

Comparing Inequalities

Regional and Interpersonal Income Disparity and Government Spending

Abstract

Political representation takes two common forms in democracies - constituencies formed by social groups and those by territorial districts. The literature on the political effects of inequality has focused on the distributive conflict amongst social constituencies without much attention to regional disparities. We highlight the second aspect- territorial inequalities- in theory and measurement and compare its effects on government spending to those of interpersonal inequality. We argue that interregional inequality is associated with reduced government size because territorially-oriented politicians from rich regions have significant constitutional powers to constrain spending. Rich social constituencies, on the other hand, have weaker partisan authority to block spending favored by the less well off, often resulting in higher spending as interpersonal inequality increases. We also find that inequality of both kinds favor budget allocations targeted to social constituencies above collective goods to territorial units. Rich territories, when faced with regional income disparity, prefer to shift resources to spending categories that benefit individuals in all regions above territorial goods that redistribute to poor regions. Inequality amongst social constituencies also promotes a shift in social spending as poor groups advocate greater resources. These results are demonstrated in a new cross-national dataset of inequality, government size and policy priorities for a large sample of developed and developing countries from 1980-2010 and are robust to an instrumental variables approach to address the endogeneity of interregional inequality to government spending.

1. Introduction

The relationship between income inequality and government distribution motivates a very large literature in the social sciences. These works focus almost exclusively on the inequalities amongst rich and poor individuals for their effects on politics, economic outcomes, and social dynamics. We argue that inequality conceptualized and measured at a different unit of analysis, the geographic region, also influences preferences of political actors. Representatives of regions should have predictable goals to maximize their jurisdictions' interests in the distribution of national resources. Whether and how regional politicians are able to translate their preferences into policy depends crucially on the representative process that adjudicates the interests of competing constituencies.

We pose the following research question: is the impact of inequality on government spending the same across different types of political constituencies? More specifically, how does interregional income inequality compare to interpersonal income inequality in its effects on the size and nature of government distribution? We take as a starting point that politicians represent two primary collective actors in national policymaking—social constituencies (understood for simplicity as rich and poor people) and territorial constituencies (rich and poor regions).¹ The incentives for politicians to advocate the interests of these groups are strongly influenced by the constitutional and electoral structure that determines voting constituencies and their respective powers. Institutional features in a nation, such as executive structure, fiscal and electoral decentralization, a territorial house, and electoral district organization, shape the extent to which politicians benefit from advancing the interests of geographic jurisdictions. Social constituencies

¹ See Franzese and Noorrudin (2003) for a similar conceptualization of constituencies reflecting local and national interests.

form coalitions represented within the party system. These organizing principles of politics highlight cleavages between two relevant representative units—social groups and regions—on whose behalf politicians negotiate in the national legislative process.

We argue that the constitutional power of territorial constituencies provides political leverage for rich regions and the partisan power of social constituencies advantages the poor majority. The reactive powers of rich regions enable their representatives to constrain government expansion given high interregional inequality, while delegates of rich social constituencies have weaker institutional tools to block spending with high individual inequality. The result is divergence in government size outcomes at high levels of interregional and interpersonal inequality. Rich regions' constitutional powers can also influence the nature of government spending toward territorially or socially-targeted budget allocations. The higher the level of interregional inequality the more likely rich regions will advocate social spending beneficial to all regions over geographically-bounded allocations redistributed to poor regions. Rich social constituencies often lack decision-making powers to reject social spending demanded by poor groups. The result is convergence on increased social spending at higher levels of interregional and interpersonal inequality.

The mechanisms that lead to these divergent and convergent outcomes lie in the distinct nature of powers available to regions and social constituencies. Regions are more often endowed with formal, reactive powers to preserve the status quo. These powers enable rich regions to constrain spending. Social constituencies are the basis for political parties that can proactively change policy. Poor groups that constitute a majority of the electorate should advance claims to greater spending and more redistributive social spending as inequality increases. These powers

are inseparable from majority status, however, and can be derailed by veto authority available to institutional actors not representative of the majority poor.

We confirm these dynamics using a new cross-national dataset on inequality, government size, and budget allocation for a pooled sample of developed and developing countries from 1980-2010. We find a consistent negative effect of interregional inequality on central government spending. Contrastingly, in less robust results, we find higher outlays as interpersonal inequality increases. In our analysis of the allocation of government spending, we demonstrate that increases in both types of inequality lead to convergence in government budgets toward social spending targetable most readily to individuals (such as unemployment or health benefits) over geographic spending allocated as collective goods to localities (such as infrastructure investments).

While the result is different, the “winner” of the two processes is the same for the level of spending and the types of spending. On one hand, rich regions win and poor regions lose as interregional inequality grows. Wealthy jurisdictions can halt spending and shift it away from categories that entail subsidization without shared benefits, by blocking territorial allocations or in coalition with poor social constituencies that favor social spending. On the other hand, poor people win and rich people often lose as interpersonal inequality rises. Majority power allows the poor to increase budgets and draw greater resources to categories that benefit them the most, social spending with redistributive intent.

2. Relevant Literature

2.1. Interpersonal Inequality and Government Spending

Our findings are broadly consistent with scholarly research that anticipates higher government spending as interpersonal inequality grows (Romer 1975, Meltzer and Richard 1981). Romer and Meltzer and Richard (RMR) model politics as a referendum process whereby the median voter, who becomes increasingly poor relative to the mean as inequality grows, successfully imposes increased government spending. Our focus is not on this result, which we find both theoretically conditional and empirically tenuous, but on the comparison between the effects of interregional and interpersonal inequality on political dynamics and thus government spending.² Like much of the literature critiquing the RMR result, we raise concerns with the assumed representative structure, the national referendum, which precludes both institutional fragmentation and constituencies based on identities other than the individual. We focus on policy outcomes reflecting bargaining by jurisdictional actors (Weingast, et al. 1994).

We look to political institutions (both their constitutional and partisan effects) for their role in shaping the conditions that allow rich and poor to advance their preferences in the political system. Although the poor are the majority, the majority is not always able to exercise power because of institutional or partisan fragmentation, or attributes of the political process that favor the rich (Amendola et al. 2013). We also recognize that highly centralized control over economic and political processes depresses regionalism, and party aggregation favors majority social constituencies (Chhibber and Kollman 1998). Regional and social constituency representative “types” are identifiable in political systems but are never fully separable because they are bound to some extent by the national party system (Brancati 2008). Complementing these works, we focus to a greater extent on inequality and on regions’ constitutional powers in the political process of government distribution.

² For a summary of empirical literature on the RMR model, see Borge and Rattsø (2004).

2.2 Interregional Inequality and Government Spending

We build upon political economy research emphasizing the political interests of regional economic transfers, with specific comparison to interpersonal inequality (Bolton and Roland 1997). We test the “regional transfer effect” whereby geographic districts evaluate their preferences for government spending given disparities in regional income and productivity. Beramendi’s (2007, 2012) works inspire the comparison of interregional to interpersonal conflict with expanded empirics. Rodden’s (2002) discussion of the territorial basis for government representation provides a theoretical launching point for our institutional expectations.

Most empirical research on inequality uses ratios of income held by the richest compared to the poorest groups in society. Critiques of these measures typically question the formula for calculating inequality and whether that represents political reality, not on the unit of analysis—individuals or households (Piketty and Saez 2006; Lupu and Pontusson 2011). We adopt measurement techniques for interregional inequality from geography and regional economics. This literature explains the economic and political sources of regional divergence, not interregional inequality’s effects on politics (Charron et al. 2014; Lessmann 2009; Rodríguez-Pose and Ezcurra 2010). These measures have not, to our knowledge, been applied to government size.

2.3 Policy Priorities as the Nature of Government Spending

Studies of disaggregated government budgets usually analyze the total outlay of policy categories relative to GDP or allocations across different levels of government (e.g., Shelton 2007). We focus instead on policy priorities, an indicator showing the relative allocation of

government spending across all expenditure categories. Policy priorities are an increasingly common indicator of government expenditure in the U.S. states (Jacoby and Schneider 2001, 2009; Volden 2007). We borrow the methodological approach of Jacoby and Schneider and apply it to OECD data of identical structure.

Previous research on policy priorities did not emphasize the geographic nature of some spending categories, but rather termed these “collective goods” because they are not easily targetable to individuals based on demographic criteria. Our discussion retains the logic of that characterization with somewhat different language to emphasize the geographic versus social (individually targetable) framing of our analysis. With this approach, we link the literature analyzing effects of interregional disparities on government spending and policymaking at the national level to research on national public goods given preference heterogeneity (Milesi-Ferretti et al. 2002; Alesina and Spolaore 1997; Besley and Coate 2003).

3. Theoretical Expectations

Our theoretical expectations from previous research are diagrammed below in Figures 1a and 1b. Shown are four actors, rich and poor regions, and rich and poor individuals, and their assumed preferences for government spending. The y-axis is inequality and the x-axis is total government size in Figure 1a and government policy priorities toward social or geographic allocations in Figure 1b. In both charts, the lower line represents the status quo point (SQ) and groups’ ideal point preferences for government spending at time t given the extant level of inequality. In the upper line, at time $t+1$, these groups’ preferences reflect a change in the inequality related to their group, whether interregional ($R, R+1$) for regions or interpersonal ($I, I+1$) for individuals. We assume that only four collective actors are relevant in politics and that economic preferences

subsume identity, ideology or interest-group representation. For the moment, we assume these actors are analytically separable and address variance in these conditions in the discussion. We also assume a progressive tax system and that government spending is to some degree redistributive.

Figure 1a shows the directional change of preferences on total government size with increased interregional (R) and interpersonal inequality (I). Both rich regions and rich individuals are shown to prefer lower government spending, all else equal, because government spending is increasingly redistributive (by rich regions given interregional inequality, by rich individuals given interpersonal inequality) in a progressive tax system as inequality of either type increases. Poor regions and poor individuals prefer government expansion as inequality increases at $t+1$. Both regions and individuals share the same point in space because we do not have a theoretical basis to compare individuals to regions on their absolute preferences for government size.

[Figure 1 Here]

Figure 1a demonstrates the shift in status quo government spending expected given increases in interregional (SQ_{R+1}) and interpersonal (SQ_{I+1}) inequality. With constitutional powers to constrain government spending through veto, amendment, and delay authority, rich regions shift the status quo toward their preference for lower government spending as interregional inequality increases. As interpersonal inequality rises, on the other hand, poor social constituencies have stronger partisan authority to shift the status quo toward higher government spending. H1 predicts divergence in government spending as the two types of inequality increase.

H1: Divergence Hypothesis increased interregional inequality will drive lower government spending. Increased interpersonal inequality will push higher government spending.

Interregional and interpersonal preferences for government budget allocation toward social units (benefits targeted to individuals) or geographic units (collective goods targeted to localities) are plotted in Figure 1b. Again, the regions and individuals' preferences are shown at time t and time $t+1$ with an increase in group-relevant inequality. Importantly, the x-axis is not the level of spending but relative emphasis on social or geographic budget categories.

In Figure 1b, rich regions and poor individuals are both shown to the left of the status quo points at time t and $t+1$, indicating a preference for social allocations above geographic spending. With the increase in interregional inequality at $R+1$ and interpersonal inequality at $I+1$, both groups shift their preferences even farther toward social allocations. Poor individuals sit to the left of rich regions because they are assumed to benefit more directly from social allocations than rich regions that seek social allocations only as preferable to redistributive regional spending. Similarly, poor regions and rich individuals are shown to prefer greater geographic spending as inequality increases to benefit themselves through redistribution (poor regions) or to shift spending away from explicitly redistributive categories (rich individuals).

Figure 1b shows a common shift in the status quo as interregional (SQ_R) and interpersonal (SQ_I) inequality increase. The logic for this expectation again lies with the constitutional power of regions that facilitate blocking less-preferred expenditures and the partisan power of poor groups that enables shifts toward preferred expenditures. This convergent effect of increased inequality of both types on government policy priorities is predicted in *H2*.

H2: Convergence Hypothesis increased interregional and interpersonal inequality prompt relative allocation toward social spending.

4. Regional Representation and Social Constituencies

Regions and social constituencies exercise power in the political system through two primary sources of power—formal authority granted through constitutional rules of policymaking, and partisan authority of majorities within political institutions. Formal authority is commonly reactive—it includes the powers to block and delay legislation granted to particular institutions such as presidents, upper houses, national courts, and executive councils. These mechanisms are more often granted to regional constituencies, with rights that privilege minorities, than to broad social constituencies (Rodden 2002). Partisan powers, on the other hand, are exercised by the majority and may be proactive or reactive depending on electorally salient interests. They are most often available to social groups that form the primary distributive cleavage in democratic politics.

4.1. Powers of Regions

Regional representatives are endowed primarily with reactive authority that helps them block policy change away from the status quo (Triesman 2006). These powers, such as upper house veto or amendment of lower house budgets and supermajority rules, enable national representatives of regions to act as veto gates for expansionary budget policies. Importantly, these rules privilege relatively few actors within the policy process, giving greater weight to minority rich regions and lowering the costs of collective action to allow few regions to shape policy despite majority opposition (Beramendi and Diaz Cayeros 2006).

The constitutional powers available to regional representatives vary in their strength and variety. Take, for example, the U.S. Senate filibuster. One regional politician, representing a state constituency, can block or delay the entire legislative process. More commonly, regions are the voting constituencies for territorial upper houses, districted lower houses, sub-national elected officials, and judicial actors, giving politicians incentives to advance the interests of the regions they represent. These actors have constitutionally-determined powers, such as supermajority voting rules, rights to delay, amend or block legislation, and decentralized budgets and policy areas that make relevant interregional claims in national politics (Rodden 2002; Russell 2001). Even in the absence of constitutional authority, geography becomes a relevant cleavage in any political system that divides voters into spatial districts (Franzese and Nooruddin 2003).

The status quo bias of regions' powers informs our hypothesis that rich regions have the upper hand given high interregional inequality. Rich regions, always the minority, will have little ability on their own to promote new policy in their preferred direction. However, reactive powers can be used to constrain redistribution desired by poorer regions. Rich regions and individuals also have less elastic demand for government services, giving their national representatives stronger bargaining positions in budget negotiations (Giuranno 2009). This should lead to systemic differences in the level of spending given regional inequality. Moreover, veto authority can be effective in reducing allocations by eliminating adjustments for inflation and blocking renewals to existing appropriations. The result can be budget atrophy without explicitly anti-redistributive budget proposals (Hacker and Pierson 2010).

The powers of regions are difficult to identify precisely because they are found within a variety of political institutions that decentralize or fragment power, and they interact with other

political institutions that centralize authority. We focus on three institutions that fragment authority and orient politicians toward regional over national issues: presidentialism, federalism, and territorial bicameralism. Presidential systems' separate origin and survival of executive and legislative actors makes the cohesion and coordination of national parties less important than in parliamentary systems (Mainwaring and Shugart 1997). Parliamentary actors thus have greater incentives to dampen regional cleavages relative to presidential systems. Federalism structures politics on regional constituencies and, like presidentialism, increases the number of veto actors, which should entrench the status quo (Treisman 2006). Similarly, territorial bicameralism guarantees regional representation in national legislatures, giving voice to regional actors and shifting the locus of national politics relatively toward regional issues.

4.2. Powers of Social Constituencies

Social constituencies organized around income and attitudes toward government redistribution are the foundation of party systems in nearly every nation (Bobbio 1996). Rich and poor groups articulate distributive concerns and economic ideology through parties that advance their electoral interests and legislative programs. These constituencies most often span the nation, joining the interests of rich and poor across regions under united banners. These parties conflict, most apparently, on social redistribution related to interpersonal inequality.

The poor, due to their numerical advantage in the voting booth, are assumed the winners in this distributional struggle as increasing inequality pushes the median voter toward the lower end of the income spectrum (Romer 1975, Meltzer and Richard 1981). Poor individuals can capture legislative majorities able to proactively advance redistribution as interpersonal inequality grows.

Representative democracy, however, never exemplifies the one-person-one-vote ideal, but always disperses power across political institutions. Fragmentation of authority away from the legislative majority attenuates the proactive powers of social constituencies to advance their preferences. Thus RMR assumes a representative structure – the national referendum—that cannot capture rich groups’ or regions’ role where policy authority is divided and includes minority safeguards. Rich constituencies are bolstered by institutional fragmentation and differences in voting rates and campaign contributions favoring the well-off (Amendola et al. 2013; Bartels 2010). The powers of the poor to press redistribution given high interpersonal inequality, therefore, are conditional upon institutional structures that favor majoritarian outcomes.

Like regional powers, the policymaking authority of the (poor) majority varies across political systems. This variance depends on institutional separation of powers that provide opportunities for groups other than the majority (or majorities on alternative political cleavages) to influence legislation. Not coincidentally, power divisions also provide opportunities for regional representatives to influence national policy outcomes. Whether the poor advance their interests given separation of powers will depend on their ability to capture veto points and to form coalitions across institutions.

5. Data Analytics Strategy

5.1. The Core Explanatory Variables

We use the most common interpersonal inequality indicator, the Gini coefficient. The calculation of Gini varies depending on differences in the concept (income-based vs. consumption-based), timing (pre-tax & pre-transfer vs. post-tax & post-transfer), or unit (individual vs. household).

We use the “gini_market” variable from the Standard World Income Inequality Database that indicates household gross income adjusted by household size (Solt 2009).³ We prefer Income-based Gini and pre-tax, pre-transfer income measures instead of net (post-tax & post-transfer) income because the latter takes into account the redistribution we are trying to measure. Furthermore, household gross income (weighed by household size) captures individual welfare better than individual measures because income is shared.

Our measures for interregional inequality are cross-nationally comparable intra-country variances of region-level GDP per capita. The regions that we associated with sub-national territorial units are equivalent to the state, province, department, or NUTS (Nomenclature of Territorial Units for Statistics) Level 2, in the case of OECD nations.⁴ From research on political geography, we adopt two formulae for calculating interregional inequality: the population-weighted coefficient of variance (COVW) and the region-adjusted Gini coefficient (ADGINI). Each indicator is calculated independent of the number of regions considered, is not sensitive to shifts in average GDP level, and satisfies the Pigou-Dalton principal.⁵ They allow for intra-country variance to be translated into a cross-nationally comparable index. The value of zero denotes perfectly even development across regions; the value of one (or higher in the case of COVW) represents extreme inequality. The formulae are listed below:

³ Alternatively, we ran a Gini measure retrieved and filtered from the UNU -WIDER World Income Inequality Database (using the procedure suggested by Deininger and Squire (1996). We found consistent results.

⁴ Our theory argues political representation of territories matters for national spending. We attempt to capture relevant territories in our income measures but they cannot match every voting district. The level we use is typically the unit of representation for territorial upper houses, geographically-oriented lower houses, and the administrative locus for fiscal and other policy decentralization.

⁵ Any income transfers from the richer to the poorer regions reduce inequality (Pigou 1916).

$$\text{COVW} = \frac{1}{\bar{y}} \sqrt{\sum_{i=1}^n p_i (\bar{y} - y_i)^2}$$

$$\text{ADGINI} = \frac{2 \sum_{i=1}^n i y_i}{n \sum_{i=1}^n y_i} - \frac{n+1}{n}$$

Where: \bar{y} is the country's average GDP per capita; y_i is the GDP per capita for region i , p_i is the share of country's total population in region i ; and n is the number of subnational units (Lessmann 2011). COVW is a measure of dispersion that factors in population weights of the regions to the overall distribution. ADGINI captures degree of deprivation by giving additional weight to regional incomes as they veer farther from the mean of the regional income distribution. Our interregional inequality measures are coefficients of variation in regional economic productivity per capita, not ratios of earnings, and thus are not directly comparable to interpersonal inequality data.⁶

[Figure 2 Here.]

Figure 2 presents a list of countries sorted by the average 2006-2010 on the Gini coefficient and ADGINI. These measures are not correlated at a statistically significant level in the non-OECD sample ($r=0.34$, $p>0.1$) and are weak and insignificant in the OECD sample ($r=-0.11$, $p>0.1$). Belgium provides an example with very low interpersonal inequality but relatively

⁶ State GDP is a reasonable proxy for state income (Beramendi and Diaz-Cayeros 2006) and is an important distributive motivation independent of earnings. Productivity differences are what create relevant differences in regional tax bases. Income figures, moreover, are endogenous to social welfare policies that obscure regional differences in economic structure (Mahler 2002). In future research we will examine the differences in regional level income for a smaller sample,

high interregional inequality. The United States scores relatively low on interregional inequality but very high on the interpersonal inequality measures. This comparison demonstrates that interpersonal and interregional inequality capture different phenomena within a country.⁷

5.2. Dependent Variables

We focus our analysis on government spending as a redistributive outcome of political bargaining between net beneficiaries and net contributors.⁸ Our sample includes developed and developing countries from 1980 to 2010. The constraints on our sample are both the availability of regional GDP values and spending data for enough years to establish a reasonable country estimate.⁹ For the policy priorities variable calculated with all expenditure categories, our panel is limited by data availability to OECD nations from 1990 to 2010.

Our analysis examines two aspects of government spending: 1) how much governments spend; 2) how they spend. First, the size of government is measured as GDP share of total central government spending. We focus on the central government as the arena in which social and regional representatives are most likely to direct their conflict because costs are shared throughout the nation. The central government is the locus of governments' regional redistribution, either directly through regional transfers, or indirectly through spending that

⁷ Unfortunately we cannot include measures of inequality within regions (Bolton and Roland 1997; Beramendi 2007, 2012). The importance of intraregional inequality to regional preferences is suggested by the reasoning we attribute to rich regions in advocating social spending as interregional inequality increases. Our analysis is necessarily underspecified due to data availability. Related research captures these dynamics for a sub-sample with data available from the Luxembourg Income Study.

⁸ Taxation is equally relevant to redistribution and related to income inequality (De Freitas 2012)

⁹ Our samples, by regression model, are listed in online supplement Table 10.

should disproportionately affect rich or poor constituents. Most countries also direct social spending primarily through the central government. These data from the IMF Government Financial Statistics (GFS).¹⁰

Total government spending is a very blunt measure of distribution. Typically, research on inequality focuses on allocation to social spending – the summation of specific government spending categories thought to be particularly redistributive, such as healthcare and job market assistance, as a percentage of GDP (c.f., Bradley et al. 2003; Iversen and Soskice 2006; Moene and Wallerstein 2001). We also want to explain allocation, but do so without neglecting the policy categories that are more easily targeted toward regions. We employ the full range of government spending and their relative values, calculated as policy priority scores with OECD central government expenditure values using the unfolding technique developed by Jacoby and Schneider (2001, 2009). Expenditures across policy areas are thought to accurately reflect policy commitments, tradeoffs, and priorities (Garand 1985; Budge and Hofferbert 1990; Hendrick and Garand 1991). This measure helps us to evaluate whether countries spend in socially-targeted or territorially-targeted ways (Volden and Wiseman 2007).¹¹

The policy priorities score identifies policy categories least likely to occur together through a spatial model of yearly country spending. For a complete description of the policy priorities data structure, unfolding technique, and application to politics in the U.S. states, see Jacoby and Schneider (2001, 2009). In estimations of U.S. states, territorially-oriented “collective goods” such as policing, housing, and highways were all commonly high in the same jurisdictions, while

¹⁰ The results shown use expenditures by government function (COFOG). We also ran the models with economic categories (ECOG) and found nearly identical results.

¹¹ Jacoby and Schneider use the term “collective goods” for the spending that we characterize as territorially-targeted because they are broadly consumed within their territory.

socially-targeted healthcare and social services were high in different jurisdictions. We exploit this characteristic of government spending--that territorially and socially-oriented policy categories tend to disassociate--to identify whether countries are allocating more toward regions or individuals.¹² Accordingly, we address a large literature on geographically and socially targeted spending that has not explicitly examined interregional inequality (Weingast et al. 1994; Milesi-Ferretti et al. 2002).

[Figure 3 Here]

Our values of the policy priority variables are summarized in Figure 3.¹³ Policy priorities scores show both a policy location, indicating the “distance” between policy areas in their likelihood to occur together and a country score. Negative country scores suggest relatively more spending on policies on the left of the policy point figure, such as health and social protection. These are policies we identify as more socially-targeted in their distribution and are typically considered redistributive in related research.¹⁴ Positive scores show that countries spend more on geographically-oriented public goods, such as public order and safety, and education. Figure 3 illustrates cross-national variation in countries’ relative policy positions from 1990-2010. To understand the substantive interpretation, consider the difference between South Korea (0.06) and

¹² All government policies have both interpersonal and interregional distributive implications. Social welfare spending flows more to poorer regions. Geographic spending such as housing aids the poor within the region. Policy priorities are never strictly socially- or geographically-targeted but speak to broad features of their distribution.

¹³ Crucially, the policy areas distribution in the OECD sample is nearly identical to that identified for the U.S. states (Jacoby and Schneider 2009, p.11).

¹⁴ The OECD case shows Economic Affairs spending is high in countries with high social spending. This trend has been noted in OECD literature (OECD Government at a Glance 2011). This category includes state-run banks and other industries, more commonly high in nations with large public sectors.

Germany (-0.02). This value indicates that the South Korean governments devoted 8%, on average, more of their total spending toward geographically-oriented public goods than did the German governments (or, alternatively, the German governments devoted 8% more of their total spending toward socially-targeted goods).

5.3. Political Institutions

Executive System. Legislative cohesion in parliamentary systems facilitates logrolling that should increase government spending relative to presidential systems (Persson and Tabellini 1999).

Parliamentary systems are more often associated with proportional representation systems that favor center-left coalitions supportive of greater redistribution (Iversen and Soskice 2006). We predict that parliamentary systems are positively correlated with the size of government spending and negatively associated with policy priorities, indicating greater emphasis socially-targeted goods and presidential systems the reverse (Hicks 1999; Huber and Stephens, 2001; Swank 2002; Bradley et al. 2003). We use a binary parliamentary variable, defined as system in which the legislature elects the chief executive.¹⁵

Federalism. The expected effect of federalism is to reduce the size of central government expenditures, either by reducing the size of government overall or decentralizing resources to sub-national governments (Cameron 1978). Articulation of regional interests should favor spending that can be geographically targeted, leading us to expect a positive relationship between federalism and the policy priority variable. For the largest possible sample, we rely on a binary

¹⁵ The strength of national parties across voting districts is an alternative measure of the influence of political institutions on regional cleavages (Morgenstern et al. 2009). We tested models using party vote share (Herfindahl Index) in the regions from the Constituency-Level Election Archives. Our findings are unchanged by substituting this variable for parliamentarism and federalism.

measure in which federalism is indicated when sub-federal units impose substantive constraints on national fiscal policy.¹⁶

Territorial Bicameralism. Bicameralism (of any type) is expected to reduce government size because of increased transaction costs to approve the budget (Persson et al. 1997). With Senates composed of regional politicians, we expect greater spending on geographically-oriented goods directly targetable to their constituents. This binary variable takes a value of 1 if Senates' constituencies are states/provinces and is adapted from the Database on Political Institutions.

5.4. Control Variables

Intergovernmental Transfers. We control for intergovernmental transfers to capture regional distributive patterns and overall government spending not observable in central government spending. In many nations, especially in the developing world, these transfers constitute a large percentage of sub-national and total government resources.

Intergovernmental transfers are measured as transfers from other levels of government as a share of total sub-national revenues and grants. Transfers should reduce the observed fiscal burden on the central government because countries with higher transfers tend also to tax and spend at the sub-national level. Related to this, high transfers are associated with government institutions that highlight regional distribution. Accordingly we expect intergovernmental transfers to be positively associated with policy priorities, implying greater distribution toward geographically-targeted goods.

Population Size: Population size may increase heterogeneity in policy preferences, driving

¹⁶ We alternatively test with electoral federalism (election of local executives or local legislature) from the Database of Political Institutions. The key results remain intact.

up spending to meet demand. Large populations may, alternatively, increase returns to scale in public goods provision or encourage policy decentralization, reducing central spending (Alesina and Wacziarg 1998). We expect countries with larger populations to spend relatively more on geographically-targeted goods because they have regionally-delineated politics and greater fiscal challenges to provision of broad-scale particularized social spending.

Wealth: Per Wagner's "law" we expect GDP per capita to be positively related to government size (Wagner 1958; Easterly and Rebelo 1993). We also anticipate wealth will predict greater emphasis on targeted social spending, shown in a negative relationship with the policy priorities variable. As countries become wealthier, economies become more complex, driving demand for increased social safety nets.

Globalization: Open trade policies may reduce spending because greater trade integration drives tax competition that constrains government resources (Ferris 2003). Given that welfare programs increase labor costs, governments cut social spending to compete against their trading partners (Allan and Scruggs 2004). Trade should thus shift policy priorities away from individualistic goods to collective goods, indicated by a positive relationship with the policy priorities variable. A rival argument posits that trade openness may induce larger government spending as integration creates greater demands for social insurance against market uncertainties (Rodrik 1998; Cusack 1997). Trade expansion should be then negatively associated with the policy priorities variable. Trade openness is measured as exports plus imports divided by GDP from the Penn World Tables.

Demographic Distribution: The age distribution affects policy priorities, especially on social spending. Dependent populations, measured here as those over the age of 65 as a percentage of the total population, rely disproportionately on government services overall and

welfare spending in particular. Accordingly we expect a positive relationship to government size and a negative relationship to policy priorities.

5.4. Statistical Model Specifications

We test the effects of interregional inequality on government spending (both size and policy priorities) using a time-series cross-sectional data structure. We acknowledge several concerns with the quality and structure of the data for quantitative analysis. First, our data span developed and developing nations, data sources, and time periods. The data quality is likely higher in developed nations and later time periods, bringing unavoidable measurement error into our analysis. To adjust for heteroskedastic error distribution, we estimate our models with robust standard errors.¹⁷ Second, economic data over long time periods tend to exhibit non-stationarity that makes traditional regression methods inaccurate. To manage this concern, our base models take the average values of the data over five-year non-overlapping periods (Shelton 2007). Our empirical model is expressed as follows:

$$\begin{aligned}
 &\text{Government Spending (Size, Policy Priorities)}_{i,t} \\
 &= \beta_0 + \beta_1 * \text{Interregional Inequality}_{i,t} + \beta_2 * \text{Gini}_{i,t} \\
 &\quad + \beta_3 * \text{Transfers}_{i,t} + \beta_4 * \text{Log of Population}_{i,t} \\
 &\quad + \beta_5 * \text{GDPPC}_{i,t} + \beta_6 * \text{Open}_{i,t} + \beta_7 * \text{POP65}_{i,t}
 \end{aligned}$$

¹⁷ Heteroskedasticity in the error terms can also be adjusted with country fixed effects but they may add bias if multicollinear with time invariant variables (such as political institutions) in the model. We are more interested in cross-national differences than within country temporal variance due to our theoretical focus on institutions. When dummies for the country fixed effects were included for 5 year average models, the regression results showed that some dummies are dropped because of collinearity

$$\begin{aligned}
& + \beta_8 * \text{Parliamentary}_{i,t} + \beta_9 * \text{Federalism}_{i,t} \\
& + \beta_9 * \text{Territorial Bicameralism}_{i,t} + \beta_{10} * \text{Government Spending}_{i,t-1} + \varepsilon_{i,t}
\end{aligned}$$

Where: i denotes country-year observation. t is five-year intervals (creating 2-6 periods per country). β_s are a vector of parameter estimates. We use the feasible Generalized Least Squares method testing random effect models, controlling for the first-ordered autocorrelation using a panel-specific process with the heteroskedastic error structures (Ross 2001). Due to overlap in cases of federalism and territorial bicameralism, we estimate base models isolating federalism and include territorial bicameralism in robustness specifications.

[Table 1 Here]

6. Empirical Finding

6.1. *Inequality and the Size of Government Spending*

Table 1 presents strong evidence of the divergent effects of interregional and interpersonal inequality on total government size. Increased interregional inequality is consistently and significantly associated with reduced central government expenditure. Increased interpersonal inequality, on the other hand, generally predicts higher government expenditure in these samples. More substantively, for a unit (rescaled to a percentage point) increase in ADGINI, model [5] predicts a drop in GDP share of central government spending of 0.09 percent. This effect may seem small on a per unit basis, but if we consider a full swing in the interregional inequality values in the OECD alone, from New Zealand to Slovakia, it would predict a decline by 9 percent.¹⁸ Gini's full swing predicts an increase in central government spending of 7 percent.

¹⁸ In the Slovak Republic in 2010, the richest Bratislava region's GDPPC was US\$48,830 compared with the poorest East Slovakia region at \$13,640.

The effect of ADGINI is much larger than COVW. ADGINI places greater weight on regional GDP values as they veer farther from the mean, capturing substantive inequality more than simple dispersion of the values. Accordingly, ADGINI may better capture salient poverty and wealth as perceived by politicians and citizens alike.

The Gini variable is positive but insignificant in the baseline model [3] that excludes interregional inequality and in alternative specifications described below. These findings suggest the institutional conditionality of interpersonal inequality—only where poor social constituencies are able to exercise majority influence are the predictions of RMR likely to result. Including interregional inequality bolsters the Gini findings, perhaps indicating the relevance of this variable to explaining inequality results of both types.

Our inequality results hold when controlling for the institutional environments that shape regional and social constituencies. Parliamentary systems are positively correlated with central government spending. The role of federalism is statistically significant and returns the expected sign, supporting the idea that institutional veto power by regional governments should constrain broad central government redistribution. Territorial bicameralism has a positive but insignificant coefficient.

The effects of the control variables are anticipated. Intergovernmental transfers reduce fiscal burdens of the central government. Elderly populations' larger demand on government spending is confirmed in our analyses. The results for population, wealth, and trade are in the expected direction but generally not statistically significant in the specifications.

[Table 2 Here]

6.2. Inequality and Policy Priorities

Unlike total government size, we expect a convergent effect of interregional and interpersonal inequality on government policy priorities. In Table 2, models [8]-[14] support our prediction that interregional inequality and interpersonal inequality are significantly and negatively associated with policy priority scores. Inequality of both types leads to policy preferences away from socially (individually) targeted benefits across the nation toward geographically-targeted goods specific to localities.

Substantively, the value of the policy priority coefficient (such as, -0.048 in model [12]) should be interpreted as a relative term (Jacoby and Schneider 2009). With a unit increase in the ADGINI measure spending on geographically-targeted goods decrease 0.048 percent. The size of impact by ADGINI is almost two times larger than that of the Gini Coefficient.

The institutional variables again support our theoretical structure. Parliamentary systems emphasize social above geographic spending, highlighting the national orientation of parties and relative weakness of regions' policymaking authority. Federal systems are more likely to spend on geographic goods, reflecting a political currency based on regional distribution of resources. Similar to federalism, territorial bicameralism is associated to a significant degree with geographically-oriented goods in the ADGINI model.

The results for the control variables are mostly expected. Higher intergovernmental transfers are associated with greater emphasis on geographically-targeted goods above socially targeted benefits. GDP per capita is negatively associated with policy priority scores, showing richer countries spend more on goods associated with market protection and social safety nets. Trade openness predicts a shift toward collective goods over social protection.

6.4. Robustness of Results

Feedback Effects and Instrumental Variables Analysis.

Our study raises concerns of reverse causality. It is plausible (and likely) that government spending influences interregional inequality as well. Regional GDP measures include contributions from central government transfers, making redistribution from rich to poor regions implicit in these values. We address this endogeneity in the theory and empirics. Theoretically, transfer resources included in regional GDP values should dampen the impact of interregional inequality measures on observed outcomes. Because all regional transfer schemes (at least in our sample) are redistributive, their effect should be to make the poor regions appear richer and the rich regions somewhat poorer, reducing the variance across districts. That we still find a strong effect of interregional inequality suggests it might be greater in the absence of regional transfers.

To address these empirical concerns with endogeneity, we take an instrumental variable approach to be sure our causal arrow is accurate. Our instrument is the competitiveness of top division soccer teams in national soccer leagues. Sports economists have long recognized divergence in competitiveness of sports teams that are, in part, supported by their local economy and fan base (Vrooman 1995; Kesenne 2000). Teams from rich zones (e.g., AC Milan in Italy) tend to be more successful than teams from poorer regions within the same country (e.g., AC Napoli). Measures of relative competitiveness within leagues, accordingly, should be a reasonable proxy for regional disparity, without being correlated, in theory, with government spending.

Using the European National Soccer League Database, we obtained team-based competitiveness scores (called “points”) for 33 countries from 1980 to 2010. Points are calculated according to common league standards to determine final league standings: points =

win × (3 points)+ draw × (1 point) + loss × (0 point).¹⁹ We calculated coefficients of variation in points for a country for each year using the standard deviation of team points divided by the average number of points: $\sqrt{\sum_{i=1}^n (y_i - \bar{y})^2 / n} \times 1/\bar{y}$, where y is the point scale on competitiveness, \bar{y} is the average of total points in the league, n is the number of teams in the league, the i represents an individual team. The soccer league competitiveness coefficient of variance is similar to our measures that use regional GDP, but adapted to win/tie/loss records to reflect team “wealth.” The pairwise correlation to our interregional inequality variables is 0.30 with ADGINI ($p < 0.01$) and 0.27 with COVW ($p < 0.01$), both within the range of a reasonable instrument (Angrist and Pischke 2008).

In addition to our external instrumental variable, we employ Lewbel’s (1997) procedure to create additional instruments that improve the efficiency of the model estimation. When there are insufficient instruments, the second moment (the width between a set of points) and third moments (skewness) of the endogenous variable can provide a valuable complement or substitute for an external instrument. We generate instruments for interregional inequality defined using distance and skewedness, for example, $(ADGINI - \text{mean}(ADGINI))^2$, that are correlated with the endogenous variable ADGINI (see the correlations plotted in online supplement Figure 3) but uncorrelated with the error terms. This method is widely applied in empirical analyses of welfare spending (Rudra 2002; Rudra and Haggard 2005).

[Table 3 Here]

Table 3 shows even with instrumentation the negative association between interregional inequality and central government spending remains robust.²⁰ We also find that the IV

¹⁹ <http://www.webalice.it/claudioleletti>

²⁰ First-stage estimation shown in online supplement Table 5.

estimation, by removing the recursive effect of money spent to reduce interregional inequality, captures a larger substantive effect. For example, when interregional inequality (ADGINI) increases by 1 percent, central spending (government function) is 0.56 percent lower, almost six times larger than the diminishing effect by 0.09 percent seen in Model [5] from Table 1.

Alternative Estimators and Sampling: We check the robustness of our interregional inequality results in several additional ways. First, to address concerns with estimation bias in our short panel, we use Arellano-Bond system GMM estimators (Arellano and Bond 1991; Arellano and Bover 1995; Blundell and Bond 1998). Online supplement (OS) Table 6 shows ADGINI is negatively and significantly correlated with government spending. Second, to address concerns that our 5 year intervals are arbitrary, we employed 5 year moving averages for both dependent variables in OS Table 7 and find robust results. Third, our GLS estimation control for problems of cross-sectionally correlated errors in our unbalanced data. We show the results are robust to this specification using Beck and Katz (1995)'s panel corrected standard errors (PCSE) in OS Table 8. Although this alternative method also uses GLS estimators, it yields larger standard errors, which makes our findings more conservative. Finally, we show the interregional inequality variables are negatively and significantly related to general government spending in OS Table 9. This result is important if a primary response to interregional inequality is to decentralize spending away from central government coffers.

The Gini results for size of government vary in explanatory power, losing significance with PCSE [OS Table 8] and the general government dependent variable [OS Table 9]. The relationship between Gini and the policy priority variable is also weak in comparison with the interregional inequality finding. Gini is not significant in specifications with GMM estimators, a

five-year moving average, and PCSE.

Overall, both the strength of the interregional inequality finding and the variability of the interpersonal inequality finding are expected in our theoretical structure. Regions' powers are conservative, consistent with the constraining effects of interregional inequality observed on the size and allocation of government spending. Poor constituencies' must overcome fragmented institutions and divided majorities to shift the status quo to higher spending.

7. Conclusion

We began this study by asking how territorial inequality compares to interpersonal inequality for its effect in the distribution of government resources. Our empirical evidence suggests that interregional inequality is a consistent predictor of lower government spending and greater emphasis on social spending. Interpersonal inequality, in weaker findings, is associated with increased government spending and more social allocation. The differences in these findings across types of inequality lend support to broadening the scope of analysis to multiple facets of inequality that may be relevant to political decision-making.

Our theoretical claim, that political institutions structure whether and how different constituencies are able to articulate their interests for government spending as inequality grows, is consistent with the evidence presented but nonetheless underspecified. Our description and modeling of institutions that orient politicians and voters toward evaluating their interests more so for territorial versus social constituencies is nascent in this study. In related research, we devote much more theoretical and empirical emphasis on the interrelationships between political institutions, inequality, and government spending (citation redacted). Only under institutional designs that emphasize social constituencies, for example, do we expect a strong effect of rising

interpersonal inequality on government spending. Similarly, as interregional inequality grows in strongly territorial institutional structure, we expect this cleavage to be activated much more than seen in more centralized nations.

Our analysis also suggests the important interactions between interpersonal and interregional inequality on coalition behavior in political institutions. When considering alternative concepts of inequality, the preferences of “rich” and “poor” for government spending become more complex. The coalition within the U.S. Democratic Party, for example, between productive states such as California and New York, and advocates for social spending that benefits poor individuals, suggests regions’ preferences cannot be isolated from social constituencies’ and bargaining over redistribution considers how those policies would differentially impact nations’ geographic zones. Again, our arguments relating the fiscal constraining effects of political fragmentation may provide some insight into redistributive outcomes. For instance, Rodden (2002) argues that presidentialism and territorial upper chambers undermine the efforts of low-income coalitions to redistribute through both interpersonal transfers and territorial grants.

The policy priorities variable is a step toward identifying the diversity of ways governments use resources to reward winners and losers in the political process. The assumption in most research on inequality has been that social welfare is the appropriate rubric for examining redistribution. However, especially in territorially-oriented systems where geographic targeting is rewarded by constituents, inequality of either type might be met with “pork” over social insurance. Interregional redistribution may be a complement or substitute for interpersonal redistribution and is certainly relevant to how we should examine inequality evaluate and government responses to it.

References

- Alesina, A., & Spolaore, E. (1997). On the number and size of nations. *The Quarterly Journal of Economics*, *112*(4), 1027-1056.
- Alesina, A., & Wacziarg, R. (1998). Openness, country size and government. *Journal of Public Economics*, *69* (3), 305–321.
- Allan, J. P., & Scruggs, L. (2004). Political partisanship and welfare state reform in advanced industrial societies. *American Journal of Political Science*, *48*(3), 496-512.
- Amendola, Adalgiso, Easaw, Joshy, & Savoia, Antonio. (2013). Inequality in developing economies: the role of institutional development. *Public Choice*, *155*(1-2), 43-60.
- Angrist, J. D., & Pischke, J. S. (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton: Princeton University Press.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, *58*(2), 277-297.
- Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, *68*(1), 29-51.
- Bartels, L. (2010). *Unequal democracy: The political economy of the new gilded age*. Princeton University Press.
- Beck, N., & Katz, J. N. (1995). What to do (and not to do) with time-series cross-section data. *American Political Science Review*, *89*(3), 634–647.
- Benabou, R. (2000). Unequal societies: Income distribution and the social contract. *American Economic Review*, *90*(1), 96–129.
- Beramendi, P. (2007). Inequality and the territorial fragmentation of solidarity.

- International Organization*, 61(4), 783-820.
- Beramendi, P. (2012). *The political geography of inequality: Regions and redistribution*. Cambridge: Cambridge University Press.
- Beramendi, P., & Diaz-Cayeros, A. (2006, August). Distributive tensions in developing federations. In *102nd Meeting of the American Political Science Association, Philadelphia*.
- Besley, T., & Coate, S. (2003). Centralized versus decentralized provision of local public goods: A political economy approach. *Journal of Public Economics*, 87(12), 2611-37.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115-143.
- Bobbio, N. (1996). *Left and right: The significance of a political distinction*. Chicago: University of Chicago Press.
- Bolton, P., & Roland, G. (1997). The breakup of nations: a political economy analysis. *The Quarterly Journal of Economics*, 112(4), 1057-1090.
- Borge, L. E., & Rattsø, J. (2004). Income distribution and tax structure: Empirical test of the Meltzer–Richard hypothesis. *European Economic Review*, 48(4), 805-826.
- Bradley, D., Huber, E., Moller, S., Nielsen, F., & Stephens, J. D. (2003). Distribution and redistribution in postindustrial democracies. *World Politics*, 55 (02), 193–228.
- Brancati, D. (2008). The origins and strengths of regional parties. *British Journal of Political Science*, 38(01), 135-159.
- Budge, I., & Hofferbert, R. I. (1990). Mandates and policy outputs: Us party platforms and federal expenditures. *American Political Science Review*, 84(1), 111–131.
- Cameron, D. R. (1978). The expansion of the public economy: A comparative analysis.

- American Political Science Review*, 72 (04), 1243–1261.
- Charron, N., Dijkstra, L., & Lapuente, V. (2013). Regional governance matters: quality of government within European Union member states. *Regional Studies*, 48(1), 68-90.
- Chhibber, P., & Kollman, K. (1998). Party aggregation and the number of parties in India and the United States. *American Political Science Review*, 92(2), 329-342.
- Cusack, T. R. (1997). Partisan politics and public finance: Changes in public spending in the industrialized democracies, 1955–1989. *Public Choice*, 91 (3-4), 375–395.
- Deininger, K., & Squire, L. (1996). A new data set measuring income inequality. *The World Bank Economic Review*, 10(3), 565-591.
- De Freitas, Jenny. (2012). Inequality, the politics of redistribution and the tax mix. *Public Choice* 151 (3-4): 611-630
- Easterly, W., & Rebelo, S. (1993). Fiscal policy and economic growth. *Journal of Monetary Economics*, 32 (3), 417–458.
- Ferris, J. S. (2003). Do alternative measures of government result in alternative explanations for government size? *Economics Bulletin*, 8 (4), 1–11.
- Franzese, R. J., & Nooruddin, I. (2004). The Effective Constituency in (Re) Distributive Politics: Alternative Bases of Democratic Representation, Geographic versus Partisan. *Unpublished manuscript, University of Michigan*.
- Garand, J. C. (1985). Partisan change and shifting expenditure priorities in the American states, 1945-1978. *American Politics Research*, 13 (4), 355–391.
- Giuranno, M. (2009). Regional income disparity and the size of the public sector. *Journal of Public Economic Theory*, 11 (5), 697–719.
- Gouveia, M., & Masia, N. A. (1998). Does the median voter model explain the size of

- government?: Evidence from the states. *Public Choice*, 97(1-2), 159-177.
- Ha, E. (2012). Globalization, Government Ideology, and Income Inequality in Developing Countries. *The Journal of Politics*, 74(02), 541-557.
- Hacker, J. S., & Pierson, P. (2010). Winner-take-all politics: Public policy, political organization, and the precipitous rise of top incomes in the United States. *Politics & Society*, 38(2), 152-204.
- Hendrick, R. M., & Garand, J. C. (1991). Expenditure tradeoffs in the US states: A pooled analysis. *Journal of Public Administration Research and Theory*, 1 (3), 295–318.
- Hicks, A. M. (1999). *Social democracy & welfare capitalism: a century of income security politics*. Cornell: Cornell University Press.
- Huber, E., & Stephens, J. D. (2001). *Development and crisis of the welfare state: Parties and policies in global markets*. Chicago: University of Chicago Press.
- Iversen, T., & Soskice, D. (2006). Electoral institutions and the politics of coalitions: Why some democracies redistribute more than others. *American Political Science Review*, 100 (2), 165-181.
- Jacoby, W., & Schneider, S. (2001). Variability in state policy priorities: An empirical analysis. *Journal of Politics*, 63 (2), 544–568.
- Jacoby, W., & Schneider, S. (2009). A new measure of policy spending priorities in the American states. *Political Analysis*, 17 (1), 1–24.
- Kesenne, S. (2001). The different impact of different revenue sharing systems on the competitive balance in professional team sports. *European Sport Management Quarterly*, 1(3), 210-218.
- Kessler, A., & Lessmann, C. (2010). Interregional redistribution and regional disparities: How

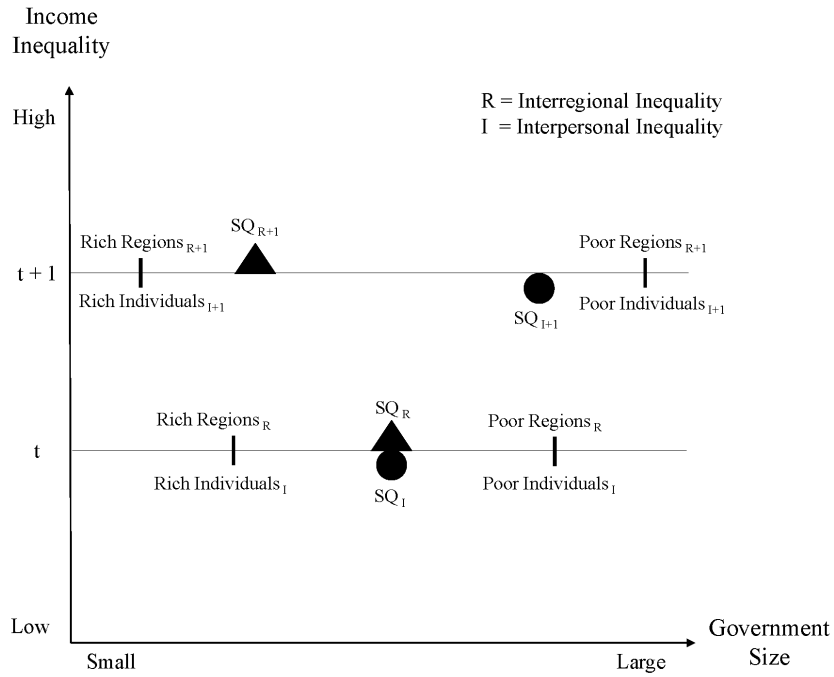
- equalization does (not) work. Centre for Economic Policy Research.
- Kwon, H. Y., & Pontusson, J. (2010). Globalization, labour power and partisan politics revisited. *Socio-Economic Review*, 8 (2), 251-81.
- Lessmann, C. (2009). Fiscal decentralization and regional disparity: Evidence from cross-section and panel data (Tech. Rep.). Dresden Discussion Paper in Economics No. 08.
- Lessmann, C. (2011). Regional inequality and decentralization: An empirical analysis (Tech. Rep.). CESifo working paper: Public Finance.
- Lewbel, A. (1997). Constructing instruments for regressions with measurement error when no additional data are available, with an application to patents and R&D. *Econometrica: Journal of the Econometric Society*, 65(5), 1201-1213.
- Lupu, N., & Pontusson, J. (2011). The structure of inequality and the politics of redistribution. *American Political Science Review*, 105 (02), 316–336.
- Mahler, V. A. (2002). Exploring the subnational dimension of income inequality: An analysis of the relationship between inequality and electoral turnout in the developed countries. *International Studies Quarterly*, 46(1), 117-142.
- Mainwaring, S. & Shugart, M. (1997) Juan Linz, Presidentialism, and Democracy: A Critical Appraisal. In Valenzuela (Ed.) *Politics, Society and Democracy: Latin America*, New York: Praeger.
- Meltzer, A., & Richard, S. (1981). A rational theory of the size of government. *The Journal of Political Economy*, 89(5): 914–927.
- Milesi-Ferretti, G. M., Perotti, R., & Rostagno, M. (2002). Electoral systems and public spending. *The Quarterly Journal of Economics*, 117(2), 609-657.
- Moene, K., & Wallerstein, M. (2001). Inequality, social insurance, and redistribution. *American Political Science Review*, 95 (04), 859–874.

- Morgenstern, Scott, Swindle, Stephen M., & Castagnola, Andrea. (2009). Party nationalization and institutions. *Journal of Politics*, 71, 1322-1341.
- Persson, T., Roland, G., & Tabellini, G. (2000). Comparative politics and public finance. *Journal of Political Economy*, 108(6), 1121-1161.
- Persson, T., & Tabellini, G. (1999). The size and scope of government: Comparative politics with rational politicians. *European Economic Review*, 43 (4), 699-735.
- Pigou, A. C. (1912). *Wealth and welfare*. London: Macmillan.
- Piketty, T., & Saez, E. (2006). The evolution of top incomes: a historical and international perspective (No. w11955). National Bureau of Economic Research.
- Rodden, J. (2002). The dilemma of fiscal federalism: grants and fiscal performance around the world. *American Journal of Political Science*, 46(3), 670-687.
- Rodríguez-Pose, A., & Ezcurra, R. (2010). Does decentralization matter for regional disparities? A cross-country analysis. *Journal of Economic Geography*, 10 (5), 619–644.
- Romer, T. (1975). Individual welfare, majority voting, and the properties of a linear income tax. *Journal of Public Economics*, 4 (2), 163–185.
- Ross, M. L. (2001). Does oil hinder democracy? *World politics*, 53(3), 325-361.
- Rudra, N. (2002). Globalization and the decline of the welfare state in less-developed countries. *International Organization*, 56(2), 411-445.
- Rudra, N., & Haggard, S. (2005). Globalization, democracy, and effective welfare spending in the developing world. *Comparative Political Studies*, 38(9), 1015-1049.
- Russell, Meg. (2001). The territorial role of second chambers. *Journal of Legislative Studies*, 7(1), 105-118.
- Shelton, C. A. (2007). The size and composition of government expenditure. *Journal of Public*

- Economics*, 91 (11), 2230–2260.
- Solt, F. (2009). Standardizing the world income inequality database. *Social Science Quarterly*, 90 (2), 231–242.
- Swank, D. (2002). *Global capital, political institutions, and policy change in developed welfare states*. Cambridge: Cambridge University Press.
- Treisman, D. (2006). Fiscal decentralization, governance, and economic performance: a reconsideration. *Economics & Politics*, 18(2), 219-235.
- Volden, C., & Wiseman, A. E. (2007). Bargaining in legislatures over particularistic and collective goods. *American Political Science Review*, 101 (1), 79-92.
- Vrooman, J. (1995). A general theory of professional sports leagues. *Southern Economic Journal*, 61(4), 971-990.
- Wagner, A. (1958). Three extracts on public finance. In R. A. Musgrave & A. T. Peacock, *Classics in the Theory of Public Finance*. London: Macmillan.
- Weingast, B. R., Shepsle, K. A., & Johnsen, C. (1994). The political economy of benefits and costs: a neoclassical approach to distributive politics. *Monetary and Fiscal Policy*, 2, 345–68.

Figure 1. Theoretical Models of Government Spending by Income Inequality

(a). Effects of Inequality on the Size of Government



(b). Effects of Inequality on Policy Priorities

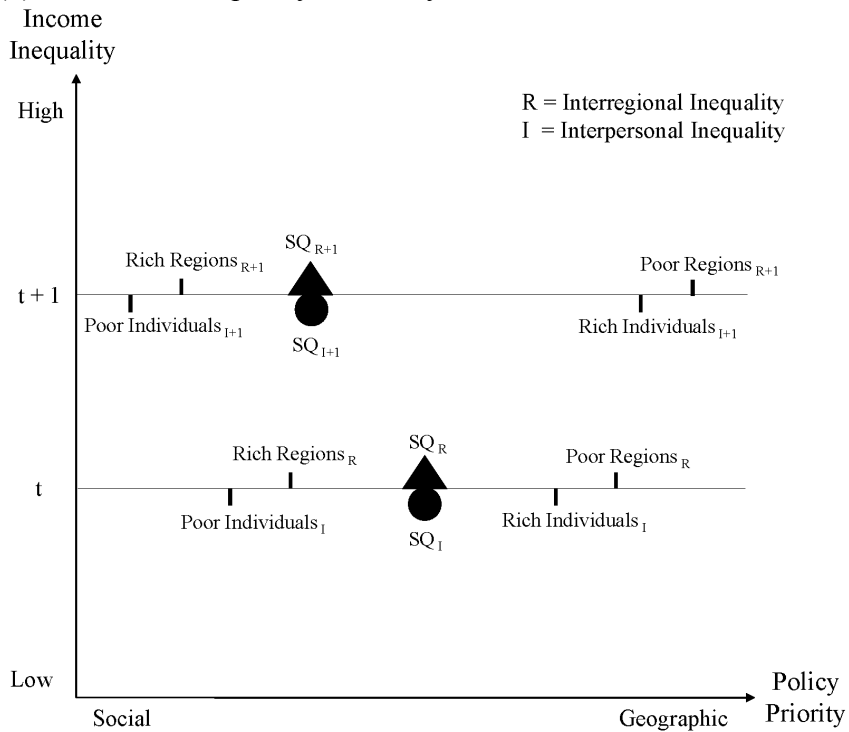
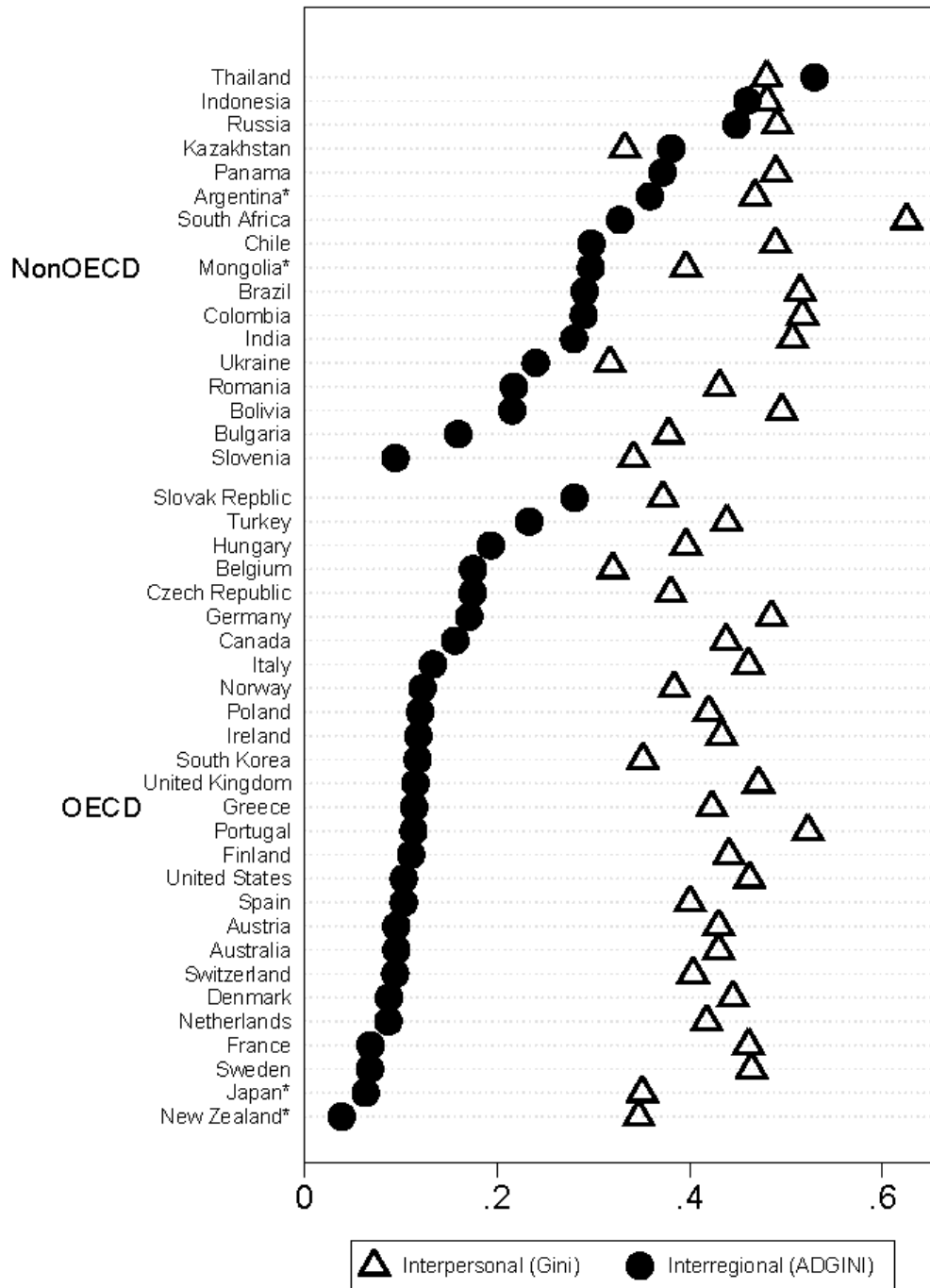
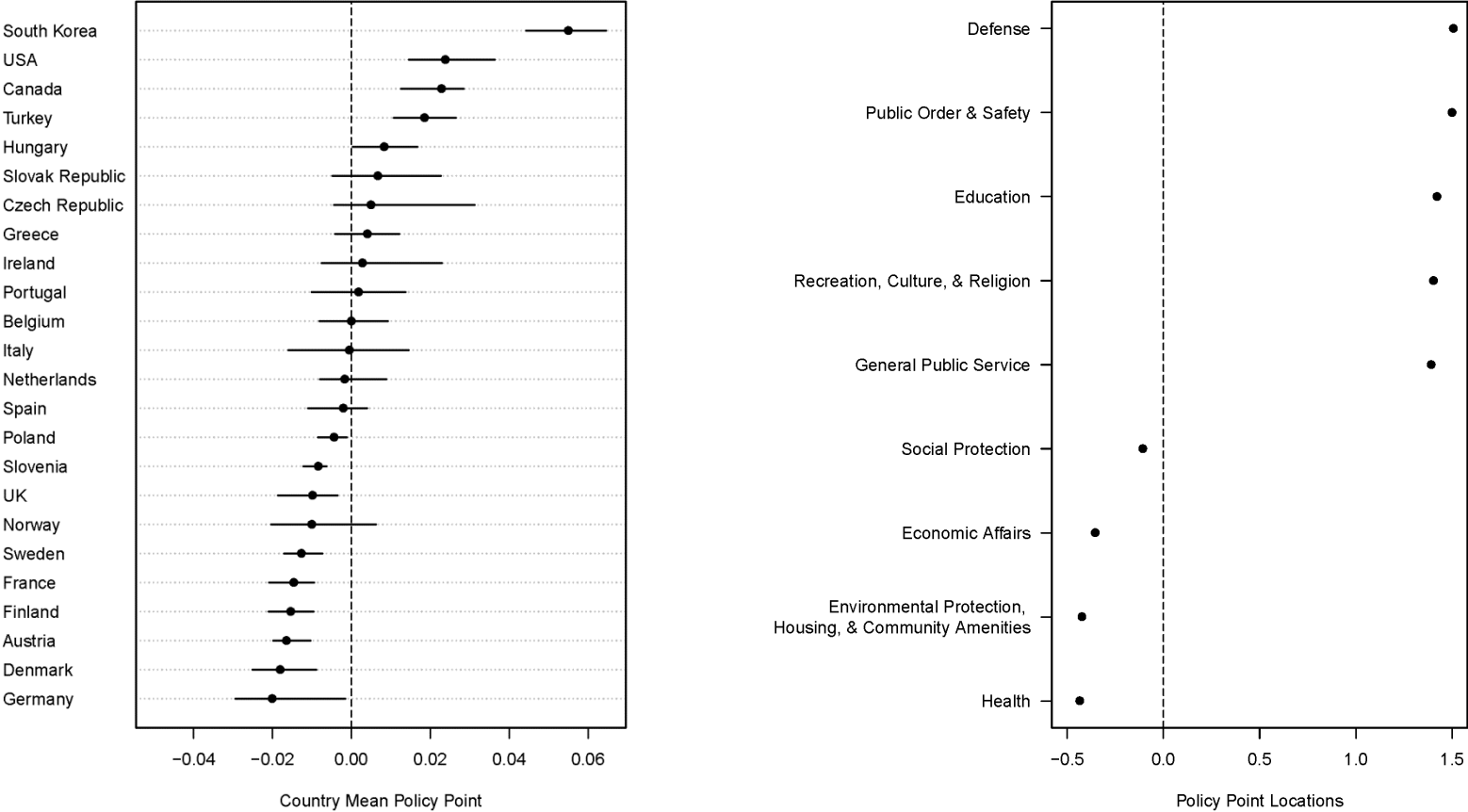


Figure 2. Income Inequality Compared



Notes: Gini and ADGINI are averaged over 2006-2010. ADGINI calculated by authors using national accounts, Gini from SWIID (Solt 2009) * denotes most recently available data.

Figure 3. OECD Policy Priorities



Notes: Dots on the right panel indicate point coordinates of policy priorities over different spending programs, obtained from unfolding analysis of 24 OECD countries 1990-2010. Dots on the left panel are the mean points of spending policy priorities for each country. Horizontal bars show the minimum-maximum range of point coordinates of policy priorities for each country during the time period.

Table 1. Determinants of Central Government Spending

	Baseline Models			Full Models		Robustness Models	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
COVW	-0.030*** (0.008)			-0.032*** (0.007)		-0.030*** (0.008)	
ADGINI		-0.071*** (0.017)			-0.091*** (0.013)		-0.089*** (0.012)
Gini Coefficient			0.008 (0.029)	0.066*** (0.023)	0.070*** (0.021)	0.065*** (0.024)	0.070*** (0.020)
Parliamentary System	1.444*** (0.325)	1.165*** (0.403)	1.293*** (0.454)	1.631*** (0.376)	1.356*** (0.348)	1.679*** (0.398)	1.502*** (0.401)
Federal System	-2.771*** (0.443)	-2.335*** (0.453)	-2.677*** (0.406)	-2.551*** (0.389)	-2.855*** (0.355)	-2.620*** (0.416)	-3.053*** (0.426)
Territorial Bicameralism						0.284 (0.400)	0.414 (0.488)
Intergovernmental Transfers	-0.488*** (0.093)	-0.429*** (0.084)	-0.442*** (0.119)	-0.524*** (0.083)	-0.432*** (0.063)	-0.539*** (0.094)	-0.453*** (0.054)
Population (Logged)	0.082 (0.107)	0.025 (0.148)	-0.125 (0.188)	0.113 (0.136)	0.068 (0.117)	0.044 (0.172)	0.078 (0.103)
GDP per capita (Logged)	0.048 (0.133)	0.035 (0.135)	0.377*** (0.134)	-0.009 (0.132)	0.020 (0.100)	0.012 (0.138)	0.038 (0.098)
Trade (% of GDP)	0.002 (0.003)	0.002 (0.003)	-0.006** (0.004)	0.004 (0.003)	0.005*** (0.002)	0.003 (0.003)	0.006** (0.002)
% Population > 65	0.008 (0.038)	-0.014 (0.033)	0.043 (0.057)	0.109** (0.049)	0.055 (0.034)	0.103** (0.049)	0.052 (0.034)
Lagged Dependent Variable	0.817*** (0.015)	0.819*** (0.013)	0.826*** (0.016)	0.811*** (0.015)	0.798*** (0.012)	0.813*** (0.015)	0.803*** (0.010)
Constant	6.291*** (1.096)	7.144*** (1.402)	2.489 (1.856)	2.749** (1.085)	4.062*** (1.039)	2.577** (1.260)	3.340*** (1.076)
Number of Observations	128	128	132	128	128	128	128
Countries	39	39	39	39	39	39	39
χ^2	12,790***	11,584***	17,248***	10,486***	32,412***	9,678***	53,631***

Notes: Significant at ***p<0.01, **p<0.05, *p<0.1. All independent variables are calculated as 5 year average values. All models are Feasible Generalized Least Squares regressions, corrected for heteroskedastic and first-order panel-specific error structures.

Table 2. Determinants of Government Policy Priorities

	Baseline Models			Full Models		Robustness Models	
	[8]	[9]	[10]	[11]	[12]	[13]	[14]
COVW	-0.025*** (0.003)			-0.025*** (0.002)		-0.024*** (0.002)	
ADGINI		-0.043*** (0.006)			-0.048*** (0.005)		-0.051*** (0.004)
Gini Coefficient			-0.027*** (0.004)	-0.037*** (0.004)	-0.024*** (0.002)	-0.042*** (0.005)	-0.023*** (0.002)
Parliamentary System	-0.705*** (0.078)	-0.481*** (0.066)	-0.488*** (0.066)	-0.652*** (0.062)	-0.449*** (0.068)	-0.598*** (0.075)	-0.519*** (0.075)
Federal System	0.231*** (0.059)	0.202*** (0.045)	0.062 (0.055)	0.043 (0.050)	0.105*** (0.050)	0.002 (0.061)	0.089* (0.048)
Territorial Bicameralism						-0.030 (0.025)	0.066*** (0.025)
Intergovernmental Transfers	0.105*** (0.024)	0.065** (0.025)	0.023 (0.028)	0.035** (0.018)	0.032 (0.026)	0.032 (0.020)	0.032 (0.026)
Population (Logged)	-0.022 (0.028)	0.044* (0.024)	-0.007 (0.030)	-0.016 (0.021)	0.075*** (0.025)	0.005 (0.030)	0.040 (0.030)
GDP per capita (Logged)	-0.446*** (0.051)	-0.375*** (0.061)	-0.385*** (0.093)	-0.624*** (0.031)	-0.477*** (0.064)	-0.654*** (0.043)	-0.502*** (0.062)
Trade (% of GDP)	0.004*** (0.001)	0.004*** (0.001)	-0.001* (0.001)	0.001** (0.000)	0.003*** (0.001)	0.001** (0.001)	0.003*** (0.001)
% Population > 65	0.025* (0.013)	-0.014 (0.013)	-0.050*** (0.014)	0.003 (0.013)	-0.022 (0.016)	0.001 (0.014)	-0.017 (0.014)
Lagged Dependent Variable	0.873*** (0.019)	0.874*** (0.021)	0.844*** (0.021)	0.857*** (0.009)	0.859*** (0.020)	0.856*** (0.009)	0.856*** (0.019)
Constant	4.525*** (0.615)	4.007*** (0.706)	6.001*** (1.278)	8.671*** (0.494)	6.347*** (0.773)	9.087*** (0.609)	6.669*** (0.741)
Number of Observations	47	47	47	47	47	47	47
Countries	19	19	19	19	19	19	19
χ^2	9,959,923***	74,664***	50,515***	549,000***	158,264***	20,604,795***	135,599***

Notes: Significant at ***p<0.01, **p<0.05, *p<0.1. All independent variables are calculated as 5 year average values. All models are Feasible Generalized Least Squares regressions, corrected for heteroskedastic and first-order panel-specific error structures.

Table 3. Instrumental Variable Analysis of Central Government Spending

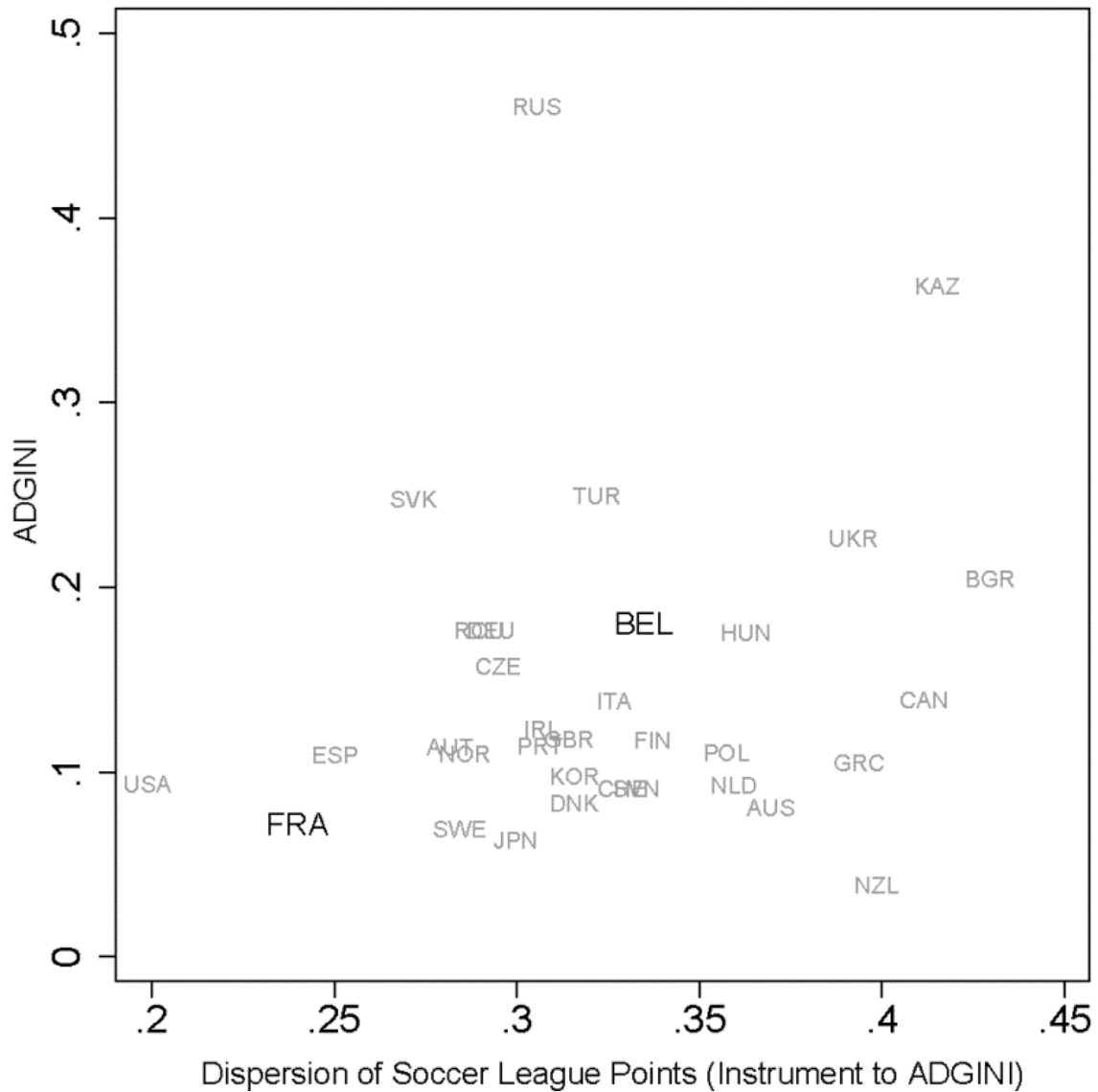
	Baseline Models		Full Models		Robustness Models	
	[15]	[16]	[17]	[18]	[19]	[20]
COVW	-0.307** (0.122)		-0.315*** (0.100)		-0.286*** (0.088)	
ADGINI		-0.547** (0.233)		-0.567*** (0.205)		-0.516*** (0.194)
Gini Coefficient			0.440* (0.240)	0.406* (0.221)	0.404* (0.228)	0.375* (0.213)
Parliamentary System	-2.072 (3.524)	-1.510 (3.172)	-1.551 (3.251)	-1.106 (2.947)	-0.712 (3.013)	-0.400 (2.871)
Federalism	-3.310 (4.359)	-3.203 (3.994)	-1.745 (4.393)	-1.757 (3.981)	-0.923 (4.387)	-1.105 (4.011)
Territorial Bicameralism					-2.292 (1.901)	-1.909 (1.953)
Intergovernmental Transfers	1.069*** (0.336)	1.137*** (0.362)	1.436*** (0.389)	1.475*** (0.419)	1.406*** (0.397)	1.451*** (0.423)
Population (Logged)	0.465 (1.606)	0.603 (1.569)	-0.067 (1.487)	0.102 (1.494)	0.418 (1.556)	0.493 (1.548)
GDP per capita (Logged)	-2.417 (1.797)	-1.572 (1.399)	-3.404*** (1.726)	-2.511* (1.435)	-3.117** (1.550)	-2.294* (1.333)
Trade (% of GDP)	0.077** (0.038)	0.073** (0.037)	0.094*** (0.038)	0.089* (0.038)	0.090** (0.036)	0.086** (0.037)
% Population > 65	1.454*** (0.475)	1.208*** (0.436)	1.275*** (0.460)	1.045** (0.427)	1.213*** (0.440)	1.013** (0.410)
Constant	39.457** (19.409)	33.221** (16.920)	32.911*** (15.430)	27.503* (14.187)	30.920** (14.310)	25.828* (13.561)
Number of Observations	122	122	122	122	122	122
Countries	33	33	33	33	33	33
R-squared	0.960	0.966	0.962	0.967	0.964	0.969
† Hansen J-statistics, χ^2 [p-value]	1.107[0.293]	0.943[0.332]	0.794 [0.373]	0.621 [0.431]	0.787[0.3749]	0.636[0.425]

Notes Second-stage regressions. Significant at ***p<0.01, **p<0.05, *p<0.1. All independent variables are calculated as 5-year average values. Instrument variables regressions run for all models; adjusted for two-step efficient GMM estimator, arbitrary heteroskedasticity, and within-group correlation.

√ Instrumented with the country's dispersion in soccer league points and an indicator of the 2nd and 3rd method of moment of regional inequality.

† The over-identification test statistics fail to reject the null that instruments are valid.

Figure 3. Scatter Plot of the Endogenous Variable and the Instrument Variable.



Notes: County points, shaded in black or gray, present most recent 5 year averages (2006-2010). European national soccer league database, edited by Claudio Nicoletti, accessible at http://www.webalice.it/claudio_nicoletti1. For non-European teams, we use a national soccer league portal (accessible at <http://us.soccerway.com>). We obtained team-based competitiveness scores (called "points") for 33 countries from 1980 to 2010. Sample coverage: Australia (2005-2010), Austria (AUT: 1980-2010), Belgium (BEL: 1980-2010), Bulgaria (BGR: 1980-2010), Canada (CAN: 1998-2010), Czech Republic (CZE: 1993-2010), Denmark (DNK: 1980-2010), Finland (FIN: 1980-2010), France (FRA: 1980-2010), Germany (DEU: 1990-2010), Greece (GRC: 1980-2010), Hungary (HUN: 1980-2010), Ireland (IRL: 1980-2010), Italy (ITA: 1980-2010), Japan (JPN: 2003-2010), Kazakhstan (KAZ: 1994-2010), Korea (KOR: 2003-2010), Netherlands (NLD: 1980-2010), New Zealand (NZL: 2001-2010), Norway (NOR: 1980-2010), Poland (POL: 1980-2010), Portugal (PRT: 1980-2010), Romania (ROU: 1980-2010), Russian Federation (RUS: 1993-2010), Slovak Republic (SVK: 1993-2010), Slovenia (SVN: 1991-2010), Spain (ESP: 1980-2010), Sweden (SWE: 1980-2010), Switzerland (CHE: 1980-2010), Turkey (TUR: 1980-2010), Ukraine (UKR: 1992-2010), United Kingdom (GBR: 1980-2010), United States (USA: 2002-2010). Both USA and Canadian leagues have two divisions, e.g., Eastern and Western. For these leagues, we took the average standard deviation for each league.

Figure 3 is a snapshot of positive correlations between the size of coefficient of variation in points earned and regional inequality (ADGINI) for the most recent 5-year average from 2006 to 2010. As an example, France (low) and Belgium (high) are highlighted for their relative values of soccer competitiveness and regional inequality. In the French soccer league in 2010, the top ranked team, “Lille OSC,” outperformed the bottom ranked team, “AC Aries-Avignon,” by 5.54 percent of their point earnings ratio to the total available (respectively, 76/1010 and 20/1010). Belgium was much more dispersed. The best performing team of the year, “RSC Anderlecht,” outpaced the bottom ranked team “Royal Charleroi SC” with an almost 10 percent difference in the point ratio to the total available (respectively, 98/832 and 19/832). This soccer spread is consistent with our regional inequality measure, represented graphically in Figure 2, showing Belgium to have much higher regional inequality than France.

Table 4. Robust to Central Government Spending by Economic Types

	[21]	[22]
COVW	-0.018*** (0.006)	
ADGINI		-0.059*** (0.012)
Gini Coefficient	0.066*** (0.018)	0.074*** (0.006)
Intergovernmental Transfers	-0.054 (0.072)	-0.049 (0.035)
Population (Logged)	0.080 (0.102)	0.090 (0.074)
GDP per capita (Logged)	0.093 (0.096)	0.001 (0.051)
Trade (% of GDP)	0.003 (0.003)	0.006*** (0.001)
% Population > 65	0.150*** (0.035)	0.112*** (0.015)
Parliamentary System	0.480* (0.277)	0.555*** (0.228)
Federal System	-1.843*** (0.293)	-1.981*** (0.261)
Lagged Dependent Variable	0.805*** (0.017)	0.800*** (0.009)
Constant	1.080 (1.062)	2.383** (1.004)
Number of Observations	144	144
Countries	39	39
χ^2	16,769***	287,524***

Notes: Significant at ***p<0.01, **p<0.05, *p<0.1. All independent variables are calculated as 5 year average values. All models are Feasible Generalized Least Squares regressions, corrected for heteroskedastic and first-order panel-specific error structures.

Table 5. Instrumental Variable Analysis of Central Government Spending: First-stage Regressions, Findings Robust to Weak Instruments

	[23] Dependent Variable: COVW	[24] Dependent Variable: ADGINI
Gini Coefficient	0.587*** (0.223)	0.237* (0.117)
Intergovernmental Transfers	-0.348 (0.484)	-0.100 (0.260)
Population (Logged)	0.955 (2.286)	1.282 (1.113)
GDP per capita (Logged)	-9.465*** (2.320)	-3.657*** (0.995)
Trade (% of GDP)	0.169*** (0.058)	0.091*** (0.026)
% Population > 65	0.876 (0.638)	-0.033 (0.273)
Parliamentary System	-3.967 (4.635)	-1.445 (2.225)
Federal System	4.028 (4.436)	2.466 (2.090)
√ Modification of Regional Inequality	0.015*** (0.002)	0.030*** (0.006)
√ Dispersion in Soccer League Points	-1.952 (21.891)	19.165* (10.080)
Constant	66.823*** (28.432)	21.987* (12.694)
Number of Observations	122	122
Countries	33	33
R-squared	0.928	0.925
† Partial F-statistic on Instruments	23.51***	13.29***

Notes: Significant at ***p<0.01, **p<0.05, *p<0.1 (two-tailed tests). Standard errors are in the parentheses.

√ Instrumental variables for regional inequality.

† The instrument is weak if the particular F-statistic, which tests the joint significance of the coefficient of the instrument, is less than 10.

Table 6. Robust to Short Panel Bias (Arellano-Bond System GMM Estimators)

	The Size of Government (% of GDP)		Policy Priority	
	[25]	[26]	[27]	[28]
COVW	-0.112 (0.089)		-0.075** (0.037)	
ADGINI		-0.420** (0.168)		-0.205*** (0.072)
Gini Coefficient	0.322*** (0.122)	0.405*** (0.132)	-0.090 (0.062)	-0.015* (0.063)
Intergovernmental Transfers	1.655*** (0.401)	1.615*** (0.390)	-0.095 (0.197)	-0.201 (0.220)
Population (Logged)	-0.763 (1.109)	-0.351 (1.141)	0.441 (0.486)	0.662 (0.543)
GDP per capita (Logged)	-1.255 (1.163)	-1.783 (1.111)	-1.721*** (0.605)	-1.762*** (0.503)
Trade (% of GDP)	0.059* (0.036)	0.081*** (0.031)	-0.000 (0.008)	0.002 (0.008)
% Population > 65	1.374*** (0.241)	1.200*** (0.248)	-0.265*** (0.096)	-0.376*** (0.091)
Parliamentary System	-0.374 (2.040)	-0.911 (2.073)	-0.046 (1.092)	0.704 (1.287)
Federal System	-1.024 (3.390)	-0.686 (3.311)	0.013 (0.876)	0.009 (1.014)
Constant	12.384 (10.384)	16.943 (11.100)	26.165*** (6.757)	28.346*** (5.732)
Number of Observations	163	163	73	73
Countries	44	44	24	24
χ^2 F [Prob > Chi2]	15.11[0.00]	13.42[0.00]	11.92[0.00]	12.59[0.00]
† Sargan Statistics, χ^2 [Prob > Chi2]	14.34[0.35]	14.37[0.35]	4.60[0.92]	3.97[0.95]
† Hansen Statistics, χ^2 [Prob > Chi2]	16.38[0.23]	16.22[0.24]	13.86[0.18]	13.21[0.21]
Arellano-Bond Test for AR(1), Z [Prob > Z]	-1.13[0.26]	-1.20[0.26]	0.72[0.47]	0.45[0.66]
Arellano-Bond Test for AR(2), Z [Prob > Z]	0.90[0.37]	0.90[0.37]	-1.32[0.19]	-0.96[0.34]

Notes: Significant at ***p<0.01, **p<0.05, *p<0.1 (two-tailed tests). All independent variables are calculated as 5 year average values.

† H₀: The instruments as a group are exogenous. One-step estimation is used with robust standard errors to account for panel-specific autocorrelation and heteroskedasticity. The minimum use of instruments are based on level equation only.

Table 7. Robust to 5 Year Moving Average.

	The Size of Government (% of GDP)		Policy Priority	
	[29]	[30]	[31]	[32]
COVW	-0.111*** (0.013)		-0.024*** (0.006)	
ADGINI		-0.298*** (0.023)		-0.071*** (0.016)
Gini Coefficient	0.064* (0.037)	0.129*** (0.040)	-0.001 (0.009)	-0.003 (0.009)
Intergovernmental Transfers	1.518*** (0.154)	1.533*** (0.161)	0.146*** (0.032)	0.113*** (0.030)
Population (Logged)	-0.792*** (0.274)	-0.817*** (0.299)	0.457*** (0.061)	0.485*** (0.065)
GDP per capita (Logged)	-2.279*** (0.405)	-2.781*** (0.450)	-0.781*** (0.124)	-0.813*** (0.119)
Trade (% of GDP)	0.051*** (0.009)	0.068*** (0.009)	0.001 (0.002)	0.003** (0.002)
% Population > 65	1.861*** (0.087)	1.675*** (0.085)	-0.229*** (0.024)	-0.252*** (0.024)
Parliamentary System	1.085* (0.637)	0.918 (0.592)	0.217 (0.211)	0.244 (0.211)
Federal System	-2.257*** (0.696)	-1.419* (0.739)	0.688*** (0.166)	0.834*** (0.173)
Constant	26.203*** (4.724)	31.226*** (5.058)	9.840*** (1.170)	10.568*** (1.156)
Number of Observations	490	490	269	269
Countries	37	37	23	23
χ^2	2,834***	2,061***	444***	471***

Notes: Significant at ***p<0.01, **p<0.05, *p<0.1 (two-tailed tests). All variables calculated as a 5 year-moving arithmetic average (of t, t-1, t-2, t-3, t-4). Feasible Generalized Least Squares regressions run for all models, corrected for heteroskedastic and first-order panel-specific error structure.

Table 8. Robust to Panel Corrected Standard Adjusted Errors (Beck and Katz, 1995).

	The Size of Government (% of GDP)		Policy Priority	
	[33]	[34]	[35]	[36]
COVW	-0.122*** (0.027)		-0.026*** (0.006)	
ADGINI		-0.346*** (0.038)		-0.085*** (0.013)
Gini Coefficient	0.035 (0.077)	0.040 (0.081)	-0.007 (0.013)	-0.008 (0.013)
Intergovernmental Transfers	1.529*** (0.232)	1.496*** (0.234)	0.200*** (0.040)	0.176*** (0.040)
Population (Logged)	-0.591 (0.849)	-0.165 (0.716)	0.412*** (0.078)	0.472*** (0.082)
GDP per capita (Logged)	-2.843*** (0.904)	-3.035*** (0.933)	-0.559*** (0.144)	-0.541*** (0.141)
Trade (% of GDP)	0.052*** (0.011)	0.067*** (0.009)	0.001 (0.002)	0.003 (0.002)
% Population > 65	1.730*** (0.284)	1.519*** (0.284)	-0.258*** (0.028)	-0.275*** (0.029)
Parliamentary System	2.559*** (0.833)	1.910** (0.759)	0.046 (0.269)	0.195 (0.276)
Federal System	-3.395 (2.106)	-3.446* (1.995)	0.365 (0.343)	0.550* (0.324)
Constant	34.455*** (7.649)	39.171*** (7.740)	8.482*** (1.462)	8.524*** (1.405)
Number of Observations	490	490	269	269
Countries	37	37	23	23
R-squared	0.932	0.949	0.408	0.436
χ^2	1573***	2011***	412***	449***

Notes Significant at ***p<0.01, **p<0.05, *p<0.1 (two-tailed tests). All variables calculated as a 5 year-moving average. Prais-winsten regressions run for all models, adjusted with a panel-specific AR(1) process.

Table 9. Robust to General Government Spending.

	Feasible General Linear Regression		Prais-winsten Regression with PCSEs	
	[37]	[38]	[39]	[40]
COVW	-0.052*** (0.007)		-0.071*** (0.017)	
ADGINI		-0.099*** (0.018)		-0.164*** (0.036)
Gini Coefficient	-0.006 (0.014)	-0.008 (0.016)	0.000 (0.029)	-0.000 (0.029)
Intergovernmental Transfers	0.364*** (0.069)	0.377*** (0.072)	0.288*** (0.123)	0.255* (0.131)
Population (Logged)	-0.043 (0.175)	-0.185 (0.170)	0.500 (0.358)	0.390 (0.335)
GDP per capita (Logged)	-0.056 (0.258)	-0.155 (0.257)	0.735* (0.405)	0.412 (0.417)
Trade (% of GDP)	0.011*** (0.004)	0.011*** (0.004)	0.022*** (0.008)	0.023*** (0.007)
% Population > 65	0.630*** (0.062)	0.587*** (0.067)	0.338*** (0.114)	0.277*** (0.118)
Parliamentary System	0.718*** (0.344)	0.185 (0.336)	1.779** (0.708)	1.563** (0.694)
Federal System	0.609 (0.452)	1.298*** (0.422)	-0.383 (0.642)	0.063 (0.584)
Constant	11.019*** (2.358)	13.077*** (2.393)	4.867 (4.429)	9.570** (4.753)
Number of Observations	557	557	557	557
Countries	38	38	38	38
R-squared	--	--	0.932	0.928
χ^2	990***	643***	216***	211***

Notes Significant at ***p<0.01, **p<0.05, *p<0.1 (two-tailed tests). All independent variables are calculations of 5 year moving average. Errors are adjusted for panel-heteroskedasticity and a panel-specific AR(1) process.

Table 10. Countries in the Sample (Indicated in Gray), by Model Numbers

Countries	M[1]-[7]	M[8]-[14]	M[15]-[22]	M[23]-[24]	M[25]-[26]	M[27]-[28]	M[29]-[30]	M[31]-[32]	M[33]-[34]	M[35]-[36]	M[37]-[40]
Argentina											
Australia											
Austria											
Belgium											
Bolivia											
Brazil											
Bulgaria											
Canada											
Chile											
Colombia											
Czech Republic											
Denmark											
Finland											
France											
Germany											
Greece											
Hungary											
India											
Indonesia											
Ireland											
Italy											
Japan											
Kazakhstan											
Korea, Republic of											
Mongolia											
Netherlands											
New Zealand											
Norway											
Panama											
Poland											
Portugal											
Romania											
Russian Federation											
Slovak Republic											
Slovenia											
South Africa											
Spain											
Sweden											
Switzerland											
Thailand											
Turkey											
Ukraine											
United Kingdom											
United States											
No. of Countries	39	19	39	33	44	24	37	23	37	23	38

Table 10. Variable Descriptions and Summary Statistics of Estimation Samples.†

Variables	Descriptions	Mean	SD	Sources
<i>Dependent Variables</i>				
Central Government Spending:	Sum of non-repayable payments by the central government for either cash or non-cash values.			IMF Government Finance Statistics (GFS).
Government Functions	Expenditure by ten functional categories – General public services, national defense, public order & safety, economic affairs, environmental protection, housing & community amenities, health, recreation & culture & religion, education, and social protection. Measured as share of GDP.	30.93	10.15	
Economic Characteristics	Expenditure by transaction types – Compensation of employees, interest, subsidies & transfer, grants, social benefits, and other expenses. Measured as share of GDP.	30.71	9.91	
General Government Spending:	General government final consumption expenditures including all government current expenditures for purchases of goods and services, compensation of employees, as well as national defense & security. Measured as share of GDP.	17.40	4.74	World Bank, World Development Indicators.
Policy Priorities	Sources of relative spending priority over the functional categories of central government expenditures. Sources are set to a mean of zero. Units are proportions (rescaled to percentage points). Positive scores indicate the degree in which country's policy spending is devoted to collective (geographically targeted) good policies, rather than particularized (individually/socially-targeted) good policies (Jacoby and Schneider 2009).	0.08	1.68	Calculated by Authors using OECD Statistics.
<i>Independent Variables</i>				
Regional Income Inequality	Measure of regional income inequality, using the country's average GDP per capita, the GDP per capita of subnational regions. Regional levels specified with the geocode standard for referencing the subdivisions of countries (i.e., the NUT2 level equivalent to state or province). Formulae from Lessmann (2009).			Calculated by Authors using: Cambridge Econometrics, National Accounts, EUROSTAT.
COVW	The population-weighted coefficient of variation of regional GDP per capita. Units are proportions (rescaled to percentage points)/	30.27	20.70	
ADGINI	The adjusted-weighted coefficient of regional GDP per capita. Units are proportions (rescaled to percentage points).	16.30	10.37	
Gini Coefficient	Estimates of the Gini index of household market (pre-tax, pre-transfer) income inequality, using Luxembourg Income Study data. Units are scales of 0 to 100 (the most unequal).	42.09	8.44	Standardized World Income Inequality Database (SWIID), Solt (2009).

† 5 year averages, non-overlapping periods from 1980-2010, 44 countries.

Continued

Variables	Descriptions	Max	SD	Sources
<i>Instrumental Variables</i>				
Dispersion of Soccer League Points	Points are calculated yearly for a soccer club's competitiveness in national leagues. The standardized rule for calculating points: 3 points for games won; 1 points for draw; and 0 points for loss. The dispersion (coefficient of variation) is measured as the standard deviation of points divided by average points (Goossens 2006). In the case there are two divisions in the national soccer league (United States and Canada), we take the average standard deviation for both leagues.	0.31	0.06	Calculated by authors. European teams: European club competitions and domestic leagues (www.webalice.it/claudioleone1) Non-European teams: Canada and United States (us.soccerway.com)
Instruments Directly Derived from Regional Inequality Indicators	Following Lewbel's (1997) procedure of using higher moments of endogenous variables to create:			Calculated by authors. See also Rudra (2002), Rudra and Haggard (2005).
COVW_IV	$(COVW - \text{mean}(COVW))^2$ as instrument to COVW	431.17	1090.50	
ADGINI_IV	$(ADGINI - \text{mean}(ADGINI))^2$ as instrument to ADGINI	108.27	188.47	
<i>Control Variables</i>				
Intergovernmental Transfers	Transfers from other levels of government as percent of total subnational revenue and grants. [Transfers from local + provincial governments] / [Total revenues and grants (local + provincial governments)]*100	1.63	2.18	World Bank – Fiscal Decentralization Indicators, IMF Government Financial Statistics.
Population (Logged)	Log of Population (in millions).	3.05	1.39	Penn World Table 8.0.
GDP per capita (Logged)	Log of GDP per capita (Constant 2005 \$US).	9.19	1.27	
Trade (% GDP)	Sum of imports and exports divided by nominal GDP.	69.21	36.24	
% Population > 65	Population age 65 and above (% of total population).	11.27	4.59	
√ Parliamentary System	Parliamentary = 1, Presidential = 0.	0.62	0.49	Database of Political Institutions
√ Federal System	Independent sub-federal units (states, provinces, or regions) that impose fiscal policy constraints substantively = 1, otherwise = 0.	0.21	0.41	Political Constraint Index, Heniz (2000).
√ Territorial Bicameralism	Coded 1 if the senate is elected through the state or province based constituencies. 0 for the senate appointed on a national basis.	0.48	0.50	Adapted from Database of Political Institutions

√ Dummy Variables.