the ability of citizens from diverse social groups to

¹¹It takes the average of, or the weighted average of, indices measuring freedom of association, clean elections, freedom of expression, elected officials and suffrage and, on the other, the five-way multiplicative interaction between those indices (see Coppedge et al., 2020). All other indices are aggregated taking electoral democracy index into consideration and by replacing the specific index in the following formula: $v2xlibdem = .25 * v2xpolyarchy^{1.585} + .25 * v2xliberal + .5 * v2xpolyarchy^{1.585} * v2xliberal$.

participate in the democratic process. To ensure egalitarian democracy, the rights and freedoms of all individuals must be protected regardless of their social group, there must be equal distribution of resources across all such groups, as well as equal access to power for all individuals and groups. It is given on an interval of low to high (0–1) and considers electoral democracy.

3.2.9 | Control variables

The control variables are real GDP per capita (GDPpc), urbanization (Urban), the share of young population (Young), the share of old population (Old) given in natural logarithms, the KOF index of globalization (KOFGI), an index for central bank independence (CBI), a dummy for monetary union (EMU) and a dummy for fiscal rules (Fiscal rule). According to Wagner's law (Wagner, 1893), government spending as share of GDP increases with increases in national income; hence, we use real GDP per capita as proxy for national income. Urbanization is introduced to capture government consumption and investment (Alesina & Wacziarg, 1998) and is measured as urban population as share of total population. The share of the young and old population in the total population of any country represents the size of its dependant nonworking population. The size of the dependant population matters; young population demands higher spending on education while old population demands higher spending on health care. Hence, countries with larger share of the dependant population are likely to have bigger government size. The current paper captures the share of young population as the population in the ages 0–14 as share of total population and old population as the population 65+ as share of total population. Where there is central bank independence (CBI), there is limited central bank financing of government budgets either directly or indirectly, and government size is likely to be smaller (Fischer, 1995). The dummy variable for a monetary union is equal to 1 if a country participated in an Economic and Monetary Union in years t and afterwards or 0 otherwise. The strict requirements of a monetary union implies that members are less likely to have huge deficits, and this helps restrain government expansion (Qiao et al., 2019). Fiscal rules are likely to improve fiscal outcomes especially when it succeeds in coordinating an effective fiscal decentralization (Alesina & Bayoumi, 1996; Neyapti, 2013). Fiscal rules is therefore given as a dummy variable equal to 1 if a country has at least one fiscal rule (e.g., expenditure rule, revenue rule, budget balance rule or debt rule) in place and 0 otherwise. Globalization may lead to governments increasing spending to compensate for trade-related risks or to offset volatility and insecurity (compensation hypothesis, Rodrik, 1998) or governments reducing spending due for example to a reduction in tax revenues which may be caused by a 'race to the bottom' resulting from global competition to attract and retain capital ('efficiency hypothesis' Garrett, 1998). We proxy globalization by the KOF overall globalization index.

Data on real GDP per capita, urbanization, the share of young population and the share of old population are obtained from the World Bank (2018). Data for monetary union and central bank independence are sourced from the European Union and Garriga (2016), respectively. The fiscal rules dummy is sourced from the IMF Fiscal Rules Database (see Lledó et al., 2017). Finally, data for the KOF overall globalization index are sourced from Gygli et al. (2019).

4 | ESTIMATION RESULTS

4.1 | Exploratory analysis

We provide a graphical description of the V-Dem measures of democracy in Figures 1 and A1. Figures 1 and A1 show a description of trends in each of the measures of V-Dem adopted. In Figure 1, we plot trends by splitting the sample of countries into developed and developing countries, to compare trends between the two country groupings considered here. Overall, the graphs in Figure 1 show generally upward trending levels of all V-Dem measures. In addition, the levels of electoral and liberal democracies have been generally higher for developed countries for all

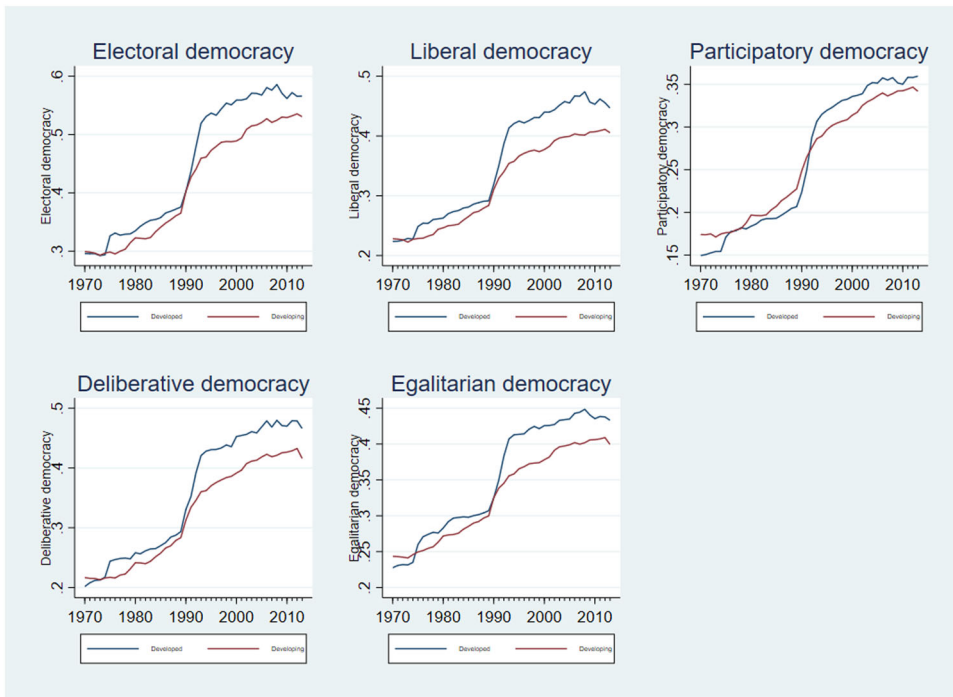


FIGURE 1 Comparative trends in V-Dem democracy measures between developed and developing countries, 1970–2013. Source: V-Dem. The sample of countries in each graph are the same for the regression [Colour figure can be viewed at wileyonlinelibrary.com]

years relative to developing countries. For deliberative and egalitarian democracies, however, developing countries seem to have higher levels compared to developed countries in the early years of the 1970s, although the trend switched in favour of developed countries since the late 1970s. Interestingly, up until the mid-1990s, the trend shows higher levels of participatory democracy in developing countries relative to developed countries. Besides, the gap in the trend in participatory democracy between developed and developing countries is closer post mid-1990s, and it is the closest among all other V-Dem measures of democracy. Figure A1 shows how countries score on each of the V-Dem measures of democracy, for both developed and developing countries for the end year 2013.

4.2 | Baseline results

The baseline results sets out to determine the individual effects of both fiscal decentralization and democracy on government size (as measured by government spending). Hence, the results are without the interaction term. The results are given in Table 1.

From Table 1, fiscal decentralization has a negative and statistically significant effect on government size when we control for all forms of democracy. Thus, increased fiscal decentralization is associated with reduced government size irrespective of the variety of democracy controlled for. In terms of magnitude, a 1% increase in fiscal decentralization is associated with between 4.8% and 5.0% reduction in government size. The amounts are clearly not trivial, although they might easily be swayed by other influences on government size, especially in developed countries.

TABLE 1 Baseline results: fiscal decentralization and government size

Variables	Electoral	Liberal	Participatory	Deliberative	Egalitarian
<i>FD</i>	-0.049*** (0.013)	-0.049*** (0.013)	-0.050*** (0.013)	-0.048*** (0.013)	-0.048*** (0.013)
<i>DEM</i>	-0.100* (0.053)	-0.077 (0.055)	-0.205** (0.090)	-0.039 (0.060)	0.006 (0.063)
<i>GDPpc</i>	-0.163* (0.091)	-0.156* (0.090)	-0.171* (0.095)	-0.151 (0.092)	-0.142 (0.089)
<i>KOFGI</i>	0.014*** (0.004)	0.014*** (0.004)	0.014*** (0.004)	0.014*** (0.004)	0.013*** (0.004)
<i>Urban</i>	0.044 (0.126)	0.047 (0.127)	0.025 (0.124)	0.051 (0.127)	0.058 (0.128)
<i>Young</i>	0.357** (0.135)	0.371*** (0.134)	0.339** (0.134)	0.376*** (0.137)	0.388*** (0.131)
<i>Old</i>	-0.467*** (0.148)	-0.446*** (0.145)	-0.481*** (0.153)	-0.432*** (0.145)	-0.412*** (0.135)
<i>CBI</i>	-0.051 (0.051)	-0.051 (0.052)	-0.054 (0.052)	-0.050 (0.051)	-0.046 (0.052)
<i>EMU</i>	0.007 (0.040)	0.006 (0.039)	0.007 (0.039)	0.004 (0.039)	0.002 (0.038)
<i>Fiscalrule</i>	-0.011 (0.023)	-0.012 (0.023)	-0.009 (0.023)	-0.013 (0.023)	-0.013 (0.022)
Year dummy	Yes	Yes	Yes	Yes	Yes
Observations	1176	1176	1176	1176	1176
Countries	67	67	67	67	67

Note: Fixed effects estimations with Driscoll-Kraay standard errors. All regressions include a constant term.

*Statistical significance at 10% level.

**Statistical significance at 5% level.

***Statistical significance at 1% level.

We therefore find preliminary evidence for the Leviathan hypothesis similar to Grossman (1989), Joulfaian and Marlow (1990, 1991), Ehdai (1994), Grossman and West (1994) and Shadbegian (1999).

The results also show negative and statistically significant effects of the electoral and participatory democracy indices on government size. A unit increase in the democracy indices is associated with between 10% and 21% decrease in government size as measured by government spending-to-GDP.

For the control variables, we find no evidence of Wagner's law, rather real GDP per capita has a negative and statistically significant effect on government size when we control for electoral and participatory democracies. An increased share of old population is associated with reduced government size in all cases; the share of old population has a negative and statistically significant effect on government size. The KOF overall globalization index and the share of young population however have a positive and statistically significant effect on government size.

Hence, the baseline results provide a hint of the possible effects of both fiscal decentralization and democracy on government size, generally negative for the former and negative for the latter for electoral and participatory democracies.

TABLE 2 Main results: the mediating effect of varieties of democracy

Variables	Electoral	Liberal	Participatory	Deliberative	Egalitarian
<i>FD</i>	-0.113*** (0.032)	-0.0873*** (0.027)	-0.103*** (0.027)	-0.098*** (0.028)	-0.101*** (0.032)
<i>DEM</i>	-0.236** (0.100)	-0.215* (0.120)	-0.410** (0.160)	-0.204 (0.125)	-0.171 (0.127)
<i>FD * DEM</i>	0.007** (0.003)	0.006* (0.004)	0.009** (0.004)	0.007** (0.003)	0.007* (0.004)
<i>GDPpc</i>	-0.138 (0.083)	-0.131 (0.082)	-0.149* (0.087)	-0.123 (0.083)	-0.124 (0.082)
<i>KOFGI</i>	0.015*** (0.004)	0.014*** (0.004)	0.015*** (0.004)	0.015*** (0.004)	0.014*** (0.004)
<i>Urban</i>	-0.029 (0.133)	0.002 (0.130)	-0.050 (0.128)	-0.0001 (0.130)	0.012 (0.129)
<i>Young</i>	0.444*** (0.116)	0.440*** (0.116)	0.419*** (0.116)	0.461*** (0.116)	0.445*** (0.114)
<i>Old</i>	-0.448*** (0.141)	-0.436*** (0.139)	-0.480*** (0.151)	-0.428*** (0.138)	-0.406*** (0.132)
<i>CBI</i>	-0.040 (0.053)	-0.044 (0.053)	-0.041 (0.055)	-0.040 (0.053)	-0.038 (0.053)
<i>EMU</i>	0.009 (0.038)	0.006 (0.038)	0.012 (0.039)	0.007 (0.038)	0.004 (0.037)
<i>Fiscalrule</i>	-0.003 (0.024)	-0.005 (0.025)	0.001 (0.025)	-0.003 (0.024)	-0.006 (0.024)
Year dummy	Yes	Yes	Yes	Yes	Yes
Observations	1176	1176	1176	1176	1176
Countries	67	67	67	67	67

Note: Fixed effects estimations with Driscoll–Kraay standard errors. All regressions include a constant term.

*Statistical significance at 10% level.

**Statistical significance at 5% level.

***Statistical significance at 1% level.

4.3 | Main results

For our main results, we re-estimated each of the regressions in Table 1, including interaction terms for each measure of democracy with fiscal decentralization to determine the mediating effect of democracy in the relationship between decentralization and government size. The results are given in Table 2.

Similar to the baseline results, we find a negative and statistically significant effect of fiscal decentralization on government size, irrespective of the variety of democracy. The negative effect of fiscal decentralization suggests that fiscal decentralization on its own may be an effective tool to ‘starve the beast’.¹² The electoral, liberal and

¹²In the sense of reducing the amount of resources available to the central government to finance its spending; some taxes may be localized and there may be central government grants to local governments. The term as used here may not strictly define—‘starving the beast’—the concept or political strategy of deliberating cutting taxes to reduce central government revenues and limit its ability to spend. See for instance Buchanan (1976), Buchanan and Wagner (1977), Brennan and Buchanan (1977, 1979), Niskanen (2006) and Romer and Romer (2007).

participatory democracy indices have negative and statistically significant effect on government size, but the effects of deliberative and egalitarian democracy indices are not statistically significant. In terms of the magnitude of the effect, a unit increase in the participatory democracy index is associated with 41% decrease in government size as measured by government spending-GDP. What do the results mean? That, an increase in participatory democracy more strongly affects government size than increases in other types of democracy. Hence, the most important features of democracy relevant to the democracy-government size relation are those that are captured within the participatory democracy index.

We now turn to the results for the interaction term designed to test for the mediating effect of democracy. The coefficient of the interaction term is positive and statistically significant in all cases. The interaction term therefore shows that the negative effect of fiscal decentralization is diminishing as the democracy level gets higher. Significantly, the coefficient of the interaction term is largest in the results for the participatory democracy index. This is quite significant as the target of every decentralization effort is to among others increase the direct participation of citizens and civil society in the democratic decision-making process. The results suggests that such increased participation may be associated with increasing government size. The results here mirrors closely those in Qiao et al. (2019), albeit with a different measure of democracy.

4.4 | Additional results

This section contains the summary results for our subsample of developed versus developing countries, the results for our alternative measure of government size and the results for our alternative measure of democracy (regime change). We represent the summary results for the subsample of countries in Table 3, the full results for our alternative measure of government size in Table 4 and the full results for our alternative measure of democracy in Table 5.

4.4.1 | Subsample: Developed versus developing countries

The rationale behind using a subsample of countries follows the argument that developing countries are more likely to be associated with lower levels of democracy. Moreover, developing countries are associated with relatively lower levels of development which is likely to affect the democratic efforts of such countries. Since fiscal decentralization thrives best in high levels of democracy, the levels of fiscal decentralization, if any, may be relatively lower in

TABLE 3 Subsample: developed versus developing countries

	Electoral	Liberal	Participatory	Deliberative	Egalitarian
Panel A: Developed					
<i>FD</i>	–	–	–	–	–
<i>DEM</i>	–	–	–	–	–
<i>FD * DEM</i>	+	+	+	+	+
Panel B: Developing					
<i>FD</i>	No	No	No	No	No
<i>DEM</i>	No	No	–	No	No
<i>FD * DEM</i>	No	–	No	No	No

Note: Summary of results for the subsample of developed and developing countries. Here, +, – and No refer to positive effect, negative effect and no statistically significant effect, respectively.

TABLE 4 Employment as an alternative measure of government size

Variables	Electoral	Liberal	Participatory	Deliberative	Egalitarian
<i>FD</i>	−0.002 (0.018)	−0.004 (0.013)	−0.014 (0.020)	−0.011 (0.020)	−0.009 (0.016)
<i>DEM</i>	−0.295** (0.108)	−0.308** (0.110)	−0.543*** (0.133)	−0.189* (0.100)	−0.342* (0.183)
<i>FD * DEM</i>	−0.0004 (0.001)	−0.001 (0.001)	0.0004 (0.002)	0.0003 (0.001)	0.0001 (0.001)
<i>GDPpc</i>	−0.006 (0.126)	−0.006 (0.125)	0.002 (0.128)	−0.026 (0.135)	−0.013 (0.127)
<i>KOFGI</i>	0.0006 (0.003)	−0.0004 (0.002)	−0.001 (0.002)	−0.001 (0.003)	−0.0004 (0.003)
<i>Urban</i>	1.044*** (0.160)	1.067*** (0.155)	1.030*** (0.154)	1.136*** (0.155)	1.104*** (0.151)
<i>Young</i>	0.312 (0.470)	0.322 (0.464)	0.297 (0.491)	0.212 (0.510)	0.275 (0.464)
<i>Old</i>	−0.105 (0.207)	−0.086 (0.196)	−0.085 (0.200)	−0.100 (0.208)	−0.0619 (0.188)
<i>CBI</i>	−0.001 (0.038)	0.002 (0.041)	−0.006 (0.038)	0.001 (0.038)	−0.004 (0.039)
<i>EMU</i>	0.028** (0.013)	0.027** (0.012)	0.031** (0.012)	0.027** (0.012)	0.029** (0.013)
<i>Fiscalrule</i>	−0.030* (0.016)	−0.028 (0.017)	−0.026 (0.018)	−0.032* (0.017)	−0.032* (0.017)
Year dummy	Yes	Yes	Yes	Yes	Yes
Observations	546	545	545	546	546
Countries	49	48	48	49	49

Note: Fixed effects estimations with Driscoll–Kraay standard errors. All regressions include a constant term.

*Statistical significance at 10% level.

**Statistical significance at 5% level.

***Statistical significance at 1% level.

developing countries. Further, developing countries have relatively lower levels of resources available to fund government spending compared to developed countries. Hence, it may not be enough to simply control for GDP per capita; a more nuanced approach that involves explicitly dividing samples into developed and developing countries may be appropriate. From a development perspective, understanding the relation between fiscal decentralization, democracy and government size may be important to developing an appropriate policy design for a bottom-up approach to local government development.

Turning to our results for the subsample of countries, Panel A represents results for developed countries, and Panel B the results for developing countries.

The results for the developed countries are qualitatively similar to those for the main results: negative and statistically significant effects of fiscal decentralization and the varieties of democracy on government size and a positive effect of the interaction term on government size. The effect size of fiscal decentralization is largest for deliberative democracy while the effect size of democracy is largest for participatory democracy. Here, also, the interaction term

TABLE 5 Regime change as an alternative measure of democracy

Variables	Spending
<i>D.FD</i>	−0.060* (0.032)
<i>D.FD * Regimechange</i>	−0.002 (0.003)
<i>D.Regimechange</i>	0.078 (0.100)
<i>D.GDPpc</i>	0.053 (0.205)
<i>D.KOFGI</i>	0.005 (0.006)
<i>D.Urban</i>	1.389 (0.925)
<i>D.Young</i>	0.207 (0.484)
<i>D.Old</i>	−0.345 (0.465)
<i>D.CBI</i>	−0.148 (0.092)
<i>D.EMU</i>	−0.041** (0.018)
<i>D.Fiscalrule</i>	0.010 (0.028)
Year dummy	Yes
Observations	563
R ²	0.209

Note: Fixed effects estimations with Driscoll-Kraay standard errors.

*Statistical significance at 10% level.

**Statistical significance at 5% level.

***Statistical significance at 1% level.

shows that for developed countries, the negative effect of fiscal decentralization is diminishing as the democracy level gets higher for all varieties of democracy. The results for the interaction term may not be surprising as developed countries have relatively higher levels of fiscal decentralization. The positive coefficient of the interaction term suggests that if the process of decision making in a developed country is driven by a desire to meet the common good as against a mere attempt to aggregate observable preferences, then fiscal decentralization could be associated with even bigger government size, suggesting a willingness of governments to provide more public goods—perhaps, benevolent governments.

However, for developing countries, there is a negative and statistically significant effect of the participatory democracy index on government size and a negative and statistically significant effect of the interaction term on government size for the liberal democracy index. The negative coefficient of the interaction term suggests that the negative effect of decentralization is increasing as the liberal democracy index gets higher. Therefore, in the presence of constitutionally protected civil liberties, strong rule of law, an independent judiciary and effective checks and

balances, fiscal decentralization could be an effective tool to reduce government size in developing countries. This is significant as developing countries are noted to struggle with unnecessarily large government sizes.

In sum, the result here seems to suggest that the main results are being driven by developed countries. This may not be surprising as developed countries have relatively higher levels of both fiscal decentralization and democracy compared to developing countries. The full results are presented in Tables A4 and A5.

4.4.2 | Employment: An alternative measure of government size

As noted earlier, we follow Martinez-Vazquez and Yao (2009) and Qiao et al. (2019) and use the log of total public sector employment (simply referred to as employment) as an alternative measure of government size. The pairwise correlation between employment is however low (0.05) which may suggest that the former may not be an appropriate proxy for the latter. However, we argue that we use employment not necessarily as an alternative measure of spending but as an alternative measure of government size. Employment provides a measure of government size in terms of numbers, the number of people in public sector employment. Further, it may be suggestive of the extent of government spending on public sector wages and salaries (a part of total spending), which may explain the low correlation coefficient. Hence, in principle, it is an appropriate measure of government size and perhaps suggestive of the cost to government spending in terms of wages and salaries paid to public sector employees.

Significantly, the results here provide some more support to the main findings. Specifically, the democracy index is more strongly negatively related to government size in all cases and for the participatory democracy index in particular. That is, an increase in the participatory democracy index more strongly affects government size, as measured by employment, than increases in other democracy indices. The findings here may be explained as follows: electoral, liberal, participatory, deliberative and egalitarian democracies provide opportunities for private sector involvement in the economy, increasing private sector employment and perhaps reducing public sector employment, hence, government size. The weakness here however is that the fiscal decentralization and interaction terms are no longer statistically significant.

4.4.3 | Regime change: An alternative measure of democracy

As an alternative, we adopt a regime change measure of democracy to capture changes in regime. This is important as transitions within or between political regime types may create changes in political constraints (such as fiscal rules and central government independence) and in the behaviour of bureaucrats and public servants (Marlow, 1988). Such changes may have implications for both decentralization and government size and, hence, the relationship between them. Marlow (1988) argues that where political constraints remain invariant over time, government policies and the behaviour of bureaucrats and public servants do not also change; policy decisions of governments and bureaucrats or public servants are in part restricted by political constraints. Therefore, changes in the behaviour of public servants and governments are likely to be linked to the changes in the political constraints they face or even changes in the political regime.

We account for regime change by introducing a measure of regime change (regime change lag) and estimating Equation (1) in first differences.¹³ The advantage of using the regime change lag indicator is that it proceeds from a less restrictive definition of institutional democracy as a concept, maximizing observations on regime transition phases (Bjørnskov & Rode, 2020). A first difference estimation therefore rightly captures the switch

¹³The regime change variable in Bjørnskov and Rode (2020) differs from that of Cheibub et al. (2010) by applying a different timing rule; it 'count all regime changes before July 1 of year x as pertaining to year x , and all regime transitions after that date as pertaining to year $x + 1$ ' (Bjørnskov & Rode, 2020, p. 4). Hence, relative to the original data in Cheibub et al. (2010), the regime change data in Bjørnskov and Rode (2020) are lagged by half a year. What we adopt here—*Regime change lag*—is a regime change indicator of whether a regime transition occurred in the second half of the year, easily restoring the original timing rule in Cheibub et al. (2010).

from 0 to 1 between any regimes and its direct effect on government size, in addition to its indirect effect on government size through fiscal decentralization.

Turning to the results in Table 5, changes in fiscal decentralization is associated with a reduction in government spending. The coefficient of the fiscal decentralization variable is negative and statistically significant. There is however no direct effect of changes in regime on government spending. Also, changes in fiscal decentralization between any regime change have no statistically significant effect on government size; the coefficient of the interaction term is statistically insignificant.

4.4.4 | Endogeneity concern

It is possible to contemplate issues of endogeneity from Equation (1), and this may be due to reverse causal relationship between decentralization and spending, omitted variable bias and/or measurement error. Such endogeneity concerns have been raised in the literature (see Jin et al., 2005; Qiao et al., 2008; Zhang & Zou, 1998) although they do not explicitly control for it. We follow Qiao et al. (2019) and adopt an instrument which is given as the 'weighted average of fiscal decentralization from the neighbouring countries (weighted by the contiguity matrix)' as instrument for fiscal decentralization in an instrumental variable estimation framework. There are likely to be similarities between neighbouring countries in the design and implementation of fiscal decentralization policies, although the size of their individual government is not expected to influence the fiscal decentralization policy of its neighbor (see Qiao et al., 2019). The test statistics for the validity of the instruments used and the reliability of the results do not reject that our instrument is valid and reliable. Our estimations pass the tests of underidentification and weak identification in all cases. The *F* statistic from the first-stage regression is slightly below the rule-of-thumb threshold of 10 in all cases, but there seems no glaring problem of weak instruments (Staiger & Stock, 1997).

Turning to the estimation results in Table 6, the interesting finding here is that participatory democracy is overtaken by egalitarian democracy as the type of democracy with the strongest results. Further, the effect of fiscal decentralization is strongest for the results with the egalitarian democracy index. Moreover, the interaction term is positive and statistically significant for egalitarian democracy, suggesting that the negative effect of fiscal decentralization diminishes as the levels of the egalitarian democracy index gets higher. The results here somewhat call into question the earlier findings.

4.5 | Nonmonotonic relationship

The argument for the existence of a nonmonotonic relationship between decentralization and government spending may be explained as follows. A linear relationship implies the variables involved increase (decrease) in the same direction and at the same rate. In addition, a monotonic relationship suggests that decentralization and government size increase (decrease) in the same direction, although not always at the same rate.¹⁴ On the other hand, a nonmonotonic relationship implies that the rate of increase (decrease) in the variables may change with a change in one variable. This produces a 'curved pattern' within the data, requiring a non-linear modelling. Thus, while a monotonic relationship suggests the relation between the variables considered is positive or negative at all levels of the variables, this is not so for a nonmonotonic relationship.

The argument above suggests that, whether or not the relationship between decentralization and government size via democracy is positive or negative, it may not stay positive or negative over time if it is non-linear. There are likely to be some points in time where it will be positive and others where it will be negative. For instance, the

¹⁴A monotonic inverse relationship is equivalent to a negative correlation, while monotonic direct relationship is equivalent to a positive correlation. Note that while all linear relationships are monotonic, not all monotonic relationships are linear (cf. Yitzhaki & Schechtman, 2012).

TABLE 6 Robustness check: instrumental variable estimations

Variables	Electoral	Liberal	Participatory	Deliberative	Egalitarian
<i>FD</i>	−0.338*** (0.123)	−0.323*** (0.099)	−0.307*** (0.104)	−0.325*** (0.100)	−0.360*** (0.115)
<i>DEM</i>	−0.491** (0.214)	−0.516** (0.209)	−0.564** (0.270)	−0.507** (0.213)	−0.737*** (0.269)
<i>FD * DEM</i>	0.011 (0.009)	0.012 (0.008)	0.014 (0.011)	0.013 (0.008)	0.017* (0.010)
<i>GDPpc</i>	−0.061 (0.046)	−0.056 (0.044)	−0.050 (0.044)	−0.065 (0.046)	−0.077* (0.046)
<i>KOFGI</i>	0.017*** (0.003)	0.016*** (0.003)	0.016*** (0.003)	0.017*** (0.003)	0.017*** (0.003)
<i>Urban</i>	0.011 (0.095)	−0.002 (0.090)	−0.001 (0.091)	−0.005 (0.089)	0.028 (0.095)
<i>Young</i>	0.107 (0.153)	0.136 (0.154)	0.133 (0.154)	0.101 (0.152)	0.157 (0.154)
<i>Old</i>	0.348*** (0.108)	0.370*** (0.110)	0.358*** (0.109)	0.345*** (0.108)	0.387*** (0.110)
<i>CBI</i>	−0.570*** (0.113)	−0.557*** (0.111)	−0.540*** (0.109)	−0.573*** (0.114)	−0.547*** (0.112)
<i>EMU</i>	0.408*** (0.058)	0.404*** (0.057)	0.393*** (0.057)	0.406*** (0.057)	0.408*** (0.056)
<i>Fiscalrule</i>	−0.140*** (0.046)	−0.141*** (0.046)	−0.156*** (0.045)	−0.148*** (0.045)	−0.126*** (0.046)
<i>R²</i>	0.306	0.306	0.307	0.306	0.306
<i>F statistic</i>	8.13	8.05	7.97	7.97	8.09
<i>Anderson(under)</i>	91.746 (0.000)	112.655 (0.000)	108.493 (0.000)	118.391 (0.000)	94.23 (0.000)
<i>C-D(weak)</i>	96.179	121.101	116.04	128.161	99.075
<i>Year dummy</i>	Yes	Yes	Yes	Yes	Yes
<i>Observations</i>	935	935	935	935	935

Note: The dependent variable is government spending. The instrument used is the weighted average of fiscal decentralization from the neighbouring countries (weighted by the contiguity matrix; see Qiao et al., 2019). All regressions include a constant term.

*Statistical significance at 10% level.

**Statistical significance at 5% level.

***Statistical significance at 1% level.

relationship at the beginning of a democracy may not be the same as that for an advanced democracy. As government size varies with the level of democracy, so is the expected effect of decentralization via democracy on government size. The relationship is likely to be U shaped; start high, hit a trough and rise again. That is, at initial levels of democracy, decentralization may be associated with reduced government size; democracy is expected to lead to efficient spending, which implies initially lower levels of spending compared to say autocracy. It may then reach a minimum over time. However, given that increased democracy comes with it an increase in heterogeneous preferences among the citizens and an improved ability of citizens to demand higher government spending, the welfare state is

required to meet such preferences with increased spending. Hence, advanced democracies are often associated with bigger government size and high fiscal decentralization.

The estimation results for the nonmonotonic relationship in Table 7 shows similar effects of fiscal decentralization, democracy and the interaction term on government size: negative and statistically significant for fiscal decentralization and democracy on government size (except for the egalitarian democracy index) and a positive effect of the interaction term on government size (except for the egalitarian democracy index). However, the coefficients of

TABLE 7 Nonmonotonic relationship

Variables	Electoral	Liberal	Participatory	Deliberative	Egalitarian
<i>FD</i>	-0.125** (0.052)	-0.111** (0.047)	-0.115** (0.044)	-0.111** (0.046)	-0.107** (0.051)
<i>DEM</i>	-0.407** (0.198)	-0.397* (0.226)	-0.619** (0.285)	-0.354* (0.207)	-0.356 (0.251)
<i>FD * DEM</i>	0.017* (0.009)	0.018* (0.010)	0.021* (0.012)	0.017* (0.009)	0.018 (0.012)
<i>FD²</i>	-0.0002 (0.00003)	0.00005 (0.00002)	-0.00007 (0.00002)	-0.00003 (0.00002)	-0.00002 (0.00002)
<i>FD² * DEM</i>	-0.00001 (0.00001)	-0.0001 (0.00001)	-0.0001 (0.00001)	-0.0009 (0.00001)	-0.0007 (0.00001)
<i>GDPpc</i>	-0.101 (0.077)	-0.104 (0.071)	-0.120 (0.077)	-0.092 (0.074)	-0.093 (0.075)
<i>KOFGI</i>	0.015*** (0.004)	0.015*** (0.004)	0.015*** (0.004)	0.015*** (0.004)	0.014*** (0.004)
<i>Urban</i>	-0.021 (0.125)	-0.006 (0.122)	-0.050 (0.122)	0.014 (0.120)	0.032 (0.117)
<i>Young</i>	0.473*** (0.117)	0.466*** (0.114)	0.439*** (0.116)	0.483*** (0.115)	0.462*** (0.115)
<i>Old</i>	-0.464*** (0.144)	-0.440*** (0.147)	-0.497*** (0.156)	-0.437*** (0.142)	-0.427*** (0.139)
<i>CBI</i>	-0.046 (0.052)	-0.050 (0.051)	-0.047 (0.052)	-0.045 (0.051)	-0.044 (0.052)
<i>EMU</i>	0.006 (0.037)	0.005 (0.038)	0.012 (0.039)	0.005 (0.038)	0.003 (0.037)
<i>Fiscalrule</i>	-0.001 (0.026)	-0.003 (0.026)	0.004 (0.027)	-0.001 (0.026)	-0.003 (0.026)
Constant	3.604*** (1.114)	3.533*** (1.076)	4.088*** (1.237)	3.227*** (1.019)	3.248*** (1.052)
Year dummy	Yes	Yes	Yes	Yes	Yes
Observations	1176	1176	1176	1176	1176
Countries	67	67	67	67	67

Note: Fixed effects estimations with Driscoll–Kraay standard errors. All regressions include a constant term.

*Statistical significance at 10% level.

**Statistical significance at 5% level.

***Statistical significance at 1% level.

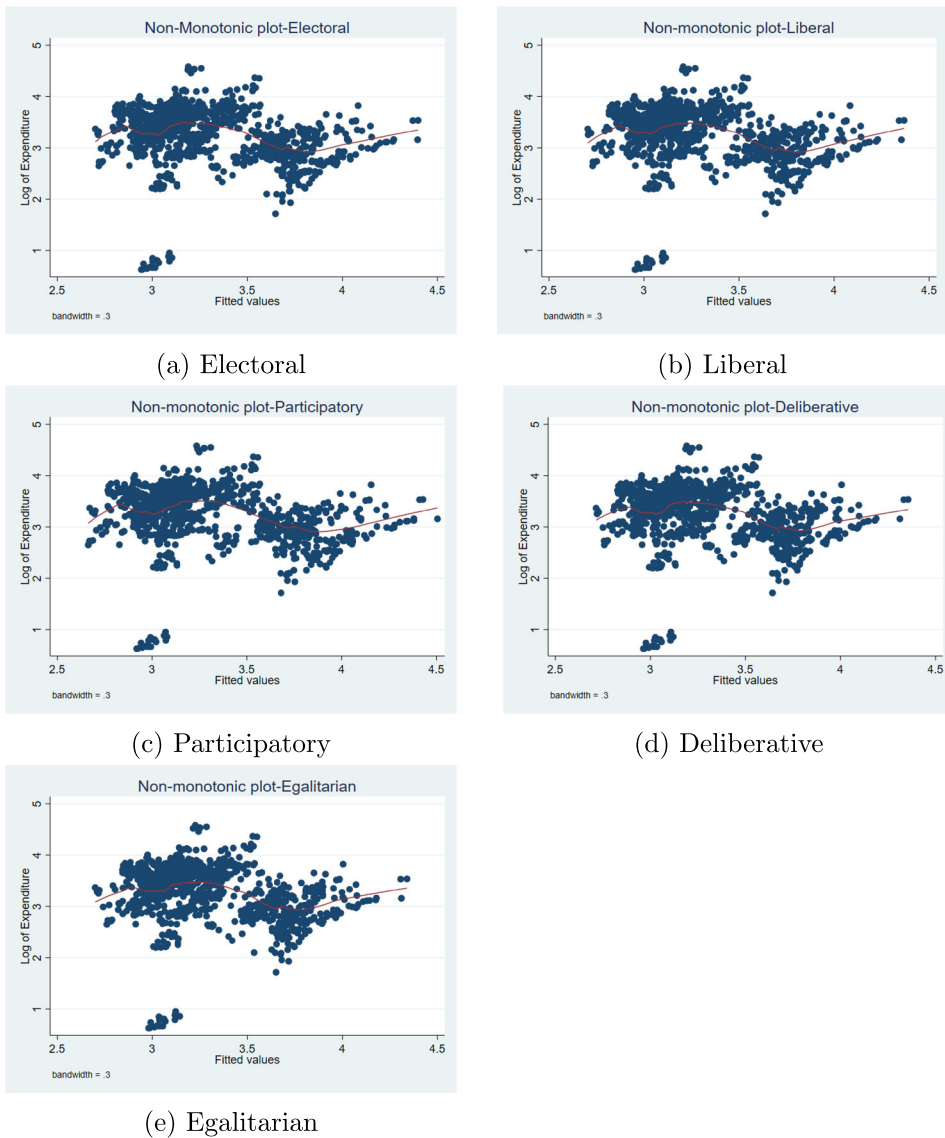


FIGURE 2 Nonmonotonic plot of varieties of spending under varieties of democracy [Colour figure can be viewed at wileyonlinelibrary.com]

the squared term of fiscal decentralization (FD^2) and the interaction of the squared of FD and democracy ($FD^2 * DEM$) are statistically insignificant.

We provide a plot of the nonmonotonic relationship in Figure 2.¹⁵ Figure 2 seems to show non-linear relationship between decentralization, democracy and government size under varieties of democracy. The plot of spending

¹⁵To examine nonmonotonicity, I make use of the 'lowess' command in STATA. As noted earlier, if the graphs show a nonmonotonic effect, then I need to include fiscal decentralization squared and the interaction term of fiscal decentralization squared and democracy in Equation (1). I explicitly specify a bandwidth of 0.3, meaning 30% of the data is used in smoothing each point. I use smaller bandwidth in order to follow the original data more closely. Lowess is desired due to its locality, as it tends to follow the data. Hence, it gives locally weighted scatterplot smoothing. Polynomial smoothing methods are global; that is, what happens on the extreme left of a scatterplot can affect the fitted value in the extreme right.

suggests a non-linear relationship, generally of the inverted-U-shape type. This is however by no means conclusive as the coefficients of the relevant variables—decentralization squared and the interaction term of the square of decentralization and democracy—in Table 6 are statistically insignificant. Therefore, there is no conclusive evidence of a nonmonotonic relationship in this case; the mediating effect of democracy in the relationship between decentralization and government size is likely to be more linear. Any non-linearity would not be captured by a squared term, as found. It may be the case that the non-linearity is addressed when conditioning on controls, suggesting heterogeneity, which including say an OECD interaction may not fully capture.

5 | CONCLUSION

In this paper, we examine the mediating effect of democracy in explaining the relationship between decentralization and government size. From a development perspective, the relation between fiscal decentralization, democracy and government size may be important to explaining subnational development. We consider the period 1970–2013. We proxy decentralization by fiscal decentralization, use total spending as our primary measure of government size and adopt the V-Dem high-level democracy indices as measures of democracy. Our study is to our knowledge unique as it considers the mediating effect of varieties of democracy as against the use of an institutional proxy for democracy or a binary variable as measure of democracy. Our indices provide an interval of between 0 and 1 which measures high and low democracy for specific concepts of democracy such as electoral, liberal, participatory, deliberative and egalitarian democracies. The current paper also accounts for the influence of regime change and examines the effect of non-linearity. Our robustness tests are (i) using subsample of developed and developing countries, (ii) an estimation with employment as an alternative measure of government size, (iii) an estimation with regime change as an alternative measure of democracy and (iv) an instrumental variable estimation to take care of endogeneity.

Our main finding is that the relationship between fiscal decentralization and government spending differs under different types of democracy. In most cases, however, the negative effect of fiscal decentralization on government size seems largest for participatory democracy. Further, we find that an increase in participatory democracy more strongly affects government size than increases in other types of democracy. Therefore, the most important features of democracy relevant to the democracy–government size relationship are those that are captured within the Participatory democracy index. Significantly, we find evidence of the mediating effect of democracy in the relationship between decentralization and government size. Specifically, the interaction term shows that the negative effect of fiscal decentralization diminishes as the democracy index gets higher, particularly for the participatory democracy index irrespective of whether government size is measured by spending-to-GDP or employment. The findings for the interaction term is consistent in all cases except for developing countries where we find a negative interaction term and no statistically significant effect of the interaction term for all other concepts of democracy. The negative interaction term for the liberal democracy index in developing countries suggests the negative effect of fiscal decentralization increases as the levels of such democracy index gets higher. We do not find a non-linear relationship between decentralization and government size.

Our results provide important implications for policy. Fiscal decentralization may be an effective tool for citizens to bargain for increased public goods provision in a democracy in general, more so where the core characteristic of the democracy is participatory. For a developed country, all concepts of democracy could be important as government size is likely to increase in all cases. Given the struggles of developing countries to control large government sizes, the beast could be starved if decentralization comes with it a more liberal democracy.

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I thank Edward Anderson, Christa Brunnschweiler, Oliver Morrissey, Peter Moffatt and an anonymous referee for valuable comments and suggestions. The usual disclaimer applies.

DATA AVAILABILITY STATEMENT

The data set is freely available for other researchers to use and is available on request from the author.

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REFERENCES

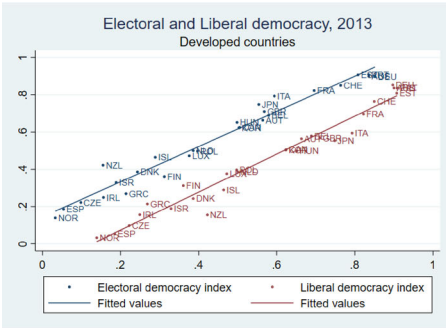
- Alesina, A., & Bayoumi, T. (1996). The costs and benefits of fiscal rules: Evidence from US states. (No. w5614): National Bureau of Economic Research.
- Alesina, A., & Wacziarg, R. (1998). Openness, country size and government. *Journal of Public Economics*, 69(3), 305–321.
- Armingeon, K., Romana, C., Panajotis, P., Marlène, G., & Philipp, L. (2008). Comparative political data set III 1990–2006. Institute of Political Science, University of Berne.
- Bardhan, P., Mitra, S., Mookherjee, D., & Sarkar, A. (2008). Political participation, clientelism and targeting of local government programs: Analysis of survey results from rural West Bengal, India, Department of Economics, Boston University, Boston.
- Baskaran, T. (2011). Fiscal decentralization, ideology, and the size of the public sector. *European Journal of Political Economy*, 27(3), 485–506.
- Beck, T., Clarke, G., Groff, A., Keefer, P., & Walsh, P. (2001). New tools in comparative political economy: The database of political institutions. *World Bank Economic Review*, 15, 165–176.
- Beyani, C. (2000). *Human Rights Standards and the Free Movement of People Within States*: Oxford University Press.
- Bjørnskov, C., & Rode, M. (2020). Regime types and regime change: A new dataset on democracy, coups, and political institutions. *The Review of International Organizations*, 15, 531–551.
- Boix, C. (2001). Democracy, development, and the public sector. *American Journal of Political Science*, 45(1), 1–17.
- Bossert, T. J., Larraõmaga, O., Giedion, U., Arbelaz, J. J., & Bowser, D. M. (2003). Decentralization and equity of resource allocation: Evidence from Colombia and Chile. *Bulletin of the World Health organization*, 81, 95–100.
- Brennan, G., & Buchanan, J. M. (1977). Towards a tax constitution for Leviathan. *Journal of Public Economics*, 8(3), 255–273.
- Brennan, G., & Buchanan, J. M. (1979). The logic of tax limits: Alternative constitutional constraints on the power to tax. *National Tax Journal*, 32(2), 11–22.
- Brennan, G., & Buchanan, J. M. (1980). *The Power of Tax: Analytical Foundations of a Fiscal Constitution*: Cambridge University Press.
- Buchanan, J. M. (1976). Taxation in fiscal exchange. *Journal of Public Economics*, 6(1–2), 17–29.
- Buchanan, J. M., & Wagner, R. E. (1977). *Democracy in deficit: The political legacy of Lord Keynes*.
- Cassette, A., & Paty, S. (2010). Fiscal decentralization and the size of government: A European country empirical analysis. *Public Choice*, 143(1–2), 173–189.
- Cheibub, J. A., Gandhi, J., & Vreeland, J. R. (2010). Democracy and dictatorship revisited. *Public Choice*, 143, 67–101.
- Coppedge, M., Gerring, J., Knutsen, C. H., Lindberg, S. I., Teorell, J., Altman, D., ..., & Ziblatt, D. (2020). V-Dem [Country–Year/Country–Date] Dataset v10 Varieties of Democracy (V-Dem) Project. <https://doi.org/10.23696/vdemds20>
- Coppedge, M., Gerring, J., Lindberg, S. I., Skaaning, S. E., & Teorell, J. (2017). V-Dem comparisons and contrasts with other measurement projects. (*V-Dem Working Paper 45*).
- Davoodi, H., & Zou, H. F. (1998). Fiscal decentralization and economic growth: A cross-country study. *Journal of Urban Economics*, 43(2), 244–257.
- Driscoll, J. C., & Kraay, A. C. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *Review of Economics and Statistics*, 80(4), 549–560.
- Ehdaie, J. (1994). Fiscal decentralization and the size of government: An extension with evidence from cross-country data. (*Working Paper Series, No. 1387*): World Bank Policy Research.
- Feld, L. P., Kirchgässner, G., & Schaltegger, C. A. (2010). Decentralized taxation and the size of government: Evidence from Swiss state and local governments. *Southern Economic Journal*, 77(1), 27–48.
- Fischer, S. (1995). Central-bank independence revisited. *The American Economic Review*, 85(2), 201–206.
- Fiva, J. (2006). New evidence on the effects of fiscal decentralization on the size and composition of government spending. *FinanzArchiv/Public Finance Analysis*, 62(2), 250–280.
- Forbes, K. F., & Zampelli, E. M. (1989). Is Leviathan a mythical beast? *American Economic Review*, 79(3), 568–577.
- Garman, C., Haggard, S., & Willis, E. (2001). Fiscal decentralization: A political theory with Latin American cases. *World Politics*, 53(2), 205–236.
- Garrett, G. (1998). Shrinking states? Globalization and national autonomy in the OECD. *Oxford Development Studies*, 26(1), 71–97.
- Garriga, A. C. (2016). Central bank independence in the world: A new data set. *International Interactions*, 42(5), 849–868.

- Golem, S. (2010). Fiscal decentralization and the size of government: A review of the empirical literature. *Financial Theory and Practice*, 34(1), 53–69.
- Grossman, P. J. (1989). Fiscal decentralization and government size: An extension. *Public Choice*, 62(1), 63–69.
- Grossman, P. J., & West, E. G. (1994). Federalism and the growth of government revisited. *Public Choice*, 79, 19–32.
- Gygli, S., Haelg, F., Potrafke, N., & Sturm, J. E. (2019). The KOF globalization index-revisited. *Review of International Organizations*, 14(3), 543–574.
- Hicks, A. M., & Swank, D. H. (1992). Politics, institutions, and welfare spending in industrialized democracies, 1960–82. *American Political Science Review*, 86(3), 658–674.
- Hooghe, L., Marks, G. N., & Schakel, A. H. (2010). *The Rise of Regional Authority: A Comparative Study of 42 Democracies*: Routledge.
- Isham, J., Kaufmann, D., & Pritchett, L. H. (1997). Civil liberties, democracy, and the performance of government projects. *The World Bank Economic Review*, 11(2), 219–242.
- Jia, J., Guo, Q., & Zhang, J. (2014). Fiscal decentralization and local expenditure policy in China. *China Economic Review*, 28, 107–122.
- Jin, H., Qian, Y., & Weingast, B. R. (2005). Regional decentralization and fiscal incentives: Federalism, Chinese style. *Journal of Public Economics*, 89(9–10), 1719–1742.
- Jin, J., & Zou, H. (2002). How does fiscal decentralization affect aggregate, national and subnational government size? *Journal of Urban Economics*, 52(2), 270–293.
- Joulfaian, D., & Marlow, M. L. (1990). Government size and decentralization: Evidence from disaggregated data. *Southern Economic Journal*, 56(4), 1094–1102.
- Joulfaian, D., & Marlow, M. L. (1991). Centralisation and government competition. *Applied Economics*, 23(10), 1603–1612.
- Karlström, K. (2015). Decentralization, corruption, and the role of democracy. (QoG Working Paper Series 2015:14).
- Keyssar, A. (2000). *The Right to Vote. The Contested History of Democracy in the United States*. New York: Basic Books.
- Kotera, G., Okada, K., & Samreth, S. (2012). Government size, democracy, and corruption: An empirical investigation. *Economic Modelling*, 29(6), 2340–2348.
- Liberati, O., & Sacchi, A. (2013). Tax decentralization and local government size. *Public Choice*, 157(1–2), 183–205.
- Lledó, V., Yoon, S., Fang, X., Mbaye, S., & Kim, Y. (2017). Fiscal rules at a glance. IMF Background paper. Dataset is available at <http://www.imf.org/external/datamapper/FiscalRules/map/map.htm>
- Marlow, E. M. (1988). Fiscal decentralization and government size. *Public Choice*, 56(3), 259–269.
- Martinez-Vazquez, J., & Yao, M. (2009). Fiscal decentralization and public sector employment: A cross-country analysis. *Public Finance Review*, 37(5), 539–571.
- Nelson, M. A. (1986). An empirical analysis of state and local tax structure in the context of the Leviathan model of government. *Public Choice*, 49(3), 283–294.
- Neyapti, B. (2013). Fiscal decentralization, fiscal rules and fiscal discipline. *Economics Letters*, 121(3), 528–532.
- Niskanen, W. A. (2006). Limiting government: The failure of starve the beast. *Cato Journal*, 26(3), 553.
- Oates, W. E. (1972). *Fiscal Federalism*: Harcourt Brace Jovanovich.
- Oates, W. (1985). Searching for Leviathan: An empirical study. *American Economic Review*, 75, 748–758.
- Paxton, P. (2000). Women's suffrage in the measurement of democracy: Problems of operationalization. *Studies in Comparative International Development*, 35(3), 92–111.
- Pemstein, D., Marquardt, K. L., Tzelgov, E., Wang, Y., Medzihorsky, J., Krusell, J., Miri, F., & von Romer, J. (2020). The V-Dem measurement model: Latent variable analysis for cross-national and cross-temporal expert-coded data, (5th ed.). (V-Dem Working Paper No 21). Gothenburg: University of Gothenburg: Varieties of Democracy Institute.
- Prohl, S., & Schneider, F. (2009). Does decentralization reduce government size? A quantitative study of the decentralization hypothesis. *Public Finance Review*, 37(6), 639–664.
- Qiao, M., Ding, S., & Liu, Y. (2019). Fiscal decentralization and government size: The role of democracy. *European Journal of Political Economy*, 59, 316–330.
- Qiao, B., Martinez-Vazquez, J., & Xu, Y. (2008). The tradeoff between growth and equity in decentralization policy: China's experience. *Journal of Development Economics*, 86(1), 112–128.
- Rodden, J. (2003). Reviving Leviathan: Fiscal federalism and the growth of government. *International Organisation*, 57(4), 695–729.
- Rodden, J. (2004). Comparative federalism and decentralization: On meaning and measurement. *Comparative Politics*, 36(40), 481–500.
- Rodrik, D. (1998). Why do more open economies have bigger governments? *Journal of Political Economy*, 106(5), 997–1003.
- Romer, C. D., & Romer, D. H. (2007). Do tax cuts starve the beast: The effect of tax changes on government spending. National Bureau of Economic Research, (No. w13548).
- Shadbegian, R. J. (1999). Fiscal federalism, collusion, and government size: Evidence from the states. *Public Finance Review*, 27(3), 262–281.

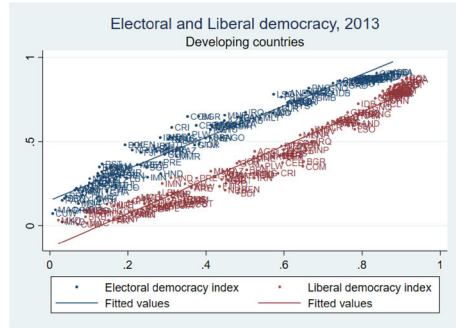
- Staiger, D. O., & Stock, J. H. (1997). Instrumental variables regression with weak instruments. *Econometrica*, 65(3), 557–586.
- Stegarescu, D. (2005). Public sector decentralization: Measurement concepts and recent international trends. *Fiscal Studies*, 26(3), 301–333.
- Stein, E. (1999). Fiscal decentralization and government size in Latin America. *Journal of Applied Economics*, 2(2), 357–391.
- Tiebout, C. M. (1956). A pure theory of local expenditure. *Journal of Political Economics*, 64(5), 416–424.
- Wagner, A. (1893). *Grundlegung der politischen Oekonomie*. (3rd ed.).: C.F. Winter.
- Weingast, B. R. (2009). Second generation fiscal federalism: The implications of fiscal incentives. *Journal of Urban Economics*, 65(3), 279–293.
- World Bank. (2018). *World development indicators*. World Bank.
- Wu, A. M., & Lin, M. (2012). Determinants of government size: Evidence from China. *Public Choice*, 151(1–2), 255–270.
- Yitzhaki, S., & Schechtman, E. (2012). Identifying monotonic and non-monotonic relationships. *Economics Letters*, 116(1), 23–25.
- Zhang, T., & Zou, H. F. (1998). Fiscal decentralization, public spending, and economic growth in China. *Journal of Public Economics*, 67(2), 221–240.

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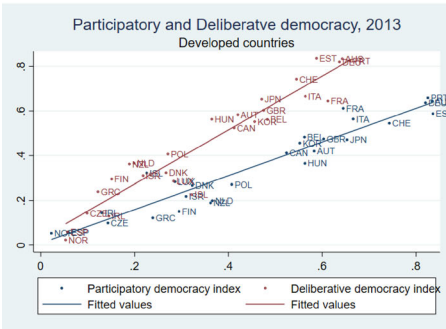
APPENDIX A



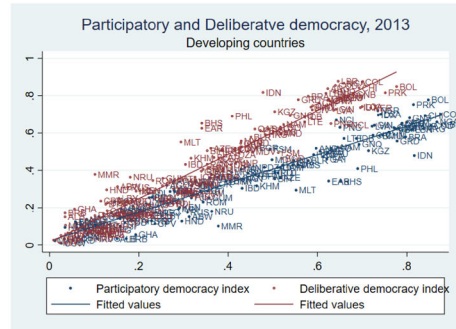
(a) Electoral vs. Liberal



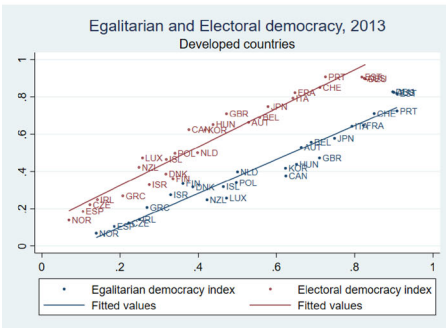
(b) Electoral vs. Liberal



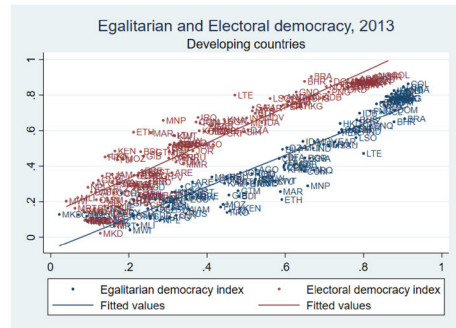
(c) Participatory vs Deliberative



(d) Participatory vs Deliberative



(e) Egalitarian vs Electoral



(f) Egalitarian vs Electoral

FIGURE A1 V-Dem plot by country for developed and developing countries, 2013 [Colour figure can be viewed at wileyonlinelibrary.com]

TABLE A1 Descriptive statistics

Variable	Obs	Mean	SD	Min	Max
Spending	3419	25.72921	12.57706	1.877688	210.2051
Employ	1132	1845.236	4226.855	1.4	38063
FD	1615	25.30753	17.90808	0.018681	98.75611
GDPpc	7893	8.2243	1.509572	4.751814	11.87928
KOFGI	7696	48.93902	16.55902	14.2923	90.39829
Urban	10,166	51.21273	25.17438	2.845001	100
Young	9242	34.4939	10.32543	11.13134	51.88591
Old	9242	6.302605	4.23739	0.75047	24.62983
CBI	5832	0.491597	0.202769	0.016667	0.979
EMU	10,296	0.019911	0.1397	0	1
Fiscal rule	10,296	0.129274	0.335519	0	1
Electoral	7358	0.425893	0.289686	0.009	0.924
Liberal	7295	0.329997	0.276637	0.003	0.891
Participatory	7326	0.263908	0.215059	0.005	0.808
Deliberative	7358	0.332631	0.272712	0.003	0.899
Egalitarian	7358	0.336598	0.246317	0.015	0.887
Regime change lag	3344	0.010467	0.101784	0	1

TABLE A2 Pairwise correlation for varieties of democracy

Variables	Electoral	Liberal	Participatory	Deliberative	Egalitarian
Electoral	1.0000				
Liberal	0.9748	1.0000			
Participatory	0.9682	0.9683	1.0000		
Deliberative	0.9713	0.9798	0.9640	1.0000	
Egalitarian	0.9481	0.9733	0.9466	0.9595	1.0000

TABLE A3 List of countries

Albania	Czech Republic	Jamaica	Peru
Argentina	Germany	Jordan	Poland
Armenia	Denmark	Japan	Portugal
Australia	Dominican Republic	Kazakhstan	Paraguay
Austria	Spain	Korea, Rep.	Russian Federation
Azerbaijan	Estonia	Lesotho	El Salvador
Belgium	Finland	Lithuania	Serbia
Bulgaria	France	Luxembourg	Slovak Republic
Bosnia and Herzegovina	United Kingdom	Latvia	Slovenia
Belarus	Georgia	Morocco	Sweden
Bolivia	Greece	Moldova	Thailand
Brazil	Honduras	Mexico	Tunisia
Canada	Croatia	Macedonia, FYR	Turkey
Switzerland	Hungary	Malta	Ukraine
Chile	India	Mongolia	United States
Congo Rep.	Ireland	Mauritius	South Africa
Colombia	Iran, Islamic Rep.	Malaysia	
Cabo Verde	Iceland	Netherlands	
Costa Rica	Israel	Norway	
Cyprus	Italy	New Zealand	

Note: Developed countries are defined by OECD countries at the start of the 1990s given in bold font.

TABLE A4 Developing countries

Variables	Electoral	Liberal	Participatory	Deliberative	Egalitarian
<i>FD</i>	0.021 (0.040)	0.042 (0.043)	-0.005 (0.038)	0.023 (0.037)	0.034 (0.048)
<i>DEM</i>	-0.017 (0.185)	0.064 (0.222)	-0.665* (0.345)	0.139 (0.246)	0.076 (0.291)
<i>FD * DEM</i>	-0.004 (0.003)	-0.011* (0.006)	-0.004 (0.004)	-0.006 (0.004)	-0.007 (0.005)
<i>GDPpc</i>	-0.222** (0.088)	-0.249*** (0.086)	-0.247*** (0.083)	-0.214** (0.086)	-0.222** (0.086)
<i>KOFGI</i>	0.004 (0.003)	0.003 (0.003)	0.004 (0.003)	0.0030 (0.003)	0.003 (0.003)
<i>Urban</i>	0.583*** (0.145)	0.627*** (0.140)	0.526*** (0.143)	0.592*** (0.141)	0.611*** (0.160)
<i>Young</i>	0.408 (0.319)	0.367 (0.340)	0.242 (0.278)	0.452 (0.325)	0.427 (0.317)
<i>Old</i>	-0.865*** (0.273)	-0.852*** (0.245)	-1.025*** (0.272)	-0.797*** (0.245)	-0.842*** (0.247)
<i>CBI</i>	-0.127 (0.080)	-0.126 (0.080)	-0.132 (0.081)	-0.124 (0.081)	-0.124 (0.081)
<i>EMU</i>	-0.636*** (0.058)	-0.638*** (0.057)	-0.664*** (0.062)	-0.626*** (0.057)	-0.634*** (0.057)
<i>Fiscalrule</i>	-0.049** (0.024)	-0.060** (0.022)	-0.046* (0.024)	-0.048** (0.022)	-0.051*** (0.024)
Year dummy	Yes	Yes	Yes	Yes	Yes
Observations	479	479	479	479	479
Countries	40	40	40	40	40

Note: Fixed effects estimations with Driscoll-Kraay standard errors. All regressions include a constant term.

*Statistical significance at 10% level.

**Statistical significance at 5% level.

***Statistical significance at 1% level.

TABLE A5 Developed countries

Variables	Electoral	Liberal	Participatory	Deliberative	Egalitarian
<i>FD</i>	-0.312*** (0.063)	-0.291*** (0.059)	-0.291*** (0.059)	-0.303*** (0.056)	-0.287*** (0.063)
<i>DEM</i>	-0.451*** (0.129)	-0.445*** (0.146)	-0.686*** (0.211)	-0.453*** (0.148)	-0.461*** (0.167)
<i>FD * DEM</i>	0.010*** (0.004)	0.010*** (0.004)	0.014*** (0.005)	0.0114*** (0.004)	0.010** (0.004)
<i>GDPpc</i>	-0.395*** (0.055)	-0.393*** (0.057)	-0.410*** (0.062)	-0.369*** (0.057)	-0.400*** (0.059)
<i>KOFGI</i>	0.025*** (0.003)	0.024*** (0.004)	0.024*** (0.004)	0.0241*** (0.003)	0.024*** (0.004)
<i>Urban</i>	-0.026 (0.130)	-0.044 (0.134)	-0.106 (0.133)	-0.0617 (0.138)	-0.024 (0.133)
<i>Young</i>	0.301** (0.138)	0.326** (0.142)	0.284** (0.131)	0.330** (0.134)	0.326** (0.140)
<i>Old</i>	-0.381*** (0.135)	-0.354** (0.137)	-0.358** (0.136)	-0.327** (0.132)	-0.335** (0.132)
<i>CBI</i>	0.105*** (0.036)	0.099*** (0.036)	0.117*** (0.036)	0.100*** (0.036)	0.103*** (0.036)
<i>EMU</i>	0.121*** (0.040)	0.122*** (0.041)	0.120*** (0.040)	0.119*** (0.041)	0.119*** (0.041)
<i>Fiscalrule</i>	0.014 (0.014)	0.012 (0.014)	0.017 (0.015)	0.014 (0.014)	0.009 (0.013)
Year dummy	Yes	Yes	Yes	Yes	Yes
Observations	697	697	697	697	697
Countries	27	27	27	27	27

Note: Fixed effects estimations with Driscoll–Kraay standard errors. All regressions include a constant term.

*Statistical significance at 10% level.

**Statistical significance at 5% level.

***Statistical significance at 1% level.

TABLE A6 Properties of the V-Dem measure

Properties of democracy	
Electoral	Participatory
<i>Core values:</i> Contestation, competition.	<i>Core values:</i> Direct, active participation in
<i>Question:</i> Are important government offices	decision making by the people.
filled by free and fair multiparty elections	<i>Question:</i> Do citizens participate in political
before a broad electorate?	decision making?
<i>Institutions:</i> Elections, political parties,	<i>Institutions:</i> Voting, civil society, strong local
competitiveness, suffrage and turnover.	government and direct democracy instruments.
Liberal	Deliberative
<i>Core values:</i> Individual liberty, protection	<i>Core values:</i> Reasoned debate and rational
against tyranny of majority and state	arguments.
repression.	<i>Question:</i> Are political decisions the product
<i>Question:</i> Is power constrained and are	of public deliberation based on reasoned
individual rights guaranteed?	and rational justification?
<i>Institutions:</i> Civil liberties, independent	<i>Institutions:</i> Media, hearings, panels, other
bodies (media, interest groups); separation	deliberative and consultative bodies.
of powers, constitutional constraints on the	
executive and strong judiciary with political role.	
	Egalitarian
	<i>Core values:</i> Equal political empowerment.
	<i>Question:</i> Are all citizens equally empowered
	to use their political rights?
	<i>Institutions:</i> Formal and informal practices
	that safeguard or promote equal
	distribution of resources and equal treatment.

Source: Coppedge et al. (2017).