ECONSTOR

Ehrhart, Hélène

Conference Paper

The Political Economy Determinants of Domestic Tax Mobilization in Developing Countries

The Political Economy Determinants of Domestic Tax Mobilization in Developing Countries

Hélène EHRHART[*]

May 2009

Abstract

To what extent differences across developing countries in their domestic tax mobilization can be explained, in addition to the traditional determinants, by political economy factors and particularly by the political regime? Using a panel of 78 developing countries over the period 1990-2005, this paper provides econometric evidence that democracy matters for achieving higher domestic tax revenues which are much needed to finance public goods. It is especially the level of constraints on the executive which is of importance to counter the government's propensity to cave in for special interests and to be insufficiently welfare minded. We found that high levels of democracy are specifically needed in natural resource rich countries to make natural resource rents contribute to higher domestic tax revenues and no longer be an impediment to a sustained tax system.

JEL classification: H11, H20, O11
Keywords: Revenue Performance, Democracy, Developing Countries

1 Introduction

Coordinated tax-tariff reforms in developing countries favor a decrease in tariffs to enhance efficiency with an increase in domestic taxation in order to maintain enough revenue to finance public goods. However, for many countries, this revenue substitution is difficult. According to Baunsgaard and Keen (2005), in low income countries, for one dollar of loss from tariffs, only thirty cents were recovered from domestic taxation (direct taxes - taxes on income and profit - and domestic indirect taxes - value-added/sales taxes and excises). A sustained tax system able to generate higher domestic tax revenue in developing countries is especially needed in the present context of financial crisis in order to finance much needed public goods. However, tax reform and enhanced mobilization can only be achieved when there is a strong political will and leadership to adopt the necessary measures. The slow increase in domestic tax mobilization might therefore be due to political economy factors which should be taken into consideration.

As far as trade taxes are concerned, it is well established in theory and in empirical work that trade policy decisions are used by governments of both developed and developing countries

---

[*]CERDI-CNRS, Université d'Auvergne, Clermont-Ferrand, France. Mail: helene.ehrhart@u-clermont1.fr

to favor special interest groups, making a trade off between welfare and rents [1]. The importance of political economy factors in the developing countries' domestic tax decisions has however been less studied. Nonetheless, experiences in these countries let us think that they may play a role as important as in the tariff setting decisions. Indeed, governments could be tempted to protect specific sectors by enacting non-neutral VAT and excises or by according exemptions to some interest groups or to set the VAT threshold at a particular level[2] for example.

Given this background, the purpose of the paper is to examine the differences in the domestic tax revenues through the lens of political economy factors. Using panel data on 78 developing countries, we will especially investigate if the type of political regime in place, with all its inherent features, is relevant for explaining the performance of domestic tax mobilization.

It is of paramount importance to explain the design of taxation policies and identify what is relevant to limit tax mobilization impediments. In the present context of global crisis, an efficient tax system able to raise sufficient funds is especially needed to finance increasing expenditures. If political economy factors matter in domestic tax mobilization, they have to be taken into account by policy makers who should communicate on the consequences of the reform in order to reduce the uncertainty and garner a sufficient number of groups in favor of the reform.

A number of empirical studies examined the determinants of tax revenue in developing countries focusing traditionally on structural and macroeconomic factors ((Tanzi, 1992; Stotsky and WoldeMariam, 1997; Adam et al., 2001). However, since wide fluctuations in tax ratios observed in several countries over short time periods cannot be satisfactorily explained by variations in the traditional determinants, institutional factors have also been taken into consideration. Ghura (1998) finds that the economic policy environment and the level of corruption both matter for the tax revenue-GDP ratio. With a broader dataset and accounting for some econometric issues that were previously ignored, Gupta (2007) shows that corruption is a significant determinant and that economic and political stability are important as well but the result is not robust across specifications. Bird et al. (2008) postulate that if taxpayers both perceive that their interests are properly represented in political institutions and that the governance is good, their willingness to contribute by paying taxes increases. Using cross-section data, they find that corruption and voice and accountability play a significant role in the determination of developing and transition countries tax effort.

Cheibub (1998) studied in 108 developed and developing countries over the period 1970-1990 whether the infant democracies will be as able as autocracies to collect taxes. The use of a discrete measure of political regime (1 for dictatorships and 0 for democracies) is quite limiting but he found that there are no grounds for believing that democracies are any less able than dictatorships to extract resources from society through taxation.

In the continuity of this research field, but using a continuous measure for political regime which allows a better distinction, we will use a panel analysis to test the importance of the political regime, with its inherent features, on domestic tax performance showing that the slow increase in domestic taxes might be due to delays in tax reform implementation and responses to

---

[1]See for example Grossman and Helpman (1994), Goldberg and Maggi (1999), and Cadot et al. (2003)

[2]In Uganda, for instance, the near-failure of the VAT introduced in 1995 was quelled in large part by rapidly increasing the threshold from $20 000 to $50 000 (Keen and Mintz, 2004).

special interest groups.

We will consider solely developing countries which are the one really in need of increased tax revenues because the 78 countries in our sample earned in average over the period 1990-2005 only about 10% of GDP from domestic taxation. Contrary to Bird et al. (2008) the focus will not be on the increased citizen's willingness to pay due to good governance but on the potential lack of political will to implement large tax reforms. The above mentioned papers mainly studied the total tax revenue, mixing the growing domestic taxes and the declining taxes on international trade. In this work we will only focus on the domestic part of the tax performance reflecting properly the country's political will since taxes on international trade are partly forced to decline given the growing pressures for commercial liberalization.

Moreover, in this study we treat the political regime as being endogenous to the performance of tax revenue. The adequate instruments for democracy is an issue almost not adressed in the literature, we therefore propose two original instruments[3], namely the democracy level of the country's neighbors and the predominant religion in the country.

In the presence of a weak system of checks and balances and if powerful economic elites control the political process, the government might be less welfare minded and it may be easier to grant favors to special interests. We will therefore examine which aspect of democracy is really of importance to ensure higher domestic tax mobilization. Another reseach question is in which kind of countries this positive effect of democracy would especially be needed? Given the fact that the presence of high natural ressource rents in the beginning of the period undeniably creates soft budget constraints which serve to delay the tax policy changes needed, one may wonder whether more democratic institutions in natural ressource-rich countries could make these natural resource rents contribute to higher domestic taxes revenues and no longer be an obstacle to a sustained tax system.

To preview our results, we find that the level of democracy is of importance in explaining the differences in domestic tax revenue performances. Our evidence reveals that the level of constraints on the executive seems to be the driving force behind the result. Democratic institutions are particularly important in natural resource abundant countries where higher levels of democracy can transform the negative influence of the initial presence of natural resource rents on domestic tax revenue into a positive one. The paper is divided into five sections. Section 2 presents the relations between the political regime and taxation. Section 3 describes our empirical framework. Section 4 presents the results of the panel analysis. Finally, section 5 concludes.

2   Political Regime and Taxation

How might the country's political regime influence its domestic tax performance? The economic theory highlights some features of political regimes that might be of importance for the enhanced domestic tax mobilization. Even though an authoritarian government may be necessary to implement tax reforms which are costly in the short-term, there are also some distinctive features prevalent in democracies that can influence tax mobilization.

---

[3]this set of instruments is inspired by the democracy determinants litterature, Barro (1999) and Persson and Tabellini (2006) in particular.

First of all, representation. The economic reforms implemented depend on who controls the political office. Indeed, Acemoglu and Robinson (2006) model autocracy as a dictatorship of the richs and democracy as a dictatorship of the poor or middle classes. As the richs are acting against redistribution and therefore against taxation, less reforms to increase taxes should be implemented in an autocracy. Alesina and Rodrik (1994) confirm this idea in their model by predicting that in societies where the choice of policy is determined by the median voter theorem and where a large proportion of population does not have access to capital, there will be a strong demand for taxation. This corresponds particularly to developing coutries where the median voter's share of capital income (relative to his labor income) is low, thus his ideal tax is high. Furthermore, Acemoglu (2008) develops a framework pinpointing that there are distortions both in oligarchy and in democracy but arising from different reasons. Oligarchic societies protect the property rights of producers and prevent high levels of distortionary taxation but they enable the politically powerful elites to create a non-level playing field and a monopoly position for themselves. In contrast, democratic societies eschew the entry barriers that protect incumbent elites but create economic distortions in order to achieve a more egalitarian distribution of resources[4].

Drawing on these predictions, it can be hypothesized that democracies might be characterized by larger tax reforms, taking the form of higher taxation, to mobilize more revenue for redistributive policies.

Secondly, the accountability structures might also be different according to the political regime. In democracies, the level of constraints on both executive and legislative powers should be greater since they demand accountability to a broad set of citizens at regular intervals whereas dictatorships are mainly accountable to a smaller group such as the military. Less accountability structure gives more latitude for decision makers to respond to special interests[5]. Acemoglu and Robinson (2008) show that the impact of institutions on economic outcomes depends on the interaction between de jure political power, whose allocation is determined by political institutions, and de facto political power, which is determined by the equilibrium investments and organizations of different groups. In democracy, the balance of de jure power is tilted toward the citizens, while in nondemocracy the elite have greater de jure power. If the elite is able to garner sufficient de facto political power in democracy, the equilibrium probability of pro-elite institutions may be higher in democracy than in nondemocracy. However, if democracy creates a substantial advantage in favor of the citizens, it may destroy the incentives of the elite to engage in activities that increase its de facto power. So, democracies with specific constraints structures, effective checks and balances, can decrease the incentives of the elite to engage in this kind of activities.

In both two distinctive features between a democracy and an autocracy, interest groups play a crucial role. The formation and influence of these interest groups have been widely studied. Olson (1982) postulates a theory where groups are associated with an inefficient allocation of resources because the market power of those organized into groups will be exerted at the expense of others. He argues that these special interest groups accumulate in greater numbers in stable

---

[4]Mitra et al. (2002), using Turkish industry-level data, found that the government's weight on welfare, compared to the weight on lobbies contributions, is generally higher for the democratic regime than for dictatorship.

[5]In Morocco, the Value Added Tax, implemented in 1986, still generates unsufficient revenues to counter the decrease of tariffs revenues because of its complexity and the numerous exemptions that were granted in response to various interest groups (Brun et al., 2007).

societies with freedom to organize. However, the rising number of rent-seekers in democracy generates an increased competition leading to a crowding effect, the rents per rent-seeker falling (Mohtadi and Roe, 2003). In their common agency model, Grossman and Helpman (1994) confirm this idea showing that, even with a government "for sale", the balance of countervailing special-interest forces might lead to the socially optimal policy. The worst situation in this regard is one where some special interests are able to influence policy with no counterpower. Thus, the multiplication of lobby in democracy, seeking conflicting policy objectives, might prevent the severe policy distortions that would arise if only one lobby had exclusive influence over the incumbent politician.

Given these theoretical predictions, democracies should be more able than autocracies to implement tax reforms, taking the form of higher taxation. Indeed, they should implement more redistributive policies and less respond to special interests, by enacting fewer specific tax exemptions detrimental for public revenues.

3 The Empirical Framework

To estimate the influence of the political regime on domestic tax revenue, we use a panel data analysis for 78 developing countries (see Appendix 1). Our period of analysis is 1990-2005. All variables are three-year averages, the sub-periods being 1990-1992, 1993-1995, 1996-1998, 1999-2001 and 2002-2005. The basic estimated equation is then of the following form:

$$dtaxrev_{it} = \alpha_1 + \alpha_2 D_{it} + \alpha_3 X_{it} + \mu_i + \lambda_t + u_{it} \tag{1}$$

where i and t are country and time period indicators respectively, $dtaxrev$ is the domestic tax revenue as part of GDP composed of direct taxes (taxes on income and profit) and domestic indirect taxes (value-added/sales taxes and excises), D is the measure of democracy and the vector X captures other explanatory variables, discussed further below, affecting the domestic tax ratio. Regional dummies have been introduced to control for regional differences. The term μ is a country-specific effect, λ is an unobserved time effect included to rule out results driven by common time-varying factors not otherwise included in our model and u is an unobserved random error term.

3.1 Data Sources and Statistics

Reliable data on domestic tax revenues in developing countries are relatively scarce. Our data are based on the Government Finance Statistics (GFS) produced by the IMF, completed by the Article IV data. These are collected during IMF's periodic consultations with member countries and are therefore more trustworthy. A major difficulty is that what is recorded as international trade taxes often also include value-added taxes, sales taxes and excises collected at the border leading to an underestimation of the domestic tax revenue. This flaw has progressively been corrected and since 1990, the distinction is generally correctly made, thus generating more reliable data on domestic taxes. For this reason, we choose to begin our study in 1990.

We use a variety of variables to capture the level of democracy. First, we employ Gastil's ranking of countries with respect to their political rights. This survey, reported by Freedom House, provides a yearly measure, ranked from 1 (the highest degree of liberty) to 7 (the lowest one), of the degree to which individuals have control over those who govern.

Second, the POLITY IV project examines concomitant qualities of democratic and autocratic authority in governing institutions. We use the Polity2 variable which captures the regime authority spectrum on a 21-point scale ranging from -10 (hereditary monarchies) to +10 (consolidated democracy) and the three component variables that record key qualities of executive recruitment, constraints on executive authority, and political competition. All these variables were normalized so that they range between zero (autocracy) and unity (full democracy).

Drawing on the empirical literature that models the share of tax revenues in GDP (Adam et al., 2001; Khattry and Rao, 2002; Keen and Lockwood, 2007), we include the following variables as control. The GDP per capita is a proxy for overall development, higher level of per capita income is usually found to be positively related to domestic tax revenues. The structure of the economy is both measured by the share of agriculture in GDP usually negatively associated with domestic tax revenues and by the degree of urbanization which is expected to have a positive impact on domestic revenue since it is easier to collect taxes in urban areas. The level of imports should be positively associated with domestic tax performance given that, in developing countries, a large part of the VAT collected is levied on imports. Higher inflation is supposed to reduce domestic tax yields according to the Tanzi-Olivera effect. The relationship between aid per capita and tax revenue is uncertain. The relation might depend on the purposes of aid (Gupta et al., 2004). Finally, a demographic variable is included, the proportion of the population over 65 years old, the tax ratio usually being increased with the number of elderly. All these variables are collected from the World Development (WDI) database.

3.2   The econometric issues

Given the persistence of domestic tax revenue (Gupta, 2007), there is a suspicion of serial correlation. Testing for first order autocorrelation in the residuals with a Woolridge test shows the presence of serial correlation. To correct for it we can either include the lagged dependent variable and estimate the dynamic model with the generalized method-of-moments (GMM) proposed by Arellano and Bond (1991) or correct for it by using an estimator who fits panel regression models when the disturbance term is first-order autoregressive. We will use the latter solution in our estimations since we are not interested in distinguishing the short term effects from the long term ones.

A concern may also arise about the endogeneity of democracy with tax performance. One can argue that the relationship between democracy and tax revenue is unlikely to be unidirectional for two reasons. Firstly, an higher level of taxes might be needed to invest and build expensive democratic institutions. Secondly, the Tilly (1975) hypothesis postulating that citizens are provoked into scrutiny by taxation, was tested empirically by Ross (2004) who indeed finds that the larger is the share of government expenditure financed through taxation, the more likely the government is to become representative. There is therefore a potential reverse causality from taxes

to democracy. Ordinary least squares with specific effects estimates are likely to be biased when our right side variable of interest is endogenous. To isolate the endogeneity concern that affects our estimates, we resort to an instrumental-variable estimation with two original instruments for democracy, namely the democracy level of the country's neighbors and the predominant religion in the country.

The choice of adequate instruments for democracy is not widely adressed in the literature. However, following Persson and Tabellini (2006)[6], it is easily imagined how the experience with democracy in foreign, neighboring countries could spill over into greater domestic appreciation of democracy and greater willingness to defend these values. Thus, we create the variable *neighboring* democratic capital, labelled *Neighbordemocracy* to measure a country's "closeness to democracy", given the incidence of democracy in neighboring countries. Specifically, for the country i with n_i neighbors j in year t, we define

$$Neighbordemocracy_{it} = \sum_{j=1}^{n_i} \frac{1}{n_i} * democracy_{jt} \qquad (2)$$

This variable is constructed for each of our democracy measures, namely NeighborPolitical-Rights, NeighborCivilLiberties, NeighborPolity2, NeighborPolcomp, NeighborExecutiverec and NeighborExecutiveconst.

Our second instrument is religious affiliation which has been stressed as an important determinant of democracy (Huntington, 1991; Lipset, 1994). Historically, there have been negative relationships between democracy and catholicism, orthodox christianity, islam, and confucianism and conversely protestantism and democracy have been positively interlinked. These differences have been explained by the much greater emphasis on individualism in Protestantism as well as the traditionally close links between religion and the state in the other four religions. Tocqueville (1840) and Bryce (1901) emphasized that democracy is furthered by a separation of religious and political beliefs, so that political stands are not required to meet absolute standards set down by the church. Barro (1999) checks this hypothetized influence of religion on democracy but found that the introduction of economic control variables weakens the interplay between democracy and religious affiliation. Only negative effects from Muslim and non-religious affiliations remain intact probably reflecting the strong linkage between church and state in many Muslim countries. As Wright (1992) has stated, Islam "offers not only a set of spiritual beliefs, but a set of rules by which to govern society".

We will therefore retain as instrument the dummy muslim country postulating that it does not influence tax performance differently than through its impact on democracy. The dummy that identify the religion practiced by the largest proportion of the population is from Stulz and Williamson (2003). One may think that the religion might also influentiate the citizen's willingness to pay taxes. We takle this potential issue by three means. First of all, in the context of developing countries, domestic tax revenue does almost not, in contrary to developed countries, rely on individuals' direct taxation. It is rather the enterprises which are the major

---

[6]Persson and Tabellini (2006) use a weighting matrix of the distance between all countries whereas we deviate slightly by considering only the neighbouring countries with a weighting matrix taking the value of 1 if two countries are neigbors and 0 otherwise

contributor of domestic taxes (through direct profit taxation, through taxes on their employees' wages and through the collection of the value-added tax on their sales). What will induce these entreprises to pay or not their taxes is more likely to be the quality of the public service provision (electricity, few corruption,...) rather than being muslim. Second, we do not include religion per se (using all the religion dummies) but only include a dummy for muslim countries and there is no special apparent reason for which muslims will be distinct from all others religion in their tax comportment. Third, to rule out the potentially marginal remaining effect of the dummy muslim on the domestic taxes performance, the inclusion of country random effects partly control for this time-invariant country characteristic and three control variables partly capture the citizen's willingness to pay, namely the level of GDP per capita, the inflation rate and the proportion of the population aged 65 or more. These variables affect the willingness to pay for the following reasons. People pay taxes when they are forced to (in the context of a developed tax administration proxied by the level of GDP per capita), when they are satisfied with the economic policies of their government (in the presence of a low inflation performance) or finally when they are in a certain period of their life [7] (variable of the proportion of persons aged 65 or more in the country). A number of tests will be presented to assess the validity of our proposed instruments. To test whether our instruments have a direct effect on domestic tax revenue as part of GDP, we use the Sargan test. This overidentification test presumes that one of our two instruments, here the neighboring level of democracy, is truly exogenous, and tests for the exogeneity of the other one, the muslim dummy. It is therefore a direct test of our exclusion restriction. However, such tests may not lead to a rejection if all instruments are invalid, but still highly correlated with each other. In our case, the two instruments are unlikely to be highly correlated so the results of the test should be reliable.

4   Results

4.1   The influence of the political regime on domestic tax revenues

Estimations of the influence of the political regime on domestic tax ratio are reported in Table 1 for our first measure of democracy, namely Political Rights. The first column shows the results of GLS with random effects (the Hausman test did not reject the null hypothesis that the random effects model is consistent and efficient) corrected for first-order autocorrelation of a basic tax effort equation with only few control variables. The results suggest a positive and significant relation between the level of democracy and the domestic tax revenue as part of GDP. A number of regularities among the control variables emerge. As expected, an higher agricultural sector lead to significantly lower domestic taxes whereas the imports as share of GDP is positively and significantly related to domestic tax revenues. The coefficients of the level of per capita GDP and of inflation are positive though non significant.

---

[7]Holcombe and Zardkoohi (1980) show that the shorter is the expected remaining lifetime of the median voter, the lower will be the capital investments because older people are less willing to pay for public goods they will not use during a long period of time.

Table 1: Panel estimation of the democracy effect on domestic tax revenues (%GDP)

Domestic tax revenue (%GDP)

VARIABLES	(1) GLS-RE AR(1) corr.	(2) IV-RE AR(1) corr.	(3) GLS-RE AR(1) corr.	(4) IV-RE AR(1) corr.
Political Rights	1.575**	9.282**	1.682**	10.427**
	(0.721)	(3.854)	(0.737)	(4.229)
GDP per capita (log)	0.093	0.120	0.071	0.139
	(0.697)	(0.678)	(0.756)	(0.777)
Imports (%GDP)	0.032**	0.048***	0.033**	0.049***
	(0.0156)	(0.017)	(0.0159)	(0.018)
Agriculture (%GDP)	-0.0588*	-0.0074	-0.057*	0.0012
	(0.031)	(0.036)	(0.031)	(0.037)
Inflation (log)	-0.289*	0.223	-0.283	0.289
	(0.174)	(0.216)	(0.178)	(0.227)
Pop sup65			0.373	0.158
			(0.273)	(0.210)
Urbanization			-0.0252	-0.0124
			(0.0312)	(0.035)
Aid per capita (log)			-0.117	0.107
			(0.447)	(0.568)
Observations	329	242	329	242
Number of idpays	78	59	78	59
Hausman Test (p-value)	0.925		0.4359	
Sargan Test (p-value)		0.417		0.1873
R^2	0.243	0.244	0.274	0.218

1st stage — Political Rights

VARIABLES	(2a)	(4a)
NeighborPoliticalRights	0.282***	0.256***
	(0.075)	(0.076)
Dummy Muslim	-0.107***	-0.096***
	(0.035)	(0.0357)
GDP per capita (log)	-0.0034	-0.0197
	(0.0307)	(0.0384)
Imports (%GDP)	-0.00017	-0.001
	(0.00091)	(0.001)
Inflation (log)	-0.0037***	-0.035**
	(0.014)	(0.016)
Agriculture	-0.0037*	-0.004**
	(0.002)	(0.002)
Popsup65		0.0174**
		(0.0085)
Urbanization		0.0006
		(0.0015)
F-Test	15.58	11.83
R^2	0.196	0.211

Robust standard errors in brackets. *** p-value<0.01, ** p-value<0.05, * p-value<0.1. Constant and time fixed effects included in all estimations.

Regional dummies (East Asia and Pacific, Latin America and Caribbean, Middle East and North Africa, South Asia and Sub-Saharan Africa) included in columns 1 and 3.

9

However, because of the serious problem of endogeneity, interpreting a significant correlation between democracy and domestic tax revenue performances as implying causality from the former to the latter is potentially problematic.

After correcting for the endogeneity of democracy with the two stage least square estimator (column 2), and still accounting for random country effects and first order serial correlation, the coefficient of democracy remains positive and improves in magnitude and significance. The results of the associated first stage equation in column 2a indicate support for the validity of our instruments, the level of democracy in the neighborhood and the muslim dummy being statistically significant determinants of democracy. The F-test of joint significance of our two instruments is superior to 10 so one can conclude that our set of instrument is strongly related to the level of democracy. In the second-stage estimation, column 2, the Sargan test of sur-identification gives us additional confidence that the neighbors' level of democracy and the dummy muslim are valid instruments uncorrelated with the tax performance.

After introducing the degree of urbanization, the share of the population aged of 65 years or elder and the transfers of aid as additional control variables (column 3) and correcting for endogeneity with the 2SLS (column 4), the coefficient of democracy remains strongly positive and significant. In our preferred specification, column 4, an increase of 0.33 points in the democracy index (which corresponds to an improvement of 2 points in the initial index going from 1 to 7) permits a rise of 10.76*0.33 = 3.55 pourcentage points in the domestic tax revenue as part of GDP. For the mean level of domestic tax revenue in our sample, 9.95 % of GDP, this corresponds to a non negligible rise of about 35%.

In order to corroborate our results and check whether they are robust, we will use an alternative measure for democracy in an instrumental variable estimation with our last specification of column 4 in Table 1. The results of these robustness tests are reported in Table 2. In column 3, the 2SLS estimates, with the polity2 index, are presented, showing a significantly positive effect, of similar magnitude than previously, of democracy on domestic tax revenues as part of GDP. The control variables are globally of the expected sign, the level of imports as share of GDP being a significantly positive determinant of domestic tax revenues. The instruments for Polity2 are valid, the F-test is relatively high and the Sargan test does not reject the null hypothesis of the validity of our instruments. This estimation with an alternative measure of democracy allows us to confirm our previous results that the level of democracy in a country is of importance to explain the variations in domestic taxes mobilization.

Another test consists in the inclusion of corruption as additional control variable. Since the level of corruption in a country is highly related to the type of political regime, we will check whether the positive effect of democracy on domestic taxes is not solely due to decreased corruption. Indeed, the detrimental effect of corruption on taxes might be lower in democracies if they are characterized by less corruption. Corruption can also be a proxy for the quality of public expenditure. In a country with little corruption, the public spending can be more efficient and the citizen's tax morale higher, leading to increased tax mobilization. Introducing corruption in our estimation will therefore permit to ensure that our result of democracies having higher tax mobilization is not due to an enhanced quality of public expenditure under democratic regimes

but rather to governements responding less to private interests and considering more the social welfare.

Table 2: Robustness - Estimation of the democracy influence on domestic tax revenues (%GDP)

VARIABLES	Polity2 First Stage (1)	DTaxRev (2)	Pol. Rights First Stage (3)	Polity2 (4)	DTaxRev IV-RE AR(1)corr (5)	(6)
Polity2		10.28***				11.96***
		(3.389)				(3.869)
Political Rights					13.17**	
					(5.259)	
Muslim	-0.102***		-0.105**	-0.0933**		
	(0.0355)		(0.0419)	(0.0431)		
NeighborPolity2	0.366***			0.361***		
	(0.0815)			(0.0998)		
NeighborPolRights			0.225**			
			(0.0908)			
GDP per capita (log)	-0.007	0.138	0.0288	0.0551	0.192	0.154
	(0.0394)	(0.808)	(0.0443)	(0.0478)	(0.874)	(0.925)
Imports (%GDP)	-0.0007	0.0403**	-0.0005	-0.0005	0.0667***	0.0599***
	(0.00095)	(0.0177)	(0.00142)	(0.00141)	(0.0223)	(0.0224)
Aid per capita (log)	-0.030	0.675	0.067	-0.0058	0.171	0.995
	(0.0340)	(0.557)	(0.0420)	(0.0425)	(0.727)	(0.631)
Inflation (log)	-0.0305**	0.239	-0.0306	-0.0178	0.311	0.134
	(0.0149)	(0.206)	(0.0198)	(0.0197)	(0.247)	(0.218)
Urbanization	0.0016	-0.0344	-0.0027	-0.0007	-0.0217	-0.0674*
	(0.0015)	(0.0360)	(0.0017)	(0.0018)	(0.0394)	(0.0398)
Popsup65	0.0112	0.218	0.0264**	0.0187	0.0775	0.250
	(0.0083)	(0.203)	(0.0114)	(0.0115)	(0.270)	(0.243)
Agriculture (%GDP)	-0.0015	-0.028	-0.0017	0.0021	0.0061	-0.0415
	(0.002)	(0.0342)	(0.0025)	(0.0026)	(0.0407)	(0.0417)
Corruption			-0.199	-0.144	2.944	1.850
			(0.152)	(0.156)	(1.844)	(1.693)
Observations		229	218	205	197	184
Number of countries		56			48	45
F-test	18.54					
Sargan (p-value)		0.2546			0.1758	0.2003
R^2	0.295	0.293	0.220	0.271	0.322	0.346

Robust Standard errors in brackets. *** p-value<0.01, ** p-value<0.05, * p-value<0.1.

Constant and time fixed effects included in all estimations.

The results of the 2SLS estimations, correcting for endogeneity and first-order serial correlation, for our two alternative indicators of democracy are presented in Table 2 columns 5 and 6. The variable corruption is the ICRG measure rescaled from 0 (low level of corruption) to 1 (high level). With both indicators of democracy, the coefficient of democracy remains positive and statistically significant after controlling for the corruption. We thus exclude the hypothesis

that the positive effect of a democratic political regime on taxation is due to a potential highest quality of public expenditure, through less corruption, in democracies. The increased domestic tax mobilization in democracies might therefore come from the fact that, as developed in the theoretical part, democracies are more social welfare oriented and characterized by higher constraints on the policy makers. We will now investigate this issue by distinguishing the different components of the democracy measure.

4.2 What matters in democracy for increased domestic tax revenues?

One can wonder which aspect of democracy is the driving force behind the result of increased domestic tax collection in more democratic regimes. We explore this issue in Table 3 by using the three component measures of the Polity2 index, namely Political Competition, Executive Recruitment and Constraints on Executive. Firstly, the variable Political Competition represents the extent of competitiveness in political participation. Secondly, the executive recruitment component measures how institutionalized, competitive and open are the mechanisms for selecting a political leader. Thirdly, the executive constraints variable assesses the extent of institutional constraints on the decision-making powers of the chief executive. Limits on the chief executive may be imposed by any "accountability group" present in the political regime. If our hypothesis of autocracies being less welfare minded, since they tend to respond more to special interest groups who seek less domestic taxation, is valid, it might be particularly high levels of executive constraints that could limit the possibility for the governments to cave in for special interests.

In table 3, we introduce simultaneously the three components of democracy to assess whether one aspect of democracy is predominantly important to achieve higher domestic tax mobilization. In the first column, the results of the estimation with specific random effects are presented. The level of constraints on the executive is the only component significant. The results corrected for endogeneity are shown in the next columns. Columns 2,3 and 4 present the first stage regressions of the three endogenous variables. In the fifth column of table 4, the results of the instrumental variable estimation with random effects and corrected for first-order autocorrelation are reported. The coefficients of both the political competition and the executive recruitment variables are non significant whereas the level of constraints on the executive is significantly linked with the domestic tax performance. One may conclude that the level of executive constraints in a country is really of significantly great importance for enhanced domestic tax mobilization.

Table 3: The influence of democracy's components on domestic tax revenue as part of GDP

VARIABLES	DTaxRev GLS-RE AR(1) corr. (1)	Ex.Const. (2)	Pol.Comp. First Stage (3)	Ex.Recruit. (4)	DTaxRev IV-RE AR(1) corr. (5)
Executive Constraints	2.731**				8.323*
	(1.315)				(4.649)
Political Competition	-0.769				14.84
	(1.331)				(13.09)
Executive Recruitment	-0.852				-8.036
	(1.311)				(6.400)
GDP per capita (log)	0.460	0.116*	0.0669	0.0439	-1.340
	(0.907)	(0.0628)	(0.0512)	(0.0580)	(1.317)
Imports (%GDP)	0.039*	0.0019	-0.00048	-0.0012	0.0804***
	(0.021)	(0.0019)	(0.0015)	(0.0017)	(0.029)
Aid per capita (log)	0.666	-0.0164	0.0734*	-0.0049	0.239
	(0.573)	(0.0528)	(0.0431)	(0.0488)	(1.336)
Inflation (log)	-0.370	-0.0145	-0.0120	-0.0189	0.306
	(-0.370)	(0.0285)	(0.0233)	(0.0264)	(0.289)
Popsup65	0.515	0.0076	0.0026	0.0169	0.287
	(0.327)	(0.0147)	(0.0120)	(0.0136)	(0.229)
Agriculture (%GDP)	-0.052	0.0055	0.0012	0.0045	-0.0759
	(0.038)	(0.0039)	(0.0032)	(0.0036)	(0.0523)
Urbanization	-0.061*	-0.0016	0.00006	-0.0004	-0.0268
	(0.036)	(0.0024)	(0.0019)	(0.0022)	(0.0376)
Corruption	0.022	-0.439**	-0.046	-0.266	0.235
	(0.258)	(0.201)	(0.164)	(0.187)	(2.506)
Dummy Muslim		-0.0616	-0.0957*	-0.0566	
		(0.0599)	(0.0488)	(0.0554)	
NeighborExConstraints		0.591**	0.181	0.574***	
		(0.231)	(0.189)	(0.214)	
NeighborPolCompetition		-0.334	0.0186	0.208	
		(0.256)	(0.208)	(0.237)	
NeighborExRecruitment		0.255	-0.114	-0.371	
		(0.269)	(0.214)	(0.248)	
Observations	249				143
Number of countries	60				43
Sargan (p-val)					0.11
R^2	0.2884	0.319	0.283	0.262	0.456

Robust Standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Constant and time fixed effects included in all estimations. Regional dummies (East Asia and Pacific, Latin America and Caribbean, Middle East and North Africa, South Asia and Sub-Saharan Africa) included in column 1.

The reason is probably that they constrain policy makers to take more into account the social welfare in their decision making process, through redistributive taxation and less favors accorded to various interest groups.

4.3 Where can the positive effect of democracy be especially needed?

Since we identified a positive effect of the democracy on domestic taxes, one may ask in which countries this positive effect of democracy will especially be needed? The abundance of natural resource rents as part of GDP is expected to be an impediment to tax mobilization. The availability of high natural ressource rents in the beginning of the period (in the first three years of the 90's) might have not induce governements to implement substantial domestic tax reforms. In their model, Collier and Hoeffler (2009) show that the abundance of natural resources might be detrimental to tax mobilization probably both because higher rents are creating lower incentives for governments to mobilize tax revenue and because governments of oil-rich countries consciously set low tax rates so as not to provoke scrutiny of the natural resource revenues. The measure of natural resource rents is calculated using environmental economic data from the World Bank which includes costs of production and world prices. We found that an improved level of democracy was associated with higher domestic tax performance so one may wonder whether it may counter this adverse effect of the presence of high natural resource rents in the beginning of the period and permit a higher share of revenue coming from taxes in order to finance more public goods. Indeed, higher levels of democracy might induce resource-rich governments to undergo through substantial tax reforms to create a sustainable environment. In presence of an efficient tax system, natural resource rents can contribute to increased tax revenues both through direct profit taxation and through increased VAT revenues.

We test this assumption in Table 4 by introducing an interactive variable between the democracy measure and the initial natural resource rents. Results with the 2SLS estimator are presented for two measures of democracy, the Polity2 index and the component that was found of importance to increase tax mobilization, namely the level of constraints on the executive. We instrument both the democracy and the weighted variable INatRes*Democracy (see in columns 1,2 and 4,5 the first stage equations).

Table 4: Natural resources influence on domestic tax revenue conditional to democracy levels

| VARIABLES | Polity | INatRes*Polity | DTaxRev IV-RE AR(1) corr. | Exconst | INatRes*Exconst | DTaxRev IV-RE AR(1) corr. |
| | First Stage | | | First Stage | | |
	(1)	(2)	(3)	(4)	(5)	(6)
Polity			6.701			
			(5.313)			
INatRes	0.0049	0.174*	-0.370**	-0.0107	-0.047	-0.339**
	(0.0077)	(0.096)	(0.181)	(0.0077)	(0.0814)	(0.147)
INatRes*Polity			0.601**			
			(0.274)			
Exconst						1.238
						(4.108)
INatRes*Exconst						0.681**
						(0.287)
Corruption	-0.007	-0.188	1.988	0.007	-0.781	-0.022
	(0.154)	(1.918)	(1.861)	(0.198)	(2.1)	(2.356)
GDP per capita (log)	-0.0008	1.515**	-0.485	-0.0176	-0.506	-0.211
	(0.0531)	(0.661)	(1.007)	(0.0684)	(0.726)	(1.036)
Imports (%GDP)	-0.0002	-0.0115	0.0696***	0.0006	-0.0112	0.107***
	(0.0014)	(0.0178)	(0.0232)	(0.0018)	(0.0192)	(0.0296)
Aid per capita (log)	0.0029	1.112**	0.425	-0.0169	0.194	0.761
	(0.044)	(0.548)	(0.745)	(0.0531)	(0.563)	(0.800)
Inflation (log)	0.001	0.305	-0.044	-0.0022	0.256	-0.0058
	(0.0189)	(0.235)	(0.245)	(0.027)	(0.286)	(0.297)
Popsup65	0.0004	0.0574	0.309	-0.004	-0.110	0.235
	(0.0127)	(0.158)	(0.232)	(0.0152)	(0.161)	(0.231)
Agriculture(%GDP)	0.00006	0.0836**	-0.0845*	-0.0012	-0.0099	-0.0851*
	(0.0027)	(0.0332)	(0.0494)	(0.0037)	(0.0395)	(0.051)
Urbanization	0.00001	-0.0598***	-0.0439	0.0008	0.0237	-0.023
	(0.0018)	(0.022)	(0.0417)	(0.0023)	(0.024)	(0.038)
$\widehat{Polity}$	1.068***	4.459				
	(0.273)	(3.395)				
$\widehat{PolityINatRes}$	-0.0095	0.822***				
	(0.014)	(0.174)				
$\widehat{Exconst}$				0.831***	-0.872	
				(0.234)	(2.483)	
$\widehat{ExconstINatRes}$				0.0208	0.958***	
				(0.0138)	(0.147)	
Observations			175			141
Nb of countries			43			42
R^2	0.285	0.734	0.418	0.323	0.691	0.476

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Constant and time fixed effects included in all estimations. Following Wooldridge (2002), $\widehat{Polity}$ is the predicted dependent variable of the initial regression:
$Polity = Muslim + NeighborPolity + INatRes + Corrupt + gdp + Imports + Aid + Infla + Urba + Popsup65 + Agri + \lambda_t$
and $\widehat{PolityINatRes}$ is the result of $\widehat{Polity} * INatRes$. These two variables are then used as instrument for our two endogenous variables : Polity and Polity*INatRes. A similar procedure was used for the Executive Constraints variable.

Across all specifications, the initial natural resource rents variable is negative and significant whereas the weighted variable (Initial Natural Resource Rents * Democracy) is significantly positive. Consequently, for a given level of natural resources, sufficiently high levels of democracy and of constraints on the executive can transform the negative impact of the presence of high initial natural resource rents on tax mobilization into a beneficial one. This corroborates, but for taxes, the findings of Collier and Hoeffler (2009) that for higher growth achievements resource-rich economies need a distinctive form of democracy with particularly strong checks and balances. The coefficient of the democracy variable is positive but non significant, however this result cannot be interpreted as conclusive that it is only in the countries with natural ressource rents that the democracy actually matters for higher domestic tax mobilization because, in the sample, only 3 countries have no rent from natural resources.

To explore more deeply the idea of a turning point in the natural resource influence, the threshold of democracy above which the impact of initially high natural resource rents on tax revenue becomes positive is calculated in Table 5 with the results from Table 4.

Table 5: Turning point in the effect of natural resource rents on domestic taxes

	Polity2	Executive Constraints
$\frac{\delta TaxRevenue}{\delta Nat.Resource}$	= -0.37+0.601*D	= -0.339+0.681*D
Threshold	D=0.616	D=0.498
Countries	Bolivia, Ecuador, Mongolia, Namibia, Papua New Guinea, ...	

The thresholds are higher than the mean levels of democracy in our sample[8]. Among the natural resource abundant economies, only few are characterized by levels of democracy above the estimated threshold but it corresponds, for example, to democratic institutions like the ones which are in Bolivia, Ecuador, Mongolia, Papouasia New Guinea or Namibia. In Mongolia, for instance, significant steps have been taken to improve procedures and fiscal discipline within governments and noteworthy achievements were made in improving transparency (IMF, 2001). Despite it's mining rents abundance, Namibia presents a comparatively high tax revenue/GDP ratio reflecting consequent tax effort undertaken by the government. So conditional to sufficiently high levels of democracy, the net influence of natural resources can be positive both because governments will not anymore rely solely on these rents but build a sustainable tax system and because this sector can become a major contributor to the domestic tax revenue.

5   Concluding Remarks

Little analytical or empirical works have studied the importance of political economy factors, in addition to traditional factors, as determinants of domestic tax revenue performance. However,

---

[8]In our sample, the mean values of Polity2 and Executive Constraints are respectively of 0.533 and 0.497.

the slow progresses seen in many developing countries doubtlessly reflect in part the power of vested interests. Using a panel of 78 developing countries over the period 1990-2005, we estimated the influence of democracy on domestic tax revenues, properly correcting for the endogeneity of democracy with two original instruments. We find strong evidence that the political regime in a country does influence the extent to which domestic tax reforms are implemented and higher domestic tax revenues achieved. The estimated effect of increased democracy on tax revenue is quite large and it is the level of constraints on the executive that seems to be the driving force behind the result. Increased checks and balances are needed to counter the propensity of governments to cave in for special interests and to be less social welfare minded. High levels of democracy are specifically needed in natural resource rich countries to make natural resource rents contribute to higher domestic taxes revenues and no longer be an impediment to a sustained tax system for financing public goods.

These findings highlight the presence of political economy factors which seriously need to be taken into consideration in the design of domestic tax reforms. To counter the influence of various interest groups, policy makers should communicate on the consequences of the reform in order to reduce the uncertainty and garner a sufficient number of groups in favor of the reform. For future research, it would be of great importance to understand theoretically the interactions in the domestic tax policy between the policy makers and the different groups of interest who are reluctant to the domestic tax reforms.

References

Acemoglu, D., 2008. Oligarchic versus democratic societies. Journal of the European Economic Association 6(1), 1–44.

Acemoglu, D., Robinson, J. A., 2006. Economic origins of dictatorship and democracy. Cambridge University Press.

Acemoglu, D., Robinson, J. A., March 2008. Persistence of power, elites, and institutions. American Economic Review 98 (1), 267–93.

Adam, C. S., Bevan, D. L., Chambas, G., 2001. Exchange rate regimes and revenue performance in sub-saharan africa. Journal of Development Economics 64 (1), 173–213.

Alesina, A., Rodrik, D., 1994. Distributive politics and economic growth. The Quarterly Journal of Economics 109(2), 465–490.

Barro, R. J., 1999. Determinants of democracy. The Journal of Political Economy 107(6), S158–S183.

Baunsgaard, T., Keen, M., 2005. Tax revenue and (or?) trade liberalization. IMF WP/05/112.

Bird, R. M., Martinez-Vazquez, J., Torgler, B., 2008. Tax effort in developing countries and high income countries: The impact of corruption, voice and accountability. Economic Analysis and Policy 38(1).

Brun, J.-F., Chambas, G., Laurent, M., 2007. Economie politique de la réforme de transition fiscale : le cas du maroc. Afrique Contemporaine 223-224, 307–322.

Bryce, J., 1901. Study in History and Jurisprudence. New York: Oxford University.

Cadot, O., Grether, J.-M., Olarreaga, M., 2003. India's trade policy for sale: Who buys? how much? CEPR discussion paper 4168.

Cheibub, J. A., 1998. Political regimes and the extractive capacity of governments: Taxation in democracies and dictatorships. World Politics 50(3), 349–376.

Collier, P., Hoeffler, H., 2009. Testing the neo-con agenda: Democracy in resource-rich societies. European Economic Review 53(3), 293–308.

Ghura, D., 1998. Tax revenue in sub saharan africa: Effects of economic policies and corruption. IMF WP/98/135.

Goldberg, P., Maggi, G., 1999. Protection for sale: an empirical investigation. American Economic Review 89, 1135–1155.

Grossman, G. M., Helpman, E., 1994. Protection for sale. American Economic Review 84 (4), 833–850.

Gupta, A. S., 2007. Determinants of tax revenue efforts in developing countries. IMF WP/07/184.

Gupta, S., Clements, B., Pivovarsky, A., Tiongson, E. R., 2004. Helping Countries Develop: The Role of Fiscal Policy. Washington: International Monetary Fund, Ch. "Foreign Aid and Revenue Response: Does the Composition of Aid Matter?".

Holcombe, R. G., Zardkoohi, A., 1980. Public investment in a democracy. Southern Economic Journal 47 (1), 210–217.

Huntington, S. P., 1991. The Third Wave: Democratization in the Late Twentieth Century. Norman, University of Oklahoma Press.

IMF, 2001. Mongolia: Report on the observance of standards and codes - fiscal transparency. Country Report 01/218.

Keen, M., Lockwood, B., Jul. 2007. The value-added tax: Its causes and consequences. IMF WP/07/183.

Keen, M., Mintz, J., 2004. The optimal threshold for a value-added tax. Journal of Public Economics 88, 559–576.

Khattry, B., Rao, J. M., 2002. Fiscal faux pas?: An analysis of the revenue implications of trade liberalization. World Development 30(8), 1431–1444.

Lipset, S. M., 1994. The social requisites of democracy revisited: 1993 presidential address. American Sociological Review 59 (February), 1–22.

Mitra, D., Thomakos, D. D., Ulubasoglu, M. A., 2002. "protection for sale" in a developing country: democracy vs. dictatorship. The Review of Economics and Statistics 84(3), 497–508.

Mohtadi, H., Roe, T. L., 2003. Democracy, rent seeking, public spending and growth. Journal of Public Economics 87, 445–466.

Olson, M., 1982. The rise and decline of nations: the political economy of economic growth, stagflation, and social rigidities. New Haven: Yale.

Persson, T., Tabellini, G., 2006. Democratic capital: The nexus of political and economic change. CEPR Discussion Paper 5654.

Ross, M. L., 2004. Does tax lead to representation? British Journal of Political Science 34, 229–249.

Stotsky, J. G., WoldeMariam, A., 1997. Tax effort in sub saharan africa. IMF WP/97/107.

Stulz, R. M., Williamson, R., 2003. Culture, openness, and finance. Journal of Financial Economics 70(3), 313–349.

Tanzi, V., 1992. Open Economies: Structural Adjustment and Agriculture,. Cambridge University Press, Ch. Structural Factors and Tax Revenue in Developing Countries: A Decade of evidence, pp. 267–281.

Tilly, C., 1975. The Formation of National States in Western Europe. Princeton University Press.

Tocqueville, A. d., 1840. De la démocratie en Amérique.

Wooldridge, J. M., 2002. Econometric Analysis of Cross Section and Panel Data. The MIT Press.

Wright, R., 1992. Islam and democracy. Foreign Affairs 71(3), 131–145.

6   Appendices

Appendix 1 - Illustrative List of Countries Used in the Regressions

---

78 coutries:

Algeria, Angola, Albania, Armenia, Azerbaijan, Bangladesh, Benin, Bhutan, Bolivia, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, China, Colombia, Congo Dem. Rep., Congo Rep. , Dominican Republic, Ecuador, Egypt Arab Rep., El Salvador, Ethiopia, Gabon, The Gambia, Georgia, Ghana, Guatemala, Guinea-Bissau, Honduras, India, Indonesia, Islamic Rep. of Iran, Ivoiry Coast, Jordan, Kenya, Kyrgyz Rep., Laos, Lesotho, Madagascar, Malawi, Mali, Mauritania, Moldova, Mongolia, Morocco, Mozambique, Namibia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Senegal, Sierra Leone, Sri Lanka, Sudan, Swaziland, Syrian Arab Rep., Tanzania, Thailand, Togo, Tonga, Tunisia, Uganda, Ukraine, Vanuatu, Vietnam, Yemen, Zambia, Zimbabwe.

42 countries:

Armenia, Azerbaijan, Bangladesh, Bolivia, Burkina Faso, Cameroon, Colombia, Congo Dem. Rep., Congo Rep., Dominican Republic, Ecuador, El Salvador, Ghana, Honduras, India, Islamic Rep. of Iran, Kenya, Malawi, Mali, Moldova, Mongolia, Mozambique, Namibia, Nicaragua, Niger, Nigeria, Pakistan, Papua New Guinea, Paraguay, Peru, Senegal, Sierra Leone, Tanzania, Thailand, Togo, Tunisia, Uganda, Ukraine, Vietnam, Yemen, Zambia, Zimbabwe.

Appendix 2 - Summary statistics

Variable	N	Mean	Std. Dev.	Min.	Max.
Domestic Tax Revenue (%GDP)	340	9.954	4.45	1.728	25.017
Political Rights	389	0.423	0.287	0	1
Civil Liberties	389	0.431	0.203	0	0.958
Polity2	374	0.533	0.293	0	1
Political Competition	368	0.451	0.286	0	0.9
Executive Recruitment	357	0.648	0.304	0.143	1
Executive Constraints	357	0.497	0.302	0	1
GDP/capita (log)	389	6.319	0.854	4.462	8.347
Imports (%GDP)	387	40.454	18.811	8.547	124.286
Agriculture (%GDP)	384	26.831	13.266	2.334	60.423
Urbanization	390	37.624	18.095	5.98	82.55
Inflation	370	89.24	561.868	-4.501	8767.314
Popsup65	390	4.122	1.984	2.066	15.481
Aid/capita (log)	389	3.919	0.645	2.118	5.937
Initial Natural Ressources Rent (%GDP)	365	6.396	8.445	0	38.342