

DOES DEMOCRACY AFFECT TAXATION AND GOVERNMENT SPENDING?
EVIDENCE FROM DEVELOPING COUNTRIES

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Does Democracy Affect Taxation and Government Spending? Evidence from Developing Countries*

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Abstract

Focusing on three geographical areas (Asia, Latin America and New EU Members), which have recently experienced democratic and economic transitions, we explore the relation between political variables and tax revenue, public spending and their structure. We build a new dataset for the 1990-2005 period with fiscal, political and socio-economic variables. Since democracy is a complex and multidimensional concept, we refer to two variables, the political strength of democratic institutions, and the protection of civil liberties. We perform three sets of estimates: (i) cross-country pooled OLS regressions with region fixed effects, (ii) country fixed effects regressions and (iii) region specific regressions with country fixed effects. While the first model - in line with the predictions of the theoretical literature and some previous empirical studies - delivers some correlations between political variables and tax items, when controlling for country fixed effects we find that tax revenue and tax composition are in general not significantly correlated with indices of the strength of democratic institutions and of the protection of civil liberties. The only exceptions are indirect, trade and property taxes. A similar result applies to public spending, with the only relevant exception of defense expenditure. Overall, our findings cast some doubt on the exact public policy channels through which political institutions affect economic development.

Keywords: comprehensive dataset on taxation and public expenditure; civil liberties, tax structure, public spending composition

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

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1 Introduction

Taxation and public spending are major issues in economics and politics. Tax design and the implementation of tax reforms and government spending programmes are at the core of economic policy. They are also among the most debated issues in the political arena. Within democracies, the issues of taxation and public expenditure can attract and shift votes, in particular those of non-ideological citizens (possibly a large part of the electorate). Those citizens typically decide which party to vote for 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 non-democratic countries the process underlying public policies decisions is much more difficult to analyse and predict. Economically and politically powerful interest groups tend to influence public policies outcomes in a more pervasive way than in mature democracies. 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). If successful democratic transitions are subsequently associated with a higher growth rate of real per capita income, as argued by Papaioannou and Siourounis (2008), what is the channel through which democratic transitions affect economic outcomes?

The interplay between economic and political factors suggests a potential role for public policies and reforms, mainly on the side of redistribution through taxation and public spending. Following the political economy theoretical literature, democratization might induce higher taxes and higher spending to satisfy the needs of redistribution of a large electorate (see among the others Meltzer and Richard, 1981; Acemoglu and Robinson, 2006). Many empirical studies have tried to test these relations by making use of different approaches.¹ However, they deliver not uncontroversial results. Cross-country studies typically find support for the theoretical prediction of the median voter model: democratization is positively related to both the size of the public sector (Lindert 1994 and 2004) and the level of tax revenue (Boix, 2003), as well as the one of direct taxes (Kenny and Winer, 2006).² However, cross-country studies are known to be subject to criticism, since the correlations may depend on unobservable country-specific characteristics. Moreover, the political economy analysis of taxation and public outlays should focus specifically on the composition of taxes and expenditures, since different taxes and public expenditures tend to have a different impact on various economic and administrative outcomes, such as redistribution and tax compliance (see in

¹See the next section for a discussion of the related literature.

²See however Mulligan *et al.* (2004).

this direction Aidt *et al.*, 2006 and Aidt and Jensen, 2009a). Finally, taxes and public expenditure should be jointly investigated, in order to check whether the democratization process affects them differently. Thus, the multidimensionality of the issue space makes it problematic to apply the traditional median voter’s framework within this context. To contribute to the analysis of the relation between public policies and indicators of democracy, this paper (i) adopts country fixed effects regressions, (ii) it analyzes both taxes and public spending and (iii) it investigates their composition, in addition to their total amount.

We focus on a sample of developing and low-income countries of three geographical areas: Asia, Latin America and New EU Members in the 1990-2005 period. These countries have recently experienced a democratic and economic transition and hence represent an ideal laboratory for the study of the relationship between political regimes and tax and expenditure systems. We build a new dataset where we collect data on fiscal and spending variables from different sources.³ In addition to the main macroeconomic indicators and several socio-economic and demographic variables, we include data on political indicators. In particular we refer to a measure of the strength of democratic institutions and to an index of civil liberties protection from the PolityIV dataset and Freedom House respectively, two well known sources in political economy studies. These two aspects of the political landscape broadly correspond to the concepts of positive and negative liberty, as introduced by Berlin (1969).⁴

Our dataset is a first attempt at collecting in a comprehensive and homogeneous fashion all the essential data for the study of taxation and public expenditure in these geographical areas. In fact, especially fiscal data for these countries are typically sparse across different sources, are not directly available for researchers, and are often not homogeneous, thus making it difficult to compare and analyse them jointly.

We investigate the link between political variables and the structure of taxation and public spending using three different empirical models: (i) cross-country pooled OLS regressions with region fixed effects, (ii) country fixed effects regressions and (iii) region specific regressions with country fixed effects. To make our results comparable with previous studies, we begin with OLS cross-country pooled regressions. Interestingly, this specification confirms some of the results obtained in previous contributions and the theoretical predictions. However, they typically fail to

³See the Data Appendix for details.

⁴According to Berlin (1969), positive freedom, in its political form, is the liberty that can be achieved through participation in the political process. As a consequence, a democratic country is free to the extent that its citizens actively participate in the decision making. On the other hand, negative freedom is related to the degree to which individuals or groups suffer some kind of interference from external bodies. In other words, this concept of liberty refers to the absence of obstacles, barriers or constraints to individual actions.

survive to a more demanding fixed effects specification. Moreover, the two different aspects of the political landscape on which we focus turn out to be differentially correlated with tax and spending and their composition.

The joint inspection of the two sides of the public budget delivers interesting, not obvious results. More specifically, starting from taxation, the cross-country model shows that, in line with the suggestions of the theoretical literature, the protection of civil liberties matters for the share of personal income taxes (+), corporate taxes (-) and indirect taxes (+), while the strength of democratic institutions has an inverted U-shaped relation with personal income taxes and a positive relation with the level of social security contributions. However, when we control for country fixed effects, many relationships between political variables and tax sources are no longer significant. Yet we find a negative and significant relationship between the protection of civil liberties and property taxes: countries which do not sufficiently guarantee individual liberties rely more heavily on taxes usually requiring low voluntary tax compliance by taxpayers, such as property taxes. We also show evidence of a positive correlation between the democracy index and the amount of trade taxes. Finally, in some cases the relationship between the tax structure and political variables appears to be region-specific. This last result is particularly interesting, since it suggests that tax policies may reflect specific patterns of economic and political development of each area of the world, and that it is thus difficult to draw very general lessons.

Analogously, in the pooled OLS model we find a positive and significant correlation between the democracy index and expenditure both in education and in public order. But these findings are not robust to the inclusion of country fixed effects. However, and interestingly, when focusing on New EU Members, which represent more mature democracies, total government spending, as well as expenditure in health and in social protection, turns out to be positively correlated with the civil liberties index and negatively so with the democracy one.

To summarize, some of the cross-country regressions' results on our sample of developing countries are in line with previous empirical findings and with the predictions of the median voter's model.⁵ However, when we make use of the within-country variations in country fixed effects regressions, relations between political variables and public policies are mostly non significant, and each geographical area seems to adapt its public policies to its specific path of political development.⁶

⁵In our multidimensional issue space it would be more correct to refer to a probabilistic voting framework, rather than to the median voter (see Profeta, 2002). However, our point is that many predictions of these type of models are not confirmed by the evidence provided in the paper.

⁶The empirical validity of the median voter's model has been challenged also in other contexts. The relation between inequality and redistribution is for instance a very debated one and the empirical evidence is not always

Our analysis may suffer from the typical identification and causality problem arising in this type of cross-country approaches. However, even if we are not able to identify a causal link between democracy and public policies (tax and public expenditure), we do provide evidence that this link is less obvious than what claimed so far, and show that the relations found in previous contributions are not as strong as expected.⁷ Our results complement the analysis by Papaioannou and Siourounis (2008), who, exploiting a similar country fixed effects design, find that successful democratic transitions are subsequently associated with a higher growth rate of real per capita income. While our research focus is different, our findings cast some doubt on the exact public policy mechanisms through which political institutions at large might affect economic performance.⁸

The paper is organized as follows: the next section contains an overview of the related literature, section 3 provides a description of the data, while section 4 presents our econometric results, with some robustness checks. Finally, section 5 concludes.

2 Related literature

A large and growing literature argues that democratic and economic transitions may be strictly related. Although it is difficult to establish the true direction of a causal relationship, there may be positive feedback effects between economic and political reforms (Giavazzi and Tabellini, 2005). Recent contributions have emphasized this two-way relation between democratic regimes and economic outcomes, with a particular focus on growth as the major goal of economic policies.⁹ 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, urbanization, and also a larger middle class– would be necessary, though not sufficient, for democracy to be widely supported and then introduced (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). Papaioannou

consistent with median voter’s hypotheses (see, among the others, Perotti, 1996 and Milanovic, 2000).

⁷Notice that our use of fixed effects allows to control for time-invariant omitted variables at the country level. The reverse causality problem is not solved, although it would imply that a specific tax (or public expenditure item) may change the political system of a country, an argument not so intuitive.

⁸Papaioannou and Siourounis (2008) point out that the effects of democratic transitions on economic growth do not go through sound fiscal policies. See Table 3 in their paper and the corresponding discussion on page 1536. Notice however that, if the link between democratization and redistributive taxation (which may have a negative impact on growth) is found to be weak –as our empirical analysis appear to suggest–, the relation between democracy and growth might find additional support.

⁹See, among the others, Persson and Tabellini (2007), Papaioannou and Siourounis (2008), Rodrik and Wacziarg (2005), and the criticisms of Barro (1996) and Fernandez and Rodrik (1991).

and Siourounis (2008) similarly provide evidence about the positive effects of democratization on subsequent growth. However, the way in which democracy promotes economic development can depend on the details of democratic reforms (Persson and Tabellini, 2006).

Other studies have considered the relation between democratization and public policies. From a theoretical point of view, Acemoglu and Robinson (2006) argue that democratization would lead to redistribution from the rich (the elites) to the poor (the citizens). Thus, in line with what previously claimed by Meltzer and Richard (1981), it seems to be possible to explain the size of government by emphasizing voters' demand for redistribution. This redistribution can take place both through an enlarged welfare state and through a re-organized tax system, that more heavily relies on direct than on indirect taxation. In fact, democratization allows low-income groups to take part in the political process and, as a consequence, should be conducive to policies that favour these groups –such as those for the unemployed, sick, poor and the elderly– and would thus tend to promote equality. Instead, under a non-democratic regime the size of the public sector and the amount of redistributive spending should be small, since a substantial part of the electorate is excluded from the decision-making process. The classical predictions of the median voter model apply: taxes and government spending are expected to increase under a democratic regime, to satisfy the needs of the electorate.¹⁰

Many empirical studies have tested the link between democracy and redistributive public policies. They can be classified according to two main dimensions: the time period covered by the analysis and the adopted estimation approach (see Table 1). First, it is important to draw a distinction between modern studies, which refer to time periods post-World War II, and historical ones, which on the contrary focus on a longer time period and investigate what happened during the 19th and 20th century. In fact, early democratization experiences were generally gradual and piecemeal, while many of the later democratizations are more abrupt and shift societies very quickly from autocracy to democracy. According to the second dimension we distinguish between cross-country and within country analyses.

[TABLE 1 HERE]

Among these empirical studies the consensus on the positive relation between democratization and redistribution is not unanimous. Following Hicks and Swank (1992) and Husted and Kenny (1997), high voter turnout can help to explain government welfare efforts. In particular, Habibi

¹⁰However, to the extent that the relevant policy space is multidimensional -as it is more realistic to assume-, it is well known that the a Nash equilibrium of the majoritarian voting may fail to exist. Hence, the theoretical literature relies on different political economy mechanisms, such as probabilistic voting and lobbying models.

(1994) suggests that more democratic countries tend to spend more on social programs and less on defense, while Boix (2001 and 2003) finds that a significant share of the public sector actually depends on the political (democratic) regime in place, which also interacts with the distribution of income, citizens' preferences and economic conditions. Along these lines, Aidt *et al.* (2006) underline a significant relation between the extension of the voting franchise and the size of government.¹¹

Aidt and Eterovic (2010) investigate the different effects of political competition and political participation on the size of the public sector. Political competition appears to be negatively correlated with the government size, while the opposite is true for political participation. On the same topic, Ferris *et al.* (2008) find that, by enhancing the ability of interest groups and politicians to extract rents, less competition leads temporarily to a larger public sector. Moreover, Martin and Plümper (2003) and Hausken *et al.* (2004) find a U-shaped relationship between democracy and public spending. They argue that for low levels of democracy public spending is high to meet the requests of rents by the elites, while for high levels of democracy the usual median voter's model prediction applies and public spending is high due to popular demand of public goods. For medium levels of democracy however none of these pressures is active and government spending is at its minimum. A U-shaped relationship between spending on local public goods and the extension of the voting franchise in municipal boroughs in England and Wales is also found by Aidt *et al.* (2010). According to the authors, franchise extension can be associated with smaller government. Local democracy can be a source of retrenchment especially when taxes are not related to benefits of spending. On a contrary note, Mulligan *et al.* (2004) even show that none of the 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.¹²

The empirical literature that has specifically focused on the correlation between indicators of democracy and the structure of taxation typically investigates whether more democratic countries rely more heavily on personal income taxation, rather than corporate or trade taxes. Even in this case results are not unanimous. From a theoretical point of view Wintrobe (1990, 1998) suggests that democratic countries, since they can rely less on repressive measures as governing instruments, have to design tax systems that induce more voluntary tax compliance.¹³ Mature democracies

¹¹Lindert (1994 and 2004) shows that extending the franchise to the poor is a key driving force to open the door to politicians that care about redistributive policies, while Kim (2007) suggests the existence of a link between a threat of revolution, democratization and social insurance expansion.

¹²They also find that democracies are 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.

¹³See also de Juan *et al.* (1994), Pommerehne and Weck-Hannemann (1996), Alm (1996) and Feld and Frey (2002).

will thus be more heavily characterized by revenue sources such as self-assessed personal income taxation. On the other hand, more repressive governments that cannot depend on tax sources requiring a certain level of voluntary cooperation move toward corporate taxes or trade taxes. This is also in line 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. By the same token, 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, shows that a stronger protection of political rights and civil liberties leads to a more intensive use of personal income taxation. Profeta and Scabrosetti (2010) extend the analysis of Kenny and Winer (2006) to a broader set of developing countries in the period 1990-2004 and, by using pooled OLS regressions, find that democracy and civil rights protection are positively correlated with the level of tax revenue and the amount of direct taxes.

At the same time, Aidt and Jensen (2009a) show that in a sample of western European countries in the period 1860-1938 political competition increases total revenue and the share of direct taxes, while reducing the share of market taxes. On the contrary, according to Mulligan *et al.* (2004) democracies have flatter personal income tax structures and a generally lower tax revenue/GDP than non-democracies, while Aidt and Jensen (2009b) find evidence of a surprisingly negative (initial) relation between the extension of the franchise and the likelihood of the introduction of income taxation. Only when the franchise surpasses a specific threshold a further extension of the number of voters makes it more likely that income tax will be levied.

Finally, the theoretical and empirical literatures have also emphasized that some fundamental economic variables, mainly GDP, may play a crucial role in determining the level of taxation and public spending, as well as their composition (Hinrichs, 1966; 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 (Wagner, 1883), 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). Additional socio-economic variables that may have an impact on the level and the composition of both taxation and public outlays are: the level of government debt, the share of agriculture on value added, trade openness, the female labour force participation rate, the level of literacy and the percentage of elderly people on the total population (Tanzi, 1992; Burgess and Stern, 1993; Ghura,

1998; Rodrik, 1998; Gupta *et al.*, 2004).¹⁴ As a consequence, all these socio-economic variables must be taken into account when studying the relation between political variables, the level of taxation and public spending, as well as their composition.

3 Data description

Since we are interested in the analysis of the relation between political variables, taxation and government spending we should first of all clarify how we can measure democracy. There is in fact a large debate among political scientists on the exact definition of what constitutes a democracy. 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.

There are at least two major issues to consider. First, as we emphasize in this paper, democracy is a multidimensional concept, so that it is difficult to measure it using a single variable. Already in the 1970s Dahl (1971) suggested that the concept of democracy involves at least three dimensions: public contestation, right to participate and civil liberties. However, most of the studies on the relation between public policies and democracy do not refer to this multidimensionality and use a single variable to measure democracy. Second, political science scholars 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 allows us to capture more features of a political regime. Thus, we have decided to focus on these two measures: the POLITY2 index¹⁵, as found in the Polity IV dataset, and the civil liberties indicator, included in the Freedom House dataset.

According to the Polity IV dataset (2007), democracy reflects three essential elements: (i) the presence of institutions and procedures through which citizens can express preferences about alternative policies and leaders; (ii) the existence of institutionalized constraints on the power of the executive; and (iii) the guarantee of civil liberties to all citizens (although they are not actually

¹⁴ Again, these variables might work as a proxy for the availability of the various revenue sources.

¹⁵ We are aware of the criticisms of Cheibub *et al.* (2010).

measured). The authors of the Polity IV dataset thus construct a ten-point democracy scale by coding the competitiveness of political participation (1-3); the competitiveness of executive recruitment (1-2); the openness of executive recruitment (1), and the constraints on the chief executive (1-4). Autocracy is measured by negative versions of the same indices. These two scales are combined into a single democracy-autocracy score (POLITY2 index) varying from -10 (strong autocracy) to +10 (strong democracy). 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.¹⁶

The second source of political variables is Freedom House, which includes two attributes in its definition of democracy: political rights and civil liberties (not measured in the POLITY2 index). The political rights index proposed by Freedom House is conceptually close to the POLITY2 score. Hence these two indices –political rights and POLITY2– appear to measure the same object. However, Munck and Verkuilen (2002) argue that the POLITY2 index is to be preferred to the political rights indicator as a measure of democratic institutions, mainly because it is more transparent in the way it measures and aggregates relevant dimensions of the underlying concept of democracy. Plümper and Neumayer (2010) instead show some problematic aspect of the POLITY2 indicator especially during transitions and suggest to check robustness using alternative indexes, such as the Freedom House ones.¹⁷ Thus, we have decided to rely on the POLITY2 index, and use the political rights for checking the robustness of our results.

The civil liberties index is instead a measure of the degree of freedom of expression, assembly, association and religion guaranteed to individuals. It is measured on a one-to-seven scale. In order to make it compatible with the POLITY2 variable, we invert it, so that a value of 1 represents the lowest degree of civil liberties, 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. On the other side of the spectrum, a rating of 1 indicates virtually no freedom and real restrictions on liberty caused by non-governmental terror.¹⁸

¹⁶In order to avoid negative values, which may be problematic in non-linear specifications, we transform the original POLITY2 variable so that our variable takes on values from 0 to 20.

¹⁷See also Cheibub *et al.* 2010.

¹⁸To 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

Differently from the political rights index, the civil liberties index is meant to measure the broader set of “liberties” guaranteed to individuals within their polity. From this point of view, the concept of civil liberties does not necessarily overlap with the one of democratic institutions, and could play an independent role as an explanatory variable for the composition of both tax revenue and government spending. In fact, the difference between positive and negative liberty has to be taken into account. According to Berlin (1969) negative freedom is related to the degree to which individuals or groups suffer some kind of interference from external bodies. In other words, this concept of liberty refers to the absence of obstacles, barriers or constraints to individual actions. On the contrary, positive freedom, in its political form, is the liberty that can be achieved through the right to participate in the political process. As a consequence, a democratic country is free to the extent that its citizens participate in the decision making. From this point of view, the civil liberties index can thus be considered as a proxy for Berlin’s concept of negative freedom, while the POLITY2 indicator is associated with the one of positive freedom.¹⁹

Our sample of countries covers three different areas of the world: Asia, Latin America and New EU Members.²⁰ 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 under consideration, although with some variation across countries (see Profeta and Scabrosetti, 2010). Figures 1-6 show the evolution of the POLITY2 and the civil liberties indicators for a sample of selected countries in the period of time that we analyze.²¹ Notice two important elements: first, both indicators show some non negligible within-country variation over the identified period, which makes our analysis interesting; second, the two indicators do not always move together, confirming that they are capturing different

by individuals are influenced by the interplay of a variety of actors, both governmental and non-governmental.

¹⁹Notice that in general the choice of the index of political regime is a complex one. Our two variables capture the two concepts of democracy identified by Berlin (1969), i.e. positive and negative freedom, which we consider a useful guide for identifying essential features of democracy that are relevant in our context. Other indicators have been built in this area of research to capture other dimensions of democracy, such as the Vanhanen index of democracy (see Aidt and Eterovic, 2010). Yet the two measures that we draw from PolityIV dataset and Freedom House are available for a longer time span.

²⁰As we will see from the results, heterogeneity across world areas does matter. To focus on this, we have decided to limit the analysis to these three areas of the world. 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. Given the magnitude of the Asian continent, these countries are well representative of its three main regions: Far East, South and East and Indian sub-continent. 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. These countries are a representative sample of the Latin American region and they are all catalogued in the CEPAL, which is our source of fiscal data for this region. 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.

²¹Thailand and Pakistan for the Asian region; Ecuador and Peru for the Latin American region; and Czech Republic and Poland for New EU Members.

dimensions of the complex concept of democracy.

[FIGURES 1-6 HERE]

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

Data on public expenditure come from IMF. In this case too we collect data on total government outlays/GDP, but also on its composition, that is general public services, defense, health, education, social protection and public order expenditure as a percentage of GDP.²²

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 government debt on GDP, the share of agriculture on value added, the female labour force participation rate, the secondary school enrollment and the share of elderly people on total population.

Table 2 presents the summary statistics of all relevant variables for the 1990-2005 period.

[TABLE 2 HERE]

4 Results

We estimate three different empirical models: the first one is a pooled OLS regression described by the following equation:

$$Y_{it} = \beta_t + \gamma POLITY2_{it-1} + \delta CIV_{it-1} + controls_{it-1} + LatinAmerica_i + Asia_i + \epsilon_{it} \quad (1)$$

where Y_{it} is the tax revenue or total expenditure (or a specific tax/expenditure source) over GDP collected in country i in year t , $POLITY2_{it-1}$ is the measure of democracy according to the Polity IV dataset (2007) in country i in year $t - 1$, CIV_{it-1} is the level of the (inverted) Freedom House Index of civil liberties protection in country i in year $t - 1$, β_t is a year fixed effect, $controls_{it-1}$ are socio-economic control variables, $LatinAmerica_i$ and $Asia_i$ are dummy variables

²²Data availability induces us to refer to general, central or budgetary government. See the Data Appendix for additional details.

for Latin American and Asian countries respectively, and ϵ_{it} is the error term. New EU Members are our excluded category of countries. It seems reasonable to use a one-period lag for the political and socio-economic variables we include as regressors in our specifications. This is the case, since the effects of those variables on taxation and expenditure are likely not to be immediate. This first model is important since it allows us to make comparisons with previous studies, and to understand whether in developing countries we can observe some specific relations.

In the second model we include country fixed effects (α_i), i.e. we estimate the following equation:

$$Y_{it} = \alpha_i + \beta_t + \gamma POLITY2_{it-1} + \delta CIV_{it-1} + controls_{it-1} + \epsilon_{it} \quad (2)$$

Since in this model 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 civil liberties protection or in the strength of democratic institutions. Here, 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, public expenditure and their composition.

Finally, our third model corresponds to the previous one, but we estimate a separate regression for each of the three world areas under consideration.

Our results on taxation are shown in Tables 3, 4 and 5, while the ones on government spending are shown in Tables 6, 7 and 8. In a parallel fashion, Tables 3 and 6 refer to our first empirical model (pooled OLS), Tables 4 and 7 to the second one (country fixed effects regressions), while Tables 5 and 8 to the last one (region specific regressions with country fixed effects). Notice that in each table we exclude Indonesia, which appears to be an influential outlier in the analysis. This is the country of our sample that experienced the largest (positive) change in the level of democracy, following the demise of the Suharto regime.

Tables 3 and 4 and Tables 6 and 7 are organized in the following way: the different columns are devoted to different tax sources or public spending items, with the first column respectively focusing on tax revenue over GDP and total government expenditure over GDP. In each column we stack the regression output by enlarging step by step the set of controls. In the first specification we simply control for GDP per worker, while in the second one –following Habibi (1994), Martin and Plümer (2003) and Hausken *et al.* (2004)– we add the square of the POLITY2 index. This is meant to identify a possible non-linear relation between the democracy and both taxation and public spending. Finally in the last and most demanding specification we add as controls the trade

openness index, government debt over GDP, the share of agriculture over value added, female labor force participation and the share of old population. On the other hand, the different columns of Tables 5 and 8 show for each tax or spending item the different findings for each of the three areas we investigate. 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.

4.1 Taxation

We start from our results on taxation. As shown in Table 3, we do not find any significant link between overall tax revenue and both civil liberties protection and democratic institutions. Looking at the structure of taxation, in the case of personal income tax there is a positive and significant relation with civil liberties protection, only mildly so in the first specification. Corporate taxation is negatively correlated with civil liberties, but significantly so only in the second specification. This first set of results appears to support the idea that countries which guarantee more civil liberties (i.e. a higher degree of negative freedom) can require the taxpayers to pay back higher personal income taxes. On the contrary, corporate taxes are typically more used in autocracies which tend not to protect individual liberties.

[TABLES 3-5 HERE]

Because of the opposite signs in the relationship between civil liberties and personal and corporate income taxation respectively, not surprisingly the correlation between civil liberties and direct taxes is not statistically significant at ordinary confidence levels. Moreover, we find a positive and significant correlation between indirect taxes and the civil liberties index in all specifications. This could be explained by the redistributive -although modest- nature of indirect taxes, due for instance to higher tax rates for goods typically consumed by high income groups. Social security contributions are instead negatively related to the civil liberties protection only in the third and more demanding specification.

Regarding the democracy index (i.e the level of positive freedom), the results are not unambiguous. If we look at personal income taxes, there are some signs of an inverted U-shaped relationship (second specification) with the POLITY2 index, while we find no statistically significant relationship for corporate income taxes. Finally, there is a positive and significant linear relationship between social security contributions and the POLITY2 index in the first specification. Thus, the

standard view that redistributive welfare states are more generous –through the pension system– in democracies than in autocracies is confirmed only when we consider the strength of democratic institutions and we do not control for the main socio-economic variables.

The joint inspection of the region dummies allows us to conclude that overall tax revenue, personal income taxation, direct taxation and social security contributions are significantly larger in the excluded area of New EU Countries. This is consistent with previous findings by Profeta and Scabrosetti (2010). Focusing on the other controls, indirect taxation is significantly lower when GDP per worker is higher. Moreover, the share of elderly people in the population is positively and significantly related with the level of social security contributions.

In Table 4, we move forward from a pooled OLS specification with region-specific fixed effects to a fully fledged specification with country fixed effects. From this point of view, we are solely exploiting the within country correlation in tax sources and our political variables. Most of the significant results displayed in Table 3 do not survive this more demanding empirical test. In other words, our fixed effects analysis shows the lack of any significant and robust relationship between both the level and structure of taxation and the degree of protection of civil and political rights.²³

So, even if these specific countries experienced some non-negligible changes in the strength of their democratic institutions and –less strongly so– in their level of civil liberties protection, those changes are generally not associated with any significant variation in the structure of taxation. Three exceptions are remarkable: (i) the positive and significant relationship between trade taxes and the democracy index (only in the first specification); (ii) a negative and robust correlation between civil liberties protection and property taxation (in the first and second specification); and (iii) an inverted U-shaped relation between the strength of democratic institutions and the level of indirect taxes (in the second specification).²⁴

The first result may depend on the role played by interests groups in a democratic political context: conditionally on the degree of economic openness, the political majority in democratic countries might need the support of national producers, and obtain it by increasing the share of import duties (Tanzi and Tsibouris, 2000).

Regarding the second result, following previous studies such as Wintrobe (1990, 1998) and Kenny and Winer (2006), one could argue that property taxes do not need (or need less) tax compliance by taxpayers. This type of taxation does not require individual’s considerations, such

²³Further results show that this lack of a significant relationship holds when including the civil liberties or the democracy index alone. The lack of a significant correlation between democracy and social security contributions is in line with the predictions in Mulligan *et al.* (2004).

²⁴Notice that we do not have data on property taxes for New EU members countries.

as tax allowances, deductions, exemptions, special cases, and is thus easier to be relied on in a context where civil liberties and individual freedom are not a priority. Taxes on income are instead typically more costly to collect (see Aidt and Jensen, 2009a) and more complicated. Referring to the distinction between positive and negative liberty discussed above, it thus seems that only negative freedom is related to the share of property taxes in the structure of the tax system.

Finally, our third result suggests that only after the consolidation of democratic institutions the share of indirect taxes starts to decrease. As a consequence, the redistributive - although modest-nature of indirect taxes seems to be relevant especially at the beginning of the democratization process.

One could argue that countries belonging to different regions, albeit displaying some common traits in their political and economic development paths, might be characterised by a substantial degree of heterogeneity in the relationship between political variables and their tax structure. This justifies the idea of replicating our fixed effects design with region-specific regressions.²⁵

The output of this exercise is displayed in Table 5, whereas we focus on the simplest specification of Table 4, i.e. we simply control for the civil liberties and the democracy indices and GDP per worker.²⁶ In New EU Countries we find no significant correlation between total tax revenue and political variables, while the POLITY2 indicator is negatively and significantly related to personal income and direct taxes. Civil liberties protection instead is positively related with direct taxes. In Latin America corporate income taxes, direct taxes and trade taxes are positively and significantly correlated with civil liberties protection. On the other hand, a somewhat puzzling result is that personal income taxes are negatively and significantly correlated with the democracy score, i.e. when their political institutions become more democratic, Latin American countries appear to rely less on personal taxation.²⁷ In the case of Asian countries we do not find any significant correlation between tax structure and civil liberties protection. However, there is a significant and positive association between democracy and trade taxes and a negative and significant correlation of the democracy index with overall tax revenue and indirect taxes. To interpret these last results, notice that Asia (especially China) is following a “hard path” of development where a notable economic

²⁵More specifically, we have run fixed effects regressions allowing for area-specific slopes for our political variables. Results, available upon request, show that in 14 out of 24 specifications the null hypothesis of common slopes across world areas –for at least one of the two political indicators– is rejected at the 10% percent confidence level, i.e. in about 58% of all cases.

²⁶The first regression only includes the explanatory variables of our interest and the GDP, and thus can be used to compare unconditional with conditional correlations.

²⁷A possible explanation for this finding is related to the quality of Latin American democracies, that generally suffer from low levels of political representation (i.e. low level of positive freedom), given that vested interests, lobbying and interest groups still play a crucial role in determining public policies. See Profeta and Scabrosetti (2008).

liberalization is not associated with democratization (see Giavazzi and Tabellini, 2005; Cacciatore *et al.*, 2006). Still, the increase in taxes is not related to a parallel increase in civil liberties protection or in the strength of democratic institutions (where the relation is even negative).

To sum up, our analysis shows that the relations between political variables and the level and the structure of taxation found in pooled cross-country regressions do not typically survive the introduction of country fixed effects. Our within country variation approach only shows a negative relationship between civil liberties and property taxes, a positive but mildly significant relation between the democracy index and trade taxes and an inverted U-shaped relation between the POLITY2 index and indirect taxes. We justify these findings by respectively referring to the issue of voluntary tax compliance, the political role of national producers interest group and the redistributive -although modest- nature of indirect taxes. There is also a relevant amount of heterogeneity across different world areas. Countries belonging to each area have specific features which are difficult to capture when studying the entire sample of countries. As a consequence, regressions restricted to each area are more informative on the true relationships between our political variables and the structure of taxation. We find not obvious results. Civil liberties appear to be crucial for the level of taxation in Latin American countries, while democracy negatively influences total taxes (as well as indirect taxes) and positively influences trade taxes in Asia. Finally, in New EU Member Countries, which are already quite mature democracies, political variables seem to play a more limited role in determining the structure of the taxation system.

4.2 Expenditure

We now get on to our results on the expenditure side.

[TABLES 6-8 HERE]

In a parallel fashion with what done with taxation, we first investigate the link between political variables and public expenditure within a pooled OLS framework, with region fixed effects (Table 6). The protection of civil liberties is not related to the level and the composition of government spending, apart from a negative and significant correlation between the degree of negative freedoms and defense expenditure in the first and second specification. Regarding the democracy index, we only find a positive and significant correlation with the amount of education and public order spending in the first specification. Although not very robust, these findings are in line with the predictions of the median voter theorem, according to which in more democratic societies the

pivotal voter might be poorer and would demand more public expenditure, in this case especially for education and public order services.

In fact, other interesting relationships emerge, which do not have an obvious median-voter interpretation. First, there are some signs of an inverted U-shaped relationship between the strength of democratic institutions and the amount of defense expenditure. Second, we find a U-shaped relationship of health expenditure and the democracy score in the third specification. Thus, starting from an autocratic regime, defense (health) spending initially increases (decreases) with democracy, but –when the country in question has reached some minimal level of democracy– further increases in the POLITY2 index are correlated with a decrease (increase) in the overall amount of defense (health) spending.²⁸

Looking at region fixed effects, total government expenditure and several categories thereof are generally higher in New EU Members than in Latin American and Asian countries.

In Table 7, as before, we check our results on public spending with a more demanding specification featuring country fixed effects. While our previous results regarding the positive link between education and public order expenditure and democracy no longer hold here, we still find an inverted U-shaped relationship between defense expenditure and the strength of democratic institutions (i.e. the degree of positive freedom); moreover, we find a positive correlation between the democracy score and the total amount of government expenditure, significantly so in the second specification. Differently from before, we also find a positive link between civil liberties and both general public services and health expenditure, significantly so in the first and second specifications.

Finally, we investigate to what extent our previous findings are robust to distinguishing across the different regions in our sample.²⁹ The output of this exercise is shown in Table 8, which exactly replicates the format of Table 5. In this case, political variables are especially significant in New EU Countries. In particular, the democracy index is negatively and significantly correlated with total government expenditure and with defense, health, social protection and public order expenditure, and positively related with general public services. Civil liberties protection is instead positively and significantly associated with total government expenditure, health and social protection expenditure. Comparing these results with what we find on the taxation side we notice that in both cases the POLITY2 indicator and the civil liberties index may have opposite correlations with our

²⁸Moreover, it is interesting to notice that in our most demanding specification a country that is more open to trade is on average spending significantly less on defense.

²⁹Similarly to what done for taxation, we have run fixed effects regressions allowing for area-specific slopes for our political variables. Results, available upon request, show that in 15 out of 21 different specifications the null hypothesis of common slopes across world areas for at least one of our political controls is rejected at the 10% percent confidence level, i.e. in about 71% of cases.

dependent variables. Also, when focusing on New EU Members, the explanatory power of political variables is much stronger for the expenditure than the revenue side of the public budget. To explain this, notice that, although socialist countries have reacted differently to the transition, a common feature of many New EU Members has been the dramatic decrease of government size during this period. As Tanzi and Tsibouris (2000) emphasize, public expenditures have generally dropped by a large amount –with a parallel continuous increase of the private sector–, while fiscal policies and a broad reorganization of tax revenue were, in many cases, less sharp.

On the other hand, and differently from what found regarding taxation, in Latin America there is no significant relation between political variables and the different expenditure items. Finally, in the case of Asian countries we only find a mildly significant and positive relation between democracy and total government expenditure and social protection outlays, and between civil liberties and health spending. This suggests that political variables do matter for the composition of public expenditure especially when democracy reaches stability, maturity and a better quality level. However, the predictions of the median voter’s model are confirmed only when we look at New EU Members and we focus on civil liberties protection, i.e. on the concept of negative freedom.³⁰

4.3 Robustness checks

We have performed several robustness checks of our results. In particular, here we replicate our baseline results when using as dependent variable the share of each tax item over total tax revenue, and of each spending item over total government expenditure.³¹ Compared to the original specification, whereas tax and spending items are divided by GDP, there are pros and cons of this different definition of the dependent variable. On the positive side, we are thus able to look more closely at the composition of the revenue and the spending side of the government budget. On the negative side, we are focusing on a ratio whose denominator is more likely to be influenced by the political variables of interest. In fact, our first columns in the previous tables display regressions with total tax revenue and total government expenditure as dependent variables (Tables 3-4 and 6-7 respectively).

The regression output is displayed in appendix tables A1 to A6. Tables A1, A2 and A3 replicate

³⁰This must be put in contrast with Habibi (1994) who –using the Gastil’s index and adopting a cross-country approach– finds that more democratic countries spend less on defense and are characterized by a higher share of social expenditures (health, education and social security) in the budget. Moreover, the author finds a non linear relation between the political index and total expenditure on GDP.

³¹Notice that we consider separately each tax and expenditure item, and that the shares do not sum up to one, since we have residual taxation and expenditure categories on which we do not focus. However, since regressors are the same for each tax and expenditure item, the preferred SUR specification would boil down to an OLS one (Bartels and Fiebig 1991).

the format of Tables 3, 4 and 5 and focus on tax items, while Tables A4, A5 and A6 focus on spending items and replicate Tables 6, 7 and 8. For reference, in column (1) of Tables A1, A2, A4, A5 we report column (1) of Tables 3, 4, 6 and 7, with tax revenue and government expenditure on GDP as dependent variable.³² The main message stemming from this robustness check is that our baseline results are broadly confirmed. If anything, we find that the POLITY2 index is a (marginally) more significant predictor when focusing on shares with respect to overall revenue or expenditure than in the baseline specifications with GDP as denominator.

Regarding taxation, in Table A1 we report results derived from the pooled OLS model. Differently from the baseline regressions, here we find an inverted U-shaped relationship of personal income taxation with POLITY2 in the third specification. Also, a negative and significant relationship between corporate taxes and civil liberties does emerge in the first and third specification. Finally, the positive relationship between indirect taxation and civil liberties loses statistical significance here, since it is now significant only at the 10 percent level in the first two specifications, while it is no longer so in the third one.

Moving to the model with country fixed effects (Table A2), we find evidence of an inverted U-shaped relationship between trade taxes and the democracy index in the second specification. On the other hand, we lose the mildly significant inverted U-shaped relationship between indirect taxation and the POLITY2 index, again in the second specification.

In Table A3 we replicate the area-by-area regressions featured in Table 5. Overall, we find more significant correlations with the political variables of interest in the case of indirect taxation and social security contributions. The opposite happens in the case of personal income, corporate income, direct and trade taxes.

Regarding public expenditure, Table A4 reports pooled OLS results. Differently from the baseline specification, we find a U-shaped relationship between general public services spending and POLITY2 in the second and third specification, and an *inverted* U-shaped relationship between education and POLITY2, again in the second and third specification. At the same time, we lose the negative but only mildly significant relationship between civil liberties and defense spending, and the U-shaped relationship between health expenditure and POLITY2.

The robustness check on the country fixed effects model appears in Table A5. We now find a negative and significant correlation between public order spending and civil liberties protection. On the other hand, we lose the positive and significant relationship of civil liberties with spending on general public services and on health (first and second specification).

³²The same applies to columns (1), (2), (3) of Tables A3 and A6.

Finally, in Table A6 we replicate our area-by-area regressions. Overall, we happen to lose statistical significance of our political variables in the case of defense, social protection and public order spending in New EU countries, and in the case of health spending in Asian countries. In fact, we find a mildly significant positive relationship between public order spending and POLITY2 in the case of Latin American countries.

Other robustness checks include the introduction of each political indicator at a time, changes in the order of the introduction of controls variables, and different specifications of the lag structure of controls. We have also used the political rights indicator of the Freedom House, instead of POLITY2 in all regressions and results do not substantially change.

5 Conclusions

Our analysis is a first attempt to explore whether political regimes may contribute to explain within country changes in tax revenue, government spending and their composition in developing countries. For this purpose, we have gathered a new dataset for developing countries of three areas of the world –Asia, Latin America and New EU Members–, where many of them have recently experienced a democratic and economic transition.

We have enriched previous analyses on developing countries in several ways: (i) we focused on different political variables and emphasize the multidimensionality of the concept of democracy; (ii) we detailed the structure of both sides of the public budget and (iii) we run different econometric models.

Several relationships between political variables and tax sources are only significant when we run pooled OLS regressions, while they are no longer significant when adopting a more demanding specification with country fixed effects. The only exceptions are a positive and mildly significant correlation between the strength of democratic institutions and the share of trade taxes, a negative and significant relationship between protection of civil liberties and property taxes, and an inverted U-shaped relation between the consolidation of democracy and the share of indirect taxes. We argue that this general lack of significant correlations within a country fixed effects specification might be due to the presence of heterogeneity across world areas. Indeed, in New EU Member States we find that the strength of democratic institutions and the protection of civil liberties have opposite correlations with the level of direct taxes (especially due to personal income taxes). In Latin America, the generally low level of political representation that still characterizes these democratic countries can help to explain the negative relationship between the strength of democratic institutions and

the extent of personal taxation. Finally, in Asian countries the democracy index is negatively and significantly correlated with tax revenue and indirect taxation and positively with trade taxes. We have tried to explain these relationships referring to the specificity of this world area and its “hard path” of (economic and political) development.

Similarly, on the public expenditure side the correlations in the pooled OLS model are no longer significant when including country fixed effects. We find instead a positive, although not very robust, relationship between the democracy index and total government expenditure, which is in line with the predictions of the median voter theorem, and a less obvious inverted U-shaped relationship between democracy and defense spending. The degree of protection of negative freedom appears to be positively related only to general public services and health outlays. When separately considering the different world areas in our sample, we find that political variables are especially significant in New EU Countries, although the democratic and the civil liberties indicators have opposite correlations with many specific expenditure categories. On the other hand, in Latin America there is no significant relation between those political variables and the different expenditure items. Finally in Asia we only find a mildly significant and positive relation between democracy and total government expenditure and social protection and between civil liberties and health expenditures.

To conclude, our analysis shows that in different areas of the world the link between political variables and the design of the tax/expenditure system may be driven either by an increase in the strength of democratic institutions or by an increase in the protection of civil liberties, with effects which may go in opposite directions. This confirms that the strength of political institutions and the civil liberties indicator may indeed capture two different dimensions of a democracy, i.e. what –following Isaiah Berlin– we refer to as positive and negative liberties. Interestingly, we suggest that the two sides of the public budget may react differently (or with a different timing) to the democratization process, and that the quality and the maturity of democracy might be relevant to understand the relation between the political variables and the composition of both taxes and expenditures. Finally, our within-country results cast some reasonable doubt on the exact public policy channels through which political institutions at large –in the shape of negative and positive liberties– might affect economic development. Given the findings by Papaioannou and Siourounis (2008) on the positive connection between successful democratic transitions and subsequent economic growth, future research should delve further into the exact public policy channels at play. In fact, to the extent that we find a feeble -if not inexistent- link between democratization and redistributive taxation (which may have a negative impact on growth), the relation between democracy and growth is somewhat reinforced, at least in the countries under

consideration.

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A Data Appendix

List of all sources and their variables:

Asian Development Bank (various years): agriculture/VA for Asian countries.

<http://www.adb.org/statistics/ki.asp>

Economic Commission for Latin America and the Caribbean (CEPAL): fiscal data and agriculture/VA for Latin American countries. Data on personal income tax are not available for Argentina, Ecuador, El Salvador, Guatemala, Nicaragua and Venezuela; data on corporate income tax are not available for Argentina, Ecuador, El Salvador, Guatemala and Nicaragua; data on property taxes are not available for Chile; data on social security contributions are not available for Haiti. Direct taxes are direct taxes net of property taxes/GDP; indirect taxes are indirect taxes net of trade taxes/GDP. <http://websie.eclac.cl/sisgen/ConsultaIntegrada.asp>.

EUROSTAT (2008) and Bernardi *et al.* (2005): fiscal data for New EU Members. Indirect taxes are indirect taxes net of trade taxes/GDP. Data on property taxes are not available.

EUROSTAT and OECD (2009): government debt/GDP for New EU Members.

http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1090,30070682,1090_33076576&_dad=portal&_s

Freedom House: civil liberties index. <http://www.freedomhouse.org>

Heston *et al.* (2006): gdp per worker (i.e. real GDP chain per worker (I\$ per worker in 2000 constant prices)).

International Monetary Fund (IMF) (1999; 2001-6): fiscal data in national currency for Asian countries. Data on personal income tax and corporate income tax are not available for Singapore; data on social security contributions are not available for China, Pakistan, Philippines, Singapore and Vietnam. Direct taxes are tax on income, profits and capital gains, while indirect taxes are domestic taxes on goods & services.

International Monetary Fund (IMF) (2009): gdp (in national currency, at current market prices). <http://www.imf.org/external/pubs/ft/weo/2009/02/weodata/index.aspx>.

International Monetary Fund (IMF) (2010): public expenditure data referred to central government. For China, Colombia, Ecuador, El Salvador, Guatemala, Paraguay, Philippines and Sri Lanka public expenditure data refer to budgetary government, while for Vietnam to general government. Total government expenditure data are not available for Haiti, Honduras and El Salvador, while data on the composition of total government expenditure are not available for Haiti, Honduras, El Sal-

vador and Peru. For Ecuador data refer only to 1990. <http://www.imfbookstore.org/ProdDetails.asp?ID=GFEOL>

Jaimovich, D. and U. Panizza (2006): government debt/GDP (i.e. central government debt/GDP).

Data refer to Asian and Latin American countries, not available for Vietnam and Dominican Republic.

http://www.iadb.org/research/pub_desc.cfm?pub_id=dba-005

OECD (2009): agriculture/VA for New EU Members. Not available for Cyprus, Latvia and Lithuania.

Polity IV dataset (2007): POLITY2 index. <http://www.systemicpeace.org/polity/polity4.htm>.

World Bank (WDI on line): trade openness index (i.e. the sum of exports and imports/GDP), female labor force participation, old age population. Data on trade openness are not available for Singapore. <http://data.worldbank.org/data-catalog/world-development-indicators>.

B Tables Appendix

[TABLES A1, A2, A3, A4, A5, A6 HERE]

Table 1: the empirical literature on democracy and redistribution

	Between countries	Within country
Historical	Lindert (1994 and 2004) Boix (2003) Aidt and Jensen (2009b)	Aidt <i>et al.</i> (2006) Kim (2007) Ferris <i>et al.</i> (2008) Aidt and Jensen (2009a) Aidt and Eterovic (2010) Aidt <i>et al.</i> (2010)
Modern	Hicks and Swank (1992) Habibi (1994) Boix (2001 and 2003 (ch.5)) Martin and Plümper (2003) Hausken <i>et al.</i> (2004) Mulligan <i>et al.</i> (2004) Kenny and Winer (2006) Profeta and Scabrosetti (2010)	Husted and Kenny (1997)

Table 2: summary statistics

Variable	No of obs.	Mean	Median	Std. Dev.	Min	Max
<i>Tax revenue variables (over GDP)</i>						
tax revenue	569	17.681	14.5	9.064	2.5	46
personal income tax	391	2.377	1.4	2.389	0	9.2
corporate income tax	424	2.536	2.1	1.987	0.01	18.22
direct taxes	563	4.727	3.88	3.019	0.42	23.08
indirect taxes	566	7.024	6.13	3.405	0.42	17.9
property taxes	420	0.379	0.16	0.486	0	2.05
trade taxes	554	1.886	1.545	1.628	0.01	15.3
social security contributions	444	4.506	1.92	4.900	0	18.6
<i>Public spending variables (over GDP)</i>						
total government expenditure	427	22.010	20.13	8.378	6.3	56.08
general public services	341	6.120	4.93	3.884	1.18	31.65
defense expenditure	346	1.608	1.35	1.155	0	5.57
health expenditure	346	1.996	1.37	1.929	0	7.67
education expenditure	346	2.691	2.905	1.454	0.01	5.54
social protection expenditure	341	5.279	3.08	5.494	0	21.07
public order expenditure	318	1.123	1.1	0.656	0	3.52
<i>Political variables</i>						
Polity 2 index	569	16.200	18	4.618	3	20
civil liberties index	569	4.787	5	1.373	1	7
<i>Economic controls</i>						
GDP per worker	497	15.904	14.111	9.918	2.830	58.750
trade openness index	529	72.548	62.900	39.796	10.600	214.400
government debt/GDP	524	50.188	43.150	39.511	2.500	304.500
agriculture/VA	519	11.974	9.800	7.413	0.100	34.800
female labor force participation	569	46.666	47.700	11.564	11.200	75.600
old age population	569	6.845448	5.2	3.71383	3.18	16.59

Notes: tax revenue and public expenditure variables are expressed as percentages with respect to GDP. The rescaled Polity 2 index takes on values on the [0,20] range, with higher values for stronger democratic institutions. 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. See the text for additional details. GDP per worker is expressed in thousands of PPP dollars.

Table 3: tax sources and political factors, pooled OLS estimates, 1990-2005, excluding Indonesia

dependent variable (over GDP)	personal income		corporate		indirect taxes	property taxes	trade taxes	social security
	tax revenue	tax	income tax	direct taxes				
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
civil liberties index, lagged	0.563 [0.94]	0.340* [1.79]	-0.444 [1.65]	-0.072 [0.25]	0.820** [2.57]	-0.027 [0.33]	-0.005 [0.03]	-0.381 [0.76]
Polity 2 index, lagged	0.115 [0.60]	-0.025 [0.62]	0.021 [0.28]	0.048 [0.55]	-0.082 [1.12]	-0.013 [0.61]	0.07 [1.06]	0.281* [2.02]
gdp per worker, lagged	0.081* [1.71]	-0.009 [0.31]	0.110** [2.65]	0.082*** [3.36]	-0.047** [2.05]	0.022*** [4.37]	-0.023 [1.10]	0.051 [0.76]
Latin America dummy	-19.141*** [11.91]	-4.982*** [9.82]	-0.253 [0.49]	-5.104*** [10.07]	-4.989*** [6.29]	0 [.]	-0.671 [0.88]	-9.375*** [7.96]
Asia dummy	-18.103*** [9.96]	-3.765*** [6.44]	0.456 [0.65]	-3.504*** [5.21]	-4.736*** [4.70]	-0.034 [0.31]	0.285 [0.34]	-11.385*** [10.94]
R-squared	0.84	0.83	0.21	0.65	0.53	0.23	0.14	0.8
Number of countries	38	30	32	38	38	28	38	32
Observations	493	339	368	488	491	359	479	385
civil liberties index, lagged	0.558 [0.95]	0.318** [2.13]	-0.451* [1.72]	-0.051 [0.19]	0.826** [2.63]	-0.05 [0.76]	-0.017 [0.09]	-0.41 [0.86]
Polity 2 index, lagged	0.016 [0.02]	0.367** [2.35]	0.156 [0.45]	0.464 [1.34]	0.04 [0.10]	-0.163 [1.63]	-0.136 [0.53]	-0.676 [0.61]
Polity 2 index squared, lagged	0.004 [0.13]	-0.016** [2.43]	-0.006 [0.45]	-0.018 [1.42]	-0.005 [0.34]	0.006* [1.72]	0.009 [0.84]	0.031 [0.80]
gdp per worker, lagged	0.082* [1.76]	-0.007 [0.27]	0.111*** [2.75]	0.077*** [3.29]	-0.048** [2.05]	0.026*** [6.10]	-0.02 [0.98]	0.045 [0.67]
Latin America dummy	-19.066*** [11.26]	-5.234*** [10.63]	-0.345 [0.67]	-5.416*** [10.78]	-5.081*** [5.28]	0 [.]	-0.518 [0.77]	-9.272*** [7.60]
Asia dummy	-18.047*** [9.67]	-3.958*** [7.08]	0.387 [0.59]	-3.740*** [6.21]	-4.805*** [4.57]	-0.059 [0.51]	0.403 [0.53]	-11.235*** [9.93]
R-squared	0.84	0.85	0.22	0.66	0.53	0.29	0.15	0.8
Number of countries	38	30	32	38	38	28	38	32
Observations	493	339	368	488	491	359	479	385
civil liberties index, lagged	0.38 [0.82]	0.400*** [2.85]	-0.4 [1.52]	-0.026 [0.10]	0.743** [2.28]	-0.063 [1.64]	-0.018 [0.12]	-0.487* [1.80]
Polity 2 index, lagged	0.868 [1.53]	0.293 [1.53]	0.176 [0.49]	0.31 [1.10]	0.581 [1.36]	0.057 [1.24]	0.085 [0.50]	-0.29 [0.38]
Polity 2 index squared, lagged	-0.024 [1.12]	-0.014 [1.70]	-0.004 [0.27]	-0.009 [0.85]	-0.024 [1.43]	-0.002 [0.84]	0 [0.06]	0.016 [0.63]
gdp per worker, lagged	0 [0.00]	0.022 [0.72]	0.088 [1.19]	0.06 [1.22]	-0.136** [2.13]	0.001 [0.13]	0.067 [1.29]	-0.034 [0.85]
trade openness index, lagged	0.009 [0.71]	-0.002 [0.85]	0.003 [0.47]	0.006 [1.06]	-0.005 [0.39]	-0.001 [0.61]	0.005 [1.43]	0.007 [0.68]
government debt/GDP, lagged	0.033*** [3.84]	0.005 [0.65]	-0.001 [0.15]	0.003 [0.67]	0.014** [2.55]	0.001 [1.15]	0.008* [1.78]	0.010** [2.56]
agriculture/VA, lagged	-0.201** [2.69]	-0.037 [1.38]	-0.054 [1.13]	-0.171*** [3.99]	-0.058 [1.12]	-0.015 [1.51]	0.092*** [3.86]	-0.119 [1.55]
female labor force participation, lagged	0.047 [1.41]	0.007 [0.60]	-0.004 [0.22]	0.003 [0.21]	0.031 [1.13]	-0.001 [0.16]	0.011 [0.84]	0.039 [1.56]
old age population, lagged	0.552 [1.31]	-0.073 [0.82]	-0.201 [1.17]	-0.439** [2.65]	0.541*** [2.89]	0.126*** [6.28]	-0.072 [0.68]	0.589*** [3.55]
Latin America dummy	-16.247*** [5.08]	-5.346*** [7.82]	-1.459 [1.14]	-7.326*** [6.36]	-1.83 [1.18]	0.058 [1.11]	-1.337 [1.15]	-5.979*** [4.87]
Asia dummy	-14.972*** [5.09]	-3.746*** [4.98]	-0.628 [0.49]	-5.140*** [4.34]	-1.507 [1.08]	0 [.]	-0.702 [0.62]	-8.319*** [6.78]
R-squared	0.91	0.86	0.31	0.74	0.57	0.48	0.33	0.91
Number of countries	32	25	27	32	32	25	32	28
Observations	396	282	311	391	394	303	387	323
country fixed effects	no	no	no	no	no	no	no	no
year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes

Notes: the table displays the output of fixed effects regressions with tax revenue 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 [0,20] range, with higher values for stronger democratic institutions. See the text for details.

GDP per worker is expressed in thousands of PPP dollars. Region dummies are included, with New EU members as the excluded category.

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

* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4: tax sources and political factors, country fixed effects, 1990-2005, excluding Indonesia

dependent variable (over GDP)	personal income		corporate		indirec taxes	property taxes	trade taxes	social security
	tax revenue	tax	income tax	direct taxes				
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
civil liberties index, lagged	0.357 [1.06]	0.092 [0.63]	0.346 [1.10]	0.326 [1.16]	0.043 [0.23]	-0.079* [1.91]	-0.05 [0.52]	-0.047 [0.38]
Polity 2 index, lagged	0.024 [0.41]	-0.021 [1.38]	0.013 [0.33]	-0.027 [1.09]	0.014 [0.32]	0.002 [0.31]	0.060*** [3.01]	0.01 [0.32]
gdp per worker, lagged	-0.182* [1.84]	-0.041 [1.28]	0.123 [1.34]	0.019 [0.27]	-0.045 [0.50]	-0.051*** [3.63]	-0.126 [1.07]	-0.073 [1.46]
R-squared	0.97	0.97	0.73	0.89	0.83	0.76	0.66	0.98
Number of countries	38	30	32	38	38	28	38	32
Observations	493	339	368	488	491	359	479	385
civil liberties index, lagged	0.364 [1.06]	0.09 [0.66]	0.321 [1.17]	0.326 [1.16]	0.048 [0.27]	-0.080* [1.93]	-0.049 [0.50]	-0.055 [0.43]
Polity 2 index, lagged	0.533 [1.38]	0.161 [1.06]	-0.329 [0.69]	-0.02 [0.07]	0.390* [1.83]	0.06 [1.35]	0.13 [0.89]	-0.195 [0.49]
Polity 2 index squared, lagged	-0.02 [1.27]	-0.007 [1.11]	0.013 [0.67]	0 [0.02]	-0.015* [1.71]	-0.002 [1.16]	-0.003 [0.45]	0.007 [0.50]
gdp per worker, lagged	-0.177* [1.78]	-0.043 [1.33]	0.121 [1.43]	0.019 [0.28]	-0.041 [0.46]	-0.049*** [3.51]	-0.126 [1.05]	-0.077 [1.46]
R-squared	0.97	0.97	0.73	0.89	0.83	0.76	0.66	0.98
Number of countries	38	30	32	38	38	28	38	32
Observations	493	339	368	488	491	359	479	385
civil liberties index, lagged	0.456 [1.24]	0.203 [0.96]	0.276 [1.11]	0.405 [1.42]	0.016 [0.08]	-0.038 [1.05]	0.132 [1.10]	-0.054 [0.49]
Polity 2 index, lagged	0.094 [0.22]	0.067 [0.65]	-0.361 [0.99]	-0.094 [0.27]	0.112 [0.31]	0.079 [1.13]	-0.105 [0.35]	-0.061 [0.19]
Polity 2 index squared, lagged	-0.004 [0.24]	-0.003 [0.67]	0.015 [0.96]	0.003 [0.22]	-0.006 [0.38]	-0.003 [1.05]	0.006 [0.52]	0.003 [0.24]
gdp per worker, lagged	-0.04 [0.29]	0.034 [0.64]	0.253** [2.20]	0.171 [1.47]	-0.007 [0.05]	-0.025 [1.58]	-0.182 [1.51]	0.01 [0.23]
trade openness index, lagged	-0.013 [0.74]	0.003 [0.55]	0.01 [1.40]	0.011 [1.31]	-0.018 [1.38]	0.002 [1.17]	-0.001 [0.15]	-0.015 [1.55]
government debt/GDP, lagged	0.001 [0.08]	0.003 [0.36]	0.008 [0.64]	0.007 [0.71]	-0.006 [0.66]	0.002 [1.19]	0.003 [0.65]	-0.008** [2.34]
agriculture/VA, lagged	-0.065 [0.51]	0.019 [0.52]	0.051 [0.85]	0.013 [0.20]	-0.105 [1.04]	0.030** [2.25]	0.032 [0.53]	-0.064* [1.80]
female labor force participation, lagged	0.176* [1.91]	0.017 [0.53]	0.018 [0.43]	0.032 [0.75]	0.118* [1.77]	0.026** [2.68]	0.066* [1.79]	-0.008 [0.22]
old age population, lagged	-0.428 [0.47]	-0.626 [1.23]	-0.781 [1.33]	-1.202 [1.61]	1.257 [1.22]	0.108 [0.98]	-0.304 [0.31]	-0.582* [1.88]
R-squared	0.98	0.96	0.75	0.89	0.85	0.79	0.66	0.99
Number of countries	32	25	27	32	32	25	32	28
Observations	396	282	311	391	394	303	387	323
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 revenue 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 [0,20] 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 10%; ** significant at 5%; *** significant at 1%.

Table 5: tax sources and political factors, country fixed effects, 1990-2005, excluding Indonesia. Separate regressions for each area.

dependent variable (over GDP)	tax revenue			personal income tax			corporate income tax			direct taxes		
	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
civil liberties index, lagged	0.991	0.463	0.538	0.547	0.107	0.025	0.087	0.604***	-0.3	0.585*	0.468**	-0.332
	[1.12]	[1.48]	[0.87]	[1.51]	[1.02]	[0.29]	[0.23]	[3.16]	[1.39]	[1.87]	[2.19]	[1.38]
Polity 2 index, lagged	-1.247	-0.006	-0.058*	-0.994*	-0.018**	-0.007	-0.714	0.06	0.048*	-1.608***	-0.033	0.033
	[1.44]	[0.06]	[1.89]	[2.23]	[2.50]	[0.98]	[1.55]	[0.73]	[1.92]	[3.77]	[0.80]	[1.58]
gdp per worker, lagged	0.556	-0.046	0.015	0.039	0.018	-0.023	0.235*	0.326	0.048	0.317	0.187	-0.06
	[1.06]	[0.38]	[0.17]	[0.36]	[0.81]	[0.89]	[1.99]	[1.75]	[1.01]	[1.65]	[1.26]	[1.48]
R-squared	0.88	0.89	0.91	0.84	0.94	0.96	0.83	0.63	0.91	0.67	0.74	0.93
Number of countries	9	19	10	9	12	9	9	14	9	9	19	10
Observations	99	263	131	99	135	105	99	155	114	99	258	131

dependent variable (over GDP)	indirect taxes			property taxes			trade taxes			social security		
	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
civil liberties index, lagged	0.944	-0.09	0.646	-	-0.026	-0.061	-1.554	0.208**	0.188	-0.295	-0.14	0.139
	[0.86]	[0.51]	[1.59]		[0.54]	[0.93]	[1.29]	[2.48]	[0.96]	[0.41]	[0.93]	[1.70]
Polity 2 index, lagged	-0.837	0.032	-0.085**	-	-0.01	-0.007	0.656	0.005	0.039**	0.739	-0.003	-0.042
	[0.75]	[0.53]	[3.16]		[0.61]	[1.04]	[0.64]	[0.28]	[2.26]	[1.13]	[0.07]	[1.71]
gdp per worker, lagged	0.689	-0.124	0.06	-	-0.061*	-0.023	-0.808	-0.118*	0.112***	-0.115	0.012	-0.125*
	[1.73]	[1.54]	[1.13]		[1.99]	[0.94]	[0.86]	[1.97]	[4.56]	[0.70]	[0.38]	[2.14]
R-squared	0.47	0.9	0.83		0.75	0.87	0.67	0.69	0.93	0.93	0.95	0.82
Number of countries	9	19	10	-	18	10	9	19	10	9	18	5
Observations	99	261	131	-	239	120	90	261	128	99	248	38
country fixed effects	yes	yes	yes	-	yes	yes	yes	yes	yes	yes	yes	yes
years fixed effects	yes	yes	yes	-	yes	yes	yes	yes	yes	yes	yes	yes

Notes: the table displays the output of fixed effects regressions with tax revenue and different categories thereof (as a fraction of GDP) as dependent variables. Within each subgroup of columns, each column is devoted to a different area of the world.

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 [0,20] 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 10%; ** significant at 5%; *** significant at 1%.

Table 6: public expenditure and political factors, pooled OLS estimates, 1990-2005, excluding Indonesia

dependent variable (over GDP)	total government expenditure	general public services	defense expenditure	health expenditure	education expenditure	social protection expenditure	public order expenditure
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
civil liberties index, lagged	-0.137 [0.14]	-0.603 [1.13]	-0.213* [1.71]	-0.062 [0.26]	-0.141 [0.80]	0.339 [0.50]	0.041 [0.63]
Polity 2 index, lagged	0.394 [1.43]	0.056 [0.33]	0.06 [1.36]	0.061 [1.44]	0.114* [1.88]	0.057 [0.39]	0.038* [1.82]
gdp per worker, lagged	0.062 [1.04]	-0.108*** [3.38]	0.050*** [2.83]	0.011 [0.77]	0.047*** [2.95]	0.04 [0.91]	0.002 [0.29]
Latin America dummy	-15.135*** [5.43]	-2.704** [2.23]	-0.28 [3.18]	-2.363*** [3.18]	-0.048 [0.10]	-6.652*** [3.30]	-0.684*** [3.80]
Asia dummy	-14.133*** [4.48]	-1.146 [0.78]	1.327*** [3.49]	-3.412*** [4.81]	-0.14 [0.25]	-9.796*** [6.04]	-0.771*** [4.64]
R-squared	0.6	0.25	0.5	0.57	0.24	0.63	0.53
Number of countries	35	33	33	33	33	33	33
Observations	391	309	313	313	313	309	301
civil liberties index, lagged	-0.249 [0.27]	-0.601 [1.13]	-0.203* [1.73]	-0.067 [0.29]	-0.138 [0.79]	0.332 [0.51]	0.041 [0.66]
Polity 2 index, lagged	-0.661 [0.51]	-0.272 [0.44]	0.428*** [2.94]	-0.123 [0.48]	0.22 [1.04]	-1.125 [1.31]	0.098 [1.51]
Polity 2 index squared, lagged	0.045 [0.95]	0.014 [0.61]	-0.016*** [2.76]	0.008 [0.75]	-0.005 [0.55]	0.051 [1.47]	-0.003 [0.78]
gdp per worker, lagged	0.085 [1.45]	-0.102*** [3.51]	0.043*** [2.87]	0.014 [0.88]	0.045*** [2.98]	0.064 [1.39]	0.001 [0.14]
Latin America dummy	-14.358*** [5.46]	-2.489** [2.36]	-0.524 [1.63]	-2.240*** [2.81]	-0.118 [0.23]	-5.859*** [2.80]	-0.723*** [4.01]
Asia dummy	-13.442*** [4.55]	-0.878 [0.64]	1.056*** [2.95]	-3.277*** [4.26]	-0.218 [0.37]	-8.775*** [5.02]	-0.819*** [4.38]
R-squared	0.61	0.25	0.58	0.57	0.24	0.66	0.54
Number of countries	35	33	33	33	33	33	33
Observations	391	309	313	313	313	309	301
civil liberties index, lagged	0.122 [0.16]	-0.477 [0.96]	-0.033 [0.27]	0.043 [0.23]	0.04 [0.24]	0.456 [0.91]	0.087 [1.44]
Polity 2 index, lagged	0.382 [0.48]	-0.634 [1.36]	0.352** [2.46]	-0.444* [1.95]	0.185 [0.97]	-0.562 [1.36]	0.031 [0.58]
Polity 2 index squared, lagged	0.003 [0.08]	0.029 [1.42]	-0.014** [2.43]	0.020** [2.24]	-0.004 [0.45]	0.028 [1.48]	0 [0.07]
gdp per worker, lagged	-0.097 [0.67]	-0.184* [1.91]	-0.009 [0.53]	0.005 [0.19]	0.059* [2.05]	-0.034 [0.31]	0 [0.01]
trade openness index, lagged	0.032* [1.77]	-0.013 [1.22]	-0.005* [1.92]	0.022*** [6.28]	0.013** [2.45]	-0.017 [1.46]	0.007*** [6.91]
government debt/GDP, lagged	0.055** [2.60]	0.027 [1.57]	0.004* [1.78]	0.005 [1.59]	0.009** [2.53]	0.033** [2.24]	0.005*** [3.63]
agriculture/VA, lagged	-0.14 [1.18]	-0.25 [1.31]	0.006 [0.25]	-0.002 [0.06]	-0.031 [0.64]	-0.119 [1.04]	0.012 [0.75]
female labor force participation, lagged	-0.031 [0.83]	-0.134*** [2.94]	-0.011 [0.75]	-0.007 [0.64]	0.041*** [3.16]	-0.006 [0.20]	0.016*** [3.57]
old age population, lagged	0.835 [1.47]	-0.178 [0.90]	0.09 [1.25]	-0.051 [0.58]	-0.325*** [3.67]	1.123*** [3.01]	-0.016 [0.77]
Latin America dummy	-10.140** [2.40]	-4.870*** [3.42]	-0.496 [1.03]	-2.261*** [3.61]	-1.293* [1.81]	-0.443 [0.14]	-0.250* [1.93]
Asia dummy	-10.134** [2.61]	-1.653 [1.04]	0.908* [1.75]	-3.635*** [5.15]	-1.950*** [2.94]	-2.37 [0.83]	-0.764*** [4.67]
R-squared	0.77	0.47	0.56	0.83	0.71	0.86	0.77
Number of countries	29	27	27	27	27	27	27
Observations	310	242	242	242	242	238	234
country fixed effects	no	no	no	no	no	no	no
year fixed effects	yes	yes	yes	yes	yes	yes	yes

Notes: the table displays the output of fixed effects regressions with public expenditure and different categories thereof (as a fraction of GDP) as dependent variables. Each column is devoted to a different expenditure item, 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 [0,20] range, with higher values for stronger democratic institutions. See the text for details.

GDP per worker is expressed in thousands of PPP dollars. Region dummies are included, with New EU members as the excluded category.

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

* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 7: public expenditure and political factors, country fixed effects, 1990-2005, excluding Indonesia

dependent variable (over GDP)	total government expenditure	general public services	defense expenditure	health expenditure	education expenditure	social protection expenditure	public order expenditure
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
civil liberties index, lagged	0.314 [0.47]	0.745* [1.76]	0.008 [0.12]	0.161* [1.91]	0.06 [0.49]	0.106 [0.49]	-0.043 [0.59]
Polity 2 index, lagged	0.107 [1.08]	0.046 [1.12]	-0.014 [0.51]	0.008 [0.50]	0.022 [1.07]	-0.002 [0.04]	0.008 [0.91]
gdp per worker, lagged	-0.017 [0.13]	-0.127* [1.88]	0.045** [2.19]	0.015 [0.92]	-0.018 [0.54]	0.083 [1.22]	0.003 [0.23]
R-squared	0.93	0.88	0.92	0.96	0.91	0.97	0.91
Number of countries	35	33	33	33	33	33	33
Observations	391	309	313	313	313	309	301
civil liberties index, lagged	0.406 [0.65]	0.739* [1.75]	0.018 [0.26]	0.164* [1.97]	0.06 [0.50]	0.106 [0.50]	-0.042 [0.59]
Polity 2 index, lagged	1.179* [1.96]	-0.137 [0.46]	0.266*** [3.21]	0.108 [0.90]	0.025 [0.16]	0.017 [0.09]	0.033 [0.47]
Polity 2 index squared, lagged	-0.042 [1.66]	0.007 [0.57]	-0.011*** [3.02]	-0.004 [0.80]	0 [0.02]	-0.001 [0.08]	-0.001 [0.32]
gdp per worker, lagged	-0.025 [0.21]	-0.127* [1.85]	0.041** [2.06]	0.014 [0.83]	-0.018 [0.53]	0.082 [1.21]	0.003 [0.21]
R-squared	0.93	0.88	0.92	0.96	0.91	0.97	0.91
Number of countries	35	33	33	33	33	33	33
Observations	391	309	313	313	313	309	301
civil liberties index, lagged	0.24 [0.42]	0.535 [1.53]	-0.01 [0.13]	0.182 [1.51]	0.075 [0.60]	0.074 [0.46]	-0.025 [0.30]
Polity 2 index, lagged	0.779 [1.43]	-0.102 [0.31]	0.279*** [2.86]	0.101 [0.65]	0.159 [0.83]	-0.001 [0.00]	0.009 [0.10]
Polity 2 index squared, lagged	-0.029 [1.24]	0.007 [0.46]	-0.011** [2.40]	-0.003 [0.46]	-0.006 [0.74]	0.002 [0.13]	0 [0.00]
gdp per worker, lagged	-0.005 [0.03]	0.037 [0.16]	-0.027 [0.71]	0 [0.00]	-0.012 [0.20]	0.176* [1.98]	0.005 [0.16]
trade openness index, lagged	-0.007 [0.30]	0 [0.03]	-0.007** [2.72]	-0.002 [0.41]	0 [0.06]	0.002 [0.17]	0.004 [1.18]
government debt/GDP, lagged	0.006 [0.36]	0.041* [1.86]	-0.007** [2.07]	-0.001 [0.16]	-0.005 [0.84]	0.01 [0.60]	0.004* [1.93]
agriculture/VA, lagged	-0.239 [1.34]	-0.221 [1.27]	-0.045 [1.45]	0.012 [0.29]	0.04 [1.05]	0.066 [0.59]	0.012 [0.60]
female labor force participation, lagged	0.400*** [2.97]	0.007 [0.11]	0.009 [0.35]	0.034 [1.44]	0.039 [1.37]	0.211** [2.48]	0.022 [1.56]
old age population, lagged	2.215** [2.17]	-0.03 [0.03]	0.184 [0.73]	0.022 [0.08]	0.119 [0.40]	0.086 [0.22]	-0.025 [0.14]
R-squared	0.94	0.87	0.89	0.97	0.94	0.98	0.9
Number of countries	29	27	27	27	27	27	27
Observations	310	242	242	242	242	238	234
country fixed effects	yes	yes	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes	yes	yes

Notes: the table displays the output of fixed effects regressions with public expenditure and different categories thereof (as a fraction of GDP) as dependent variables. Each column is devoted to a different expenditure item, 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 [0,20] 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 10%; ** significant at 5%; *** significant at 1%.

Table 8: public expenditure and political factors, country fixed effects, 1990-2005, excluding indonesia. Separate regressions for each area.

dependent variable (over GDP)	total government expenditure			general public services			defense expenditure					
	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]			
civil liberties index, lagged	4.068**	-0.02	0.923	0.549	0.702	0.349	0.351	0.124	-0.009			
	[2.36]	[0.02]	[1.31]	[1.35]	[0.93]	[0.81]	[1.23]	[0.87]	[0.07]			
Polity 2 index, lagged	-3.124**	-0.191	0.226*	0.928**	0.103	0.05	-0.460*	-0.057	-0.015			
	[3.12]	[1.29]	[2.07]	[2.67]	[0.49]	[1.47]	[2.14]	[1.05]	[0.51]			
gdp per worker, lagged	0.676	-0.025	0.104	0.054	-0.051	-0.193***	0.071	-0.018	0.058			
	[1.03]	[0.13]	[1.25]	[0.47]	[0.32]	[5.41]	[1.27]	[0.46]	[1.83]			
R-squared	0.9	0.88	0.87	0.88	0.81	0.94	0.63	0.89	0.93			
Number of countries	9	16	10	9	14	10	9	14	10			
Observations	80	180	131	79	118	112	79	122	112			

dependent variable (over GDP)	health expenditure			education expenditure			social protection expenditure			public order expenditure		
	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
civil liberties index, lagged	1.086**	0.204	0.129*	0.323	0.017	0.113	1.722*	0.281	-0.071	0.12	0	-0.121
	[3.32]	[1.22]	[2.12]	[1.13]	[0.07]	[1.04]	[1.87]	[1.18]	[0.51]	[1.08]	[0.00]	[1.13]
Polity 2 index, lagged	-1.129***	-0.021	0.013	-0.412	-0.027	0.017	-1.470**	-0.139	0.045*	-0.330**	0.016	0.003
	[4.15]	[0.38]	[0.74]	[1.21]	[0.44]	[0.53]	[2.58]	[1.68]	[2.06]	[3.05]	[0.75]	[0.33]
gdp per worker, lagged	0.055	0.012	0.007	0.212**	0.001	-0.027	0.289	0.161	0.051	0.03	0.005	-0.006
	[0.75]	[0.35]	[0.51]	[2.43]	[0.02]	[1.29]	[0.63]	[0.98]	[1.46]	[1.12]	[0.21]	[0.25]
R-squared	0.88	0.96	0.96	0.85	0.94	0.96	0.9	0.98	0.88	0.75	0.9	0.89
Number of countries	9	14	10	9	14	10	9	14	10	9	14	10
Observations	79	122	112	79	122	112	79	118	112	79	118	104
country fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
years fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Notes: the table displays the output of fixed effects regressions with public expenditure and different categories thereof (as a fraction of GDP) as dependent variables. Within each subgroup of columns, each column is devoted to a different area of the world.

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 [0,20] 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 10%; ** significant at 5%; *** significant at 1%.

Figure 1: Polity2 and Civil liberties indices: Pakistan 1990-2005

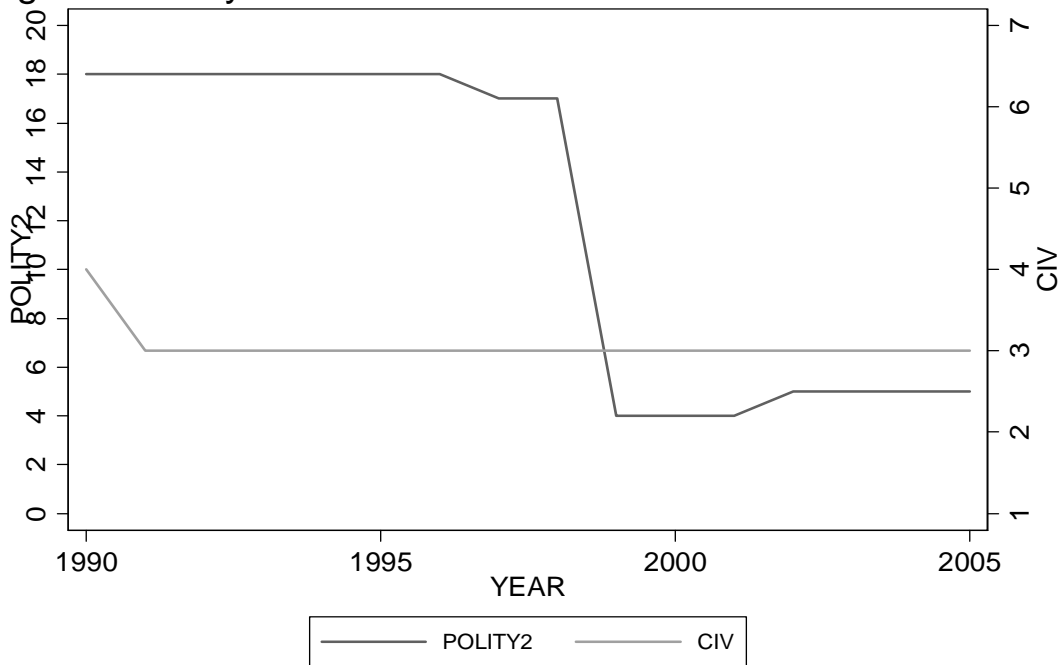


Figure 2: Polity2 and Civil liberties indices: Thailand 1990-2005

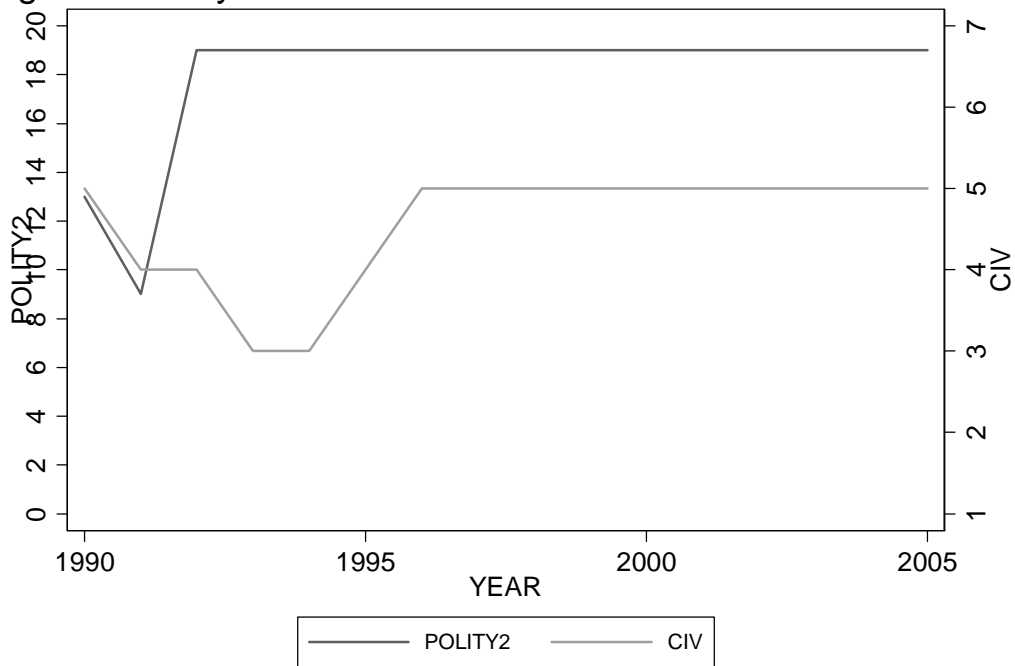


Figure 3: Polity2 and Civil liberties indices: Ecuador 1990-2005

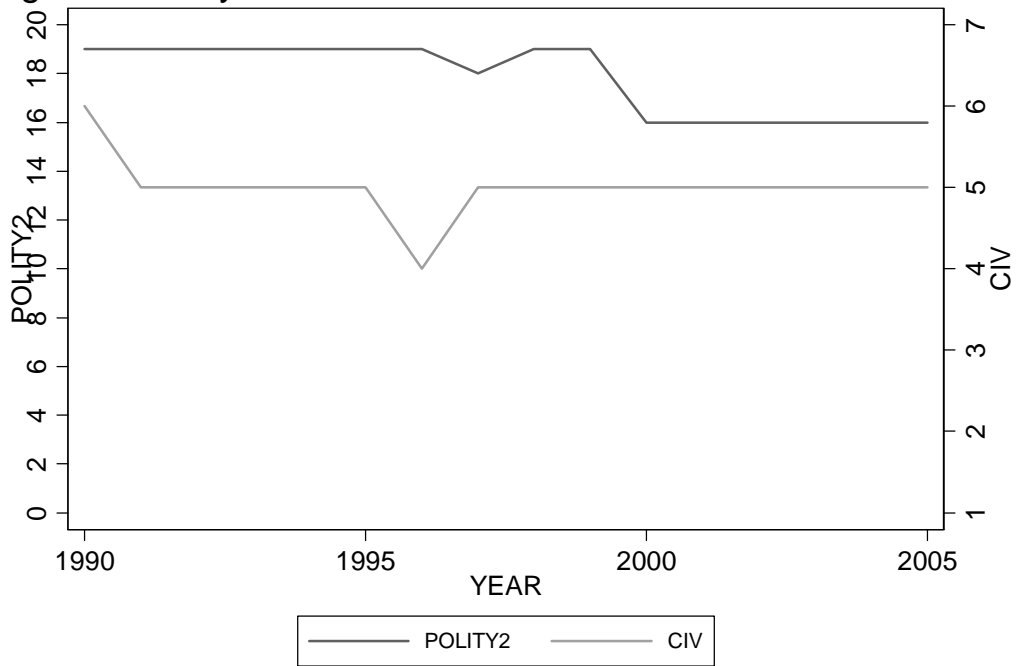


Figure 4: Polity2 and Civil liberties indices: Peru 1990-2005

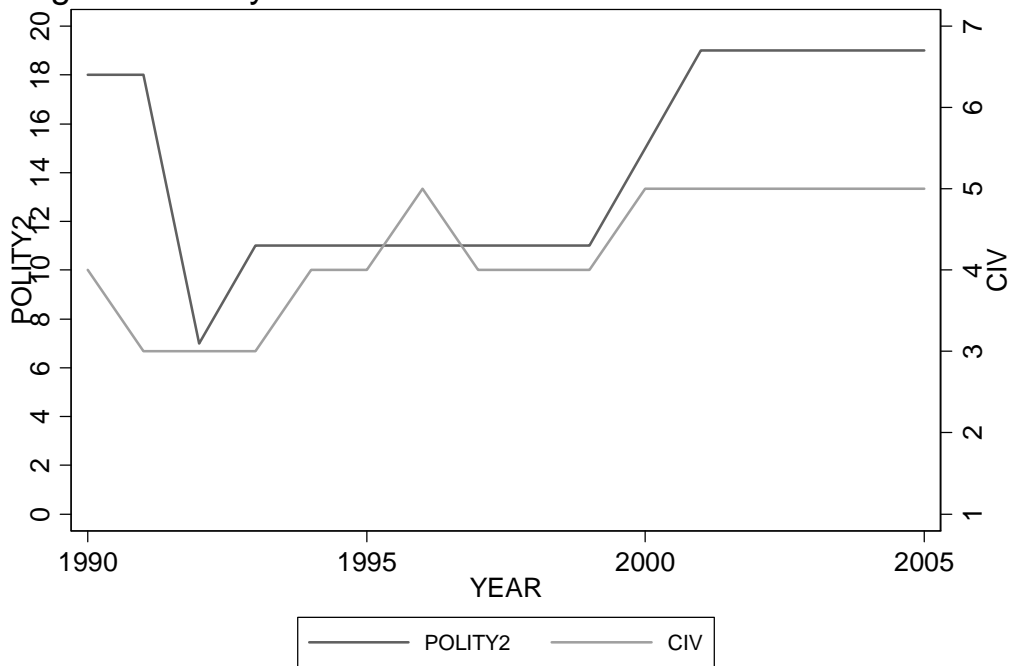


Figure 5: Polity2 and Civil liberties indices: Czech Republic 1990-2005

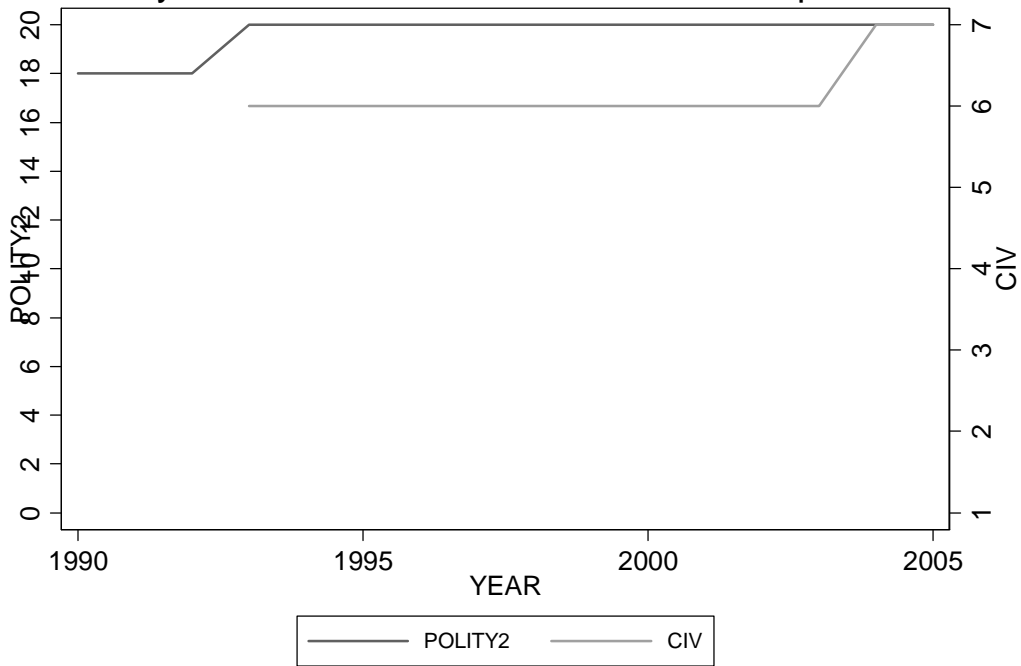


Figure 6: Polity2 and Civil liberties indices: Poland 1990-2005

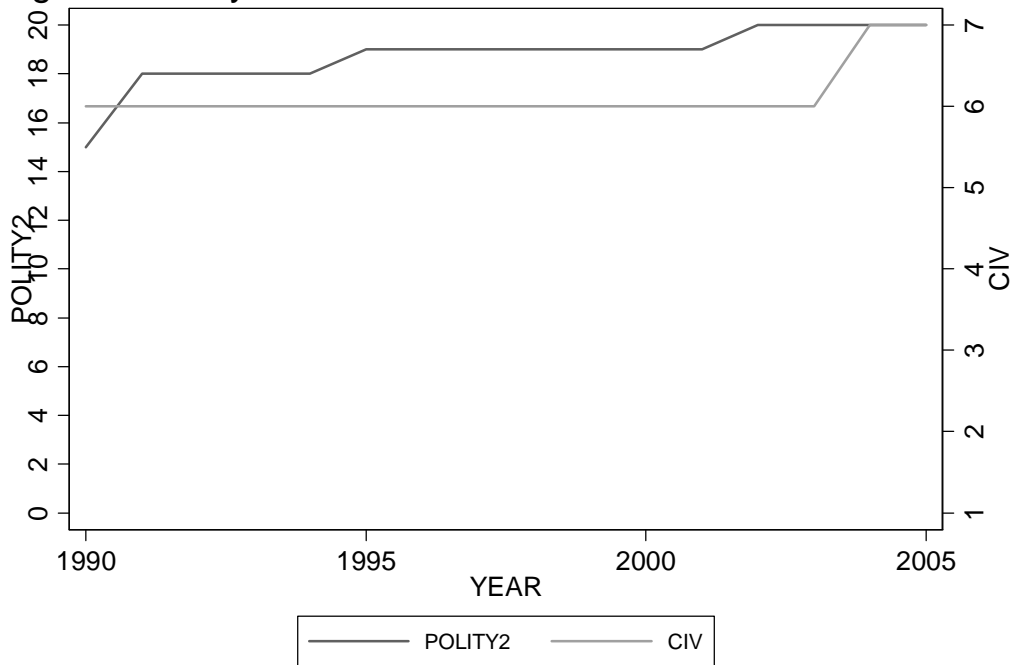


Table A1: tax sources and political factors, pooled OLS estimates, 1990-2005, excluding Indonesia

dependent variable (over tax revenue)	personal income		corporate		indirect taxes	property taxes	trade taxes	social security
	tax revenue	tax	income tax	direct taxes				
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
civil liberties index, lagged	0.563 [0.94]	0.019* [2.02]	-0.033** [2.36]	-0.011 [0.69]	0.031* [1.84]	-0.003 [0.66]	-0.002 [0.14]	-0.02 [0.83]
Polity 2 index, lagged	0.115 [0.60]	-0.001 [0.30]	0 [0.09]	0.002 [0.55]	-0.009 [1.55]	-0.001 [0.71]	0.003 [1.14]	0.010* [1.86]
gdp per worker, lagged	0.081* [1.71]	0 [0.22]	0.005*** [2.91]	0.004*** [3.42]	-0.005*** [4.01]	0.001*** [5.24]	-0.003*** [4.17]	0.003 [1.30]
Latin America dummy	-19.141*** [11.91]	-0.107*** [4.34]	0.061** [2.44]	-0.011 [0.37]	0.095** [2.69]	0 [.]	0.035 [1.23]	-0.175*** [3.75]
Asia dummy	-18.103*** [9.96]	-0.025 [0.85]	0.106*** [3.33]	0.085** [2.26]	0.087* [1.83]	-0.003 [0.52]	0.092** [2.71]	-0.313*** [8.57]
R-squared	0.84	0.56	0.35	0.27	0.25	0.27	0.4	0.52
Number of countries	38	30	32	38	38	28	38	32
Observations	493	339	368	488	491	359	479	385
civil liberties index, lagged	0.558 [0.95]	0.018** [2.39]	-0.033** [2.36]	-0.01 [0.67]	0.031* [1.89]	-0.004 [1.10]	-0.002 [0.17]	-0.02 [0.87]
Polity 2 index, lagged	0.016 [0.02]	0.024** [2.62]	0.003 [0.23]	0.023 [1.46]	-0.012 [0.50]	-0.008 [1.57]	-0.002 [0.16]	0.001 [0.02]
Polity 2 index squared, lagged	0.004 [0.13]	-0.001** [2.66]	0 [0.23]	-0.001 [1.44]	0 [0.16]	0 [1.63]	0 [0.54]	0 [0.18]
gdp per worker, lagged	0.082* [1.76]	0 [0.13]	0.005*** [2.97]	0.004*** [3.16]	-0.005*** [4.06]	0.002*** [7.37]	-0.003*** [3.96]	0.003 [1.23]
Latin America dummy	-19.066*** [11.26]	-0.122*** [5.95]	0.059** [2.09]	-0.027 [0.85]	0.098** [2.28]	0 [.]	0.039 [1.44]	-0.174*** [3.57]
Asia dummy	-18.047*** [9.67]	-0.037 [1.41]	0.104*** [3.39]	0.073** [2.07]	0.089* [1.82]	-0.004 [0.67]	0.094*** [2.89]	-0.311*** [7.46]
R-squared	0.84	0.63	0.35	0.29	0.25	0.32	0.4	0.52
Number of countries	38	30	32	38	38	28	38	32
Observations	493	339	368	488	491	359	479	385
civil liberties index, lagged	0.38 [0.82]	0.023*** [3.17]	-0.031** [2.15]	-0.006 [0.47]	0.031 [1.60]	-0.004 [1.70]	-0.002 [0.24]	-0.029* [1.73]
Polity 2 index, lagged	0.868 [1.53]	0.018* [1.76]	-0.007 [0.38]	0.001 [0.07]	-0.016 [0.54]	0.002 [0.64]	0.004 [0.59]	0.031 [0.75]
Polity 2 index squared, lagged	-0.024 [1.12]	-0.001* [1.94]	0 [0.48]	0 [0.03]	0 [0.19]	0 [0.42]	0 [0.09]	-0.001 [0.53]
gdp per worker, lagged	0 [0.00]	-0.001 [0.56]	0.006 [1.63]	0.004 [1.62]	-0.007** [2.21]	0 [0.89]	0.002 [1.02]	-0.002 [1.09]
trade openness index, lagged	0.009 [0.71]	0 [1.33]	0 [0.05]	0 [0.69]	-0.001 [0.71]	0 [0.74]	0 [1.18]	0 [0.69]
government debt/GDP, lagged	0.033*** [3.84]	0 [1.21]	-0.001 [1.13]	0 [1.35]	0 [0.41]	0 [0.95]	0 [0.18]	0 [1.40]
agriculture/VA, lagged	-0.201** [2.69]	-0.003 [1.44]	-0.001 [0.25]	-0.008** [2.67]	0.001 [0.32]	-0.001 [1.67]	0.009*** [7.30]	-0.006 [1.39]
female labor force participation, lagged	0.047 [1.41]	-0.001 [0.82]	-0.001 [0.78]	-0.001 [0.73]	0.002 [1.06]	0 [0.09]	0 [0.74]	0.001 [0.94]
old age population, lagged	0.552 [1.31]	-0.007* [1.89]	-0.017* [1.79]	-0.033*** [3.68]	0.013 [1.14]	0.005*** [3.56]	-0.003 [0.83]	0.028*** [3.91]
Latin America dummy	-16.247*** [5.08]	-0.150*** [6.47]	-0.039 [0.67]	-0.188*** [3.52]	0.172* [1.95]	0.004 [1.20]	-0.008 [0.22]	0.025 [0.41]
Asia dummy	-14.972*** [5.09]	-0.045 [1.47]	0.007 [0.11]	-0.062 [1.00]	0.164* [1.84]	0 [.]	0.02 [0.54]	-0.137** [2.60]
R-squared	0.91	0.67	0.39	0.49	0.34	0.37	0.65	0.67
Number of countries	32	25	27	32	32	25	32	28
Observations	396	282	311	391	394	303	387	323
country fixed effects	no	no	no	no	no	no	no	no
year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes

Notes: the table displays the output of fixed effects regressions with tax revenue and different categories thereof (as a fraction of tax revenue) as dependent variables. Each column is devoted to a different revenue source, with different specifications being stacked in the same column. For reference, in column [1] we report the specification with tax revenue over GDP as in column [1] of Table 3.

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 [0,20] range, with higher values for stronger democratic institutions. See the text for details.

GDP per worker is expressed in thousands of PPP dollars. Region dummies are included, with New EU members as the excluded category.

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

* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table A2: tax sources and political factors, country fixed effects, 1990-2005, excluding Indonesia

dependent variable (over tax revenue)	personal income		corporate		indirect taxes	property taxes	trade taxes	social security
	tax revenue	tax	income tax	direct taxes				
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
civil liberties index, lagged	0.357 [1.06]	0.004 [0.84]	0.015 [0.69]	0.012 [0.77]	0.001 [0.05]	-0.007** [2.08]	-0.006 [0.95]	-0.004 [0.79]
Polity 2 index, lagged	0.024 [0.41]	-0.001 [1.25]	0.002 [0.68]	-0.002 [0.95]	0 [0.07]	0 [0.31]	0.005** [2.23]	0.001 [0.83]
gdp per worker, lagged	-0.182* [1.84]	-0.001 [0.62]	0.006 [1.02]	0.004 [0.97]	-0.002 [0.60]	-0.003*** [3.01]	-0.002 [0.61]	0.001 [0.42]
R-squared	0.97	0.96	0.7	0.77	0.78	0.69	0.81	0.95
Number of countries	38	30	32	38	38	28	38	32
Observations	493	339	368	488	491	359	479	385
civil liberties index, lagged	0.364 [1.06]	0.004 [0.88]	0.012 [0.64]	0.012 [0.78]	0.001 [0.06]	-0.007** [2.19]	-0.005 [0.97]	-0.004 [0.86]
Polity 2 index, lagged	0.533 [1.38]	0.006 [1.34]	-0.032 [1.21]	-0.012 [0.87]	0.01 [0.80]	0.005 [1.48]	0.019*** [3.28]	-0.009 [0.45]
Polity 2 index squared, lagged	-0.02 [1.27]	0 [1.38]	0.001 [1.20]	0 [0.70]	0 [0.76]	0 [1.30]	-0.001** [2.29]	0 [0.50]
gdp per worker, lagged	-0.177* [1.78]	-0.001 [0.70]	0.006 [1.10]	0.004 [0.99]	-0.002 [0.58]	-0.003*** [3.02]	-0.002 [0.57]	0.001 [0.30]
R-squared	0.97	0.96	0.71	0.77	0.78	0.69	0.81	0.95
Number of countries	38	30	32	38	38	28	38	32
Observations	493	339	368	488	491	359	479	385
civil liberties index, lagged	0.456 [1.24]	0.009 [1.36]	0.011 [0.79]	0.013 [0.92]	-0.004 [0.33]	-0.004 [1.57]	0.004 [0.71]	-0.007 [1.12]
Polity 2 index, lagged	0.094 [0.22]	0.004 [1.23]	-0.028 [1.50]	-0.013 [0.77]	-0.017 [0.92]	0.006 [1.07]	0.014 [1.36]	0.008 [0.43]
Polity 2 index squared, lagged	-0.004 [0.24]	0 [1.19]	0.001 [1.54]	0 [0.72]	0.001 [0.73]	0 [0.99]	0 [0.88]	0 [0.38]
gdp per worker, lagged	-0.04 [0.29]	0.001 [0.32]	0.017** [2.57]	0.011* [1.74]	-0.007 [1.08]	-0.002 [1.57]	-0.005 [1.16]	0.002 [0.84]
trade openness index, lagged	-0.013 [0.74]	0 [1.22]	0.001* [1.86]	0.001** [2.34]	0 [1.40]	0 [0.96]	0 [0.23]	-0.001*** [2.89]
government debt/GDP, lagged	0.001 [0.08]	0 [0.16]	0 [0.22]	0 [0.27]	0 [0.28]	0 [0.79]	0 [0.74]	-0.000* [1.77]
agriculture/VA, lagged	-0.065 [0.51]	0.001 [0.85]	0.012 [1.37]	0.005 [0.79]	-0.013* [1.74]	0.002* [1.83]	0.006** [2.26]	-0.003 [1.02]
female labor force participation, lagged	0.176* [1.91]	-0.001 [1.30]	-0.002 [0.56]	-0.001 [0.62]	0.004 [1.27]	0.002** [2.28]	0.003* [1.76]	-0.004*** [2.81]
old age population, lagged	-0.428 [0.47]	-0.024* [1.93]	-0.085* [1.96]	-0.080** [2.09]	0.080* [1.80]	0.008 [1.03]	0.013 [0.46]	-0.034** [2.09]
R-squared	0.98	0.95	0.73	0.79	0.81	0.67	0.81	0.96
Number of countries	32	25	27	32	32	25	32	28
Observations	396	282	311	391	394	303	387	323
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 revenue and different categories thereof (as a fraction of tax revenue) as dependent variables. Each column is devoted to a different revenue source, with different specifications being stacked in the same column. For reference, in column [1] we report the specification with tax revenue over GDP as in column [1] of Table 4.

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 [0,20] 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 10%; ** significant at 5%; *** significant at 1%.

Table A3: tax sources and political factors, country fixed effects, 1990-2005, excluding Indonesia. Separate regressions for each area.

dependent variable (over tax revenue)	tax revenue			personal income tax			corporate income tax			direct taxes		
	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
civil liberties index, lagged	0.991 [1.12]	0.463 [1.48]	0.538 [0.87]	0.01 [0.92]	0.008 [1.28]	-0.002 [0.26]	0 [0.01]	0.037*** [3.46]	-0.049 [1.49]	0.009 [0.70]	0.024* [2.03]	-0.052 [1.75]
Polity 2 index, lagged	-1.247 [1.44]	-0.006 [0.06]	-0.058* [1.89]	-0.025* [1.93]	-0.001 [1.23]	0 [0.39]	-0.015 [1.32]	0.005 [0.99]	0.005 [1.50]	-0.036** [3.35]	-0.002 [0.85]	0.003 [1.80]
gdp per worker, lagged	0.556 [1.06]	-0.046 [0.38]	0.015 [0.17]	-0.001 [0.55]	0.001 [0.78]	-0.004 [1.52]	0.004 [1.34]	0.019 [1.62]	0.001 [0.10]	0.004 [1.06]	0.012 [1.48]	-0.003 [1.20]
R-squared	0.88	0.89	0.91	0.86	0.95	0.95	0.86	0.75	0.61	0.75	0.81	0.75
Number of countries	9	19	10	9	12	9	9	14	9	9	19	10
Observations	99	263	131	99	135	105	99	155	114	99	258	131

dependent variable (over tax revenue)	indirect taxes			property taxes			trade taxes			social security		
	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
civil liberties index, lagged	0.013 [0.52]	-0.022** [2.52]	0.053 [1.47]	- -	-0.004 [1.28]	-0.003 [0.70]	-0.04 [1.40]	0.012 [1.55]	0.006 [0.77]	-0.016 [1.08]	-0.008 [1.20]	0.008 [1.56]
Polity 2 index, lagged	-0.009 [0.38]	0.006* [1.81]	-0.007** [2.73]	- -	0 [0.42]	0 [0.97]	0.017 [0.68]	0 [0.37]	0.006*** [9.77]	0.033** [2.93]	0.001 [0.97]	-0.003 [1.95]
gdp per worker, lagged	0.013 [1.32]	-0.009 [1.13]	0.002 [0.43]	- -	-0.005* [1.94]	-0.001 [0.84]	-0.022 [0.95]	-0.007* [1.76]	0.008*** [5.46]	-0.008*** [3.71]	0.002 [0.89]	-0.009* [2.36]
R-squared	0.53	0.86	0.74	-	0.63	0.87	0.68	0.77	0.93	0.9	0.92	0.82
Number of countries	9	19	10	-	18	10	9	19	10	9	18	5
Observations	99	261	131	-	239	120	90	261	128	99	248	38
country fixed effects	yes	yes	yes	-	yes	yes	yes	yes	yes	yes	yes	yes
years fixed effects	yes	yes	yes	-	yes	yes	yes	yes	yes	yes	yes	yes

Notes: the table displays the output of fixed effects regressions with tax revenue and different categories thereof (as a fraction of tax revenue) as dependent variables. Within each subgroup of columns, each column is devoted to a different area of the world. For reference, in columns [1], [2] and [3] we report the specification with tax revenue over GDP as in columns [1], [2] and [3] of Table 5.

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 [0,20] 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 10%; ** significant at 5%; *** significant at 1%.

Table A4: public expenditure and political factors, pooled OLS estimates, 1990-2005, excluding Indonesia

dependent variable (over total government expenditure)	total government expenditure	general public services	defense expenditure	health expenditure	education expenditure	social protection expenditure	public order expenditure
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
civil liberties index, lagged	-0.137 [0.14]	-0.019 [1.15]	-0.01 [1.56]	0.002 [0.25]	-0.004 [0.51]	0.028 [1.26]	0 [0.07]
Polity 2 index, lagged	0.394 [1.43]	-0.008 [1.39]	0 [0.20]	0.001 [0.65]	0.004 [1.13]	-0.002 [0.51]	0.002 [1.47]
gdp per worker, lagged	0.062 [1.04]	-0.007*** [4.67]	0.002*** [2.87]	0 [0.33]	0.002*** [2.82]	0.002 [0.84]	0 [0.40]
Latin America dummy	-15.135*** [5.43]	-0.005 [0.16]	0.016 [1.11]	-0.022 [0.82]	0.074*** [3.40]	-0.072 [1.23]	0.002 [0.20]
Asia dummy	-14.133*** [4.48]	0.078 [1.33]	0.095*** [5.25]	-0.075*** [3.08]	0.060** [2.18]	-0.226*** [5.55]	-0.005 [0.52]
R-squared	0.6	0.6	0.61	0.4	0.28	0.56	0.2
Number of countries	35	33	33	33	33	33	33
Observations	391	309	313	313	313	309	301
civil liberties index, lagged	-0.249 [0.27]	-0.018 [1.18]	-0.009 [1.56]	0.002 [0.25]	-0.004 [0.48]	0.028 [1.28]	0 [0.07]
Polity 2 index, lagged	-0.661 [0.51]	-0.034** [2.30]	0.016* [2.01]	0 [0.03]	0.021** [2.17]	-0.024 [0.93]	0.005 [1.47]
Polity 2 index squared, lagged	0.045 [0.95]	0.001* [1.80]	-0.001** [2.23]	0 [0.14]	-0.001* [1.92]	0.001 [0.90]	0 [0.87]
gdp per worker, lagged	0.085 [1.45]	-0.007*** [4.86]	0.002*** [3.00]	0 [0.36]	0.002** [2.65]	0.002 [1.07]	0 [0.23]
Latin America dummy	-14.358*** [5.46]	0.012 [0.38]	0.005 [0.42]	-0.021 [0.70]	0.062*** [2.80]	-0.057 [0.89]	0 [0.05]
Asia dummy	-13.442*** [4.55]	0.099 [1.64]	0.084*** [5.04]	-0.074** [2.67]	0.047 [1.67]	-0.207*** [4.14]	-0.008 [0.73]
R-squared	0.61	0.62	0.65	0.4	0.34	0.57	0.21
Number of countries	35	33	33	33	33	33	33
Observations	391	309	313	313	313	309	301
civil liberties index, lagged	0.122 [0.16]	-0.026 [1.48]	-0.001 [0.23]	0.006 [0.79]	0.006 [1.09]	0.021 [1.29]	0.002 [0.41]
Polity 2 index, lagged	0.382 [0.48]	-0.043** [2.26]	0.010* [1.74]	-0.015 [1.51]	0.019** [2.36]	0.008 [0.64]	0.003 [0.98]
Polity 2 index squared, lagged	0.003 [0.08]	0.001* [1.97]	-0.000* [2.01]	0.001 [1.70]	-0.001* [1.88]	0 [0.63]	0 [0.49]
gdp per worker, lagged	-0.097 [0.67]	-0.004 [1.21]	0.001 [1.02]	-0.001 [0.51]	0.002 [1.70]	0 [0.08]	0 [0.44]
trade openness index, lagged	0.032* [1.77]	-0.001* [1.92]	-0.000*** [3.82]	0.001*** [7.69]	0.000* [1.75]	-0.001 [1.67]	0.000*** [4.20]
government debt/GDP, lagged	0.055** [2.60]	0 [0.01]	0 [1.33]	0 [0.19]	0 [0.87]	0.001 [1.52]	0 [0.33]
agriculture/VA, lagged	-0.14 [1.18]	0 [0.08]	0.002 [1.39]	0 [0.19]	-0.002 [0.60]	-0.003 [0.99]	0.001 [0.91]
female labor force participation, lagged	-0.031 [0.83]	-0.005*** [2.93]	0 [0.30]	0 [0.78]	0.002*** [3.03]	0 [0.30]	0.001*** [3.04]
old age population, lagged	0.835 [1.47]	-0.014* [1.71]	0 [0.09]	-0.003 [0.78]	-0.020*** [5.55]	0.043*** [6.26]	-0.002 [1.56]
Latin America dummy	-10.140** [2.40]	-0.122** [2.41]	-0.018 [1.03]	-0.015 [0.71]	-0.021 [0.72]	0.187*** [3.00]	0.01 [1.01]
Asia dummy	-10.134** [2.61]	-0.01 [0.15]	0.051** [2.65]	-0.081*** [3.01]	-0.052* [1.85]	0.069 [1.19]	-0.016 [1.29]
R-squared	0.77	0.72	0.71	0.76	0.72	0.86	0.49
Number of countries	29	27	27	27	27	27	27
Observations	310	242	242	242	242	238	234
country fixed effects	no	no	no	no	no	no	no
year fixed effects	yes	yes	yes	yes	yes	yes	yes

Notes: the table displays the output of fixed effects regressions with public expenditure and different categories thereof (as a fraction of total government expenditure) as dependent variables. Each column is devoted to a different expenditure item, with different specifications being stacked in the same column. For reference, in column [1] we report the specification with total government expenditure over GDP as in column [1] of Table 6.

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 [0,20] range, with higher values for stronger democratic institutions. See the text for details.

GDP per worker is expressed in thousands of PPP dollars. Region dummies are included, with New EU members as the excluded category.

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

* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table A5: public expenditure and political factors, country fixed effects, 1990-2005, excluding Indonesia

dependent variable (over total government expenditure)	total government expenditure	general public services	defense expenditure	health expenditure	education expenditure	social protection expenditure	public order expenditure
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
civil liberties index, lagged	0.314 [0.47]	0.015 [1.13]	-0.006 [1.18]	0.003 [1.11]	-0.002 [0.64]	-0.002 [0.32]	-0.005*** [2.96]
Polity 2 index, lagged	0.107 [1.08]	0.001 [0.32]	-0.002 [0.93]	0 [0.54]	0 [0.38]	0 [0.13]	0 [0.90]
gdp per worker, lagged	-0.017 [0.13]	-0.008*** [3.13]	0.002 [1.25]	0 [0.77]	-0.001 [1.22]	0.001 [0.46]	0 [0.07]
R-squared	0.93	0.93	0.93	0.95	0.94	0.98	0.87
Number of countries	35	33	33	33	33	33	33
Observations	391	309	313	313	313	309	301
civil liberties index, lagged	0.406 [0.65]	0.014 [1.12]	-0.005 [0.89]	0.004 [1.16]	-0.002 [0.61]	-0.002 [0.34]	-0.005*** [2.93]
Polity 2 index, lagged	1.179* [1.96]	-0.006 [0.50]	0.020*** [3.00]	0.005 [1.24]	0.001 [0.12]	-0.008 [0.99]	-0.001 [0.25]
Polity 2 index squared, lagged	-0.042 [1.66]	0 [0.49]	-0.001*** [2.93]	0 [1.24]	0 [0.16]	0 [0.92]	0 [0.34]
gdp per worker, lagged	-0.025 [0.21]	-0.008*** [3.10]	0.002 [1.14]	0 [0.66]	-0.002 [1.21]	0.001 [0.47]	0 [0.06]
R-squared	0.93	0.93	0.94	0.95	0.94	0.98	0.87
Number of countries	35	33	33	33	33	33	33
Observations	391	309	313	313	313	309	301
civil liberties index, lagged	0.24 [0.42]	0.005 [0.42]	-0.004 [0.72]	0.004 [1.14]	-0.001 [0.39]	-0.003 [0.55]	-0.004* [2.02]
Polity 2 index, lagged	0.779 [1.43]	0 [0.02]	0.018*** [3.45]	0.003 [0.62]	0.006 [1.22]	-0.005 [0.65]	-0.001 [0.36]
Polity 2 index squared, lagged	-0.029 [1.24]	0 [0.03]	-0.001*** [3.04]	0 [0.54]	0 [1.21]	0 [0.47]	0 [0.42]
gdp per worker, lagged	-0.005 [0.03]	-0.001 [0.20]	0 [0.11]	-0.001 [1.04]	0.001 [0.74]	-0.002 [0.43]	0 [0.09]
trade openness index, lagged	-0.007 [0.30]	0 [0.08]	-0.000** [2.17]	0 [0.01]	0 [0.14]	0 [1.34]	0 [1.39]
government debt/GDP, lagged	0.006 [0.36]	0.001* [1.88]	-0.000*** [2.94]	0 [0.93]	0 [1.65]	0 [0.67]	0 [0.88]
agriculture/VA, lagged	-0.239 [1.34]	-0.011 [1.34]	0.001 [0.32]	-0.001 [0.58]	0.001 [0.48]	0.001 [0.34]	0.001 [0.76]
female labor force participation, lagged	0.400*** [2.97]	-0.002 [0.84]	-0.001 [1.31]	0.001 [1.15]	0 [0.29]	0.004*** [2.96]	0 [0.14]
old age population, lagged	2.215** [2.17]	-0.014 [0.41]	-0.019 [1.51]	0.005 [0.57]	-0.020** [2.31]	0.022 [1.51]	-0.01 [1.29]
R-squared	0.94	0.93	0.93	0.96	0.97	0.98	0.87
Number of countries	29	27	27	27	27	27	27
Observations	310	242	242	242	242	238	234
country fixed effects	yes	yes	yes	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes	yes	yes	yes

Notes: the table displays the output of fixed effects regressions with public expenditure and different categories thereof (as a fraction of total government expenditure) as dependent variables. Each column is devoted to a different expenditure item, with different specifications being stacked in the same column. For reference, in column [1] we report the specification with total government expenditure over GDP as in column [1] of Table 7.

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 [0,20] 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 10%; ** significant at 5%; *** significant at 1%.

Table A6: public expenditure and political factors, country fixed effects, 1990-2005, excluding indonesia. Separate regressions for each area.

dependent variable (over total government expenditure)	total government expenditure			general public services			defense expenditure		
	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
civil liberties index, lagged	4.068**	-0.02	0.923	-0.008	0.013	0	0.005	0	-0.007
	[2.36]	[0.02]	[1.31]	[0.93]	[0.59]	[0.02]	[0.76]	[0.02]	[0.92]
Polity 2 index, lagged	-3.124**	-0.191	0.226*	0.038***	0.01	-0.001	-0.009	-0.005	-0.002
	[3.12]	[1.29]	[2.07]	[4.13]	[1.41]	[0.34]	[1.74]	[1.18]	[0.71]
gdp per worker, lagged	0.676	-0.025	0.104	-0.001	0.001	-0.014***	0.001	0	0.002
	[1.03]	[0.13]	[1.25]	[0.22]	[0.12]	[6.71]	[0.91]	[0.17]	[0.65]
R-squared	0.9	0.88	0.87	0.81	0.84	0.95	0.65	0.87	0.9
Number of countries	9	16	10	9	14	10	9	14	10
Observations	80	180	131	79	118	112	79	122	112

dependent variable (over total government expenditure)	health expenditure			education expenditure			social protection expenditure			public order expenditure		
	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia	New EU	Latin Am	Asia
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
civil liberties index, lagged	0.022*	0.005	0.004	-0.004	-0.003	0	0.003	0.003	-0.002	-0.005	-0.006	-0.008
	[2.11]	[0.66]	[1.05]	[0.28]	[0.60]	[0.03]	[0.16]	[0.33]	[0.59]	[1.19]	[1.68]	[1.47]
Polity 2 index, lagged	-0.025**	-0.001	0	0	0.001	-0.001	-0.002	-0.003	0.001*	-0.002	0.003*	0
	[3.06]	[0.27]	[0.07]	[0.01]	[0.42]	[1.37]	[0.22]	[0.57]	[1.86]	[0.77]	[1.82]	[0.72]
gdp per worker, lagged	0	0	0	0.005	0.001	-0.002***	0	0.003	0.002	0	0.001	0
	[0.30]	[0.12]	[0.44]	[1.50]	[0.39]	[5.42]	[0.07]	[0.52]	[1.40]	[0.20]	[0.45]	[0.37]
R-squared	0.87	0.94	0.97	0.69	0.94	0.97	0.91	0.97	0.88	0.92	0.89	0.87
Number of countries	9	14	10	9	14	10	9	14	10	9	14	10
Observations	79	122	112	79	122	112	79	118	112	79	118	104
country fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
years fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Notes: the table displays the output of fixed effects regressions with public expenditure and different categories thereof (as a fraction of total government expenditure) as dependent variables. Within each subgroup of columns, each column is devoted to a different area of the world. For reference, in columns [1], [2] and [3] we report the specification with total government expenditure over GDP as in columns [1], [2] and [3] of Table 8.

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 [0,20] 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 10%; ** significant at 5%; *** significant at 1%.