# Achieving Addis? An Empirical Investigation on the Impact of Tax Aid on Domestic Revenue Generation and the Taxpayer Base

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**Abstract**

Developing and emerging economies need to increase their tax revenue. Not only are other sources of income such as foreign aid or oil rents less reliable, they are also potentially harmful to economic development and democratic accountability. The international community is keenly aware of this challenge and has recently dedicated substantial resources and advocacy to assist countries in mobilizing domestic tax revenue as part of the Addis Ababa Action Agenda. Considering, however, that extensive research indicates that foreign aid is often ineffective, it is not obvious that this tax assistance will help developing countries raise their own base of revenue. In this article, we assess the impact of international assistance programs for tax purposes (tax aid) on tax revenue generation and informality across the developing world. We analyze panel data of 137 developing countries between 1972 and 2013 from the AidData, International Centre for Tax and Development, and World Development Indicators datasets. We also estimate statistical regressions of survey data from the World Bank's Enterprise Survey and World Values Survey. Our findings indicate that tax aid does not increase the number of taxpayers in the short run; however, it is associated with reductions in such informality over a longer period of time. Further, tax aid is effective in generating domestic tax revenue in precisely the way international agencies advocate, namely a strong reliance on the value added tax (VAT). However, the shift from direct to indirect taxation for revenue mobilization could be inadvertently locking in a regressive tax system in already unequal societies and discouraging political contestation around more visible forms of taxation.

**Keywords:** Taxation, tax aid, domestic revenue generation, developing countries, foreign aid

## 1. A New International Agenda for Domestic Revenue Support

The European Union and other donors just pledged to double the amount of official development assistance (ODA) targeted towards domestic revenue generation in developing countries until 2020 (Addis Ababa Action Agenda 2015, Commitment 1). Support to raise tax revenue is an important goal for at least three reasons. First, the UN estimates that developing countries need to raise at least 20 percent of GDP in taxes in order to fulfill the Millennium Development Goals. So far, many fall short (OECD 2013). As a consequence, domestic revenue generation became the first target of the Sustainable Development Partnership Goal (17.1, United Nations 2015). It is now one of the most important priorities for aid donors. Second, increased domestic resources decrease current aid recipients' reliance on donor countries. Not surprisingly, this is a popular goal among donors and recipients alike. Third, a larger and more capable tax state is strongly associated with a capable and politically stable state as well as an important prerequisite for economic development (Besley and Persson 2013; Dincecco and Katz 2016; Tilly 1990; Levi 1989). Yet, despite the importance scholars and policy makers place on domestic revenue generation, we know very little about official development assistance (ODA) for the purpose of taxation (i.e., tax aid). Is tax aid effective in increasing tax revenue in developing countries?

Given the mixed results of the aid effectiveness literature (see e.g. Doucouliagos and Paldam 2011; Rajan and Subramanian 2008) this is by no means certain. From an evidence-based policy point of view, a better understanding of the effectiveness of the new donor agenda is urgently required. From a scholarly point of view, our study brings insights from the state-development literature into the aid effectiveness debate to arrive at a better understanding of the mechanisms behind aid effectiveness (Wright and Winters 2010; Deaton 2010). Rather than focusing on the long causal chain between aid and economic development, we investigate the more

specific link between tax aid and its expressed intent, namely the generation of domestic revenue. We conceptualize tax aid as foreign assistance marked to enhance the revenue raising capacity of the recipient country. This includes programs to train tax administration staff, guide and assist tax reform efforts, or fund new software, computer, and other technological equipment. We build on the literature of (European) state development to highlight how introducing new broad-based taxes and improving tax administrations was what led to more revenue and also better governance and economic development (Besley and Persson 2009; Dincecco and Katz 2016; Levi 1989). This is precisely what tax aid aims to emulate. The aid effectiveness literature also gives us important insights into when and how aid is more likely to be effective. We show that tax aid is delivered mostly by multilateral institutions with the aim to increase good governance – both important factors for aid effectiveness (Burnside and Dollar 2000; Gehring et al. 2017). Hence, we expect tax aid to be effective in raising revenue.

Empirically, we measure tax aid as aid with the "tax assessment procedures" activity code (under "public sector financial management") in Tierney et al. (2011) and assistance for tax projects from World Bank Project Data (2019a).[1] Our analytical section provides various empirical tests of the effect of tax aid on its intended outcome, tax revenue, for a sample of 137 developing countries between 1972 and 2013. We also explore the effect of tax aid on the size of the taxpayer base using data from the World Bank's Enterprise Survey and World Values Survey. Our results show that tax aid is effective in increasing domestic tax revenue – in precisely the area donor

[1] The Tierney et al (2011) AidData dataset records international development flows from bilateral and multilateral aid organizations. It assigns each project with an activity code using a double-blind and arbitration methodology. A project can receive as many activity codes as characterizes the project.

agencies focus on, namely indirect taxation. However, a positive association between tax aid and the number of taxpayers occurs only in the long run.

Our analysis contributes to several research agendas in international political economy and development. First, by focusing on one form of aid- tax aid- we follow calls of the aid effectiveness literature to look closer at the mechanisms behind effectiveness (Deaton 2010; Wright and Winters 2010). This investigation is especially important given the aid curse debate in the field. While some scholars argue that aid itself is as detrimental to good governance and domestic revenues as oil (e.g. (Benedek 2014; Crivelli and Gupta 2014; Djankov, Montalvo, and Reynal-Querol 2008), others challenge this finding and add nuance to when and why an aid curse may occur (see discussion in Mascagni 2018; Prichard, Brun, and Morrissey 2012, Alonso and Garcimartín 2011). Our findings corroborate the latter, *tax* aid shows no signs of an aid curse and might in fact be a way of overcoming it. Second, our work adds to the burgeoning work on revenue mobilization and state capacity in developing countries (Bastiaens and Rudra 2016; Keen 2013; Moore 2004) and how to draw lessons from the European experience on modernization and taxation (Genschel and Seelkopf 2016; Seelkopf et al 2019; Hinrichs 1966; Moore, Prichard, and Fjeldstad 2018). Tax aid seems to be a promising way to induce development via taxation.

## 2. A Review of the Effectiveness of Aid for Revenue Generation

What do we know about the effectiveness of aid for domestic revenue development? Unfortunately, not very much. In the following section, we shortly lay out why this is the case and what little we do know from the studies that look at the impact of International Monetary Fund (IMF) programs on taxation in developing countries. We then turn to studies on the development of the (European) tax state to generate insights into what processes tax aid typically tries to emulate

to build tax capacity and the taxpayer base. In a subsequent section, we finish with insights from the general aid effectiveness literature to arrive at a better understanding if and how tax aid can increase domestic revenues.

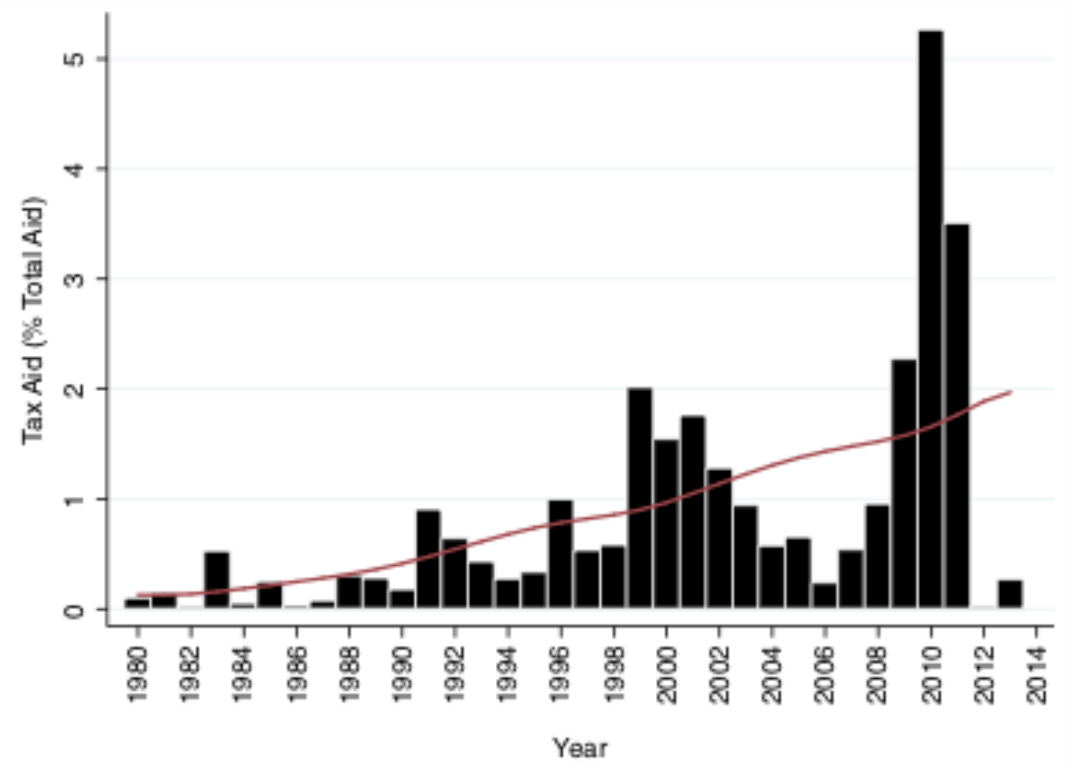
### *2.1 International Efforts to Increase Tax Revenue*

Although research in fields as diverse as fiscal sociology, development economics and political science stresses the importance of taxation for state development and good governance (Schumpeter 1917; Mann 1984; Besley and Persson 2009; Ross 1999), ODA for tax purposes is only very recently increasing in importance and its effects are little understood. However, this does not mean that tax aid is a new phenomenon. One of the first foreign aid missions, the Shoup mission during the Truman administration in 1949, was concerned with the reform of Japan's tax system. Interestingly, it did not seem to have much effect as the Japanese government dropped most of the advised reforms after independence (Brownlee 2009). Yet, from then onwards, the Bretton Woods institutions have continued to advise developing countries on how to tax (see for example, Fjeldstad (2013)). Although, in monetary terms, tax aid only started to emerge in the 1980s. Looking at Figure 1, we see that tax aid is a rather recent phenomenon.[2] While firmly below one percent of total development assistance in the 1980s, tax aid in developing countries has increased to over three percent of total development assistance in the 2010s.[3] Not only was relatively little aid devoted to supporting tax system in developing countries, the aid also came mainly from multilateral donors such as the World Bank and the IMF, as Figure 2 shows. Less

[2] Appendix A includes graphics of tax and non-tax aid as a percent of GDP in developing countries.
[3] The data indicates a cyclical nature of assistance as it peaks and then drops after a few years, such as between 2010 and 2013. To address this pattern, we use a moving average of tax assistance in the empirical section.

than 10 percent of tax aid is given bilaterally to the developing countries, compared to close to 40 percent for general aid in 2013.

**Figure 1: Average Tax Aid (% Total Aid) Across 150 Developing Countries (Data from Tierney et al 2011)**

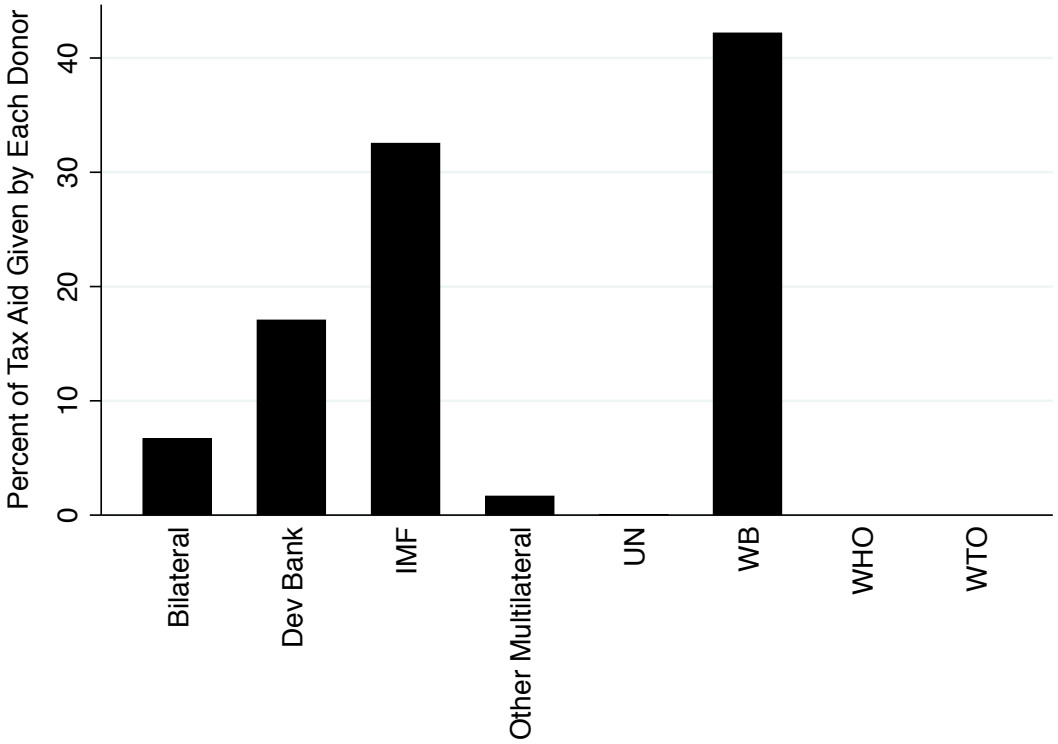



Because tax aid is such a recent phenomenon and the domain of multilateral institutions, not much scholarly attention has been devoted to it to date. It did not help that most scholars saw taxation in developing countries as a rather boring and technical field (Moore et al. 2018).

When scholars do study tax aid, they focus on recommendations for the IMF to assist with revenue generation (Prichard, Brun, and Morrissey 2012; Fjeldstad 2013) or assess whether the involvement in an IMF program helped to replace lost revenue from custom duties with revenue from the VAT. The evidence suggests that the IMF's policy and assistance has been fairly successful (Keen and Lockwood 2010a), at least in autocratic countries (Bastiaens and Rudra

2016) and when conditionality is attached (Gupta 2007). Yet, we know little about the theoretical mechanism behind tax aid and revenue generation. What experience do donors hope to emulate when giving advice or aid on taxation?

**Figure 2: Percentage of Tax Aid by Donor (Data from Tierney et al 2011)**




Tax aid's goal from early on was to emulate the West and implement tax systems that resemble those of developed democracies (Brownlee 2009; Keen 2013; Genschel and Seelkopf 2016). Therefore, we review the state development literature in the West to better understand if and how tax aid might be effective in raising revenue and increasing the number of taxpayers in developing countries.

### *2.2 The Development of the Modern Tax State*

Low tax ratios are rather the norm than the exception. Through most of history, governments taxed much less than the United Nations' stated goal of 20 percent of GDP. Just 100 years ago, countries such as France and the United states raised less than 10 percent of GDP in taxes (Ortiz-Ospina and Roser 2016) - an even lower tax take than Uganda or the Philippines have today (World Bank 2019b). How did OECD countries turn themselves into the developed tax states that we associate with them today? Fiscal sociology's main answer is war (Tilly 1990; Dincecco and Prado 2012; Scheve and Stasavage 2010)[4]. Threats to national security trigger a need for revenue that countries answer with the introduction of new, broad based taxes such as the personal income tax and a larger, modernized tax administration. These reforms bring revenue to state coffers, but also increase the broader capacity of the state. As the state's tax administration becomes more effective in collecting taxes, citizens then demand more political control over spending in return for their quasi-voluntary compliance to tax collection (Levi 1989).

Long after the wars were fought and paid, governments continue to rely on these tax reforms and administrations. In fact, after war, the increased revenues typically finance public infrastructure and modern welfare states. Scholars thus equate tax revenue with state capacity (Rogers and Weller 2014) and view it as central for development (Moore et al. 2018).[5] Today, developing countries are struggling to raise such tax revenues needed for development. Low-income countries collect between 10 and 20 percent GDP in taxes in comparison to 40 percent for high-income countries (see Besley and Persson 2014; OECD 2017). As a result, multilateral donors are trying to boost taxation in developing countries by emphasizing two main issues that were also

[4] An alternative explanation is modernization (see Seelkopf et al for a short discussion). Whereas the West achieved taxation as a result of modernization, tax aid aims to achieve modernization through taxation.

[5] Relying on taxation rather than other forms of revenue is widely seen as increasing good governance (Alonso and Garcimartín 2013; Moore, Prichard, and Fjeldstad 2018).

at the heart of Western tax state development: the introduction of broad-based taxes and the strengthening of tax bureaucracies to bring more taxpayers into the system. We shortly discuss each recommendation in turn.

Take the tax administration first. Tax administrations in developing countries have limited resources, including less technological support (e.g., computers and software). The personnel in these tax bureaucracies are low skilled, poorly trained, and fewer in number. De Jantscher goes even so far as to say, "in developing countries, tax administration *is* tax policy" (Casanegra de Jantscher 1990 cited in IMF 2011, 19). Virtually all tax aid projects include training measures for the (weak) tax administrations in developing and emerging countries. For India, the World Bank has even argued, that "tax administration reforms are perhaps more important than tax reforms" itself (World Bank 2004, 1). Nevertheless, advice and aid to support tax administrations are often paired with policy prescriptions to simplify the tax code and introduce high payment thresholds. Such recommendations are intended to reduce complexity and therefore efficiency of collection. For instance, in their mission to support China's big tax reform in the 1990s, the World Bank strongly criticized the myriad tax rates and exemptions (World Bank 1995). The IMF also strongly advises focusing on taxing upper-income individuals and firms to maximize revenue: "controlling the largest enterprises (usually a few hundred or thousand), can secure 60-80 percent of domestic taxes" (IMF 2011, 20).[6]

Strengthening the tax administration is combined with advice to introduce modern, broad-based taxes. Whereas earlier development economists (Kaldor 1963) advocated for developing

[6] Lower thresholds could lead to increased revenue collection. In India, for example, the tax revenue foregone because of high income tax thresholds is estimated to be 1.3 percent of GDP (IMF 2006). Yet, focusing on the potential top taxpayers is first priority as it is expensive to ensure both effective tax collections and taxpayer compliance when taxing the informal economy (Loeprick 2009).

countries to adopt the main revenue raiser of the West, namely personal income taxes (PIT), experts today tout indirect taxation as the key to successful revenue generation (Genschel and Seelkopf 2016). After disillusionment with the (very low rate of successful) personal income tax implementation

> [s]ometime around the late 1970s, practitioners – notably in the Fiscal Affairs Department of the International Monetary Fund – made the great intellectual leap to a belief that the value-added tax (…) could, if kept sufficiently simple, be an effective and (by dint of judicious exclusions and a fairly high threshold) reasonably fair source of revenue even in countries with limited administrative capacity. Adding to this direct revenue appeal was the thought that (…) the VAT (…) could pave the way to the elusive strengthening of income taxation (Keen 2013, 20).

Today, the VAT is seen as non-distortive to international trade and, in general, a very efficient form of taxation (see Keen and Lockwood 2010). Raising taxes on personal income or enforcing taxes on corporate income is seen as too difficult, especially in times of rising tax avoidance and evasion by multinational corporations and wealthy elites (Keen 2013, 24). Hence, somewhat different to the experience in Europe, the VAT has become the backbone of tax aid and the tax system in developing countries.

In sum, the goal of tax aid is to emulate the successful European experience by strengthening the tax administration and introducing modern broad-based taxes. We now turn to the general aid effectiveness literature to examine whether what tax aid does and how it is delivered is in line with the lessons learned from delivering foreign aid for over half a century. We build on these insights to predict if and how tax aid can increase domestic revenues in developing countries.

## 3. Why Tax Aid is Expected to be Effective in Generating Revenue

While the donor community is very enthusiastic about the promises of tax aid, scholarship has a more pessimistic view on both the effectiveness of aid in general (Deaton 2010;

Doucouliagos and Paldam 2011; Rajan and Subramanian 2008) and the relationship between aid and domestic revenue generation in particular (Djankov, Montalvo, and Reynal-Querol 2008). Aid is posited to be inefficiently allocated, misused, or even crowding out domestic revenue efforts. Yet we have learned much in the last decades on what types of aid are more likely to work under which conditions and for which outcomes (Wright and Winters 2010). Both the way tax aid is delivered and what it does indicate that it should be effective in raising revenue.

Despite calls for the harmonization and multilateralization of aid, much of overall official development assistance is still given bilaterally. These uncoordinated agency efforts, which often even compete with rather than complement each other, are one source of aid ineffectiveness (Gehring et al. 2017). However, helping developing countries tap into their domestic revenue sources was, and often still is, seen as a technical matter best solved by international experts (Di John 2006, 1) and, as such, most tax aid is allocated by the IMF and the World Bank (see Figure 2 and Table 1). These two multilateral donors have not only vast experience in aid projects and their monitoring, they are also under much more scrutiny than bilateral donors. The tax aid donors' own survival depends much more on the effectiveness of their aid projects.

In addition, the content of tax aid is highly harmonized. The advice of international experts (and the policies pegged to tax aid) focuses on efficient revenue collection via simplified tax codes and a better-trained administration, who can tax the major taxpayers more efficiently via indirect taxation.[7] Table 1 provides case examples of various projects each donor has conducted and some metrics of the results. Although not intended to be representative, the cases point to the very similar priority donors place on building state capacity through information technology reform and increasing revenue through indirect taxation.

[7] Of course, executives at the IMF are aware of academic discussions (see Keen 2013).

**Table 1: Tax Aid Case Examples**

| Donor Type | Case Example: Recipient and Year | Case Example: Project Details | Case Example: Results |
|---|---|---|---|
| Bilateral Donors | Mozambique (from United Kingdom), 2003 | Budget support to reform customs and tax departments | Increase in tax revenue from $213m in 2003 to $756 in 2004. |
| Development Banks | Liberia (from African Development Bank), 2008 | Public Financial Management Reform Support Program I; Goals are to strengthen public financial management, modernize the revenue administration, reinforce audit systems | Incorporation of more staff to macro-fiscal unit, increased audits by General Audit Commission, suspension of tariffs on agricultural equipment and supplies, Automation and information technology reforms in progress. |
| IMF | Bangladesh, 2013 | Extended Credit Facility with goals of modernizing tax regime | Implementation of new VAT with single 15 percent rate, delay in taxpayer identification number issuance, slowing tax revenue growth so calls for "more aggressive tax enforcement" to "buttress collections" |
| Other Multilateral Institutions | Lesotho (from African Development Fund), 2009 | Poverty Reduction Support Program, focus on governance in public financial management by improving transparency and accountability in management and use of public funds | A new Integrated Financial Management Information System adopted in 2009, but "not been producing results as expected because of capacity constraints." |
| United Nations | Uzbekistan, 2006 | Improving Tax Administration Project; Introduce information technologies to tax departments including software for electronic taxpayer statements | Launch of software and thousands of users. |
| World Bank | Argentina, 2011 | Public Sector Strengthening Program; | Increased local tax revenue, increased number of audits, |

| | | | |
|---|---|---|---|
| | | Technical Assistance with goal to increase tax collection and modernize tax administration (e.g., improve quality of taxpayer registry, extend tax audits- especially on 'large' taxpayers) | delegation of tax enforcement powers. |

Case Sources
Row 1: http://www.oecd.org/countries/mozambique/37387241.pdf
Row 2: https://projectsportal.afdb.org/dataportal/VProject/show/P-LR-K00-009
Row 3: https://www.imf.org/external/pubs/ft/scr/2013/cr1361.pdf
Row 4: https://projectsportal.afdb.org/dataportal/VProject/show/P-LS-KA0-001
Row 5: http://web.undp.org/execbrd/pdf/ADR-Uzbekistan.pdf
Row 6: http://projects.worldbank.org/P121836/public-sector-strengthening-program-apl1?lang=en&tab=overview

Furthermore, the relative newness of tax aid (see also Figure 1) makes it more likely to work. In recent years, donors have strongly increased their monitoring requirements and capacities, aided by rise in technology and ease of international exchange. The end of the Cold War- and the corresponding decline in politically strategic lending- has also been associated with exits by donors with negative project evaluations. Project conditionality is generally more credible today as a result (Wright and Winters 2010).

Additionally, the focus of tax aid on revenue generation circumvents some of the issues general aid seems to have. When it comes to domestic revenue generation, foreign aid itself has been argued to have negative effects as it impacts the composition and size of government revenue. Upon receiving external resources, recipient governments can decrease the level of taxation for any given spending level. Even if governments maintain existing tax rates, the (potentially substantive) aid inflows decrease the importance of domestic revenues in the overall revenue mix. As taxes paid by recipient taxpayers become relatively less important for government survival, the

fiscal contract with society becomes weaker and political institutions deteriorate (Benedek 2014; Djankov, Montalvo, and Reynal-Querol 2008; but see Gnangnon and Brun 2018). On the other hand, tax aid seeks precisely to improve the relevance of tax revenues in the overall revenue mix. With its strong focus on (tax) administrations and its potentially positive indirect effects on good governance, which is seen as key for aid effectiveness (Burnside and Dollar 2000), we expect tax aid to be effective in raising more domestic revenue.

Taken together, we hypothesize that tax aid will be effective in raising revenue. If tax aid works according to the donors' advice, it should increase indirect taxation revenue more than direct revenue. We are agnostic as to the impact of tax aid on the number of taxpayers. On one hand, the increased administrative capacity following such assistance should reduce informality. However, on the other hand, the focus of donors on taxing the wealthy does not prioritize expanding the base. Thus, exploring the impact of tax aid on the number of taxpayers will give insight into how tax aid is working on the ground. In the next section, we empirically test this hypothesis and the underlying mechanism.

## 4. Empirical Section: The Impact of Tax Aid on Revenue and the Taxpayer Base

We first analyze the effect of tax aid on government revenue generation on a sample of 137 developing countries between 1972 and 2013.[8] We focus on tax revenue as the dependent variable of interest because it is the most direct and clear manner to assess the effectiveness of tax aid. If international assistance for taxation is effective, revenues should correspondingly rise. To determine further who is paying taxes and being targeted in tax assistance reforms, we test the

[8] See Appendix D.2 for a list of countries in the sample.

impact of tax aid on specific revenue sources. In a second step, we try to unpack this mechanism further by assessing the impact of tax aid on the taxpayers themselves.

### *3.1 Does International Tax Aid Raise Tax Revenue?*

Our dependent variables are total tax revenue (excluding compulsory transfers such as fines, penalties, and social security contributions) as a percent of GDP, taxes on international trade as a percent of GDP, and total tax revenue minus international trade tax revenue (i.e., domestic tax revenue) as a percent of GDP (World Bank 2017). We also employ three domestic tax revenues to unpack the tax mix: taxes on income, profits and capital gains (i.e., income tax revenue) as a percent of GDP, taxes on goods and services (i.e., goods tax revenue) as a percent of GDP, and a ratio of direct to indirect taxes collected (income tax revenue divided by goods tax revenue). In the robustness check section, we operationalize the dependent variables as a percent of total government revenue and with Prichard, Cobham, and Goodall's (2014) revenue dataset. We chose to focus on tax revenues rather than rates for several reasons. First, revenue generation is most direct and clear assessment of the success of tax aid and, second, the availability of tax rate data is quite limited in the developing world. Furthermore, tax revenue is the metric often used by donors to evaluate success (see Table 1).

We operationalize our independent variable of interest as a moving average of tax aid as a percent of GDP (lagged by three years) following the aid literature that also averages aid flows in their analyses (see (Bearce and Tirone 2010; Kosack and Tobin 2006). We chose a three-year moving average and lag because tax aid assistance programs typically last between two and four years (Michielse and Thuronyi 2010). Tax aid is from Tierney et al's (2011) aid dataset and, more specifically, is aid with the activity code "tax assessment procedures" under the public sector

financial management sector. We use the committed amount of aid (as a percent of GDP of the recipient state) and include all donors (i.e., bilateral and multilateral assistance) in this operationalization of tax aid. Some examples of tax aid projects in this dataset include: the National Program for Fiscal Administration in Brazil from the Inter-American Development Bank in 1996, Russian-Swedish Co-operation Programme for Financial Reforms in 2003, Tax Training Programme to China from the United Kingdom in 1998, and World Bank Technical Assistance for Economic Reform to India in 2000. In the robustness section, we operationalize tax aid using an alternate dataset from the World Bank.

The international community focuses on simultaneously helping developing countries reduce their dependence on taxing trade and replace this lost trade tax revenue with domestic taxes, such as the VAT or closing income tax loopholes (Bastiaens and Rudra 2016). We thus expect tax aid to be positive and statistically significant in predicting changes in total tax revenue, domestic tax revenue, and goods tax revenue. If tax aid increases income tax revenue this effect should be weaker, as this is not emphasized by international financial institutions. Tax aid should be negative and statistically significant in predicting changes in trade tax revenue. Our model specification lags all independent variables by one year, as we do not expect a simultaneous relationship between aid and revenue. Lagging the independent variables also addresses concerns of reverse causality. In the robustness checks, we do employ one and five-year lags, a measure of aid per capita, and a broader fiscal aid variable.

In addition to tax aid, we also include the three-year moving average of general aid (i.e., all aid minus tax aid) as a percent of GDP and lagged by three years (Tierney et al 2011). Including non-tax aid allows us to isolate the impact of tax aid versus general aid on revenue. A statistically insignificant coefficient would indicate that general aid does not impact revenue generation in

developing countries. A positive and statistically significant coefficient would indicate how general aid could complement targeted tax aid in generating revenue through institutional or economic reform. A negative and statistically significant coefficient would provide evidence of an aid curse whereby aid money is fungible and used to avoid government spending based on own resources (Feyzioglu, Swaroop, and Zhu 1998). Interestingly, if tax and general aid had the same effects on all revenue types, this could also indicate a high level of fungibility and a general uselessness of aid targeting for specific purposes.[9] Following the literature on aid effectiveness, we expect an insignificant, if not negative effect of general aid on tax revenue.

Following Genschel and Seelkopf (2016), we control for specific economic and political factors in our estimations. To account for the internal growth conditions as well as integration in the global economy, we include GDP growth, trade as a percent of GDP, and FDI as a percent of GDP (World Bank 2017). We expect GDP growth to be positively associated with tax revenue. We are ambiguous as to the influence of trade on tax revenue as trade liberalization is associated with reductions in trade tax revenue (Bastiaens and Rudra 2018) but has also been associated with the adoption of new taxes and revenue generation by trade economists (Bhagwati and Panagariya 2013; Winters and Martuscelli, 2014; Seelkopf, Lierse, and Schmitt 2016). We include regime type, measured by the polity index (Marshall, Jaggers, and Gurr 2011) to account for the potentially differing revenue raising capacities across regimes. We are ambiguous as to the expected direction of democracy on tax revenue because the scholarship on regime's revenue-raising efficacy presents mixed results (Cheibub 1998 Acemoglu et al. 2019; Bastiaens and Rudra 2018). Finally, we control for the GDP per capita of the country (logged) and the agricultural value added as a percent of GDP, as wealth and modernization are key predictors of tax composition and revenue

[9] Tax aid and non-tax aid are positively correlated, but only slightly, at less than 0.1.

generation (Hinrichs 1966). Income is expected to be positively associated with tax revenue. We lag all independent variables by one year. Appendix D contains descriptions of all variables and the list of countries in the sample.

We employ an ordinary least squares panel regression with robust standard errors clustered by country. We also include both country (c) and year (t) fixed effects. Country fixed effects help address concerns with omitted variable bias. We do employ a base model in the robustness section without country or year fixed effects. Our basic model is:

$$Y = B_o + B_1*X1_{t-3} + B_2*X2_{t-3} + B_3*X3_{t-1} + t + c + e$$

Table 2 presents our estimation results. Our findings show that tax aid is effective in raising total tax revenue; tax aid is positive and statistically significant in generating both total and domestic tax revenue (Table 2, column 1 and 2).[10]

Disaggregating total tax revenue, we find divergent trends. As expected, tax aid is associated with declining trade tax revenue as countries are advised to liberalize their economies and reduce dependence on trade taxes (see Keen and Lockwood 2010b; Bastiaens and Rudra 2016). Yet, as hypothesized, the declining government revenue from tariffs is recovered by indirect taxation: tax aid is effective in raising goods and service tax revenue (Table 2, column 4). However, if progressive income taxation is the gold standard of a capable tax state (Besley and Persson 2013; Rogers and Weller 2014) tax aid has *not* helped developing countries get closer to achieving it. Different to the hope of tax advisors (Keen 2013), aid to improve indirect taxation has not strengthened income taxation, but potentially worsens it: tax aid is negative and statistically significant in predicting income tax revenue (Table 2, column 5). More specifically, a one standard

[10] To ensure there is not a pattern to the missing values in the dependent variable, we regressed tax aid on the missing values of tax revenues. Tax aid is statistically insignificant in predicting missing values of tax revenue.

deviation increase in the moving average of tax aid – an amount received, for example, by Mozambique in 2002 or Niger in 1998 -- is associated with a decrease in income tax revenue by 0.02 units, but an increase in goods and service tax revenue by 0.15 units. This impact of tax aid on revenue collection is not negligible: it is close to the average annual change of income tax revenue and double the average annual change of goods and service tax revenue in developing countries. The negative and significant finding of tax aid on the direct-indirect tax ratio confirms that the increase in domestic tax revenue is driven by goods and service taxes, not income taxation (Table 2, column 6).

Across Table 2, general aid is consistently statistically insignificant in generating in tax revenue, with the exception of trade tax revenue. Not surprising for the scholars of aid allocation, who see the donors` trade interests as one main driver of development assistance (Younas 2008), aid increases the consumption of foreign products and hence revenue from trade duties. The different effects of tax aid and general aid support the idea that the type of aid allocated matters for effectiveness (Wright and Winters 2010). Not all aid projects are made equal.

Our control variables provide some insight on additional factors affecting tax revenues in developing countries. GDP growth is associated with more trade tax revenue. Most likely this stems from the fact that increased trade drives not only growth, but also a preliminary increase in trade tax revenues due to a growing tax base, before the decreasing effect of lower tariff rates sets in (Ebrill, Stotsky, and Gropp 1999). The inflow of foreign goods and capital in the form of trade is associated with increased income tax revenue generation. Interestingly, foreign direct investment leads to more domestic tax revenue in the form of both income and goods tax revenue. Foreign investors are perhaps contributing to both local VAT collection and higher wages.

**Table 2: Determinants of Tax Revenues**

| DV= | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Goods Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) | (6) Direct-Indirect Tax Rev Ratio |
|---|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-3}$** | 0.0458** | 0.0913*** | -0.0446*** | 0.0998*** | -0.0120* | -0.0157*** |
| | (0.0180) | (0.0194) | (0.00678) | (0.0146) | (0.00725) | (0.00204) |
| **Non-Tax Aid (% GDP) $_{t-3}$** | 0.0160 | 0.0346 | 0.0739** | 0.0267 | 0.00105 | -0.00689 |
| | (0.0985) | (0.0478) | (0.0330) | (0.0297) | (0.0250) | (0.00689) |
| GDP growth $_{t-1}$ | 0.0117 | -0.0295 | 0.0339*** | -0.0302 | 0.00244 | 0.00732** |
| | (0.0346) | (0.0372) | (0.00937) | (0.0243) | (0.0144) | (0.00322) |
| Trade (% GDP) $_{t-1}$ | 0.0296 | 0.0489* | -0.0186 | 0.0284 | 0.0188** | -5.22e-05 |
| | (0.0257) | (0.0257) | (0.0166) | (0.0210) | (0.00839) | (0.00261) |
| GDP per capita (logged) $_{t-1}$ | 4.109* | 1.845 | 0.190 | 0.916 | 0.600 | -0.0332 |
| | (2.305) | (1.551) | (0.305) | (0.969) | (0.596) | (0.105) |
| FDI net inflows (% GDP) $_{t-1}$ | 0.0765*** | 0.0951*** | -0.0156*** | 0.0649*** | 0.0283*** | -0.00397*** |
| | (0.00911) | (0.00681) | (0.00264) | (0.00509) | (0.00539) | (0.00120) |
| Regime Type $_{t-1}$ | -1.513 | -0.693 | -0.000228 | -0.676 | -0.153 | 0.0861 |
| | (0.928) | (0.675) | (0.148) | (0.468) | (0.359) | (0.0874) |
| Agriculture Value Added (% GDP) $_{t-1}$ | -0.0271 | 0.00679 | -0.0386 | 0.0186 | -0.00137 | -0.00712 |
| | (0.0830) | (0.0888) | (0.0278) | (0.0603) | (0.0373) | (0.0103) |
| Country dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,998 | 1,937 | 1,939 | 1,897 | 1,959 | 1,885 |
| Countries | 127 | 124 | 124 | 125 | 124 | 123 |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

*Robustness Checks*

As a preliminary robustness check, we first estimate alternative model specifications. Appendix B.1 contains the estimations controlling only for our independent variable of interest- tax aid. We also employ three-year moving averages of all independent variables in Appendix B.2. We then estimate a model with various year lags on the tax and non-tax aid variables to account for a potentially longer time frame for the effect of aid on revenue generation. We lag these independent variables by one and five years in Appendix B.3 and B.4.[11] Table 3 below summarizes the results of tax aid lagged one, three, and five years on direct and indirect tax revenues.

Regardless of the time frame, results indicate that tax aid does sustainably increase domestic tax revenue via goods and service tax mobilization. However, over time, tax aid becomes less detrimental to income tax revenue mobilization. In the short run- after one year- receiving tax assistance deters income tax collections. We suspect individuals are incentivized to hide their earnings or move to the informal economy. After five years, however, tax aid has a statistically insignificant impact on income tax revenue (which is essentially an improvement from determent). This provides some cautionary evidence that collection, compliance, or capacity could be improving. However, the tax aid is insufficient to increase the income tax collected, even in the longer run. These models in Appendix B.3 and B.4 also indicate that regime type is negative and statistically significant in predicting overall tax revenue, in accordance with the findings of Bastiaens and Rudra (2018). In line with modernization theories (Hinrichs 1966), richer countries collect more tax revenue.

[11] To ensure trends in the data are not driving our findings, we also employ leads (instead of lags) of tax and non-tax aid. Long-term leads of tax aid are statistically insignificant on tax revenue generation, as we would expect. Results available upon request.

**Table 3: Summary of Determinants of Goods and Income Tax Revenues Over Time**

| DV= | (1) Goods Tax Revenue (% GDP) | (2) Goods Tax Revenue (% GDP) | (3) Goods Tax Revenue (% GDP) | (4) Income Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) | (6) Income Tax Revenue (% GDP) |
|---|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-1}$** | 0.107*** | | | -0.0149** | | |
| | (0.0115) | | | (0.00634) | | |
| **Tax Aid (% GDP)$_{t-3}$** | | 0.0998*** | | | -0.0120* | |
| | | (0.0146) | | | (0.00725) | |
| **Tax Aid (% GDP)$_{t-5}$** | | | 0.0725*** | | | 0.00859 |
| | | | (0.0111) | | | (0.0122) |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Controls: Non-Tax Aid, GDP Growth, Trade, GDP per capita, FDI, Regime, Agriculture, Country and Year dummies

Second, we employ alternative operationalizations of our dependent and independent variables. We measure our independent variable as fiscal aid as a percent of GDP to capture aid more broadly directed at government administrative and fiscal capacity.[12] We also measure the independent variables as tax aid and non-tax aid per capita to allay concerns that changes in GDP are impacting our results. Relatedly, we operationalize the dependent tax revenue variables as a percent of total government revenue to ensure that changes in GDP are not driving the results. See Appendix B.5 through B.7.

[12] Fiscal aid has the following activity codes in Tierney et al's (2011) dataset: "Macro-economic, fiscal and monetary policy and planning," "Institutional capacity building, Government," "Public sector financial management," "Improving financial management systems," "Tax assessment procedures," "Measures against waste, fraud and corruption," and "Tariff reforms" (under the sectors: "public sector financial management," "Economic and development policy/planning," and "Trade facilitation").

We also control for additional covariates that could influence revenue mobilization in developing countries. First, we control for social contributions as a percent of GDP, which includes social security or social insurance contributions by employees, employers, and self-employed individuals to the government (World Bank 2017). We then include inequality, measured by the Gini index, in our estimations (World Bank 2017). Appendix B.8 and B.9 contain the robust empirical findings.

Fourth, we address concerns with sample selection using a Heckman selection model (see Vreeland 2002 for a review of the selection problem and use of this type of regression model). Countries receiving tax aid are not random and could influence the previous findings. However, since the overwhelming majority of aid is given multilaterally, we are not greatly concerned about this potential selection problem. We estimate a two-stage model whereby we first control for the determinants of who receives tax assistance and, then in the second stage, we assess the impact of tax aid on revenue generation. Following the aid determinants literature, we control for trade, GDP per capita, regime type, bureaucratic capacity, colonial history, and oil and mineral rents in the first stage (see Alesina and Dollar 2000; Berthélemy 2006; Dreher et al. 2018). Following Savun and Tirone (2011), we include an instrument that is statistically significant in predicting participation in tax aid programs but is not directly related to revenue generation: voting affinity with the United States at the United Nations (data from Voeten, Strezhnev, and Bailey 2019). Appendix D details the variable descriptive statistics and sources. Appendix B.10 presents the selection model estimation results. Even after controlling for selection into tax programs, tax aid is effective in spurring indirect tax collections.

Do our findings translate to all developing countries? Oil-rich economies have distinct revenue sources and rely heavily on non-tax revenue. We therefore first estimate our models on non-oil rich economies, see Appendix B.11 for the robust findings. ODA scholarship also points to greater aid effectiveness in richer countries so we estimate the impact of tax and non-tax aid on samples of low income and middle-income countries separately (we use the World Bank's income classification to categorize countries).[13] Appendix B.12 and B.13 show that it is middle income countries are most effective in raising goods tax revenues and the least effective in raising income tax revenues. Tax aid has no statistically significant impact on any tax revenue generation in the low-income countries.

Finally, we employ alternative datasets to measure tax aid and tax revenues using the World Bank Project Data (2019) and Prichard, Cobham and Goodall's (2014) International Centre for Tax and Development's (ICTD) Government Revenue Dataset.[14] Appendix C presents the estimation results. The findings corroborate the previous results in Table 2.

Taken together, our findings indicate that rather than using income taxes as means to update the broader tax system, as the IMF economists of the 1970s had originally hoped (Keen 2013), tax aid seems to decrease reliance or have no impact on direct taxation. This has important implications for the development of an inclusive tax state. We hence try to

[13] Our results are also robust to excluding the BRICs- Brazil, Russia, India and China.
[14] We employ the merged general and central tax revenue ICTD dataset, which is the preferred dataset of the authors. We use the World Bank tax revenue data in our primary models because of concerns with Prichard et al's (2014) combining of data (and sometimes variable definitions) from different country sources, international organizations, and regional datasets, which in some cases lead to "imperfections owing to differences in methods and the occasionally subjective nature of data choices."

triangulate and substantiate this finding further by looking at the impact of tax aid on the actual payers of direct taxes.

### *3.2 Does International Tax Aid Increase the Number of Taxpayers?*

Tax aid donor focus on indirect taxes, stronger administrations, and simpler tax rules. Hence, it is not too surprising that we find no positive association between tax aid and direct tax revenue. Yet, we were not expecting the deterring effect as direct taxation revenue levels could increase via stronger administrations and simplified tax codes. What is the effect of tax aid on the actual citizens and firms paying direct taxes? And, does this change over time as the income tax revenue collection models indicate?

In the following, we examine the impact of tax aid on the *number of taxpayers*: informal employment as a percent of the non-agricultural labor force (World Bank 2017). We also assess citizen's attitudes on paying taxes and firm perceptions of the size of the informal economy. We collected data from the World Values Survey (WVS) in 2000, 2005, and 2010 (Inglehart et al. 2014) and World Bank's Enterprise Surveys (ES) in 2006 through 2013 (World Bank 2019c). Such survey data directly assesses the role of tax aid on broadening the base and increasing tax compliance capacity from the micro-level.

We assess two dependent variables in the survey datasets. First, from the WVS, we employ: "Please tell me for each of the following statements whether you think is can always be justified, never be justified, or something in between: Cheating on taxes if you have a chance." Responses range from 1: "never justifiable" to 10: "always justifiable." This dependent variable assessing the likelihood that an individual respondent would cheat on his or her taxes with higher values indicating more justification for the individual to

cheat. For the ES, we assess: How much of an obstacle are the informal sector competitors to your operations? 0-4 with higher values more of an obstacle.[15] Essentially, if the respondent views the informal sector as an obstacle then informality is larger and more of a problem for corporations.

As above, we include the three-year moving average of tax aid and general aid (i.e., all aid minus tax aid) as a percent of GDP (lagged by one, three, and five years) as the key independent variables of interest. While parts of foreign aid are allocated to further the donors' interests (see Alesina and Dollar 2000), much of it is geared towards economic development of the recipient countries. It is spent on pro-poor projects and towards improvement of the general public infrastructure. We thus expect general aid to reduce the size of the informal economy via pro-poor policies. We do not expect tax aid to be negative and statistically significant due to our previous income tax results. This would suggest that tax aid is successful in helping developing country governments to broaden the base and incorporate informal workers into the formal economy. If tax aid is statistically insignificant, it provides evidence that it is ineffective in broadening the individual taxpayer base – at least when it comes to personal taxes. A positive and statistically significant coefficient on would indicate that tax aid drives direct taxpayers into the informal economy.

We include the same controls (lagged by one year) as in Table 2. We expect GDP growth to be negatively associated with the informal economy. Previous research indicates a positive relationship between trade and informality (see Goldberg and Pavcnik 2003),

[15] We find similar results using the following dependent variables from ES: (1) Does this establishment compete against unregistered or informal firms? 1: yes, 0: no; (2) Was the establishment formally registered when it began operations in this country? 1: yes, 0: no.

however this research is quite limited. We expect democracy to be negatively associated with the informal economy because the electoral components of this regime type ensure that large groups of individuals are not marginalized (Chatterjee 2008). Finally, the level of development is expected to be negatively associated with changes in the size of informal economies. In the WVS models, we also control for the respondent's age, gender, income, and education. We expect women, poorer, older and more educated individuals to be more likely to pay their taxes (Brockmann, Genschel, and Seelkopf 2016). For the ES models, we include controls for the total sales and employment of the firm (logged). We expect larger firms to have fewer challenges with informality.

We employ an ordinary least squares panel regression with robust standard errors clustered by country for the informal and labor force participation rates. The WVS and ES models are ordered probits with standard errors clustered by country (results are robust controlling for country and year fixed effects)[16]. See Table 4 below for the estimation results. Appendix D contains descriptive statistics and countries under analysis.

Our empirical results reveal an interesting and important trend. In the short run tax aid seems to drive individuals into the informal sector, yet, over time tax aid becomes more effective in reducing the extent of informality. After five years, tax aid is associated with reductions in informal employment in developing countries. This result partially explains the movement of tax aid from being negative and statistically significant when lagged one or three years to statistically insignificance after five years on income revenue (Table 3). Unfortunately- although also not surprising given the aforementioned revenue results- tax aid does not reduce the number of *firms* in the informal sector or number of individuals

[16] Results are robust lagging tax aid one, three, or five years.

indicating a justification to cheat on their taxes. A critical implication of these findings is that evasion and informality continue to persist and inhibit direct revenue collection.

General development assistance is statistically significant in reducing the number of those employed in the informal economy in the short and medium run but is statistically insignificant in impacting the informal sector size in the long run. It also does not induce changes in perceptions of firms on their obstacles with the informal sector or individuals on their justification to cheat on taxes. Given that foreign aid is targeted to those in need (although a substantial part is also given to further donors' interest, for example see Alesina and Dollar 2000), this is not surprising. Our control variables indicate the following relationships. Trade is associated with increases in informal employment, but a lower perception among firms of competition in the informal sector. At the individual level, men, younger, richer individuals indicate more justification to cheat on their taxes. Firms that hire more workers are less likely to view the informal sector as an obstacle.

**Table 4: Determinants of Informal Economy**

| DV= | Informal Employment (% non-Agr Labor Force) | Informal Employment (% non-Agr Labor Force) | Informal Employment (% non-Agr Labor Force) | Cheat on Taxes | Informal Sector is an Obstacle |
|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-1}$** | **15.71*** ** | | | | |
| | **(5.284)** | | | | |
| **Non-Tax Aid (% GDP) $_{t-1}$** | **-0.945** ** | | | | |
| | **(0.385)** | | | | |
| **Tax Aid (% GDP)$_{t-3}$** | | **3.169** | | **-0.484** | **0.139** |
| | | **(5.324)** | | **(0.339)** | **(0.152)** |
| **Non-Tax Aid (% GDP) $_{t-3}$** | | **-0.862** ** | | **0.00541** | **0.00131** |
| | | **(0.378)** | | **(0.0107)** | **(0.00719)** |
| **Tax Aid (% GDP)$_{t-5}$** | | | **-16.07*** ** | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | **(4.122)** | | |
| **Non-Tax Aid (% GDP) $_{t-5}$** | | | **0.101** | | |
| | | | **(0.258)** | | |
| GDP growth $_{t-1}$ | -0.00907 | -0.190 | -0.105 | -0.000305 | -0.00940 |
| | (0.191) | (0.216) | (0.215) | (0.00705) | (0.00701) |
| Trade (% GDP) $_{t-1}$ | | | | | -0.00231* |
| | 0.229** | 0.240** | 0.236** | 0.00151 | |
| | (0.0929) | (0.111) | (0.113) | (0.00110) | (0.00134) |
| GDP per capita (logged) $_{t-1}$ | -1.503 | -1.805 | -1.556 | 0.0543 | -0.0684 |
| | (4.388) | (4.882) | (4.808) | (0.103) | (0.0936) |
| FDI net inflows (% GDP) $_{t-1}$ | 0.206 | 0.133 | 0.197 | -0.0138 | 0.00554 |
| | (0.246) | (0.282) | (0.216) | (0.0120) | (0.00576) |
| Regime Type $_{t-1}$ | -2.174 | -1.531 | -0.130 | 0.124* | 0.200*** |
| | (3.179) | (4.964) | (2.938) | (0.0716) | (0.0504) |
| Agricultural Value Added (% GDP)$_{t-1}$ | -0.600 | -0.681 | -0.577 | -0.00108 | -0.000147 |
| | (0.464) | (0.556) | (0.584) | (0.0110) | (0.00685) |
| Male | | | | 0.0488*** | |
| | | | | (0.0161) | |
| Age | | | | -0.00564*** | |
| | | | | (0.00109) | |
| Income | | | | 0.0248*** | |
| | | | | (0.00787) | |
| Education | | | | -0.00314 | |
| | | | | (0.0106) | |
| Total Sales (logged) | | | | | -0.00969 |
| | | | | | (0.0116) |
| Total Employment (logged) | | | | | -0.0353* |
| | | | | | (0.0192) |
| Country dummies | Yes | Yes | Yes | No | No |
| Year dummies | Yes | Yes | Yes | No | No |
| Observations | 238 | 238 | 238 | 115,674 | 73,462 |

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

**5. Towards a more Inclusive Tax State**

International experts and donor organizations increasingly focus on domestic revenue generation in developing countries. Be it that foreign aid flows are simply not

enough to finance the sustainable development goals or that they might even deter domestic revenue generation, assisting recipient countries in increasing their own tax mobilization has become one of the major goals of donors. In this article, we trace three decades of tax aid and assess its impact. The good news is that tax aid seems to work. It is associated with increased domestic tax revenues, especially from indirect taxation—just as donor agencies advocate. Hence, we have potentially found an important channel for aid effectiveness (Deaton 2010; Wright and Winters 2010) and a counterweight to a potential aid curse (Djankov, Montalvo, and Reynal-Querol 2008).

Historically, the modernization of tax systems typically included progressive income taxes (Keen 2013). In the last three decades, however, international financial institutions mostly argued that countries with lower state capacity should redistribute via more hidden, efficient indirect taxes, which, in turn, may finance progressive social policies. This might not be good advice. As our analysis shows, tax aid potentially reduces revenues from personal income taxes, at least partially by driving people into the informal economy (especially in the short run). In such a scenario of low capacity, large informalities, and underdeveloped tax systems, progressive taxation and spending are not necessarily substitutes. Focusing only on technical assistance to increase revenue via indirect taxes can potentially weaken the social contract and hence the willingness of governments to invest in progressive spending – despite rather than because of regressive taxation. In line with the insights from the literature on tax state development (Levi 1989; Tilly 1990; Besley and Persson 2009; Dincecco 2015; Dincecco and Katz 2016; Seelkopf et al 2019), a stronger focus on more visible direct taxes might be effective for long-run development in low-income countries. In fact, direct taxation is often seen as necessary

step for higher tax morale, political contestation, better governance, and more representative spending (see also Moore, Prichard, and Fjeldstad 2018, ch. 8). Hence, we add our voices to those (Prichard, Brun, and Morrissey 2012; Fjeldstad 2013) who call for practitioners to focus more on the political-economy concerns regarding state-society relations and less of the technicalities when it comes to tax aid and domestic revenue generation.

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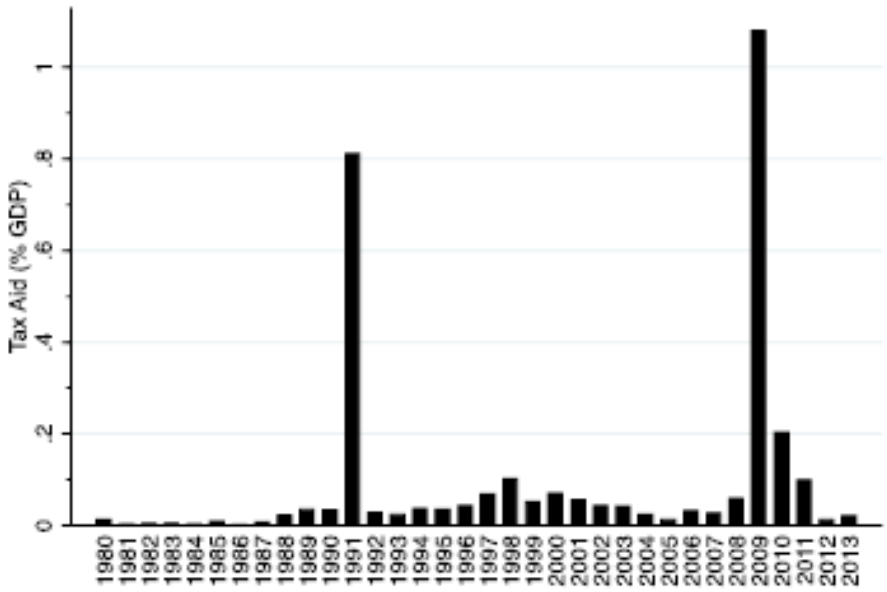
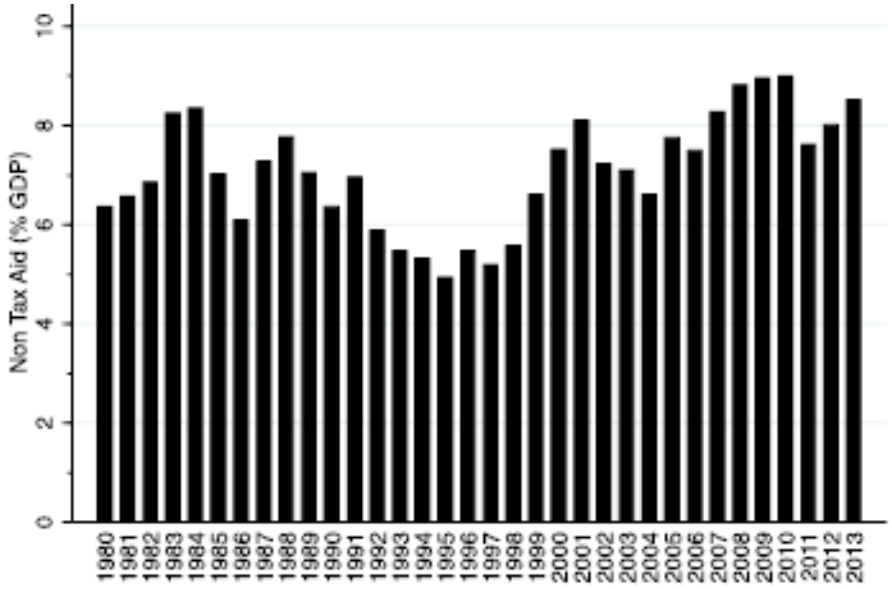
## Appendix A

### A.1 Tax Aid (% GDP) Across All Developing Countries[17] (Data from Tierney et al 2011)




[17] The outliers in this graph are Australian assistance to Kiribati in 1991 and IMF assistance to Dominica in 2009. Our regression results are robust to excluding these cases.

**A.2 Non-Tax Aid (% GDP) Across All Developing Countries**
**(Data from Tierney et al 2011)**



**Appendix B**

**B.1 Determinants of Tax Revenues, Base Model**

| | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Goods Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) |
|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-3}$** | **0.00540** | **0.0810*** ** | **-0.0685*** ** | **0.0954*** ** | **-0.0127*** ** |
| | **(0.0179)** | **(0.00710)** | **(0.00879)** | **(0.00552)** | **(0.00448)** |
| Country dummies | No | No | No | No | No |
| Year dummies | No | No | No | No | No |
| Observations | 2,453 | 2,372 | 2,378 | 2,326 | 2,385 |
| Countries | 137 | 133 | 133 | 135 | 133 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**B.2 Determinants of Tax Revenues, Moving average of all Independent Variables**

| DV= | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Goods Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) |
|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-3}$** | **0.0521*** ** | **0.0930*** ** | **-0.0428*** ** | **0.101*** ** | **-0.0110** |
| | **(0.0189)** | **(0.0199)** | **(0.00697)** | **(0.0152)** | **(0.00740)** |
| **Non-Tax Aid (% GDP) $_{t-3}$** | **0.00610** | **0.0330** | **0.0694** ** | **0.0240** | **0.00209** |
| | **(0.101)** | **(0.0475)** | **(0.0331)** | **(0.0292)** | **(0.0254)** |
| GDP growth $_{t-1}$ | 0.0715 | -0.0471 | 0.0864*** | -0.0485 | 0.00828 |
| | (0.0776) | (0.0785) | (0.0219) | (0.0545) | (0.0317) |
| Trade (% GDP) $_{t-1}$ | 0.0511 | 0.0823* | -0.0301 | 0.0506 | 0.0312** |
| | (0.0436) | (0.0421) | (0.0269) | (0.0344) | (0.0142) |
| GDP per capita (logged) $_{t-1}$ | 6.912* | 2.972 | 0.482 | 1.401 | 1.051 |
| | (3.741) | (2.439) | (0.513) | (1.535) | (0.940) |
| FDI net inflows (% GDP) $_{t-1}$ | 0.120*** | 0.144*** | -0.0208*** | 0.0993*** | 0.0438*** |
| | (0.0103) | (0.00949) | (0.00296) | (0.0100) | (0.00567) |
| Regime Type $_{t-1}$ | -3.243 | -1.420 | -0.0475 | -1.210 | -0.397 |
| | (1.983) | (1.408) | (0.315) | (0.966) | (0.743) |
| Agriculture Value Added (% GDP) $_{t-1}$ | -0.0487 | 0.00206 | -0.0558 | 0.0211 | 0.00162 |
| | (0.134) | (0.141) | (0.0459) | (0.0985) | (0.0601) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,972 | 1,911 | 1,913 | 1,872 | 1,935 |
| Countries | 127 | 124 | 124 | 125 | 124 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**B.3 Determinants of Tax Revenues, 1 Year Lag**

| DV= | (1) Tax Rev. (% GDP) | (2) Domestic Tax Rev. (% GDP) | (3) Trade Tax Rev. (% GDP) | (4) Goods Tax Rev. (% GDP) | (5) Income Tax Rev. (% GDP) | (6) Direct-Indirect Tax Rev Ratio |
|---|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-1}$** | **0.0679*** ** | **0.100*** ** | **-0.0336*** ** | **0.107*** ** | **-0.0149** ** | **-0.0166*** ** |
| | **(0.0115)** | **(0.0125)** | **(0.00571)** | **(0.0115)** | **(0.00634)** | **(0.00234)** |
| **Non-Tax Aid (% GDP) $_{t-1}$** | **0.0712** | **0.0688** | **0.0418*** | **0.0372** | **0.0189** | **-0.00619** |
| | **(0.0588)** | **(0.0503)** | **(0.0226)** | **(0.0304)** | **(0.0271)** | **(0.00996)** |
| GDP growth $_{t-1}$ | -0.00296 | -0.0491 | 0.0434*** | -0.0311 | -0.0117 | 0.00437 |
| | (0.0350) | (0.0365) | (0.0120) | (0.0249) | (0.0155) | (0.00347) |
| Trade (% GDP) $_{t-1}$ | 0.0353 | 0.0560** | -0.0214 | 0.0306 | 0.0232*** | 0.000627 |
| | (0.0250) | (0.0249) | (0.0171) | (0.0210) | (0.00817) | (0.00264) |
| GDP per capita (logged) $_{t-1}$ | 4.031* | 2.061 | 0.123 | 1.029 | 0.783 | 0.00676 |
| | (2.236) | (1.520) | (0.295) | (0.971) | (0.602) | (0.103) |
| FDI net inflows (% GDP) $_{t-1}$ | 0.0225 | 0.0631* | -0.0219 | 0.0691** | -0.00860 | -0.00981** |
| | (0.0370) | (0.0344) | (0.0204) | (0.0287) | (0.0187) | (0.00462) |
| Regime Type $_{t-1}$ | -1.546* | -0.714 | -0.0180 | -0.661 | -0.172 | 0.0867 |
| | (0.921) | (0.641) | (0.157) | (0.449) | (0.346) | (0.0864) |
| Agriculture Value Added (% GDP) $_{t-1}$ | 0.00792 | 0.0329 | -0.0438 | 0.0241 | 0.0195 | -0.00394 |
| | (0.0883) | (0.0894) | (0.0302) | (0.0617) | (0.0384) | (0.0101) |
| Country dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,977 | 1,923 | 1,925 | 1,880 | 1,939 | 1,868 |
| Countries | 127 | 124 | 124 | 125 | 124 | 123 |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

**B.4 Determinants of Tax Revenues, 5 Year Lag**

| DV= | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Goods Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) |
|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-5}$** | **0.0272** | **0.0839*** ** | **-0.0482*** ** | **0.0725*** ** | **0.00859** |
| | **(0.0255)** | **(0.0187)** | **(0.00625)** | **(0.0111)** | **(0.0122)** |
| **Non-Tax Aid (% GDP) $_{t-5}$** | **0.0521** | **0.0876** | **0.0705** ** | **0.0325** | **0.0525** |
| | **(0.110)** | **(0.0624)** | **(0.0344)** | **(0.0387)** | **(0.0361)** |
| GDP growth $_{t-1}$ | 0.0141 | -0.0213 | 0.0370*** | -0.0231 | 0.00632 |
| | (0.0319) | (0.0368) | (0.0100) | (0.0230) | (0.0142) |
| Trade (% GDP) $_{t-1}$ | 0.0241 | 0.0472* | -0.0203 | 0.0260 | 0.0172** |
| | (0.0230) | (0.0245) | (0.0168) | (0.0203) | (0.00758) |
| GDP per capita (logged) $_{t-1}$ | 4.449* | 2.071 | 0.209 | 0.875 | 0.715 |
| | (2.347) | (1.633) | (0.319) | (0.997) | (0.632) |
| FDI net inflows (% GDP) $_{t-1}$ | 0.0296*** | 0.0397*** | -0.00994*** | 0.0272*** | 0.0125*** |
| | (0.00549) | (0.00683) | (0.00206) | (0.00585) | (0.00202) |
| Regime Type $_{t-1}$ | -1.573 | -0.745 | 0.0581 | -0.759 | -0.118 |
| | (0.981) | (0.725) | (0.144) | (0.477) | (0.388) |
| Agriculture Value Added (% GDP) $_{t-1}$ | -0.0394 | 0.00948 | -0.0423 | 0.0231 | -0.00675 |
| | (0.0821) | (0.0896) | (0.0282) | (0.0609) | (0.0392) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,988 | 1,918 | 1,920 | 1,885 | 1,948 |
| Countries | 127 | 124 | 124 | 125 | 124 |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

**B.5 Determinants of Tax Revenues, Controlling for Fiscal Tax Aid**

| DV= | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Goods Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) |
|---|---|---|---|---|---|
| **Fiscal Aid (% GDP)$_{t-3}$** | **0.0433*** | **0.0956***** | **-0.0555***** | **0.109***** | **-0.0189** |
| | **(0.0236)** | **(0.0240)** | **(0.0156)** | **(0.0201)** | **(0.0138)** |
| **Non-Tax Aid (% GDP) $_{t-3}$** | **0.0128** | **0.0280** | **0.0773**** | **0.0192** | **0.00203** |
| | **(0.0980)** | **(0.0468)** | **(0.0324)** | **(0.0290)** | **(0.0246)** |
| GDP growth $_{t-1}$ | 0.0116 | -0.0297 | 0.0340*** | -0.0304 | 0.00247 |
| | (0.0346) | (0.0372) | (0.00935) | (0.0243) | (0.0145) |
| Trade (% GDP) $_{t-1}$ | 0.0296 | 0.0489* | -0.0186 | 0.0284 | 0.0188** |
| | (0.0258) | (0.0256) | (0.0165) | (0.0209) | (0.00839) |
| GDP per capita (logged) $_{t-1}$ | 4.111* | 1.856 | 0.180 | 0.931 | 0.595 |
| | (2.307) | (1.551) | (0.303) | (0.969) | (0.597) |
| FDI net inflows (% GDP) $_{t-1}$ | 0.0765*** | 0.0951*** | -0.0156*** | 0.0649*** | 0.0283*** |
| | (0.00912) | (0.00681) | (0.00265) | (0.00509) | (0.00539) |
| Regime Type $_{t-1}$ | -1.515 | -0.697 | 0.00190 | -0.681 | -0.152 |
| | (0.928) | (0.675) | (0.148) | (0.468) | (0.359) |
| Agriculture Value Added (% GDP) $_{t-1}$ | -0.0271 | 0.00682 | -0.0386 | 0.0186 | -0.00134 |
| | (0.0830) | (0.0887) | (0.0278) | (0.0603) | (0.0373) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,998 | 1,937 | 1,939 | 1,897 | 1,959 |
| Countries | 127 | 124 | 124 | 125 | 124 |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

**B.6 Determinants of Tax Revenues, Tax and Non-Tax Aid Per Capita**

| DV= | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Goods Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) |
|---|---|---|---|---|---|
| **Tax Aid Per Capita$_{t-3}$** | **0.00101*** ** | **0.00129*** ** | **-0.000507*** ** | **0.00136*** ** | **-0.000124** |
| | **(0.000364)** | **(0.000307)** | **(0.000160)** | **(0.000241)** | **(0.000118)** |
| **Non-Tax Aid Per Capita$_{t-3}$** | **0.00316** | **0.000269** | **0.00283*** | **-0.000226** | **0.000419** |
| | **(0.00234)** | **(0.00165)** | **(0.00150)** | **(0.00137)** | **(0.00103)** |
| GDP growth$_{t-1}$ | 0.00812 | -0.0254 | 0.0386*** | -0.0265 | 0.00183 |
| | (0.0338) | (0.0352) | (0.00991) | (0.0234) | (0.0137) |
| Trade (% GDP)$_{t-1}$ | 0.0308 | 0.0485* | -0.0183 | 0.0281 | 0.0190** |
| | (0.0251) | (0.0252) | (0.0160) | (0.0208) | (0.00818) |
| GDP per capita (logged)$_{t-1}$ | 4.155* | 1.833 | 0.206 | 0.905 | 0.607 |
| | (2.337) | (1.540) | (0.309) | (0.964) | (0.590) |
| FDI net inflows (% GDP)$_{t-1}$ | 0.0766*** | 0.0952*** | -0.0153*** | 0.0650*** | 0.0283*** |
| | (0.00959) | (0.00684) | (0.00285) | (0.00518) | (0.00548) |
| Regime Type$_{t-1}$ | -1.529 | -0.691 | -0.0115 | -0.672 | -0.156 |
| | (0.932) | (0.673) | (0.151) | (0.467) | (0.357) |
| Agriculture Value Added (% GDP)$_{t-1}$ | -0.0214 | 0.00482 | -0.0374 | 0.0164 | -0.000425 |
| | (0.0813) | (0.0864) | (0.0261) | (0.0589) | (0.0362) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,998 | 1,937 | 1,939 | 1,897 | 1,959 |
| Countries | 127 | 124 | 124 | 125 | 124 |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

**B.7 Determinants of Tax Revenues, Tax Revenue as Percent of Government Revenue**

| DV= | (1) Tax Revenue (% Rev) | (2) Domestic Tax Revenue (% Rev) | (3) Trade Tax Revenue (% Rev) | (4) Goods Tax Revenue (% Rev) | (5) Income Tax Revenue (% Rev) |
|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-3}$** | **-0.0887*** ** | **0.124*** ** | **-0.177*** ** | **0.318*** ** | **-0.126*** ** |
| | **(0.0213)** | **(0.0316)** | **(0.0226)** | **(0.0364)** | **(0.0191)** |
| **Non-Tax Aid (% GDP) $_{t-3}$** | **0.0699** | **-0.179** | **0.0710** | **-0.0385** | **-0.239*** ** |
| | **(0.123)** | **(0.110)** | **(0.0874)** | **(0.0996)** | **(0.0820)** |
| GDP growth $_{t-1}$ | -0.0107 | -0.0752 | 0.0544 | -0.114** | 0.0308 |
| | (0.0503) | (0.0602) | (0.0413) | (0.0482) | (0.0426) |
| Trade (% GDP) $_{t-1}$ | 0.0181 | 0.0443 | -0.0158 | 0.00760 | 0.0344* |
| | (0.0222) | (0.0447) | (0.0330) | (0.0444) | (0.0183) |
| GDP per capita (logged) $_{t-1}$ | -1.914 | -2.771 | 1.645 | -1.578 | -0.928 |
| | (2.047) | (2.374) | (1.460) | (1.892) | (1.257) |
| FDI net inflows (% GDP) $_{t-1}$ | 0.0563** | 0.0833*** | -0.0216** | 0.0854*** | 0.00247 |
| | (0.0249) | (0.0318) | (0.00947) | (0.0313) | (0.0124) |
| Regime Type $_{t-1}$ | 0.736 | 0.624 | -0.356 | -0.880 | 0.406 |
| | (1.354) | (1.486) | (0.846) | (1.026) | (1.566) |
| Agriculture Value Added (% GDP) $_{t-1}$ | 0.133 | 0.111 | 0.0479 | 0.0847 | 0.0101 |
| | (0.167) | (0.171) | (0.107) | (0.159) | (0.140) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,987 | 1,926 | 1,927 | 1,886 | 1,947 |
| Countries | 127 | 124 | 124 | 125 | 124 |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

**B.8 Determinants of Tax Revenues, Controlling for Social Contributions**

| DV= | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Goods Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) |
|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-3}$** | **1.768*** | **1.863**** | **-0.220** | **1.724***** | **0.311** |
| | **(0.989)** | **(0.929)** | **(0.289)** | **(0.539)** | **(0.346)** |
| **Non-Tax Aid (% GDP)$_{t-3}$** | **0.295** | **0.279*** | **0.165**** | **0.210**** | **0.0528** |
| | **(0.254)** | **(0.165)** | **(0.0805)** | **(0.0899)** | **(0.0924)** |
| GDP growth$_{t-1}$ | -0.0136 | -0.0278 | 0.0175 | -0.0131 | -0.00931 |
| | (0.0515) | (0.0552) | (0.0124) | (0.0335) | (0.0214) |
| Trade (% GDP)$_{t-1}$ | 0.0379 | 0.0676 | -0.0286 | 0.0502 | 0.0189* |
| | (0.0418) | (0.0416) | (0.0210) | (0.0334) | (0.0115) |
| GDP per capita (logged)$_{t-1}$ | 4.435** | 3.480 | 0.275 | 2.016 | 1.189 |
| | (2.172) | (2.152) | (0.421) | (1.380) | (0.766) |
| FDI net inflows (% GDP)$_{t-1}$ | 0.0783*** | 0.0935*** | -0.0134*** | 0.0642*** | 0.0289*** |
| | (0.00785) | (0.00904) | (0.00176) | (0.00713) | (0.00360) |
| Regime Type$_{t-1}$ | -2.728** | -2.322* | 0.0506 | -1.636** | -0.623 |
| | (1.227) | (1.278) | (0.215) | (0.834) | (0.464) |
| Agriculture Value Added (% GDP)$_{t-1}$ | 0.0497 | 0.0491 | -0.00677 | 0.0191 | 0.0543 |
| | (0.133) | (0.138) | (0.0360) | (0.0968) | (0.0517) |
| Social Contributions (% GDP)$_{t-1}$ | -0.00178** | -0.000845 | -0.000799*** | -0.00156*** | 0.00102*** |
| | (0.000733) | (0.000814) | (0.000279) | (0.000591) | (0.000257) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,122 | 1,094 | 1,094 | 1,101 | 1,112 |
| Countries | 78 | 77 | 77 | 78 | 78 |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

**B.9 Determinants of Tax Revenues, Controlling for Inequality**

| DV= | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Goods Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) |
|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-3}$** | **3.080** | **2.971** | **0.228** | **2.445*** | **0.695** |
| | **(2.449)** | **(2.213)** | **(0.387)** | **(1.286)** | **(0.825)** |
| **Non-Tax Aid (% GDP) $_{t-3}$** | **0.144** | **0.0839** | **0.0451** | **0.0994*** | **-0.0100** |
| | **(0.103)** | **(0.100)** | **(0.0443)** | **(0.0555)** | **(0.0626)** |
| GDP growth $_{t-1}$ | 0.0778 | 0.0734 | 0.0104 | 0.0390 | 0.0326 |
| | (0.0813) | (0.0770) | (0.0144) | (0.0479) | (0.0298) |
| Trade (% GDP) $_{t-1}$ | 0.0138 | 0.0249 | -0.00364 | 0.0106 | 0.0117 |
| | (0.0198) | (0.0253) | (0.0133) | (0.0184) | (0.00856) |
| GDP per capita (logged) $_{t-1}$ | -0.240 | -0.795 | 0.720 | -0.382 | -0.612 |
| | (1.320) | (1.231) | (0.771) | (0.879) | (0.452) |
| FDI net inflows (% GDP) $_{t-1}$ | 0.0824 | 0.0844 | 0.00366 | 0.0510 | 0.0237 |
| | (0.0673) | (0.0734) | (0.0109) | (0.0439) | (0.0340) |
| Regime Type $_{t-1}$ | 1.139 | 1.348 | -0.106 | 0.560 | 0.835 |
| | (0.935) | (1.006) | (0.149) | (0.569) | (0.568) |
| Agriculture Value Added (% GDP) $_{t-1}$ | -0.329** | -0.332** | 0.0108 | -0.223*** | -0.0957 |
| | (0.133) | (0.136) | (0.0506) | (0.0765) | (0.0765) |
| Gini Index $_{t-1}$ | 0.215 | 0.189 | 0.0341 | 0.149 | 0.0308 |
| | (0.230) | (0.209) | (0.0387) | (0.133) | (0.0762) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 617 | 591 | 592 | 599 | 609 |
| Countries | 94 | 93 | 93 | 94 | 93 |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

**B.10 Determinants of Tax Revenues, Heckman Selection Model**

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| DV= | Tax Revenue (% GDP) | Domestic Tax Revenue (% GDP) | Trade Tax Revenue (% GDP) | Goods Tax Revenue (% GDP) | Income Tax Revenue (% GDP) |
| **Tax Aid (% GDP)$_{t-3}$** | **3.850** | **2.680** | **1.065*** | **3.034**** | **0.692** |
| | **(2.635)** | **(2.388)** | **(0.566)** | **(1.478)** | **(0.970)** |
| **Non-Tax Aid (% GDP) $_{t-3}$** | **0.0929** | **0.0287** | **0.0593***** | **0.0501** | **-0.0132** |
| | **(0.0909)** | **(0.0829)** | **(0.0197)** | **(0.0507)** | **(0.0335)** |
| GDP growth $_{t-1}$ | 0.0372 | 0.0566 | -0.00791 | 0.0308 | 0.0102 |
| | (0.0626) | (0.0620) | (0.0147) | (0.0349) | (0.0230) |
| Trade (% GDP) $_{t-1}$ | 0.0364 | 0.0277 | 0.00848 | -0.00102 | 0.0283*** |
| | (0.0249) | (0.0233) | (0.00554) | (0.0142) | (0.00915) |
| GDP per capita (logged) $_{t-3}$ | 0.665 | 0.400 | 0.195 | 0.710 | -0.0565 |
| | (1.557) | (1.443) | (0.341) | (0.886) | (0.572) |
| FDI net inflows (% GDP) $_{t-1}$ | 0.487*** | 0.439*** | 0.0595** | 0.279*** | 0.158*** |
| | (0.116) | (0.106) | (0.0252) | (0.0646) | (0.0429) |
| Regime Type $_{t-1}$ | 0.564 | 0.577 | 0.105 | -0.119 | -0.0179 |
| | (0.850) | (0.771) | (0.181) | (0.508) | (0.309) |
| Agriculture Value Added (% GDP) $_{t-1}$ | -0.0542 | -0.0494 | 0.0259 | 0.0275 | -0.0490 |
| | (0.125) | (0.124) | (0.0293) | (0.0710) | (0.0460) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| First Stage DV= | Tax Aid Dummy | | | | |
| British Colony | -0.321*** | -0.383*** | -0.385*** | -0.394*** | -0.323*** |
| | (0.102) | (0.104) | (0.104) | (0.104) | (0.102) |
| French Colony | -0.254* | -0.250* | -0.257* | -0.344** | -0.261* |
| | (0.145) | (0.145) | (0.145) | (0.151) | (0.145) |
| Spanish Colony | -0.330*** | -0.340*** | -0.346*** | -0.349*** | -0.336*** |
| | (0.0978) | (0.0981) | (0.0980) | (0.0984) | (0.0977) |
| Russian Colony | 0.488*** | 0.497*** | 0.489*** | 0.480*** | 0.479*** |
| | (0.175) | (0.175) | (0.175) | (0.175) | (0.175) |
| UN Voting with USA | -3.590*** | -3.626*** | -3.604*** | -3.678*** | -3.568*** |
| | (0.385) | (0.387) | (0.386) | (0.390) | (0.385) |
| Trade (% GDP) | -0.00216** | -0.00221** | -0.00223** | -0.00202** | -0.00218** |
| | (0.00101) | (0.00102) | (0.00102) | (0.00103) | (0.00101) |

| | | | | | |
|---|---|---|---|---|---|
| GDP per capita (logged) | -0.0904** | -0.0880** | -0.0863** | -0.0769* | -0.0888** |
| | (0.0407) | (0.0412) | (0.0412) | (0.0411) | (0.0407) |
| Regime Type | 0.568*** | 0.561*** | 0.558*** | 0.581*** | 0.565*** |
| | (0.0569) | (0.0573) | (0.0572) | (0.0581) | (0.0568) |
| Bureaucratic Policy | -0.00446 | 0.0137 | 0.0102 | -0.0165 | -0.00790 |
| | (0.0478) | (0.0482) | (0.0481) | (0.0485) | (0.0478) |
| Oil and Mineral Rents | -0.0153*** | -0.0190*** | -0.0192*** | -0.0142*** | -0.0154*** |
| | (0.00462) | (0.00488) | (0.00488) | (0.00464) | (0.00462) |
| Observations | 1,794 | 1,786 | 1,787 | 1,776 | 1,795 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**B.11 Determinants of Tax Revenues, Excluding Oil Rich Economies**

| DV= | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Goods Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) |
|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-3}$** | **0.0480*** ** | **0.0907*** ** | **-0.0436*** ** | **0.0988*** ** | **-0.0120** |
| | **(0.0183)** | **(0.0198)** | **(0.00672)** | **(0.0150)** | **(0.00730)** |
| **Non-Tax Aid (% GDP) $_{t-3}$** | **0.0189** | **0.0357** | **0.0733** ** | **0.0311** | **-0.00245** |
| | **(0.0943)** | **(0.0484)** | **(0.0326)** | **(0.0294)** | **(0.0250)** |
| GDP growth $_{t-1}$ | 0.00756 | -0.0277 | 0.0315*** | -0.0304 | 0.00235 |
| | (0.0379) | (0.0411) | (0.01000) | (0.0277) | (0.0165) |
| Trade (% GDP) $_{t-1}$ | 0.0301 | 0.0460* | -0.0174 | 0.0277 | 0.0165** |
| | (0.0262) | (0.0259) | (0.0171) | (0.0215) | (0.00812) |
| GDP per capita (logged) $_{t-1}$ | 4.533* | 1.759 | 0.355 | 0.782 | 0.673 |
| | (2.511) | (1.632) | (0.319) | (1.017) | (0.621) |
| FDI net inflows (% GDP) $_{t-1}$ | 0.0776*** | 0.0955*** | -0.0155*** | 0.0652*** | 0.0284*** |
| | (0.00879) | (0.00685) | (0.00260) | (0.00517) | (0.00532) |
| Regime Type $_{t-1}$ | -1.403 | -0.470 | -0.0520 | -0.739 | 0.129 |
| | (1.014) | (0.712) | (0.159) | (0.520) | (0.265) |
| Agriculture Value Added (% GDP) $_{t-1}$ | -0.0341 | -0.00275 | -0.0354 | 0.0134 | -0.00555 |
| | (0.0867) | (0.0903) | (0.0279) | (0.0627) | (0.0381) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,896 | 1,846 | 1,848 | 1,798 | 1,857 |
| Countries | 122 | 120 | 120 | 121 | 119 |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

**B.12 Determinants of Tax Revenues, Middle Income Countries Only**

| DV= | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Goods Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) |
|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-3}$** | **0.0438*** | **0.0776***** | **-0.0334***** | **0.0932***** | **-0.0189*** |
| | **(0.0266)** | **(0.0260)** | **(0.00953)** | **(0.0195)** | **(0.00990)** |
| **Non-Tax Aid (% GDP) $_{t-3}$** | **0.168*** | **0.0284** | **0.135**** | **0.0174** | **0.0167** |
| | **(0.101)** | **(0.0765)** | **(0.0635)** | **(0.0556)** | **(0.0436)** |
| GDP growth $_{t-1}$ | 0.0358 | 0.00256 | 0.0348** | -0.0175 | 0.0221 |
| | (0.0327) | (0.0358) | (0.0158) | (0.0258) | (0.0141) |
| Trade (% GDP) $_{t-1}$ | -0.000550 | 0.0400** | -0.0399* | 0.0223 | 0.0109** |
| | (0.0163) | (0.0201) | (0.0211) | (0.0186) | (0.00551) |
| GDP per capita (logged) $_{t-1}$ | 0.162 | -0.315 | 0.568 | 0.0743 | -0.694 |
| | (1.001) | (1.107) | (0.565) | (0.839) | (0.463) |
| FDI net inflows (% GDP) $_{t-1}$ | 0.0683 | 0.118** | -0.0480 | 0.128*** | -0.0109 |
| | (0.0622) | (0.0593) | (0.0327) | (0.0366) | (0.0265) |
| Regime Type $_{t-1}$ | -0.0601 | -0.181 | 0.163 | -0.254 | 0.124 |
| | (0.633) | (0.685) | (0.241) | (0.438) | (0.493) |
| Agriculture Value Added (% GDP) $_{t-1}$ | -0.0698 | -0.0719 | -0.00364 | -0.00799 | -0.0390 |
| | (0.109) | (0.114) | (0.0600) | (0.0816) | (0.0601) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,213 | 1,182 | 1,183 | 1,166 | 1,197 |
| Countries | 98 | 96 | 96 | 97 | 96 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**B.13 Determinants of Tax Revenues, Low Income Countries Only**

| DV= | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Goods Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) |
|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-3}$** | **-1.211*** | **0.405** | **0.172** | **0.703** | **-0.128** |
| | **(0.673)** | **(0.731)** | **(0.316)** | **(0.627)** | **(0.409)** |
| **Non-Tax Aid (% GDP) $_{t-3}$** | **-0.00687** | **-0.0317** | **0.0200** | **-0.00958** | **-0.0305** |
| | **(0.0377)** | **(0.0300)** | **(0.0150)** | **(0.0198)** | **(0.0189)** |
| GDP growth $_{t-3}$ | 0.0198 | 0.0122 | -0.00531 | 0.0221 | -0.000604 |
| | (0.0265) | (0.0263) | (0.0153) | (0.0179) | (0.0175) |
| Trade (% GDP) $_{t-3}$ | 0.0444*** | 0.0340*** | 0.00395 | 0.0142** | 0.0243** |
| | (0.0151) | (0.0117) | (0.00783) | (0.00667) | (0.0115) |
| GDP per capita (logged) $_{t-3}$ | 2.083 | 0.861 | -1.080* | -0.0999 | 1.300 |
| | (1.940) | (1.025) | (0.568) | (0.512) | (0.826) |
| FDI net inflows (% GDP) $_{t-3}$ | -0.0244 | 0.0220 | -0.0177 | -0.0258 | 0.0386 |
| | (0.0517) | (0.0400) | (0.0244) | (0.0355) | (0.0453) |
| Regime Type $_{t-3}$ | -0.838 | -0.0598 | 0.140 | 0.147 | -0.215 |
| | (0.718) | (0.317) | (0.219) | (0.189) | (0.233) |
| Agriculture Value Added (% GDP) $_{t-3}$ | -0.0322 | -0.0281 | -0.0440*** | -0.0247 | -0.00982 |
| | (0.0474) | (0.0325) | (0.0146) | (0.0250) | (0.0203) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 434 | 427 | 427 | 416 | 430 |
| Countries | 46 | 45 | 45 | 45 | 46 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Appendix C**

**C.1 Determinants of Tax Revenues, World Bank Tax Aid Data**

| DV= | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Goods Tax Revenue (% GDP) | (5) Income Tax Revenue (% GDP) |
|---|---|---|---|---|---|
| **WB project tax aid (% GDP)$_{t-3}$** | **0.209** | **3.250** | **-2.586*** ** | **3.796** ** | **-1.934*** |
| | **(1.819)** | **(2.211)** | **(0.933)** | **(1.566)** | **(1.056)** |
| **Official Aid (% GDP) $_{t-3}$** | **1.536** ** | **2.151*** ** | **-0.707*** | **0.956** | **1.172*** |
| | **(0.716)** | **(0.668)** | **(0.412)** | **(0.718)** | **(0.601)** |
| GDP growth $_{t-1}$ | 0.0749 | 0.00941 | 0.0847*** | 0.0168 | 0.0349 |
| | (0.0631) | (0.0482) | (0.0328) | (0.0315) | (0.0423) |
| Trade (% GDP) $_{t-1}$ | -0.0463*** | -0.0388** | -0.0137 | -0.0422*** | 0.0122 |
| | (0.0119) | (0.0169) | (0.0113) | (0.0137) | (0.00987) |
| GDP per capita (logged) $_{t-1}$ | 0.368 | -0.154 | -0.162 | -1.315 | 0.862 |
| | (0.877) | (1.717) | (0.597) | (1.336) | (0.887) |
| FDI net inflows (% GDP) $_{t-1}$ | 0.00832 | -0.0114 | 0.0287 | 0.00856 | 0.00589 |
| | (0.0412) | (0.0602) | (0.0324) | (0.0475) | (0.0180) |
| Regime Type $_{t-1}$ | 1.143** | 0.175 | 1.425** | 0.651 | -0.398 |
| | (0.544) | (0.394) | (0.723) | (0.421) | (0.373) |
| Agriculture Value Added (% GDP) $_{t-1}$ | -0.262** | -0.306** | 0.0672 | -0.285*** | 0.0594 |
| | (0.112) | (0.123) | (0.0839) | (0.0788) | (0.0903) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 149 | 140 | 141 | 149 | 150 |
| Countries | 17 | 17 | 17 | 17 | 17 |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

### C.2 Determinants of Tax Revenues, ICTD Tax Revenue Data

| DV= | (1) Tax Revenue (% GDP) | (2) Domestic Tax Revenue (% GDP) | (3) Trade Tax Revenue (% GDP) | (4) Indirect Tax Revenue (% GDP)[18] | (5) Direct Tax Revenue (% GDP) |
|---|---|---|---|---|---|
| **Tax Aid (% GDP)$_{t-3}$** | **0.0214** | **0.0788*** ** | **-0.0668*** ** | **0.107*** ** | **-0.0298*** ** |
| | **(0.0187)** | **(0.00668)** | **(0.00509)** | **(0.00575)** | **(0.00463)** |
| **Non-Tax Aid (% GDP) $_{t-3}$** | **-0.0178** | **-0.0369** ** | **0.0154** | **-0.0166* ** | **-0.0110* ** |
| | **(0.0191)** | **(0.0149)** | **(0.0109)** | **(0.00869)** | **(0.00582)** |
| GDP growth $_{t-3}$ | 0.0229* | -0.00715 | 0.0270*** | -0.0113 | 0.00126 |
| | (0.0120) | (0.0154) | (0.00957) | (0.0110) | (0.00719) |
| Trade (% GDP) $_{t-3}$ | -0.00749 | 0.0112 | -0.0160 | 0.00740 | 0.00403 |
| | (0.00994) | (0.0101) | (0.0122) | (0.01000) | (0.00285) |
| GDP per capita (logged) $_{t-3}$ | -0.202 | 0.384 | -0.398 | 0.360 | -0.0710 |
| | (0.450) | (0.476) | (0.270) | (0.388) | (0.261) |
| FDI net inflows (% GDP) $_{t-3}$ | 0.0177*** | 0.0285*** | -0.00934*** | 0.0200*** | 0.00897*** |
| | (0.00462) | (0.00354) | (0.00344) | (0.00328) | (0.00185) |
| Regime Type $_{t-3}$ | -0.212 | -0.426 | 0.236 | -0.518** | 0.101 |
| | (0.286) | (0.296) | (0.188) | (0.256) | (0.129) |
| Agriculture Value Added (% GDP) $_{t-3}$ | -0.0941*** | -0.0192 | -0.0409* | -0.0119 | -0.00751 |
| | (0.0286) | (0.0267) | (0.0211) | (0.0210) | (0.0130) |
| Country dummies | Yes | Yes | Yes | Yes | Yes |
| Year dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 2,813 | 2,374 | 2,401 | 2,332 | 2,427 |
| Countries | 145 | 138 | 138 | 137 | 140 |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

[18] We exclude trade tax revenue in the measure of indirect tax revenue.

## Appendix D

### D.1 Descriptive Statistics

| Variable | Mean | St. Dev | Min | Max | Source |
|---|---|---|---|---|---|
| Age | 38.64 | 15.36 | 15 | 98 | WVS |
| Agriculture value added (% GDP) | 15.9 | 12.5 | 0.1 | 66.0 | WB 2017 |
| British colony | 0.3 | 0.4 | 0 | 1 | Hensel |
| Bureaucratic quality | 1.9 | 0.9 | 0 | 4 | ICRG |
| Cheat on Taxes | 2.26 | 2.19 | 1 | 10 | WVS |
| Compete with Informal Firms | 0.6 | 0.5 | 0 | 1 | ES |
| Corporate income tax revenue (% GDP) | 2.2 | 1.4 | 0 | 9.9 | ICTD |
| Direct tax revenue (% GDP) | 4.9 | 2.9 | 0 | 15.1 | ICTD |
| Domestic tax revenue (% GDP) | 12.4 | 7.9 | 0.1 | 131.5 | WB 2017 |
| Domestic tax revenue (% GDP) | 12.0 | 6.1 | 0 | 29.4 | ICTD |
| Education | 4.63 | 2.19 | 1 | 8 | WVS |
| FDI inflows (% GDP) | 4.0 | 6.3 | -16.1 | 123.1 | WB 2017 |
| Firm is Formally Registered | 0.9 | 0.3 | 0 | 1 | ES |
| French colony | 0.1 | 0.3 | 0 | 1 | Hensel |
| GDP growth | 4.4 | 4.7 | -21.6 | 34.0 | WB 2017 |
| GDP per capita (logged) | 7.5 | 1.2 | 4.5 | 10.7 | WB 2017 |
| Goods tax revenue (% GDP) | 6.8 | 4.4 | 0 | 56.7 | WB 2017 |
| Income | 4.77 | 2.17 | 1 | 10 | WVS |
| Income tax revenue (% GDP) | 5.2 | 5.8 | 0.1 | 126.2 | WB 2017 |
| Indirect tax revenue (% GDP) | 7.1 | 4.1 | 0 | 22.2 | ICTD |
| Individual income tax revenue (% GDP) | 2.3 | 2.0 | 0 | 9.0 | ICTD |
| Informal employment | 49.7 | 19.1 | 5.3 | 93.5 | WB 2017 |
| Informal Sector is an Obstacle | 1.7 | 1.4 | 0 | 4 | ES |

| | | | | | |
|---|---|---|---|---|---|
| Labor force participation rate | 59.5 | 9.6 | 27 | 93 | WB 2017 |
| Male | 0.49 | 0.50 | 0 | 1 | WVS |
| Net official aid received | 0.60 | 0.57 | -0.09 | 2.27 | WB 2017 |
| Non-tax aid (% GDP) | 5.6 | 8.2 | 0 | 119.1 | Tierney et al |
| Oil and mineral rents (% GDP) | 5.2 | 11.5 | 0 | 195.0 | WB 2017 |
| Regime type | 2.4 | 0.8 | 1 | 3 | Marshall et al |
| Russian colony | 0.1 | 0.2 | 0 | 1 | Hensel |
| Spanish colony | 0.2 | 0.4 | 0 | 1 | Hensel |
| Tariff rate | 8.80 | 7.61 | 0 | 105.36 | WB 2017 |
| Tax aid (% GDP) | 0.1 | 1.9 | 0 | 53.2 | Tierney et al |
| Tax aid dummy | 0.3 | 0.5 | 0 | 1 | Tierney et al |
| Tax revenue (% GDP) | 15.8 | 8.6 | 0.2 | 132.5 | WB 2017 |
| Tax revenue (% GDP) | 15.3 | 6.9 | 0.6 | 62.8 | ICTD |
| Total sales (logged) | 16.72 | 3.18 | 0 | 35.53 | ES |
| Total employment (logged) | 3.40 | 1.39 | 0 | 10.31 | ES |
| Trade (% GDP) | 84.1 | 51.6 | 0.3 | 422.3 | WB 2017 |
| Trade tax revenue (% GDP) | 3.3 | 3.6 | -1.6 | 39.1 | WB 2017 |
| Trade tax revenue (% GDP) | 3.4 | 4.0 | 0 | 42.1 | ICTD |
| UN voting affinity with USA | 0.3 | 0.1 | 0 | 1 | Voeten et al |
| WB project tax aid | 0.06 | 0.49 | 0 | 19.94 | WB 2019 |

**D.2 Countries in Sample (World Bank Tax Revenue Base Model)**

| **Countries in Sample** | | |
|---|---|---|
| Afghanistan | Gambia | Papua New Guinea |
| Albania | Georgia | Paraguay |
| Algeria | Ghana | Peru |
| Angola | Grenada | Philippines |
| Antigua and Barbuda | Guatemala | Poland |
| Argentina | Honduras | Qatar |
| Armenia | Hungary | Romania |
| Azerbaijan | India | Russia |
| Bahamas, The | Indonesia | Rwanda |
| Bahrain | Iran | Samoa |
| Bangladesh | Jamaica | Sao Tome and Principe |
| Barbados | Jordan | Senegal |
| Belarus | Kazakhstan | Serbia |
| Belize | Kenya | Seychelles |
| Benin | Kiribati | Sierra Leone |
| Bhutan | Korea, Rep. | Singapore |
| Bolivia | Kuwait | Slovak Republic |
| Bosnia and Herzegovina | Krygyz Republic | Slovenia |
| Botswana | Lao | Solomon Islands |
| Brazil | Latvia | South Africa |
| Bulgaria | Lebanon | Sri Lanka |
| Burkina Faso | Lesotho | St. Kitts and Nevis |
| Burundi | Liberia | St. Lucia |
| Cabo Verde | Lithania | Suriname |
| Cambodia | Macedonia | Swaziland |
| Central African Republic | Madagascar | Syria |
| Chile | Malawi | Tajikistan |
| China | Malaysia | Tanzania |
| Colombia | Mali | Thailand |
| Congo, Dem. Rep. | Malta | Timor-Leste |
| Congo, Rep. | Mauritius | Togo |
| Costa Rica | Mexico | Trinidad and Tobago |
| Cote d'Ivoire | Micronesia | Tunisia |
| Croatia | Moldova | Turkey |
| Cyprus | Mongolia | Uganda |
| Czech Republic | Morocco | Ukraine |
| Dominica | Mozambique | Uruguay |
| Dominican Republic | Myanmar | Vanuatu |
| Egypt | Namibia | Venezuela |
| El Salvador | Nepal | Vietnam |
| Equatorial Guinea | Nicaragua | West Bank and Gaza |
| Estonia | Oman | Yemen |
| Ethiopia | Pakistan | Zambia |
| Fiji | Panama | Zimbabwe |

### D.3 Countries in Sample (World Values Survey Model)

| Countries in Sample | | |
|---|---|---|
| Albania | Guatemala | Rwanda |
| Algeria | India | Saudi Arabia |
| Argentina | Indonesia | Serbia |
| Armenia | Iran | Singapore |
| Azerbaijan | Jordan | Slovenia |
| Bangladesh | Kazakhstan | South Africa |
| Belarus | Krygyz Republic | Tanzania |
| Bosnia and Herzegovina | Lebanon | Thailand |
| Brazil | Macedonia | Trinidad and Tobago |
| Bulgaria | Malaysia | Ukraine |
| Burkina Faso | Mali | Uruguay |
| Chile | Moldova | Uzbekistan |
| China | Morocco | Venezuela |
| Colombia | Nigeria | Vietnam |
| Cyprus | Pakistan | West Bank and Gaza |
| Ecuador | Peru | Yemen |
| Egypt | Philippines | Zambia |
| Georgia | Romania | Zimbabwe |
| Ghana | Russia | |

**D.4 Countries in Sample (Enterprise Survey Model)**

| **Countries in Sample** | | |
|---|---|---|
| Afghanistan | Georgia | Paraguay |
| Albania | Ghana | Peru |
| Antigua and Barbuda | Grenada | Philippines |
| Argentina | Guatemala | Poland |
| Armenia | Guinea | Romania |
| Azerbaijan | Guinea Bissau | Russia |
| Bahamas, The | Guyana | Rwanda |
| Bangladesh | Honduras | Senegal |
| Barbados | Hungary | Serbia |
| Belarus | Indonesia | Sierra Leone |
| Belize | Jamaica | Slovak Republic |
| Benin | Jordan | Slovenia |
| Bhutan | Kazakhstan | South Africa |
| Bolivia | Kenya | Sri Lanka |
| Bosnia and Herzegovina | Kosovo | St. Kitts and Nevis |
| Botswana | Krygyz Republic | St. Lucia |
| Brazil | Lao | St. Vincent & Gren. |
| Bulgaria | Latvia | Suriname |
| Burkina Faso | Lebanon | Swaziland |
| Burundi | Lithuania | Tajikistan |
| Cambodia | Macedonia | Tanzania |
| Cape Verde | Madagascar | Timor-Leste |
| Central African Republic | Malawi | Tonga |
| Chad | Mali | Trinidad and Tobago |
| Chile | Mauritius | Tunisia |
| China | Mexico | Turkey |
| Colombia | Moldova | Uganda |
| Congo, Dem. Rep. | Mongolia | Ukraine |
| Costa Rica | Montenegro | Uruguay |
| Cote d'Ivoire | Mozambique | Uzbekistan |
| Croatia | Namibia | Vanuatu |
| Dominica | Nepal | Venezuela |
| Dominican Republic | Nicaragua | Vietnam |
| Ecuador | Niger | West Bank and Gaza |
| Egypt | Nigeria | Yemen |
| El Salvador | Pakistan | Zambia |
| Eritrea | Panama | Zimbabwe |