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In Praise of Taxes?

Fiscal Pacts, Development Policy and Conflict Risk

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In Praise of Taxes?

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Abstract

Recent research, based on the existence or absence of a fiscal pact, suggests that higher levels of government dependence on resource rents and foreign aid, relative to non-resource related taxes, should lead to more authoritarian regimes, lower government production of public goods, a lower Human Development Index (HDI), and higher conflict risk. We use a large country-level macroeconomic dataset that covers the period 1990-2004 to begin answering some of the questions and hypotheses from this research. First, we examine the revenue composition of different categories of countries, namely developing countries, fragile states, and Canada's twenty-five priority countries. Second, we conduct several statistical tests, using both cross-section and panel data to determine how taxation affects the provision of development goods (roads per capita, education spending, health care spending and public security). Contrary to the existing theory and case study evidence in favor of the tax dependence hypothesis, we do not find any significant relationship between tax dependence and the provision of development goods. Even if our tests remain tentative and point to the need for further research, the evidence uncovered in this paper does not support the idea that taxes are a panacea for developing countries.

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INTRODUCTION

There is an increasing interest in development research and policy circles for the various sources of government revenue and in particular for taxation as a means to break away from ‘unearned’ revenue, such as aid or resource export rents, for which governments do not need to produce much if any “goods” for their population. Recent work suggests that government revenue structure opens an interesting window into issues of governance, state building, development policy, and conflict risk and prevalence. In broad terms, reliance on primary resources and aid appears to be dysfunctional, while tax dependence is felt to create a healthy foundation for good governance and sustainable economic development. In the words of Bahl and Bird (2008), “a good internal tax system provides not only revenue but an essential element in developing a capable state” (p.3).

This study presents an overview of the relationship between government revenue composition - i.e. the relative weight of taxes, aid and resource rents - and the development performance and political stability of poor countries. It builds on distinct but related strands of literature on three main issues: resource dependence, aid dependence and taxation. Each of those issue-areas has been the subject of a massive amount of research, part of which remains inconclusive. Nonetheless, we try to identify and test a number of important policy propositions (and their implications) of what looks like an emerging conventional wisdom about the virtues of governments' relative dependence on taxes.

The paper has four parts: we first draw a broad picture of the state of the discussion on government revenue and development outcomes; we then present statistics on revenue structure for Canada's 25+2 priority countries (where the +2 countries are Afghanistan and Haiti, both of which are receiving a significant amount of aid from Canada) and, building on the discussion outlined in section one, we briefly describe what current theories suggest should be happening in those developing countries, depending on the relative weight of taxes in their governments' revenue; the third section presents the results of a number of statistical tests of those hypotheses, building on a large country-level macroeconomic dataset that covers the period 1990-2004¹; and finally section four is devoted to the policy implications of those results. We conclude with some suggestions for future research.

What we have found thus far is quite disappointing. While the theory and the vast majority of the case studies done until now are supportive of the tax dependence hypothesis, large-sample statistical analysis fails to find any consistently significant relationship between tax dependence and good development policy, proxied by the provision of state-produced public goods (for example, public order, health care and public education). The tests conducted here remain tentative and much more work needs to be done, but taxes certainly do not look like a panacea for developing countries.

¹ Our intention is to backdate this dataset to the 1970s in future work.

TOWARDS A NEW CONVENTIONAL WISDOM?

OVERVIEW OF THE DISCUSSION

Recent research suggests that higher levels of government dependence on resource rents and foreign aid, relative to non-resource related taxes, should lead to more authoritarian regimes, lower government production of public goods, a lower Human Development Index (HDI), and higher conflict risk. Conversely, higher dependence on taxes, particularly taxes that do not derive from natural resource extraction, are associated with democracy, more public goods, higher HDI and lower conflict risk. Why should we expect this? How does government revenue composition affect governance, state fragility, and development policy?

The structure of government revenue affects the need for rulers to reach a political or material compromise with their subjects, i.e. to compensate them, or not, with power or goods for the taxes they pay. The mechanism is the existence (or not) of a “fiscal pact,” i.e. an informal contract between rulers and subjects, whereby democracy or state-produced public goods, such as public order, security, roads, health care or public education are “exchanged” for taxes (Tilly, 1985, 1992; Levi-1988; Herbst, 2000; Bates, 2001; Moore, 2001, 2004, 2007; Ross, 2004b; Timmons, 2005; Karl, 2007; Subramanian, 2007b; Brautigam et al. eds, 2008).²

The fiscal pact involves a kind of tug of war between rulers and subjects, with the first trying to maximize their revenue, and the second trying to minimize how much they pay or, when forced to do so, to maximize what they get in exchange. Optimizing calculations are present on both sides, with rulers not always confiscating everything the subjects have, and subjects typically trying to get as much goods as possible for the taxes they pay.

It is important to note that the bargain can be selective, as it may involve only those subjects who contribute the most to the tax base, and the specific goods that they most value (Haber et al., 2003; Subramanian, 2007b, 2007c). States that depend for instance on oil revenue will only make sure that oil companies’ property rights are protected and possibly also that pipeline and boarding facilities are secure; those that rely on consumption taxes, by contrast, will make sure that the revenue of most consumers benefit from their investments in public goods. Consistent with that tax bargaining mechanism, changes in the mix of taxes have been associated with changes in the mix of goods produced by the state. Specifically, the prominence of regressive taxes, which implies that the state relies on a large part of the population for its revenues, is associated with higher levels of social spending, whereas progressive taxes,

² Technically speaking, some of these goods’ “public” nature is disputable. For the sake of our argument, however, this does not matter: we are looking at goods that subjects are likely to demand and that rulers may produce if they have an incentive to meet such demand. Our focus on these specific goods (security, transportation infrastructure, education and health services) comes from the fact that their production has been associated in the literature with positive development performance. This is why, for our purposes, the expression “development goods,” albeit technically ambiguous from the standpoint of economic theory, is probably better than, and will be used here interchangeably with, “public goods.”

whereby the wealthier subjects contribute proportionately more to the state treasury, are associated with better protection for property rights (important for the rich) but not with higher production of other public goods (Timmons, 2005).

Where there is no fiscal pact, rulers are not forced into any kind of bargaining with their subjects. This happens when rulers have alternative sources of revenues. The higher the relative importance of those non-tax revenues, the freer the government is from its subjects. The key is the balance between unearned and earned revenues (Moore, 2004) or, in Paul Collier's terms, between sovereign rents, and "scrutinized" revenues (Collier, 2006), with taxes, roughly corresponding to earned or scrutinized revenues, and resource revenues and aid (also with some caveats, examined below) as unearned or (domestically at least) "un-scrutinized" revenues.

In the next three sub-sections, we break down this general framework into a series of specific hypotheses. We start with an examination of the consequences of the relative weight of taxes in government revenue. The two other sections outline the specific consequences of aid dependence and of natural resource dependence.

TAX DEPENDENCE

Low relative weight of tax revenue and authoritarianism

Thanks to the royalties it collects from the companies involved in resource extraction, through the profits of state-owned resource companies, or through the aid flows it receives, the government becomes financially independent from the population and need not make any political compromise with it to sustain its activities. Rulers simply ensure that the total amount of rent they capture enables them to stay in power.

Low relative weight of tax revenue and lower production of public goods

The government does not need to produce public goods either to gain support from the population or to enlarge its tax base (Olson, 1993, 2000) through broad economic growth. The only public goods produced are those that ensure the continuing flow of rents, directly to the government. These may involve very specific transportation infrastructure (a railroad from a mine to the sea and the needed port facilities), selective protection of property rights - e.g. guarantees to specific mining or energy companies (Haber et al., 2003) - as well as selective use of the national army and/or police for the protection of production facilities.

Low relative weight of tax revenue and lower HDI

Through its negative impact on political accountability and the production of public goods, low tax dependence leads to an under-investment in GDP-enhancing public investments, education facilities, and basic health infrastructure, which in turn impacts GDP per capita, life expectancy and educational performance --as measured through literacy and gross enrolment rate--, the three components of the HDI index.

Low relative weight of tax revenue and higher conflict risk

Their narrow political base, the general poverty of the population of their country, their underproduction of public security (Herbst, 2000) and the volatility of resource and aid flows on which they depend make rent-dependent regimes vulnerable to internal and external challenges. The security deficit is made worse by the fact that most developing states also enjoy international protection of their boundaries, i.e. the quasi-assurance that self-determination and independence movements will be actively discouraged by the international community. This frees them from the need to effectively protect their whole territories, which is an additional disincentive to the construction of the military, administrative and transportation infrastructure that would enable the government to effectively control their territories. As a result, challenges to central government rule are easier to organize and less likely to be effectively repressed.

RESOURCE DEPENDENCE

Beginning in the 1990s, a series of studies has identified resources as a curse (Auty, 1993). Political scientist Terry Lynn Karl (1997) helped launch the movement with a study entitled "Paradox of Plenty." Sachs and Warner (1998) have written the now standard economic statement on the resource curse. While economists have mostly emphasized the negative impact of resource dependence on growth prospects - through currency overvaluation, as well as capital and labour allocation (Cox, 2007) -, political scientists have insisted instead on the close relationship between resource dependence and rent-seeking behaviour on the part of rulers. With the recent emphasis in the field of development economics on the role of institutions, the two strands of the literature have largely merged around the problem of governance (see Le Billon [2005] for a comprehensive survey).

High relative weight of resources in GDP and authoritarianism

Resource-dependence has long been associated to authoritarianism. States whose revenues depend on the extraction of natural resources, either through direct ownership or through royalties paid by extractive companies, are able to capture large amounts of resources without having to make political compromise with a significant number of their subjects.

High relative weight of resources in GDP and lower production of public goods

Resource-dependent rulers do not need to keep a large number of subjects happy, nor to create conditions for broad-based economic growth. As a result, they limit their spending to what is needed for their own maintenance in power and to sustain the production of natural resources. This may involve the production of public goods such as roads, railways, port facilities, as well as a modicum of order. The distribution of those public goods, however, is extremely skewed and determined strictly by the requirements of resource extractions. Broad public benefits for those goods are extremely limited. Rulers need to produce nothing to keep "taxpayers" happy, as there are no taxpayers.

High relative weight of resources in GDP and lower HDI

Dependence on primary resources whose global price is volatile, low production of public goods, and the absence of a need for broad-based growth means that per capita GDP levels are also volatile and on average relatively low, that education levels are low and health care poor, which lowers life expectancy. Moreover, resource dependence, through its perverse impact on general macroeconomic conditions (Sachs and Warner, 1985) and on labour and capital allocation (Coxhead, 2007), has also been shown to be directly deleterious to growth. As the HDI combines GDP, literacy and life expectancy, it is generally expected to be low in resource-dependent countries.

High relative weight of resources in GDP and higher conflict risk

Conflict is highly correlated with poverty (Collier, 2008). Two main mechanisms are at play: 1) governments in poor countries have a limited ability to maintain order over their whole territories and, as a result, they are less capable of fighting an insurgency; 2) insurgents have an easier time in poor countries, because it is less onerous for them to recruit soldiers (because young men have less chances of getting good jobs in the peace economy and, as a result, they are more likely to join armed groups). These risk factors are made worse in the cases where natural resources, such as alluvial diamond and gold, as well as drugs and precious stones, are easy to loot and export illegally (Snyder and Bhavnani, 2005; Collier and Hoeffler, 2000), facilitating resource mobilization for insurgent groups. An economy's dependence on such "lootable" commodities thus creates conditions for political instability and conflict.

AID DEPENDENCE

While there is strong convergence on the (positive) impact of taxation and on the (negative) impact of resources, the debate on aid is much more contentious. However, a growing number of authors agree that at best, aid has diminishing returns³, from a threshold set by Clemens et al., (2004) at 8% of GDP, and at 40% of tax receipts by Adrian Wood (2007). At worse, some have argued that aid has been utterly ineffective or even highly damaging, i.e. "a bigger curse than oil" (Djankov et al., 2007; cf. also Easterly 2003 and 2007). The causal chains for the pessimistic assessments are outlined below.

High relative weight of aid receipts and authoritarianism

The same mechanism that "curses" resource rents is at play here: because they do not need to tax their subjects as much as they would otherwise, rulers of aid-dependent countries are less constrained to reach political compromise with them (Brautigam and Knack, 2004; Knack, 2004). This impact may be lessened if some kind of political conditionality is introduced in the aid bargain. Paul Collier, among others, however, has shown that under certain conditions (not at all uncommon) such as ethnic fractionalization and poor public information, even conditional aid can be accompanied

³ A number of aid effectiveness studies thus include a squared aid term to account for this (Burnside and Dollar, 2000; Easterly 2003).

by hollowed-out democratic arrangements or the consolidation of full-fledged political authoritarianism (2006). More generally, the literature on conditionality has shown that it has failed to “buy” reforms and that when the latter are implemented, they are independent of what donors require.

High relative weight of aid receipts and lower production of public goods

Again, like resource rents, aid frees rulers from compensating their subjects for their financial support through the production of public goods. In addition, significant aid flows also make rulers relatively immune from the bad economic performance of their country, thus lessening their need to produce growth-enhancing public goods.

High relative weight of aid receipts and lower HDI

Through its impact on GDP (via the lower production of growth-enhancing public goods, and via Dutch Disease effects), and through the underproduction of education and public health, large amounts of aid should also be expected to have a negative impact on HDI level.

High relative weight of aid receipts and higher conflict risk

To the extent that it has a negative impact on poverty levels, aid also impacts conflict risk through reduced government public order and repressive capacities and heightened insurgent recruitment ability.

REVENUE STRUCTURE AND DEVELOPMENT

This section presents a picture of developing countries’ revenue structure and outlines the possible implications of their situation from the standpoint of the theory expounded in the previous section.

GOVERNMENT REVENUE COMPOSITION

We have assessed the composition of government revenue for three overlapping categories of countries. The first one includes all the countries in the world except high income countries as defined by the World Bank's World Development Indicators. The second one includes those countries considered fragile based on the Failed States Index for 2007 from the Fund for Peace (available at <http://www.fundforpeace.org>). Ideally, we would have liked to let the sample of fragile countries vary over time but data from the Fund for Peace is limited to a few recent years. As a result we make the assumption that the countries that are at the top of the list of most fragile countries have been in that situation for the time period covered in our study. The third group is Canada's 25 priority countries (and where possible, we have included Afghanistan and Haiti, which are the largest recipients of Canadian aid, in spite of their not making the priority list).

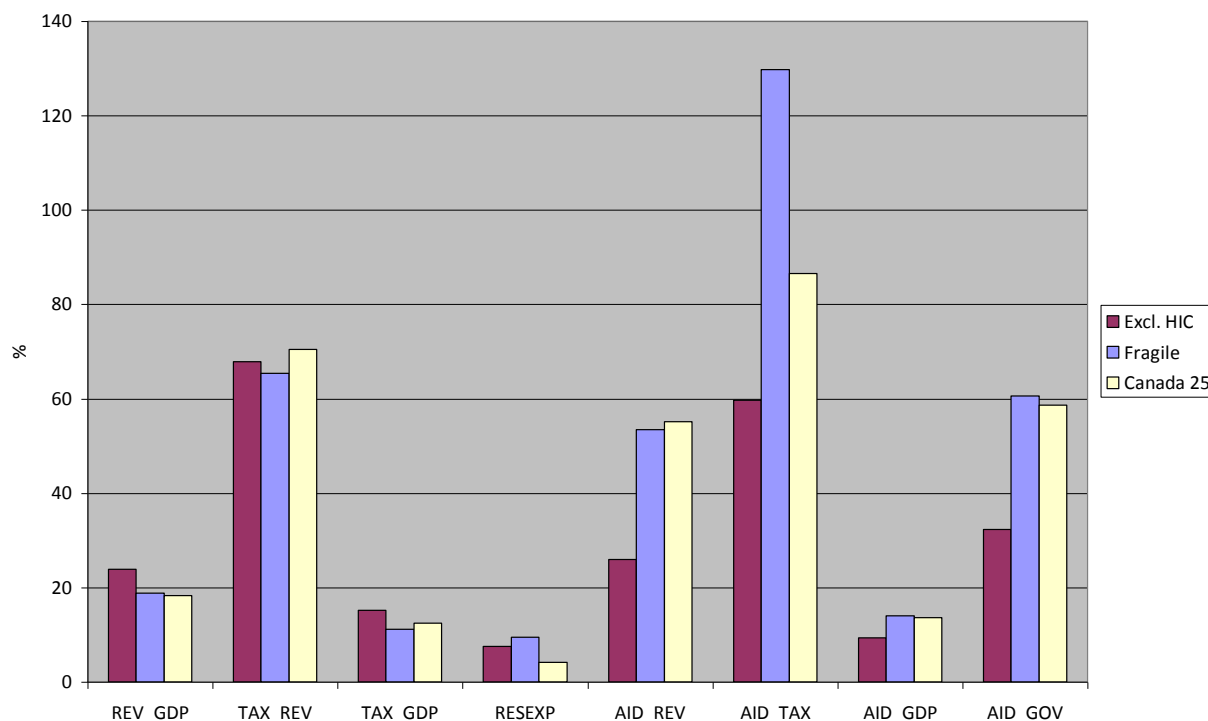
Figure 1: Government Revenue Composition (1990-2004)

Figure 1 above presents data for these three groups of countries, on eight different categories: total government revenue as a % of GDP (REV_GDP); tax revenue as a % of total revenue (TAX_REV); tax revenue as a % of GDP (TAX_GDP); oil and mineral exports as % of total exports (RESEXP); aid as a % of total revenue (AID_REV); aid as a % of tax revenue (AID_TAX); aid as a % of GDP (AID_GDP); and aid as a % of government expenditure (AID_GOV). The data for the third group does not include Afghanistan and Haiti, but we consider these two countries later when we look at individual countries (see Figures 2, 3 and 4 below). Besides, the data for these two countries is quite limited, which means they would not have altered most of the variables in a meaningful way.

The "average" developing country that emerges from this picture has a government that captures only a small part of its country's GDP (column one) and is by a wide margin (30-35%) unable to cover its expenditure through tax revenues (column 2), depending on aid for about 25% of its total revenue (column 5) and 30% of its expenditure (column 8). Aid, moreover, represents about 60% of that government tax revenues (column 6). It is also a country where about 25% of GDP is accounted for by resource and aid rents (columns 4 and 7).

From the standpoint of the fiscal contract theory, this picture is quite dismal: both the macroeconomic (Dutch disease) and the governance effects of rent dependence should be quite strong, with overvalued currencies, poor incentives for domestic

industrial production and for investments of both financial and human capital in non-resource tradable sectors.

Aid dependence is particularly acute for fragile states as well as for Canada's priority countries. The very strong correlation between fragility and aid dependence (aid as a % of revenue and/or expenditure) is consistent with the fiscal pact theory.

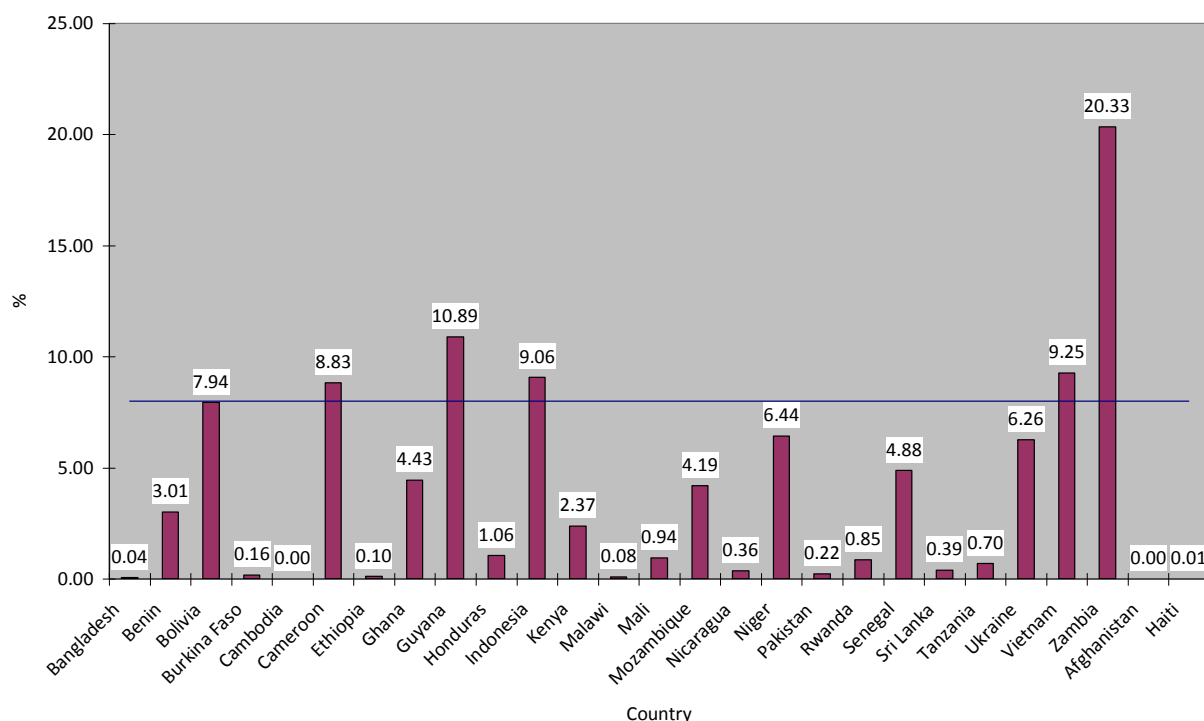
Now, these are averages, and some of them hide substantial variation among countries. Moreover, the correlation they suggest may not imply causality: the weight of aid relative to tax revenue among fragile states, for instance, may reflect the fact that the international community intervened massively in the face of conflict or natural disaster, both situations in which taxes cannot be easily collected. Before getting into a systematic test of the various hypotheses outlined, we will examine in some more details the revenue structure of Canada's 25+2 countries.

NATURAL RESOURCES

It is very difficult to assess the weight of resource rents in government revenue, because they take a variety of forms, not all of which are classified in the same way in all countries. Governments may for instance capture those rents as royalties, as taxes on company profits, as state corporation profits, or as export taxes. For now, we use the standard proxy, which is the value of oil and mining exports as a proportion of GDP, but we will be developing better indicators in later versions of this study.

To generate hypotheses regarding the potential impact of resource revenue dependence, we use as a point of reference Timmons' 8% threshold of resource exports as a proportion of GDP (indicated as a straight horizontal line), a level over which the risk of dysfunctional consequences is said to increase substantially.

Figure 2 below suggests that of the 27 countries examined, only 5 can be considered at risk, with Zambia the only one in a situation of significant danger. More than half of Canada's priority countries are not significant exporters of primary resources and should probably be more concerned with increasing their share of exports to GDP in general. While this is beyond the scope of the current paper, it does suggest that there is scope for using aid to build trade capacity for example.

Figure 2: Resource Exports as a % of GDP (1990-2004: Canada 25+2)

The examination of aid (see Figures 3 and 4 below) is more straightforward and statistics more reliable than in the case of resource rents. We look at aid dependence in two different ways. The first considers aid as a percentage of GDP to get a sense of the resource curse-type macroeconomic and governance risks (again using Timmons' 8% threshold as a point of reference). The second considers the relative weight of aid receipt as a percentage of taxes, opening a window into the impact of aid on the possibility and strength of a fiscal pact.

The picture that emerges suggests considerable risks on both these counts. Figure 3 shows that in seven of Canada's priority countries, aid represents more than 20% of GDP, and in 16 more than 10%. All but 7 countries are below the 8% threshold of "dysfunctionality." Such large inflows cannot but have significant macroeconomic effects and should be a concern in terms of absorptive capacity and diminishing returns, even considering that a substantial proportion of this aid is meant to service previous loans: currency overvaluation, allocation of investments and workforce guided by the allocation of aid by sector and/or regions, "capture" of the qualified workforce by aid management, and so on. In addition, such high levels of aid dependence imply high risks of volatility and a relatively short-term time horizon, both disincentives for long-term private and public investments.

Figure 3: Aid as a % of GDP (Canada 25 +2, 1990-2004)

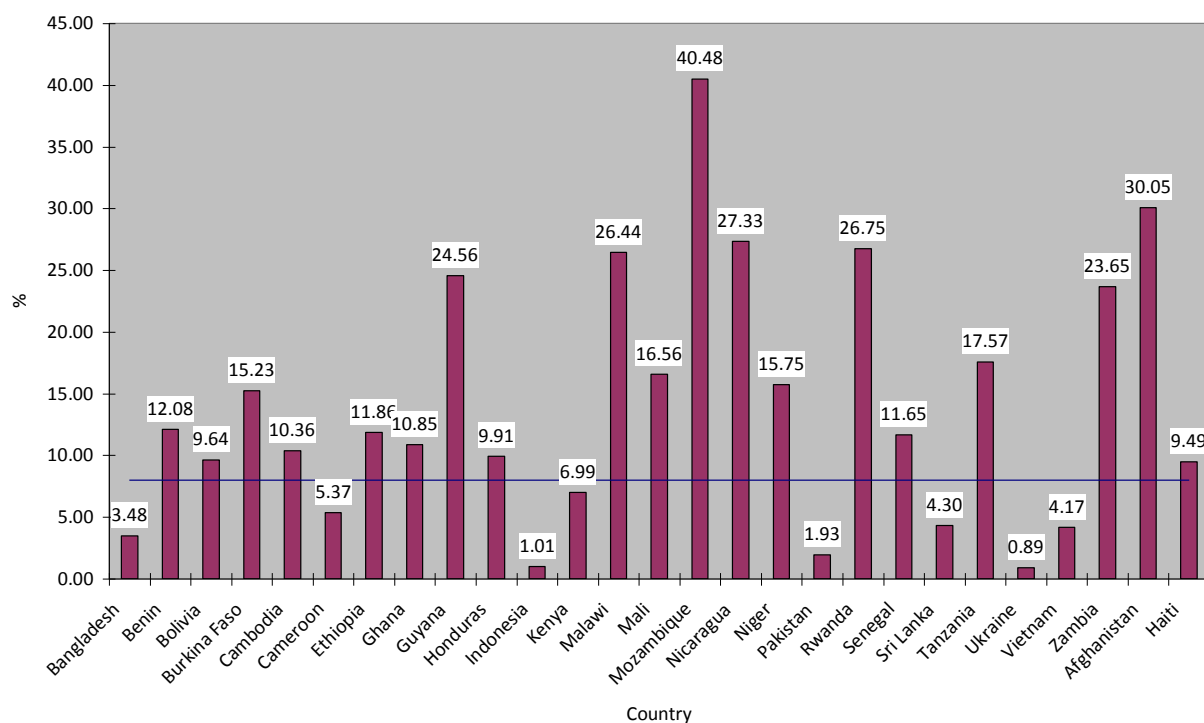


Figure 4: Aid as % of Taxes (Canada 25+2, 1990-2004)

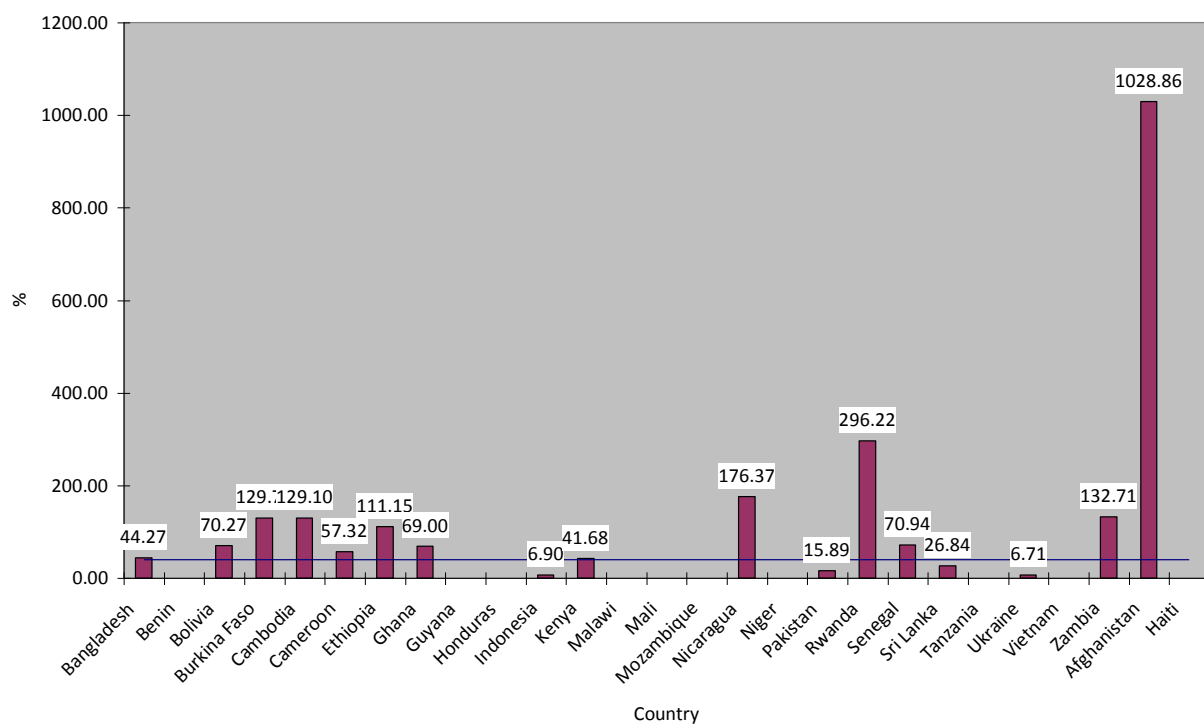
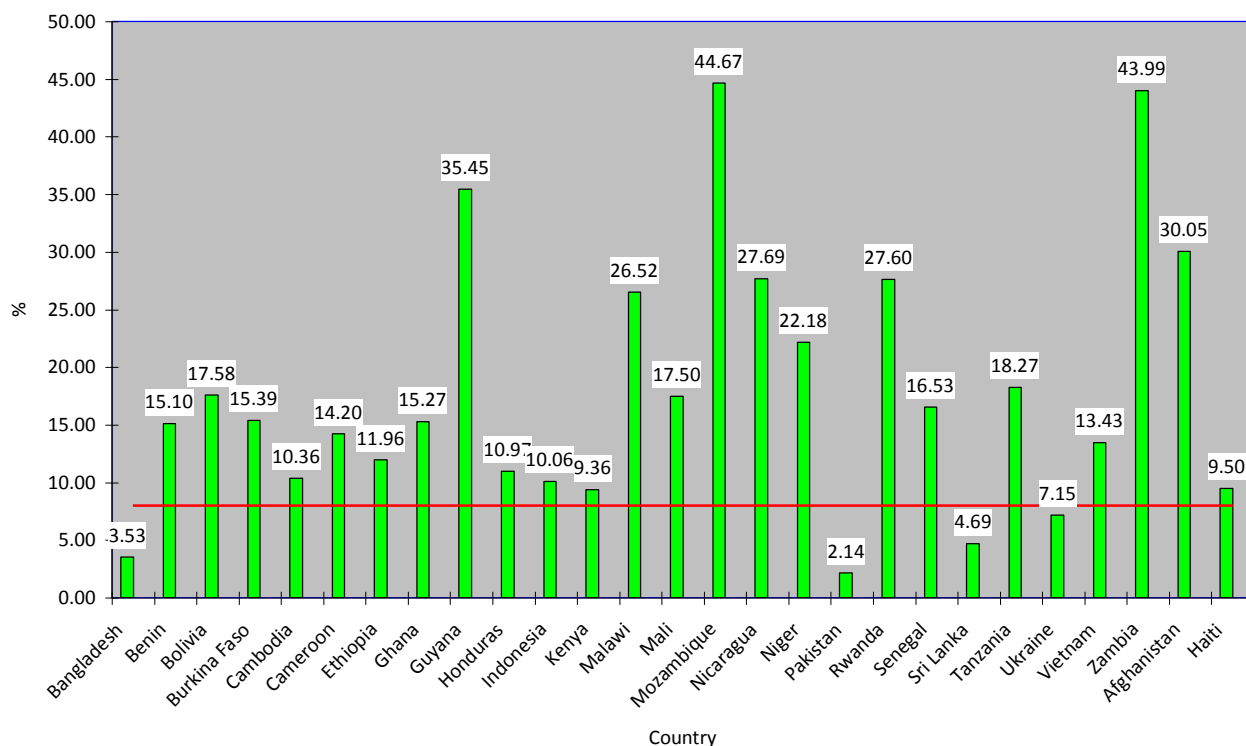


Figure 4 looks at the weight of aid relative to tax revenues. The point of reference is Adrian Wood's threshold of 40% (2007), above which, he argued, fiscal pacts become ineffective if they can be established at all. Thirteen countries find themselves above this threshold, some of them by a wide margin. In Burkina Faso, Cambodia, Ethiopia, Nicaragua, Rwanda, Zambia and Afghanistan, all of which receive more in aid than in taxes, rational rulers have no incentive whatsoever to give priority to the demands and requirements of their own population. The situation of Afghanistan is extreme: in that country, more than 90% of government revenues are accounted for by aid. What "pact" there is remains confined to the deal established between the government and the international community. There is no material link between rulers and citizens, a situation that is totally at odds with the kind of situation that, according to fiscal pact theorists, leads to democracy, stability, and sustainable development.

It is important to note that a full assessment of rent vulnerability would call for a look at total rent (resource and aid) as % of government revenue, if we assume that the same mechanisms link both types of rent to governments' public goods spending incentives. At this point, however, we do not have detailed information on resource rents as a proportion of government revenue. We intend to get a better grip on the total rent-dependence of developing countries in the future. For now we can only proxy the total impact of those two sources of rent through their joint weight in the GDP. As seen in Figure 5, taking both aid and resource exports into consideration, most countries cross the 8% threshold which suggests that revenue structure in almost all of Canada's priority countries is dysfunctional.

All these assertions are based on the literature reviewed in part one. As we saw, these studies have been based for the most part on individual or very small sample case studies, with large-sample analysis focusing mostly on democracy and good governance (or "institutional quality," usually understood as well-protected property rights and "the rule of law"). Until now, only one study has looked specifically at the implications of fiscal pacts for government policy (Timmons, 2005), and it considered very small sets of public goods (education spending, property rights protection, and total social spending), not all of which have been directly associated with strong development performance. In other words, the inferences regarding the development impact of fiscal pacts (or of their absence) are based on individual case studies or on the assumption that good governance and democracy are favourable to development. The first of these assumptions has been shown to be relatively sound (Acemoglu, Johnson, Robinson, 2002; Rodrik, Subramanian, Trebi, 2004), but not the second (Przeworski, Alvarez, Cheibub, Limongi, 2000). Even if these assumptions were both robust, however, they would still leave the mechanics of the linkages between fiscal pacts and government policy choices in the dark. Like Timmons, we consider that the only real test of the "developmental" fiscal pact hypothesis should lie in the examination of the detailed impact of relative tax dependence on public policy in developing countries. This is what we have tried to do, and the next section presents the methodology and the results of that work.

Figure 5: Rents (aid and resource exports) as a % of GDP (Canada 25 +2, 1990-2004)



FISCAL PACTS AND DEVELOPMENT GOODS: AN EMPIRICAL TEST

This section has three parts: the first one presents the methodology we have adopted; the second one outlines a series of results; and the third one analyzes them.

METHODOLOGY

Building on a variety of sources, we have constituted a large dataset that covers country level macroeconomic data on various components of government revenue, a series of key "development goods," and a number of control variables, covering the period 1990-2004.

The independent variables considered in the current study include: revenue data (taxes, aid) which were taken from the IMF Government Finance Statistics, completed when needed with data from the World Bank's World Development Indicators (WDI). We also used WDI to assess resource dependence.

The dependent variables considered include: "development goods", a term which we used in order to avoid making inferences about the relative "public good" qualities of the goods that we have chosen. Four such development goods are examined: roads per capita, as a proxy for infrastructure investment; education spending; health care spending; and public security. Road statistics were taken from latest World Road

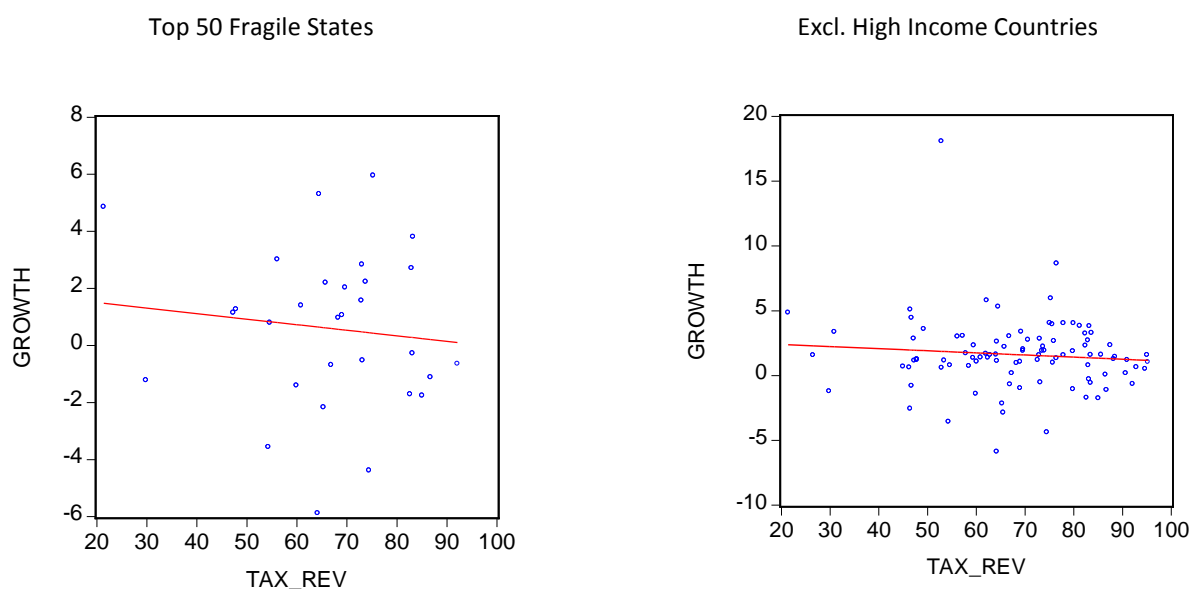
Federation reports. The other numbers come from the WDI. We also included the UNDP's Human Development Index as a general measure of development outcomes. Finally, for this specific iteration of our study, we have also included GDP per capita as a control variable in several of our estimated equations (with data from the WDI).

We have analyzed the data in two steps. The first one involves simple correlations between key variables, to see if some kind of clear tendency can be identified before we bring more variables into the model. Then, depending on the availability of the data, we did both cross section and panel analysis, including lagged variables to mitigate the problem of endogeneity.

RESULTS

The first correlation we examine is that between taxes and growth rates. If the relative weight of taxes in government revenue systematically leads to policies that are favourable to development, this should be reflected in some way in growth outcomes.

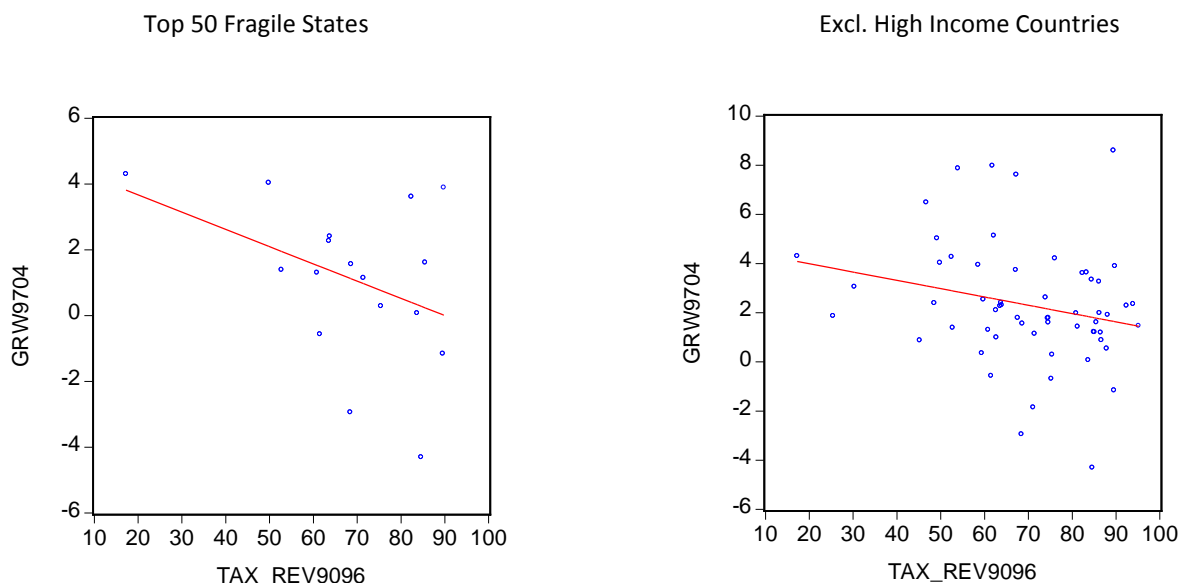
Figure 6: Taxes and Growth



The results contradict the “developmental” fiscal pact hypothesis, but their significance is so limited that no strong conclusion can be reached. It is possible that growth itself has an impact on tax revenue and this may skew the results. To partially make up for that problem (endogeneity), we check the same correlation with a time lag of five years, looking at the weight of taxes in revenue five years before our reading of growth. In order to do this, we have divided our sample into two different time periods (from 1990 to 1996 and from 1997 to 2004) and consider whether the growth rate over the period 1997 to 2004 is correlated with the tax variable over the period 1990 to 1996

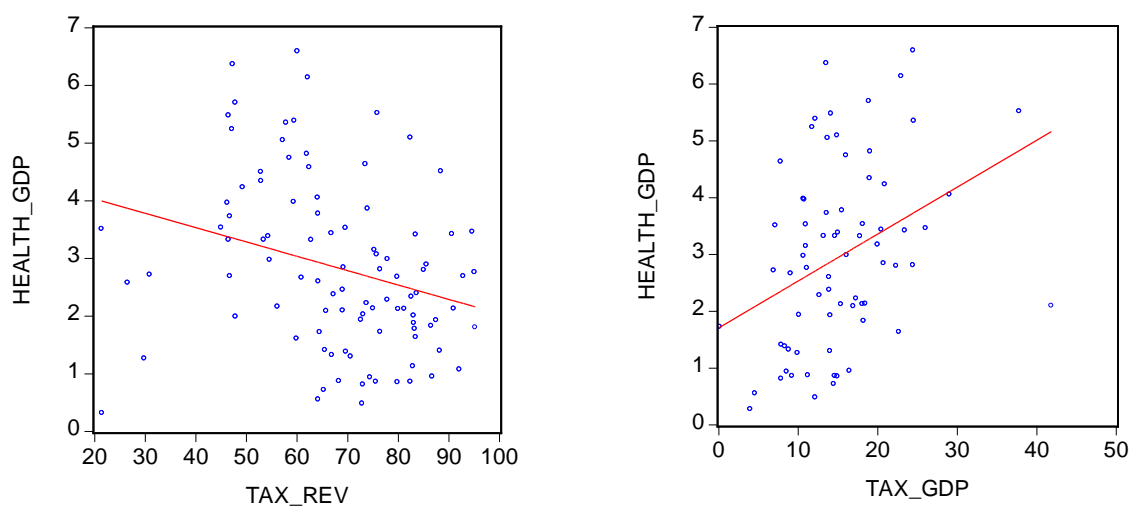
(see Figure 6 below). The results contradict even more strongly the fiscal pact hypothesis, but are not more significant. No strong conclusion can be derived here.

Figure 6: Taxes and Growth (lagged 5 years)



The results we obtained when looking at development goods were not more convincing. Significance remains very low and the results generally contradict fiscal pact hypotheses. As an example, we present here the correlation between health care spending and the weight of taxes in revenue and gross domestic product.

Figure 7: Taxes and Health Care Spending (Excluding High Income Countries)



The story suggested by Figure 7 above is in fact quite intriguing. The right graph suggests that as tax revenue as a percentage of GDP increases, health expenditure also increases. What matters, however, from the standpoint of the fiscal pact, is the extent to which government dependence on taxes (taxes as % of revenue) creates an incentive to spend more on health. Our results suggest that this is not the case. Overall health care spending, in other words, appears to be linked to the growing weight of governments in the economy, not to its dependence on taxes. At this stage, however, this relationship is not statistically significant.

The second series of tests involved cross-section regressions, and panel analysis. The results from Table 1 below are clear: tax dependence is NOT a good predictor of development policy if the latter is understood in terms of the production of the set of development goods that we have selected. Only in the case of health spending as a percentage of GDP do we get a significant result, but it has a negative sign: as the weight of taxes in revenue increases, health expenditure as a proportion of GDP diminishes. While this is consistent with the correlation presented above, it is also extremely counter-intuitive and it contradicts the fiscal pact hypothesis. No other results are significant. It should also be noted that even in the case of health care, when GDP per capita is not included (column 3), only 8% of the variation in health care spending can be traced to variation in taxes as a proportion of government revenue.

Table 1: Taxation (Tax/Revenue) and Development Goods/HDI (High-Income Countries are Excluded)

Variable	Road		Health		Education		Public Order & Safety		HDI
Constant	0.01** [3.40]	0.01 [1.59]	4.53** [6.06]	3.11** [5.21]	5.17** [7.34]	4.21** [4.33]	1.77** [4.63]	1.43** [2.96]	0.73** [12.06]
tax_revenue	-0.01 [-1.25]	-0.01 [-0.64]	-0.02** [-2.46]	-0.02** [-2.42]	-0.01 [-1.19]	-0.01 [-0.48]	-0.01 [-0.94]	-0.01 [-0.78]	-0.01 [-1.36]
GDP per capita	-	0.01** [3.30]	-	0.01** [5.73]	-	0.01** [2.08]	-	0.01** [1.96]	
Observations	95	93	97	93	93	91	58	57	95
F-Stat	0.19	0.00	0.00	0.00	0.28	0.15	0.43	0.14	0.23
R-square	0.02	0.12	0.08	0.36	0.01	0.04	0.01	0.07	0.02

Note:

1) Except where indicated otherwise, the numbers in brackets are the t-values

2) *(**) indicates 10(5) percent level of significance

To make sure that these results were not related to specific country effects, we conducted panel estimations in order to exploit both the cross-sectional and temporal dimensions of the data, in which we control for country and time effects (see table 2 below). Even if the relative predictive power of the equations improved tremendously, the results for tax revenue changed very little, with a significant, but very small, impact of relative tax dependence on roads per capita (column 2), when one controls for GDP. The results for health expenditure were consistent with both the cross-section and the simple correlation analysis done before.

Table 2: Taxation and Development Goods (High-Income Countries are Excluded)

	Road		Health		Education		Public Order & Safety	
Constant	0.01 [0.66]	-0.01 [-1.77]	8.57** [4.58]	10.33** [3.80]	4.37** [4.64]	4.34** [7.20]	1.29** [33.81]	1.48** [19.95]
tax_revenue	0.01 [0.38]	0.01** [2.14]	-0.03** [-2.85]	-0.04** [-2.64]	0.00 [1.13]	0.00 [1.63]	-0.01 [-1.34]	-0.01 [-1.32]
GDP per capita	-	0.01** [7.66]	-	-0.01 [-0.97]	-	-0.01 [-0.12]	-	-0.01** [-2.28]
Observations	346	340	144	137	147	139	352	330
Prob(F-Stat)	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
R-square	0.50	0.54	0.97	0.97	0.88	0.90	0.73	0.74

Note:

1) Except where indicated otherwise, the numbers in brackets are the t-values

2) *(**) indicates 10(5) percent level of significance

If tax dependence has little impact on the production of development goods, is it at least positively associated with lower conflict risks which, given the massive impact of war on development (Stewart and Fitzgerald, 2001), would indirectly support the developmental fiscal pact hypothesis. Once again, our results are disappointing. Table 3 (next page) shows that, for the full sample of countries, it is the level of income, not tax dependence that better predicts state fragility. Tax revenue is mildly significant for the full sample only when the model does not control for revenue, but its predictive power is negligible (only 3% of the variation is explained). Moreover, even GDP per capita loses its significance when the sample is limited to the 50 most fragile states. Given the bare simplicity of the model, these results must be taken with utmost care. There is nothing in them to suggest, however, that tax dependence could have much of an impact on fragility and, through it, on conflict risk.

Table 3: Taxation and Fragility (1990-2004)

	Full Sample		Excl. High-Inc.		Top 50 Fragile	
	1	2	3	4	5	6
constant	54.08** [5.94]	87.31** [19.21]	71.20** [9.19]	94.01** [18.15]	89.99** [16.53]	87.44** [17.07]
tax_revenue	0.23* [1.74]	0.01 [0.21]	0.09 [0.86]	0.01 [0.03]	0.07 [0.80]	0.13 [1.56]
GDP per capita	-	-0.01** [-15.18]	-	-0.01** [-7.27]	-	-0.01 [-1.51]
Observations	121	116	95	91	31	30
F-Stat	0.08	0.00	0.36	0.00	0.37	0.21
R-square	0.03	0.71	0.01	0.55	0.03	0.11

Note:

1) Except where indicated otherwise, the numbers in brackets are the t-values

2) *(**) indicates 10(5) percent level of significance

DISCUSSION

Our results are very consistent and contradict the hypotheses derived logically from the fiscal pact literature: the relative tax dependence of governments is not a good predictor of the production of all but one of the development goods considered here. The exception is health care, for which tax dependence is consistently a good predictor, but negatively, that is in a way that contradicts fiscal pact hypotheses. This may call for a local theory, but we don't think it provides a basis to argue that the production of development goods in general is negatively affected by tax dependence.

In the course of this research, we were able to identify a number of problems that, once resolved (assuming that they can be), may lead to results that differ from those we obtained. The most important, we must mention is certainly the relatively poor coverage and the relatively frequent anomalies of detailed tax data in the IMF and WDI databases and the lack of consistency in the classification of tax revenue. It is also possible that the results were affected by the relatively short time period covered (14 years), although our using a panel enabled us to get a relatively large number of observations.

That being said, given the current interest for fiscal pacts and taxes in development circles, the overall lack of a significant impact of tax dependence on development policy is a bit surprising. However, a number of analysts, including some of the most forceful advocates of a renewed focus on taxes - Mick Moore, in particular -

have already pointed out that contemporary governments in developing countries have a broad range of revenue options, which puts them in a very different situation from the late Middle-Ages Western European states whose study has driven much of the current hopes regarding taxes. The weight of fiscal pacts, in other words, may simply not be that significant today, which would explain why the production of development goods appears to be indifferent to the existence or not of such fiscal pacts. Given the limitations of existing research, however, such an interpretation should be seen at best as a hypothesis to be tested more systematically.

POLICY IMPLICATIONS

The most important conclusion of this study, from the standpoint of public policy, is that there is no basis for aggressively buying into initiatives whose starting point is the assumption that tax dependence is a sound foundation for sustainable development. The results of our empirical investigations are not consistent with the theory of fiscal pacts or the increasingly numerous case studies that support the theory. As was pointed out, however, we are not confident enough in those empirical tests to frontally challenge the emerging conventional wisdom. Consequently, we have organized this section around a series of policy implications, indicating simply if they are consistent with theory (T), case studies (C), or empirical analysis (E) – either this work or published studies.

RAISE TAXES

Any tax is good: it makes the government dependent on the fate of the economy and on the electorate (T, C, E?)

Regressive taxes are probably better, because more people are owed services, transparency or political influence (T, C, E-[Timmons-2005])

BEWARE TOO MUCH AID

From the standpoint of the international community, Afghanistan is clearly beyond any reasonable threshold (T, C, E?), with Haiti probably also a relevant case.

SEEK "SCRUTABILITY" IN AID

Debt forgiveness, budget support or balance of payment support is probably bad, because it does not force governments to be accountable to anybody through fiscal pacts, although conditionality-based "aid" pacts may represent functional substitutes (T,C,E?), as long as recipients buy into it. By contrast, projects may have beneficial results, to the extent that their terms are known to the people affected and, assuming they have an economic impact, because they create an incentive for the state to tax, so as to get a part of the money transferred (T).

BYPASS THE GOVERNMENT

Following the same logic, when aid levels are already very high, it is probably better to send money directly to individuals or private organizations, as it creates an incentive for the government to tax them, with all the benefits that flow from such increased dependence on taxation (T).

CONCLUSION

A fast-growing body of literature promotes the idea that government dependence on taxes, and through those, on their country's population, should lead to policies that favour sustainable development. The key mechanism, an implicit "fiscal pact," involves the exchange of taxes for some kind of public good produced by the government: if and when governments do nothing for their people, the latter are unlikely to willingly pay taxes to sustain it or even to engage in economic activities that would be taxable.

Building on extensive and sophisticated historical studies, as well as a fast-growing number of contemporary case studies, this thesis is gaining ground in policy circles. The purpose of our research was to do a large-sample empirical test of those assumptions.

Our results provide no basis whatsoever to think that they are valid. While there are many weaknesses in this study, from the quality of the data to the time coverage of the sample, and while most of our methodological choices can be challenged, the fact that we found no significant relationship between tax dependence and production of development goods (health care, education, security services, and roads) by governments of developing countries suggests at the very least that the assertions made on the basis of case studies should be taken with utmost care and probably a healthy degree of scepticism.

Tentatively, it appears that the incentive structure of developing countries' contemporary rulers is simply too diversified for one to trace their behaviour in the field of development policy from only one of their many possible sources of revenue, namely taxes.

We intend to pursue this line of inquiry with a multi-year, full-fledged research program. In particular, our intent is to expand the dataset used in the current study, to refine the models tested, and to do detailed studies of anomalous cases, namely of successful rent-dependent states.

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