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Assessing the Tax Performance of Developing Countries

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Figures and Tables

Abbreviations

AfDB	African Development Bank
AsDB	Asian Development Bank
CG	Central Government
ColTax	Collecting Taxes Database
CPIA	Country Policy and Institutional Assessment (World Bank)
DIE	Deutsches Institut für Entwicklungspolitik (German Development Institute)
ECLAC	UN Economic Commission for Latin America and the Caribbean
GDP	Gross Domestic Product
GE	Government Effectiveness (WGI)
GFS	Government Finance Statistics (IMF)
GG	General Government
IMF	International Monetary Fund
KfW	Kreditanstalt für Wiederaufbau
LSE	London School of Economics and Political Science
MENA	Middle East / North Africa
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
PEFA	Public Expenditure and Financial Accountability
PPP	Purchasing Power Parity
SNG	Subnational Government
TPA	Tax Performance Assessment
USAID	United States Agency for International Development
VAT	Value Added Tax
V&A	Voice and Accountability (WGI)
WDI	World Development Indicators
WGI	World Governance Indicators

Executive Summary

Some countries fail to ensure that their citizens and businesses make an appropriate contribution to the financing of public tasks. But not all countries with a low tax ratio automatically fall into this category. As a first observation, there is a well established positive relationship between a country's ability to collect taxes and its development level. Hence, it does not make much sense to assess a low-income country's tax effort by comparing it to the levels of the Organisation for Economic Co-operation and Development (OECD) or to certain absolute values. Governments, donors and international organisations need to be able to judge the performance of tax systems in a broader context of development, governance and international cooperation.

The tax performance assessment (TPA) introduced in this paper seeks to give a comparative overview of the tax performance of developing countries, based on aggregate data and country-specific information. This should put governments, donors and international organisations in a better position to decide on tax reform programmes and aid modalities. The analysis proceeds as follows:

— First, the TPA relates the 2007-08 tax ratio (tax revenue as a percentage of the Gross Domestic Product – GDP) of a large number of countries to their GDP per capita. It establishes a trend (or regression) line and determines the distance of each country from this line. According to their relative position, countries are then grouped into three broad categories: average tax performers, high tax performers and low tax performers.

— Second, the exercise is repeated for two additional observation periods, 1997-99 and 2001–03 (roughly ten and five years from 2007–08), to identify countries changing categories over time.

— Third, we assume that governments with "easy" access to alternative sources of finance do not have a strong incentive to engage in cumbersome domestic tax collection. The TPA therefore looks at non-tax revenue in general and grants of Official Development Assistance (ODA) in particular.

— Fourth, we analyse the governance of countries with a low tax performance in order to distinguish between those states that collect few taxes because societies *want* to have a low tax ratio and those cases where other aspects may be more important than the political will of the citizens.

Empirical findings

For the **observation period 2007–08** we gathered data on a total of 177 countries. Of these, 36 qualify as high tax performers, whereas 41 fall in the low tax performing group. The remaining 100 countries are considered average performers. The results of our analysis enable us to discern some regional patterns:

— Many Latin American and Caribbean countries find themselves below the trend line. The only high tax performers in this region are Brazil and Guyana.

— Another part of the world where low tax performance clearly prevails is South and Southeast Asia. Here, high tax performers are virtually absent.

— Africa presents some mixed results, several countries falling into the high tax performance category, while others count as low tax performers.

— Finally, high tax performers predominate in Western Europe and in many formerly socialist states of Eastern Europe and the former Soviet Union.

For the observation periods 1997–99 and 2001–03 we gathered data on 158 cases. A total of 53 countries changed categories between 1997–99 and 2007–08. Of these, 32 registered a downward trend, while 21 improved their relative position. Again, some regional patterns emerge:

- Many South and Southeast Asian countries moved to the low tax performers' group. An important exception is China, which changed from low to average performance.
- In a similar fashion, nine sub-Saharan African countries moved to lower categories, with only Liberia changing from average to high performance.
- In other regions, the picture is more ambiguous. In Latin America and the Caribbean, for instance, three countries fell from average to low tax performance, while another three countries changed from low to average and one country (Brazil) from average to high performance.

Alternative sources of revenue: Non-tax revenue is higher for low tax performers in all income groups, but total revenues and total expenditures are lower. This means that the lack of tax revenue is only partly offset by alternative sources of financing.

As regards other sources of financing, it appears that low tax performers do not receive much foreign aid (ODA grants); nor do they have much access to external borrowing. More than half of them (23 countries) finance less than 1 per cent of GDP with ODA grants, whereas the world average stands at 6.7 per cent. Only six of the 41 low tax performers score higher than the world average in terms of ODA grants. In contrast, low-income high tax performers clearly receive more aid and more loans from the international community.

Governance: The size of the public sector and the quality and quantity of public services may be the outcome of choice by a society. If a country is governed in a democratic and transparent manner, there is no reason to talk about revenue mobilisation problems, even if the country has a low tax ratio. However, the combined picture produced by the Polity IV democracy index and the World Governance Indicators (WGI) Voice and Accountability Index suggests that low tax performing countries are less democratic, regardless of income group. There are only four low tax performers with a positive rating in both indices: Panama, India, the Dominican Republic and Timor-Leste.

It can also be deduced from the WGI Government Effectiveness index that only a few low tax performers have a public sector capable of implementing public policies in an orderly and transparent way. Thirteen of 40 countries (there are no data on Palau) achieve scores above the world mean. Among these are several small high-income countries as well as some rather non-democratic or blatantly authoritarian states such as Singapore and Kuwait. Two countries, Colombia and the Philippines, qualify as "democracies" in the Polity IV index and are rated above the Government Effectiveness mean, but register below-average scores in the Voice and Accountability Index. They could be considered borderline cases.

Hence, there are just two countries (Panama and India) with positive scores in all three indicator sets. In fact, of the lower-middle-income and low-income countries with low tax performance, India alone has high governance rankings, and it would most probably be among the average tax performers if its revenue data included subnational governments.

Finally, we consider whether countries face circumstances that may inhibit tax collection regardless of the government's political will. In particular, we look at the number of battle-related deaths as a proxy for civil unrest or war in a country; and at the number of displaced persons as a proxy for major humanitarian catastrophes (e. g. natural disasters or violent conflicts). In general terms, low tax performers have a higher death toll in armed conflicts and a larger number of displaced persons. This is especially true of the lower-middle-income and low-income groups, indicating that low tax performance may also be related to special circumstances.

To summarise the findings, we can identify **three relatively distinct groups of low tax performing countries**:

- a first group consisting of nine states with high non-tax revenue, low ODA grants and, in most cases, low governance ratings;
- a second group composed of six countries with high levels of governance and small public sectors. Three other countries with medium levels of governance and a small government can also be ascribed to this group;
- a third group of 22 countries that generally have low non-tax revenue, low levels of governance and, in most cases, relatively high levels of ODA or external borrowing.

The reasons for the low tax performance of the first two groups are relatively clear: the first has no strong incentive to engage in tax collection (because of its high non-tax revenue), and the second has no preference for collecting much in the way of taxes (as indicated by high to medium governance levels). The reasons for low levels of tax collection in the third group are less apparent and probably more diverse. Lack of capacity (ineffective tax administration) or tax effort (for instance, resistance to tax policy reform, high levels of "permitted" tax evasion) could be possible explanations.

This is consistent with the finding that 16 of the 22 countries in the third group were average tax performers ten years ago. Most are Asian or sub-Saharan African countries. In a period of growth and expanding public revenues worldwide, it appears that these states were in a weak position to improve their fiscal standing in line with the rest of the world.

To sum up, states with a relatively low or diminishing tax performance in our analysis do not automatically qualify as "bad" or "defective" cases. It is possible that their tax ratio is low because they enjoy access to alternative sources of finance, or because societies have chosen to limit the range of state action. Besides this, tax performance may be shaped by specific conditions or other factors, such as natural disasters and violent conflicts.

Development policy should consider these findings on a case-by-case basis. It must not focus solely on the tax ratio, but consider a partner country's tax system as a whole, in a broader governance context. However, the results presented above seem to indicate that regional patterns may play a role in at least some parts of the world. This lends additional weight to those initiatives which raise the issue of domestic revenue mobilisation on a multilateral level.

In the context of bilateral development cooperation, states with persistently and significantly low tax ratios should be encouraged to be more active in fiscal terms and to step up revenue collection. For those countries with low governance levels, this goes beyond expressions of political will on the part of ruling elites. Among other issues, governments and donors need to address the following questions:

- Is there a record of (failed) attempts to improve tax collection? Is there a consensus among political actors with regard to the causes of success or failure?
- How has external intervention influenced the tax regime in the past? For instance, pressure to liberalise the economy may have eroded revenues from trade taxes.
- Who loses and who benefits from tax reform? What are the incentives for change?

More reliable data for large numbers of countries would be necessary if this type of analysis was to be expanded to include, for instance, subnational revenues and the characteristics of tax administration. Even today, however, development policy can find support in a number of general indicators or approaches presented in this paper.

1 Introduction

Countries with a low tax yield or lax enforcement of tax laws are running out of time. Such international players as the Organisation for Economic Co-operation and Development (OECD), the World Bank and the G20 are calling for more determined action to combat tax evasion and avoidance. With the world still fighting the effects of the global financial and economic crisis, there is growing pressure on tax havens to increase the transparency of their tax systems and put an end to unfair competitive practices. Developing countries, too, are being urged to do more to mobilise domestic resources rather than rely on a constant inflow of official development assistance (ODA) funds.[1]

Some countries clearly fail to ensure that their citizens and businesses make an appropriate contribution to the financing of public tasks. In such cases there are a number of reasons for changing the development portfolio, reducing ODA or even stopping cooperation altogether (von Haldenwang / Krause 2009). But not all countries with a low tax ratio automatically fall into this category. Governments, donors and international organisations need to be able to assess the performance of tax systems in a broader context of development, governance and international cooperation.

Surprisingly, there is at present no such comprehensive and comparative approach to the tax system performance of developing countries, although several donors and international organisations are gathering data on tax revenues, the composition of tax systems and the quality of tax policy and administration.[2] Most developing countries are the subject of at least some country-specific information on tax systems and revenues. At the same time, there is a growing body of macro-quantitative research on the relationship between tax systems or tax revenues and foreign rents (including ODA flows), per capita GDP and other variables.[3]

However, hardly any tools exist for comparing the tax systems of individual countries, linking tax performance to other factors of political and socio-economic development. Nor is much information available on the evolution of tax systems over time. Generally speaking, much of the in-depth information available is not truly comparative,[4] and much of the comparative information available is not truly in-depth.

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1 According to the 2005 United Nations Millennium Project report "Investing in Development," low-income countries should raise their domestic revenues by an additional 4 per cent of GDP by 2015. Similarly, the 2008 Doha Declaration on Financing for Development includes a pledge to "enhance tax revenues through modernized tax systems, more efficient tax collection, broadening the tax base and effectively combating tax evasion." See also OECD (2010); EC (2010).

2 The most important providers of this kind of information are the OECD (reports and databases, especially on sub-Saharan Africa), the World Bank's Country Policy and Institutional Assessments (CPIAs) and Doing Business Reports, the European Commission's Fiscal Blueprints, the Public Expenditure and Financial Accountability (PEFA) Reports and the Collecting Taxes database funded by the United States Agency for International Development (USAID).

3 For recent contributions to these debates, see Carter (2010); Hart (2010); Aizenman / Jinjarak (2009); Morrison (2009); Fuest / Riedel (2009); Besley / Persson (2009); Knack (2008); Gambaro / Meyer-Spasche / Rahman (2007); Gupta (2007).

4 It could be argued that PEFA and CPIA scores do lend themselves to (within-country or cross-country) comparisons. De Renzio (2009) and PEFA Secretariat (2009) discuss this issue with regard to PEFA scores.

As a result, governments and donors usually approach the issue of tax reform in developing countries on a strict case-by-case basis. Tax-related criteria of donor programmes or new aid modalities are defined without the potential of available comparative data being fully tapped. Typically, the tax ratio (tax revenue as a percentage of GDP) in developing countries is assessed by comparing it to certain absolute threshold values, regional averages or OECD tax ratios. None of these procedures, however, appears to be convincing, as they do not take any account at all of the conditions and development levels of individual countries.

Against this background, more elaborate approaches seek to measure the *tax effort* by taking account of specific country characteristics, such as per capita income, the trade / GDP ratio or the relative size of the agricultural sector.[5] These variables, however, may also be subject to change. For instance, Aizenman / Jinjarak (2009) find evidence that trade liberalisation brought upon developing countries in the course of globalisation has led to a shift from "*easy-to-collect* taxes" (tariffs, seigniorage) to "*hard-to-collect* taxes" (Value Added Tax – VAT, income taxes). Poor countries, which are usually more dependent on tariffs, often find it difficult to compensate for shrinking revenues after tariff cuts. This is especially true of countries where institutional quality is low.

The tax performance assessment (TPA) introduced in the following sections relates tax ratios to development levels (proxied by per capita income) as the first step of the analysis. In subsequent steps it seeks to give a comparative overview of the tax performance of developing countries, based on aggregate and country-specific information. This should put governments, donors and international organisations in a better position to decide on tax reform programmes and aid modalities.

The TPA relates observed values to cross-country trends instead of comparing them with predicted values ("tax capacity") on a case-by-case basis. This approach is adopted because of the difficulty of determining the "real" tax capacity of individual states. The capacity of states to collect taxes is affected not only by economic variables, but by many other political, social and geographical factors. Low "tax effort" (in the specific sense introduced above) may not be the only reason for low tax revenue. Rather than focusing on aggregate results, the TPA also seeks to give easy-to-access information on individual countries or groups of countries. Because of this focus, additional efforts have been devoted to data collection.

The TPA does not discuss the composition of tax systems or the quality of specific taxes. Many African countries, for example, have a rather high tax ratio, largely because they receive a major share of their revenues from trade taxes, which are said to be particularly "distorting" owing to their small tax base. However, we cannot gauge the developmental effect of these tax revenues by looking at market distortions alone: we also need to consider how tax revenues are spent, what form the incentive structure for the private sector takes and so on.

5 See OECD / AfDB / UNECA (2010, 94–96) for data on the tax effort of 42 African countries; Piancastelli (2001) for a sample of 75 countries; Teera / Hudson (2004) for a sample of 120 countries; Gambaro / Meyer-Spasche / Rahman (2007) for a sample of 65 aid-recipient countries.

The following section summarises the underlying analytical narrative of the TPA and discusses the problem of data quality and accessibility. Section 3 presents the findings of our analysis. The concluding section, Section 4, summarises the results and addresses the question of how development cooperation partners should handle the findings presented in this paper.

2 Assessing tax performance – concepts and data

2.1 The analytical narrative

State capacity includes the capacity to collect taxes. States with low per capita income do not, as a rule, meet the administrative and institutional requirements for a tax system at OECD level. Public expenditure, on the other hand, rises with higher development levels, generating pressure to mobilise revenue.[6] An appropriate appraisal of a state's efforts to tax its citizens must therefore take its level of development into account. A positive relationship between tax ratio and per capita GDP (as a proxy for development) has been demonstrated in the literature since the 1960s (Musgrave 1969; Chelliah 1971; Tanzi 1992; Piancastelli 2001; Teera / Hudson 2004; Gambaro / Meyer-Spasche / Rahman 2007).

Hence, the **first assumption** made in this paper is that the capacity of the government of country X to raise tax revenue increases with that country's development level:

$$r_i = \alpha + \beta \log g_i + \varepsilon_i, \quad i = 1,N, \qquad (1)$$

where r_i is total tax revenue as a share of GDP in country i, g_i is the GDP per capita in country i, and ε_i is the residual, which includes all the other factors affecting r_i.

This assumption does not establish a *causal* relationship between tax ratio and development level. It shows, however, that there is little sense in assessing a low-income country's tax effort by comparing it to OECD levels or to certain absolute values. At the same time, linking tax revenue to development levels leads to more realistic expectations concerning changes in tax revenue. Drastic alterations from one year to another are typically the outcome of external shocks, or the product of data corruption and misreporting.

The TPA relates the tax ratios of a large number of countries to their logged GDP per capita. It establishes a trend line and determines the distance of each country from this line. According to their position relative to the trend line, countries are then grouped into three categories: average tax performers, high tax performers and low tax performers. Grouping countries into these broad categories gives us a first idea of how they fare in terms of tax collection at a given point in time. By choosing 2007/08 as the most recent observation period, we cover the years before the outbreak of the world economic crisis, with its rather distorting impacts on the public finances of many developing and developed countries. We are also able to gather data for a large group of countries.[7]

6 This tendency is known as "Wagner's Law", see Musgrave (1969, 73–75); de Ferranti et al. (2004, 250).

7 For each of the 177 countries of our sample, data from 2007 and 2008 were averaged and then compiled into one series. For ten countries (Anguilla, Antigua and Barbuda, Barbados, Dominica, Gabon, Sao

Besides gaining an impression of recent tax performance, we want to know how tax performance changes over time. For instance, it could be that a country is still below the trend line, although it has increased its tax ratio in recent years. Only long-term observation will provide information on the fiscal development of a country or group of countries. We build two additional series for the periods 1997–99 and 2001–03 (roughly ten and five years from 2007/08). As governments, donors and international institutions are likely to be especially interested in countries with a persistently low, or even diminishing, tax performance, we take a closer look at these two groups in our analysis.

The **second assumption** guiding our analysis concerns the relationship between tax and non-tax revenue. The *tax effort* approaches mentioned above identify additional factors that influence the tax ratio. The TPA follows this approach in that it assumes that governments with "easy" access to alternative sources of finance do not have a strong incentive to engage in cumbersome domestic tax collection.

We consider non-tax revenue in general and ODA grants in particular. On the one hand, exporters of non-renewable energy sources (oil, gas) and minerals (copper, gold) may not have to achieve high tax ratios in order to finance public services. A state that receives substantial rents from oil or gas exports will feel little inclination to resort to the laborious business of depriving its citizens of some of their income when it can finance its essential functions as things are. The best example of this is the Persian Gulf states, some of which maintain single-digit tax ratios despite having medium to high per capita incomes.

On the other hand, states heavily dependent on ODA grants may be tempted to refrain from additional domestic revenue mobilisation – unless ODA conditions (such as co-financing schemes or tax collection targets) change the incentive structure, or longer-term political perspectives lead governments actively to seek independence from ODA inflows. There is a growing body of research on these issues, but findings are still inconclusive (Carter 2010).

The **third assumption** concerns the governance dimension of revenue mobilisation. A low tax yield is not always the outcome of some kind of error or defective governance. Different societies have different views on what states should do and how much they should cost. Of the OECD member countries, the USA and Japan stand out as having a rather low tax yield, whereas the Nordic countries are famous for their high tax ratio. Neither does our trend line necessarily represent the "golden middle" between under- and overtaxation, nor does every society aspire to become another Sweden or Denmark.

Consequently, we should distinguish between states that collect few taxes because citizens *want* to have a low tax ratio and those where other aspects may be more important than the political will of the citizens. Factors such as democratic participation, free and fair elections and regime stability determine the capacity of societies to reach political decisions based on the common interest, while such factors as administrative capacity, level of corruption and rule of law determine the capacity of public administrations to implement these policies.

Societies with low levels of governance are typically not in a position to choose and implement a tax system from a common interest perspective. Hence, in cases where low tax performance coincides with low levels of governance we find it hard to believe that the tax

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Tome and Principe, Qatar, United Arab Emirates, West Bank and Gaza, Zimbabwe), one of the two observations was missing. In these cases we took the remaining one.

ratio is the product of transparent, democratic decision-making and capable public administration. Rather, we would assume that in these cases some powerful groups are imposing a tax system according to their particular interests – or that they are successfully obstructing tax reform initiatives. In addition, we consider it easier in political terms to have a low tax ratio than a high one. We therefore assume lower levels of governance to be more conducive to lower tax ratios.

To summarise, states with a relatively low or diminishing tax performance in our analysis do not automatically qualify as "bad" or "defective" cases. It is possible that their tax ratio is low because they enjoy "easy" access to alternative sources of finance, or because societies have chosen to limit the range of state action. Besides this, tax performance may be shaped by specific conditions, such as natural disasters or violent conflicts (Everest-Phillips 2010, 76). Against this background, the TPA should not be seen as a single analytical tool. Rather, it is designed to put country-specific information in a broader context and to sharpen the comparative focus of aggregate analysis.

2.2 The data challenge

Gathering data on actual tax revenue collection in developing countries is still quite a difficult task. For one thing, the informal sector accounts for a significant part of the economic activity of many developing countries (Olken / Singhal 2009). This may lead to effective tax rates and the tax ratio being overstated (Aizenman / Jinjarak 2009, 668). Some states do not report GDP or revenue data at all. Various states have changed to accrual accounting, while many others still rely on cash accounting (though this difference is less relevant to revenue than to expenditure). Furthermore, data series often use different definitions of governments or different classifications of revenues – sometimes simultaneously and without prior explanation.

Levels of government: From the International Monetary Fund's Government Finance Statistics (IMF GFS), the standard source of information on public finances in developing countries, we take *general government* (GG) as the broadest category in terms of revenue statistics. It comprises central government (CG), state and local governments, social security funds and non-market non-profit institutions. However, quite a few countries (especially developing countries) report data only on CG (sometimes including social security funds), not on GG. As a result, most research papers that consider developing countries use CG data (see, for example, Teera / Hudson 2004; Gambaro / Meyer-Spasche / Rahman 2007).

For our purposes, however, this would not be appropriate, since we want to take account of all government revenues in as many countries as possible. Subnational levels are important tax collectors in some countries, especially in the higher-income group, although in most of the low- or lower-middle-income countries they play only a minor role: in 2008, the mean difference between GG and CG tax revenue among lower-middle-income countries was 1.31 per cent of GDP (in those 19 countries that report both data in IMF GFS), while in higher-income countries it was 5.76 per cent (27 countries). Thus, relying solely

on CG data would tilt our findings substantially "in favour" of the lower-income countries in our sample.[8]

Classification of revenues: The GFS distinguish four kinds of general government revenue: taxes, social contributions, grants and other revenues. "Grants" refer to grants from international organisations or governments of third countries. "Other revenues" refer to property income, sales of goods and services, fines, voluntary transfers and others. The lines between categories may be somewhat blurred, as countries interpret them differently. For instance, some countries (such as Australia) do not report social security contributions, since they treat them as taxes. Another challenge arises from differences in the treatment of revenues from extractive industries, which may appear as "taxes" in some cases and as "other revenues" in others.

Against this background we opt for a broad view of "tax revenue," taking it to cover taxes and social contributions. Again, omitting one of these sources would distort the overall picture of tax revenue. Social security contributions are hardly a relevant source of revenue in low-income countries, but it is obvious that social security is considered a public task in most countries with higher tax ratios. In Germany, for example, more than EUR 80 billion is transferred from the government budget to the public pension system each year. Omitting these revenues from our calculations would therefore not be justified.[9]

Data sources: For GDP per capita, we take data from the World Development Indicators. We consider GDP per capita in constant 2000 US dollars and GDP per capita in constant 2005 Purchasing Power Parity units (PPP). Both variables produce similar results (see Table 1 below). We consider constant 2000 US dollars to be more appropriate for our analysis, because (i) it is a more "neutral" indicator of levels of development (differences between constant US dollars and PPP already take account of differences in development levels due, for instance, to cheaper services in developing countries), (ii) the sample is slightly larger (177 compared to 174 countries) and (iii) the indicator appears to be more transparent, as determining PPP is in itself a complex operation and subject to debate.

For tax revenues, we take data from the following sources (ranked according to priority): (i) OECD, (ii) Eurostat, (iii) UN Economic Commission for Latin America and the Caribbean (ECLAC, or CEPAL for its Spanish name), (iv) IMF GFS GG, (v) IMF GFS CG, (vi) individual country data from IMF "Article IV consultation" and "selected issues" reports (for observation periods 1997–99 and 2001–03), (vii) Asian Development Bank, (viii) Collecting Taxes database. In the last two sources, the definition of tax revenue is often unclear. We found various cases where GG and CG data were used side by side, or where social contributions were treated incoherently.

8 Of course, including GG data for only a part of our sample (and CG data for the rest) also produces biased results, albeit on a much smaller scale. In our analysis we check for such bias by adjusting the tax revenue of those countries that report only CG with local tax revenue estimates, using data from Ivanyna / Shah (2010). See section 3.2 of this report.

9 To check for sample bias, we also consider tax revenue without social contributions. We find that the slope of the trend line changes, but there are few changes with regard to our three categories. See section 3.2 for more details.

Consequently, there are 189 countries in our sample for the construction of the trend line (see Table 1). GDP per capita is available for only 177 of these countries, but the missing data mostly concern small countries and territories in the Pacific Ocean and the Caribbean.

Table 1: Tax ratio and log GDP per capita – descriptive statistics

Name	Data source	N obs.	Mean	St.dev	Min	Max
tax revenue	**final**	**189**	**23.04**	**10.77**	**.9**	**56.76**
-"-	OECD	30	35.59	7.12	19.2	48.48
-"-	Eurostat	30	37.84	5.72	28.9	49.45
-"-	CEPAL, GG	7	26.15	10.43	10.9	42.35
-"-	IMF GFS, GG	71	31.11	11.57	0.9	71.2
-"-	CEPAL, CG	20	17.07	4.5	9.85	26.46
-"-	IMF GFS CG	102	24.22	10.65	.9	70.29
-"-	ASDB	40	18.51	3.95	8.3	22.72
-"-	ColTax	189	20.09	9.13	.9	51.73
tax rev., no soc. contr.	all above	189	20.27	8.75	2.69	60.44
tax rev., adjusted	all above, Ivanyna and Shah (2010)	189	23.07	10.69	0.9	56.76
GDP/capita, USD	thousands, WDI	185	8.69	13.22	.1	77.88
GDP/capita, PPP	thousands, WDI	177	12.28	13.79	.29	73.03

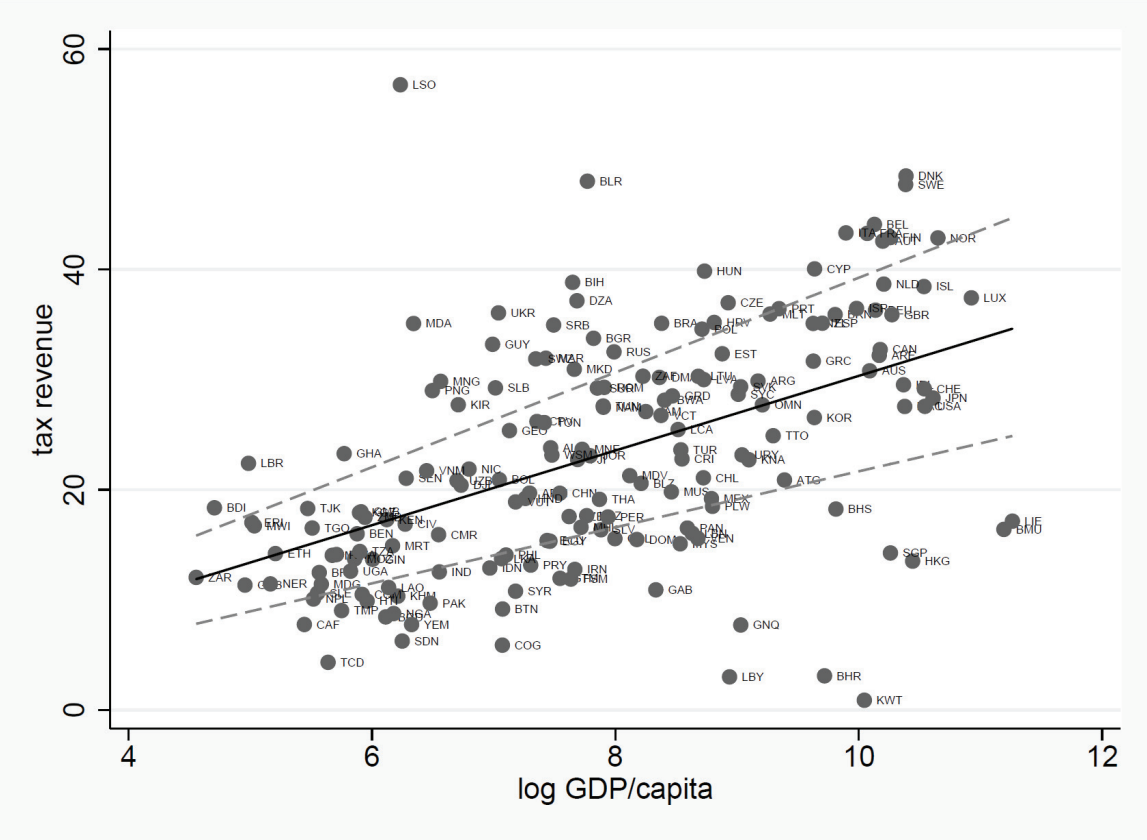
Note Abbreviations: GG – general government; CG – central government; OECD – Organisation for Economic Co-operation and Development; CEPAL/ECLAC – UN Economic Commission for Latin America and the Caribbean; IMF GFS – International Monetary Fund's Government Finance Statistics; AsDB – Asian Development Bank; ColTax – Collecting Taxes. For all sources, tax revenue is for general government (unless otherwise specified), with social contributions included, average of 2007 and 2008, in per cent of GDP. AsDB and ColTax do not specify their definitions. GDP/capita, USD – GDP per capita in constant 2000 US dollars, thousands, average of 2007 and 2008. GDP/capita, PPP – GDP per capita in constant 2005 PPP units, thousands, average of 2007 and 2008.

3 Results of the analysis

3.1 Classification of countries

Figure 1 shows a scatter plot of tax ratio (tax revenue as per cent of GDP) versus log GDP per capita for 177 countries.[10] Table 2 contains the results of the regression analysis. The relationship between tax ratio and log GDP per capita is statistically significant, even though the effect is rather small: in statistical terms, an increase of 10 per cent in log GDP per capita would increase the tax ratio by about 0.34 additional percentage points.

Figure 1: Relation between tax ratio and log GDP per capita



Note X-axis: tax revenue in per cent of GDP (= tax ratio), 2007/08. Y-axis: log GDP per capita in constant 2000 US dollars as of 2008. Data see Table 1. The solid black line is the trend line (fitted values). The broken grey lines are the lower and upper boundaries of the 95 per cent confidence interval, i. e. there is a 95 per cent probability that the "real" trend line is located within the range marked by the broken lines. N=177.

10 See Table 14 in the annex for a list of ISO country codes.

Table 2: Tax ratio and log GDP per capita – regressions

Variable	(I)	(II)
log GDP/capita	3.42***	4.6***
	(.45)	(.55)
N obs.	177	174
R^2	.27	.3

Note *** – significant at 1 per cent level. Dependent variable: tax ratio as defined in Table 1. Right-hand side variable: column (I) – log GDP/capita, constant 2000 USD; column (II) – log GDP/capita, constant 2005 PPP – see definitions in Table 1. Estimation method: OLS. Standard errors are heteroscedasticity-robust.

With the approach we have chosen, 36 of 177 countries qualify as high tax performers, whereas 41 countries fall into the low tax performing category. The remaining 100 countries are average performers. Table 3 is a list of low and high tax performers,[11] while Figure 2 shows the results on a global map of tax performance.

We propose to call those countries whose tax ratio lies within the 95 per cent confidence interval of the trend (or regression) line (i) *average tax performers*,[12] countries with a tax ratio above the 95 per cent confidence interval (ii) *high tax performers* and those with a tax ratio below the 95 per cent confidence interval (iii) *low tax performers*.[13]

The results of our analysis reveal some regional patterns. As can be seen from the map, many Latin America and Caribbean countries find themselves below the trend line, with Guatemala, Venezuela, Paraguay, Panama, the Dominican Republic and Colombia in the group of low tax performers. The only high tax performers in this region are Brazil and Guyana. Another part of the world where tax performance is particularly low is South and Southeast Asia. Bangladesh, Pakistan, Malaysia, Cambodia, Indonesia, Laos, Sri Lanka, India, Nepal and the Philippines are among the low performers. In this part of the world, high tax performers are virtually absent (Papua New Guinea and a few small island states are exceptions).

11 See Table 13 (Annex) for a list of all countries ranked according to their distance from the trend line.

12 In addition, average tax performers can be distinguished as a function of their location above (average-high) or below (average-low) the trend line.

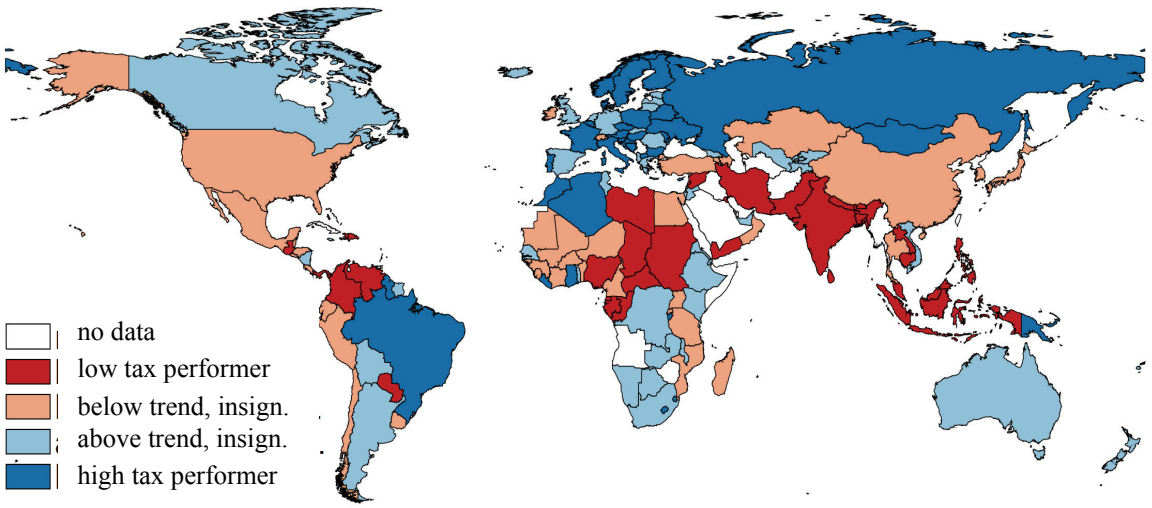
13 There are, of course, other possible ways to set the boundaries, such as raising or lowering the confidence interval or defining absolute values (for instance, ± 5 per cent tax ratio). We consider the confidence interval a more appropriate measure than absolute values, because a specific variation in tax ratio means something different for countries with lower levels of tax revenue as against countries with higher levels. Low-income Burundi is therefore classified as a high tax performer with a tax ratio 6.01 per cent GDP above the trend line, whereas high-income Malta, 7.98 per cent distant from the trend line, is an average tax performer. See Figure 1, Table 13 (Annex). Furthermore, changing the confidence interval to, say, 90 per cent or 99 per cent would make our classification rather useless, since the vast majority of countries would fall outside or in the average tax performer category.

Table 3: Low and high tax performers

low performers		high performers	
country	res. less lb	country	res. less ub
Kuwait	-20.89	Portugal	0.01
Bahrain	-17.85	Slovenia	0.64
Libya	-15.96	Norway	0.81
Equatorial Guinea	-11.48	Poland	0.87
Hong Kong, China	-9.28	Croatia	1.05
Congo, Rep.	-8.33	Macedonia	1.75
Bermuda	-8.3	Burundi	1.88
Singapore	-8.07	Russian Federation	1.92
Liechtenstein	-7.74	Ghana	2.21
Gabon	-6.52	Czech Republic	2.34
Chad	-6.25	Cyprus	2.36
Sudan	-5.87	Austria	2.47
Bhutan	-5.06	Finland	2.53
Yemen	-4.57	Kiribati	2.62
Micronesia, Fed. Sts.	-3.76	Brazil	2.83
Syrian Arab Republic	-3.71	Solomon Islands	2.84
Guatemala	-3.47	France	3.72
Bangladesh	-3.33	Morocco	3.75
Nigeria	-3.19	Bulgaria	3.87
Pakistan	-3.01	Swaziland	4.04
Iran, Islamic Rep.	-2.97	Belgium	4.28
Bahamas, The	-2.95	Italy	4.52
Malaysia	-2.85	Liberia	4.71
Venezuela	-2.73	Papua New Guinea	4.82
Central African Republic	-2.32	Mongolia	5.37
Lebanon	-2.15	Hungary	6.05
Timor-Leste	-1.83	Serbia	6.49
Cambodia	-1.7	Sweden	6.8
Paraguay	-1.66	Guyana	6.89
Panama	-1.57	Denmark	7.56
Dominican Republic	-1.55	Algeria	7.86
Haiti	-1.5	Ukraine	9.53
Indonesia	-1.07	Bosnia and Herzegovina	9.69
Colombia	-1.01	Moldova	11.57
Comoros	-0.8	Belarus	18.34
Lao PDR	-0.73	Lesotho	33.71
Sri Lanka	-0.46		
India	-0.37		
Philippines	-0.23		
Nepal	-0.2		
Palau	-0.12		

Note Based on the estimation (I) from Table 2, res. less lb – residual from the regression less lower boundary of the 95 per cent confidence interval, res. less ub – residual from the regression less upper boundary of the 95 per cent confidence interval. The countries are sorted according to their distance from the lower (left column) or upper (right column) boundary of the 95 per cent confidence interval.

Figure 2: Tax performance in the world



Source: Data as presented in Figure 1.

In contrast, Africa shows some mixed results, with countries such as Ghana, Burundi, Liberia, Morocco and Algeria being among the high tax performers, while various Central African countries (such as Chad, Sudan, the Central African Republic and Nigeria) count as low tax performers. Finally, average-high and high tax performance predominate in Western Europe and in many formerly socialist states of Eastern Europe and the former Soviet Union. The most important high-income countries with tax ratios below the trend line (but still within the 95 per cent confidence interval) are the USA, Japan, Ireland and Switzerland.

3.2 Robustness checks and specifications

We performed several robustness checks and looked for alternative specifications of our main variables, GDP per capita and tax revenues (see Table 4). None of these exercises led to substantially different results.

Sensitivity to outliers: As Figure 1 and Table 3 show, Lesotho is an exceptional tax performer, yet with a relatively low level of development. It derives 50 per cent of its tax revenues from the Southern Africa Customs Union, which may not be directly related to Lesotho's own tax effort. Nonetheless, an outlier of this kind may skew the results of the whole regression. Similarly, the oil states Kuwait, Bahrain and Libya are clearly outliers in terms of low tax collection. We therefore repeated the analysis without Lesotho and the other three countries. The results of the two calculations are presented in columns (i) and (ii) of Table 4. In both cases there are only minor differences in the resulting lists, with four countries changing categories in the first exercise and seven countries in the second.

Alternative functional forms: In our main specification we take the logarithm of GDP per capita as a proxy for a country's development. Alternatively, level data or GDP per capita squared (columns (iii) and (iv) of Table 4) can be used.[14] All coefficients remain highly significant, even though the data explain less variation in tax revenue (R^2 is higher when log GDP per capita is used). This results in much broader lists of low and high tax performing countries. Yet the "leaders" of the lists do not change compared to our main specification.

Table 4: Tax ratio and log GDP per capita – alternative specifications

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
log GDP/capita	3.56***	3.73***			2.03***	3.28***
	(.43)	(.42)			(.36)	(.45)
GDP/capita			.29***	.93***		
			(.1)	(.13)		
GDP/capita^2				-.01***		
				(.00)		
N obs.	176	174	177	177	177	178
R^2	.31	.33	.12	.25	.14	.24
out, low tax perf.	NPL	none	none	LIE, BMU	PHL, DOM, LBN, LKA, BHS, PLW	COL, IND, PHL
in, low tax perf.	SLV	MEX, ATG, MHL, SLV, EGY, ECU	45 countries	43 countries	CRI, MDG, GRC, SLE, SLV, ECU	none
out, high tax perf.	none	PRT	none	FIN, NOR, AUT	18 countries (Europe)	none
in, high tax perf.	ERI, MLT	none	39 countries	33 countries	15 countries	none

Note Column (i): regression excluding Lesotho. Column (ii): regression excluding Kuwait, Bahrain, Libya. Column (iii): GDP/capita instead of log GDP/capita. Column (iv): GDP/capita squared. Column (v): tax ratio excluding social contributions. Column (vi): local tax revenue added for countries with only CG data. *** – significant at 1 per cent level. Dependent variable: columns (i), (ii), (iii), (iv) – tax ratio as defined in Table 1; column (v) – tax rev. no soc. contr., see Table 1 for definition; column (vi) – tax ratio, adjusted, see Table 1 for definition. GDP/capita is in constant 2000 USD, see definition in Table 1. Estimation method: all columns – OLS. Standard errors are heteroscedasticity-robust in all columns. In/out comparison is with the lists in Table 3.

Alternative tax revenue measures: A broad definition of tax revenue was introduced above, covering general government information (where available) and including social security contributions. There are, however, alternative approaches: (i) a first option would be to use tax revenue without taking social contributions into account, while (ii) a second

14 We also ran several semiparametric spline-models to check for more complex non-linear relationships and found that our log-linear model fits the data best.

option would consist in adjusting for local tax revenue in those countries which report only CG data (columns (v) and (vi) of Table 4).

(i) In the first case (excluding social contributions) the trend line becomes flatter, as expected, since many high-income countries rely heavily on social contributions, whereas many developing countries do not report social contributions at all. As a result, many European countries drop out of the group of high tax performers, to be replaced by countries with lesser reliance on (or different treatment of) social contributions (for example, Botswana, Namibia, Georgia, Iceland and Malta). At the same time, the list of low tax performing countries changes only slightly: the Philippines, the Dominican Republic, Lebanon, Sri Lanka, the Bahamas and Palau would move into the average performers group, whereas Costa Rica, Madagascar, Greece, Sierra Leone, El Salvador and Ecuador would join the low tax performers group.

(ii) The second alternative is to adjust the tax ratio for local tax revenue in the case of those countries that report only CG data. Non-reporting of GG data is clearly skewed towards lower income countries.[15] But is the difference between CG and GG relevant to them?

— Data from Ivanyna / Shah (2010) reveal that, in 2005, the average subnational government (SNG) expenditures of the countries that report GG data was 23.7 per cent of total expenditures (which are comparable to total revenue). For countries that report only CG data, the figure is 9.7 per cent, and for countries whose data we derive from AsDB or ColTax, it is 9.6 per cent.

— Subnational tax revenues are typically much lower than expenditures, especially in the case of the poorer countries. Ivanyna / Shah (2010) have estimated the *vertical gap* – the difference between a country's SNG expenditures and own SNG revenues (excluding intergovernmental transfers). According to these estimates, SNG in countries which report GG finance 56 per cent of their expenditures with own revenues. SNG in "CG only" countries finance 57 per cent, and SNG in "AsDB and ColTax" countries finance 49 per cent.

— To give an example, the average tax revenue of "CG only" countries in our sample was 16.3 per cent of GDP in 2007/2008. If their presumed GG tax revenues were comparable to the GG expenditures reported by Ivanyna / Shah (2010), local government in an average "CG only" country would collect 9.7 per cent $*$ 0.57 = 5.5 per cent of GG tax revenues. This means that, by using CG data, we are underestimating the actual GG tax revenue for an average "CG only" country by 16.3 per cent $*$ 0.055 = 0.9 per cent. Even OECD and Eurostat data often differ by more than 0.9 per cent.

As expected, the results of the regression with the "adjusted" data are practically the same as in the main specification (even the point estimates are very close). Colombia and the Philippines change their position marginally (from "close to average" low tax performers to "close to low" average tax performers). Yet there is one major change: India makes a significant leap from the low to the average tax performing group: as a federal state, it has a much higher degree of fiscal decentralisation than other developing countries. However, since the data we use in this exercise stem from 2005 and earlier, and there is no direct

15 Of the 113 countries in the sample (excluding AsDB and ColTax sources), 35 report only CG data. Higher-income countries: 2 of 37; upper-middle-income countries: 4 of 23; lower-middle- and lower-income countries: 29 of 53.

measure of local tax revenue for CG states, we do not use this adjustment in the main specification.

Different effects in different income groups: Is the relationship between tax ratio and level of development different in poorer countries from that in richer countries? To answer this question we split the sample in two: countries with lower GDP per capita (less than the median) and countries with higher GDP per capita (more than the median) (see Table 5). We find that the slope is flatter for richer countries (the point estimates are economically different), which is not surprising, given that we use logged GDP. Yet the difference is not significant in statistical terms (at a 5 per cent significance level).

Table 5: Tax ratio and log GDP per capita – poor vs rich countries

Variable	(i)	(ii)	(iii)
log GDP/capita	4.38***	3.43***	
	(.93)	(1.21)	
high income			16.25***
			(1.8)
upper middle income			11.01***
			(1.46)
lower middle income			6.8***
			(1.64)
N obs.	91	85	189
R^2	.16	.09	.31

Note *** – significant at 1 per cent level. Dependent variable: tax ratio as defined in Table 1. Right-hand side variables: columns (i) and (ii) – log GDP/capita, USD; column (iii) – dummies for countries' income groups as classified by the World Bank. Estimation method: OLS. Standard errors are heteroscedasticity-robust.

A second way of identifying non-linearities in the relationship between tax ratio and income is to regress the tax ratio on income group dummies as classified by the World Bank (see column (iii) of Table 5). The group of low-income countries is chosen as the baseline. The biggest jump is from the low-income to the lower-middle-income group, after which the relationship flattens and then jumps again from upper-middle-income to high-income countries. This pattern supports our choice of log GDP per capita as a proxy for economic development (since it also assumes non-linearity between income and tax ratio of roughly the same kind).

3.3 Tax performance: changes over time

Also of interest to our paper are changes in tax performance over time. The sample includes 1905 observations for tax revenue in the period 1997–2008. There is at least one non-missing observation in 193 countries, 10 being the average number of available time observations for a country. Most of the missing observations are in sub-Saharan African and small Caribbean countries. In general terms, data show that tax revenue is increasing slightly over time, in line with GDP per capita, which is consistent with our story (see Table 6).

Table 6: Tax revenue data patterns by year

year	total	by region							by income				tax rev.	gdp cap.	gdp cap.*
		1	2	3	4	5	6	7	1	2	3	4			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1997	152	7	41	16	33	24	29	2	42	35	38	37	20.04	6.46	7.08
1998	153	7	41	16	35	23	29	2	42	34	38	39	19.51	6.8	7.13
1999	157	7	42	16	37	23	30	2	42	36	39	40	19.7	6.94	7.2
2000	149	7	42	12	33	23	30	2	40	36	39	34	20.44	7.37	7.59
2001	155	7	43	12	37	24	30	2	41	36	39	39	20.41	7.26	7.38
2002	157	7	45	13	35	24	31	2	42	36	42	37	20.88	7.28	7.45
2003	158	8	46	12	33	26	31	2	43	36	43	36	21.71	7.45	7.61
2004	156	8	46	13	31	25	31	2	44	35	42	35	22.22	7.79	8.11
2005	153	8	47	14	29	24	29	2	44	34	43	32	23.41	8.07	8.35
2006	151	8	47	13	27	25	29	2	44	35	41	31	24.04	8.46	8.83
2007	179	8	48	15	43	31	31	3	45	44	46	43	23.23	8.65	8.23
2008	185	8	50	17	43	33	31	3	47	47	45	45	22.92	7.08	7.25

Note Columns 2–13 – number of observations for groups of countries. Column 14 – mean tax revenue as per cent of GDP. Column 15 – mean GDP/capita (thousands of constant 2000 US dollars) for all observations. Column 16 – mean GDP/capita when tax revenue is available. Regions: 1– South Asia, 2 – Europe and Central Asia, 3 – Middle East and North Africa, 4 – Sub–Saharan Africa, 5 – Latin America and Caribbean, 6 – East Asia and Pacific, 7 – North America. Income groups: 1 – high income, 2 – upper middle income, 3 – lower middle income, 4 – low income. Countries are classified in accordance with the World Bank.

Souce: Data as presented in Table 1.

Poor countries are underrepresented in the sample in the earlier observation periods, as the higher figures in column (16) compared to column (15) reveal. This raises concerns about sample selection and the possibility of comparing the relative tax performance of a country over time: If the samples of the previous observation periods were qualitatively different from 2007–08, a country's change in position vis-à-vis the trend line could be due to sample selection rather than its own development (not even relative to the other countries).

However, the fact that the missing observations before 2007 mostly concern poor countries does not necessarily mean that those countries are low tax performers. It is impossible, of course, to test this directly (since the relevant data are the data that are missing), but there are some indirect checks (see Table 7). For instance, we checked for such variables as lead selection indicator and the number of years that a country *i* reports tax revenue. We also reran the main regression for our 2007–08 sample, but excluded those countries which did not report in 2006. Finally, we assumed that there was indeed a sample selection problem, and reformulated our main specification with only those countries that reported data in 1997–99 as well as in 2001–03 (158 countries, not shown in Table 7). None of our tests produced results significantly different from our original argument, which means that there is no evidence of sample selection.

Table 7: Tax ratio and log GDP per capita – testing for sample selection

Variable	(i)	(ii)	(iii)
log GDP/capita	4.12***	4.14***	4.06***
	(.13)	(.16)	(.5)
lead s_{it}	.89		
	(1.01)		
# of non-miss. obs.		.00	
		(.06)	
N obs.	1838	1838	136
R^2	.37	.37	.33

Note *** – significant at 1 per cent level. Dependent variable: in all columns tax ratio as defined in Table 1. Sample used: columns (i) and (ii) – all observations; column (iii) – 2008, excluding countries which did not report tax revenue in 2006. Right-hand side variables: log GDP/capita, USD; s_{it} – selection indicator, 1 if r_{it} is non-missing, 0 if r_{it} is missing, where r_{it} is tax ratio for a country *i* in a year or group of years *t*. Estimation method: OLS. Standard errors are heteroscedasticity-robust.

Table 8 contains the results from the regression analysis, and Figure 3 shows the scatter plots for 1997–99 and 2001–03. In both cases, the trend line is steeper than in 2007–08 (even though statistically the difference is small).

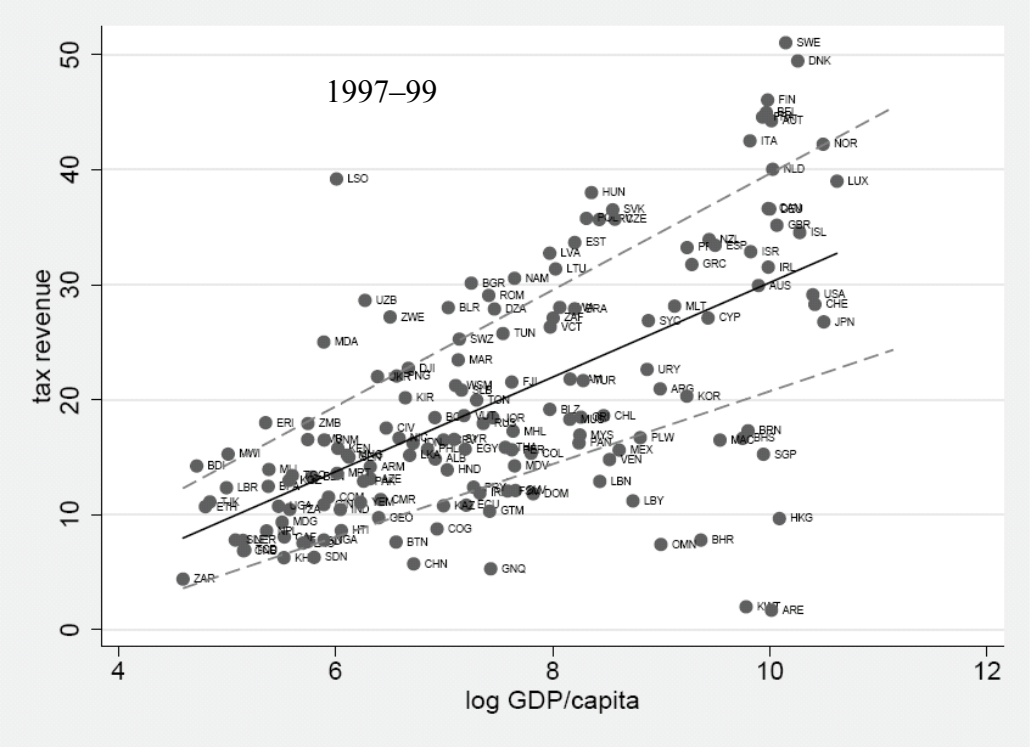
Table 8: Tax ratio and log GDP per capita – 1997–99 and 2001–03

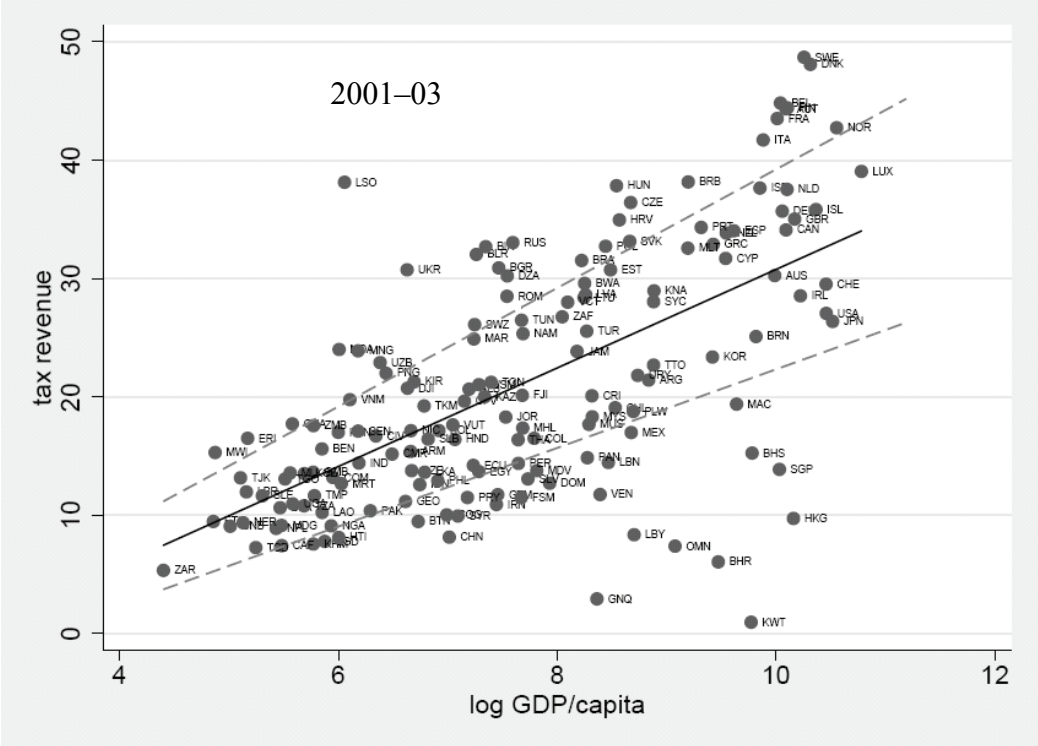
Variable	(i)	(ii)
log GDP/capita	4.11***	4.16***
	(.48)	(.43)
LR on selection stage	.17	.04
N obs.	158	158
R^2	.38	.40

Note Column (i) – years 1997–99. Column (ii) – years 2001–03. *** – significant at 1 per cent level. Dependent variable: tax ratio as defined in Table 1. Right hand side variable – log GDP/capita, USD. Estimation method: OLS with inverse probability weighting based on log GDP/capita, USD. LR – likelihood ratio. Standard errors are heteroscedasticity-robust.

Table 9 summarises the changes of category for each period compared to 2007–08. As can be seen, a total of 53 countries changed categories between 1997–99 and 2007–08. Of these, 32 registered a downward trend, with 21 moving from average to low and 11 from high to average tax performance. In contrast, 21 countries improved their relative position, with 11 moving from low to average and another 10 from average to high tax performance. Again, these changes do not necessarily imply an increased effort to collect taxes (or the lack of it) in each individual case. In the growth period from 2003 to 2008 in particular, global economic activity helped many countries to improve their domestic revenue collection without any major intervention in the area of tax policy or administration. Some countries may have benefited more from this situation than others.

Figure 3: Relationship between tax ratio and log GDP per capita, 1997–99 and 2001–03





Note On the left, scatter plot for 1997–99. On the right, scatter plot for 2001–03. N = 158. For each sub-figure, X-axis: tax revenue in per cent of GDP (= tax ratio) as defined in Table 1. Y-axis: log GDP per capita in constant 2000 US dollars for the corresponding period. Data presented as in Table 6.

Table 9: Tax performance progress matrix: 1997–99 and 2001–03 vs 2007–08

	low tax perf. 2007-08	average tax perf. 2007-08	high tax perf. 2007-08
low tax perf. 1997-99	SGP, DOM, LBN, BTN, COG, URY, GTM, BHR, IRN, VEN, KWT, HKG, BHS, LBY, GNQ, FSM, PLW, KHM, SDN	ECU, MEX, SLV, ARE, CHN, MAC, BRN, OMN, KAZ	none
average tax perf. 1997-99	PRY, PAN, COL, YEM, PAK, BGD, NPL, MYS, PHL, SYR, IND, FSM, LAO, HTI, IDN, LKA, TCD, CAF, COM, NGA	71 countries	BRA, MAR, MNG, CYP, SLB, PRT, LBR, KIR, PNG, RUS
high tax perf. 1997-99	-	SVK, LTU, EST, UZB, NAM, LVA, ROM, ERI, MWI, NLD	21 countries

	low tax perf. 2007-08	average tax perf. 2007-08	high tax perf. 2007-08
low tax perf. 2001-03	KWT, BHR, PAN, IRN, COG, HKG, BTN, FSM, BGD, HTI, VEN, DOM, KHM, GTM, LBN, URY, SGP, GNQ, SYR, LBY, BHS	CHN, OMN, MEX, MAC, SLV, MDV, PER	-
average tax perf. 2001-03	TMP, PAK, LKA, PLW, NPL, PHL, MYS, COL, IDN, IND, LAO, COM, NGA, TCD, CAF	76 countries	LBR, SLB, CYP, KIR, PRT, MAR
high tax perf. 2001-03	-	MWI, VNM, SVK, ERI, UZB, ROM	26 countries

Source: Data as presented in Figure 3

As a result, several countries changed their relative position in the world distribution of tax performance, but not their absolute performance: Nepal, the Central African Republic, Eritrea, Malawi and Haiti increased their tax ratio over time without positive changes in GDP/capita and yet ended up in the low performing group. These countries did make progress in tax collection, but not as fast as the world average. With less certainty, the same can be said of Sri Lanka, the Philippines, Indonesia, Vietnam, Romania, Bangladesh and Cambodia.

Some regional patterns are also worth mentioning. For instance, among those who improved their performance are two transformation countries in Eastern Europe and Central Asia: Kazakhstan and Russia. On the other hand, six countries in that region changed to lower categories (Slovak Republic, the Baltic States, Romania and Uzbekistan).

Many South and Southeast Asian countries also lost ground and moved to the low tax performers' group, examples being Nepal, Pakistan, Bangladesh, Laos, the Philippines, Indonesia, India, Sri Lanka and Vietnam. An important exception is China, which changed

from low to average performance. Similarly, nine sub-Saharan African countries moved to lower categories (e. g. Chad, the Central African Republic, Nigeria, Malawi and Namibia), while Liberia alone changed from average to high performance.

In Latin America and the Caribbean, three countries moved from average to low tax performance (Paraguay, Haiti and Colombia), while four (Ecuador, Mexico, Peru and El Salvador) changed from low to average and one (Brazil) from average to high performance.[16] In the Middle East / North Africa (MENA) region, three countries managed to move to higher categories (the United Arab Emirates, Morocco and Oman), while Syria and Yemen joined the low performance group.

An increase in non-tax revenue could have been a major reason for the decline in the tax performance of Malaysia, Colombia and Vietnam. The Central African Republic, Malawi and Haiti experienced significant increases in ODA grant inflows in the period considered, which could be an indicator of the substitution of foreign aid for tax effort in these countries. For the remaining countries changes in ODA grants (in per cent of GDP) were either insignificant or even negative.

3.4 Tax performance: some stylised facts

In this section we take a closer look at the various tax performance groups. Figure 4 compares the mean scores achieved by low, average and high tax performing countries (within each graph) broken down into income groups (different graphs), relating them to four categories:

(i) public finance (tax ratio, total revenue, public expenditure); (ii) alternative sources of financing (non-tax revenue, ODA grants, net flow of external debt); (iii) governance (Polity IV democracy and regime durability indices, World Governance Indicators (WGI) Voice and Accountability and Government Effectiveness Indices); and (iv) special circumstances (battle-related deaths, displaced persons).

In Table 10 we present the results of regressions on the above-mentioned indicators, where the dependent variables are GDP per capita and a dummy equal to 1 if a country is a low tax performer. The results are generally consistent with Figure 4. Low tax performers have significantly lower total revenue and total expenditure (columns (i) and (ii)). Furthermore, their governments are less democratic and less effective (columns (v), (vii) and (viii)). Yet in terms of population size, regime durability, foreign aid or indebtedness they are not statistically different from the rest of the world.

16 It should be noted, however, that many sub-Saharan African and smaller Caribbean states could not be included in the analysis because of the lack of data.

Figure 4: Groups of tax performers, stylised facts

Note Depicted are mean values by tax performance group (within each graph) and income group (different graphs). First row: *taxes* – tax revenue, per cent GDP; *revenue, expense* – GG revenue and expenditure, per cent GDP (sources – see Table 1). Second row: *non-tax revenue* – GG revenue minus tax revenue, per cent GDP (source as for tax revenue), *oda grants* – ODA grants + other grants to government (GG), per cent GDP (sources – OECD, IMF GFS); *ext. debt flow* – net public and publicly guaranteed external borrowing, per cent GDP (source – WDI). Third row: *polity* – POLITY2 index of democracy (source – Polity IV project); *durab.* – durability of regime, years (source – Polity IV project); *WGI v&a* – Voice and Accountability Index*10 (source – WGI); *WGI gov.eff.* – government effectiveness index*10 (source – WGI). Fourth row: *displaced popul.* – internally displaced persons, per cent total pop. (source – WDI); *deaths in battle* – battle-related deaths, per cent pop.*1000 (source – WDI). All figures are averages of 2007–2008. Number of countries in each group: high income – 44 (low tax performance – 7, average – 25, high – 12); upper-middle income – 44 (low – 8, average – 27, high – 9); lower–middle income – 45 (low – 14, average – 21, high – 10); low income – 42 (low – 11, average – 27, high – 4)

Table 10: Low tax performers vs the rest of the world: regressions

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
dep. variable	rev	exp	debt flow	grants	pol	dur
GDP/capita	0.290***	0.252***	0.257*	-0.327***	0.160***	2.294***
	(0.110)	(0.0908)	(0.090)	(0.068)	(0.039)	(0.342)
1 if low tax perf.	-7.215**	-8.182***	0.101	-2.054	-3.062**	-0.227
	(3.733)	(2.318)	(0.581)	(2.306)	(1.2239)	(3.49)
N obs.	158	159	120	163	147	148
R^2	0.099	0.125	0.032	0.064	0.138	0.537
	(vii)	(viii)	(ix)	(x)	(xi)	(xii)
dep. variable	v&a	gov eff	pop	gdp	deaths	displ pop
GDP/capita	0.039***	0.0569***	-0.410	24.49*	-1.34e-05	-0.0137***
	(0.0042)	(0.00734)	(0.546)	(14.20)	(1.11e-05)	(0.00370)
1 if low tax perf.	-0.685***	-0.500***	27.95	-208.5*	0.00127	0.343
	(0.135)	(0.130)	(30.45)	(115.6)	(0.000981)	(0.242)
N obs.	171	171	173	173	172	176
R^2	0.373	0.609	0.009	0.104	0.032	0.038

Note * – significant at 10 per cent level, ** – significant at 5 per cent level, ***– significant at 1 per cent level. Years analysed in all regressions – 2007–08. See Figure 4 for definitions of dependent variables. Right-hand side variables – GDP/ capita, thousands USD and dummy equal to 1 if a country is low tax performer (see Table 1 for the list). Estimation method in all regressions: OLS. Standard errors are heteroscedasticity-robust.

Several facts are worth noting:

— As non-tax revenue, which includes property income, is higher for low tax performers in all income groups, the lack of tax revenue is *partly* offset by alternative sources of financing. However, non-tax revenue does not *fully* offset low tax revenue: total revenues and total expenditures are lower in low tax performing countries than in the other two categories, even though low tax performers from the upper-middle income group spend more and low tax performers from the lower-middle income group obtain more revenues than average tax performers.

— As regards the other sources of financing, it appears that low tax performers do not receive much foreign aid (ODA grants) or have much access to external borrowing. In contrast, average or high tax performing low-income countries clearly receive more aid and also, in the case of the four high tax performers, more loans from the international community. The stock of external debt also shows them to be far more indebted (see Table 11).

— According to the Polity IV and the WGI Voice and Accountability indicator sets, governments are less democratic in low tax performing countries, regardless of income group., They also tend to be less effective (as measured on the WGI Government Effectiveness index), although the difference appears to be smaller. No clear pattern of regime durability emerges.

— In general terms, low tax performers also have a higher death toll in armed conflicts and a larger number of displaced persons. This is especially true of the lower-middle-income and low-income group, indicating that low tax performance may also be related to special circumstances, such as violent conflicts or natural disasters, and not only to low tax effort in the specific meaning discussed above.

Table 11: Low tax performers: General information and public finance

	general info			public finance					
country	gdp/ cap	reg	inc gr	tax	rev	exp	gr's	debt flow	debt stock
Bahamas, The	18.3	5	1	18.3	20.3	19.9	.0		
Bahrain	16.6	3	1	3.1	29.7	29.9			
Bangladesh	.5	1	4	8.5	11.0	10.5	2.1	1.0	20.2
Bermuda	72.6	7	1	16.4					
Bhutan	1.2	1	3	9.2	19.6	29.4	6.3	2.7	55.5
Cambodia	.5	6	4	10.4	12.3	14.1	6.0	.2	35.1
Centr. Afr. Rep.	.2	4	4	7.8	14.1	13.0	11.9	1.8	38.6
Chad	.3	4	4	4.3	26.5	16.8	5.4	.9	13.9
Colombia	3.0	5	3	15.6	23.9	24.7	.4	1.1	20.1
Comoros	.4	4	4	10.5	22.0	22.0	8.6	2.2	38.4
Congo, Rep.	1.2	4	3	5.9	46.0	28.0	3.3	.4	56.4
Dominican Rep.	3.6	5	3	15.5	17.0	17.2	.5	1.7	22.6
Equatorial Guinea	8.4	4	1	7.7	41.5	20.9	.3		
Gabon	4.2	4	2	10.9	30.3	19.5	.6	11.0	35.5
Guatemala	1.9	5	3	12	12.4	12.1	1.5	.9	27.8
Haiti	.4	5	4	9.9	10.2	11.6	10.2	.4	15.3
Hong Kong, China	34.3	6	1	13.5	20.7	17.9	.0		
India	.7	1	3	12.5	14.7	15.9	.1	1.0	17.5
Indonesia	1.1	6	3	12.9	18.9	19.5	.3	1.3	31.4
Iran	2.1	3	3	12.7	32.0	20.6	.0	.7	6.4
Kuwait	23.1	3	1	.9	48.3	32.0	.0		
Lao PDR	.5	6	4	11.3	14.8	14.6	6.2	.8	63.5
Lebanon	5.6	3	2	16	22.7	31.4	2.6	10.4	90.6
Libya	7.6	3	2	3.0	64.1	33.8	.0		
Liechtenstein	77.9	2		17.2	17.8	20.5			
Malaysia	5.1	6	2	15.1	21.7	25.7	.0	1.3	28.0
Micronesia, FS	2.1	6	2	11.9	22.2	63.7	39.8		
Nepal	.2	1	4	10.1	14.4	16.6	5.8	1.1	18.6
Nigeria	.5	4	4	8.8	27.8	27.1	.7	.3	4.8
Pakistan	.7	1	4	9.7	14.1	17.2	.8	.8	22.4
Palau	6.6	6	2	18.5	23.2	59.0	18.7		
Panama	5.4	5	2	16.3	19.6	18.9	.3	2.4	50.6
Paraguay	1.5	5	3	17.9	21.2	17.3	.9	1.6	25.9
Philippines	1.2	6	3	14.1	15.8	17.1	.3	2.0	40.5
Singapore	28.6	6	1	14.2	21.3	14.3	.0		
Sri Lanka	1.2	1	3	13.8	16.1	19.6	1.6	1.7	32.3
Sudan	.5	4	3	6.3	22.9	25.3	4.2	.5	63.4
Syria	1.3	3	3	10.8	16.4	23.9	.6		
Timor-Leste	.3	6	3	9.0	147.2	50.6	62.8		
Venezuela	5.9	5	2	15.6	26.8	25.8	.0	.8	18.7
Yemen	.6	3	4	7.8	23.4	35.3	1.1	.5	17.0

Note Columns: gdp/cap – GDP per capita, thousands of constant US 2002 dollars (source – WDI); reg – region code and inc gr – income group, as classified by the World Bank (see definitions in Table 6); tax – tax revenue, per cent GDP (source – see Table 1); rev, exp – total government (GG) revenue and expenditure, per cent GDP (sources – same as tax); gr's – ODA grants + other grants to government (GG), per cent GDP (sources – OECD, IMF's GFS); debt flow – public and publicly guaranteed external borrowing, per cent GDP (source – WDI); debt stock – present value of total external debt, per cent GDP (source – WDI). All figures are averages of 2007–2008.

3.5 Alternative sources of revenue

As pointed out in Section 2, governments finance some of their expenditures from sources of revenue other than taxation. Major alternative sources are property income, which also includes dividends and withdrawal of profits from state enterprises, and grants from foreign governments and international organisations. ODA grants include direct transfers to governments, transfers to other stakeholders and the writing-off of debts. They may serve as substitutes for domestic revenue mobilisation either through direct budget support or through a reduction in expenditure needs for programmes directly funded with ODA. In addition, governments may engage in borrowing to raise funds. Our aim in this section is to explore whether low tax performers use alternative sources of revenue and what sources they "specialise" in. Information on low tax performers is summarised in Table 11.

In 2007–08 only five of 41 low tax performers – Timor-Leste, Libya, Kuwait, the Republic of Congo and Equatorial Guinea – registered total government (GG) revenue above the world average (32.9 per cent of GDP), but 16 countries achieved above-average rates of non-tax revenue (total revenue minus tax revenue, the world average being 10.1 per cent of GDP). As shown in Figure 4, low tax performers have considerably higher non-tax revenues in three of four income groups – though not in the low-income group. For some of the countries, the obvious reason for this is that their governments collect most of their revenue from state-owned enterprises dedicated to the extraction of natural resources (mainly oil) – Libya, Kuwait and Bahrain being the most prominent examples.

As noted above, low tax performers do not receive a great deal of foreign aid. More than a half of them (23) finance less than 1 per cent of GDP with ODA grants, whereas the world average stands at 6.7 per cent. Only six of the 41 countries – Timor-Leste, Micronesia, Palau, the Central African Republic, Haiti and the Comoros – score higher than the world average for ODA grants. Of the 16 high non-tax revenue countries, six (Timor-Leste, Micronesia, the Comoros, Bhutan, Chad and Sudan) receive more than 3.4 per cent of GDP (half the world average) in ODA grants. The remaining countries of this group obtain non-tax revenue from other (domestic) sources.

The pattern described here is further supported by the net debt flows of low tax performers. Of the ten high non-tax revenue, low-ODA countries, only Gabon receives external loans above the world average (11 per cent of GDP in 2007–08, the world average standing at 1.9 per cent). From the group of countries with high non-tax revenue and high ODA inflows, Bhutan and the Comoros stand out because they obtain numerous loans in addition to grants. Borrowing is also an important source of revenue for Lebanon (10 per cent of GDP in 2007–08) and Panama (2.41 per cent), both being average non-tax revenue countries. But only in the cases of Lebanon and Gabon can it be said that loans were a real alternative to tax revenue in 2007–08.

3.6 Governance levels

The size of the public sector and the quality and quantity of public services may be the outcome of choice by a society. If a country is governed in a democratic and transparent manner and if the government implements public policies effectively, there is no question of revenue mobilisation problems, even if the country has a low tax ratio. Yet we suspect that the standing of a majority of the low tax performers, especially those from the lower-

middle-income and low-income groups, in tax matters coincides with below-average governance ratings.

We consider several governance indicator sets in order to analyse low tax performers in this respect. First, we take a Polity IV democracy index (POLITY2) and the WGI Voice and Accountability indicator set to determine whether political decision-making is democratic and participatory. Then we use the WGI Government Effectiveness dimension to see whether public policies are implemented effectively. We also check whether the durability of political regimes has a bearing on tax performance – which, from our findings, does not seem to be the case. Finally, we look at two other WGI indicator sets to see if our findings are endorsed. The ratings are presented in Table 12.

Figure 5 shows how the low tax performers fare with regard to three governance indices.

— According to the **Polity IV democracy index**, 13 of 35 countries qualify as "democracies"[17] in this group. The Comoros, India and Panama with a score of +9 are followed by the Dominican Republic, Guatemala, Indonesia, Paraguay and the Philippines with a score of +8. Colombia, Lebanon and Timor-Leste score +7, Nepal and Sri Lanka +6. A total of 15 countries fall into the "anocracy" categories, while seven countries qualify as outright autocracies. For those 22 countries with a score below +6, we would not have much confidence in the common interest orientation of the political decision-making process, but detailed political analysis may prove us wrong.

— The results on the **WGI Voice and Accountability** index are even more worrisome.[18] Only nine countries achieve a higher-than-average rating (above zero), and five of them are small high-income countries[19] not included in the Polity IV index (such as Liechtenstein, Bermuda and the Bahamas). Of the larger countries, only four (Panama, India, the Dominican Republic and Timor-Leste) score better than the mean. Twenty countries range between zero and -1, and another eleven lie between -1 and -2.5. Thus the overall picture produced by the two indices suggests that only a minority of the low tax performers may have decided on their tax systems from a common interest perspective.

To assess whether a society has the tax system it wants, it is not enough to consider the political process. Governments must also be able to implement the policies that have been adopted in an orderly and transparent way. Where this is not the case, it can be assumed that taxpayers (especially the wealthier and more powerful ones) are finding ways to evade or avoid tax or that tax laws are not being properly enforced.

17 As the Polity IV index covers only countries with a population above 500,000, there are data on only 35 of the 41 low tax performing countries. The index assigns scores ranging from +10 to -10. (i) Countries with a score of +10 are called "full democracies." (ii) Those ranging from +9 to +6 are "democracies." (iii) Scores from +5 to +1 refer to "open anocracies" – an "anocracy" being a neither fully democratic nor fully autocratic regime with only a limited ability to provide public services and ensure its own survival.. (iv) Countries with a score from 0 to -5 are classified as "closed anocracies," and (v) those with scores from -6 to -10 are "autocracies." See Marshall / Cole (2009, 8–12) for the description. For the data, see www.systemicpeace.org/inscr/inscr.htm (accessed 3 Aug. 2010).

18 The index covers all our low tax performers with the exception of Palau. It assigns a score between approx. +2.5 and approx. -2.5, with the mean at zero and the standard deviation at one. See Kaufmann / Kraay / Mastruzzi (2009, 15). The data can be found at http://info.worldbank.org/governance/wgi/index.asp (accessed 3 Aug. 2010).

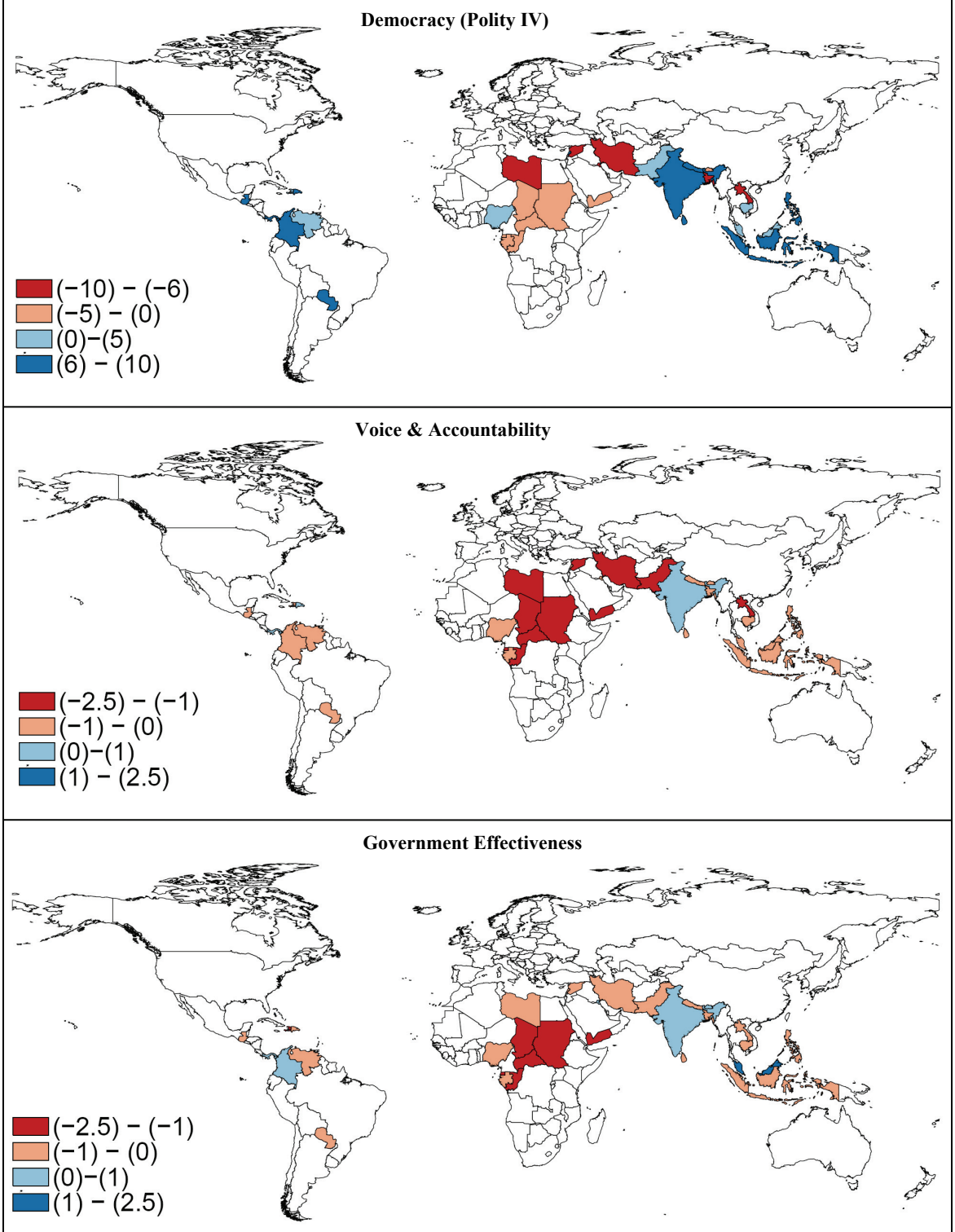
19 With the exception of Micronesia, which is an upper-middle-income country.

Table 12: Low tax performers: Governance, size, special circumstances

	governance				size		circumstances	
country	pol	dur	v& a	gov eff	pop	gdp	deaths	displ pop
Bahamas, The			1.1	1.1	0.34	6.09		
Bahrain	-7	33	-.8	.4	0.77	12.8		
Bangladesh	-6	1	-.6	-.8	159	71.75		
Bermuda			1.0	1.0	0.06	4.65		
Bhutan	-2	1	-.9	.2	0.68	0.8		
Cambodia	2	10	-.9	-.8	14.44	7.21		
Centr. Afr. Rep.	-1	5	-1.0	-1.4	4.3	1		4.58
Chad	-2	16	-1.4	-1.5	10.77	3.03	8.18	1.61
Colombia	7	51	-.3	.1	44.69	132.5	5.68	6.71
Comoros	9	2	-.5	-1.8	0.64	0.24		
Congo, Rep.	-4	11	-1.2	-1.4	3.58	4.23		
Dominican Rep.	8	12	.2	-.4	9.88	35.2		
Equatorial Guinea	-5	39	-1.9	-1.4	0.65	5.44		
Gabon	-4	17	-.9	-.7	1.44	5.97		
Guatemala	8	12	-.2	-.5	13.52	25.6		
Haiti	5	2	-.7	-1.3	9.8	3.8		
Hong Kong, China			.5	1.8				
India	9	58	.4	.0	1135	794.5	.19	
Indonesia	8	9	-.1	-.3	226	240		
Iran	-6	4	-1.5	-.8	71.49	152	.13	
Kuwait	-7	44	-.5	.2	2.7	61.4		
Lao PDR	-7	33	-1.7	-.9	6.15	2.85		
Lebanon	7	3	-.4	-.6	4.18	23.45		1.68
Libya	-7	57	-1.9	-.9	6.23	47.5		
Liechtenstein			1.3	1.8	0.04	2.75		
Malaysia	5	18	-.6	1.1	26.79	136		
Micronesia, FS			1.0	-.6	0.11	0.23		
Nepal	6	2	-.8	-.8	28.55	7.12		.18
Nigeria	4	9	-.6	-1.0	149.5	72.1		
Pakistan	4		-1.0	-.7	164.5	107	3.15	.09
Palau					0.02	0.13		
Panama	9	19	.6	.2	3.37	18.2		
Paraguay	8	15	-.3	-.8	6.18	9.2	0	
Philippines	8	21	-.2	.0	89.53	109		
Singapore	-2	43	-.4	2.5	4.71	135		
Sri Lanka	6	60	-.4	-.3	20.08	23.5	38.56	2.40
Sudan	-4	3	-1.7	-1.3	40.89	21.15	1.48	3.00
Syria	-7	45	-1.8	-.7	20.33	26.7		
Timor-Leste	7	6	.1	-1.1	1.08	0.34		3.66
Venezuela	5	40	-.6	-.9	27.71	163		
Yemen	-2	15	-1.1	-1.0	22.59	12.65		.39

Note Columns: pol – POLITY2 index of democracy (source – Polity IV project); dur – durability of regime, years (source – Polity IV project); v&a – Voice and Accountability Index (source – WGI); gov eff – Government Effectiveness Index (source – WGI); pop – population in millions (source – WDI); gdp – GDP, billions of constant US 2000 dollars (source – WDI); deaths – battle-related deaths, thousands per cent pop. (source – WDI); displ pop – internally displaced persons, per cent pop. (source – WDI). All figures are averages of 2007–2008.

Figure 5: Low tax performers relative to the world average: Governance scores



Note Top: Polity IV democracy index; scores range from 10 to -10. *Middle*: WGI Voice and Accountability Index; scores range from approx. 2.5 to approx. -2.5. *Bottom*: WGI Government Effectiveness Index; scores range from approx. 2.5 to approx. -2.5.
See definitions in Table 12 and footnotes 17 and 18. Scores applied to low tax performing countries. Non-low tax performing countries are not coloured.

— From the **WGI Government Effectiveness Index** we deduce that only a few low tax performers have a capable public sector. Thirteen of 40 countries achieve scores above zero (though India, the Philippines and Colombia only by the narrowest of margins). They include several small high-income countries mentioned above as well as some rather non-democratic or blatantly authoritarian states such as Singapore, Malaysia, Bahrain, Bhutan and Kuwait. Two countries, Colombia and the Philippines, qualify as "democracies" in the Polity IV index and are rated above the mean in terms of Government Effectiveness, but register below-average scores on the Voice and Accountability Index. They could be considered borderline cases.

Consequently, just two countries (Panama and India) score positively in all three indicator sets, and neither of them is a typical developing country. In fact, of the lower-middle-income and lower-income countries with low tax performance, India is the only one with high governance rankings, and it would most probably jump to average tax performance if subnational tax collection were taken into account.

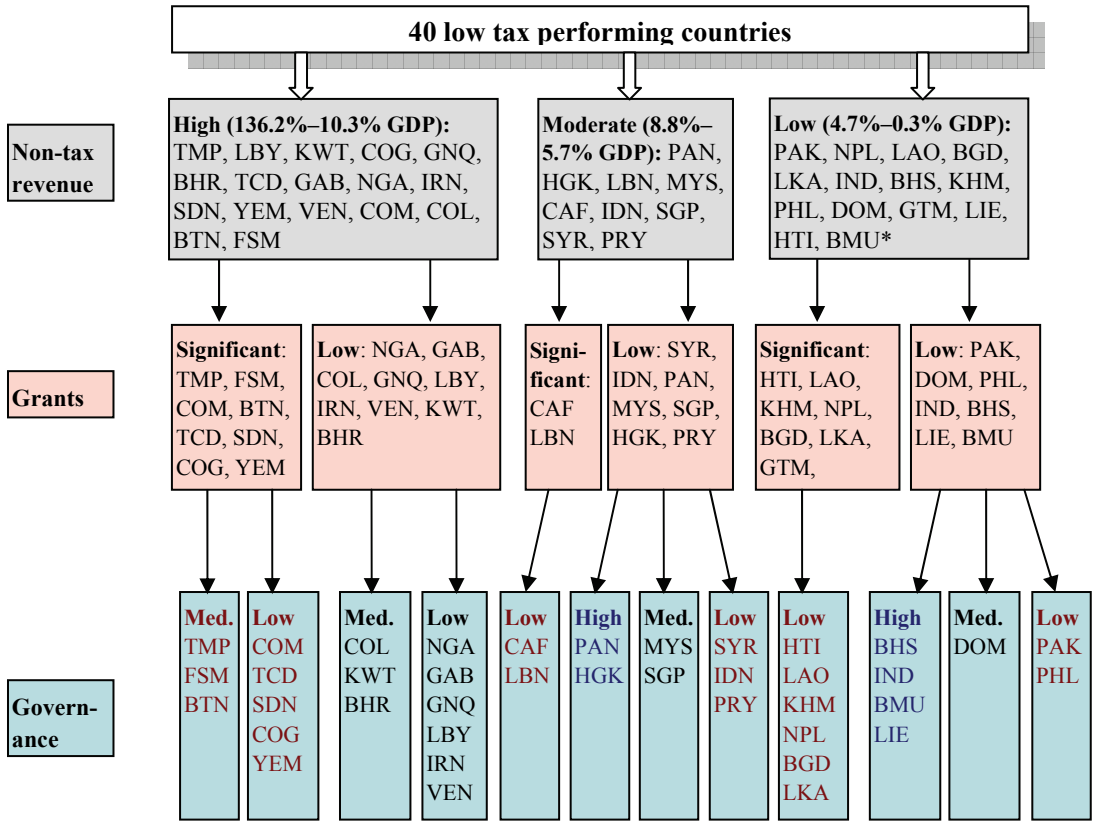
Checking for two other WGI indices (Corruption and Regulatory Quality) as possible proxies for public-sector capability shows little difference – the correlation between these indices and Government Effectiveness is almost perfect. Only Bhutan scores higher than the mean in Government Effectiveness, but has a lower score for regulatory quality. However, Colombia and Panama register high levels of corruption according to the WGI. Obviously, corruption is a major factor for tax administration and tax compliance. If we took this finding into account, our "group" of high governance, low tax performers would be narrowed down to India plus the Philippines as a borderline case.

Figure 6 categorises the low tax performing countries by (1) non-tax revenues, then (2) ODA grants and (3) levels of governance. In this figure, the interpretation of governance differs from the discussion above: a high level of governance is assigned to a country if it scores higher than the world average in both WGI indicator sets, Voice and Accountability (V&A) and Government Effectiveness (GE). Six countries fall into this category: our "champions" India and Panama, and four small high-income countries. A medium level of governance is ascribed to nine countries with ratings above the world average in just one of the indices. The rest (25 countries) are below average in both indices.

The first thing to note from the figure is that no countries have high non-tax revenues and high levels of governance. Four high non-tax revenue countries score high on GE, but low on V&A (Colombia, Kuwait, Bahrain and Bhutan), while the reverse is true of two others (Timor-Leste and Micronesia). The rest of the medium to high governance countries have non-tax revenues below the world average. These findings are consistent with the general perception that rentier states (with high non-tax revenue) are usually "cursed" by low levels of governance and democracy.

The second conclusion to be drawn from Figure 6 is that most of the 17 low tax performers with significant grant levels (above 1 per cent of GDP) score low in terms of governance. Only three countries (Timor-Leste, Micronesia and Bhutan) achieve a medium governance rating. In contrast, of the 23 countries with low levels of grants, 12 achieve medium or high governance ratings. As has been said above, most of them (nine) have non-tax revenue below the world average, which means that they do not substitute alternative sources of financing for low tax revenue with alternative sources of financing.

Figure 6: Low tax performers by categories



Note All low tax performers except Palau (no data on governance). * – Bermudas (BMU): no data on revenue / expenditure. *Non-tax revenue*: high – countries above world average (10.1 per cent GDP); moderate – countries between world average and half of world average; low – countries below half of world average. *Grants*: significant – countries with grants above 1.0 per cent GDP; low – countries with grants below 1.0 per cent GDP. *Governance*: high – countries that score above world average in WGI v&a as well as gov eff; medium – countries that score above world average in one of the two WGI indices; low – countries that score below average in both WGI indices. Sources: see Tables 11 and 12.

Finally, we check to see if countries face circumstances that may inhibit tax collection, regardless of the government's political will. In particular, we consider the number of battle-related deaths as a proxy for civil unrest or war in a country and the number of displaced persons as a proxy for major humanitarian catastrophes (e. g. natural disasters or violent conflicts).[20] From these indicators it appears that special circumstances may have a major influence on tax performance in several countries, including Sri Lanka, Chad, the Central African Republic, Pakistan, Sudan, Timor Leste and Colombia.

20 The data can be found in Table 12. Four of 22 countries with low non-tax revenue and low levels of governance suffered from armed conflicts in 2007-08: Sri Lanka (number of victims: 0.3 per million of population), Chad (0.09), Pakistan (0.03), Sudan (0.01). Of the other countries, only one (Colombia) suffered significant losses in armed conflicts in 2007-08 (0.06 per million). At the same time, nine countries in this group reported displaced persons: Central African Republic (4.6 per cent of the population), Timor-Leste (3.66), Sudan (3.0), Sri Lanka (2.4), Chad (1.6), Lebanon (1.6), Yemen (0.4), Nepal (0.2), Pakistan (0.1). Again, Colombia is the only other country with a significant number of displaced persons (6.7 per cent of the population).

4 Conclusion

The findings presented above enable three relatively distinct groups of low tax performing countries to be identified:

- a first group consisting of nine states with high non-tax revenue and low ODA grants: Libya, Kuwait, Equatorial Guinea, Bahrain, Gabon, Nigeria, Iran, Venezuela and Colombia;
- a second group composed of six countries with high levels of governance and small government: the Bahamas, India, Bermuda, Liechtenstein, Panama and Hong Kong (marked blue in Figure 6, last row). Three other countries with medium levels of governance and small government can also be ascribed to this group. They are the Dominican Republic, Malaysia and Singapore;
- a third group comprising countries with generally low levels of governance, low non-tax revenue and, in most cases, relatively high levels of ODA grants or external borrowing, though both indicators may still be low compared to the world average (marked red in Figure 6).

The reasons for the first group's low tax performance are relatively clear: their high non-tax revenues give them no real incentive to engage in tax collection. It can be argued that the second group has no preference for collecting much in the way of taxes, as indicated by high to medium governance levels. Furthermore, almost all the countries in this group are high-income or upper-middle-income countries. India is the only lower-middle-income country in this group, and it would most probably not be a low tax performer if its subnational tax collection were taken into account.

The reasons for the third group's low tax performance are less apparent and probably more diverse. A lack of capacity (ineffective tax administration) or tax effort (for instance, resistance to tax policy reform, high levels of "permitted" tax evasion) are possible explanations, at least for those countries which have a poor government effectiveness record. Various countries in this group also receive ODA grants well above the world average (Timor-Leste, Micronesia, the Comoros, the Central African Republic and Haiti). In these cases, crowding-out effects caused by ODA may be one reason for low tax performance.

It should be noted that 16 of the 22 countries belonging to the third group were average tax performers ten years ago. Most of them are in South or Southeast Asia and sub-Saharan Africa. In a period of growth and expanding public revenues worldwide, it appears that these states were in a weak position to improve their fiscal standing in line with the rest of the world.

Development cooperation should consider these findings on a case-by-case basis. Above all, donors should keep in mind that *low* (or declining) tax performance does not necessarily equal *bad* tax performance, just as *high* tax performance is not necessarily *good*. The preceding sections have shown that many factors intervene in the tax performance of individual countries. Also, differences between low and average tax performers are rather small at the margins, as the figures in Table 13 (annex) show, and there may be quite a few average (or high) tax performers with urgent tax reform problems to solve.

Hence, governments, donors and international organisations must not focus solely on the tax ratio, but consider the tax system as a whole: its composition, its development over the

years, its redistributive effects and its impacts on economic activity and public participation. A meaningful and realistic approach to public finance reform must also take the broader governance context into account.

At the same time, the results presented above seem to indicate that regional patterns may play a role in at least some parts of the world. This lends additional weight to those initiatives which raise the issue of domestic revenue mobilisation on a multilateral level.

In the context of bilateral development cooperation, a country's position in relation to the trend line (or the change in this position over a number of years) can be taken as a first indicator. States with persistently and significantly low tax ratios should be encouraged to be more active in fiscal terms and to step up revenue collection. For those countries with low governance levels, this goes beyond expressions of political will on the part of ruling elites. The questions which governments and donors need to address include the following:

- Is there a record of (failed) attempts to improve tax collection? Is there a consensus among political actors on the causes of success or failure?
- How has external intervention influenced the tax regime in the past? For instance, pressure to liberalise the economy may have eroded revenues from trade taxes.
- Who loses and who benefits from tax reform? What are the incentives for change?

More reliable data on many countries would be necessary if this type of analysis was to be expanded to include, for example, sub-national revenues and the characteristics of tax administration. Even today, however, development policy can find support in a number of general indicators or approaches. Recent initiatives to expand the PEFA on tax matters, to gather data on developing countries' tax efforts (see OECD / AfDB / UNECA 2010) and to increase the number of EU Fiscal Blueprints in developing countries will without doubt contribute to further improving the data situation.

In countries with poor tax collection, stagnant or worsening indicators and a "badly" composed tax regime the focus of development cooperation should be shifted to the reform of tax systems. According to OECD figures, less than 0.1 per cent of official development cooperation funds was spent on taxation-related tasks worldwide in 2007. Even though the scale of resources is not in itself a particularly meaningful criterion, this is undoubtedly too little for any substantial influence to be brought to bear on the existing incentive structures.

Is it appropriate to stop development cooperation with these countries altogether? Not necessarily, but the nature of cooperation should be adjusted in such cases. States that are highly fragile, are engaged in a military conflict or post-conflict situation or have difficulty in collecting taxes for structural reasons should not be uncoupled from development cooperation, but greater emphasis in that cooperation should be placed on strengthening their tax systems. Governments should be supported in their efforts to increase tax revenue (through the linking of financial allocations to improvements in the tax system, for instance). However, in the absence of success and where the partner countries' decision-makers obviously lack the will, donors must ask themselves how cooperation with such governments can be justified in development policy terms and continue to be legitimised at home.

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Annex

Additional country data

Table 13: All countries, distance from the trend line

Above the trend line				Below the trend line			
Lesotho	39.18	Spain	5.68	Oman	-0.04	Philippines	-6.47
Belarus	25.17	Germany	5.37	Benin	-0.36	Sri Lanka	-6.67
Moldova	17.14	Dominica	5.34	Cote d'Ivoire	-0.83	Haiti	-6.74
Denmark	16.69	Cape Verde	4.78	Armenia	-1.51	El Salvador	-6.85
Bosnia & Herzeg.	16.41	Georgia	4.73	Mali	-1.61	Timor-Leste	-6.89
Sweden	15.93	United Kingdom	4.50	Rwanda	-1.66	Central African Rep.	-7.10
Ukraine	15.72	Tonga	4.48	Turkey	-1.84	Mexico	-7.13
Algeria	14.61	Lithuania	4.35	Guinea-Bissau	-1.86	Cambodia	-7.16
Hungary	13.72	Tunisia	4.33	Honduras	-1.87	Indonesia	-7.19
Italy	13.21	Namibia	4.21	Vanuatu	-1.92	Antigua & Barbuda	-7.48
Belgium	13.18	Latvia	3.89	Tanzania	-2.04	Palau	-7.85
Serbia	13.07	Luxembourg	3.79	Ireland	-2.19	Colombia	-8.04
Guyana	13.03	Eritrea	3.63	China	-2.37	Paraguay	-8.08
France	12.57	Vietnam	3.41	Mauritania	-2.43	Nigeria	-8.62
Finland	11.55	Tajikistan	3.33	Niger	-2.47	Bangladesh	-8.70
Austria	11.43	Senegal	3.30	Mozambique	-2.57	Pakistan	-8.71
Mongolia	11.13	Grenada	3.30	Korea, Rep.	-2.66	Dominican Republic	-8.73
Cyprus	10.83	Malawi	3.26	Costa Rica	-2.69	Panama	-9.12
Bulgaria	10.74	Botswana	3.12	Cameroon	-2.72	Iran, Islamic Rep.	-9.71
Papua New Guinea	10.52	Jamaica	2.62	Maldives	-2.75	Lebanon	-9.74
Swaziland	10.50	Greece	2.49	Burkina Faso	-2.81	Syrian Arab Rep.	-10.02
Morocco	10.27	Nicaragua	2.37	Guinea	-3.11	Guatemala	-10.10
Brazil	10.19	Argentina	2.24	Switzerland	-3.14	Yemen	-10.12
Czech Republic	10.18	Slovak Republic	2.21	Trinidad & Tobago	-3.15	Malaysia	-10.34
Norway	10.17	Albania	2.01	Uganda	-3.56	Venezuela	-10.35
Liberia	9.09	St. Vincent & Gren.	1.84	Belize	-3.76	Micronesia, Fed. Sts.	-10.47
Slovenia	9.01	Canada	1.66	Madagascar	-3.93	Chad	-11.21
Solomon Islands	9.00	Uzbekistan	1.66	Uruguay	-4.01	Bhutan	-11.27
Russian Federation	8.94	Seyshelles	1.59	Thailand	-4.04	Sudan	-11.36
Croatia	8.79	Gambia	1.53	Macao, China	-4.19	Bahamas, The	-11.57
Poland	8.52	Kyrgyz Republic	1.50	Japan	-4.22	Gabon	-13.84
Kiribati	8.51	Togo	1.43	Sierra Leone	-4.63	Congo, Rep.	-14.55
Macedonia	8.48	Samoa	1.31	St. Kitts & Nevis	-4.65	Singapore	-17.09
Portugal	8.22	United Arab Emir.	1.16	United States	-4.75	Liechtenstein	-17.63
Malta	7.98	Djibouti	1.14	Azerbaijan	-4.75	Bermuda	-18.14
Netherlands	7.50	Montenegro	0.98	Chile	-5.01	Hong Kong, China	-18.45
Ghana	7.28	Zambia	0.92	Nepal	-5.05	Equatorial Guinea	-19.42
Iceland	6.15	Bolivia	0.55	Kazakhstan	-5.16	Libya	-23.81
Suriname	6.12	Congo, Dem. Rep.	0.21	Mauritius	-5.39	Bahrain	-26.39
Brunei Darrusalam	6.10	Fiji	0.19	Peru	-5.88	Kuwait	-29.72
Israel	6.06	Jordan	0.18	Comoros	-6.01		
Burundi	6.01	Ethiopia	0.14	Marshall Islands	-6.06		
Romania	5.99	Kenya	0.10	Lao PDR	-6.12		
New Zealand	5.92	St. Lucia	0.09	India	-6.12		
South Africa	5.91	Australia	0.03	Ecuador	-6.31		
Estonia	5.72			Egypt	-6.45		

Note Based on the estimation (I) from Table 2, distance in per cent tax revenue/GDP, average of 2007–08. High tax performers: values shaded dark blue. Low tax performers: values shaded dark red.

Table 14: ISO Country Codes

Afghanistan	AFG	Djibouti	DJI	Latvia	LVA	Rwanda	RWA
Albania	ALB	Dominica	DMA	Lebanon	LBN	Samoa	WSM
Algeria	DZA	Dominican Rep.	DOM	Lesotho	LSO	San Marino	SMR
American Samoa	ASM	Ecuador	ECU	Liberia	LBR	S. Tome & Principe	STP
Andorra	ADO	Egypt	EGY	Libya	LBY	Saudi Arabia	SAU
Angola	AGO	El Salvador	SLV	Liechtenstein	LIE	Senegal	SEN
Anguilla	ANG	Equat. Guinea	GNQ	Lithuania	LTU	Serbia	SRB
Antigua & Barbuda	ATG	Eritrea	ERI	Luxembourg	LUX	Serbia & Montenegro	SRM
Argentina	ARG	Estonia	EST	Macao, China	MAC	Seyshelles	SYC
Armenia	ARM	Ethiopia	ETH	Macedonia	MKD	Sierra Leone	SLE
Aruba	ABW	Faeroe Islands	FRO	Madagascar	MDG	Singapore	SGP
Australia	AUS	Fiji	FJI	Malawi	MWI	Slovak Republic	SVK
Austria	AUT	Finland	FIN	Malaysia	MYS	Slovenia	SVN
Azerbaijan	AZE	France	FRA	Maldives	MDV	Solomon Islands	SLB
Bahamas, The	BHS	French Polynesia	PYF	Mali	MLI	Somalia	SOM
Bahrain	BHR	Gabon	GAB	Malta	MLT	South Africa	ZAF
Bangladesh	BGD	Gambia	GMB	Marshall Islands	MHL	Spain	ESP
Barbados	BRB	Georgia	GEO	Mauritania	MRT	Sri Lanka	LKA
Belarus	BLR	Germany	DEU	Mauritius	MUS	St. Kitts and Nevis	KNA
Belgium	BEL	Ghana	GHA	Mayotte	MYT	St. Lucia	LCA
Belize	BLZ	Greece	GRC	Mexico	MEX	St. Vincent & Grenad.	VCT
Benin	BEN	Greenland	GRL	Micronesia, Fed.Sts.	FSM	Sudan	SDN
Bermuda	BMU	Grenada	GRD	Moldova	MDA	Suriname	SUR
Bhutan	BTN	Guam	GUM	Monaco	MCO	Swaziland	SWZ
Bolivia	BOL	Guatemala	GTM	Mongolia	MNG	Sweden	SWE
Bosnia & Herzeg.	BIH	Guernsey	GUE	Montenegro	MNE	Switzerland	CHE
Botswana	BWA	Guinea	GIN	Morocco	MAR	Syrian Arab Rep.	SYR
Brazil	BRA	Guinea-Bissau	GNB	Mozambique	MOZ	Taiwan	TAI
Brunei Darrusalam	BRN	Guyana	GUY	Myanmar	MMR	Tajikistan	TJK
Bulgaria	BGR	Haiti	HTI	Namibia	NAM	Tanzania	TZA
Burkina Faso	BFA	Honduras	HND	Nepal	NPL	Thailand	THA
Burundi	BDI	Hong Kong, CHN	HKG	Netherlands	NLD	Timor-Leste	TMP
Cambodia	KHM	Hungary	HUN	Netherlands Ant.	ANT	Togo	TGO
Cameroon	CMR	Iceland	ISL	New Caledonia	NCL	Tonga	TON
Canada	CAN	India	IND	New Zealand	NZL	Trinidad & Tobago	TTO
Cape Verde	CPV	Indonesia	IDN	Nicaragua	NIC	Tunisia	TUN
Cayman Islands	CYM	Iran, Isl. Rep.	IRN	Niger	NER	Turkey	TUR
Central African Rep.	CAF	Iraq	IRQ	Nigeria	NGA	Turkmenistan	TKM
Chad	TCD	Ireland	IRL	N. Mariana Islands	MNP	Tuvalu	TUV
Channel Islands	CHI	Isle of Men	IMY	Norway	NOR	Uganda	UGA
Chile	CHL	Israel	ISR	Oman	OMN	Ukraine	UKR
China	CHN	Italy	ITA	Pakistan	PAK	United Arab Emirates	ARE
Colombia	COL	Jamaica	JAM	Palau	PLW	United Kingdom	GBR
Comoros	COM	Japan	JPN	Panama	PAN	United States	USA
Congo, Dem. Rep.	ZAR	Jordan	JOR	Papua New Guinea	PNG	Uruguay	URY
Congo, Rep.	COG	Kazakhstan	KAZ	Paraguay	PRY	Uzbekistan	UZB
Cook Islands	COO	Kenya	KEN	Peru	PER	Vanuatu	VUT
Costa Rica	CRI	Kiribati	KIR	Philippines	PHL	Venezuela	VEN
Cote d'Ivoire	CIV	Korea, Dem. Rep.	PRK	Poland	POL	Vietnam	VNM
Croatia	HRV	Korea, Rep.	KOR	Portugal	PRT	Virgin Islands (U.S.)	VIR
Cuba	CUB	Kosovo	KOS	Puerto Rico	PRI	West Bank & Gaza	WBG
Cyprus	CYP	Kuwait	KWT	Qatar	QAT	Yemen	YEM
Czech Republic	CZE	Kyrgyz Rep.	KGZ	Romania	ROM	Zambia	ZMB
Denmark	DNK	Lao PDR	LAO	Russian Federation	RUS	Zimbabwe	ZWE

Note Source: WDI (2009)

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