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Sovereign Rents and the Quality of Tax Policy and Administration

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Abstract

The availability of windfall revenues from natural resource exports or foreign aid potentially weakens governments' incentives to design efficient tax systems. Cross-country data for developing countries provide evidence for this hypothesis, using a World Bank indicator of "efficiency of revenue mobilization." Aid's negative effects on the quality of tax systems are robust

to correcting for potential reverse causality, to changes in the sample, and to alternative estimation methods. Fuel export revenues are also associated with lower-quality tax policy and administration, but this finding is somewhat sensitive to outliers. Non-fuel resource exports, in contrast, show no relationship to the efficiency of revenue mobilization.

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Sovereign Rents and the Quality of Tax Policy and Administration

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1. Introduction

Access to windfall revenues from foreign aid and natural resource rents can reduce the dependence of governments in less-developed countries on their own taxpayers. Such governments have weakened incentives to broaden the tax base, improve collection rates, and eliminate inefficient exemptions and corruption. Cross-country data for developing countries provide evidence in this paper that rents from aid and (to a lesser extent) natural resource exports reduce the quality of tax systems. Aid's negative effects are robust to correcting for potential reverse causality, to changes in the sample, and to alternative estimation methods. Fuel exports are also associated with lower-quality tax policy and administration, but this finding is somewhat sensitive to outliers. Non-fuel resource exports, in contrast, show no relationship to efficiency of revenue mobilization.

The next section summarizes previous literature related to the arguments and findings of this paper. The data used in the analysis are described in section 3. Results are presented in section 4. A concluding section discusses implications for development and aid policy.

2. Taxation, Governance and Sovereign Rents

How governments mobilize public revenues has important implications for other aspects of the quality of governance. Taxation is a key shaper of accountability relationships between citizens and government (OECD, 2008).

Historically, democracy and the rule of law in Western societies evolved from bargaining between monarchs and economic elites over tax revenues and political and economic rights (e.g. Tilly, 1990). In European warfare, rulers relying only on coercive

taxation tended to lose to rivals who granted more rights to some of their subjects in exchange for additional revenues.

In contemporary societies with broad-based tax systems, the implicit fiscal contracts between rulers and subjects take different forms. However, it remains the case that paying taxes is part of an implicit exchange in which taxpayers gain political representation or other forms of voice over public policies and provision of public services (Levi, 1988). Satisfaction with the quality of public services, and trust in government more generally, tend to improve taxpayer compliance (e.g. Bergman, 2002; Scholz and Lubell, 1998).

Conversely, governments less reliant on domestic tax revenue are less accountable, responsive, and efficient (OECD, 2008: 4). This argument is a major theme of the large and growing “resource curse” literature (e.g. Ross 1999). States benefiting from oil and other natural resource rents tend to be less democratic (e.g. Ross, 2001), more corrupt (e.g. Treisman, 2007; Leite and Weidmann, 1999), and less interested in building state capacity for collecting taxes or providing services.

Unfortunately for donor agencies, many of the “resource curse” arguments also apply to development aid. Like resource rents, aid revenues can reduce government’s dependence on taxes from its own citizens, weakening its accountability to them.

The analogy between aid and resource revenues should not be pushed too far, although both can be categorized broadly as “sovereign rents” that tend to receive less scrutiny from legislators and citizens than other revenues (Collier, 2006). Aid potentially has favorable effects on governance that do not apply to resource revenues (Collier, 2006). Budget support from donors is often accompanied by policy conditions, including

in some instances promises by the recipient to implement specific tax reforms. Some technical assistance from donors is targeted at improving the effectiveness of public administration, including in some cases tax agencies. If these efforts by donors are sufficiently effective, aid may have a positive impact on quality of tax systems.

Empirical findings on aid and the quality of governance are somewhat mixed, in contrast to studies on natural resource rents that typically find adverse impacts on governance. Focusing on Sub-Saharan Africa, Brautigam and Knack (2004) found higher aid is associated with declining quality of governance, as measured by an index of International Country Risk Guide indicators on bureaucratic quality, corruption, and rule of law. Knack (2001) arrived at a similar conclusion for a global sample of aid recipients. Both studies corrected for endogeneity of aid using country size, initial level of infant mortality and other instruments for aid. Djankov, Montalvo and Reynal-Querol (2006) found that higher aid levels are associated with a lower likelihood of democratizing. However, Knack (2004) found no impact in either direction. Goldsmith (2001) reported a positive effect, despite using the same Freedom House democracy indicators used in Knack (2004 and Djankov et al. (2006). Heckelman and Knack (2008) show that aid (corrected for endogeneity) is associated with declines in “economic freedom,” as measured by a widely used index constructed by Gwartney and Lawson (2007). The components of this index closely reflect the “Washington Consensus” policy prescriptions for development.

Examining the impacts of aid and resource rents on quality of tax systems should be distinguished from their impacts on “tax effort,” or tax revenues as a share of national income. Numerous studies have looked at the impact of aid on tax effort, some of them

using panel data. Most of these studies have found that higher aid levels reduce tax effort (e.g. Remmer, 2004; Brautigam and Knack, 2004; Devarajan, Rajkumar and Swaroop, 1999; Feyzioglu, Swaroop and Zhu, 1998; Boone, 1996), but a few others find no effect or even a positive effect (e.g. Gupta, 2007). The implications of those studies are unclear, in any event. It would not be surprising, or necessarily bad policy, if governments choose to use at least a small part of aid to stimulate private sector activity by reducing tax rates. It should concern us more, however, if high levels of aid erode the quality of tax systems, because recipient governments then become even more dependent on aid revenue (Azam, Devarajan and O'Connell, 2002). Inefficient tax policies and administration are not as easily reversed as deliberate decisions regarding tax rates. This study's major contribution to this literature is to introduce a new dependent variable on the quality of tax policy and administration, updated annually by World Bank staff for all of its active borrowers. The following section describes this indicator and other data used in the analysis.

3. Data

The World Bank's "Country Policy and Institutional Assessments" (CPIA) is conducted annually for approximately 135 developing countries. The CPIA includes 16 questions, but this study uses only question 14, titled "Efficiency of Revenue Mobilization" (henceforth abbreviated ERM). Ratings are determined by Bank staff familiar with each country, but are reviewed and sometimes revised by staff in central departments for consistency across countries and regions. Assessments are on a 1 to 6 scale, including half-point increments. For example, a 3.5 rating would be appropriate

for a country meeting some of the criteria for a rating of 3 and some of the criteria for a rating of 4. The Appendix provides the full criteria considered in determining the ratings.

The ERM criteria are equally divided between tax policy issues and tax administration issues. Tax policy issues considered include breadth of the tax base, reliance on trade or other distortionary taxes, level of tariffs and number of rates, and number of exemptions and their transparency. Tax administration issues include collection and compliance rates, costs of collection and compliance, complexity of tax laws and discretionary implementation, corruption by tax officials, and availability of effective appeals mechanisms. These performance criteria are uncontroversial relative to other development prescriptions, reflecting a consensus view among tax professionals employed variously in national tax administrations, consultancy companies and international financial institutions, but who share membership in regional and global professional associations and networks such as the International Tax Dialogue (Fjelstad and Moore, 2008).

Although ERM potentially ranges from 1 to 6, the minimum value for 2006 is 2 (Equatorial Guinea), with a maximum value of 5.5. Due to missing values on some variables, the minimum value in our 110-country main sample used in the analysis is 2.5 (Central African Republic, Comoros, and Togo). The mean value in that sample is 3.76, with a median of 3.5. The sample median was also 3.5 in 1999, the first year for which data are available, but the mean was only 3.32, with a maximum of 5.0. There is an upward trend over the intervening years, with only 12 countries experiencing ratings declines, 67 increases, and no change for 31 others. This trend is consistent with the observations of experts on tax systems in developing countries (e.g. OECD, 2008: 14;

Fjeldstad and Moore, 2008: 235-6, 259). Among the 67 countries with increases, 38 rose by only a half point, 18 by a full point, 8 by 1.5 points, and 3 by two full points. The correlation of ratings for 1999 and 2006 is .62 (rank correlation .61).

Despite the extensive criteria Bank staff are supposed to use in assessing ERM, one might think certain objective proxies are used as shortcuts, e.g. tax revenues as a share of national income (“tax effort”) or trade taxes as a share of revenues. These variables are in fact both significantly related to ERM ratings, but together they explain only about one-sixth of the variation in ERM. Alternatively, as is potentially the case for any subjective governance indicator, quality of tax policy and administration could be inferred merely from per capita income levels or recent growth rates. However, income (2006) and growth (1999 to 2006) together explain only 22% of the variation in ERM. These results are consistent with the supposition that staff assessments of ERM take into account the broader criteria in the questionnaire as intended.¹

The dependent variable used in the empirical analyses below is the 2006 ERM ratings. We test the impact of sovereign rents over the period 1999-2005, controlling for initial (1999) ERM ratings.² The key independent variables of interest are aid and natural resource revenues.

Aid is measured by "official development assistance" (ODA) as a percentage of gross national income (GNI), using data for the years 1999-2005 from the World Bank's *World Development Indicators*. These data were originally collected by the OECD's Development Assistance Committee from each donor agency. Aid (ODA) includes

¹ Internally, staff provide written justifications for all ERM ratings. Some justifications are more comprehensive and relevant than others, but in general they show that staff take the questionnaire criteria very seriously in their assessments.

² Annual variation in the data is not used, because effects of aid and resource rents may show up only with substantial lags.

grants, and loans with a grant element of more than 25 percent. This definition excludes most IMF lending, and a substantial share of World Bank lending, which goes to middle-income borrowers charged near-market rates of interest.

Following standard practice in the empirical literature on natural resource rents, we proxy for these using fuel exports as a share of gross national income, and a similar measure for exports of ores and metals. As with aid/GNI, we average these values for the 1999-2006 period for which ERM data are available.

Control variables used in one or more tests include the initial (1999) ERM value, log of initial (1999) income per capita, average annual per capita income growth over the 1999-2005 period (based on purchasing power parity income data from the *World Development Indicators*), and political rights. Table 1 shows summary statistics for the instruments and other variables, for the 100-country main sample used in the analysis.

4. Analysis

The first column of Table 2 presents results of OLS estimation using a simple specification. The impact of aid, fuels and metals on ERM is tested controlling only for initial (1999) ERM values. Aid and fuels both have negative and statistically significant coefficients, consistent with the hypothesis that the availability of sovereign rents weakens incentives to improve tax policy and administration. These impacts are fairly modest in size: an increase in aid's share of GNI by about 26 percentage points, or an increase in fuel exports' share of GNI of about 60 percentage points, are each associated with a half-point reduction in the 1-6 ERM scale. The impact of aid is also larger than for fuels when measured in standard deviation units. A standard-deviation increase in aid

and in fuel exports are associated with reductions in ERM of one-fifth and one-seventh of a standard deviation respectively. Exports of ores and metals show no relationship with ERM. Not surprisingly, the strongest predictor of 2006 ERM ratings is lagged ERM values.

Columns 2 and 3 of Table 2 report results from median and robust regression techniques respectively, that reduce the influence of outlying values. Coefficients for aid and fuel exports are virtually unchanged, but statistical significance is reduced somewhat in column 3, particularly for fuel exports.

In the sample ERM takes on one of seven different values and is technically an ordinal rather than interval measure. Each half-point increment in value indicates a more efficient tax policy and administration, but an increase from (say) 3 to 3.5 are not necessarily equivalent in any meaningful sense to an increase from 3.5 to 4. Column 4 therefore reports results from ordered probit estimation. Coefficient signs and significance levels in column 4 are very similar to those in column 1, using OLS. Therefore, treating ERM as a cardinal rather than an ordinal variable in most of the analyses presented in this paper appears to be an innocuous assumption.

The tests in Table 2 are intended as an initial relatively simple analysis. They show that significant findings on two key indicators of sovereign rents are not dependent on the inclusion of a particular elaborate set of control variables. On the other hand, one could argue those tests assume too much by omitting more controls, and by treating sovereign rent indicators as exogenous. Subsequent tests reported in Tables 3 and 4 respond to those concerns.

Several control variables are added in these subsequent tests. Including initial

(1999) per capita income (purchasing power adjusted) and average annual growth (1999-2005) should capture any tendency for (subjective) assessments of ERM to be inferred in part from observed economic performance. The likelihood of reforms in tax policy and administration could also be related to economic performance; e.g. if tax reforms are sometimes motivated by crisis as reflected in slow growth. Income may also proxy for structural variables (e.g. agricultural, manufacturing and service share of GNI, or urbanization³) that potentially could influence tax revenues or policies. The coefficient estimates for income and growth will reflect the net impact of these various influences on ERM.

We control for the initial level of democracy, and for its change over the period, using the well-known Freedom House ratings on political freedom. Democratic institutions could create more pressure on elected officials to produce fair and efficient tax legislation, and on tax officials to collect revenue in more transparent and honest ways. However, it is conceivable that electoral majorities could vote to narrow the tax base and exploit a small set of revenue sources. Organized producer groups in democracies may also lobby for exemptions and other special treatment. The net impact of political freedoms on ERM is therefore ambiguous.

Aid, one of the key independent variables, is potentially endogenous, as donors may direct either more or less aid toward reforming countries. In fact, the purpose of the CPIA ratings is to allocate the World Bank's IDA funds, which account for about 10% of all ODA. The premise of this "performance-based allocation" system is that aid is more effective in more favorable policy environments, as argued in World Bank (1998). This

³ When those variables are included in the regressions they are not significant, and have little or no impact on results for the sovereign rents variables.

relationship creates a positive bias in the impact of (some) aid on ERM.⁴

To correct for this or other possible sources of endogeneity, we instrument for aid using two-stage least-squares. Exogenous instruments include initial (1995) levels of infant mortality, population (with data from the *World Development Indicators*), and a set of regional dummy variables.⁵ Higher infant mortality is an indicator of low development and greater need for aid as likely perceived by donors. Population reflects national prestige interests of donor countries: donors tend to spread their aid across many recipients to establish a presence, just as they have an embassy in every country. This donor behavior results in higher aid levels (on a per capita basis, or as a share of national income) for smaller recipient countries.

Table 3 (column 1) reports results for the first-stage regression, with aid/GNI averaged over 1999-2005 as the dependent variable. The excluded instruments infant mortality and population are both significant predictors of aid levels, and in the expected directions. The regional dummies are jointly significant at the .05 level. Collectively, these instruments explain a sizeable fraction of the variation in aid. As seen by comparing the two columns in Table 2, the other second-stage regressors explain 50% of the variation in aid in the absence of the exogenous instruments. With their inclusion, 67% of the variation in aid is explained.

Fuel exports are also potentially endogenous to ERM. For example, distortionary tax policies could reduce incentives to invest in manufacturing or services, reducing GNI

⁴ However, *allocations* do not always translate one-to-one into aid *commitments*, and commitments in turn do not always translate one-to-one into *disbursements*. Aid is measured as actual disbursements in the empirical analysis.

⁵ Regions follow the World Bank's groupings: Sub-Saharan Africa (the omitted category), East Asia and Pacific, Eastern Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, and South Asia.

and thereby increasing the fuel exports to GNI ratio. However, endogenizing fuel exports is beyond the scope of this paper, as it is more difficult to find plausible instruments with sufficient explanatory power for fuel exports in contrast to aid. Results for fuel exports are somewhat weaker than for aid, in Table 2 and in subsequent tests. Correcting for a negative endogeneity bias of the sort described above could be expected to further weaken results on fuel exports. Coupled with the non-significant effects of ores and metals exports, aid in this analysis turns out to be the key measure of sovereign rents with implications for efficiency of tax policy and administration.

The first column of Table 4 reports 2SLS results for the 110-country main sample used in Table 2. The exogenous component of aid has a negative and significant coefficient that is double the magnitude from OLS estimates (in Table 2, column 1). Each increase of about 13 percentage points in aid/GNI is associated with a half-point reduction in ERM.

Aid results are also highly robust to changes in the sample. Equation 2 of Table 4 shows that the effects of aid are little changed by dropping the seven countries with fuel exports exceeding 30% of GNI.⁶ The coefficient of fuel exports, however, declines markedly (in absolute value) and becomes insignificant. Equation 3 shows that results for aid are also robust to dropping the 10 countries with aid exceeding 10% of GNI.⁷ Nor are results sensitive to dropping instead the 16 countries with per capita (PPP-adjusted) income in 1999 exceeding \$8000.

Equation 5 reports the most dramatic change in the sample, dropping the 36

⁶ These seven countries are Algeria, Azerbaijan, Gabon, Nigeria, Trinidad and Tobago, Turkmenistan, and Yemen.

⁷ These ten countries are Burundi, Cape Verde, Ethiopia, Kiribati, Malawi, Mongolia, Mozambique, Nicaragua, Rwanda and Zambia.

countries with aid averaging below 1% of national income between 1999 and 2005. The aid coefficient and significance remains largely unchanged; higher aid levels impair efficiency of revenue mobilization even among the restricted sample of countries receiving substantial amounts of aid. In equations 3-5, fuel exports are also associated with lower ERM ratings.

Equation 6 drops the natural resource variables, to add 16 countries to the sample that are missing data on them. Aid remains negatively and significantly related to ERM in this expanded sample.

Two additional findings are not shown in tables, for space reasons. A possible alternative to using 2SLS to correct for endogeneity of aid to ERM might be to net out the World Bank's IDA aid, or to include it in the tests but only as a separate variable. This is only a partial solution to endogeneity, however, because other donors could also direct aid to countries improving its tax or other policies, even if there is no formal allocation rule for doing this as with IDA. In any event, in OLS tests (as in Table 2, equation 1) the coefficient on IDA aid is near 0 and insignificant, and the coefficient on non-IDA aid is negative and significant.

Finally, one could also make a case for excluding technical assistance (TA) from aid in the tests, because much of it does not augment resources available to recipient governments, but is spent instead on consultants who are selected by donor agencies and who often live and work in developed nations. Accordingly, separate variables were created for TA and for all other aid, in a 2SLS test as in Table 4, treating both aid variables as endogenous. The coefficient on TA in this test is positive and insignificant, while the coefficient on all other aid remains negative and significant.

5. Discussion

Results from this study indicate that high aid levels tend to undermine the quality of tax policy and administration, potentially aggravating long-run dependence on foreign aid to finance public expenditures. Inefficient tax systems can also reduce the level and productivity of private investment, slowing growth in incomes. Results for natural resource rents were not as robust as for aid. However, to the extent dependence on fuel exports also makes tax systems less efficient, negative effects on private investment and growth can be expected, as in aid-dependent countries.

The stronger results for aid rents than for resource rents appears inconsistent with Collier's (2006: 1485) conclusion that aid is better than oil:

Like resource rents, aid reduces the need for taxation and so increases sovereign rents [relative to "scrutinized revenues"]. However, offsetting this, aid comes with various donor-imposed mechanisms of scrutiny, which may spill over onto other expenditures, and so substitute for reduced pressure from citizens.

A possible explanation for this inconsistency is that available data more accurately measure aid rents than resource rents flowing to governments. Aid data compiled by the OECD-DAC are far from perfect, but they capture most aid, and most aid recorded as going to a recipient country is spent by its government, including even most aid that never enters government budgets. Natural resource exports are a relatively poor measure of resource rents. Production costs cannot be netted out very accurately.⁸ Total revenues from resource sales may exceed export revenues by a substantial margin in some countries. If resource rents are measured less accurately in the analysis, estimates of their impact on quality of tax systems may be less accurate than estimates for

⁸ Hamilton and Clemens (1999) construct estimates of natural resource rents for 1985-94, prior to the period covered in this study. They outline a number of limitations to their methods.

aid.

A second possible explanation for the disparity is uncertainty regarding the different revenue streams. Prices for oil and other natural resources are volatile, so government decision makers may rationally discount future resource revenues more than they do future aid flows.

A third explanation is the difference in dependent variables. Collier's conclusion that aid is more conducive than resource rents to development is based on evidence from growth regressions, not from analyses of the quality of tax systems. Collier acknowledges that "*a priori* either mode of transfer [aid or resource revenues] could be associated with superior development outcomes" as procedures and conditions imposed by donors can undermine institutional effectiveness (Collier, 2006: 1483). Aid revenues may be superior for some outcomes such as growth but at the same time be more damaging to other outcomes, such as quality of tax systems. Aid is often linked to policy conditions, including tax-related conditions in some cases, but there is a consensus in the aid effectiveness literature that policy conditions are ineffective (e.g. Dreher, 2008; Collier, 1997).

It is important to distinguish between aid's impact on the quality of tax systems from the net impact of all donors' activities, including policy advice not linked in any way to aid flows. As mentioned above, there is an upward trend in ERM ratings that is consistent with impressionistic evidence of specialists in the tax field (OECD, 2008; Fjeldstad and Moore, 2008). While tax reform trends reflect a professional consensus on efficiency and revenue collection goals and the means of achieving them, this agenda has been led by the international financial institutions, in particular the IMF (OECD, 2008).

The net impact of donors' aid flows and policy advice on quality of tax policy and administration may well be positive.

Realistically, development aid and natural resource revenues are likely to remain at high levels for the foreseeable future. How can their adverse impacts on the quality of governance be minimized in less-developed countries? There are several approaches. Birdsall and Subramanian (2004) suggest distributing oil revenues in Iraq and elsewhere directly to the people. Similarly, Easterly (2002) proposes that donors bypass governments more frequently, with cash grants to poor people, and delivering more aid through NGOs and private firms. Moss, Pettersson and van de Walle (2006) advocate directing more aid to regional and global public goods such as agricultural research or anti-malarial research. Finally, Moore (2007) forcefully argues for more revenue reform projects by donors in aid recipient nations, noting that "provision of large aid volumes without taking steps to encourage the expansion of (efficient) domestic revenue-raising capacity in the long term is irresponsible."

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Table 1
Summary statistics for 110-country main sample

	Mean	Std. Dev.	Min.	Max.
Revenue mobilization rating, 2006	3.76	0.59	2.5	5.5
Revenue mobilization rating, 1999	3.32	0.74	2.0	5.0
Aid/GNI (%)	5.87	6.84	-0.03	30.50
Fuel exports/GNI 1999-2005 (%)	5.11	10.13	>0.01	48.7
Metals & ores exports/GNI, 1999-2005 (%)	2.38	5.33	>0.01	33.5
GDP per capita, PPP, 1999	4332	3257	508	16055
Avg. annual growth in GDP per capita, 1999-2005	0.79	1.69	-6.5	15.8
Political rights, 1999	3.55	1.95	1	7
Change in political rights, 1999-2006	-0.07	1.05	-3	+3
Infant mortality, 1995 (per thousand)	53.98	36.05	5.8	176
Population, 1999 (millions)	4.26	15.40	0.04	1250

Table 2
Sovereign rents and ERM, 2006

Equation	1	2	3	4
Estimation method	OLS	Median regression	Robust regression	Ordered probit
Constant	2.414 (9.91)	2.300 (17.36)	2.417 (10.50)	
Revenue mobilization rating, 1999	0.448 (6.79)	0.494 (13.86)	0.441 (7.09)	1.073 (6.23)
Aid/GNI, 1999-2005	-0.018 (-3.34)	-0.017 (-4.60)	-0.016 (-2.36)	-0.041 (-3.25)
Fuel exports/GNI, 1999-2005	-0.008 (-2.26)	-0.008 (-3.07)	-0.008 (-1.65)	-0.019 (-2.23)
Metals exports/ GNI, 1999-2005	0.004 (0.66)	0.0001 (0.04)	0.003 (0.36)	0.005 (0.47)
R ² / pseudo R ²	0.43	0.27	--	0.18
Std. error of est.	0.45	--	--	--

Dependent variable is CPIA “Efficiency of Revenue Mobilization” (ERM) rating for 2006. Test statistics (from robust standard errors) are in parentheses. Sample size is 110. Mean of dependent variable is 3.76.

Table 3
Aid/GNI 1999-2005 (first-stage regressions)

Equation	1	2
Constant	57.355 (10.33)	53.063 (7.34)
Revenue mobilization rating, 1999	1.053 (1.61)	0.201 (0.27)
Fuel exports/GNI, 1999-2005	-0.129 (-3.27)	-0.120 (-2.46)
Metals exports/GNI, 1999-2005	0.029 (0.46)	0.112 (1.53)
Log GDP per capita, 1999	-4.564 (-4.37)	-5.634 (-6.95)
Annual average GDP growth, 1999-2005	0.116 (0.67)	-0.077 (-0.55)
Political rights, 1999	-0.311 (-1.12)	-0.528 (-1.61)
Change in political rights, 1999-2006	-0.451 (-0.73)	-0.563 (-0.88)
Infant mortality, 1995	0.067 (2.23)	
Log population, 1999	-1.357 (-6.48)	
East Asia/Pacific region	3.686 (2.49)	
East Europe/Central Asia region	1.673 (1.03)	
Latin America & Caribbean region	0.443 (0.28)	
Middle East/North Africa region	0.997 (0.61)	
South Asia region	-1.270 (-0.85)	
R ²	.67	.50
Std. error of est.	4.18	5.00

Dependent variable is mean aid/GNI, 1999-2005. T-statistics (from robust standard errors) are in parentheses. Sample size is 110. Mean of dependent variable is 5.9%. Sub-Saharan Africa is the omitted regional category.

Table 4
Sovereign rents and ERM: 2SLS

Equation	1	2	3	4	5	6
Sample or specification change	Main	drop fuel > 30%	drop aid > 15%	drop GDP > 8000	drop aid < 1%	drop fuels & metals
Constant	3.426 (3.96)	3.585 (3.88)	3.965 (3.52)	3.627 (4.13)	3.772 (3.81)	3.568 (4.44)
Revenue mobilization rating, 1999	0.397 (5.72)	0.400 (5.59)	0.350 (4.97)	0.358 (4.97)	0.442 (4.72)	0.447 (6.91)
Aid/GNI, 1999-2005	-0.039 (-3.05)	-0.037 (-2.86)	-0.041 (-2.46)	-0.032 (-2.70)	-0.038 (-2.68)	-0.034 (-3.62)
Fuel exports/GNI, 1999-2005	-0.012 (-2.75)	-0.003 (-0.43)	-0.011 (-2.49)	-0.010 (-2.20)	-0.014 (-2.51)	
Metals exports/GNI, 1999-2005	0.007 (1.20)	0.003 (0.56)	0.009 (1.33)	0.002 (0.33)	0.004 (0.82)	
Log GDP per capita, 1999	-0.079 (-0.85)	-0.098 (-0.99)	-0.004 (-0.04)	-0.098 (-1.02)	-0.144 (-1.45)	-0.104 (-1.20)
Annual average GDP growth, 1999-2005	0.037 (3.17)	0.041 (2.98)	0.036 (3.03)	0.033 (2.76)	0.043 (3.02)	0.009 (0.53)
Political rights, 1999	-0.054 (-2.04)	-0.067 (-2.42)	-0.060 (-2.29)	-0.049 (-1.82)	-0.051 (-1.60)	-0.079 (-2.90)
Change in political rights, 1999-2006	-0.083 (-1.73)	-0.087 (-1.82)	-0.086 (-1.71)	-0.051 (-1.10)	-0.099 (-1.76)	-0.095 (-2.18)
N	110	103	100	94	74	126
Mean, dep. variable	3.76	3.77	3.78	3.65	3.61	3.66
Std. error of est.	0.44	0.44	0.43	0.41	0.43	0.47
p-value, overid test	.67	.40	.51	.76	.20	.45

Dependent variable is CPIA “Efficiency of Revenue Mobilization” rating for 2006. Test statistics (from robust standard errors) are in parentheses. Estimates are from 2SLS. First-stage regression for main sample is shown in Table 2. Overid test statistic is Hansen’s J.

Appendix
Definition of dependent variable

Efficiency of Revenue Mobilization

This criterion assesses the overall pattern of revenue mobilization--not only the tax structure as it exists on paper, but revenue from all sources as they are actually collected. Separate sub-ratings should be provided for (a) tax policy and; (b) tax administration. For the overall rating, these two dimensions should receive equal weighting.

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| <p>1 a. Tax base is extremely narrow with many open-ended exemptions. Most tax revenues are collected from foreign trade and other distortionary taxes. There are high, multiple, and widely ranged import tariffs, which change frequently or are applied in a highly discretionary manner. Little is collected from income taxes.</p> <p>b. Tax administration is extremely weak, with very low collection rates. It is organized by type of tax and business processes have not been reviewed and reformed. Computerization is limited to very basic functions. Many taxpayers must make several or more personal visits to tax offices. Corruption is endemic among tax and customs officials.</p> <p>2 a. Tax system is poorly designed, with a narrow base and many open-ended exemptions. Taxes on foreign trade, turnover taxes and other distortionary taxes are the dominant source of revenue. There are high and multiple import tariffs. Both company and personal income taxes have high rates on a very narrow base and generate little revenue.</p> <p>b. Tax administration is weak due to complex laws, poor information systems, corruption, weak capacity and political interference. Collection rates are low. Tax obligations are negotiable rather than rule-based. Appeals and other dispute resolution mechanisms have not been developed.</p> <p>3 a. Taxes on trade are the dominant source of revenue; turnover and other distortionary taxes and levies remain. Consumption based taxes (e.g., a VAT) are planned or in limited use. Import tariffs are moderate, but there are too many rates. Income tax base is narrow and the rate structure is only partly rationalized.</p> <p>b. Tax administration is weak, but tax laws are not inordinately complex, and information systems are functioning (e.g., unique taxpayer identification numbers used). Corruption exists, but there are efforts to improve integrity as well as capacity.</p> <p>4 a. A significant amount of revenue is being generated by low-distortion taxes such as retail sales/VAT, property, etc. VAT has not been fully operational to include activities at the retail stage. Non-trivial amounts of revenue are generated from company and personal income taxes. Tax base is broad and exemptions are moderate and made time-bound, especially for promotion schemes. Trade taxes have few and low rates.</p> <p>b. Tax administration is solid, cost of revenue generation has been reduced and there are relatively few cases of corruption and political interference. Eligibility for preferential rates and exemptions is largely transparent.</p> <p>5 a. The bulk of revenues are generated by low-distortion taxes such as sales/VAT, property, etc. Import tariffs are low and relatively uniform, and export rebate or duty drawback are functional. There is a single statutory corporate tax rate comparable to the maximum personal income tax rate. Tax base for major taxes is broad and free of arbitrary exemptions.</p> <p>b. Tax administration is effective, and entirely rule-based. Administrative and compliance costs are low. A taxpayer service and information program, and an efficient and effective appeals mechanism, have been established.</p> <p>6 Criteria for “5” on both sub-ratings are fully met. There are no warning signs of possible deterioration, and there is widespread expectation of continued strong or improving performance.</p> |
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