

DOES DEMOCRACY AFFECT TAXATION?
EVIDENCE FROM DEVELOPING COUNTRIES

PAOLA PROFETA, RICCARDO PUGLISI E SIMONA SCABROSETTI

Does Democracy Affect Taxation? Evidence from Developing Countries

Paola Profeta
Università Bocconi

Riccardo Puglisi
Università di Pavia and Université Libre de Bruxelles

Simona Scabrosetti
Università di Pavia

September 2009

Abstract

A large literature has emphasized the positive relation between democracy and redistribution. However, little is known about the role of political regimes in shaping the mechanisms of redistribution, i.e. mainly tax design and composition. Moreover, cross-country analyses are often inconclusive, as they typically do not rely on fixed effects estimates.

We build a new dataset to analyze the effects of democratization on tax revenue and tax composition in a sample of developing and emerging countries in three world areas (Asia, Latin America and New EU Members) during the period 1990-2005. Controlling for country fixed effects, we find that tax revenue is significantly larger when civil liberties are more strongly protected. This result is actually larger in size and statistical significance when controlling for GDP per worker and trade openness. On the other hand, the within-country correlation of tax revenue and the Polity2 index of democracy is never statistically significant. We also find that personal income taxes are higher in more liberal regimes, as well as the total amount of direct taxes, while property taxes are higher in less liberal countries. Finally, we do not find any significant within-country effect of democracy and civil liberties on corporate taxes, indirect taxes and social security contributions.

Keywords: civil liberties, tax composition

JEL Classification: H20, O53, P16, P35, P50

1 Introduction

Taxation is a major issue in economics and politics. Tax design and the implementation of tax reforms are at the core of economic policy. They are also among the most debated issues in the political arena. In modern democracies tax reforms need the support of voters in order to be implemented, while at the same time policy-makers try to design a tax system and propose tax reforms to please as many voters as possible. The issue of taxation can attract and shift votes, in particular those of non-ideological citizens (possibly a large part of the electorate) who decide which party to vote by computing the advantages –in some cases, mainly the fiscal ones– that they could enjoy from this party with respect to the opponents (Hettich and Winer 1999, Profeta 2007). In traditionally non democratic countries the process underlying tax decisions is much more difficult and less clear to predict. Interest groups that are economically and politically powerful might play a dominant role. When these countries experience a democratic transition it may be the case that these influences remain strong and interact with voters’ preferences in determining tax policy outcomes.

The democratic transition is also typically related to the economic one, as emphasized by a recent –and growing– literature (see, among the others, Giavazzi and Tabellini 2005, Persson and Tabellini 2007, Papaioannou and Siourounis 2008). As a consequence, this interplay between economic and political factors is particularly crucial to understand public policies and reforms, mainly redistribution through taxation (see Acemoglu and Robinson 2006 and Boix 2003).¹ However, the existing literature has devoted little attention to the empirical analysis of the link between democracy and the structure of taxation. Moreover, the existing analyses simply rely on cross-country variation, so that omitted variables might bias the results.

In this paper we try to fill the gap by analysing the relation between democracy and taxation within a difference-in-differences framework, i.e. by controlling for

¹We will discuss the related literature in the next section.

country fixed effects. More precisely, our aim is to show whether democratic transition is significantly correlated with the total amount of tax revenue and with the tax composition. Our analysis is based on a unique data-set for a sample of developing and emerging countries of three world areas that have recently experienced significant political changes: Asia, Latin America and New EU Members. Our dataset spans the 1990-2005 period. In particular, our sample of countries for the Asian region includes China, India, Indonesia, the Republic of Korea, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and Vietnam. For the Latin American region we consider Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela. Finally, we include all countries that joined the European Union in 2004 (with the exception of Malta, due to lack of political data), which represent more mature, though quite recent, democracies. Regarding tax variables, we use IMF data for the Asian countries, CEPAL for Latin American ones and EUROSTAT for New EU Members. In addition to the main macroeconomic indicators and several socio-economic and demographic variables, we collect data on different measures of democracy and civil liberties from the PolityIV dataset and Freedom House, two well known sources of information that are often used in political economy studies.

We find that tax revenue is significantly higher when civil liberties are more strongly protected. This result is actually larger in size and more significant when controlling for GDP per worker and trade openness. On the other hand, the within-country correlation of tax revenue and the Polity2 index of democracy is never statistically significant. We also find that personal income taxes are higher in more liberal regimes, as well as the total amount of direct taxes, while property taxes are higher in less liberal countries. These results are robust to controlling for a set of socio-economic variables such as the share of agriculture on GDP and the central government debt on GDP. In fact, when controlling for those additional variables, we find some mild evidence that trade taxes are positively and significantly correlated

with civil liberties. We instead do not find any significant within-country effect of democracy and civil liberties on corporate taxes, indirect taxes and social security contributions.

The paper is organized as follows: in the next section we overview the related literature, section 3 provides a description of the data, while section 4 presents our econometric results proper. Finally, section 5 concludes.

2 Related literature

A large growing literature argues that democratic and economic transitions are strictly related. Although it is difficult to establish the correct direction of a causal relationship, there may be positive feedback effects between economic and political reforms (Giavazzi and Tabellini 2005).² In many areas of the world, the economic transition goes hand in hand with a political transition towards a modern concept and organization of democracy. On one hand a higher level of economic well-being –which entails higher rates of literacy, education and urbanization, and also a larger middle class– would be necessary, though not sufficient, for democracy to be widely supported and then introduced (see Lipset 1959, Boix 2003, Acemoglu and Robinson 2006). On the other hand, stable democracies are likely to promote economic liberalizations and reforms, which in turn would have a positive effect on the overall economic performance (Persson and Tabellini 2007).

Recent contributions have emphasized this two-way relation between democratic regimes and economic outcomes, with a particular focus on growth as the major goal

²The effects of economic and political transitions are not additive, i.e. countries which undertake both reforms have better economic performance as compared to countries which undertake only economic or political liberalization (Giavazzi and Tabellini 2005). Moreover, the sequence of reforms may matter. Following the “easy path,” that is first becoming a democracy and then opening up the economy, leads to poorer economic payoffs in terms of growth, investment, trade volume and macro policies. It is less frequent that an authoritarian regime opens up the economy but –when this happens– a likely precondition is that the regime was able to crush interest groups that oppose free trade and the market system. Consequently, liberalization is more effective and devoid of compromises. On the other hand, it could be that better democracies arise in an open economic environment. Redistributive conflicts could weaken a young democracy characterized by a closed economy whereas openness to trade, competition and growth, which arise from economic liberalization, provide the resources for the redistribution that a democracy requires.

of economic policies. In Persson and Tabellini (2007), the current economic performance depends on the belief in a stable democratic political system: in a virtuous circle, economic development would help a further consolidation of a democratic system and yet contribute to additional economic growth (see also Hayek 1960, Gerring *et al.* 2005). Papaioannou and Siourounis (2008) find that the accumulation of democratic capital implies an average acceleration of the annual growth rate by 0.7-1.1 per cent, so that the merits of democracy appear in the long run. Persson and Tabellini (2007) similarly find an average growth acceleration of about 1 per cent when there is a transition from an autocratic to a democratic regime. At the same time, when democracy collapses, the growth rate reduces by almost 2 per cent on average, producing a fall of about 45 per cent in per capita income over the long run. Rodrik and Wacziarg (2005) investigate the short-run impact of democratic transition on growth: adopting a specification with country fixed effects, they find that this impact is positive in low income countries, countries with high ethnic fragmentation and African countries. On the contrary, Acemoglu *et al.* (2004, 2005) argue that there may be some factors which simultaneously affect both democracy and economic development. They empirically find no positive relation between per capita income and democracy as well as between education and democracy and no evidence of a causal effect of income on democracy. In order to explain the strong cross-sectional correlation between income and democracy, the authors thus mainly refer to historical factors, such as the type of colonization experience, which in the long-run persistently influence both the economic and the political development path of societies. An additional criticism to the two-way relation between democracy and growth comes from Barro (1996), who underlines that democracy is not a key factor for economic growth and that the relation between democracy and growth may be non-linear. Finally, in Fernandez and Rodrik (1991) growth enhancing reforms will not be supported *ex ante* by rational voters if gainers and losers are not easy to identify, so that the status quo will be maintained. But the *ex ante* hostility could also become an *ex post* support when reforms actually result

quite popular. In these cases, autocracy, rather than democracy, may lead to the implementation of this kind of reforms.

The interplay between economic and political factors is also crucial to understand public policies and reforms. A relevant strand of the theoretical and empirical literature is in fact focused on the relation between democracy and public policies, and, in particular, on that between democracy and redistribution, even if the existent empirical analyses have not reached conclusive results on this issue. Representative institutions can be seen as a concession from the authoritarian rulers to raise taxation, especially when tax base is more elastic (see Bates and Lien (1985), Bates (1991), Rogowski (1998) and Tilly (2004)). Democracy and the duration of democratic institutions are thus expected to be associated with more tax revenue, while autocracy is expected to go in the opposite direction. Democracy would lead to redistribution from the rich (the elites) to the poor (the citizens) also according to Acemoglu and Robinson (2006) and Boix (2003)'s theories. This redistribution can take place both through an enlarged welfare state and a re-organized tax system that more heavily relies on direct taxation than on indirect one. In fact, democratization allows low-income groups to take part in the political process and, as a consequence, should be related to policies that favour such groups and tend to promote equality. The crucial intuition is that under a non-democratic regime the size of the public sector and of redistributive spending is small, since a substantial part of the electorate is excluded from the decision-making process. A transition to democracy, on the contrary, should raise taxes and public spending, since democratization will involve demands for government to assume more responsibility for the unemployed, sick, poor and the elderly. The classical predictions of the median voter's model apply: taxes (and public spending) are expected to increase under a democratic regime, to satisfy the needs of the electorate. The empirical study of Boix (2003) suggests that a significant share of the public sector actually depends on the political regime in place, which also interacts with the distribution of income, citizens' preferences and economic conditions.

Other studies have instead argued that the empirical evidence does not confirm this result, and in particular that democracies do not redistribute more than non democracies. Mulligan *et al.* (2004) consider a sample of 142 countries in the 1960-1990 period and find that none of the different measures of public spending that they consider (government consumption, education spending and social spending, as a percentage of GDP) is statistically different in democracies and non democracies. However, a dummy variable that captures whether a country has been communist for more than a few years suggests that totalitarian countries spend more of their GDP on education, but also on pension and non pension programs. Moreover, even if there are no significant economic or social policy differences between representative and non representative systems, democracies are also less likely to erect political entry barriers (such as torture, death penalty, press censorship, regulation of religion and maintaining an army, see Tullock, 1987) than non democracies.

On the contrary, the relation between indicators of democracy and the structure of taxation has so far received little attention on the empirical side. The existing literature has developed several ideas on the tax mix in democratic versus autocratic countries, however without reaching an agreement. Wintrobe (1990) suggests that democratic countries, since they do not use repressive measures as governing instruments, have to design tax systems that induce more voluntary tax compliance (see also de Juan *et al.* 1994, Pommerehne and Weck-Hannemann 1996, Alm 1996, Feld and Frey 2002). Mature democracies thus rely more on revenue sources, such as self-assessed personal income taxation, that are based on voluntary tax compliance. On the other hand, more repressive governments that cannot rely on tax sources requiring a certain level of voluntary cooperation move toward corporate taxes or trade taxes. Mulligan *et al.* (2004) find that democracies have flatter personal income tax structures and a generally lower tax revenue/GDP than non-democracies. These results are in contrast with the classical prediction of Musgrave (1969) that more autocratic countries, which directly control the economy and in particular the wage level, rely more on corporate rather than on individual taxes, as compared to

more democratic ones. Finally, a recent work by Kenny and Winer (2006), explicitly devoted to the analysis of the structure of taxation in a large sample of democratic and non-democratic countries, finds that a stronger protection of rights and liberties leads to a more intensive use of personal income taxation. According to the authors this happens because personal income taxes are more complicated and rely on voluntary compliance, rather than because of redistributive reasons. In fact, repression will reduce citizens' willingness to cooperate in collecting tax revenue; as a consequence, property and trade taxes –as well as seigniorage and profits from state owned enterprises– end up being the main revenue sources in non-democratic countries.

The theoretical and empirical literature have also emphasized that some fundamental economic variables, mainly GDP, may play a crucial role in the relation between democracy and the level of taxation as well as the tax composition (see Hinrichs 1966 and Tanzi 1992). Musgrave (1969) argues that the lack of availability of “tax handles” might limit revenue collection at low levels of income. Moreover, according to Wagner's law, economic development is associated with an increased demand for public expenditure (Tanzi 1987). Not only economic development widens the tax base, but it also improves administrative capacity to levy and collect taxes (Chelliah 1971). All these mechanisms should thus result in a positive relationship between per worker GDP and tax revenue. Additional socio-economic variables that may have an impact on the relation between democracy and taxation are the level of government debt, the share of agriculture on GDP, trade openness, the female labour force participation rate, the level of literacy (secondary school enrolment) and the percentage of elderly people on the total population (Tanzi 1992, Burgess and Stern 1993, Ghura 1998, Rodrik 1998, Gupta *et al.* 2004).

To conclude this survey, notice that all the (few) existing empirical studies on the relation between indicators of democracy and taxation and its composition are based on cross-country correlations. Adopting this same approach, Profeta and Scabrosetti (2009) extend the analysis of Kenny and Winer (2007) to a broader

set of developing countries in the period 1990-2004. Using pooled OLS regressions, they find that democracy and civil rights protection are positively correlated with the level of tax revenue and the amount of direct taxes.

3 Data description

Since we are interested in the analysis of the relation between democracy and taxation, we should first of all clarify how we can measure democracy. There is a large debate among political scientists on how to measure democracy, since the definition of what constitutes a democracy is not uncontroversial. The definition proposed by Schumpeter (1942) is generally accepted as a starting reference point: “democracy is the institutional arrangement for arriving at political decisions in which individuals acquire the power to decide by means of a competitive struggle for the people’s vote”. This definition suggests that democracy is identified by specific institutions, which guarantee free and fair elections, the accountability of politicians to the electorate and free entry in politics. However, how to measure these institutional conditions is neither obvious nor clear. Scholars in political scientists are divided between those who favour a simple dichotomous classification, i.e. a country is either democratic or not (Przeworski *et al.* 2000) and those who develop a continuous measure of democracy based on a specific index. It is out of our scope to solve this controversy. While we consider the dichotomous definition useful, especially when a transition should be analysed, in this paper we will mainly refer to continuous measures of democracy which allow us to capture more features of a political regime and to better address cross-country differences. We will thus concentrate on two main continuous measures of democracy, given by the Polity IV dataset and the Freedom House.

Our first indicator is POLITY2 in the Polity IV dataset (2007), computed by subtracting an annual measure of institutionalized autocracy (AUTOC) from an annual measure of institutionalized democracy (DEMOC) both ranging from 0 to 10. These measures are constructed by taking into account the competitiveness of

political participation, the regulation of participation, the openness and competitiveness of executive recruitment and the constraints on the chief executive that characterize a specific country. As a consequence, the POLITY2 score ranges from -10 (strong autocracy) to +10 (strong democracy). In particular, DEMOC stands for institutionalized democracy and is conceived as three essential and interdependent elements: (i) the presence of institutions and procedures through which citizens can express effectively their preferences about alternative policies and leaders, (ii) substantial institutionalized constraints on the exercise of power by the executive, (iii) the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation. The rule of laws, systems of checks and balances, freedom of the press, and other aspects of democracies are included, because they are considered specific means of these three elements. AUTOC stands instead for institutionalised autocracies, i.e. political systems whose common features are a lack of regularized political competition and concern for political freedoms. A higher level of the POLITY2 indicator can thus be alternatively read as a higher level of democracy, the level of autocracy being equal; or a lower level of autocracy, the level of democracy being equal.

We consider a sample of countries of three different areas of the world: Asia, Latin America and New EU Members. The history, background, institutional, economic and social characteristics of each area are very different, but the time trends in the POLITY2 variable appear very similar. There is a general increasing trend towards democracy in the period that we analyse as we show in Figure 1a-1d.

[FIGURE 1a, 1b, 1c, 1d HERE]

Figure 1a shows the evolution of democracy in the three areas at the centre of our analysis. For each year we compute the average POLITY2 score for all countries belonging to each of those three areas. In Figure 1b, 1c and 1d we show instead the evolution of the POLITY2 score for a selected sample of countries in each area.

The second source of political variables is the Freedom House, which includes an indicator called civil liberties, measured on a one-to-seven scale. In order to make

it compatible with the POLITY2 variable, we invert the order of this variable, so that a value of 1 represents the lowest degree of freedom of expression, assembly, association and religion, and 7 the highest. Hence, countries with a rating of 7 are generally characterized by an established and equitable rule of law with free economic activity and citizens enjoying a full range of civil liberties. A rating of 6 indicates some deficiencies, but these countries remain still relatively free. A rating of 3, 4, or 5 may indicate partial compliance with all of the elements of civil liberties. It may also represent complete freedom in some areas and complete denial in others. Countries with these ratings experience varying degrees of censorship, political terror, and prevention of free association. A rating of 2 means few social and religious freedoms and some restricted business activity, i.e. partial protection of rights. In general, however, these countries are characterized by highly limited rights of expression and association, coupled with political terror (e.g. political prisoners). Finally, a rating of 1 indicates virtually no freedom and real restrictions on liberty caused by non-governmental terror. To determine each country's civil liberties, researchers answer a series of survey questions classified in the following categories. The first category includes freedom of expression and belief, and would measure freedom of the press, religious freedom, and freedom of cultural expression. The second category (association and organizational rights) would evaluate freedom of assembly and organization, the ability to create trade unions and other free private organizations. The third category (rule of law) is focused on the presence of an independent judiciary, the degree of protection from political terror, and equal protection under the law. Finally, the fourth category (personal autonomy and individual rights) includes free private discussions, property rights, personal autonomy, and personal freedoms. Notice that Freedom House distinguishes between constitutional guarantees of rights, i.e. the formal aspect thereof, and the degree with which those rights are *de facto* protected. Therefore, the real-world rights and freedoms enjoyed by individuals and representing the interplay of a variety of actors, both governmental and non-governmental, are reflected in its indicators.

Similarly to what done before with POLITY2 indicator, Figure 2a shows the evolution of the CIV measure in the three areas under consideration. In Figures 2b, 2c and 2d we show instead the evolution of the same score for a selected sample of countries in each area.

[FIGURE 2a, 2b, 2c, 2d HERE]

Data on taxes are collected from different sources for each world area we consider: IMF for Asian, CEPAL for Latin American and EUROSTAT for New EU Members countries. We collect data on tax revenue/GDP, but also on its composition, that is personal and corporate income taxes, property and trade taxes, social security contributions as a percentage of GDP. Moreover, by reclassifying specific tax sources, we also attempt at homogenising the aggregated categories of direct and indirect taxes across different data sources (see the Data Appendix for additional details).

In the Data Appendix we also describe the socio-economic and demographic control variables used in the analysis, i.e. GDP per worker, the sum of imports and exports on GDP (trade openness), the central government debt on GDP, the share of agriculture on GDP, the female labour force participation rate, the secondary school enrolment and the share of elderly people on the total population.

Table 1 presents the summary statistics of all relevant variables for the 1990-2005 period.

[TABLE 1 HERE]

4 Results

Our econometric approach is close to Papaioannou and Siourounis (2008), since we similarly exploit the within-country variation in measures of democracy and civil liberties and correlate it with the dependent variable of interest. Of course, the crucial difference is that they aim at estimating the impact of democracy on economic growth, while we focus on intermediate outcomes like tax revenue and tax composition.

More formally, we estimate the following equation:

$$TAX_{it} = \alpha_i + \beta_t + \gamma POLITY2_{it} + \delta CIV_{it} + controls_{it} + \epsilon_{it} \quad (1)$$

where TAX_{it} is the tax revenue (or a specific tax source) over GDP collected in country i in year t , $POLITY2_{it}$ is the measure of democracy according to the Polity IV dataset (2007) in country i in year t , CIV_{it} is the level of the (inverted) Freedom House Index of rights protection in country i in year t , α_i and β_t are respectively a country and a year fixed effect and ϵ_{it} is the error term. Since we include country and year fixed effects, our estimates exploit the fact that different countries have or have not experienced a change in the level of rights protection or in the strength of democratic institutions. We also include various sets of controls, in order to explore the robustness of our results.

Our results are reported in Table 2 and 3, which are organized as follows. The different columns in the tables are devoted to different tax sources, with the first column focusing on tax revenue over GDP. In each column we stack the regression output for different specifications, whereas we enlarge the set of controls. Since the error term might be serially correlated within countries (even after controlling for country fixed effects) and thus wrongly inflate the precision of our estimates, for all specifications we cluster the standard errors at the country level (see Bertrand *et al.* 2004). The corresponding t-statistic is displayed below each coefficient.

[TABLE 2 and 3 HERE]

We find that tax revenue is significantly larger when civil liberties are more strongly protected. This result is actually larger in size and statistical significance when controlling for GDP per worker and trade openness (Table 2, column 1). The importance of GDP is not surprising (see section 2). However, in contrast with the arguments put forward by Musgrave (1969) and Tanzi (1987), the partial correlation between GDP and tax revenue is never statistically significant across all our specifications. Notice that the result holds when we also control for central government debt on GDP and the share of agriculture on GDP (Table 3, column 1).

On the other hand, the within-country correlation of tax revenue and the Polity2 index of democracy is never statistically significant.

Turning to the tax composition, we find that, when we control for the level of GDP per worker, direct taxes are higher in more liberal regimes (Table 2, column 4). When controlling for trade openness the positive correlation between civil liberties and the share of personal income taxes becomes mildly significant as well (Table 2, column 2). The introduction of additional controls, such as central government debt on GDP and the share of agriculture on GDP (Table 3, column 2 and 4), does not alter these results. In other words, more civil liberties are associated with a larger tax revenue, which is essentially due to more direct taxes, mainly on personal income. This can be explained by two arguments: first, political regimes that protect civil liberties tend to be more redistributive, weighting more the needs of the middle class and the poor. Second, they can rely on voluntary tax compliance by citizens, an essential aspect of personal income taxation.

A relevant finding is that civil liberties rather than the POLITY2 index of democracy seem to play the crucial role in explaining an increase in tax revenue through direct taxes in each country. In other words, the protection of the fundamental rights of citizens in their social life is significant in creating tax compliance and possibly helping the emergence of redistributive preferences, while the positive repercussions of well-defined broad political rights on revenue does not seem to play a significant role in a within-country context.

Interesting correlations also arise when we look at property taxes, which turn out to be higher in less liberal countries in almost all specifications (Table 2 and 3, column 6). This may be due to the fact that property taxes do not need (or need less) tax compliance by taxpayers. This type of taxation does not require individual's considerations, such as tax allowances, deductions, exemptions, special cases, and is thus easier to be relied on in a context where, in general, civil liberties and individual freedom are not a priority. However, by adding further controls (see the last regression in Table 3), the correlation is no longer significant.

Trade taxes are not significantly related with civil liberties in the regressions reported in Table 2, while the correlation is positive and mildly significant in the richer specifications of Table 3. The results shown in Table 3 must be taken with an additional amount of caution, since –because of data availability reasons– the sample is much smaller than in the less data-demanding specifications shown in Table 2.

On the other hand, we do not find any significant within-country effect of democracy and civil liberties on corporate taxes (Table 2 and 3, column 3), indirect taxes (Table 2 and 3, column 5) and social security contributions (Table 2 and 3, column 8). This last result is in line with the predictions of Mulligan *et al.* (2004) who argue that social security is not larger in democratic countries.³

The inclusion of the fundamental economic variables (trade openness, agriculture and debt on GDP) delivers other interesting results. In some specifications a higher level of imports and exports on GDP is associated with larger levels of corporate income taxes (Table 2, column 3) and lower social security contributions (Table 2 and 3, column 8). This is in contrast with the predictions of the classical fiscal competition theory, and suggests that in developing countries tax base effects may be larger than tax rate ones. To be more specific, more open countries will fix lower level of corporate tax rates, as expected. However, this will not result in lower tax revenue from corporate if countries are able to attract foreign investments in such a way that the total tax base would sufficiently increase. Also the share of agriculture on GDP is associated with lower tax revenue and lower indirect taxes (Table 3, column 1 and 5). Central government debt is instead positively and significantly

³Using the Gastil's index of political rights, Habibi (1994) finds that more democratic countries spend less on defense and more on health. Moreover, the share of social expenditures (health, education and social security) in the budget is positively and significantly associated with the political index. These results are in line with the general idea that more political liberties rise the political influence of lower and middle-income groups, who prefer social programs over defense or business-related expenditures. However, the specific budget shares of education and social security seem not to be directly related to the political situation. Finally, the negative relation between the political index and the share of defense expenditure drives the negative association between the same index and the current expenditure on goods and services, while the positive relation between the political index and the share of social expenditure helps to explain the positive association between the same index and the budget share of subsidies and transfers.

correlated with property taxes (Table 3, column 6) and, in the first regression of Table 3, with the level of tax revenue (column 1): these findings might point to the need of additional (and more contentious) revenue sources in the case of dynamically unsustainable paths for the public debt. The demographic variables added in the last specification of Table 3 also display some interesting correlations, which deserve some further analysis: the female labour force participation rate and the secondary school enrolment are respectively positively and negatively related with property taxes. On the other hand, the share of elderly people is negatively correlated with corporate income taxes and, quite surprisingly, with social security contributions.

Finally, following Kenny and Winer (2006), in the last specification of Table 2 we add as a control total revenue over GDP, which might proxy for the overall financing needs of the government. This variable appears to absorb a large chunk of the within-country variation we are exploring. Indeed, the correlation between civil liberties and both personal income and direct taxes is no longer significant when adding this control. On the other hand, it is interesting to notice that the negative correlation between civil liberties and the level of property taxation is robust to this addition.⁴

5 Conclusions

Our analysis is a first attempt to explore whether political regimes may contribute to explain within country changes in tax revenue and composition. For this purpose, we have gathered a new dataset for developing and emerging countries of three areas of the world, Asia, Latin America and New EU Members, for the 1990-2005 period. Adopting a country fixed effect specification we find that tax revenue is significantly larger when civil liberties are more strongly protected. This result is driven by a higher level of direct and personal income taxes. Our results are robust to the inclusion of several socio-economic and demographic control variables.

⁴As remarked by Kenny and Winer themselves, total revenue over GDP is mechanically endogenous with respect to the specific tax sources, so that these last regressions should be taken with an additional dose of caution.

It is worthwhile to remark that –according to our findings– the protection of civil liberties appears to play a more relevant role with respect to the level and the composition of tax revenue than the strength of political liberties. Moreover, additional results are at odds with classical predictions of the median voter theories: we do not find, for instance, that countries where civil liberties are more protected have more social security. This suggests that in the context of developing countries, especially those who have experienced a recent transition towards democracy, other political actors, such as organized interest groups, could exert some sizeable influence on the tax system, which might counteract the pressure arising from the workings of formal electoral institutions. This is a promising avenue for future theoretical and applied research not only on taxation, but in the general area of public policies in developing countries.

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A Data Appendix

List of all variables and their sources:

POLITY2: the POLITY2 score is computed by subtracting the AUTO score from the DEMOC score. The resulting unified polity scale ranges from +10 (strongly democratic) to -10 (strongly autocratic). Source: Polity IV dataset (2007).

CIVIL LIBERTIES: conceived of as freedoms to develop views, organizations and personal autonomy apart from the State, are measured on a one-to-seven scale. We have inverted the order of the original variable, so that a value of 1 represents the lowest degree of freedom, while a value of 7 stands for the highest level of protection. Source: Freedom House. *Freedom of the World: The Annual Survey of Political Rights and Civil Liberties*. Washington, D.C. and New York: Rowman & Littlefield Publishers, Inc.:

<http://www.freedomhouse.org>

TAX REVENUE: tax revenue/GDP. For Asian countries, data on tax revenue (in national currency, referred to central government with the exception of Vietnam) come from IMF (1999; 2001-6) *Government Finance Statistics Yearbook*. Data on GDP (in national currency, at constant market prices) come from IMF *World Economic Outlook Database*, April 2009. For Latin American countries TAX_REV is total fiscal pressure/GDP.

Source: CEPALSTAT, <http://websie.eclac.cl/sisgen/ConsultaIntegrada.asp>.

For New EU Members: TAX_REV is total fiscal pressure/GDP. Source: Eurostat (2008) *Taxation trends in the European Union*, Eurostat Statistical Book, and Bernardi, L., M. Chandler and L. Gandullia (eds) (2005) *Tax Systems and Tax Reforms in New EU Members*, London: Routledge.

PERSONAL INCOME TAX: personal income tax/GDP. For Asian countries, data on individual tax on income, profits and capital gains (in national currency, referred to central government with the exception of Vietnam) come from IMF (1999; 2001-6) *Government Finance Statistics Yearbook*. Data on GDP (in na-

tional currency, at constant market prices) come from IMF *World Economic Outlook Database*, April 2009. Not available for Singapore. For Latin American countries the source is:

CEPALSTAT, <http://websie.eclac.cl/sisgen/ConsultaIntegrada.asp>.

Not available for Argentina, Ecuador, El Salvador, Guatemala, Nicaragua and Venezuela. For New EU Members, source: Eurostat (2008) *Taxation trends in the European Union*, Eurostat Statistical Book and Bernardi, L., M. Chandler and L. Gandullia (eds) (2005) *Tax Systems and Tax Reforms in New EU Members*, London: Routledge.

CORPORATE INCOME TAX: corporate income tax/GDP. For Asian countries, data on corporate tax on income, profits and capital gains (in national currency, referred to central government with the exception of Vietnam) come from IMF (1999; 2001-6), *Government Finance Statistics Yearbook*. Data on GDP (in national currency, at constant market prices) come from IMF *World Economic Outlook Database*, April 2009. Not available for Singapore. For Latin American countries, source: CEPALSTAT, <http://websie.eclac.cl/sisgen/ConsultaIntegrada.asp>. Not available for Argentina, Ecuador, El Salvador, Guatemala and Nicaragua. For New EU Members, source: Eurostat (2008) *Taxation trends in the European Union*, Eurostat Statistical Book and Bernardi, L., M. Chandler and L. Gandullia (eds) (2005) *Tax Systems and Tax Reforms in New EU Members*, London: Routledge.

PROPERTY TAXES: taxes on property/GDP. For Asian countries, data on taxes on property (in national currency, referred to central government with the exception of Vietnam) come from IMF (1999; 2001-6) *Government Finance Statistics Yearbook*. Data on GDP (in national currency, at constant market prices) come from IMF *World Economic Outlook Database*, April 2009. For Latin American countries, source: CEPALSTAT, <http://websie.eclac.cl/sisgen/ConsultaIntegrada.asp>. Not available for Chile. For New EU Members: not available.

TRADE TAXES: taxes on international trade, transactions/GDP. For Asian countries, data on taxes on international trade, transactions (in national currency,

referred to central government with the exception of Vietnam) come from IMF (1999; 2001-6) *Government Finance Statistics Yearbook*. Data on GDP (in national currency, at constant market prices) come from IMF *World Economic Outlook Database*, April 2009. For Latin American countries, source: CEPALSTAT, <http://websie.eclac.cl/sisgen/ConsultaIntegrada.asp>. For New EU Members TRADE is Other taxes on products (incl. import duties), source: Eurostat (2008) *Taxation trends in the European Union*, Eurostat Statistical Book and Bernardi, L., M. Chandler and L. Gandullia (eds) (2005) *Tax Systems and Tax Reforms in New EU Members*, London: Routledge.

SOCIAL SECURITY: social security contributions/GDP. For Asian countries, data on social security contributions (in national currency, referred to central government with the exception of Vietnam) come from IMF (1999; 2001-6) *Government Finance Statistics Yearbook*. Data on GDP (in national currency, at constant market prices) come from IMF *World Economic Outlook Database*, April 2009. Not available for China, Pakistan, Philippines, Singapore and Vietnam. For Latin American countries, source: CEPALSTAT, <http://websie.eclac.cl/sisgen/ConsultaIntegrada.asp>. Not available for Haiti. For New EU Members, source: Eurostat (2008) *Taxation trends in the European Union*, Eurostat Statistical Book and Bernardi, L., M. Chandler and L. Gandullia (eds) (2005) *Tax Systems and Tax Reforms in New EU Members*, London: Routledge.

DIRECT TAXES: direct taxes/GDP or tax on income, profits and capital gains/GDP. For Asian countries DIRECT is tax on income, profits and capital gains/GDP. Data on tax on income, profits and capital gains (in national currency, referred to central government with the exception of Vietnam) come from IMF (1999; 2001-6) *Government Finance Statistics Yearbook*. Data on GDP (in national currency, at constant market prices) come from IMF *World Economic Outlook Database*, April 2009. For Latin American countries DIRECT is direct taxes (net of property taxes)/GDP. Source: CEPALSTAT, <http://websie.eclac.cl/sisgen/ConsultaIntegrada.asp>. For New EU Members, DIRECT is direct taxes/GDP. Source: Eurostat (2008) *Tax-*

ation trends in the European Union, Eurostat Statistical Book and Bernardi, L., M. Chandler and L. Gandullia (eds) (2005) *Tax Systems and Tax Reforms in New EU Members*, London: Routledge.

INDIRECT TAXES: domestic taxes on goods & services/GDP or indirect taxes/GDP. For Asian countries GS is domestic taxes on goods & services/GDP. Data on domestic taxes on goods & services (in national currency, referred to central government with the exception of Vietnam) come from IMF (1999; 2001-6) *Government Finance Statistics Yearbook*. Data on GDP (in national currency, at constant market prices) come from IMF *World Economic Outlook Database*, April 2009. For Latin American countries GS is indirect taxes (net of trade taxes)/GDP. Source: CEPALSTAT, <http://websie.eclac.cl/sisgen/ConsultaIntegrada.asp>. For New EU Members, GS is indirect taxes (net of trade taxes)/GDP. Source: Eurostat (2008) *Taxation trends in the European Union*, Eurostat Statistical Book and Bernardi, L., M. Chandler and L. Gandullia (eds) (2005) *Tax Systems and Tax Reforms in New EU Members*, London: Routledge.

GDP PER WORKER: real GDP chain per worker (I\$ per worker in 2000 constant prices). Source: Heston, A., R. Summers and B. Aten (2006), *Penn World Table*, Version 6.2, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania.

TRADE OPENNESS INDEX: the sum of exports and imports as a percentage of GDP. Source: DataGob, Government Indicators Database, <http://www.iadb.org/DataGob/>. Data are based on World Bank, World Development Indicators (WDI) Online, Washington: The World Bank. <http://devdata.worldbank.org/dataonline>. Not available for Singapore.

CENTRAL GOVERNMENT DEBT: central government debt/GDP for Asian and Latin American countries. Source: Panizza, U. (2006) *Public Debt around the World: A New Dataset of Central Government Debt*, IADB.

http://www.iadb.org/res/pub_desc.cfm?pub_id=DBA-005. Not available for Vietnam and Dominican Republic. General government debt/GDP for New EU

Members. Source: Eurostat

http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1090,30070682,1090_33076576&_dad=portal
and OECD (2008) Factbook. Economic, Environmental and Social Statistics.

AGRICULTURE: the share of agriculture as a percentage of GDP. For Asian countries, source: Asian Development Bank (various years), Key Indicators. For Latin American countries, computed by us from CEPALSTAT data,

<http://websie.eclac.cl/sisgen/ConsultaIntegrada.asp>. Not available for Guatemala. For New EU Members, not available.

FEMALE LABOUR FORCE PARTICIPATION: female labour force participation rate as percentage of female population ages 15-64. Source: World Bank (2007), World Development Indicators (WDI 2007), Washington: The World Bank.

SECONDARY SCHOOL ENROLMENT: school enrolment, secondary (% net). Source: World Bank (2007), World Development Indicators (WDI 2007), Washington: The World Bank. Not available for China, India, Singapore, Sri Lanka, Thailand, Haiti, Uruguay, Czech Republic, Latvia and Slovakia. For Latin American countries SCHOOLING is School enrolment, secondary (% gross).

OLD AGE POPULATION: population ages 65 and above as percentage of total. Source: World Bank (2007), World Development Indicators (WDI 2007), Washington: The World Bank.

Figure 1a Asia, Latin America, New EU Members: the evolution of POLITY2

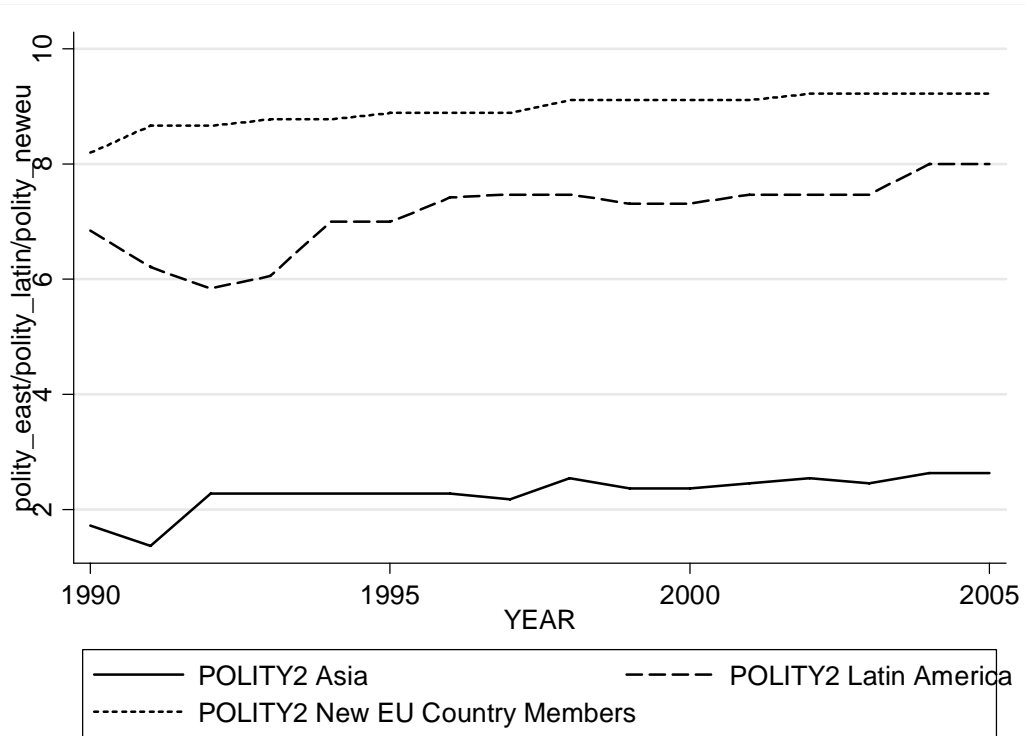


Figure 1b The evolution of POLITY2 in a sample of Latin American countries

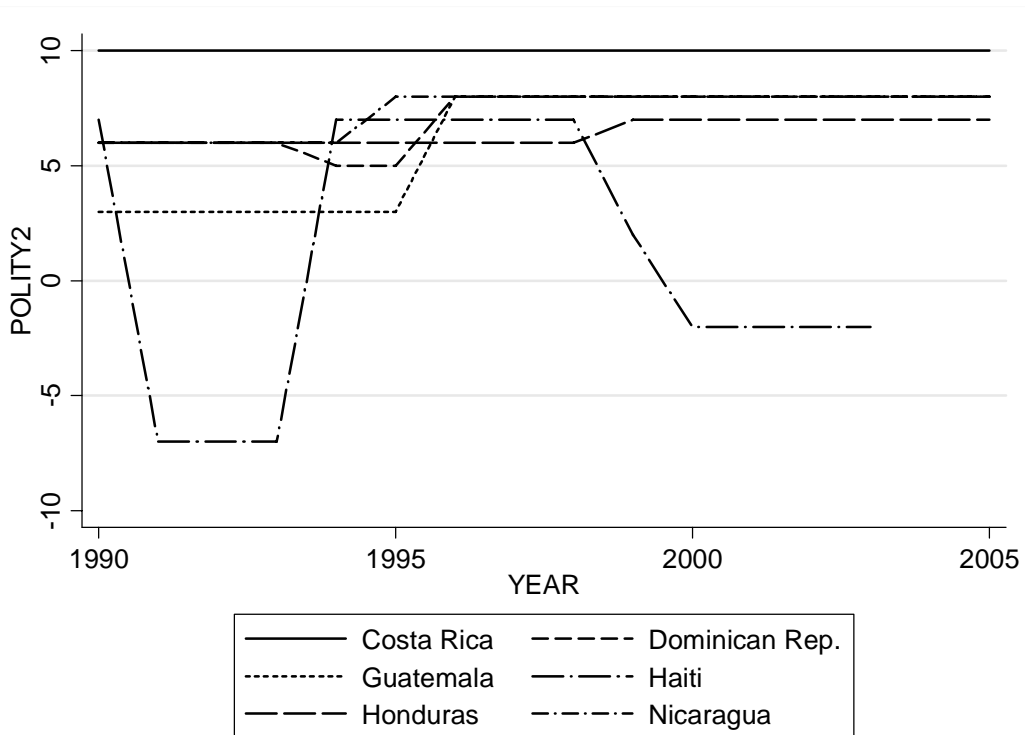


Figure 1c The evolution of POLITY2 in a sample of Asian countries

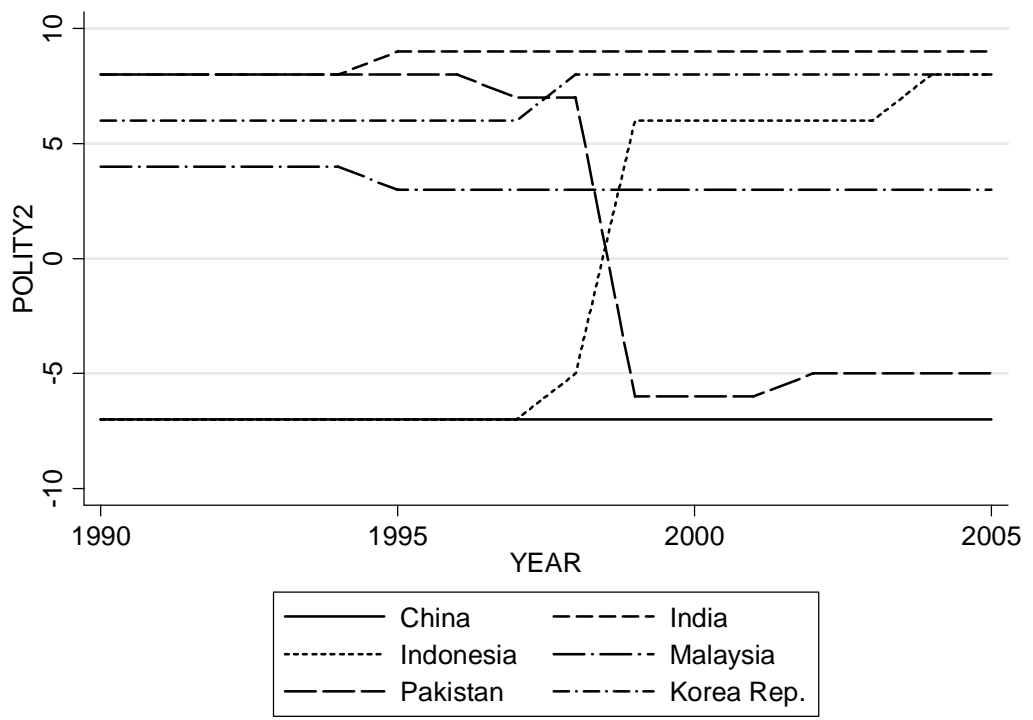


Figure 1d The evolution of POLITY2 in a sample of New EU members countries

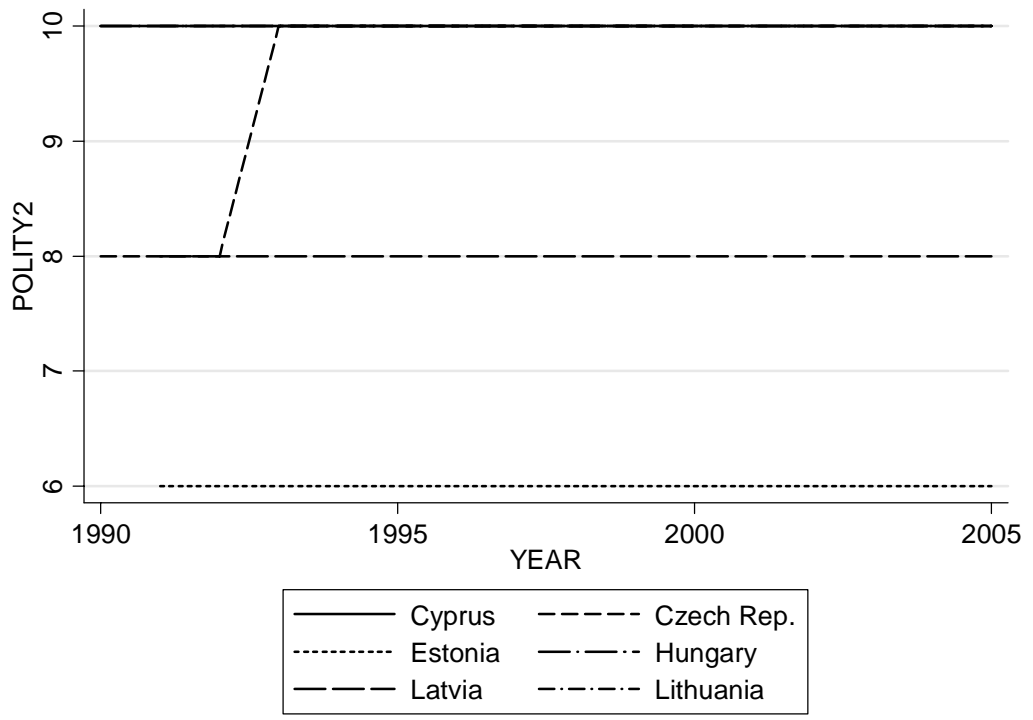


Figure 2a Asia, Latin America, New EU Members: the evolution of CIV

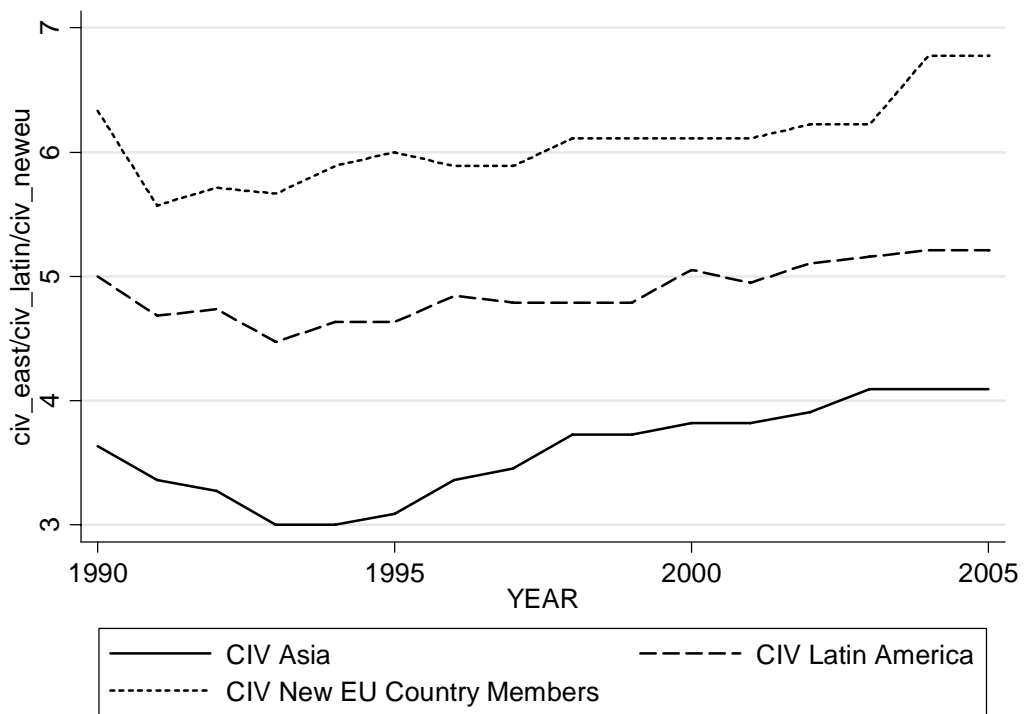


Figure 2b The evolution of CIV in a sample of Latin American countries

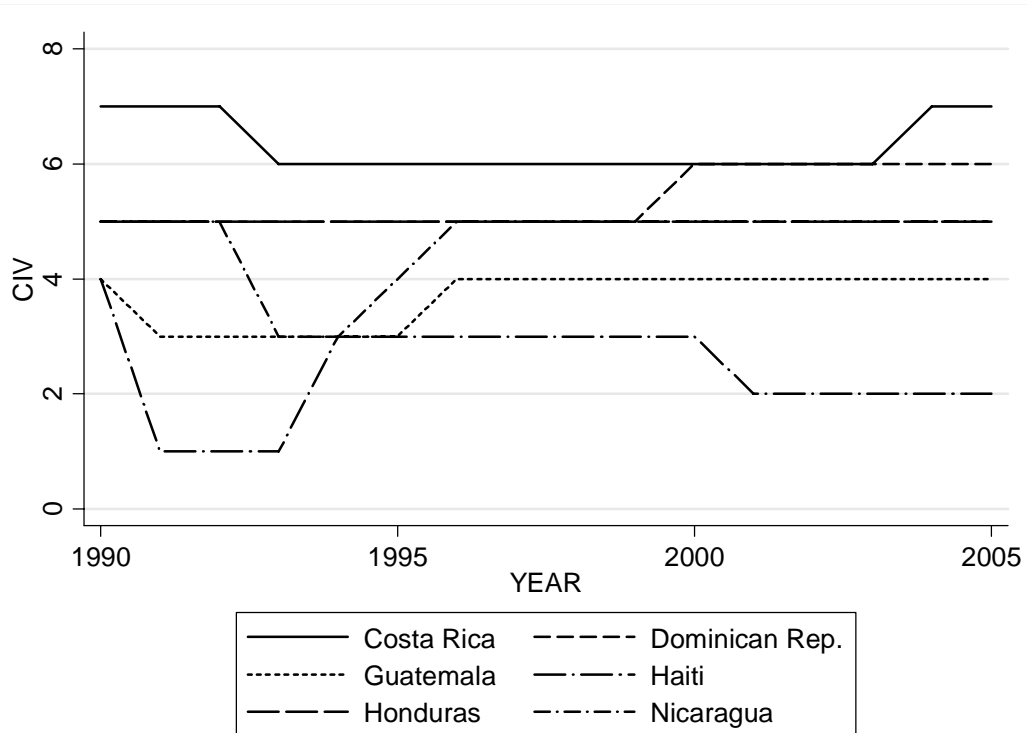


Table 1: Summary statistics

Variable	No of obs.	Mean	Median	Std. Dev.	Min	Max
<i>Tax revenue variables (over GDP)</i>						
tax revenue	573	18.395	14.4	10.383	2.51	58.25
personal income tax	393	2.518	1.35	2.583	0	9.68
corporate income tax	428	2.706	2.09	2.315	0.01	15.26
direct taxes	567	5.004	3.81	3.814	0.5	26.69
indirect taxes	570	7.313	6.395	3.826	0.54	19.15
property taxes	427	0.377	0.15	0.505	-0.03	2.44
trade taxes	558	2.043	1.56	2.129	0.01	15.3
social security contributions	446	4.479	1.915	4.903	0	18.6
<i>Political variables</i>						
civil liberties index	573	4.782	5	1.380	1	7
Polity 2 index	571	6.207	8	4.611	-7	10
<i>Economic and demographic controls</i>						
GDP per worker	499	15.959	14.115	9.939	2.830	58.750
trade openness index/GDP	531	72.554	63.100	39.722	10.600	214.400
(central government debt)/GDP	527	50.054	43.100	39.453	2.500	304.500
agriculture/GDP	521	11.946	9.700	7.413	0.100	34.800
female labour force participation	573	46.652	47.700	11.536	11.200	75.600
secondary school enrolment	324	72.539	71.145	21.493	20.560	109.410
old age population	573	6.837923	5.2	3.704737	3.18	16.59

Notes: tax revenue variables are expressed as a percentage with respect to GDP. The civil liberties index is taken from Freedom House and recoded on a [1,7] range, with larger values denoting stronger protection of civil liberties. The Polity 2 index takes on values on the [-10,10] range, with higher values for stronger democratic institutions. See the text for details. GDP per worker is expressed in thousands of PPP dollars.

Table 2: Tax revenue and political factors, country fixed effects, 1990-2005

dependent variable (over GDP)	tax revenue	personal income tax	corporate income tax	direct taxes	indirect taxes	property taxes	trade taxes	social security
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
civil liberties index	0.526 [1.11]	0.084 [0.58]	0.499 [1.01]	0.394 [1.00]	0.238 [0.93]	-0.069 [1.42]	-0.014 [0.11]	-0.048 [0.65]
R squared	0.94	0.92	0.68	0.83	0.82	0.74	0.77	0.98
Number of countries	39	31	33	39	39	29	39	33
Observations	573	393	428	567	570	427	558	446
civil liberties index	0.911* [2.02]	0.248 [1.58]	0.583 [1.38]	0.573 [1.57]	0.314 [1.31]	-0.078* [2.04]	0.066 [0.69]	0.076 [0.85]
GDP per worker	-0.154 [1.10]	-0.068 [1.13]	0.148 [0.97]	0.046 [0.42]	-0.07 [1.01]	-0.039** [2.33]	-0.12 [1.18]	-0.086 [1.66]
R squared	0.95	0.93	0.69	0.85	0.83	0.77	0.81	0.98
Number of countries	39	31	33	39	39	29	39	33
Observations	499	339	370	493	496	376	485	386
civil liberties index	1.031** [2.62]	0.257 [1.66]	0.533 [1.39]	0.601* [1.80]	0.39 [1.49]	-0.098** [2.30]	0.046 [0.45]	0.067 [0.73]
Polity 2 index	-0.067 [0.47]	-0.007 [0.26]	0.04 [0.59]	-0.016 [0.23]	-0.042 [0.81]	0.01 [1.11]	0.011 [0.71]	0.007 [0.30]
GDP per worker	-0.156 [1.11]	-0.068 [1.13]	0.15 [0.98]	0.046 [0.41]	-0.071 [1.03]	-0.039** [2.30]	-0.12 [1.17]	-0.085 [1.65]
R squared	0.95	0.93	0.69	0.85	0.83	0.77	0.81	0.98
Number of countries	39	31	33	39	39	29	39	33
Observations	499	339	370	493	496	376	485	386
civil liberties index	1.123*** [2.91]	0.271* [1.76]	0.499 [1.43]	0.602* [2.00]	0.421 [1.62]	-0.096** [2.31]	0.107 [1.23]	0.081 [0.77]
Polity 2 index	-0.087 [0.59]	-0.01 [0.36]	0.031 [0.44]	-0.03 [0.41]	-0.046 [0.87]	0.01 [1.11]	0.007 [0.49]	0.016 [0.70]
GDP per worker	-0.234 [1.20]	-0.094 [1.39]	0.115 [0.79]	0.021 [0.16]	-0.084 [0.85]	-0.033 [1.11]	-0.202 [1.33]	-0.073 [1.36]
trade openness index	0.033 [0.89]	0.009 [1.01]	0.027* [1.76]	0.035 [1.64]	0.003 [0.18]	-0.001 [0.38]	0.003 [0.54]	-0.014* [1.75]
R squared	0.95	0.93	0.71	0.85	0.83	0.74	0.81	0.99
Number of countries	38	31	33	38	38	28	38	33
Observations	480	334	365	474	477	362	466	381
civil liberties index	1.123*** [2.91]	0.131 [1.23]	0.08 [0.37]	0.046 [0.25]	-0.017 [0.10]	-0.088** [2.16]	0.013 [0.17]	-0.017 [0.16]
Polity 2 index	-0.087 [0.59]	-0.001 [0.05]	0.041 [1.06]	0.014 [0.57]	-0.012 [0.45]	0.009 [0.91]	0.016 [1.45]	-0.009 [0.40]
GDP per worker	-0.234 [1.20]	0 [0.02]	0.199* [1.74]	0.135 [1.61]	0.006 [0.06]	-0.032 [1.10]	-0.189 [1.27]	-0.055 [1.19]
trade openness index	0.033 [0.89]	0.004 [0.84]	0.016 [1.69]	0.019** [2.05]	-0.01 [1.12]	0 [0.06]	-0.002 [0.31]	-0.011* [1.81]
total revenue over GDP	-	0.184*** [4.42]	0.320*** [4.58]	0.495*** [7.15]	0.389*** [4.86]	-0.012 [0.76]	0.098*** [4.50]	0.140*** [3.06]
R squared	0.95	0.96	0.84	0.95	0.88	0.74	0.82	0.99
Number of countries	38	31	33	38	38	28	38	33
Observations	480	334	365	474	477	362	466	381
country fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes

Notes: the table displays the output of fixed effects regressions with tax revenues and different categories thereof (as a fraction of GDP) as dependent variables. Each column is devoted to a different revenue source, with different specifications being stacked in the same column.

The civil liberties index takes on values on the [1,7] range, with higher values denoting stronger protection of civil liberties. The Polity 2 index takes on values on the [-10,10] range, with higher values for stronger democratic institutions. See the text for details.

GDP per worker is expressed in thousands of PPP dollars.

Standard errors are clustered at the country level, and the corresponding t-statistics are reported in brackets below each coefficient.

* Significant at 1%; ** significant at 5%; *** significant at 1%.

Table 3: Tax revenue and political factors, country fixed effects, 1990-2005. Further controls

dependent variable (over GDP)	tax revenue	personal income tax	corporate income tax	direct taxes	indirect taxes	property taxes	trade taxes	social security
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
civil liberties index	1.033***	0.331*	0.27	0.588*	0.278	-0.078*	0.162*	0.062
	[3.05]	[1.88]	[0.89]	[1.96]	[1.13]	[2.06]	[1.71]	[0.61]
Polity 2 index	-0.065	-0.026	0.018	-0.017	-0.026	0.004	0.006	0.027
	[0.38]	[0.76]	[0.31]	[0.22]	[0.43]	[0.54]	[0.37]	[0.92]
gdp per worker	-0.112	-0.089	0.212	0.089	0.067	-0.024	-0.237	-0.045
	[0.55]	[1.07]	[1.31]	[0.57]	[0.32]	[0.90]	[1.23]	[1.26]
trade openness index	0.018	0.012	0.021	0.033	-0.014	0.001	0.002	-0.018*
	[0.47]	[1.21]	[1.67]	[1.47]	[0.70]	[0.23]	[0.24]	[2.03]
(central government debt)/GDP	0.029*	0.008	0.021	0.016	0.008	0.004**	0.005	-0.006
	[1.72]	[1.06]	[1.26]	[1.37]	[1.01]	[2.22]	[1.18]	[1.67]
agriculture/GDP	-0.410**	-0.126	-0.064	-0.123	-0.253*	0.02	-0.006	-0.059
	[2.31]	[1.47]	[0.60]	[1.04]	[2.03]	[1.38]	[0.12]	[1.27]
R squared	0.95	0.92	0.72	0.86	0.84	0.72	0.81	0.99
Number of countries	33	26	28	33	33	26	33	29
Observations	409	291	322	403	406	321	399	331
civil liberties index	1.108*	0.203	0.834	0.969	-0.232	-0.015	0.438*	-0.046
	[1.91]	[0.79]	[1.52]	[1.65]	[0.57]	[0.23]	[1.91]	[0.33]
Polity 2 index	-0.031	0	0.085	0.031	-0.093	0.007	0.048	0.03
	[0.14]	[0.00]	[1.07]	[0.33]	[0.72]	[0.40]	[0.92]	[0.85]
gdp per worker	0.038	-0.082	0.571*	0.309	-0.019	-0.023	-0.197**	0.01
	[0.15]	[0.66]	[2.00]	[1.28]	[0.15]	[0.75]	[2.14]	[0.21]
trade openness index	0.043	0.013	0.023	0.043	-0.001	0.003	0.005	-0.013**
	[0.90]	[1.02]	[1.16]	[1.42]	[0.04]	[1.31]	[0.76]	[2.53]
(central government debt)/GDP	0.027	0.001	0.017	0.013	0.007	0.006**	0.004	-0.007*
	[1.57]	[0.12]	[0.83]	[0.81]	[0.96]	[2.40]	[1.09]	[1.98]
agriculture/GDP	-0.402***	-0.1	0.095	-0.115	-0.274**	0.021	0.005	-0.064
	[2.77]	[0.99]	[0.63]	[0.90]	[2.13]	[1.31]	[0.11]	[1.64]
female labour force participation	-0.084	-0.001	-0.077	-0.021	-0.032	0.034**	0.015	-0.026
	[0.82]	[0.02]	[1.05]	[0.34]	[0.40]	[2.44]	[0.43]	[0.94]
secondary school enrolment	0.022	-0.01	0.059	0.015	0.079	-0.012*	-0.046	0.01
	[0.24]	[0.36]	[1.17]	[0.25]	[1.68]	[1.75]	[1.40]	[0.66]
old age population	-1.888	-0.399	-2.243*	-2.21	1.472	0.119	-0.867	-0.772*
	[0.94]	[1.07]	[1.81]	[1.61]	[1.38]	[0.83]	[0.82]	[1.77]
R squared	0.95	0.93	0.77	0.87	0.89	0.82	0.81	0.99
Number of countries	33	26	28	33	33	26	33	29
Observations	222	156	173	217	220	173	217	184
country fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes

Notes: the table displays the output of fixed effects regressions with tax revenues and different categories thereof (as a fraction of GDP) as dependent variables. Each column is devoted to a different revenue source, with different specifications being stacked in the same column.

The civil liberties index takes on values on the [1,7] range, with higher values denoting stronger protection of civil liberties. The Polity 2 index takes on values on the [-10,10] range, with higher values for stronger democratic institutions. See the text for details. GDP per worker is expressed in thousands of PPP dollars.

Standard errors are clustered at the country level, and the corresponding t-statistics are reported in brackets below each coefficient. * Significant at 1%; ** significant at 5%; *** significant at 1%.