

# Democracy, Taxation, Welfare and the Asian Development\*

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## Abstract

Public policies in Asian countries have a focus on development and growth with a very limited attention to redistribution and equity. As a consequence, these countries have a low fiscal pressure and a “light” welfare state. We analyze the determinants of tax revenue and investigate the tax composition in a sample of eleven Asian countries. Political factors, such as the level of democratization of the country, turn out to play a crucial role.

Keywords: PolityIV dataset, political economy, institutions, Asia, emerging economies.

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# 1 Introduction

Most of Asian countries have a low fiscal pressure and a “light” welfare state (Jacobs 1998).

Tax revenue as a percentage of GDP in 2004 was lower than 20% in China, India, Indonesia, South Korea, Singapore and Malaysia, among the others (IMF 2006), though on an increasing path. Welfare expenditures are also very low. In 2004, the level of public health expenditure, for instance, is 0.4% of GDP in Pakistan, reaching 3% of GDP only in South Korea (WDI 2007). In many of these countries enterprises and families have traditionally played a major welfare role and have partially compensated for the low public spending. In some countries, enterprises have adopted a variety of flexibility measures to keep workers who are not necessarily profitable, while in other Asian countries three-generation families substitute the public welfare system by pooling income between workers and economically inactive people. The quasi-absence of the welfare state is based on the common practice that women are the main providers of personal care for children and the elderly at home.

These inter-related low fiscal pressure and “light” welfare state are however under challenges. Asian countries, especially China and Singapore, are growing fast and their economic and social development should urgently require a rethinking of the welfare and fiscal policies. On the expenditure side, in these countries the forms of enterprise and family welfare are currently being challenged by socio-economic conditions, in particular the financial crisis (which has substantially raised unemployment for instance in Korea), the falling fertility and aging process (in China and Thailand, but also in Korea), as well as by some other common trends, such as urbanization, family nuclearization and the raise of female employment (which imply a reduced readiness of women to care for their parents or children). The World Bank (1999) identifies the “social

protection” as a strategic sector for the structural long-term development of Asian countries. This sector includes three areas, strictly interrelated: social safety nets (including social funds), labor market policies (including child labor) and pensions. This last area, pensions, is crucial, especially for countries in which the demographic transition is well advanced, such as China, Thailand and Korea. As a consequence, welfare expenditure is expected to increase in Asian countries as well as the level of tax revenue. Moreover, crucial challenges for fiscal reforms are the introduction of a more modern fiscal structure, based on the simplification of the tax administration, the fight of fiscal evasion and the development of fiscal decentralization. These innovations will realistically contribute to raise fiscal pressure.

In spite of these common demographic and socio-economic trends, the political situations of the countries in this area are very different. Some countries, for example India, Philippines and South Korea, show a tradition of high democracy; some others, i.e. Indonesia and Thailand, show a trend to democratization only in recent years, while countries such as China, Vietnam and Singapore are characterized by non-democratic institutions. What is the role of political factors, if any, in addressing the expected changes in welfare and fiscal policies? In other words, will the political regime be crucial to help Asian region to cope with the necessary rethinking of these policies?

In this paper we focus our attention on taxation. We provide a positive analysis of the determinants of tax revenue and investigate the structure and composition of taxation in a selected sample of Asian countries, which includes China, India, Indonesia, Malaysia, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Thailand and Vietnam. In a regression analysis, we find that, in addition to standard economic variables and other variables that captures the recent socio-economic trends in this world’s area, tax revenue as percentage of GDP is related to political factors, such as the level of democratization of the

country. Second, we emphasize the role of political regimes for tax policies and design across countries. More democratic countries have more personal income taxation and in general are associated with less indirect taxation, while more autocratic countries have more corporate income taxation. Finally, although these results are useful *per se*, since this is the first attempt to try to explain the link between tax revenue, and especially tax structure, and political variables in the Asian countries, we show that our findings on tax revenue can be extended to a more general ensemble of emerging economies in a comparative perspective. In a still preliminary analysis, we include in our sample countries from enlarged EU (25) and from Latin America. The political variables are still significantly related to the level of tax revenue and, in a comparative perspective, being an Asian or Latin American country seems to imply a lower tax revenue than being a New EU Member.

This paper contributes to the analysis of taxation and politics in Asian countries. First, the paper is related to the growing political economy literature of democracies, which analyzes, both theoretically and empirically, the economic determinants of democracy, the link between democracy and economic development, and the role of democracy on public policies (see Boix 2003, Barro 1996, Giavazzi and Tabellini 2005, Persson and Tabellini 2006, Acemoglu et al. 2004 and 2005, Acemoglu and Robinson 2006, Mulligan et al. 2004). Moreover, this study can be linked to the huge literature on taxation in developing countries (see Burgess and Stern 1993, Bernardi et al. 2006a and their references). However, although very often informally discussed in policy debates and policy documents, the role of political factors has been generally neglected by the empirical analysis. The relationship between the tax structure and political regimes has been only recently analyzed by Kenny and Winer (2006). They however refer to data for three time periods not very recent (1975-80, 1981-85 and 1986-92) with the risk of not considering the democratic transition that happened more

recently in some of the countries. Moreover, they analyze a big sample of countries, with the risk of a very large heterogeneity. Other studies have specifically focused on the direct/indirect tax mix (Musgrave 1969) or on particular taxes, such as Mulligan et al. (2004) who have empirically analyzed the consequences of democracy for the structure of the personal income tax even if in a sample that once more differs from ours in time periods and country composition. Our results are consistent with those found in these previous studies, but we have a different and new perspective: we focus only on Asian countries, but consider all their main taxes for the period 1990-2004. Since Asia is characterized by several specific features for taxation and welfare, our study, which narrows and limits its analysis to this specific area, has a double advantage with respect to previous broader studies: these specific features can emerge in a clear and more precise picture, and they can be discussed in a policy perspective appropriate to their institutional environment, quite different from the rest of the world. In particular we can discuss crucial implications of taxation for the development of this strategic and dynamic area.

The paper is organized as follows: next section provides evidence on democracy indicators in a sample of eleven Asian countries and analyzes the role of the democratic institution on the level of tax revenue and specific taxes. Section three contains possible future extensions to emerging economies, in a new perspective comparing transition economies in Asia to those in enlarged EU (25) and Latin America. Section four concludes. Data description and sources are in the Appendix.

## **2 Democracy and taxation**

In this section we analyze the determinants of tax revenue in a selected sample of eleven Asian countries for which data on taxes and political regimes are

available from homogeneous sources. We explore which economic factors affect tax revenue and the level of specific taxes (i.e. income, corporate) and especially which role is played by the political regime.

We first present a brief, not exhaustive, overview of tax systems and political regimes in these countries, then describe the data and show the results.

## 2.1 Overview of tax systems and political regimes

Asia is a fast developing and highly economically integrated area, but its countries are not homogeneous (as for instance in Latin America and, to a less extent, Eastern Europe). The levels of GDP per worker are very different, some countries (i.e. Singapore, South Korea, Malaysia) are more developed, while others (i.e. Vietnam, India, Pakistan) stay behind (Penn World Tables 2006). Moreover, there is no supra-national authority which coordinates single countries' policies and harmonize their institutions.

Figures 1a-b show the evolution of tax revenue over the period 1990-2004 in these countries and Tables 1a-b summarize the structure of tax revenue, comparing 1990 and 2004 data<sup>1</sup>.

[INSERT FIGURES 1]

[INSERT TABLES 1]

Tax revenue is quite low, especially if compared with that of countries in other world areas with a similar per-capita income (CIS countries, for example): in percentage of GDP it is, in 2004, 12.31 in Singapore, 12.53 in India, 12.79 in Pakistan, 17.09 in Indonesia, 17.39 in Malaysia and 19.8 in China (IMF 2006). Even in South Korea, an industrialized country with a per-capita income similar to the one of many Western European countries (such as Greece and Portugal, for instance), the tax revenue reaches only 16.97% of income (34.3% in Greece and 35.4% in Portugal). The highest values are in Sri Lanka, Thailand, Vietnam

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<sup>1</sup>Using data from IMF Government Finance Statistics Yearbook, 2004 is the last year available .

and Philippines: respectively 26.01, 27.75, 42.34 and 52.41% of GDP.

Similarly to what happens in most developing and transition economies (Burgess and Stern 1993), indirect taxes prevail on direct ones, with the major exceptions of Malaysia and Philippines, and with India and Singapore showing quite similar values. A low tax wedge on labor improves efficiency, while a high burden on consumption reduces equity and induces welfare losses.

Firms enjoy a generous tax system, especially foreigner firms, which take advantage from a complex system of tax incentives, aimed at attracting foreign direct investments in specific sectors<sup>2</sup>. As a consequence, although tax incentives may generate a low level of taxation, corporate tax revenue is usually higher than personal income tax, with a large part of revenues coming from multinationals. Personal income tax is instead still quite embryonal in many countries (see Bernardi et al. 2006a)

A very strong feature is that social contributions are very low. All countries have a very limited, approximately zero, pension system. This will be a crucial challenge for the economic and political development of Asian countries such as China, for example, which shows a rapid aging of population.

These features reveal many policy issues for taxation and development in these countries: some of them apply more to a specific cluster of countries, some are general. Many studies have analyzed and discussed these issues<sup>3</sup>. In this section we argue that a crucial issue to be investigated is the development of democratic institutions. We show the role of the political regime on the current

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<sup>2</sup>These countries (with exception of South Korea) are not forced to respect the OECD rules against harmful tax competition. Many experts have advocated the introduction of a World Tax Organization to avoid the anticompetitive outcomes of the tax holiday regimes especially in China (Tanzi 1999).

<sup>3</sup>Recently, Bernardi et al. (2006a) have investigated the following policy issues suggesting directions for reforms: the improvement of tax administration and the control of tax evasion, the development of fiscal federalism, the assessment of incentives in corporate taxation, the introduction of a pension system, the design of a personal income tax which would join redistributive aim to the mere efficiency goals. Fiscal decentralization is also crucial. Even India and China, giant countries, clearly difficult to be administered only at central level, have a low fiscal decentralization. Recent trends seem to move towards greater decentralization. Related to this, tax administration is another crucial area.

tax system and suggest the implications for the future. Before that, it is thus essential to provide an overview of the political regime of these countries.

The Polity IV dataset (2007) contains an indicator called “polity,” which is computed for a very large number of countries by subtracting an annual measure of institutionalized autocracy from an annual measure of institutionalized democracy, both ranging from 0 to 10. These measures are constructed by taking into account the competitiveness of political participation, the regulation of participation, the openness and competitiveness of executive recruitment and the constraints on the chief executive that characterize a specific country. As a consequence, the polity score ranges from -10 (strong autocracy) to +10 (strong democracy).

Figures 2a-b show the values of the polity indicator for the period 1990-2004 for China, India, South Korea, Malaysia, Pakistan, Singapore and Indonesia, Philippines, Sri Lanka, Thailand and Vietnam respectively. Three results emerge: (i) China and Vietnam are characterized by the lowest absolute levels of the polity indicator (scoring -7 in the all period), followed by Singapore that stays on a similar stable pattern of low values (-2 in the all period); (ii) India, Philippines, South Korea and, to a lower extent Sri Lanka, have a tradition of high democracy; (iii) the other countries, especially the ones which entered the mid-1990s with low levels of democracy, i.e. Indonesia and Thailand, have experienced a certain variation of this indicator over time, mostly an ascendant path. Pakistan is the relevant exception, while Malaysia’s polity indicator slightly reduces from 4 to 3 during the considered period.

In the remaining of the paper we empirically explore the relation between the evidence reported in Tables 1a-b and Figures 1a-b and the one reported in Figures 2a-b, i.e. the link, if it exists, between political regimes and the level and structure of taxation. Then we preliminary discuss possible extensions of our results by also considering emerging economies in two other world’s area:

enlarged EU (25) and Latin America.

[INSERT FIGURES 2]

## 2.2 The data

We construct a dataset to analyze the determinants of tax revenue and of the level of revenue sources (personal income, corporate income, social security, goods and services, trade, property) in our eleven Asian countries for the period 1990-2004.

According to the standard literature (Musgrave 1969, Tanzi 1992 and 1994, Burgess and Stern 1993, see also Bernardi et al. 2006b), tax revenue mainly depends on GDP, the share of agriculture on GDP, the openness of the economy as a percentage of GDP and the debt/GDP ratio.

Moreover, following Kenny and Winer (2006), in our dataset we add to these standard economic variables some indicators of political regimes coming from the Polity IV dataset (2007): the polity indicator (POLITY), which ranges from -10 (strong autocracy) to +10 (strong democracy) and, as said before, is computed by subtracting an annual measure of institutionalized autocracy (AUTOC) from an annual measure of institutionalized democracy (DEMOC). In particular, DEMOC stays for institutionalized democracy and is conceived as three essential and interdependent elements: (i) the presence of institutions and procedures through which citizens can express effectively their preferences about alternative policies and leaders, (ii) substantial institutionalized constraints on the exercise of power by the executive, (iii) the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation. The rule of laws, systems of checks and balances, freedom of the press, and other aspects of democracies are included, because they are considered specific means of these three elements. AUTOC stays instead for institutionalized autocracies, that is political systems whose common features are a lack of regularized polit-

ical competition and concern for political freedoms. Both the indicators range from 0 to 10 and are derived from codings of the competitiveness of political participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive using different weights. In our analysis the polity indicator will be the most important political variable given that it allows to consider simultaneously both the level of democracy and the level of autocracy in a particular country. In fact a higher level of the polity indicator can 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. The Polity IV dataset (2007) also provides information on the duration of the polity regime (DURABLE). Starting from this, we construct an additive variable DUR\_POLITY to measure the interaction between the political regime and its duration. Finally, using Freedom House data, we include another alternative political variable, called civil liberties (FREEDOM), measured on a one-to-seven scale, with 1 representing the highest degree of freedom of expression, organization, assembly, property rights protection and equality under the law and 7 the lowest.

Taking into account the recent socio-economic trends that are characterizing this world's area and that may have an impact on tax revenue and redistributive policies, we also control for the aging process, the female labor force participation rate, the percentage of urban population over the total population, the number of people per squared km, the share of children of secondary school age that are currently enrolled in secondary school, the size of shadow economy on GDP, the income inequality and the development of credit market. In fact we could consider that more aged societies may be able to collect less tax revenues; higher tax revenue would depend on a greater female participation to employment, more relevant education policies and the income inequality. Moreover we have argued that one of the main challenges for these countries is the growing

need for a larger welfare state, due, among other things, to urbanization. Thus, a higher percentage of urban population may potentially push to an increase of tax revenue to finance welfare expenditures. Finally, where tax revenue raises then the size of shadow economy could be more relevant and in developing countries a larger use of the credit market may represent a substitute for the absence of a sizable pension scheme when social security contributions are small.

Summary statistics of all variables are in Table 2. All data description and sources are in the Appendix.

[INSERT TABLE 2]

### **2.3 The results**

We first run a pooled OLS regression for tax revenue and then several OLS regressions for the share of revenue coming from the six main taxes: personal income tax (PIT), corporate income tax (CIT), social security contributions (SS), goods and services taxes (GS), trade taxes (TRADE), property taxes (PROP). As in Kenny and Winer (2006), since each tax is part of the tax system in the country, as optimally decided by its government, the equations constitute a system of seemingly unrelated regressions. To reduce the heteroskedasticity problem due to differences across countries, we use Huber-White standard errors and we define all dependent variables as a fraction of GDP. Kenny and Winer (2006) instead use category revenue/total revenue, but to assess the relationship between total revenue and its composition we consider more appropriate this specification which is less sensible to endogeneity problems. To ensure efficient estimations that preserve the adding up property of the coefficients, we use the same explanatory variables in each regression. They are: the growth rate of real GDP per capita (GDPVAR)<sup>4</sup>, the share of agriculture on GDP (AGR),

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<sup>4</sup>We do not include directly real GDP per worker to avoid the risk of endogeneity given that the dependent variables are expressed as percentage of GDP. Also Kenny and Winer (2006) use the coefficient variation in real GDP as an explanatory variable which may capture the impact of a change in GDP on taxation.

the openness of the economy as a percentage of GDP (OPE), the central government debt/GDP ratio (DEBT), Gini index (GINI) and the political regime (POLITY, DEMOC, AUTOC, DUR\_POLITY, FREEDOM used once a time). We then add the further control variables: the share of population over 65 on total population (OLD), the female labor force participation (FEMALE) as a percentage of female population between 15 and 64 years old, the percentage of urban population over the total population (URBAN), the number of people per squared km (DENSITY), the share of children of secondary school age that are currently enrolled in secondary school (SCHOOLING), the size of the shadow economy as a percentage of GDP (SHADOW), the Gini index (GINI), the private credit by deposit money bank to GDP (CREDIT) and the private credit by deposit money bank and other financial instruments to GDP (CREDIT2). We first ran regressions without time fixed effects and then including them.

The results for the tax revenue are in Tables 3a-e and for the different revenue sources in Tables 4a-b.

[INSERT TABLES 3]

Table 3a shows that our basic specification which includes only fundamental economic and political variables explains tax revenue quite well ( $R^2$  is between 0,28 and 0,47). The different columns a) of this table refer to the different measures of political variables that we use: POLITY, DEMOC, AUTOC, FREEDOM and the interaction (DUR\_POLITY) between the regime durability (DURABLE) and the polity indicator. They show that tax revenue is associated positively and significantly with polity, democracy and negatively to autocracy and civil liberties. Surprisingly, democratic regime durability has a negative relation with tax revenue. As for the economic fundamentals, openness is significant in the specification with a positive sign; on the contrary, the growth rate of real GDP per capita and the central government debt/GDP ra-

tio are not significantly related to tax revenue<sup>5</sup>. The share of agriculture on GDP appears significant and shows a positive sign only when combined with the political variable measured by the Freedom House and the one based on the interaction between the duration of the political regime and the polity indicator.

A crucial result is that democracy is associated with more tax revenue while autocracy goes in the opposite direction. This is consistent with the formal voting literature. Differently from the Chicago Political Economic School, this literature affirms that it would be possible to predict public policy starting from a measure of democracy. And this is in line with what argued and empirically tested and confirmed by Boix (2003). When dealing with the link between democracy and the public sector, the author initially specifies that as the choice of a political regime depends on its distributive implications, the economic and fiscal consequences coming from a democracy or an authoritarian system must be different. Under a non-democratic regime the size of the public sector should be small, a substantial part of the electorate being excluded from the decision-making process. As a consequence, the level of redistributive spending should be minimal. A transition to democracy, on the contrary, should raise taxes and public spending. In fact, democratization will involve demands for government to assume more responsibility for the unemployed, sick, poor and the elderly. Under the same level of ex-ante inequality, the level of inequality ex-post has to be lower in a democracy than in a non democracy, i.e. the extent of redistribution increases.

In Table 3b we enrich our basic specification by including a variable which captures the demographic situation, OLD. However, the inclusion of this control variable, does not change the sign and significancy of the relation between tax revenue and political variables (POLITY, DEMOC, AUTO and FREEDOM).

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<sup>5</sup>As regards the central government debt/GDP, the presence of time fixed effects changes the sign of the relation with tax revenue.

A similar result is obtained when we control for the female labor force participation (Table 3c): though the female labor force participation is positively related with tax revenue, our political variables remain significant.

In Table 3d we check for the potential impact of the percentage of urban population on tax revenue. Though the percentage of urban population is positively related to the level of tax revenue as percentage of GDP, it is not significant in explaining it. More important, notice that the relationship between our political variables and the level of tax revenue is robust to the inclusion of this control. Similarly, in Table 3e we control for the density of the population and, again, the relation between our political variables and the level of tax revenue holds its significance with the usual signs.

Tax revenue evolves over time in each country of our sample (see Figures 1). Thus, in columns b of Tables 3a-e we add time fixed effects to explain the cross-country variation at the same year. We instead do not include country fixed effects since cross-country variation is exactly what we want to measure (see Kenny and Winer 2006). Each country is considered only for 15 years, a too short time period to see sensible variation in the level of tax revenue and the polity indicator. Interestingly, with time fixed effects, the political regime remains significantly related to tax revenue with the same sign of the relationship.

As already said, additional controls are included in our analysis, although we decide not to show tables due to the very limited number of observations. These include: the level of schooling, the size of shadow economy, the Gini index and the size of private credit. The political variables are still significant when a measure of schooling enrolment is included. We find a positive relationship between the size of the shadow economy and the level of tax revenue. However, our political measures are still significantly related with tax revenue and with the usual signs. Finally the Gini index turns out to be positive and significant

to explain tax revenue, but it does not alter the significance of the political variables. The relationship between tax revenue and our political variables is also robust to the inclusion of the credit market controls.

Although we control for a number of potential sources of omitted variables bias, OLS estimates should not in principle be interpreted causally in a cross sectional setup. However we should note that our main inference relates to the interaction between political variables and tax revenue. In this context, for example, the reverse causality of concern would refer to possible feedback effects of taxation on the political regime, probably a less compelling case. A similar argument would run for issues of omitted variable bias. Nonetheless, since our estimates are obtained on a fairly small sample and the magnitude of the estimated effects is small, there may be a concern about the presence of serious attenuation bias due to measurement error. Lacking credible instrumental variable strategy for this set up, our use of different measures and different sources for the political regime variable (POLITY, DEMOC, AUTOC and FREEDOM) represents a robustness check to our results.

Tables 4a-b show our results for the structure of taxation.

[INSERT TABLES 4]

A first general result is that a larger tax revenue is associated with a larger amount of each revenue source (with the exception of social security contributions and property taxes)<sup>6</sup>. This confirms the existence of a scale effect, as in Kenny and Winer (2006): as the government gets larger, more taxes are obtained from almost each tax source. As total revenues grow, all bases are used more heavily. However, the reliance on the base associated with a relatively flat individual political cost function will grow relative to the others.

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<sup>6</sup>The presence of tax revenue among the explanatory variables may produce endogeneity problems. We have run the regressions omitting this variable and the results on the determinants of the tax mix remain very similar. Including tax revenue may however be important in a context with different political regimes, because it reveals the presence of the scale effect.

A second interesting result is that the economic variables seem to be better associated to the structure and composition of tax revenue than to tax revenue itself. The growth rate of real GDP per capita is significantly associated with a higher level of trade and property taxes, and with a lower level of personal income taxes. Agriculture is negatively and significantly related with the tax base (with the exception of cit and trade), meaning that countries where the share of agriculture is larger, typically more rural and less industrialized countries, have lower taxes. The urbanization trend will pose challenges towards an increase of taxes. Openness is associated with a lower level of personal taxes, indirect taxes and property taxes, and with a higher level of corporate taxes. Debt is associated with lower level of personal taxes and taxes on trade, and a lower level of corporate taxes, taxes on goods and services and on property.

Coming back to the main purpose of our analysis, the political regime is also significantly related to the tax mix in the countries considered. More democracy, measured by civil liberties and democracy indicators respectively, induces more personal income taxation and less corporate income taxation, while more autocratic countries have a higher taxation on corporate income. These results are also underlined by Kenny and Winer (2006), but are not completely confirmed by their empirical analysis. Turning to indirect taxes, democracies are associated with smaller good and services taxes than autocracies. Notice also that according to our results more democracy implies larger trade taxes. As regards property taxes, we only find that their level reduces when we consider the autocratic regime, while surprisingly there is no significant effect of the political variables on social security contributions<sup>7</sup>. This raises some doubt on the possibility that there could be a relation between the political regime and the size of pensions.

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<sup>7</sup>Notice that, as done before, we also try to consider as an explanatory variable the regime durability. However we only find a negative and significant relation with the level of CIT and a positive and significant relation with the share of property taxes.

Our results on the tax mix in democratic versus autocratic countries are consistent with several ideas developed in the literature. Musgrave (1969) argues that, since one of the main goal of individual taxation is to redistribute income or realize some social goal, more autocratic countries, which directly exercise more control on the economy in general, and on wages in particular, do not need this source of taxation. They instead rely more on corporate taxation, mainly state enterprise in socialist countries, for instance, or even private business, due to ideological reasons. This is however not consistent with the result in Mulligan et al. (2004), who find that income tax structures are flatter in democracies than non-democracies, which implies that redistribution is not more important in democracies than non-democracies. An alternative explanation of the different tax mix in democratic versus autocratic countries is also offered by Wintrobe (1990), who suggests that, since democratic countries do not use repressive measures as governing instruments, they have to design tax systems that induce more voluntary tax compliance (see also de Juan et al. 1994, Pommerehne and Weck-Hannemann 1996, Alm 1996, Feld and Frey 2002). Mature democracies thus rely more on revenue sources, such as self-assessed personal income taxation, based on voluntary tax compliance, while more repressive governments that cannot rely on tax sources requiring a certain level of voluntary cooperation, such as personal income taxes, move toward corporate taxes or trade taxes<sup>8</sup>.

### **3 Extensions: Emerging Economies**

In this section we show that our findings about the relationship between political regime and both the level of tax revenue and tax composition can be extended to a more general ensemble of emerging economies than the Asian one. Even

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<sup>8</sup>Notice that while for personal and corporate taxes our results are consistent with this argument, for trade taxes they are not.

if in a still preliminary way, this allows us to take into account a comparative perspective. To do this we enlarge our dataset introducing transition economies belonging to the enlarged EU (25) and Latin American areas respectively. In particular, according to the data availability, all the countries considered are listed in Table 5<sup>9</sup>.

[INSERT TABLE 5]

As concerns the data, the share of agriculture on GDP for Latin American countries comes from Cepal Statistics, while for New EU members the OECD Factbook 2008 only provides the share of agriculture on value added. Moreover, we use Cepal Statistics for data on tax revenue for Latin American countries and Eurostat for New EU Members<sup>10</sup>. In this last case, tax revenue refers to general government. The sources of the other variables are the same for all the three areas (see Appendix). Summary statistics of all variables are in Table 6.

[INSERT TABLE 6]

In this very preliminary analysis, we narrow our attention to the determinants of tax revenue without studying the tax structure and composition. In addition to the economic and political variables (POLITY2 and FREEDOM<sup>11</sup>) and the controls considered in the previous section, we also include a continent dummy specific to each of the three areas. Our results referring to the basic specification which includes only fundamental economic and political variables are in Table 7.

[INSERT TABLE 7]

The  $R^2$  is higher than 0.6, showing that our economic and political variables explain well tax revenue. In particular, among the economic variables, only

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<sup>9</sup>We do not consider Malta because it is not in the Polity IV dataset.

<sup>10</sup>Fiscal data from IMF Government Finance Statistics Yearbook are available only for a smaller subset of our sample.

<sup>11</sup>We are including in our sample Haiti and Peru, then we use the revised POLITY2 indicator instead of the POLITY indicator (see Polity IV dataset users' manual for more details). We only consider these two political variables: our main political variable from PolityIV dataset (POLITY2) and our political variable from Freedom House (FREEDOM).

the growth rate of real GDP per capita is not significant. More rural countries tend to have lower tax revenues, while more open ones generally show higher tax revenues, indicating that the development process of emerging economies, which include industrialization and openness, tends to increase taxes. A higher share of government debt on GDP is associated with a higher level of tax revenue. The political variables are strongly significant, even when we control for the aging process, the female participation in the labor market, the education level and the size of shadow economy on GDP<sup>12</sup>. Independently from the world's area considered, in an emerging economy, more democracy (autocracy) implies a high (low) tax revenue; and an increase in civil liberties brings to a raise in tax revenue. Moreover, being an Asian or Latin American transition country seems to lead to a lower fiscal pressure as compared to New EU Members. These results are robust to the inclusion of time fixed effects.

## 4 Discussion and conclusions

Using a new dataset built on a sample of eleven Asian countries, we have argued that the evolutions of the political systems towards more democracy are associated with an increase in tax revenues and a change in the tax structure and composition, mainly to a more intensive use of personal income taxes and a lower level of indirect taxation.

Our empirical analysis is quite limited: many important factors may have been omitted, such as those which affect the administrative costs of taxation (for example the share of population in urban areas, the population density and the country's federal structure. See Kenny and Winer 2006). However, it represents the first applied study which combines economic and political factors to investigate their relation with taxation and draw policy implications for a

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<sup>12</sup>As before, we also control for Gini index and the development of credit market. The inclusion of these controls does not alter the significance of our political variables. However, we have very few observations on these indexes.

crucial developing area in the world.

The evolution of tax revenues may rise interesting implications for the future of welfare state in emerging economies. Though we might expect that welfare will enlarge under demographic and socio-economic pressures and consequently taxes will raise, the levels of taxation and of welfare state are unlikely to reach those of Western countries, at least in the next future. This may be due to several reasons. In particular, these countries share a common view, that differentiate them, for instance, from Western European ones, that government intervention should be limited to enhance growth and efficiency rather than to redistribute and promote equity. In other words, the efficiency-equity trade-off seems to be addressed by favoring efficiency over equity. Political factors affect crucially this efficiency-equity trade-off of the economic development in Asian countries: as long as the main goals of government intervention are in terms of efficiency (growth, investment, trade volume and macro policies), the successful results that we observe suggest that the sequence of reforms that is characterizing, for instance, China and Singapore, i.e. first to introduce economic liberalizations and only after to start (perhaps) a democratic transition, is a good strategy, as argued by Giavazzi and Tabellini (2005) and Persson and Tabellini (2006). According to them, China and Singapore are following a “hard path” of development which just consists in introducing economic liberalizations while still being autocracy. This way of proceeding is called “hard” because democratic governments are more likely to pursue economic liberalizations compared to dictatorships. But, according to their empirical results, countries that first liberalize and then become democracies do much better in terms of growth, investment, trade volume and macro policies than countries that pursue the opposite sequence. Opening the economy may also mean securing the protection of property rights and enforcing rule of law, two prerequisites for a well-functioning democracy. However we expect that while in the first

phase of the economic development, i.e. after modernization, a rising welfare state may not need a democratization process<sup>13</sup>, the democratization process that would follow the economic modernization will be important for the design and the financing of an appropriate welfare system.

Thus, when demographic, social and other changes increase the importance of redistributive goals, the democratization process may play a crucial role to determine successful outcomes in terms of equity and redistribution. In other words, the democratic transition may not be necessary for the economic success in terms of efficiency, but it may be crucial in terms of equity and redistributive goals. As a consequence, we expect reforms in strategic areas such as taxation and welfare, where equity goals are a main motivation, to be more successful when economic and political development (democratization) go hand in hand.

## 5 Appendix

List of all variables and their sources:

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

**DEMOC**: the democracy indicator is an additive eleven-point scale (0-10). It is derived from codings of the competitiveness of political participation, the openness and competitiveness of executive recruitment and constraints on the chief executive (specific variables in Polity IV dataset) using different weights. -88 is the standardized score for more complex transition situations that result in unintended institutional arrangements. Source: Polity IV dataset (2007).

**AUTOC**: the autocracy indicator is an additive eleven-point scale (0-10).

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<sup>13</sup>Mulligan et al. (2004) find that democracy is not significant to increase public spending in government consumption, education spending and social spending (pension and non pension programs).

It is derived from codings of the competitiveness of political participation, the regulation of participation, the openness and competitiveness of executive recruitment and constraints on the chief executive (specific variables in Polity IV dataset) using different weights. -88 is the standardized score for more complex transition situations that result in unintended institutional arrangements. Source: Polity IV dataset (2007).

**DURABLE:** it measures the regime durability, that is the number of years since the most recent regime change (defined by a threepoint change in the POLITY score over a period of three years or less) or the end of transition period defined by the lack of stable political institutions (denoted by a standardized authority score). In calculating the DURABLE value, the first year during which a new (post-change) polity is established is coded as the baseline “year zero” (value = 0) and each subsequent year adds one to the value of the DURABLE variable consecutively until a new regime change or transition period occurs. Source: Polity IV dataset (2007).

**FREEDOM:** civil liberties, conceived of as freedoms to develop views, organizations and personal autonomy apart from the State, are measured on a one-to-seven scale, with 1 representing the highest degree of freedom and 7 the lowest. Countries are assigned particular scores based on evaluations in relation to a pre-established checklist of questions related to freedom of expression, freedom of organization, freedom of assembly, property rights protection, equality under the law, etc. Source: Freedom House. Freedom of the World: The Annual Survey of Political Rights and Civil Liberties. Washington, D.C. and New York: Rowman & Littlefield Publishers, Inc. <http://www.freedomhouse.org>

**TAX\_REV:** tax revenue/GDP. Computed by us. Data on tax revenue (in national currency, referred to central government with the exception of Vietnam) come from IMF Government Finance Statistics Yearbook (1999; 2001-6). Data on GDP (in national currency, at constant market prices) come from IMF World

Economic Outlook Database, April 2008.

**PIT:** individual tax on income, profits and capital gains/GDP. Computed by us. Data on individual tax on income, profits and capital gains (in national currency, referred to central government with the exception of Vietnam) come from IMF Government Finance Statistics Yearbook (1999; 2001-6). Data on GDP (in national currency, at constant market prices) come from IMF World Economic Outlook Database, April 2008.

**CIT:** corporate tax on income, profits and capital gains/GDP. Computed by us. Data on corporate tax on income, profits and capital gains (in national currency, referred to central government with the exception of Vietnam) come from IMF Government Finance Statistics Yearbook (1999; 2001-6). Data on GDP (in national currency, at constant market prices) come from IMF World Economic Outlook Database, April 2008.

**PROP:** taxes on property/GDP. Computed by us. Data on taxes on property (in national currency, referred to central government with the exception of Vietnam) come from IMF Government Finance Statistics Yearbook (1999; 2001-6). Data on GDP (in national currency, at constant market prices) come from IMF World Economic Outlook Database, April 2008.

**TRADE:** taxes-internat'l trade, transactions/GDP. Computed by us. Data on taxes-internat'l trade, transactions (in national currency, referred to central government with the exception of Vietnam) come from IMF Government Finance Statistics Yearbook (1999; 2001-6). Data on GDP (in national currency, at constant market prices) come from IMF World Economic Outlook Database, April 2008.

**GS:** domestic taxes on goods & services/GDP. Computed by us. Data on domestic taxes on goods & services (in national currency, referred to central government with the exception of Vietnam) come from IMF Government Finance Statistics Yearbook (1999; 2001-6). Data on GDP (in national currency,

at constant market prices) come from IMF World Economic Outlook Database, April 2008.

**SS:** social security contributions/GDP. Computed by us. Data on social security contributions (in national currency, referred to central government with the exception of Vietnam) come from IMF Government Finance Statistics Yearbook (1999; 2001-6). Data on GDP (in national currency, at constant market prices) come from IMF World Economic Outlook Database, April 2008.

**GDPVAR:** growth rate of real GDP per capita (% in 2000 constant prices: chain series). Source: Heston, A., Summers, R. and Aten, B. Penn World Table Version 6.2, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, September 2006.

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

**DEBT:** central government debt/GDP. Source: Panizza, U. (2006) Public Debt around the World: A New Dataset of Central Government Debt, IADB. [http://www.iadb.org/res/pub\\_desc.cfm?pub\\_id=DBA-005](http://www.iadb.org/res/pub_desc.cfm?pub_id=DBA-005). Not available for Vietnam.

**AGR:** the share of agriculture as a percentage of GDP. Source: Key Indicators, Asian Development Bank, various years.

**OLD:** Population ages 65 and above as percentage of total. Source: World Development Indicators (WDI 2007).

**FEMALE:** Female labor force participation rate as percentage of female population ages 15-64. Source: World Development Indicators (WDI 2007).

**URBAN:** percentage of urban population over the total population. Source: World Development Indicators (WDI 2007).

**DENSITY:** number of people per squared km. Source: World Development Indicators (WDI 2007).

**SCHOOLING:** School enrolment, secondary (% net). Source: World Development Indicators (WDI 2007). Not available for Singapore, Sri Lanka, Thailand, Haiti, Uruguay, Czech Republic, Latvia and Slovakia.

**SHADOW:** the share of shadow economy as a percentage of GDP. Source: (i) Schneider, F. (2005) 'Shadow economies around the world: what do we really know?' *European Journal of Political Economy*, 21, 598-642; (ii) Schneider, F. (2007) 'Shadow Economies and Corruption All Over the World: New Estimates for 145 Countries,' *Economics, The Open-Access, Open-Assessment E-Journal*, n. 2007-9.

**GINI:** Gini index on a zero-to-100 scale. Source: World Development Indicators (WDI 2007). Not available for South Korea.

**CREDIT:** private credit by deposit money bank/GDP. Source: World Development Indicators (WDI 2007). Not available for Vietnam.

**CREDIT2:** private credit by deposit money bank and other financial instruments/GDP. Source: World Development Indicators (WDI 2007). Not available for Vietnam.

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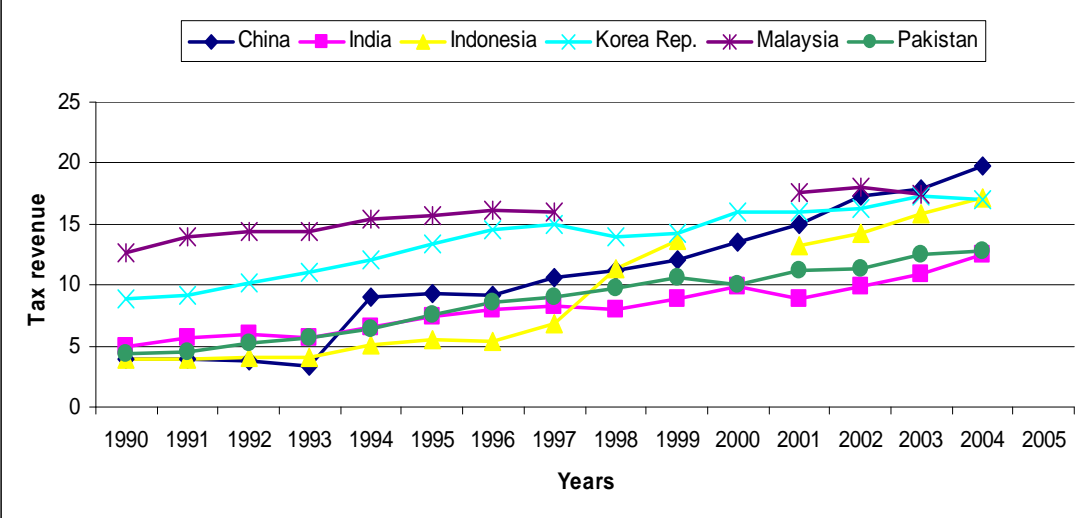
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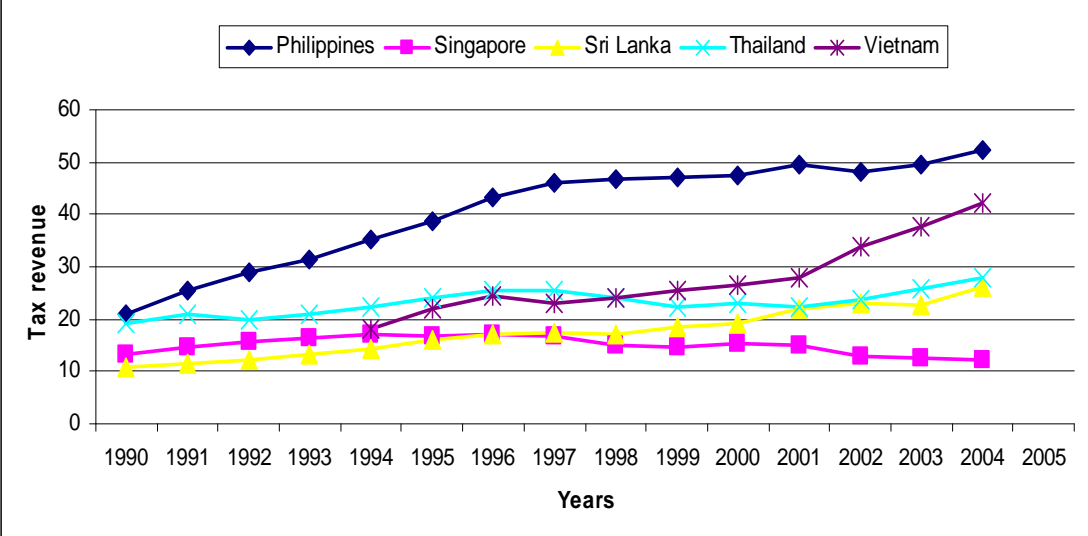
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**Figure 1a The evolution of tax revenue (% of GDP) 1990-2004**



Source: Our calculations from IMF Government Finance Statistic Yearbook (various years)

**Figure 1b The evolution of tax revenue (% of GDP) 1990-2004**



Source: Our calculations from IMF Government Finance Statistic Yearbook (various years)

**Table 1a Structure of Tax Revenue (% of GDP) in 1990**

	China	India	Indonesia	Korea, Rep.	Malaysia	Pakistan	Philippines	Singapore	Sri Lanka	Thailand	Vietnam*
Tax on Inc., Profits, Cap. Gains	1,97	0,91	2,59	3,32	5,37	0,56	6,85	5,94	1,29	5,00	3,97
Individual		0,46	0,16	1,87	1,39		2,17		0,52	1,99	0,19
Corporate	1,97	0,45	2,38	1,45	3,97		2,68		0,77	2,92	3,78
Social Security Contributions				0,45	0,13					0,02	
Taxes on Property		0,02	0,09	0,21	0,05	0,02	0,14	1,53	0,47	0,69	1,94
Dom. Taxes on Goods & Serv.	1,11	2,20	0,99	3,39	3,54	1,86	7,44	3,71	5,51	8,58	6,09
Taxes-Internat'l Trade, Transac	0,87	1,75	0,27	1,15	3,12	1,95	6,06	0,46	3,40	4,57	5,61
Tax Revenue	3,96	4,89	3,97	8,84	12,64	4,39	21,05	13,32	10,75	19,07	18,30

Source: our calculations from IMF Government Finance Statistics Yearbook (1999 and 2000)

Notice that Tax Revenue includes also Other taxes

\* first year available 1994

**Table 1b Structure of Tax Revenue (% of GDP) in 2004**

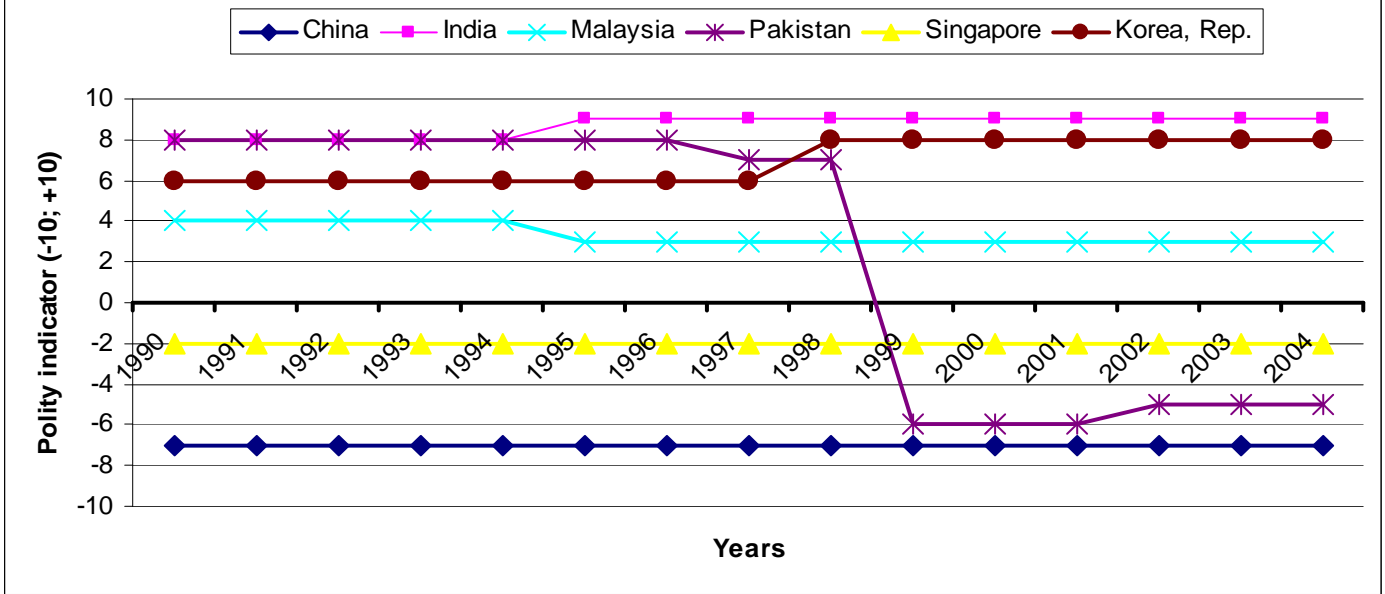
	China	India	Indonesia	Korea, Rep.	Malaysia*	Pakistan	Philippines	Singapore	Sri Lanka	Thailand	Vietnam
Tax on Inc., Profits, Cap. Gains	4,76	5,50	7,18	6,93	11,11	3,55	24,10	5,49	3,82	11,06	16,23
Individual	1,46	2,01	5,78	3,38	2,60	0,51	8,74		1,24	3,49	0,97
Corporate	3,30	3,49	1,40	3,56	8,50	2,90	11,36		1,54	7,57	15,26
Social Security Contributions		0,05	0,70	0,04					0,32		
Taxes on Property	0,23	0,01	0,88	0,43	0,05	0,01	0,06	1,12		0,01	1,02
Dom. Taxes on Goods & Serv.	17,44	4,89	8,16	7,46	5,02	5,78	15,14	4,71	17,69	13,69	19,15
Taxes-Internat'l Trade, Transac		2,14	0,77	0,98	1,31	1,91	10,65	0,01	4,49	2,81	5,95
Tax Revenue	19,80	12,53	17,09	16,97	17,39	12,79	52,41	12,31	26,01	27,75	42,34

Source: our calculations from IMF Government Finance Statistics Yearbook (2006)

Notice that Tax Revenue includes also Other taxes

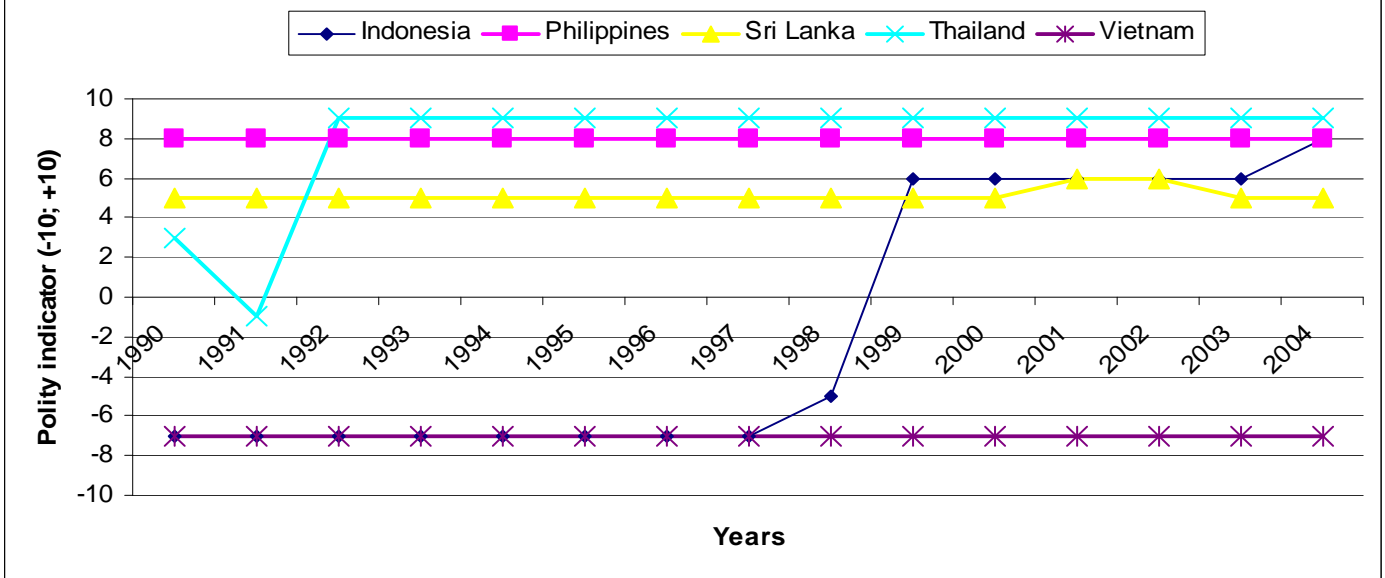
\* last year available 2003

**Figure 2a Democracy in South and East Asia 1990-2004**



Source: Polity IV dataset (2007)

**Figure 2b Democracy in South and East Asia 1990-2004**



Source: Polity IV dataset (2007)

Table 2 Summary statistics of all variables

Variable	OBS	MEAN	STD. DEV.	MIN	MAX
POLITY	176	2,29	6,31	-7	9
DEMOC	176	4,76	3,53	0	9
AUTOOC	176	2,47	2,85	0	7
DURABLE	176	26,70	18,36	0	57
CIV_LIB	175	4,40	1,39	2	7
TAX_REV	156	17,06	10,68	3,35	52,41
PIT	125	2,18	2,06	0,16	9,17
CIT	137	3,61	2,87	0,45	15,26
PROP	144	0,46	0,58	0,00	2,44
TRADE	153	2,89	2,83	0,01	12,35
GS	156	7,10	4,33	0,56	19,15
SS	53	0,38	0,38	0,02	1,63
GDPVAR	160	3,97	4,07	-9,44	15,22
OPE	152	77,83	46,99	15,70	228,90
DEBT	160	54,01	32,43	3,40	118,10
AGR	176	16,35	8,81	0,10	40,50
OLD	176	5,23	1,42	3,21	9,44
FEMALE	176	53,91	15,56	58,80	79,50
URBAN	176	45,07	24,75	15,10	100,00
DENSITY	176	700,47	1552,76	55,10	6191,29
SCHOOLING	34	64,82	19,54	26,20	97,17
SHADOW	77	28,86	13,10	9,80	54,30
GINI	29	40,02	5,94	30,10	49,20
CREDIT	20	0,49	0,26	0,17	0,89
CREDIT2	20	0,62	0,38	0,18	1,25

**Table 3a Tax revenue and political regimes: fundamental economic and political variables**

	(1a) TAX_REV	(1b) TAX_REV	(2a) TAX_REV	(2b) TAX_REV	(3a) TAX_REV	(3b) TAX_REV	(4a) TAX_REV	(4b) TAX_REV	(5a) TAX_REV	(5b) TAX_REV
CONS	11,9711	8,12	7,6664	3,61	16,7629	13,5105	19,2604	15,892	6,0222	1,3189
	(3,92)**	-5,22	(4,33)*	-5,41	(3,66)***	(5,15)*	(3,63)***	(5,10)**	( 4,11)	( 4,88)
GDPVAR	-0,2614	-0,2184	-0,2395	-0,1989	-0,2947	-0,2521	-0,1486	-0,1157	-0,2346	-0,0152
	(0,30)	(0,31)	(0,30)	(0,31)	(0,31)	(0,32)	(0,31)	(0,32)	(0,31)	(0,33)
AGR	-0,1882	0,0942	-0,1795	0,0930	-0,2022	0,0899	0,1295	0,4038	-0,0736	0,3697
	(0,15)	(0,16)	(0,15)	(0,16)	(0,15)	(0,17)	(0,20)	(0,23)*	(0,16)	(0,18)*
OPE	0,0842	0,0973	0,0904	0,1042	0,0776	0,0894	0,1111	0,1246	0,0875	0,1067
	(0,03)**	(0,03)**	(0,03)**	(0,03)**	(0,03)**	(0,03)**	(0,03)***	(0,03)***	(0,03)**	(0,03)***
DEBT	0,0149	-0,0340	0,0193	-0,0271	0,0113	-0,0410	0,0054	-0,0366	0,0521	-0,0063
	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)
POLITY	0,5022	0,5775							1,1589	1,2531
	(0,12)***	(0,12)***							(0,27)***	(0,26)***
DEMOC			0,9437	1,0515						
			(0,21)***	(0,22)***						
AUTOC					-1,0178	-1,2321				
					(0,26)***	(0,26)***				
FREEDOM							-3,0815	-3,3611		
							(0,80)***	(0,84)***		
DURABLE									0,0297	-0,0332
									(0,04)	(0,04)
DUR_POLITY									-0,0254	-0,0267
									( 0,01)**	(0,01)**
TIME FIXED EFFECTS		YES (not signif.)		YES (not signif.)		YES (not signif.)		YES (not signif.)		YES (not signif.)
number of observations	126	126	126	126	126	126	126	126	126	126
countries	11	11	11	11	11	11	11	11	11	11
R-square	0,30	0,39	0,31	0,40	0,28	0,38	0,33	0,41	0,35	0,47

Notes: all variables are explained in Appendix. Robust standard errors in brackets. \* means significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. Regressions b include time fixed effects.

**Table 3b Tax revenue and political regimes**  
**The impact of the percentage of people over 65 years old (OLD)**

	(1a) TAX_REV	(1b) TAX_REV	(2a) TAX_REV	(2b) TAX_REV	(3a) TAX_REV	(3b) TAX_REV	(4a) TAX_REV	(4b) TAX_REV
CONS	20,1598 (6,89)**	26,5146 (8,29)**	16,4138 (6,56)*	22,5134 (7,85)**	24,3357 (7,32)**	31,1951 (8,85)**	23,6552 (7,10)**	27,6900 (8,55)**
GDPVAR	-0,2209 (0,30)	-0,0362 (0,30)	-0,1945 (0,30)	-0,0074 (0,30)	-0,2583 (0,30)	-0,0802 (0,31)	-0,1333 (0,31)	-0,0259 (0,32)
AGR	-0,3364 (0,18)*	-0,1610 (0,15)	-0,3364 (0,18)*	-0,1682 (0,15)	-0,3429 (0,18)*	-0,1590 (0,16)	0,0342 (0,20)	0,1956 (0,21)
OPE	0,0707 (0,03)**	0,0702 (0,03)*	0,0759 (0,03)**	0,0762 (0,03)**	0,0653 (0,03)*	0,0634 (0,03)*	0,1027 (0,03)**	0,1044 (0,03)**
DEBT	0,0184 (0,03)	-0,0354 (0,03)	0,0227 (0,03)	-0,0289 (0,03)	0,0151 (0,03)	-0,0417 (0,03)	0,0081 (0,03)	-0,0350 (0,03)
OLD	-0,9890 (0,84)	-2,1658 (0,95)*	-1,0528 (0,84)	-2,2325 (0,95)*	-0,9323 (0,85)	-2,0916 (0,97)*	-0,5535 (0,76)	-1,4397 (0,90)
POLITY	0,4896 (0,11)**	0,5733 (0,12)**						
DEMOC			0,9296 (0,21)**	1,0569 (0,22)**				
AUTO					-0,9763 (0,25)**	-1,2014 (0,26)**		
FREEDOM							-2,9787 (0,73)**	-3,0726 (0,77)**
TIME FIXED EFFECTS		YES (not signif.)		YES (not signif.)		YES (not signif.)		YES (not signif.)
number of observations	126	126	126	126	126	126	126	126
countries	11	11	11	11	11	11	11	11
R-square	0,31	0,42	0,32	0,43	0,29	0,41	0,33	0,42

Notes: all variables are explained in Appendix. Robust standard errors in brackets. \* means significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. Regressions b include time fixed effects.

**Table 3c Tax revenue and political regimes**  
**The impact of female labor force participation (FEMALE)**

	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	TAX_REV	TAX_REV	TAX_REV	TAX_REV	TAX_REV	TAX_REV	TAX_REV	TAX_REV
CONS	-20,0194	-23,1255	-24,9442	-27,7408	-13,0657	-16,4352	-15,6014	-23,1849
	(5,47) <sup>***</sup>	(6,27) <sup>***</sup>	(6,25) <sup>***</sup>	(6,80) <sup>***</sup>	( 4,57) <sup>**</sup>	(5,65) <sup>**</sup>	( 4,53) <sup>**</sup>	(5,78) <sup>***</sup>
GDPVAR	-0,3546	-0,3852	-0,3370	-0,3693	-0,3860	-0,4165	-0,1591	-0,1883
	(0,28)	(0,29)	(0,27)	(0,29)	(0,28)	(0,30)	(0,27)	(0,26)
AGR	-0,1241	0,0560	-0,1222	0,0467	-0,1318	0,0628	0,4826	0,6701
	(0,12)	(0,12)	(0,12)	(0,12)	(0,12)	(0,13)	(0,17) <sup>**</sup>	(0,18) <sup>***</sup>
OPE	0,0679	0,0759	0,0781	0,0862	0,0551	0,0623	0,1125	0,1176
	(0,02) <sup>***</sup>	(0,02) <sup>***</sup>	(0,02) <sup>***</sup>	(0,02) <sup>***</sup>	(0,02) <sup>**</sup>	(0,02) <sup>**</sup>	(0,02) <sup>***</sup>	(0,02) <sup>***</sup>
DEBT	0,1578	0,1224	0,1610	0,1270	0,1529	0,1158	0,1779	0,1805
	(0,04) <sup>***</sup>	(0,04) <sup>**</sup>	(0,04) <sup>***</sup>	(0,04) <sup>**</sup>	(0,04) <sup>***</sup>	(0,04) <sup>**</sup>	(0,04) <sup>***</sup>	(0,03) <sup>***</sup>
FEMALE	0,4746	0,4597	0,4575	0,4403	0,4910	0,4809	0,6040	0,6674
	(0,07) <sup>***</sup>	(0,07) <sup>***</sup>	(0,07) <sup>***</sup>	(0,07) <sup>***</sup>	(0,07) <sup>***</sup>	(0,07) <sup>***</sup>	(0,08) <sup>***</sup>	(0,08) <sup>***</sup>
POLITY	0,8009	0,8314						
	(0,13) <sup>***</sup>	(0,13) <sup>***</sup>						
DEMOC			1,3933	1,4275				
			(0,24) <sup>***</sup>	(0,23) <sup>***</sup>				
AUTOC					-1,8146	-1,9267		
					(0,29) <sup>***</sup>	(0,29) <sup>***</sup>		
FREEDOM							-5,6491	-6,4215
							(0,84) <sup>***</sup>	(0,78) <sup>***</sup>
TIME FIXED EFFECTS		YES (not signif.)		YES (not signif.)		YES (not signif.)		YES (not signif.)
number of observations	126	126	126	126	126	126	126	126
countries	11	11	11	11	11	11	11	11
R-square	0,46	0,52	0,46	0,52	0,45	0,52	0,56	0,65

Notes: all variables are explained in Appendix. Robust standard errors in brackets. \* means significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Regressions b include time fixed effects.

**Table 3d Tax revenue and political regimes**  
**The impact of urbanization (URBAN)**

	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	TAX_REV	TAX_REV	TAX_REV	TAX_REV	TAX_REV	TAX_REV	TAX_REV	TAX_REV
CONS	5,2138	0,9755	0,7787	-3,7551	9,8294	6,3778	15,8153	12,3662
	(7,50)	(8,57)	(7,87)	(8,76)	(7,38)	(8,60)	(6,56)*	(8,19)
GDPVAR	-0,2284	-0,1686	-0,2030	-0,1433	-0,2645	-0,2075	-0,1441	-0,1073
	(0,30)	(0,30)	(0,30)	(0,30)	(0,30)	(0,31)	(0,31)	(0,31)
AGR	-0,0307	0,2703	-0,0142	0,2805	-0,0498	0,2552	0,1829	0,4613
	(0,21)	(0,26)	(0,21)	(0,26)	(0,21)	(0,26)	(0,24)	(0,28)
OPE	0,0856	0,0990	0,0916	0,1056	0,0797	0,0916	0,1104	0,1239
	(0,03)**	(0,03)**	(0,03)**	(0,03)**	(0,03)*	(0,03)**	(0,03)***	(0,03)***
DEBT	0,0185	-0,0310	0,0224	-0,0247	0,0156	-0,0371	0,0081	-0,0342
	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)
URBAN	0,0914	0,0976	0,0953	0,1027	0,0892	0,0930	0,0423	0,0436
	(0,07)	(0,07)	(0,07)	(0,07)	(0,07)	(0,07)	(0,06)	(0,07)
POLITY	0,4707	0,5463						
	(0,10)***	(0,11)***						
DEMOC			0,8984	1,0064				
			(0,19)***	(0,20)***				
AUTO					-0,9289	-1,1451		
					(0,23)***	(0,24)***		
FREEDOM							-2,9150	-3,1792
							(0,70)***	(0,77)***
TIME FIXED EFFECTS		YES (not signif.)		YES (not signif.)		YES (not signif.)		YES (not signif.)
number of observations	126	126	126	126	126	126	126	126
countries	11	11	11	11	11	11	11	11
R-square	0,31	0,40	0,32	0,41	0,30	0,39	0,33	0,41

Notes: all variables are explained in Appendix. Robust standard errors in brackets. \* means significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%. Regressions b include time fixed effects.

**Table 3e Tax revenue and political regimes**  
**The impact of population density (DENSITY)**

	(1a) TAX_REV	(1b) TAX_REV	(2a) TAX_REV	(2b) TAX_REV	(3a) TAX_REV	(3b) TAX_REV	(4a) TAX_REV	(4b) TAX_REV
CONS	9,3436	5,6737	5,7682	1,5594	12,3931	9,8974	22,9158	20,4695
	(5,39)*	(7,36)	(5,48)	(7,19)	(5,73)*	(7,83)	(5,08)***	(7,80)*
GDPVAR	-0,2777	-0,2429	-0,2532	-0,2221	-0,3161	-0,2821	-0,1170	-0,0613
	(0,31)	(0,33)	(0,31)	(0,32)	(0,31)	(0,33)	(0,33)	(0,35)
AGR	-0,1260	0,1476	-0,1267	0,1458	-0,1168	0,1546	0,1020	0,3713
	(0,18)	(0,22)	(0,18)	(0,22)	(0,18)	(0,23)	(0,20)	(0,24)
OPE	0,0960	0,1076	0,0998	0,1136	0,0951	0,1031	0,1018	0,1133
	(0,04)*	(0,04)*	(0,04)**	(0,04)**	(0,04)*	(0,04)*	(0,03)**	(0,04)**
DEBT	0,0094	-0,0392	0,0140	-0,0328	0,0049	-0,0462	0,0101	-0,0299
	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)
DENSITY	0,0058	0,0050	0,0049	0,0048	0,0079	0,0062	-0,0061	-0,0073
	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
POLITY	0,4476	0,5292						
	(0,12)***	(0,13)***						
DEMOC			0,8663	0,9736				
			(0,21)***	(0,22)***				
AUTOC					-0,8392	-1,0885		
					(0,28)**	(0,29)***		
FREEDOM							-3,4514	-3,8254
							(0,93)***	(1,01)***
TIME FIXED EFFECTS		YES (not signif.)		YES (not signif.)		YES (not signif.)		YES (not signif.)
number of observations	126	126	126	126	126	126	126	126
countries	11	11	11	11	11	11	11	11
R-square	0,30	0,39	0,31	0,40	0,29	0,38	0,33	0,41

Notes: all variables are explained in Appendix. Robust standard errors in brackets. \* means significant at 10%; \*\* significant at 5%; \*\*\* Regressions b include time fixed effects.

**Table 4a Structure of taxation and political regimes**

	(1) PIT				(2) CIT				(3) SS			
CONS	1,0647	0,8597	1,3487	1,8734	-1,0308	-0,8448	-1,2966	-1,2256	0,8876	0,8847	0,8143	0,8650
	(0,58)*	-0,61	(0,60)*	(0,52)**	(0,49)*	(0,49)*	(0,50)*	(0,48)*	(0,33)*	(0,34)*	(0,34)*	(0,36)*
GDPVAR	-0,0588	-0,0582	-0,0597	-0,0514	-0,0435	-0,0434	-0,0432	-0,0406	-0,2e-03	-0,6e-03	0,9e-03	-0,7e-03
	(0,04)	(0,04)	(0,04)*	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,01)	(0,01)	(0,01)	(0,01)
AGR	-0,0389	-0,0384	-0,0394	-0,0156	0,0404	0,0405	0,0403	0,0370	-0,0340	-0,0327	-0,0362	-0,0345
	(0,02)*	(0,02)*	(0,02)*	(0,02)	(0,02)*	(0,02)*	(0,02)*	(0,02)	(0,02)*	(0,02)	(0,02)*	(0,02)*
OPE	-3,2e-03	-2,8e-03	-3,7e-03	-0,2e-03	0,0253	0,0250	0,0258	0,0248	-2,5e-03	-2,4e-03	-2,4e-03	-2,5e-03
	(2e-03)	(2e-03)	(2e-03)*	(2e-03)	(4e-03)***	(3e-03)***	(4e-03)***	(4e-03)***	(1e-03)*	(1e-03)*	(1e-03)*	(1e-03)*
DEBT	-8,9e-03	-8,7e-03	-9,2e-03	-8,4e-03	-8,3e-03	-8,6e-03	-7,9e-03	-8,6e-03	2,7e-03	2,5e-03	3e-03	2,7e-03
	(4e-03)*	(4e-03)*	(4e-03)*	(4e-03)*	(0,01)	(0,01)	(0,01)	(0,01)	(2e-03)	(2e-03)	(2e-03)	(2e-03)
TAX_REV	0,1558	0,1556	0,1563	0,1491	0,1434	0,1435	0,1430	0,1407	3,4e-03	1,8e-03	5,8e-03	1,9e-03
	(0,01)***	(0,01)***	(0,01)***	(0,01)***	(0,01)***	(0,01)***	(0,01)***	(0,01)***	(0,01)	(0,01)	(0,01)	(0,01)
POLITY	0,0280				-0,0267				-3,9e-03			
	(0,02)				(0,01)*				(0,01)			
DEMOC		0,0474				-0,0448				-1,3e-03		
		(0,03)				(0,02)*				(0,01)		
AUTO			-0,0654				0,0632				0,0207	
			(0,04)				(0,03)*				(0,02)	
FREEDOM				-0,3130				0,0573				0,0108
				(0,08)***				(0,07)				(0,06)
number of observations	110	110	110	110	122	122	122	122	50	50	50	50
countries	11	11	11	11	11	11	11	11	11	11	11	11
R-square	0,81	0,81	0,81	0,83	0,77	0,77	0,77	0,77	0,15	0,15	0,15	0,15

Notes: all variables are explained in Appendix. Robust standard errors in brackets. \* means significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**Table 4b Structure of taxation and political regimes**

	(4) GS				(5) TRADE				(6) PROP			
CONS	4,6740	5,2173	3,7303	2,8935	-4,2492	-4,5941	-3,6818	-3,6454	0,6634	0,6285	0,7235	0,6040
	(0,96)***	(1,11)***	(0,89)***	(0,83)**	(0,38)***	(0,39)***	(0,38)***	(0,38)***	(0,09)***	(0,09)***	(0,10)***	(0,10)***
GDPVAR	0,0686	0,0710	0,0667	0,0358	0,0488	0,0481	0,0491	0,0495	0,0115	0,0115	0,0114	0,0096
	(0,07)	(0,07)	(0,07)	(0,07)	(0,02)*	(0,03)*	(0,02)*	(0,03)*	(0,01)*	(0,01)*	(0,01)*	(0,01)*
AGR	-0,1665	-0,1651	-0,1678	-0,2448	0,1776	0,1767	0,1785	0,1951	-0,0320	-0,0319	-0,0320	-0,0339
	(0,04)***	(0,04)***	(0,04)***	(0,04)***	(0,02)***	(0,02)***	(0,02)***	(0,02)***	(4e-03)***	(4e-03)***	(4e-03)***	(4e-03)***
OPE	-0,0179	-0,0189	-0,0162	-0,0254	2,4e-03	3e-03	1,5e-03	4,3e-03	-2,2e-03	-2,2e-03	-2,3e-03	-2,6e-03
	(0,01)***	(0,01)***	(0,004)***	(0,01)***	(2e-03)	(2e-03)	(2e-03)	(2e-03)*	(0,4e-03)***	(0,4e-03)***	(0,4e-03)***	(1e-03)***
DEBT	0,0211	0,0199	0,0229	0,0242	-8,6e-03	-7,8e-03	-9,6e-03	-8,4e-03	4,8e-03	4,8e-03	4,7e-03	4,6e-03
	(0,01)*	(0,01)*	(0,01)*	(0,01)*	(4e-03)*	(4e-03)*	(4e-03)*	(4e-03)*	(1e-03)***	(1e-03)***	(1e-03)***	(1e-03)***
TAX_REV	0,3373	0,3366	0,3373	0,3514	0,2394	0,2397	0,2395	0,2406	-1,5e-03	-1,4e-03	-1,4e-03	0,5e-03
	(0,02)***	(0,02)***	(0,02)***	(0,02)***	(0,01)***	(0,01)***	(0,01)***	(0,01)***	(2e-03)	(2e-03)	(2e-03)	(2e-03)
POLITY	-0,0889				0,0552				5,5e-03			
	(0,04)*				(0,01)***				(4e-03)			
DEMOC		-0,1368				0,0872				8,5e-03		
		(0,07)*				(0,02)***				(0,01)		
AUTOC			0,2313				-0,1396					-0,0144
			(0,10)*				(0,03)***					(0,01)*
FREEDOM				0,7419				-0,2067				0,0309
				(0,22)**				(0,08)**				(0,02)
number of observations	126	126	126	126	123	123	123	123	115	115	115	115
countries	11	11	11	11	11	11	11	11	11	11	11	11
R-square	0,71	0,71	0,71	0,73	0,88	0,88	0,89	0,88	0,29	0,29	0,29	0,29

Notes: all variables are explained in Appendix. Robust standard errors in brackets. \* means significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**Table 5 Emerging economies in our extended dataset**

<b>Asia</b>	Bolivia	Paraguay
China	Brazil	Peru
India	Chile	Uruguay
Indonesia	Colombia	Venezuela
Malaysia	Costa Rica	<b>New EU Members</b>
Pakistan	Dominican Rep.	Cyprus
Philippines	Ecuador	Czech Rep.
Singapore	El Salvador	Estonia
South Korea	Guatemala	Hungary
Sri Lanka	Haiti	Latvia
Thailand	Honduras	Lithuania
Vietnam	Mexico	Poland
<b>Latin America</b>	Nicaragua	Slovakia
Argentina	Panama	Slovenia

Table 6 Summary statistics of all variables, all emerging economies

Variable	OBS	MEAN	STD. DEV.	MIN	MAX
POLITY2	619	6,18	4,68	-7	10
DEMOC	621	6,41	8,13	-88	10
AUTO	621	0,27	7,37	-88	7
DURABLE	621	17,06	17,55	0	86
CIV_LIB	613	3,22	1,40	1	7
TAX_REV	569	18,62	10,31	1,40	52,41
GDPVAR	555	2,26	4,33	-17,88	15,22
OPE	574	75,01	41,32	10,60	228,90
DEBT	551	50,05	39,00	2,50	304,50
AGR	532	11,85	7,63	0,10	40,50
OLD	624	7,08	3,75	3,18	16,59
FEMALE	624	53,41	12,25	28,80	79,50
URBAN	624	59,26	19,78	15,10	100,00
DENSITY	624	251,60	872,03	6,15	6191,29
SCHOOLING	176	65,01	20,51	17,44	97,17
SHADOW	258	34,74	13,93	9,80	68,30
GINI	145	46,18	9,96	19,50	60,70
CREDIT	69	0,31	0,23	0,01	0,89
CREDIT2	69	0,37	0,31	0,02	1,25

**Table 7 Tax revenue and political regimes in emerging economies**

	(1a)	(1b)	(2a)	(2b)
	TAX_REV	TAX_REV	TAX_REV	TAX_REV
CONS	30,8573	32,5714	39,8113	40,4854
	(1,42) <sup>***</sup>	(2,51) <sup>***</sup>	(1,15) <sup>***</sup>	(2,58) <sup>***</sup>
GDPVAR	-0,0490	-0,0464	-0,0869	-0,0794
	(0,12)	(0,11)	(0,12)	(0,11)
AGR	-0,3922	-0,3623	-0,3370	-0,3155
	(0,05) <sup>***</sup>	(0,05) <sup>***</sup>	(0,05) <sup>***</sup>	(0,05) <sup>***</sup>
OPE	0,0173	0,0165	0,0166	-0,0157
	(0,01) <sup>*</sup>	(0,01) <sup>*</sup>	(0,01) <sup>*</sup>	(0,01) <sup>*</sup>
DEBT	0,0264	0,0253	0,0296	0,0300
	(0,01) <sup>***</sup>	(4e-03) <sup>***</sup>	(0,01) <sup>***</sup>	(5e-03) <sup>***</sup>
POLITY2	0,5517	0,5460		
	(0,09) <sup>***</sup>	(0,09) <sup>***</sup>		
FREEDOM			-1,9804	-2,0473
			(0,34) <sup>***</sup>	(0,35) <sup>***</sup>
ASIA	-12,10	-11,94	-11,65	-11,24
	(1,53) <sup>***</sup>	(1,54) <sup>***</sup>	(1,70) <sup>***</sup>	(1,74) <sup>***</sup>
LATIN	-18,95	-18,62	-18,58	-18,15
	(0,74) <sup>***</sup>	(0,81) <sup>***</sup>	(0,79) <sup>***</sup>	(0,83) <sup>***</sup>
TIME FIXED EFFECTS		YES (not signif.)		YES (not signif.)
number of observations	416	416	416	416
countries	39	39	39	39
R-square	0,63	0,65	0,63	0,64

Notes: all variables are explained in Appendix.

Robust standard errors in brackets.

\* means significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Regressions b include time fixed effects.