Give and Take: Political Competition, Participation and Public Finance in 20th Century Latin America*

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Abstract

Rational choice models predict that political competition and political participation have opposite effects on the size of government. We investigate these theories using data from a panel of 18 Latin American countries during the 20th century. Our research builds evidence for the prediction that reforms enhancing political competition tend to limit the size of government, while reforms increasing political participation tend to increase the size of government. Furthermore, we find that reforms which remove literacy requirements from franchise laws are associated with governmental expansion, while changes in women's suffrage laws have no impact on the size of government. Our findings demonstrate the empirical relevance of the distinction between political competition and participation.

Key words: Political competition, political participation, the extension of the franchise, women's suffrage, literacy requirements; size of government; school enrollment.

JEL Codes: D7; H11.

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1 Introduction

The role of political institutions as the drivers of specific policy choices and more profoundly, as determinants of economic development, has been the subject of intense theoretical and empirical investigation in recent years (e.g., Acemoglu and Robinson, 2006; Boix, 2003; Persson and Tabellini, 2003). At least since Dahl (1971), the idea that political institutions are pivotal players in ensuring economic and social outcomes has enjoyed widespread support. Yet, explaining how political institutions wield their influence has remained a nebulous endeavor. We know that institutions regulate the exact parameters of citizenship rights, determining who votes and how. We know that institutions regulate the degree of competition among factions for political power. And we know that institutions determine the autonomy of the legislature and court system. What we don't understand fully is how the different design of these political institutions impact economic and social outcomes.

Crucial to building more clarity in our understanding of these fundamental issues is the distinction between political participation and political competition. This distinction is implicitly or explicitly embodied in many definitions of democracy (e.g., Powell, 1982; Przeworsky, Alvarez, Cheibub and Limongi, 2000) but is also employed in analysis of broader regime types, as demonstrated, for example, by Wintrobe's work on dictatorships (Wintrobe, 1998). Political participation and competition also figure prominently in theoretical research. In Meltzer and Richard (1981) and Hettich and Winer (1999), the political inclusion of hitherto disadvantaged or disenfranchised groups is shown to increase the demand for distributive public spending and to *expand* the size of government. A contrasting view is provided by Becker (1983) and Wittman (1989) who stress the efficiency enhancing effects of political competition and the role that competition plays in *limiting* the size of government.

This paper builds empirical evidence on these theoretical propositions. We show that political participation and political competition have very different implications for the size of government and other policy outcomes. We contribute to the existing empirical literature, which isolates the effects of either political competition or participation (e.g.,

Husted and Kenny, 1997; Boix, 2001; Aidt, Dutta and Loukoianova, 2006; Roger and Roger, 2004; Winer and Hettich, 1988), by studying the two dimensions jointly.

The setting for our study is the particularly fecund political climate of Latin America, where to the best of our knowledge, the effects of political competition and participation of the last eighty years have not been empirically explored. Indeed, twentieth century Latin America provides an almost perfect laboratory for testing hypothesizes about political institutions. For example, since independence, Peru has changed or modified its constitution 13 times; Chile has modified its constitution 11 times, while Brazil and Colombia have made 8 and 12 changes, respectively. These institutional fluctuations not only reflect shifts in the allocation of voting rights and thereby the scope for political participation; but, they indicate repeated vacillations between highly competitive democratic environments and highly autocratic or dictatorial environments with severely limited competitive frameworks. These factors make Latin America an ideal political terrain for exploring through statistical assessment the impact of electoral participation and competition on fiscal outcomes.

Our study is two-pronged, first estimating the impact of different competitive and participatory frameworks on fiscal expenditures and the size of government. Our second objective shows the impact of electoral literacy requirements and women's suffrage limitations on both fiscal outcomes and general educational attainment. In such highly complex political environments, we believe it is critical to attempt to understand not only the effects of political institutions on government size and spending indicators, but also on social factors, such as education attainment, which so clearly feedback into the political process. We believe exploring the outcome of these transitions statistically makes contributions to the debate, and provokes urgent questions about institutional and electoral design. But we acknowledge the importance of peculiar, local specificities (Rodrik, 2005) demonstrated in the histories of the 18 countries we study.

Literacy requirements were the most obdurate of Latin American electoral restrictions. By the late 19th century, most countries in Latin America were at least nominally democracies, but with much more restricted voting franchise requirements than, for example, the USA and Canada (Engerman and Sokoloff, 2001). Restrictions could include

wealth or income requirements, but most frequently, laws contained literacy qualifications. While most wealth or income requirements were abolished in the late 19th and early 20th century, literacy requirements remained in place in some countries until the 1980s (Engerman, Mariscal and Sokoloff, 1998). In countries such as Peru, Bolivia and Ecuador, which have sizable, predominant Native American populations with high levels of illiteracy, these restrictions likely served the purpose of keeping an elite in control, and excluding the massive marginalized population from political influence. In a political climate of such divisive restrictions, we build statistical explanations to show the impact of literacy tests on education attainment. We also seek to show how literacy tests restricting the franchise effected fiscal outcomes.

Suffrage restrictions also excluded vast portions of the population from the electoral process well into the 20th century. The first country to grant women the right to vote was Ecuador in 1929, followed by Uruguay and Brazil in 1932. Nearly three decades later, Paraguay followed suit in 1961. Restrictions on female participation in the political process in other contexts, e.g., the USA (Lott and Kenny, 1999) and Western Europe (Aidt and Dallal, 2006) have been found to affect fiscal outcomes. We examine if similar patterns can be found in Latin America.

Our analysis is based on an (unbalanced) panel data set with information on fiscal outcomes (for central government) and educational attainment in 18 Latin American countries[1] for the period 1920 to 2000. We employ the Polity IV index to measure political competition (Marshall and Jaggers, 2000), and turnout in elections and referenda to measure political participation (Vanhanen, 2000 and 2003b). The choices allow us to track political reforms over long periods of time and exploit the often substantial variation in political participation and competition within the 18 Latin American countries. Many studies, e.g., Boix (2001, chapter 5), Mulligan, Gil and Sala-i-Martin (2004) and Persson and Tabellini (2006), use a "world" sample that includes as many countries as possible. We believe that the focus on a sample of Latin American countries has one main advantage

[1]The countries are: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Panama.

compared to previous work in the literature. Despite inter-country differences, a sample of Latin American countries is significantly more homogenous than a "world" sample.

We draw four main conclusions from our analysis. First, our fixed effect estimates strongly support the hypothesis that political participation and competition have opposite effects on the size of government. A country that instigates reforms enhancing political competition experiences a fall in government expenditure and taxation in percentage of GDP in the order of 1.7-2.0 percentage points. In contrast, a country that, through franchise reform or otherwise, experiences an increase of 50 per cent of the population in election participation, subsequently witnesses an increase in government expenditure and taxation as a percentage of GDP by approximately 2.0-2.3 percentage points.

Second, we find indirect evidence that part of the reduction in the size of government associated with enhanced political competition can be attributed to a reduction in spending on securing and maintaining authority. In short, in environments bereft of political competition, we suggest direct costs are incurred to the government by the elite's attempt to maintain power and control, be it through military or policing measures. Once a more pluralistic, competitive political environment is achieved, the costs of repression diminish.

Third, we find that much of the increase in government size due to heightened political participation can be attributed to reforms which eliminate literacy tests. Women's suffrage, in contrast, appears to have no significant impact on the size of government.

Fourth, investigating the impact of both political competition and participation proves highly indicative of school enrollment patterns. In particular, we find that franchise reforms removing literacy tests result in increased enrollment in primary education and reductions in enrollment in secondary and tertiary education. Women's suffrage has the opposite effect, spurring decreased enrollment in primary education and increased enrollment in secondary and tertiary education. Political competition affects enrollment in primary schools positively.

In sum, we show that political participation and political competition have very different implications for the size of government and fiscal expenditure. We extend current literatures by providing a new approach, analyzing the effects of participation and competition coterminously. We add fodder to the debate regarding the relevance of the electoral

and political environment to educational structures, showing that franchise effects enrollment levels.

The paper is organized as follows: In Section 2, we introduce the distinction between political competition and participation, deriving testable implications from theoretical literatures and discussing how we obtain operational measures of political competition and participation. In Section 3, we present our data on the size of government, discuss the econometric specification, and present the main results. In section 4, we refine our measure of political participation by explicitly incorporating franchise reforms (removal of literacy tests and women's suffrage) into the analysis. We study the consequences not only for the size of government, but also for enrollment in primary, secondary, and tertiary education. In Section 5, we briefly discuss other results that emerge from the analysis. In Section 6, we provide concluding remarks. The Data Appendix contains a detailed discussion of data and sources. All tables and diagrams are presented at the end of the paper.

2 Political Competition and Participation: Theory and Measurement

The anatomy of political systems has been dissected in varied definitions. Some authors stress the contrasting characteristics of democracies and autocracies (or dictatorships) (e.g., Przeworski, Alvarez, Cheibub and Limongi, 2000; Mulligan, Gil and Sala-i-Martin, 2004). Others focus on differences in the details of political institutions within these broad categories. For example, Wintrobe (1998) identifies and analyzes distinct types of dictatorship, while Persson and Tabellini (2003) compare democracies that use different election rules or democracies that can be classified as either parliamentarian or presidential. Husted and Kenny (1997) and Aidt, Dutta and Loukoianova (2006) study the allocation of voting rights and the extension of the franchise, while Mueller and Stratmann (2003) focus on differences in voter turnout rates in democratic elections.

A common idea motivating all these classifications is that institutional arrangements create incentives for political leaders which not only lead to particular policy choices, but

also provide different incentives for agents in the private sector. This, in turn, becomes an important determinant of the development path of a society and the welfare levels attained. Dahl (1971) made an important distinction between varying dimensions of democracy, two of which we call political "competition" and "participation".[2] This theory suggests that political institutions create incentives by fostering or hindering political competition and participation. By political competition we mean the extent to which political power is, in fact, freely contested by political parties, pressure groups or other organized factions within a defined political structure. Finally, in an environment of political competition the legislature enjoys autonomy. Political participation, in contrast, is related to the rights of citizens to participate in the selection of their government and the extent to which they exercise this right.

Both conceptually and empirically, it is important to consider political arrangements or regimes along participatory and competitive dimensions. Figure 1 illustrates how a participatory-competitive analytical approach can be used to classify political regimes. Societies with universal suffrage, high electoral turnout, and multi-party elections are located to the Northeast and characterized by a high degree of both political competition and participation. Examples of in this category include Argentina, 1873-75; Costa Rica, 1949-2000; and Mexico, 1994-2000. Societies in which the government is controlled by one faction and most citizens are barred from participating in the selection of that government are located to the Southwest. Examples of this include Brazil, 1900-1930; Venezuela, 1920-45; and Guatemala, 1931-43. Societies with a one-party state, but "nominal" elections based on comprehensive suffrage rights are located to the Northwest. Examples include Paraguay, 1961-88; Mexico, 1953-93; and Panama, 1983-87. Societies with restricted suffrage, but competition within the elite for political power are located to the Southeast. Examples include Argentina, 1890-1911; Chile, 1940-48; and Peru, 1942-54.

[Figure 1: Classification of Political Regimes.].

[2]Dahl (1971) used the terms "public contestation" and "right to participate," but we prefer to follow Vanhanen (2000) and use the terms "political competition" and "political participation". A third dimension of democracy highlighted by Dahl (1971) is civil liberties.

Political Competition The effect of political competition on policy choices is normally conceptualized within the context of spatial voting models (Downs, 1957; Lindbeck and Weibull, 1987) or pressure group models (Becker, 1983). Two-party competition produces a strong pull towards the median position in simple Downsian models and can, under some circumstances, lead to Pareto-efficient equilibrium outcomes when voter preferences have a stochastic ideological component (Hettich and Winer, 1999, chapter 4; Coughlin and Nitzan, 1981). Wittman (1989, 1995), Becker (1983, 1985) and others further stress the efficiency enhancing effects of political competition. Becker (1983), for example, argues that competition among pressure groups for and against redistribution leads to efficient methods of taxation because political pressure in favor of tax instruments with high deadweight costs is relatively low, while opposition is strong. Ferejohn (1986), Polo (1998) and others point to the fact that political competition constraints the ability of politicians to extract rents. In short, there is a strong presumption that political competition is associated with more efficient government. Although it does not necessary follow from this that political competition leads to less government spending and lower levels of taxation, there are at least four reasons why enhanced political competition is likely to produce this outcome.

First, fiscal illusion induces systematic misperception of the costs and benefits of government spending and leads to an upwards bias in public spending (Buchanan and Wagner, 1977). As pointed out by West and Winer (1980), this effect is, however, mitigated by political competition. In a competitive environment, opposition parties and pressure groups have an incentive to gather information and make it available to voters. The degree of informational openness decreases the extent of fiscal illusion and suggests one channel through which political competition may reduce government spending. Second, enhanced political competition allows more pressure groups to be catered for in the political calculus (Mueller and Murrel, 1986). Subsidy recipients have a comparative advantage in organizing collective action because they, typically, are few in numbers and the benefits bestowed are concentrated (Olson, 1965). An increase in political competition is, therefore, often equivalent to empowerment of taxpayers and, as shown in Aidt (2003), an increase in political competition is, for this reason, likely to lead to a reduction in government sponsored

redistribution. Third, political competition enhances political accountability (e.g., Ferejohn, 1986; Persson, Roland and Tabellini, 1997). Among other things, enhanced political competition means that power can be contested more freely. As new challengers present themselves, this provides citizens with alternatives to the incumbent and it becomes possible to reduce office rents and other inefficiencies. The outcome of this is likely to be lower taxation. Fourth, in societies with severe restrictions on political competition (e.g., in a dictatorship) political leaders need to spend substantial public funds on securing and maintaining power (Mulligan, Gil and Sala-i-Martin, 2004). Consequently, spending levels tend to be high relative to societies with more competitive political institutions.

Political Participation The effect of political participation on the fiscal system can best be analyzed within the framework of the probabilistic voting model (Hettich and Winer, 1988, 1999).[3] The equilibrium fiscal structure reflects a trade-off between the loss and gain of political support from groups of voters. By lifting property or income restrictions on the right to vote, individuals with lower incomes or less wealth are granted political voice, and the constituency of government is expanded with new voters who are poor relative to the average taxpayer. The Representation Theorem[4], then, predicts that an extension of the franchise increases the demand for redistribution (Tridimas and Winer, 2005).[5] Moreover, political parties are less likely to attach the same weight to groups of voters who normally do not show up to vote as they do to voters with a more predictable turnout pattern. There is substantial evidence from many different countries that richer and better educated citizens are more likely to exercise their right to vote than their poorer and uneducated counterparts.[6] It is, therefore, reasonable to suppose that an expansion

[3]The question is sometimes posed within the context of the median voter model (e.g., Meltzer and Richard, 1981; Boix, 2001). However, since fiscal systems are inherited multi-dimensional and complex, the empirical relevance of predictions from this type of model is somewhat limited.

[4]The Representation Theorem shows that the equilibrium platform can be characterized by optimizing a particular weighted sum of the enfranchised voters utilities (Coughlin and Nitzan, 1981; Hettich and Winer, 1999, chapter 4).

[5]Acemoglu and Robinson (2000) and Boix (2003, chapter 1), in their theories of the why the voting franchise was extended, build on this argument, while Lizzeri and Persico (2004) argue that universal suffrage is associated with more spending on public goods because it is cheaper for politicians to please a broad constituency in this way.

[6]See Norris (2001) or the discussion in Mueller and Stratmann (2003).

of *actual* political participation (turnout) also leads to more spending and higher taxation because any increase mostly reflects an increase in participation of poorer and less educated strata of society. All in all, this suggests that an increase in political participation leads to more spending and higher taxation.[7]

Measurement The theoretical reasons why political competition and participation have opposite fiscal effects are compelling. To establish the empirical relevance, we need to find separate operational indicators of the two dimensions.[8] Among the many alternative indicators that have been proposed in the literature, we have settled on two that effectively and accurately capture the two dimensions we are interested in.

First, political participation is relatively straightforward to measure, either as the number of eligible voters (e.g., Aidt, Dutta and Loukoianova (2006) or Lindert (2004, vol. 2)) or as the number of voters who actually vote in elections or referenda (e.g., Mueller and Stratmann, 2003). We use the later definition, mainly because data is available from Vanhanen's Polyarchy database (Vanhanen, 2000 and 2003b), but also because, for this purpose, it is better to use a measure of actual rather than potential participation. More precisely, the *participation index* is an aggregate of voter turnout in general elections and in referenda, in proportion to the total population, which takes the value of 0 when there are no elections or referenda to participate in.[9] In section 4, we refine the measure of political participation by explicitly incorporating two important restrictions on the right to participate related to literacy requirements and the exclusion of women.

Second, to measure political competition, we use the Polity IV index developed by Marshall and Jaggers (2000). The Polity IV index comprises a composite index of democracy and autocracy and has, in a number of recent studies, e.g., Avelino, Brown and Hunter (2005), Rodrik and Warcziarg (2004), Mulligan, Gil and Sala-i-Martin (2004), Lopez-Cordova and Meisner (2005), Papaioannou and Siourounis (2005), and Persson (2005),

[7] This is, however, not inevitable. As shown by Aidt, Daunton and Dutta (2006), an extension of the franchise can in some cases lead to retrenchment rather than to expansion.

[8] Alternatively, we could look for comprehensive indices of, say, democracy, such as those employed by Boix (2003, chapter 2) and Vanhanen (2000, 2003b), that combine aspects of competition and participation. While such indices are useful for many purposes they would not allow us to identify the separate impact of political competition and participation.

[9] See the Data Appendix for a precise definition.

been used as an indicator of democracy, as a tool to classify political regimes (democracy versus autocracy), or as a tool to define episodes of democratization. A closer look at the definition of the index, however, suggests, as also noted by Vanhanen (2000), that it should be viewed as an indicator of political competition rather than as an indicator of democracy or autocracy per se.

The five underlying authority characteristics on which the Polity IV index is based are: i) competitiveness of executive recruitment: the extent to which executives are chosen through competitive elections; ii) openness of executive recruitment: the opportunity for non-elites to attain executive office; iii) executive constraints: the operational (de facto) independent of chief executive; iv) regulation of participation: the development of institutional structures for political expression such as enduring national political organizations and effective regime controls on political activity; v) competitiveness of participation: the extent to which alternative preferences for policy and leadership can be pursued in the political arena. All these characteristics clearly relate to salient features of political competition and none of them are directly related to the extension of the franchise or to turnout in elections, i.e., they are unrelated to political participation.

A number of other measures of political competition has been proposed in the literature. Vanhanen (2000, 2003b) measures competition by the share of votes captured by "small" parties in parliamentarian elections, while Holbrook and Van Dunk (1993) and Rogers and Rogers (2000) use the "win-margin" of the incumbent governor as a measure of competition and Skilling and Zeckhauser (2002) focus on the length of time a party has been in office. All these measures have merits, but they often start from the presumption that some basic democratic structures are in place and they are not invariant to the choice of election rule and do not account well for party structure (Vanhanen, 2000). For these reasons, we believe that the Polity IV index is a better measure of political competition, in particular when we are interested in the evolution of political competition over long time periods and across different societies. The Polity IV index is coded from -10 (restricted political competition) to +10 (unrestricted political competition). For descriptive purposes, it is convenient to normalize the index to lay between 0 and 1.

[Figure 2: Scatter plot of the (normalized) Polity IV index and the participation index]

[Figure $3a - c$: The (normalized) Polity IV index and the participation index, 1920-2000, in three selected countries]

Figure 2 shows a simple scatter plot of the two indicators with the Polity IV index, normalized to be between 0 to 1, on the x-axis and the participation index on the y-axis. As one would expect, the two indicators are positively correlated (with a correlation coefficient of about 0.45). More importantly, however, for each level of political competition, political participation varies substantially. Conversely, a given level of participation can be associated with very different levels of political competition.

The distinction between participation and competition can also be seen by considering individual countries. For example, throughout the 20th century, Costa Rica's political system was highly competitive with a "perfect" score of 1 on the normalized Polity IV index. As we can see from Figure $3a$, which plots the normalized Polity IV index and the participation index over time, this outcome was achieved both in year 1900 when political participation was minimum and in year 2000 when 40 percent of the population participated in elections. Thus, neither the enfranchisement of illiterates in 1913, nor of women in 1949 had any impact on Costa Rica's Polity IV score.

Mexico is another interesting example (see Figure $3b$). During the period 1910-30, political participation was increasing, while more restrictions were imposed on political competition. This was followed by a long period of increasing political participation (including women's suffrage in 1953), but without any liberalization of political competition, manifesting itself in the fact that almost all the elections during this period were won by the same party. Brazil provides an example where the two dimensions move in tandem (see Figure $3c$). Yet, a convincing case can be made that the two indicators are, indeed, capturing two different aspects of institutional development.

3 Political Competition, Participation and the Size of Government

To assess the impact of political competition and political participation on the size of the public sector, we have constructed a panel data set covering 18 Latin American countries during the period 1920-2000.[10] We believe that this has several advantages compared to previous work in the literature. First, many studies, e.g., Mulligan, Gil and Sala-i-Martin (2004) and Boix (2003, chapter 5), focus on a "world" sample that includes as many countries as possible. Despite inter-country differences, a sample of Latin American countries is more homogenous than a world sample, making the homogeneity assumption required to justify a panel (or cross country) approach more tenable. Secondly, as we discuss in more detail below, the panel structure allows us to reduce the risk of omitted variables bias.

3.1 The Size of the Public Sector: Some Facts

We are interested in testing the proposition that political competition reduces the size of the public sector, while political participation is associated with an expansion. Ideally, we want to study the combined size of central, regional and local government. Data on general government spending is, however, not available for a sufficiently long time period, so all fiscal variables are for central government. We use two indicators of the size of (central) government: 1) public spending (G/Y) and 2) tax revenues (T/Y), both measured as a percentage of GDP (Y). In addition, to these broad indicators of the size of government, we study the impact of political competition and participation on the sources of government revenue. In particular, we look at 1) income tax revenues (T^{income}/Y), 2) commodity tax revenues ($T^{commodity}/Y$) and 3) tariff revenues (T^{tariff}/Y), all measured as a percentage of GDP. We are also interested in the resources devoted to maintenance of internal security. We do not have fiscal data that measure this directly, so we use data on the number

[10]The 18 countries are listed in Table 1. The panel is unbalanced. Appendix Table A1 provides information about the time period covered for each country. For some countries data is available from 1900. However, for the purpose of the regression analysis, the sample starts in 1920 when data for more than three countries become available.

of soldiers as a percentage of the total population aged between 16 and 59 years old (*soldiers per capita aged 16-59*) and data on military expenditure as a percentage of GDP ($G^{defense}/Y$) as proxies. These data are only available since 1960 and 1973, respectively.

[Table 1: The size of government in the 18 countries, selected time periods].

Table 1 provides information about the size of government in the 18 countries during the period 1920-2000. As in other parts of the world, the size of government, both in terms of expenditures and revenues, is increasing as the century progresses. At the beginning of the century average spending (and taxation) was less than 10 per cent of GDP; at the end, it was about 19 per cent. This general trend hides interesting country differences. In Brazil, for example, the central government controlled almost 30 per cent of GDP during the 1990s, only surpassed by Nicaragua who spent almost 50 per cent of GDP at the height of the civil war in the 1980s. In contrast, Guatemala and Paraguay ran relatively small governments.

[Figure 4: The size of government (G/Y and T/Y) 1920-2000, distinguishing by the degree of political participation and competition]

Figure 4 shows four scatter plots of government expenditure and revenue, relative to GDP, over time (1920-2000). In panel A, we divide the data points into those that represent a situation with restricted political competition (indicated with bold circles) and those that represent a situation with unrestricted political competition (indicated with crosses). We define political competition as restricted if the Polity IV index is negative and unrestricted otherwise. Likewise, in panel B, we divide the data points according to the level of political participation. Political participation is low (indicated with bold circles) if less than 15 per cent of the population participate in the selection of their government and high (indicated with crosses) otherwise. The upwards trend in both expenditure and revenue is apparent for all categories. More interesting, however, is the observation that countries with either a highly competitive political system or limited political participation tend to have smaller governments. This is consistent with the theoretical predictions discussed above, but needs,

of course, to be treated with caution; to get more robust insights, we should to turn to a proper regression analysis.

3.2 The Econometric Specification

We estimate the following model:

$$y_{it} = \alpha_i + \eta_t + \beta_1 x_{it}^{participation} + \beta_2 x_{it}^{competition} + x_{it}^{control}\gamma + \varepsilon_{it} \quad (1)$$

where y_{it} is the outcome variable of interest in country i at time t and ε_{it} is the error term with $E(\varepsilon_{it}) = 0$. The variable $x_{it}^{participation}$ is the participation index introduced above and $x_{it}^{competition}$ is a measure of political competition based on the Polity IV index. Since the Polity IV index is recorded on an ordinal scale, we prefer to use a dummy variable to measure the degree of political competition rather than entering the index directly in the regression model. In particular, we define a dummy variable – *competition dummy* – that takes the value of 1 when the Polity IV index is positive and the value of 0 when the index is negative.[11] This variable, therefore, measures the impact of political competition vis-a-vis a counterfactual of "restricted political competition".

Fiscal choices are affected by many other factors than political participation and competition. We include the vector $x_{it}^{control}$ of time-varying control variables to take some of these into account.[12] First, the variable *urbanization rate* measures the proportion of the population who lives in urban areas. Urbanization is highly correlated with industrialization and economic and social progress – factors which in themselves are likely to affect the tax structure and which through the processes discussed by Wagner (1883) should increase the need for public services and for regulation of economic activity.

Second, the age composition of the population may also have an impact on the size of government because of changing needs for social services (such as pensions and public health). In particular, Lindert (1994) shows that ageing of the population contributed

[11] We obtain essentially identical results if we entered the Polity IV index directly in the regression model.

[12] A precise definition and the source of each variable is given in the Data Appendix.

significantly to the rise of social spending in Europe and the USA during the period 1880-1930, and we would, thus, expect the proportion of old to affect the size of government positively. We include the percentage of the population aged 60 or above, *population over 60*, to allow for this possibility. Third, we include an estimate of PPP adjusted GDP per capita in logarithms, *GDP per capita*, to control for business cycle effects and the growth rate of GDP per capita, *growth*, to proxy for general development trends. Fourth, Rodrik (1998) has argued that openness to international trade is associated with larger government spending because a larger public sector reduces economic volatility and provides insurance. We include the variable *trade openness,* which is defined as export plus import in percentage of GDP, to allow for this possibility. Fifth, some public services are provided with increasing return to scale. We allow for scale effects by including the variable, *population*, which records the logarithm of the population in millions. Sixth, inequality of income and wealth play an important role in many theories of public finance. Standard measures of inequality, such as the Gini-coefficient, are unavailable for most of the sample period. As a proxy for *income equality*, we use the percentage of the total area of cultivated land that is owned by family farmers (Vanhanen, 2003a). We believe this is a reasonable proxy in our context. Finally, war and economic crisis can have significant fiscal effects and we include a dummy variable to control for economic crises (*economic crisis*) and a dummy variable to control for war *(war)*. We also include the rate of inflation (*inflation*) to capture the fiscal implications of episodes of high inflation.

The model includes country fixed effects (α_i) and year fixed effects (η_t). This specification rules out that the inference regarding the two parameters of interest (β_1 and β_2) are contaminated by unobserved determinants of fiscal choices that are constant over time (country fixed effects) or affect all countries at a given point in time in the same way (year fixed effects). This reduces, but does not eliminate, the risk of omitted variables bias and implies that we are using "within" variation (i.e., variation in political arrangements within a given country over time) to identify the impact of political participation and competition on fiscal choices. In effect, we are seeking an answer to the question: if a given country experienced an increase in political participation (or competition), then, allowing for other potential determinants of the country's fiscal choices, what would we expect the change in

fiscal policy to be.

We estimate the model with a fixed effects estimator allowing for panel-specific standard errors and correlations between panel units, as recommended by Beck and Katz (1995).[13,14] We have tested the stationarity of the data using the Fisher Test for panel unit roots and can in each case reject the null hypothesis that the series are non-stationary for all panel units. However, since we do not model dynamics explicitly, we are worried about autocorrelation in the residuals and correct for autocorrelation of order one in all regressions and include a deterministic time trend in each regression.

3.3 Results

The Main Results The main results are reported in Table 2. Regressions (1) and (2) provide strong support the hypothesis that political competition reduces the size of government, both measured in terms of revenue and in terms of expenditures, while political participation increases the size. A country that experiences an increase in political competition (from low to high) would see a fall in public expenditure of about 2 percentage points and a fall in tax revenues of about 1.7 percentage point. In contrast, a country that experiences an increase in political participation from a situation with no participation to a situation in which 50 percent of the population participate in the selection of their government would see an increase in public expenditures of about 2.3 percentage points and an increase in total tax revenues of about 1.9 percentage points.

Bearing in mind that average spending (and taxation) as a percentage of GDP is about 15.2 (and 13.4) per cent, these effects are relatively substantial. Regressions (3) to (5) report the results for different types of revenue. We notice that political competition reduces tax revenues from commodity taxes and tariffs, while political participation increases tax revenues raised through income taxation. Given that income taxes tend to be better suited for redistribution than commodity and trade taxes, this is consistent with the hypothesis that an increase in political participation, e.g., through enfranchisement of the poor,

[13]The estimates are performed in Stata version 8.2.

[14]We have also estimated a random effects model. In the few cases where it passes the Hausman test, the results are similar to the fixed effects model and we only report the results from the latter model.

is associated with more redistribution. The negative impact of political competition on revenues from tariffs and commodity taxes is consistent with the notion that political competition promotes more efficient forms of taxation.

As discussed in section 2, one reason why societies with limited political competition tend to run relatively large (central) governments is that substantial public funds must be devoted to securing and maintaining the political status quo. We can test this hypothesis, albeit only indirectly, by looking at the impact of political competition on the size of the army (*soldiers per capita 16-59*) and on the fraction of GDP devoted to defense ($G^{defense}/Y$). The result of this test is reported in regressions (8) and (9) in Table 2. For comparison, we have reestimated the regressions for total government spending and revenue as a percentage of GDP for the appropriate time periods (regressions (6) and (7)).[15] We see that the hypothesis receives support. A society that experiences an increase in political competition sees a reduction in the size of its army and a reduction in the proportion of GDP devoted to defence. This suggests that political competition reduces the size of government partly because it frees up resources that would otherwise have to be invested in internal (and external) security. In contrast, political participation is not statistically significant.

Interaction Effects Our baseline model assumes that political competition and political participation have independent effects on fiscal choices. One might, however, conjecture that the impact of, say, women's suffrage – representing a substantial increase in (potential) political participation – on the size of government is very different in a society with limited political competition as compared to a society with competitive political institutions. For one thing, the preferences of newly enfranchised women might not be represented in the political calculus unless political factions or parties compete for their votes. Likewise, it is possible, as argued by Besley, Persson and Sturm (2006), that franchise reforms can, by themselves, induce more political competition.[16]

[15] While the signs are preserved, the effects are not statistically significant with the exception of *political competition* in regression (7). This is not surprising as we lose much of the "within" variation by shorting the sample period by 40 years.

[16] Besley, Persson and Sturm (2006) show that the removal of literary tests and the poll tax from the laws that governed political participation in the US south in the 1960s helped break the near monopoly

To allow for such possibilities, we have included an interaction term (*interaction*) between competition and participation in the regression model. The regressions include the same control variables as in Table 2, but to conserve space, we only report the results for the variables of interest in Table 3. We see from regressions (10) and (11) that the interaction term is insignificant in both the expenditure and taxation regression and that the point estimates on the *competition dummy* and the *participation index* are virtually unaffected. With regard to the three different sources of revenue, we note that the interaction effect is significant only in the regression with income tax revenues. The point estimate on the interaction term is positive, suggesting complementarity between political competition and participation in promoting income taxation. In particular, we note that an increase in political competition reduces income tax revenues in a country with limited political participation (participation index less than 12.7 per cent) while in a country with high levels of participation (participation index larger than 12.7 per cent) an increase in political competition increases income tax revenues. Overall, however, the results reported in Table 3 suggest that complementarity between the two dimensions is not very important and that we loose little by studying the impact of the two dimensions of political institutions separately.

Comparison with Previous Studies The main contribution of our analysis so far is to demonstrate that both political competition and political participation exercise important influences on the size of government, but pull in opposite directions. In contrast, most of the existing empirical work on the link between fiscal choices and political competition and participation focuses on one aspect in isolation.

The literature that studies the link between political competition and the size of government is not conclusive, although many studies do point in the direction of a negative relationship. Using data from U.S. states, Rogers and Rogers (2000) present evidence that increases in political competition, measured by the "win-margin" of the incumbent governor, decreases state government spending. For the OECD countries, Skilling and Zeckhauser (2002) find that political competition, measured as the length of time the gov-

of the Democratic party with important ramifications for economic development.

erning party or parties have been in office, improves the primary balance, mainly through a reduction in the growth of spending. In contrast, Holbrook and Van Dunk (1993) show that political competition[17] increases the size of US state government, through an increase in Medicare generosity and in disability protection.

A number of studies have investigated the impact of the Polity IV index on fiscal outcomes and are, thus, more directly comparable to ours. Aidt and Jensen (2006) and Aidt, Dutta and Loukoianova (2006) find in various panels of Western European countries during the period between 1860 and 1938 that political competition has an asymmetric effect on the government budget: enhanced competition reduces expenditure but increases taxation. One interpretation of this is that political competition has the effect of closing the gap between expenditures and revenues.

The evidence from broader samples is more mixed. Mulligan, Gil and Sala-i-Martin (2004) study a cross section of more than 100 countries and report that political competition[18] has little impact on government consumption, education spending, pensions, and non-pension social spending. Instead, the differences seem to arise with respect to policies that affect the degree of competition for public office, presumable because political leaders, to limit competition, need to make investments in securing and maintaining power. The last result is in line with our findings. Persson and Tabellini (2006) study a panel of about 150 countries over the period 1960-2000 and find that the effect on government spending of reforms that enhance political competitive[19] depends on the type of election rule and on the form of government. In particular, in an environment with majority rule and presidential democracy enhanced political competition reduces government spending by almost 2 per cent of GDP. The opposite is true in an environment with parliamentarian democracy.

The literature on political participation and the size of government paints a clearer picture that is consistent with our findings. One branch of the literature has studied the

[17]Political competition is measured as a composite of four factors: i) the percentage of the popular vote won by the winning candidate, ii) the margin of victory, iii) whether the seat was safe and iv) if the race was contested or not.

[18]They interpret the Polity IV index as a measure of democracy.

[19]They use the polity2 index from the Polity IV data set and use the terminology that a country is democratic if the polity2 index is strictly positive.

impact of franchise reforms on fiscal choices. Husted and Kenny (1997) draw on a panel of 46 U.S. states, finding that an extension of the voting franchise through the removal of income restrictions and literacy tests increases social spending substantially and leads to a modest increase in total government spending. Along similar lines, Aidt, Dutta and Loukoianova (2006) find that the extension of the franchise in Western Europe before World War II contributed to the growth in the size of the government mainly by increasing spending on infrastructure and internal security. Another strand of the literature, which studies the impact of electoral turnout on fiscal choices, has found similar results. For example, Mueller and Stratmann (2003) find, using a world sample, that higher electoral participation is associated with larger governments and through this, with lower income inequality. Boix (2001, 2003, chapter 5) also studies, using a world sample, the effect of electoral turnout on fiscal choices. Boix is careful to separate the effect of turnout from the effect of having competitive democracy. He finds that political participation increases the size of government, and that the effect increases with the level of economic development.

4 Women's Suffrage and Literacy Tests

In this section, we look deeper into the reasons why political participation, as shown above, is positively associated with the size of government. We also ask how particular restrictions, such as literacy tests, affect education attainment.

Political participation can be enhanced or hindered by variations in legal restrictions on the right to vote. During the 20th century, two of the most common restrictions employed by Latin American countries were literacy tests and exclusion of women.[20] Virtually all the Latin American countries adopted a literacy requirement for citizenship (which included the right to vote) in their first constitution or soon thereafter. As illustrated by Table 4, which reports the dates at which literacy tests were abolished in each country, these persisted in some, but not all, countries for long periods of time. The extreme cases are Brazil, Chile and Peru, where these restrictions played an important role until the 1970s

[20]Literacy requirements had by the turn of the 19th century replaced wealth or income requirements as a means to keep Native Americans and other poor people from voting in most countries in the sample. For this reason, we do not attempt to identify the impact of wealth and income restrictions.

and the 1980s. In a few other countries, e.g., Argentina and Colombia, literacy tests were never applied systematically at the national level (Engerman and Sokoloff, 2001). Table 4 also reports when women's suffrage was granted in the 18 countries. It happened within the time window from 1929 (Ecuador) to 1955 (Honduras, Nicaragua and Peru), so until then, voting rights, and with it the right to participate in the selection of government, were restricted to (literate and/or wealthy) men.

[Table 4: The timing of women's suffrage and the abolishment of literacy tests in the 18 countries.]

4.1 The Size of Government

Reforms that enfranchise women or illiterate citizens increase the potential for political participation.[21] Lott and Kenny (1999) argue that women's suffrage is associated with larger government. One reason for this is that married women who have specialized in household production, in case of break down of marriage or widowhood, may find it difficult to enter or reenter the labor market. They may, therefore, support spending on publicly provided private goods, such as health and education, that provide a form of insurance against unexpected employment and household disruptions. Another reason is that a demand for social services naturally arises as women seek to shift part of the burden of household chores, such as child care, onto the state (see, e.g., Cavalcanti and Tavares, 2006).

Literacy restrictions, on the other hand, were used systematically to exclude indigenous populations from voting. The effective disenfranchisement of a large fraction of mainly poor citizens in all likelihood, reduced the demand for redistributive public spending in general and may have discouraged elites from investing in public education in particular. In conclusion, there exist compelling theoretical reasons why both women's suffrage and franchise reforms that remove literacy tests should be associated with an increase in the

[21] We ran a regression of electoral participation on women's and illiterate suffrage together with our control variables. We find significant evidence of a positive correlation between voter turnout and women's suffrage and enfranchisement of illiterate people.

size of government.

To test this hypothesis, we construct a new set of variables. We begin by coding the dummy variable, *participation dummy*, as 1 in year t in country i if the participation index is positive, i.e., there is some participation in either elections or referenda, and 0 otherwise. Next, we code the dummy variable, *women's suffrage,* as 1 in year t in country i if the participation index is positive at the time *and* women were allowed to vote. Finally, we construct the variable *literacy effect* in two steps. First, we code a dummy variable as 1 in year t in country i if the participation index is positive *and* the right to vote is unrelated to any literacy test. Second, we multiply this dummy variable with the share of the population who is illiterate. In this way, the *literacy effect* captures the potential political influence of the group of illiterate voters.[22] We note that *women's suffrage* and *literacy effect* are designed to measure the impact of literacy and gender restrictions on the size of government *conditional* on some political participation and that the *participation dummy* is designed to capture the effect of having some participation among literate men.[23] We estimate a panel model similar to equation (1), except that we now include four political variables, *competition dummy, participation dummy, literacy effect* and *women's suffrage.*

[Table 5: Literacy tests, women's suffrage, the size of government and enrollment in education].

We report the results in Table 5, regressions (15) and (16). First, we notice that women's suffrage does not have any statistically significant impact on the size of government. This stands in contrast to findings by Lott and Kenny (1999) who show that women's suffrage increased total spending across US states during the period 1860-1940. The finding is, however, in line with results from Western Europe before World War II. Aidt, Dutta and Loukoianova (2006) find that women's suffrage had little impact total government spending in a sample of 12 Western European countries, although it did con-

[22] One could argue that we, for consistency, should multiply *women's suffrage* by the share of adult women. We have tried this and it makes no difference to the results.

[23] This formulation assumes that voting rights granted in the past under a spell of democratic elections do not affect policy outcomes in subsequent periods without any participation. This seems reasonable. We have checked if it makes a difference if the two dummy variables were coded 1 after the relevant restriction were lifted irrespective of subsequent regime changes and the results are very similar.

tribute to the rise of social spending (Lindert, 1994; Aidt and Dallal, 2006) and increased the share of direct taxes (Aidt and Jensen, 2006). The result is also broadly in line with the conclusions of Stutzer and Kienast (2004) who explore differences in the timing of the introduction of women's suffrage in the Cantons of Switzerland and find little association between women's suffrage and social spending at the Canton level and a negative impact on total spending. In contrast, Abrams and Settle (1999) find a large positive impact on social welfare spending in Switzerland after voting rights were granted to women in 1971.

Second, abolishment of the literacy test increases both government expenditures and revenues as a percentage of GDP. Evaluated at the mean of the sample, the size of this effect is between 0.9 and 1.4 percentage points.[24] This suggests that the positive effect on the size of government reported in Table 2 is driven largely by the enfranchisement and participation of illiterate citizens. This empirical outcome is consistent with theory insofar as literacy tests excluded relatively poor voters who, when given the vote, would use their influence to support redistributive policies, leading to the increase in the size of government.[25] The only other study we are aware of that investigates the effect of literacy tests on public spending is Husted and Kenny (1997). They report the literacy tests in (some) US states (1950-88) reduced welfare spending, but in contrast to the evidence presented here, the effect is relatively weak and certainly less important than the poll tax. The importance of the literacy test in Latin America motivates our next line of inquiry: do literacy tests affect education outcomes?

4.2 Education Outcomes

Publicly funded education commands a central role in many development theories (e.g., Lucas, 1988; Galor, Moav and Vollrath, 2006). Both political competition and restrictions on political participation are likely to affect the flow of funds into public education, the enrollment rates in different types of education and ultimately, the shape of the educational

[24] The average illiteracy rate in the sample is 30 percent.

[25] We may also note that the coefficient on the *participation dummy* is negative, although not significant. Taking the point estimates at face value, however, this suggests that participation of (some) *literate men* may reduce the size of government, possibly because this group of voters is likely to be relatively well-off and thus not necessarily interested in more public spending and higher taxes.

system. The form of the education system feeds back into the societal structure. As noted by Gilles and Verdier (1993) for example, publicly funded education encourages accumulation of human capital and tends to produce a more even income distribution. The pressures for redistribution generated by wider political participation may, therefore, increase education spending and enrollment in schools. In particular, enfranchisement of poor and illiterate citizens is likely to increase the demand for primary education, while increased participation of the middle class is likely to increase mainly the demand for secondary and tertiary education. Political competition, as discussed in section 2, tends to promote efficient policies and thus to encourage public investment in those types of education with the highest social return.

While both the franchise rules and the restrictions on political competition in place at a given point in time are likely to influence public choices regarding education, Lipset (1960) and other advocates of modernization theory have pointed out that accumulation of human capital itself may be driving institutional development and cause democratization in the longer run. This suggests a possible feedback loop that may bias our estimates upwards. The possibility of a simultaneity bias should, therefore, be kept in mind when interpreting our results.

Information on public spending on education is not available for a sufficiently long time period to allow us to study spending on education. As an alternative, we test the hypothesizes with data on enrollment in primary, secondary and tertiary education expressed as a percentage of the total population under 15 years of age.[26] We estimate a panel model similar to equation (1) with the same vector of political variable as in the previous section and report the results in Table 5, regressions (17) to (19).

The results we present are broadly consistent with current theoretical conjectures. Political competition has a positive impact on enrollment in primary education and no (statistically significant) effect on enrollment in higher education. Microeconomic studies typically find that the social return to primary education is higher than the social return to secondary and tertiary education. Accordingly, this finding is consistent with the notion that political competition promotes efficient policies.

[26] Enrollment rates are positively correlated with public spending on education.

Political participation has a more complex affect on enrollment rates than political competition. Firstly, the *participation dummy* isolates the effect of participation of literate men. We see that participation of this group reduces enrollment in primary and increases enrollment in tertiary education. Since tertiary schooling in Latin America, as elsewhere, is mainly for the children of the middle and upper classes, this is consistent with Director's Law and more broadly with the notion that these groups demand public support to the types of education that benefit their offspring the most. Secondly, women's suffrage has a similar effect: it is associated with higher enrollment rates in secondary and tertiary education. This suggests that the enfranchisement of women mainly enhanced the voting power of the middle class. This is consistent with survey evidence that electoral participation increases with income (e.g., Norris, 2001) suggesting that it was mainly "wealthier" women who went to vote. Thirdly, abolishment of literacy requirements in the laws governing the franchise is positively associated with enrollment in primary education and negatively associated with enrollment in secondary and tertiary education. Enrollment in primary education may have expanded once literacy tests were abolished because illiterate voters (and their children) need this type of education. And furthermore, because the elites no longer needed to block investments in primary education as it no longer serves the purpose of keeping to-be voters away from the polls. The demand for publicly funded education that arises from the enfranchisement of illiterates is, therefore, directed at primary education, not at secondary and tertiary education which, as we mention above, tend to benefit mostly the middle and upper class.

The findings are consistent with previous studies of the influence of democracy on education outcomes in Latin America. Brown (1999) reports evidence that democracy has a positive effect on primary school enrollment but its impact is most prominent among the poorest democracies. Similarly, Brown and Hunter (2004), Avelino, Brown and Hunter (2005) and Avelino, Brown and Hunter (2005) find that democracy increases enrollment in primary education and is positively correlated with overall real spending on education.

We contribute to this literature by demonstrating that the distinction between political competition and participation is critical in any analysis of political institutions. The distinction speaks to questions related to the overall size of government. In addition, in-

cluding both political competition and participation into the analysis illuminates patterns and processes in education. Finally, we show how the abolishment of literacy tests[27] and women's suffrage had very different effects on enrollment patterns.

5 Other Results

The regressions reported above contain a number of control variables which in themselves are interesting determinants of fiscal choices and enrollment patterns. We briefly comment on some of them below.

1. Openness to trade is positively related to the size of government. This is consistent with the insurance argument, advocated by Rodrik (1998), saying that public spending plays the role of mitigating the social costs of international integration.

2. Equality (as measured by the percentage of the total area of cultivated land that is owned by family farms) is negatively correlated with the size of government. This is consistent with the hypothesis that the demand for redistribution is higher in more equal societies. In addition, enrollment in primary education is negatively correlated with equality, while enrollment in secondary and tertiary education is positively related.

3. Population size is positively related to the size of the government and to enrollment in primary education. This is consistent with increasing returns in the provision of public services. The age structure, as captured by the fraction of the population over 60 years of age, is also positively related to the size of the government, lending support to the "grey power" hypothesis advocated by Lindert (1994).

4. The narrow version of Wagner's law – that the size of the government increases with GDP per capita – receives little support from our regressions. In fact, GDP per

[27] Boix (2003) argues that the reduction of the electoral franchise through the creation of poll taxes, literacy tests and property requirements that followed the removal of federal troops from the U.S. south in the mid 1870s had significant fiscal implications biasing the spending on education heavily against the black population and the poor whites.

capita is often negatively related to the size of the government. It is, however, likely that the forces pushing for growth in government that Wagner (1883) pointed to are better captured by urbanization. We note the urbanization rate is positively related to both government spending and taxation, thus providing support for the broader interpretation of Wagner's law.

6 Conclusion

Our analysis demonstrates the empirical relevance of the distinction between political competition and participation, both with regard to the size of government and with regard to enrollment in education. This finding has implications not only for our understanding of the forces behind growth in government, but also more broadly for quantitative research on political institutions.

Firstly, while in many contexts and for many research questions it may make sense to construct composite indicators of democracy that combine aspects of participation with aspects of competition (Przworsky, Alvarez, Cheibub and Limongi, 2000, Vanhanen, 2000 and 2003b; Boix, 2003), one should not overlook the fact that this may conceal important insights because the constituent components can have offsetting effects. As pointed out by Persson and Tabellini (2006), the devil may well be in the details.

Secondly, recent research within the political economics literature (e.g., Mulligan, Gil and Sala-i-Martin, 2004; Rodrik and Wacziarg, 2004) tends to interpret the Polity IV index as an index of democracy or changes in the index as a measure of democratization. We have argued that the index is better interpreted as an index of political competition. Political competition is surely one aspect of democracy, but most definitions would also refer to some notion of participation (e.g., universal suffrage) and civil liberties; thus there is more to democracy than political competition.

A challenge for all empirical research on the link between political institutions and fiscal outcomes is that of causality. In order to identify a causal effect running from institutions to fiscal outcomes, the observed variations in the institutional arrangements must be exogenous to the process that determines the fiscal outcomes. In practise, this often

fails. One reason is that competition enhancing reforms and the extension of the franchise might be driven by the same unobserved factors that determine fiscal choices. Another reason is reverse causality: political reforms could be driven by fiscal considerations. In the regression analysis, we control for a range of observable determinants of fiscal choices and for country and year fixed effects. Yet, our estimates may not be causal. In particular, any time varying, unobserved factor that is correlated with political reforms would bias the results. However, even if our results are not causal, we think that the strikingly robust correlations between political competition, political participation, and the size of government are of interest in their own right.

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7 Appendix

7.0.1 List of variables

- G/Y is Consolidated Central Government Expenditures in percentage of GDP (Y).
- T/Y is Central Government Revenue in percentage of GDP (Y).
- T^{income}/Y is the tax revenue from incomes, profits and capital gains taxes as a percentage of GDP (Y).
- $T^{commodity}/Y$ is the revenue from taxes on domestic goods as a percentage of GDP (Y).
- T^{tariff}/Y is the revenue from taxes on international trade as a percentage of GDP (Y).
- *Soldiers per capita 16-59* is the number of soldiers as percentage of the population aged between 16 and 59 years old. Constructed from military participation rates (military population per 1000 inhabitants).
- $G^{defense}/Y$ is total military expenditure as a percentage of GDP (Y).
- *Enrollment in primary education* is the total number of students in primary education as percentage of the population under 15 years of age.
- *Enrollment in secondary education* is the total number of students in secondary education as percentage of the population under 15 years of age.
- *Enrollment in tertiary education* is the total number of students in tertiary education as percentage of the population under 15 years of age.

- *Competition dummy* is a dummy variable that takes the value of 0 when the Polity IV index is equal or less than zero and takes a value of 1 when the Polity IV index is positive.

- *Participation index* is the voter turnout in each election as percentage of the total population. In case of indirect elections, only votes cast in the final election are taken into account. If electors have not been elected by citizens, only the number of actual electors is taken into account, which means that participation drops to 0. If an election to choose electors has been held, participation is calculated from the number and distribution of votes in that election. National referendums increase the variable value by five percent and state (regional) referendums by one percent for the year they are held. Referendums can add to the degree of participation at most by 30 percent in a given year. Combined participation cannot be higher than 70 per cent, even in cases where the sum of participation and referendums would be higher than 70 per cent.

- *Participation dummy* is a dummy variable that takes the value of 1 when the participation index is positive and is 0 otherwise.

- *Women's suffrage* is a dummy variable that takes the value of one after women were granted the right to vote in societies with positive political participation (*participation index*>0).

- *Literacy effect* is a dummy variable that takes the value of 1 after the literacy restrictions on the right to vote were lifted in societies with positive political participation (*participation index*>0) multiplied by the illiteracy rate (the total number of illiterate adults divided by the total population).

- *Economic Crisis* is a dummy variable that takes the value of 1 in a country every time a major economic crisis happens. As proxy of economic crisis, we use the dates when a currency change takes place, specifically the dummy is coded 1 two years before a major currency change and one year after.

- *GDP per capita* is the logarithm of real GDP, PPP adjusted, divided by the total population of the country.

- *Growth* is the yearly growth rate of GDP per capita.

- *Inflation* is the percentage change in the consumer price index divided by 100.

- *Income equality* is proxied by family farms as a percentage of the total cultivated area or the total area of farm holdings.

- *Population* is the natural logarithm of the total population of the country.

- *Population under 15* is the percentage of the total population aged 15 or less.

- *Population over 60* is the percentage of the total population aged 60 or more.

- *Urbanization rate* is the percentage of the total population living in urban areas.
- *Trade openness* is exports plus imports as a percentage of GDP.
- *War* is a dummy variable that takes the value of 0 when there is no war or civil war and takes a value of 1 in the presence of a war or a civil war. In the sample, the dummy war takes the value 1 for Nicaragua from 1978 to 1989 (Sandinistas' revolution) and for El Salvador from 1982 to 1991 (civil war).

Data sources Consolidated central government expenditures (G), central government revenue (T), tax revenue from incomes, profit and capital gains (T^{income}), revenue from taxes on domestic goods $\left(T^{commodity}\right)$, revenue from taxes on international trade $\left(T^{tariff}\right)$, total population, real and nominal GDP, enrollment in primary education, enrollment in secondary education, enrollment in tertiary education, inflation and Illiteracy rate, are from the data web site of Department of Latin American studies, Oxford University, UK. Population over 15 and Population over 60 are from Mitchell (1993). Military participation rate (to construct *Soldiers per capita* $16-59$) and Total military expenditure as a percentage of total GDP $\left(G^{defense}/Y\right)$ are from the Statistical abstract of Latin America, various issues, University of California, Center of Latin American Studies. The participation index is from Vanhanen (2000, 2003b). Family Farms (*Income equality*) and urban population out of total population (*Urbanization rate*) are from Vanhanen (2003a). The source for the extension of the female franchise and the literacy restrictions are CEPAL (1999), Nohlen (1993), and Engerman and Sokoloff (2001). Public education spending out of GDP is from Cepal (Badeinso on-line database).

Construction of the data set For some control variables, there are gaps in the series. We have dealt with this by linear interpolation. The Polity IV index codes regimes transitions with -88, foreign interruption with -66 and periods of anarchy with -77. In this case, we follow the suggestions given in the Polity IV user's manual (Marshall and Jaggers, 2000) and treat -66 as "system missing", -77 are converted to a polity score of 0 and cases of transition (-88) are pro-rated across the span of the transition.

Table 1: Total Government Spending (G/Y) and Revenue (T/Y) as a Percentage of Total GDP. Average per Decade.

		1920-30	1930-40	1940-50	1950-60	1960-70	1970-80	1980-90	1990-00
Argentina	G/Y	7.8	11.0	12.8	13.4	11.5	13.7	13.8	14.2
	T/Y	6.4	8.7	8.2	8.7	9.0	10.2	12.0	13.2
Bolivia	G/Y					9.6	15.8	25.7	21.2
	T/Y					6.6	9.6	7.6	16.0
Brazil	G/Y	9.6	11.3	9.5	9.6	10.7	16.8	26.1	30.3
	T/Y	8.2	9.2	8.6	7.6	7.5	9.9	22.8	24.6
Chile	G/Y			10.9	14.8	20.7	29.4	29.0	21.3
	T/Y			10.3	12.9	17.2	28.3	27.6	22.5
Colombia	G/Y		5.9	7.8	7.9	9.0	11.5	14.3	14.6
	T/Y		5.8	6.0	7.8	8.5	10.9	12.0	12.6
Ecuador	G/Y			9.3	9.0	12.6	12.9	14.6	16.9
	T/Y			8.9	8.8	9.9	11.0	13.3	17.0
Paraguay	G/Y			6.4	7.1	9.3	11.2	9.8	12.5
	T/Y			5.9	8.8	10.0	11.4	10.4	12.9
Peru	G/Y			13.3	13.8	16.6	19.4	14.2	18.4
	T/Y			11.23	12.9	15.0	15.4	12.4	15.9
Uruguay	G/Y				10.8	14.1	22.0	25.1	28.9
	T/Y				10.3	11.1	19.9	22.6	28
Venezuela	G/Y	9.9	11.6	12.4	19.6	20	22.2	24.3	19.4
	T/Y	10.0	11.4	13.0	19.7	20.6	27.0	25.2	19.5
Costa Rica	G/Y				10.8	13.7	19.3	23.7	22.0
	T/Y				11.5	12.0	16.3	21.4	20.2
Dominican	G/Y				21.8	18.5	17.1	14.3	15.1
	T/Y				20.8	16.4	16.1	12.5	15.4
Guatemala	G/Y	7.0	12.3	10.9	9.4	9.3	11.0	12.2	9.9
	T/Y	6.8	12.5	11.0	8.5	8.2	9.3	9.4	9.12
Honduras	G/Y	7.8	7.4	6.9	12.3	11.7	16.0	23.1	23.3
	T/Y						12.8	14.6	18.1
Mexico	G/Y	5.9	6.6	8.0	10.0	11.8	13.8	25.0	15.8
	T/Y	6.7	6.5	7.5	8.7	8.0	11.4	16.6	15.1
Nicaragua	G/Y				10.9	11.0	16.0	48.9	33.0
	T/Y				10.1	10.4	13.1	30.7	25.0
Panama	G/Y			14.6	14.4	15.5	28.3	29.7	25.7
	T/Y			12.8	13.3	13.5	20.8	25.6	26.1
Salvador	G/Y				7.5	12.5	12.3	14.5	18.1
	T/Y				7.2	12.0	11.5	14.0	14.4
Average	G/Y	8.0	10.4	10.4	12.3	13.2	17.2	21.7	19.7
	T/Y	7.6	9.5	9.5	11.5	11.5	14.8	17.2	17.9

Source: Authors calculations. Total government spending (G), revenue (T) and GDP (Y) are from the Oxford Latin American Economic History Database.

Table 2: Political Competition, Participation and the Fiscal Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	G/Y	T/Y	T^{income}/Y	$T^{commodity}/Y$	T^{tariff}/Y	G/Y	T/Y	Soldiers per capita aged 16-59	$G^{Defence}/Y$
Competition dummy	-1.993	-1.655	0.145	-0.818	-0.376	-0.404	-0.633	-0.217	-2.596
	(0.286)***	(0.242)***	(0.145)	(0.263)***	(0.082)***	(0.543)	(0.374)*	(0.028)***	(0.914)***
Participation index	0.045	0.039	0.039	0.002	0.004	0.021	0.003	0.001	-0.021
	(0.009)***	(0.008)***	(0.005)***	(0.007)	(0.003)	(0.015)	(0.011)	(0.001)	(0.026)
Trade Openness	0.089	0.126	0.061	0.010	0.028	0.051	0.128	-0.000	-0.015
	(0.012)***	(0.011)***	(0.010)***	(0.009)	(0.003)***	(0.019)***	(0.013)***	(0.001)	(0.025)
GDP per Capita	-2.226	-0.874	0.520	1.959	-0.561	-7.104	-5.608	-0.512	3.211
	(0.697)***	(0.719)	(0.399)	(0.827)**	(0.159)***	(1.310)***	(0.988)***	(0.100)***	(3.016)
Growth	3.356	1.213	-3.341	1.383	2.300	5.239	4.374	1.065	6.956
	(2.135)	(1.865)	(1.627)**	(1.648)	(0.644)***	(4.159)	(3.012)	(0.269)***	(6.773)
Income Equality	-6.765	-4.560	-1.878	-0.092	3.578	-11.658	-3.512	-1.168	-18.191
	(2.283)***	(1.641)***	(0.967)*	(2.136)	(0.557)***	(4.036)***	(2.561)	(0.218)***	(5.260)***
Population	9.827	7.247	9.552	-1.353	2.008	10.450	7.496	0.163	18.347
	(1.660)***	(1.263)***	(1.178)***	(1.913)	(0.442)***	(3.214)***	(2.139)***	(0.137)	(4.171)***
Population over 60	0.496	1.200	0.440	-0.553	0.214	1.909	2.555	0.026	2.368
	(0.229)**	(0.130)***	(0.092)***	(0.173)***	(0.050)***	(0.619)***	(0.326)***	(0.019)	(0.846)***
Urbanization rate	0.071	0.121	0.112	-0.082	-0.023	-0.008	-0.088	-0.015	-0.424
	(0.021)***	(0.018)***	(0.017)***	(0.030)***	(0.008)***	(0.046)	(0.027)***	(0.002)***	(0.087)***
Economics Crisis	2.257	0.160	-0.206	-0.489	-0.042	2.981	0.400	0.075	2.060
	(0.592)***	(0.466)	(0.168)	(0.229)**	(0.108)	(0.737)***	(0.528)	(0.031)**	(0.895)**
Inflation	-0.005	-0.001	-0.001	0.001	0.001	-0.006	-0.001	0.000	0.009
	(0.003)*	(0.001)	(0.001)**	(0.001)	(0.000)	(0.003)**	(0.001)	(0.000)	(0.004)**
War	9.153	5.014	0.279	1.091	-0.388	7.794	4.253	1.641	13.730
	(1.134)***	(0.875)***	(0.497)	(0.686)	(0.214)*	(1.322)***	(0.916)***	(0.117)***	(2.355)***
Trend	0.016	-0.121	-0.251	0.086	-0.066	-0.020	0.092	0.017	0.108
	(0.055)	(0.048)**	(0.033)***	(0.038)**	(0.013)***	(0.101)	(0.069)	(0.005)***	(0.129)
Observations	1026	987	641	377	688	576	571	576	426
# of countries	18	18	17	17	18	18	18	18	18

Notes: Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%. All regressions include country and year fixed effects and we correct for autocorrelation of order 1.

Table 3: Interactions Between Political Competition and Participation.

	(10)	(11)	(12)	(13)	(14)
	G/Y	T/Y	T^{income}/Y	$T^{commodity}/Y$	T^{tariff}/Y
Competition dummy	-2.318	-1.445	-0.230	-0.748	-0.320
	(0.433)***	(0.387)***	(0.195)	(0.274)***	(0.112)***
Participation index	0.038	0.042	0.031	0.004	0.005
	(0.011)***	(0.009)***	(0.006)***	(0.012)	(0.004)
Interaction	0.018	-0.010	0.018	-0.003	-0.002
	(0.017)	(0.015)	(0.008)**	(0.012)	(0.005)
Observations	1026	987	641	377	688
# of countries	18	18	17	17	18

Notes: Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%. All regressions include country and year fixed effects and we correct for autocorrelation of order 1. The control variables are the same as in Table 2.

Table 4: The Timing of Women's Suffrage and the Abolishment of Literacy Tests in the 18 Countries.

Country	**Women's suffrage introduced**	**Literacy tests abolished**
Argentina	1947	1912[a]
Bolivia	1952	1952
Brazil	1932	1985
Chile	1949	1970
Colombia	1954	1936[a]
Ecuador	1929	1978
Paraguay	1961	1870
Peru	1955	1979
Uruguay	1932	1918
Venezuela	1946	1947
Costa Rica	1949	1913
Dominican Republic	1942	1865
El Salvador	1950	1945
Guatemala	1946	1946
Honduras	1955	1894
Mexico	1953	1857
Nicaragua	1955	1893
Panama	1945	1904

Notes: a=restrictions applied on a subset of regions.
Sources: For Female Franchise: Economic Commission for Latino America and the Caribbean, UN: Participation and Leadership in Latin America and the Caribbean: Gender Indicators, December 1999. For Literacy tests: Nohlen (1993) and Engerman and Sokoloff (2001).

Table 5: Literacy Tests, Women's Suffrage, The Size of Government and Enrollments in Education

	(15)	(16)	(17)	(18)	(19)
	G/Y	T/Y	Enrollment in Primary Education	Enrollment in Secondary Education	Enrollment in Tertiary Education
Competition dummy	-1.400	-1.167	1.138	-0.002	0.115
	(0.301)***	(0.256)***	(0.281)***	(0.110)	(0.045)**
Participation dummy	-0.791	-0.622	-0.744	-0.124	0.138
	(0.592)	(0.557)	(0.601)	(0.182)	(0.083)*
Women's suffrage	0.269	-0.103	-0.756	1.341	0.459
	(0.462)	(0.413)	(0.405)*	(0.139)***	(0.080)***
Literacy effect	0.031	0.047	0.050	-0.034	-0.022
	(0.009)***	(0.009)***	(0.008)***	(0.003)***	(0.001)***
Trade openness	0.092	0.130	-0.041	0.075	-0.013
	(0.012)***	(0.011)***	(0.010)***	(0.004)***	(0.002)***
GDP per Capita	-1.976	-0.746	6.047	1.337	-0.269
	(0.691)***	(0.701)	(0.723)***	(0.234)***	(0.101)***
Growth	2.936	0.717	-5.165	-0.886	0.460
	(2.129)	(1.862)	(1.517)***	(0.662)	(0.280)*
Income Equality	-3.898	-0.921	-0.738	17.979	6.092
	(2.358)*	(1.650)	(1.611)	(0.951)***	(0.362)***
Population	11.106	8.826	15.577	-8.616	-7.975
	(1.742)***	(1.311)***	(0.672)***	(0.533)***	(0.260)***
Population over 60	0.684	1.382			
	(0.231)***	(0.134)***			
Population under 15			0.140	-0.077	-0.105
			(0.069)**	(0.025)***	(0.010)***
Urbanization rate	0.071	0.116	0.234	0.174	0.076
	(0.021)***	(0.018)***	(0.015)***	(0.007)***	(0.004)***
Economics Crisis	2.125	-0.015	0.890	0.732	-0.145
	(0.591)***	(0.455)	(0.521)*	(0.172)***	(0.054)***
Inflation	-0.005	-0.001			
	(0.003)*	(0.001)			
War	9.235	5.347	3.158	-1.014	0.571
	(1.149)***	(0.887)***	(0.469)***	(0.221)***	(0.076)***
Trend	-0.026	-0.159	-0.160	0.180	0.164
	(0.059)	(0.050)***	(0.048)***	(0.017)***	(0.007)***
Observations	1026	987	1012	991	682
# of countries	18	18	18	18	18

Notes: Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%. All regressions include country and year fixed effects and we correct for autocorrelation of order 1.

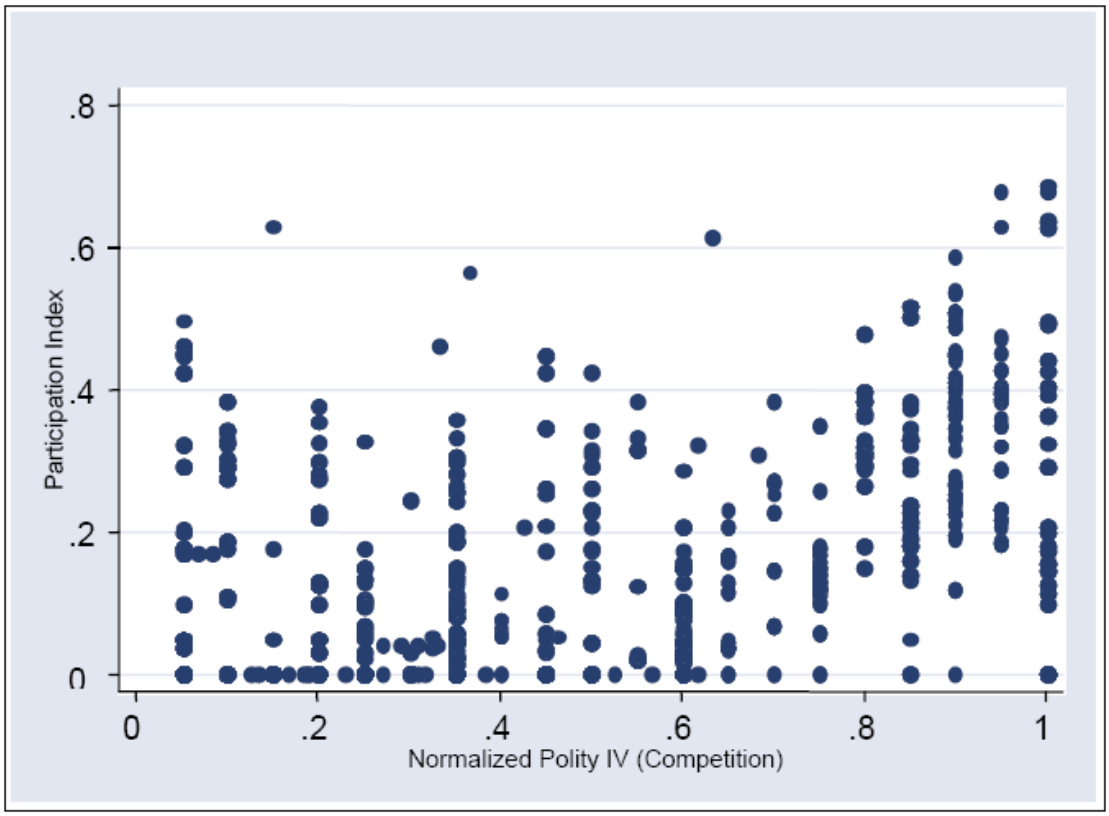
Figure 1: Classification of Political Regimes in Two Dimensions: Competition and Participation.

High Participation

Low Competition	High Competition
- Paraguay 1961-1988 - Mexico 1953-1993 - Panama 1983-1987	- Argentina 1873-1875 - Costa Rica 1949-2000 - Mexico 1994-2000
- Brazil 1900-1930 - Venezuela 1920-1945 - Guatemala 1931-1943	- Argentina 1890-1911 - Chile 1940-1948 - Peru 1942-1954

Low Participation

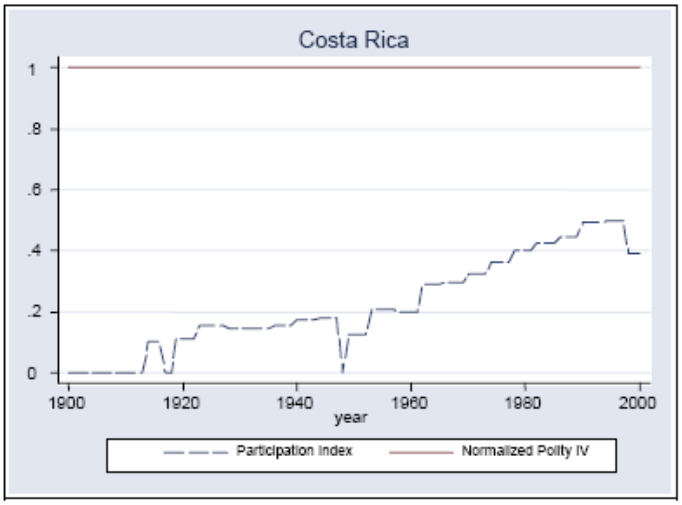
Figure 2: Scatter Plot of the Normalized Polity IV [0,1] and the Participation Index.



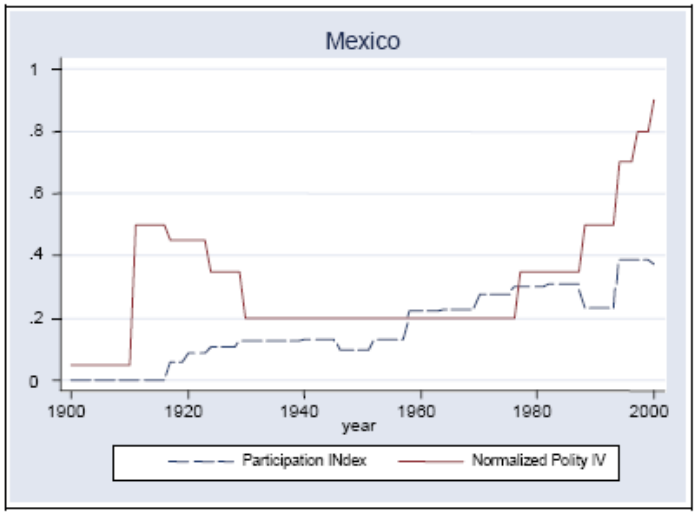
Source: Authors calculations.

Figure 3: The Normalized Polity IV [0,1] and the Participation Index between 1900-2000, in Three Selected Countries.

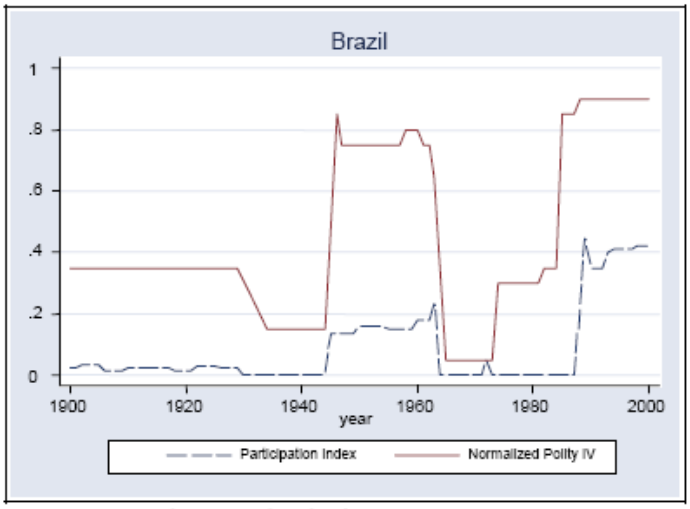
(a)



(b)



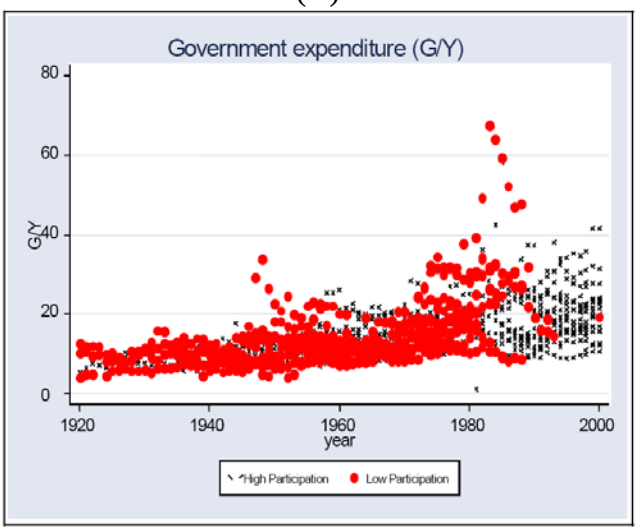
(c)



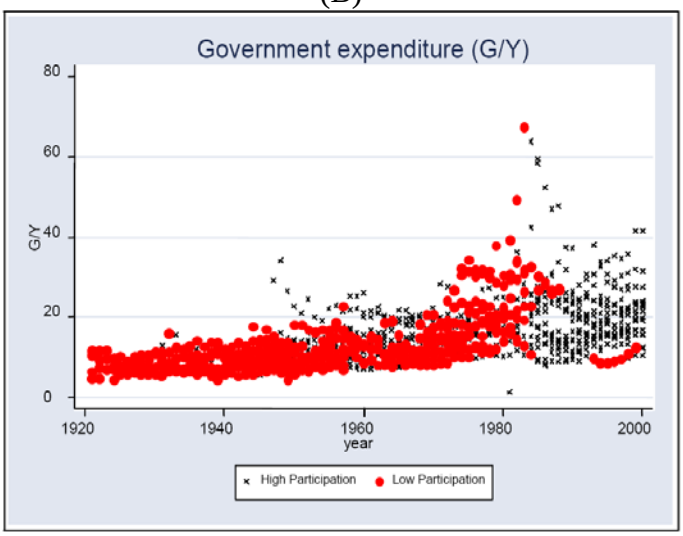
Source: Authors calculations.

Figure 4: The Size of the Government (G/Y and T/Y) between 1920-2000, Distinguished by the Degree of Political Participation and Competition.

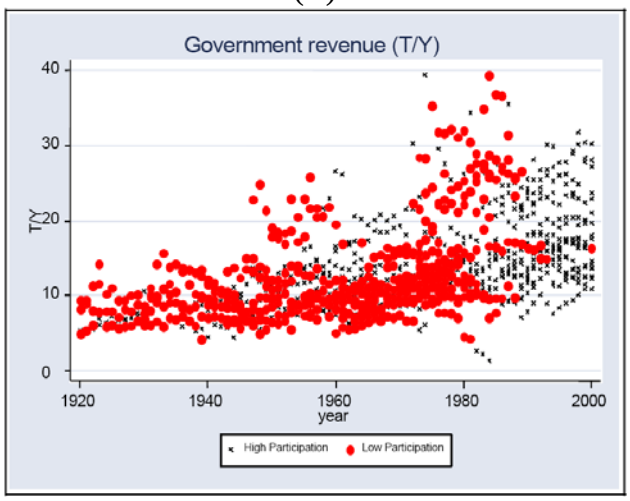
(A)



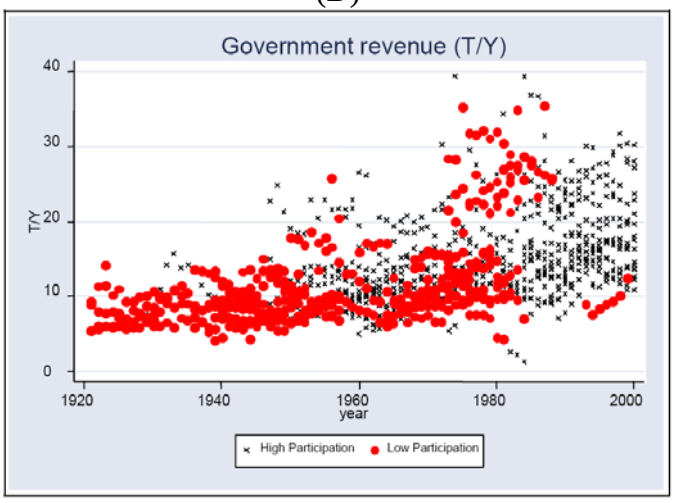
(B)



(C)



(D)



Source: Authors calculations.

Note: A country is defined as having high electoral participation when the participation index is larger than 15 percent. A country is defined as having low electoral participation when the participation index is less than 15 percent.