Colonial Fiscal Institutions in Africa: How they persisted, when they changed, and why. ☆

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Abstract

We investigate the impact of colonial taxation systems on fiscal capacity in post-independence Africa. We use a new data set of interwar tax revenues covering the whole of the African continent. Although our results show a strong legacy of colonial taxation in the first decade after independence, the effect fades rapidly. Instead, we document a reversal: African states with initially high fiscal capacity became weaker, whereas initially weak states were relatively successful in developing their capacity. Overall, however, growth in African fiscal capacity post-independence has been relatively slow. We show how this may tentatively be explained by the receipt of aid, resource dependence, and the incidence of IMF loans.

Keywords: Colonial institutions, state building, fiscal capacity, persistence

1. Introduction

Over the past decade, economists have increasingly turned to Africa's colonial past to explain contemporary differences in economic outcomes within the African continent, as well as differences between Africa and other world regions. Perhaps most influentially, Acemoglu et al. (2001) claimed that disease environments that were unfavorable to European settlers such as those prevalent in sub-Saharan Africa facilitated the set-up of "bad" i.e. extractive colonial institutions. A different early strand of the literature explained differences in post-colonial institutions by the identity of the colonizer, where British institutions were generally held to have led to superior outcomes (La Porta et al., 1999). Others have focused on the artificiality of inherited colonial borders, which are linked with adverse economic developments and conflict (Englebert et al., 2002; Alesina et al., 2011). Nunn (2008) and Nunn and Wantchekon (2011) showed how the European

☆We wish to thank Ewout Frankema, Leigh Gardner and Thandika Mkandawire for helpful correspondence concerning the taxation data. All errors remain our own.

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trade with slaves from Africa, often claimed to be a precursor to formalized 19th century colonialism, could have led to lower social capital and increased ethnic fractionalization today. Finally, Huillery (2009) linked differences in the provision of public goods during colonial times to modern development outcomes for the countries of former French West Africa.

Although these approaches have been able to show that particular features of colonial institutions are associated with economic performance today, many papers have not shown to what degree the colonial institutions themselves actually persisted to the present day. This omission is unfortunate, because it tends to obscure the mechanism underlying the correlation between colonial and modern data. Moreover, it precludes the question of *why* colonial institutions were supposedly able to survive for many decades past independence, and how these institutions may have changed during this period (Austin et al., 2008). This risks brushing over the almost six decade long economic history of independent African states and reduces the African experience to the colonial era.

In this paper, we investigate the persistence of a particular set of colonial institutions, namely revenue collection. The capacity to collect revenue, or fiscal capacity, is important because it ultimately determines the capacity of the state to provide public goods, which in turn has important implications for economic growth and wellbeing.[1] Moreover, fiscal capacity is an important part of and often treated synonymous with state capacity (Besley and Persson, 2011; Dincecco et al., 2014), which reflects the general ability of the state to effectively implement policies. In the African context, taxation also provided one of the few points of contact between the colonizer and the colonized and provided an important flashpoint for resistance to colonial rule.[2] Lastly, differences in colonial fiscal strategies are sometimes held responsible for differences in contemporary state repressive capacity or inequality (Mkandawire, 2010), or are at least held to inform us concerning the operation of contemporary fiscal institutions in Africa (Gardner, 2010). To understand, how, when, and why such persistence could affect modern outcomes, we shall start our investigation with understanding the determinants of the initial tax systems.

Adding to a rapidly growing body of research on colonial taxation in Africa (Frankema, 2011; Gardner, 2012; Frankema and van Waijenburg, 2014), we construct a new dataset of revenue sources for the interwar period for the entire African continent from colonial budgets, which improves the comparability of colonial tax structures across states. Given that there was a revenue imperative (Gardner, 2012)[3] and capacity-building income taxes are more costly to collect, one

[1]The relatively poor provision of public goods in many African countries is sometimes blamed on the difficulty of African governments to effectively collect sufficient revenue (Herbst, 2000).

[2]Examples include the Hut Tax War in 1898 and the Bambatha uprising of 1906 (Gardner, 2012, Chapter 3).

[3]The revenue imperative implies that the colonial administration should be largely self-sufficient and independent from transfers from the metropole.

would expect countries to develop different tax structures based on the ability to trade (Gardner, 2012; Frankema and van Waijenburg, 2014). Indeed we confirm this notion by showing how the population-weighted distance, a plausible exogenous factor and proxy for the ability to tax trade, is a very strong predictor of the colonial tax system.

As a next step, we connect the colonial fiscal data to tax revenue for post-independence Africa for the period 1972-2008. Specifically, we show how the colonial share of direct taxes in total tax revenues, a common indicator of fiscal capacity (Besley and Persson, 2011; Dincecco et al., 2014), is a strong predictor of state capacity post-independence. This is association is maintained once we instrument the colonial tax share by its main determinant outlined above. However, we also show how the impact and statistical significance of colonial fiscal capacity fade rapidly during the 1970s, becoming indistinguishable from 0 by 1983 and never recovering thereafter. This suggests that African states quickly transformed an important part of their institutional make-up.

Finally, we ask why the colonial fiscal legacy disappeared so quickly, and what factors determined the building of African state capacity post independence. Based on correlations rather than causal analysis, our preliminary results point to IMF Structural Adjustment Programs, as well as the receipt of aid and income from natural resources as having most fundamentally transformed initial fiscal institutions. This offers support for the theoretical literature on state capacity, which emphasizes the disincentives to state capacity building stemming from non-tax revenues (Besley and Persson, 2011, 2010). However, contrary to the predictions in the literature of a "virtuous circle" of state capacity, we also show how countries with an initially higher direct tax share were less successful in increasing it. As a result of this "institutional catch-up," Africa is now fiscally more homogenous than it was during the colonial era.

The remainder of this article is organised as follows. In Section 2, we present some key features of our new dataset. Section 3 analyses the structure of colonial taxation systems and Section 4 their persistence. As we find that the persistence effect peters out, Section 5 presents preliminary results on the determinants of this change and discusses the institutional catch-up in terms of fiscal capacity.

2. Data and Methodology

To analyze colonial tax structures, we collected disaggregated data on government revenue for all non-island African colonies for the interwar period. We choose this period as it has been referred to as the "high tide of colonial rule" (Shillington, 2012, p. 361), during which colonial fiscal structures had become entrenched, and independence was not generally on the horizon of policy makers. With the exception of Bechuanaland (Botswana) and Kenya, all data was hand-collected from a variety of sources, most of which are of primary nature (the actual government

budgets).[4] Our sources for British colonies are the "Estimates of Revenue and Expenditure" and "Bluebooks", except for Anglo-Egyptian Sudan, where we utilize the publications by the British High Commissioner. For the French colonies we rely on official publications from the "Compte définitif" and "Budget général". For Italian colonies, we rely on the official publications by the Camera. For the remaining colonies we rely on a variety of sources.[5]

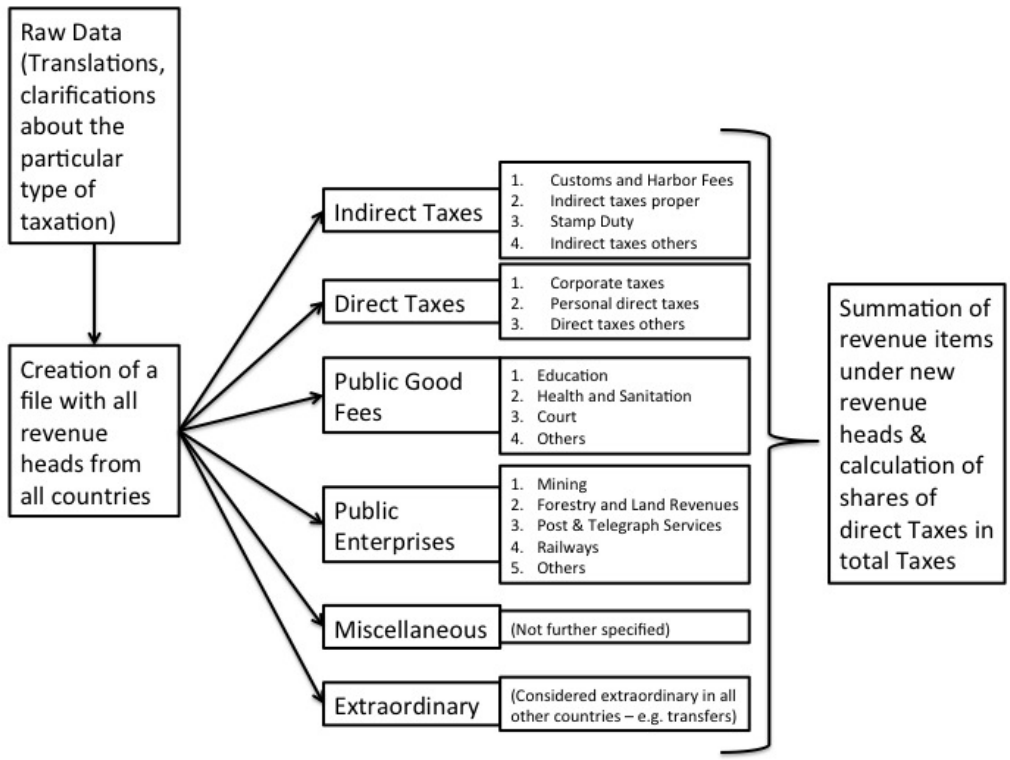

Figure 1: Construction of the colonial taxation data set

In processing the data, we strove to obtain a resolution in terms of revenue items that was as fine as possible. This is important because the disaggregation of revenue heads from the budget summaries varies substantially between colonies. Figure 1 displays the methodology graphically and details the final top-level revenue categories used. In a first step, we translated all revenue

[4]We thank Ewout Frankema for providing us with his data for Bechuanaland. We also thank Leigh Gardner for providing us with a disaggregation of Kenyan taxes, which was not available in the Kenyan blue book.

[5]For Mozambique, on the official statistical yearbook (Statistical Division of the Mocambique Colony, 1929), for Angola on the British Department of Overseas Trade (Smallbones, 1929), and Guinea-Bissau on a book by de Carvalho Viegas (1936), for Ethiopia: Ministry of Commerce and Industry (1955), for Equatorial Guinea: Paredes Marcos (1950), and for Liberia the annual message from the President of Liberia as re-printed in Dunn (2011). We will provide an extensive appendix in due course.

items into English and then created a file containing all items from all countries, resulting in more than 1000 different revenue items. We then group these items, giving each item a unique ID, identifying the sub and main category. Finally, we sum the revenue by category for each country separately and calculate the respective tax shares.

In general, we collected that we recorded the actual tax collection instead of planned figures, and separated extraordinary receipts and fiscal transfers from tax revenues.[6] In the remainder of our analysis, we focus on tax revenue rather than other receipts to achieve a high level of comparability. The reason lies in the variation of accounting standards and state involvement across time (within in colonies) and space (across colonies).

Certain entrepreneurial activities (e.g. forestry, mines, irrigation etc.) would be carried out by the state in some colonies, but not in others. If we calculated the share of direct taxes in total public revenue, this would bias the share of those involved in entrepreneurial activities downwards. However, ultimately the scope of this exercise is to account for different taxation structures and not state involvement. Not only did the state involvement differ across space, but so did accounting standards. For example, some countries would record transfers from the metropole as an ordinary revenue item while other would not. If we are interested in the relative importance of different types of taxation, not accounting for the variation across space could be misleading.

Not only does the revenue data differ between countries, but accounting standards could vary across time within colonies. For example, the Nigerian administration records the gross revenue of the state railway in the budget until 1926, and net revenues thereafter. Such a supposedly small change have can have a potentially large effect on the measure of state capacity when focusing on total revenue rather than revenue from taxation. In the Nigerian case, the railway would make roughly 30 % of the budget before the change of the accounting standards and not even 1 % thereafter, naturally influencing all other shares accordingly.

Beside the temporal and spatial variation in recording government revenue, another worry might be that the share of trade tax revenues could be influenced by movements in the terms of trade during the Great Depression, which witnessed a dramatic fall in the prices for some of Africa's main export commodities (Frankema et al., 2015).[7] We attempt to minimize the problem of intertemporal comparison by a collecting data for the same year for each colony, as far as data availability allows us to do so. As can be seen in Table 1, half of the data stems from the same

[6] In the case of the French federations, the general budget also provides a geographical disaggregation of the revenue from trade taxes.

[7] To this point, we have not transcribed the data for all years for all countries. However, where we have data for multiple years, the share of direct in total taxes does not exhibit a very strong movement during the Depression years, thus possibly mitigating those concerns. This could potentially explained by the French and British imperial preference and the possibility that income taxes and profit taxes were likely to be affected by the Depression, too.

year (1925), with almost 90% of the data falls within a five-year range. Only Ethiopia (no budget until 1940) and Equatorial Guinea have very late data points, but excluding those cases does not affect our baseline results.

Table 1: Choosing a reference year for colonial fiscal data

year	Freqency	Percent	Cumulative
1925	24	50.00	50.00
1926	1	2.08	52.08
1927	6	12.50	64.58
1928	7	14.58	79.17
1929	1	2.08	81.25
1930	3	6.25	87.50
1931	2	4.17	91.67
1932	1	2.08	93.75
1933	1	2.08	95.83
1940	1	2.08	97.92
1942	1	2.08	100.00
Total	48	100.00	

For the modern era, we calculate the share of direct in total taxes using the World Bank's African Development Indicators (ADI). The data covers the majority of African countries for each year from the late 1980s until 2008. For the earlier post-independence period we choose four reference years (1972, 1976, 1980 and 1983) and calculate the same indicator from IMF Government Finance Statistics as collected in the UN Statistical Yearbooks. For a small number of missing countries, we refer directly to contemporary IMF country reports. Only countries whose revenue data was within a two-year range of a reference date was included to minimize the problem of aggregating data from different time periods.

All other data stems from the ADI, except data on income from natural resources, which was collected by Haber and Menaldo (2011), conflicts (UCDPPRIO Armed Conflict Dataset), coups (Powell and Thyne, 2011), legal capacity (World Bank Governance Indicators), state repression (Wood and Gibney, 2010) and ethnic fractionalization (Alesina et al., 2003). Data on aid, resource income and IMF loan volumes are standardized by GDP and averaged over the years for which observations are available to cope with missing data.

In sum, our new dataset aims to provide a consistent and comparable measure of state capacity across space and time. It facilitates the comparison of the colonial data with more modern data provided by the IMF and World Bank. We improve their coverage backwards by making use of

the IMF country reports. For other explanatory variables, we make use of the great number of standard datasets for the African continent provided by the scholarly community.

3. Analysing Colonial Taxation Systems

We now briefly demonstrate the most salient conclusions from our colonial fiscal data set before analyzing its contemporary importance. Graphs 5 and 6 in the Appendix show total colonial revenue split into its major tax and non-tax components, while Graphs 7 and 8 display a further disaggregation of tax revenues into categories. All data is displayed for eight African regions that in sum comprise the whole continent.[8]

The graphs demonstrate a large degree of variation in fiscal revenue sources between African regions. Most apparent is the split between direct and indirect taxation. For example, Anglophone West Africa raised more than 60 % of its revenue through indirect taxation. The colonies in the other two anglophone regions relied to a much greater extent on direct taxation and generally on a more diverse revenue mix. Enterprise revenues seem to have been relatively important in East Africa (reflecting post and telegraph revenues in Kenya, and railway revenues in Sudan), whereas the Southern colonies Dominions obtained a sizeable part of their income through mining royalties and land rents.[9] The portuguese colonies display the largest share of direct taxes in total revenue.[10]

The territories in Northern Africa and the Horn of Africa display relatively low fiscal capacity, with a relatively large share of revenues coming from indirect taxes, as well as extraordinary revenues. This last element partly reflects the large role of fiscal transfers for Italian colonies. The francophone colonies relied on an almost equal mix of direct and indirect tax revenues, with small contributions from other sources.

Further splitting down direct and indirect taxes into their components reveals a similar picture across all regions. Indirect taxes were mostly taxes on international trade. Direct taxes were taxes

[8]North Africa is made up of the 5 colonies of the Maghreb, Anglophone Southern Africa stretches from the Cape to include Malawi, Anglophone Western Africa includes independent Liberia, Anglophone Eastern Africa all other British colonies except British Somaliland and Egypt, Lusophone Africa comprises the Portuguese colonies and Equatorial Guinea, Francophone West Africa is the (almost) eponymous Federation, Francophone Central Africa comprises all other French colonies excluding French Somaliland (Djibouti) and the Maghreb in addition to the Belgian possessions, while the Horn of Africa comprises all other territories including independent Ethiopia.

[9]This clearly partly reflects the mineral abundance of this region, especially in the Union of South Africa. It is worth noting, however, that government revenues do not necessarily reflect economic structure, as mineral resources can enter the budget both through royalties, fees, or permits as well as through corporate taxation of mining profits. This, however may be more of a concern for modern African tax data (Fjeldstad and Rakner, 2003). As graphs 7 and 8 show, corporate tax revenue in the colonial era was minimal.

[10]See Alexopoulou (2015) for an analysis of Portuguese fiscal strategies during the colonial period.

on real, rather than judicial persons. Only North Africa provides a slight exception, with a larger role for excises, other indirect taxes and corporate taxes.

What determined the patterns of taxation outlined above? Our data broadly supports the assessment of the literature in that colonial identity seems not to have been crucial (Frankema and van Waijenburg, 2014), as exemplified by the large differences within british-dominated Africa. The literature also emphasizes the idea of a "revenue imperative" based on the idea of colonial self-sufficiency (Gardner, 2012). Imperial governments wanted to minimize the costs of colonization to the taxpayer at home, thus generally ruling out large transfers from the metropolis to the colony (we noted the Italian exception above). To sustain the generally bloated administrative apparatuses of expensive (European) bureaucrats (Gardner, 2012), the colonies had a strong incentive to maximize their own revenue collection. In general, taxing trade was most attractive to colonizers, as trade taxes were (and generally are) cheaper to administer. This fiscal strategy, however only possible in prosperous regions with high trade potential, typically coastal colonies. As inland colonies lacked the potential to generate revenue from indirect (trade) taxes, colonizers had to rely on direct taxation (Frankema and van Waijenburg, 2014).

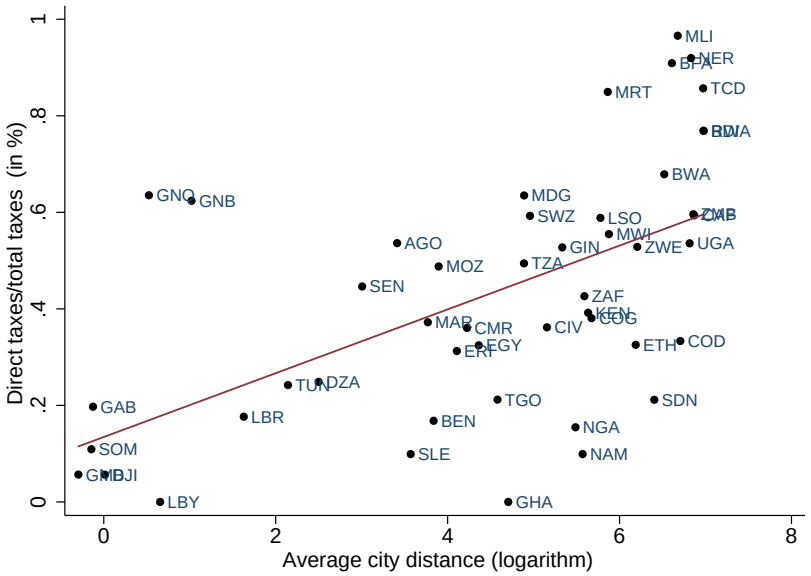

Figure 2: Determination of colonial fiscal capacity

If this is true, we would expect African inland colonies to have built up a more extensive tax collection apparatus than their coastal counterparts. This is indeed partly reflected in the graphs in the Appendix: the territories of Anglophone West Africa, which were important exporters of raw materials, relied on trade taxes for the majority of their revenue. We test and then utilize this argument more directly by calculating the population-weighted distance to the coast for each

colony.[11] Figure 2 shows that our measure of trade potential is indeed strongly correlated with fiscal capacity. The lower the trade potential of a colony, that is the greater its population weighted distance from the coast, the larger its share of direct taxes in total tax revenue. Also note that the relationship would probably become stronger if we include data on navigable rivers as this would shift countries such as Nigeria and Congo left on the x-axis. Regression (2) in Table 2 formalizes this idea in a multivariate regression framework controlling for colonizer identity. The coefficient of the weighted distance to the coast on the direct colonial tax share is strongly significant and positive. The high partial F-statistic confirms that this variable makes a strong instrument for colonial fiscal capacity. The identity of the colonizer, on the other hand, seems not to have mattered much with the exception of the Portuguese, whose high direct tax share has already been noted. The coefficient for the French metropole is weakly significant, but economically small: Being a French colony would increase the direct share by 2.7 %.

In sum, we can show that geography is a very strong predictor of the initial level of state capacity and that the metropolitan identity mattered little for the structure of the tax system. This is in line with results from earlier research on colonial taxation (Frankema, 2011; Gardner, 2012). Geography matters in this context as it proxies trade potential. The revenue imperative and the relative costliness of collecting direct taxes shaped the colonial tax system. The next section discusses the persistence of these institutions after independence.

4. Persistence of Colonial Fiscal Institutions

To what extent did colonial fiscal institutions shape the institutions of state revenue collection after independence? In column (1) in Table 2, we regress the direct tax share in 1976 on its colonial interwar counterpart. We control for GDP in 1976, to take into account the higher fiscal capacity of richer countries (Besley and Persson, 2014), as well as years elapsed since independence to control for the time available to African policy makers to transform their colonial tax systems. We also control for ethnic fractionalization, and colonizer identity.

[11] We calculate the distance to the shore from a colonies' cities, and then weight these distances by the population numbers. Population-weighted distance is preferable to alternative measures such as relative coastline length, or distance from a territory's centroid to the coast as used by (Nunn, 2008). The first does not properly account for countries such as Morocco or South Africa, which have a very long coastlines, but a relatively populated interior, while the second does not account for countries such as Algeria whose centroid is (too) far away from the main coastal population centers. A drawback of our measure is that such data is only available from 1950. For the western African countries, we rely on the very detailed Africapolis dataset by OECD (2014), and for all other countries on (less detailed) data from the United Nations Population Division (2014). When no population figures were available (Basutoland, Botswana, Spanish Guinea, Swaziland), we chose the distance from the colonial capital.

Table 2: Colonial and Early Post-Independence Taxation in Africa

Variable	(1) Direct tax share in 1976, OLS	(2) Direct tax share in Interwar, 1st stage 2SLS	(3) Direct tax share in 1976, 2nd stage 2SLS	(4) Direct tax share in 1972, 2nd stage 2SLS
colonial direct share	0.243**		0.270**	0.292***
	(0.0892)		(0.114)	(0.0848)
distance to coast		0.095***		
		(0.019)		
GDP	0.125***	-0.023	0.128***	0.118***
	(0.0285)	0.043	(0.0264)	(0.0305)
ethnic frac.	0.148	-0.228*	0.156*	0.0854
	(0.0913)	(0.1327)	(0.0822)	(0.0804)
independence	0.00183	-0.0001	0.00193	0.00317***
	(0.00161)	(0.0025)	(0.00143)	(0.00121)
brit. colony	0.0190	0.0819	0.0190	0.133**
	(0.0913)	(0.1380)	(0.0791)	(0.0611)
french colony	-0.120	0.2764*	-0.124	-0.0808
	(0.0936)	(0.1407)	(0.0823)	(0.0627)
italian colony	-0.122	0.3318	-0.114	0.00149
	(0.150)	(0.2542)	(0.133)	(0.0983)
belgian colony	0.0709	-0.1677	0.0713	0.108*
	(0.0801)	(0.1239)	(0.0695)	(0.0626)
port. colony	-0.0545	0.7273***	-0.0584	
	(0.153)	(0.2556)	(0.133)	
population				0.00349
				(0.0148)
polity IV				-0.00613
				(0.00413)
Constant	-0.806***	0.1373	-0.845***	-0.925***
	(0.273)	(0.4429)	(0.265)	(0.300)
Observations	40	40	40	29
R-squared	0.484	0.627	0.483	0.700
F	3.13	25.77	–	–
χ^2	–	–	33.21	52.61
$p > \chi^2, F$	0.009	0.000	0.000	0.000

Sample: Countries of continental Africa. Colonial taxes instrumented with population weighted distance to the coast in (3) and (4). Standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

The results suggest a strong relationship between interwar fiscal capacity and fiscal capacity almost half a century later. As expected, GDP is positively related to fiscal capacity, whereas colonizer identity does not matter much. However, the causality of this regression is open to question. For example, it could be that territories with a higher colonial fiscal capacity were already richer during this period, so that we are witnessing the persistence of GDP, rather than fiscal systems.

We use our instrument, population weighted distance to the coast during colonial times, to mitigate this potential criticism. Column (2) shows the first stage regression of colonial taxes on distance, while (3) is the second stage regression of post-independence taxes on instrumented colonial taxes. The result is still statistically strong, and lends credence to the hypothesis that colonial institutions did indeed persist: Those colonial states endowed with a higher state capacity because of their initial lack of tradeable resources became "stronger" states after independence.

Regression (4) carries out the same exercise for the earliest post-independence year for which sufficient data is available: 1972.[12] It also controls for population size and political institutions, although both turn out not to affect the results. In this specification, the magnitude and statistical significance of the results are strengthened, thus reinforcing the interpretation above of colonial persistence. The variable denoting years since independence is also strongly positively significant, suggesting that independent African leaders did increase state capacity in the years immediately following independence. The significant coefficient on British colonial history might at first glance suggest an alternative channel of colonial persistence. However, the first stage regression (column 2) did not reveal British colonies to exhibit significantly higher fiscal capacity, thus putting such a story based on colonizer identity in doubt. Overall, the R-squared of the regressions in Table 2 are quite high, suggesting we are able to explain a reasonable share of colonial and post-colonial fiscal capacity.

How does the legacy of colonial institutions change over time? To answer this question, we repeat the 2SLS specification of regression (3) in roughly three-year intervals between 1972 and 2008. The resulting coefficients, with their associated 95% confidence intervals are plotted in Figure 3. The coefficients lend little support to the idea that colonial fiscal institutions have persisted very long after independence. From 1983 onward, the confidence interval includes the 0, and although the coefficient generally stays positive, the error bands are too wide to suggest a long run persistence of the colonial tax structure. Apparently, African states were quick to transform this crucial aspect of their colonial past after independence.

[12] This forces us to drop the Portuguese colonies, who had not yet gained independence at this point in time.

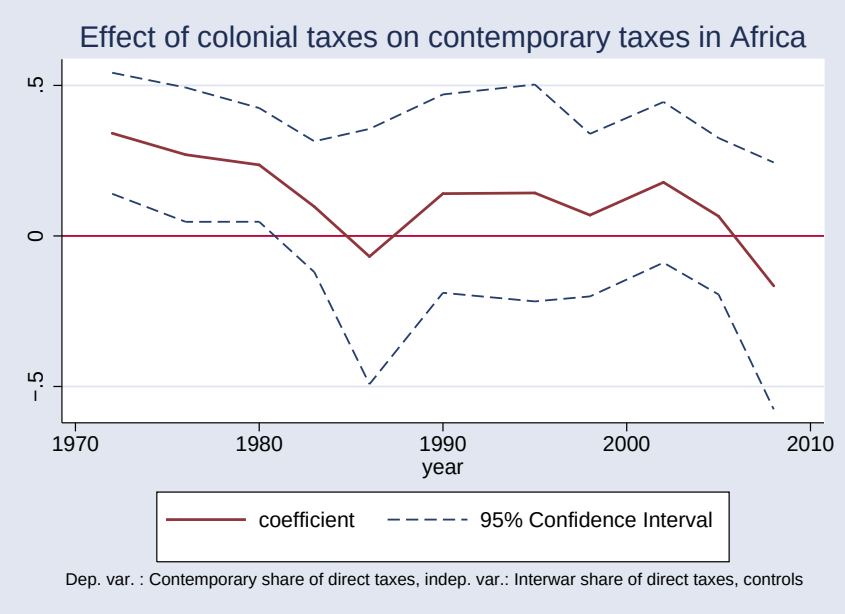

Figure 3: Persistence of colonial fiscal capacity

5. Fiscal capacity building post-independence

As the results of the previous section suggest that colonial tax structures did not persist in the very long run, this section investigates what factors led to the change of the tax system in the post-independence period. To put the African experience into perspective, we compare the recent development in state capacity in Africa with those of other developing regions. Particularly in comparison with other developing regions, there was on average relatively little investment into state capacity. Our tentative results based on correlations rather than causal analysis, suggest that resources, development aid and involvement by the International Monetary Fund did rather decrease than increase state capacity, which is in line with theory.

Figure 4 presents the trajectory of mean fiscal capacity in Africa since independence. For comparison, the same variable has been calculated for two other "developing" world regions (continental Latin America as well as South and South East Asia) and the group of the most advanced economies. The data source for the non-African world regions is the World Bank's Development Indicators database. The graph suggests that, in general, fiscal capacity in Africa in the decades post independence was relatively high in comparison to other world regions. This resonates with our interwar colonial data displays a mean direct tax share of 43 %, which is higher than capacity post-independence, and seems historically high in international comparison. This may confirm that colonial states did extract a significant share of revenues from local African populations. As the results from Section 3 suggest, this might also stem from the simple fact that the African con-

tinent comprises relatively more inland states than any other continent. Finally, Figure 4 suggests that overall growth in African fiscal capacity was relatively slow, although a consistent growth did indeed seem to have taken place.

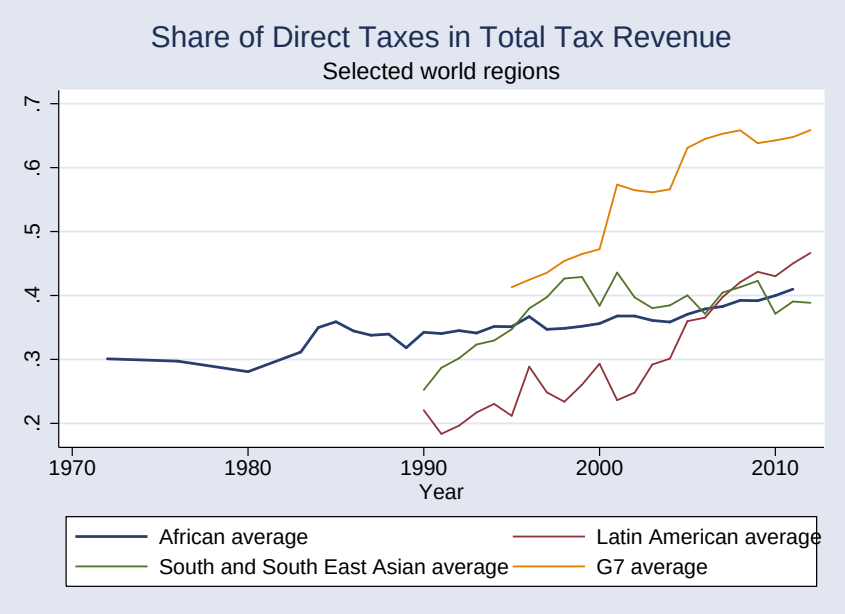

Figure 4: Evolution of fiscal capacity in selected world regions 1972-2011

In order to investigate investments in African state capacity we calculate the *change* in the share of direct taxes out of total taxes between 1972 and 2005.[13] The choice of covariates is partly informed by economic theory, and partly by a selective reading of African economic history.

In terms of theory, we follow Besley and Persson's influential framework (Besley and Persson, 2011, 2010). This models investments in fiscal capacity as partly influenced by the availability of other sources of revenue, mainly aid receipts and income from natural resources. The reasoning is that investments in fiscal capacity are costly, so that the availability of "free" revenue sources reduces the incentive for this type of investment. We calculate the cumulative total of aid and natural resource receipts, standardized by GDP, over the observation period. Another important variable in Besley and Persson (2011) is the existence of "common interests" or "redistributive interests". In common interest states, there is a large degree of overlap in preferences, which tends to increase the incentive of those in power to invest in fiscal capacity, as they will share in the fruits of that investment even if they loose power. Governments in redistributive states face the the opposite incentive, especially when their risk of replacement is high. Following Besley and Persson (2011), we model the existence of redistributive interests using ethnic fractionalization or

[13]For those countries for which 1972 data is not available we resort to data for 1976.

income inequality, while the risk of replacement is modeled using the cumulative total of coups d'etat (both attempted and successful) or civil wars, as well as the degree of repression in a country. Finally, we follow Besley and Persson (2011) in controlling for the cohesiveness of institutions using the polity IV index, the GDP growth rate, as well as legal capacity.

We supplement this with the volume of IMF loans dispensed to a country to depict participation in Structural Adjustment Programs, which are often credited with reshaping fiscal institutions in Africa (Fjeldstad and Rakner, 2003). We also control for the rate of inflation (using the GDP deflator), as differing rates of inflation between goods prices and nominal incomes could conceivably shift the ratio between revenue from direct (income) and indirect (goods) taxes. This may be especially salient given the high rates of inflation in many African countries in the 1970s . We also control for changes in the terms of trade, another staple of African economic history, as this could potentially affect revenues from trade taxation. Finally, we control for colonial fiscal legacy, year since independence and colonizer identity as before.

The results in Table 3 tentatively point to aid receipts, natural resource income, and Structural Adjustment as determinants of the transformation of Africa's fiscal institutions. These three variables are negatively associated with investments in fiscal capacity, thus potentially explaining the slow growth of African fiscal capacity noted in figure 4. These results are also in line with the theoretical predictions by Besley and Persson (2011) discussed above. Interestingly, ethnic fractionalization is positively associated with investments in fiscal capacity, which would run contrary to theory. The impact of fractionalization does, however, disappear statistically once we control for coups. If coups are an accurate depiction of the probability of being ousted from power this would "salvage" the theory.

The results on aid receipts, natural resource income, and Structural Adjustment, however, are tentative, because the causality of these relationships is not entirely clear. Yet there are some indications lending support to the above results. Because a legitimate worry might be that fiscally weak states are more likely to take out IMF loans or receive development aid, we run the same regressions as in Table 3 controlling for the total share of government revenue in GDP (not shown). If lack of funds is driving our results, this should be captured by the government revenue share. The results leave the ODA coefficient slightly diminished, but reinforce the statistical significance of the IMF variable strongly. As to the results concerning natural resources, there is some reason to believe that the bias runs against our argument. Because resource rents in Africa are partly captured in government budgets through the taxation of mining companies (Fjeldstad and Rakner, 2003), a country experiencing a resource boom would expect a mechanical increase in its share of direct taxation. Our results, however, feature a negative correlation.

Finally, we point to a last finding apparent from Table 3: countries with a higher colonial fiscal capacity were slower to develop their fiscal capacity post-independence. This is surprising in

Table 3: Colonial Legacy and Investment in State Capacity 1972-2005

Variable	(1) Direct tax share change 1972-2005, 2SLS	(2) Direct tax share change 1972-2005, 2SLS	(3) Direct tax share change 1972-1990, 2SLS	(4) Direct tax share change 1972-2005, 2SLS
colonial direct share	-0.286***	-0.264*	-0.195***	-0.349***
	(0.0969)	(0.150)	(0.0741)	(0.103)
natural resources	-0.000116**	-7.45e-05**	-0.000110***	-0.000135***
	(4.52e-05)	(3.65e-05)	(2.85e-05)	(2.18e-05)
ODA	-0.00619*	-0.0101**	-0.000653	-0.0116**
	(0.00372)	(0.00476)	(0.00470)	(0.00550)
IMF	-0.447**	-0.348**	-1.452***	-0.0839
	(0.180)	(0.137)	(0.511)	(0.169)
armed conflicts		0.00597	-0.0773	-0.158**
		(0.0483)	(0.0597)	(0.0775)
ethnic frac.	0.0945	0.192*	0.311***	0.251***
	(0.0971)	(0.114)	(0.0983)	(0.0800)
Gini		-0.00172		
		(0.00464)		
polity IV		0.00575		
		(0.00751)		
rule of law		-0.222**		
		(0.102)		
state repression		-0.0579		
		(0.0483)		
GDP growth		0.174***	0.254**	0.122***
		(0.0454)	(0.102)	(0.0202)
coups	0.229			
	(0.406)			
inflation			0.000498	
			(0.00422)	
terms of trade			0.00104**	
			(0.000519)	
independence			0.00211	
			(0.00200)	
brit. colony				-0.421***
				(0.127)
french colony				-0.371***
				(0.130)
port. colony				-0.176
				(0.251)
belgian colony				0.142*
				(0.0749)
Constant	0.215**	0.0944	-0.0705	0.558***
	(0.0846)	(0.242)	(0.0996)	(0.159)
Observations	41	39	23	41
R-squared	0.242	0.434	0.691	0.461
χ^2	28.4	78.5	264.5	109.1
$p > \chi^2$	0.000	0.000	0.000	0.000

Sample: Countries of continental Africa. Colonial taxes instrumented with population weighted distance to the coast in (3) and (4). Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

light of the theory, which tends to see state capacity as a virtuous, self-reinforcing cycle (Besley and Persson, 2011). Apparently, there was a convergence of fiscal capacity within Africa, with initially "weaker" states catching up.[14] The same phenomenon can be illustrated by looking at the dispersion of fiscal capacity around its African mean in Table 4. Whereas the colonial period saw the highest standard deviation on record, the dispersion decreased after independence. At least fiscally, Africa is now more homogenous than it was during colonial times.

6. Conclusion

This paper contributes to a growing literature on the persistence of institutions. In contrast to many other studies, however, we do not investigate the effect of our institutional variable on development outcomes itself, but aim to understand the persistence itself. It turns out that the colonial legacy of taxation was relatively short lived. We find the effects of this particular institution faded away after roughly 20 years of independence. Our preliminary results suggest that other post-independence developments such as aid and resources were able to transform the initial colonial tax structure into its modern counterpart. Contrary to the prior of a "virtuous cycle" as suggested by the state capacity literature, our findings suggest institutional "catch up" - countries with initially low levels of state capacity were able to increase it.

Given the large body of literature on the very long run persistence of institutions and the notion that colonialism itself shaped institutions on the African continent, it is perhaps surprising to find a relatively short legacy of colonial tax systems. An important lesson from this paper is that political institutions persist *and* change. In the case of taxation, geography shaped policy choices and those translated into a certain form of tax system. However, not too long after independence, itself another shock to institutions, these effects peter out although the initial profound impact of colonization on taxation systems seems indisputable. This finding should caution against institutional determinism, especially for the very long run.

[14] We arrive at the same conclusion holds when using the initial direct tax share in 1972 instead of the instrumented colonial share.

7. References

Acemoglu, D., Johnson, S., Robinson, A., 2001. The colonial origins of comparative development: An empirical investigation. The American Economic Review 91 (5), 1369–1401.

Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., Wacziarg, R., 2003. Fractionalization. Journal of Economic growth 8 (2), 155–194.

Alesina, A., Easterly, W., Matuszeski, J., 2011. Artificial states. Journal of the European Economic Association 9 (2), 246–277.

Alexopoulou, K., 2015. Metropolitan vision under question: Colonial policies and fiscal practices in portuguese africa (1890s-1970s). Wageningen University.

Austin, G., et al., 2008. The ‚Äúreversal of fortune‚Äù thesis and the compression of history: Perspectives from african and comparative economic history. Journal of international development 20 (8), 996–1027.

Besley, T., Persson, T., 2010. State capacity, conflict, and development. Econometrica 78 (1), 1–34.

Besley, T., Persson, T., 2011. Pillars of Prosperity: The Political Economics of Development Clusters: The Political Economics of Development Clusters. Princeton University Press.

Besley, T., Persson, T., 2014. Why do developing countries tax so little? The Journal of Economic Perspectives 28 (4), 99–120.

de Carvalho Viegas, L. A., 1936. Guiné Portuguesa. Lisbon, Severo, Freitas, Mega.

Dincecco, M., Fenske, J., Onorato, M. G., 2014. Is africa different? historical conflict and state development. CSAE (35).

Dunn, D., 2011. The Annual Messages of the Presidents of Liberia 1848–2010: State of the Nation Addresses to the National Legislature. De Gruyter.
URL https://books.google.co.uk/books?id=saY4ubEU20QC

Englebert, P., Tarango, S., Carter, M., 2002. Dismemberment and suffocation a contribution to the debate on african boundaries. Comparative Political Studies 35 (10), 1093–1118.

Fjeldstad, O.-H., Rakner, L., 2003. Taxation and tax reforms in developing countries: Illustrations from sub-Saharan Africa. Chr. Michelsen Institute.

Frankema, E., 2011. Colonial taxation and government spending in british africa, 1880–1940: Maximizing revenue or minimizing effort? Explorations in Economic History 48 (1), 136–149.

Frankema, E., van Waijenburg, M., 2014. Metropolitan blueprints of colonial taxation? lessons from fiscal capacity building in british and french africa, c. 1880–1940. The Journal of African History 55 (03), 371–400.

Frankema, E., Williamson, J., Woltjer, P., 2015. An economic rationale for the african scramble: The commercial transition and the commodity price boom of 1845-1885. Tech. rep., National Bureau of Economic Research.

Gardner, L. A., 2010. Decentralization and corruption in historical perspective: evidence from tax collection in british colonial africa. Economic History of Developing Regions 25 (2), 213–236.

Gardner, L. A., 2012. Taxing colonial Africa: the political economy of British imperialism. OUP Oxford.

Haber, S., Menaldo, V., 2011. Do natural resources fuel authoritarianism? a reappraisal of the resource curse. American political science Review 105 (01), 1–26.

Herbst, J., 2000. States and Power in Africa: Comparative Lessons in Authority and Control. Princeton University Press.

Huillery, E., 2009. History matters: The long-term impact of colonial public investments in french west africa. American Economic Journal: Applied Economics, 176–215.

La Porta, R., Lopez-de Silanes, F., Shleifer, A., Vishny, R., 1999. The quality of government. Journal of Law, Economics, and organization 15 (1), 222–279.

Ministry of Commerce and Industry, 1955. Economic Progress of Ethiopia. Ministry of Commerce and Industry. Addis Abba.

Mkandawire, T., 2010. On tax efforts and colonial heritage in africa. The Journal of Development Studies 46 (10), 1647–1669.

Nunn, N., 2008. The long-term effects of africa's slave trades. The Quarterly Journal of Economics 123 (1), 139–176.

Nunn, N., Wantchekon, L., 2011. The slave trade and the origins of mistrust in africa. The American Economic Review 101, 3221–3252.

OECD, 2014. Africapolis. a comprehensive and comparable dataset on urbanisation in west africa. Tech. rep., OECD and SWAC.
URL http://www.oecd.org/swac/ourwork/africapolis.htm

Paredes Marcos, M., 1950. Un capítulo de nuestra hacienda colonial. Revista de administración pública 2, 193–238.

Powell, J. M., Thyne, C. L., 2011. Global instances of coups from 1950 to 2010 a new dataset. Journal of Peace Research 48 (2), 249–259.

Shillington, K., 2012. History of Africa. Palgrave Macmillan.

Smallbones, R., 1929. Report on Economic Conditions in Angola (Portugese West Africa). Department of Overseas Trade. HM Stationary Office. London.

Statistical Division of the Mocambique Colony, 1929. Anuário Estatístico. Anos de 1926-1927-1928. Impresa Nacional de Mocambique - Laurenco Marques.

United Nations Population Division, 2014. World urbanization prospects, the 2014 revision. Tech. rep., United Nations.
URL http://esa.un.org/unpd/wup/CD-ROM/

Wood, R. M., Gibney, M., 2010. The political terror scale (pts): A re-introduction and a comparison to ciri. Human Rights Quarterly 32 (2), 367–400.

Appendices

A. Disaggregation of Total Colonial Revenue

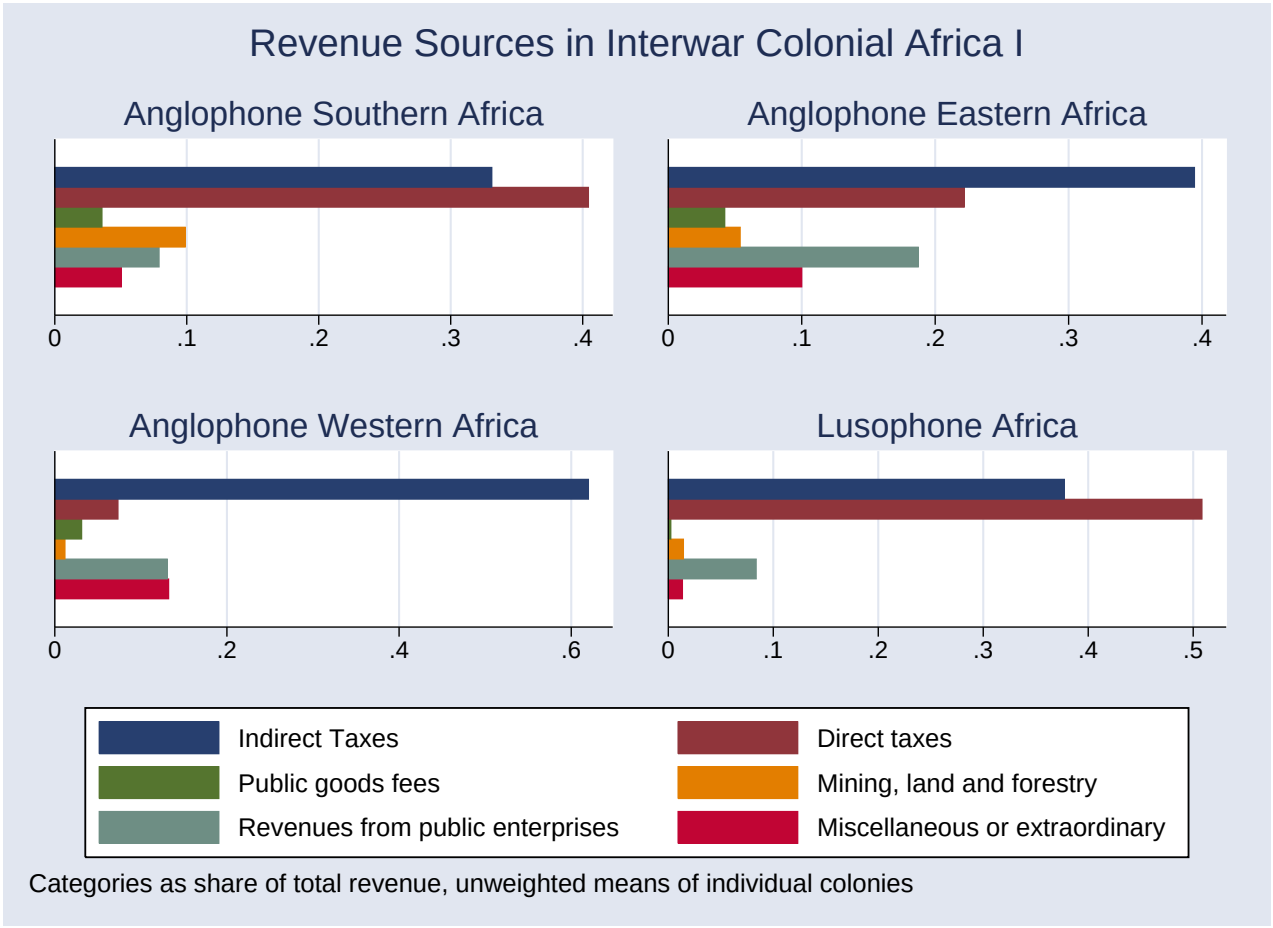

Figure 5: Disaggregation of total colonial revenue into categories I

B. Disaggregation of Colonial Tax Revenue

C. Summary Statistics

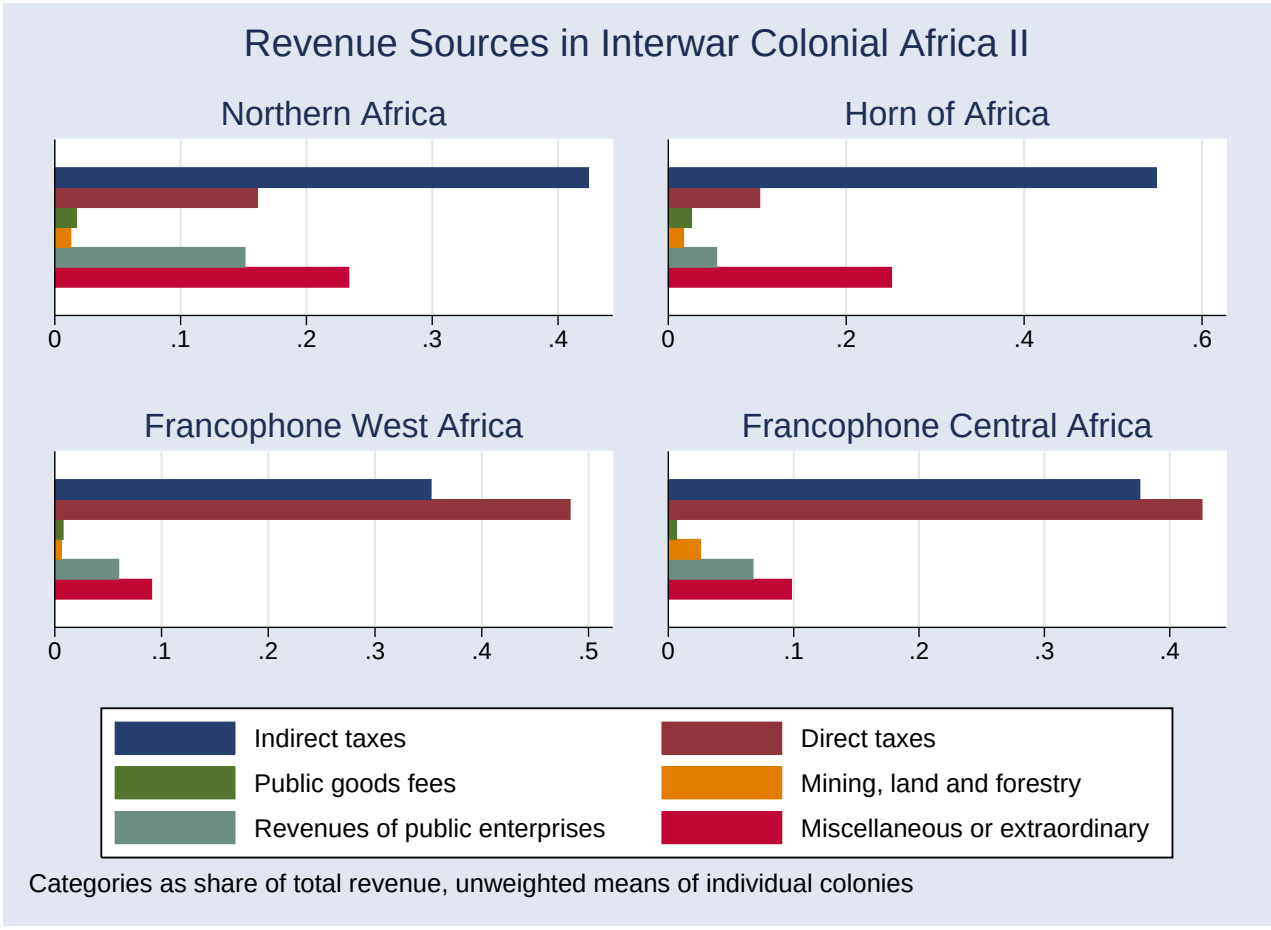

Figure 6: Disaggregation of total colonial revenue into categories II

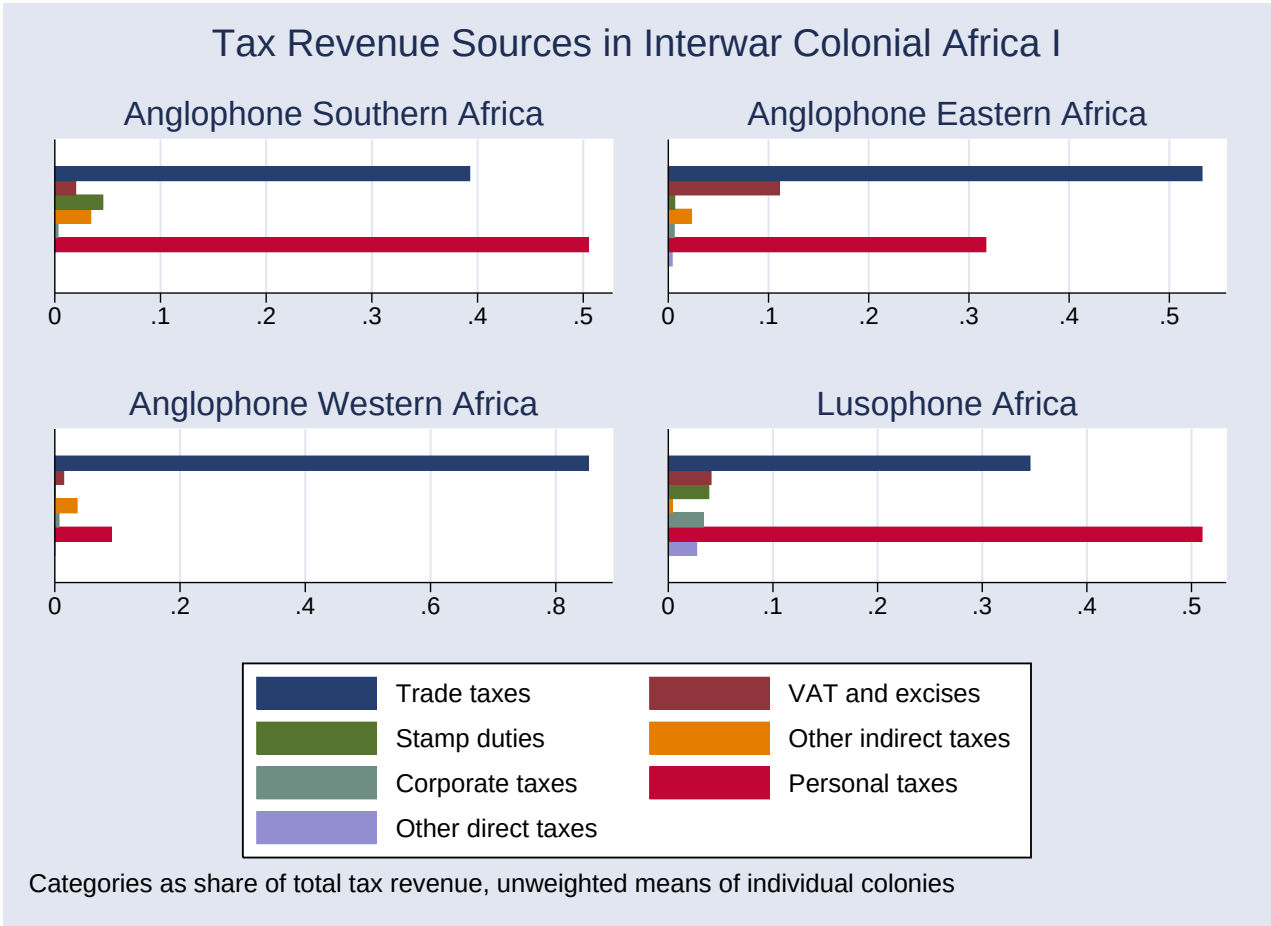

Figure 7: Disaggregation of colonial *tax* revenue into categories I

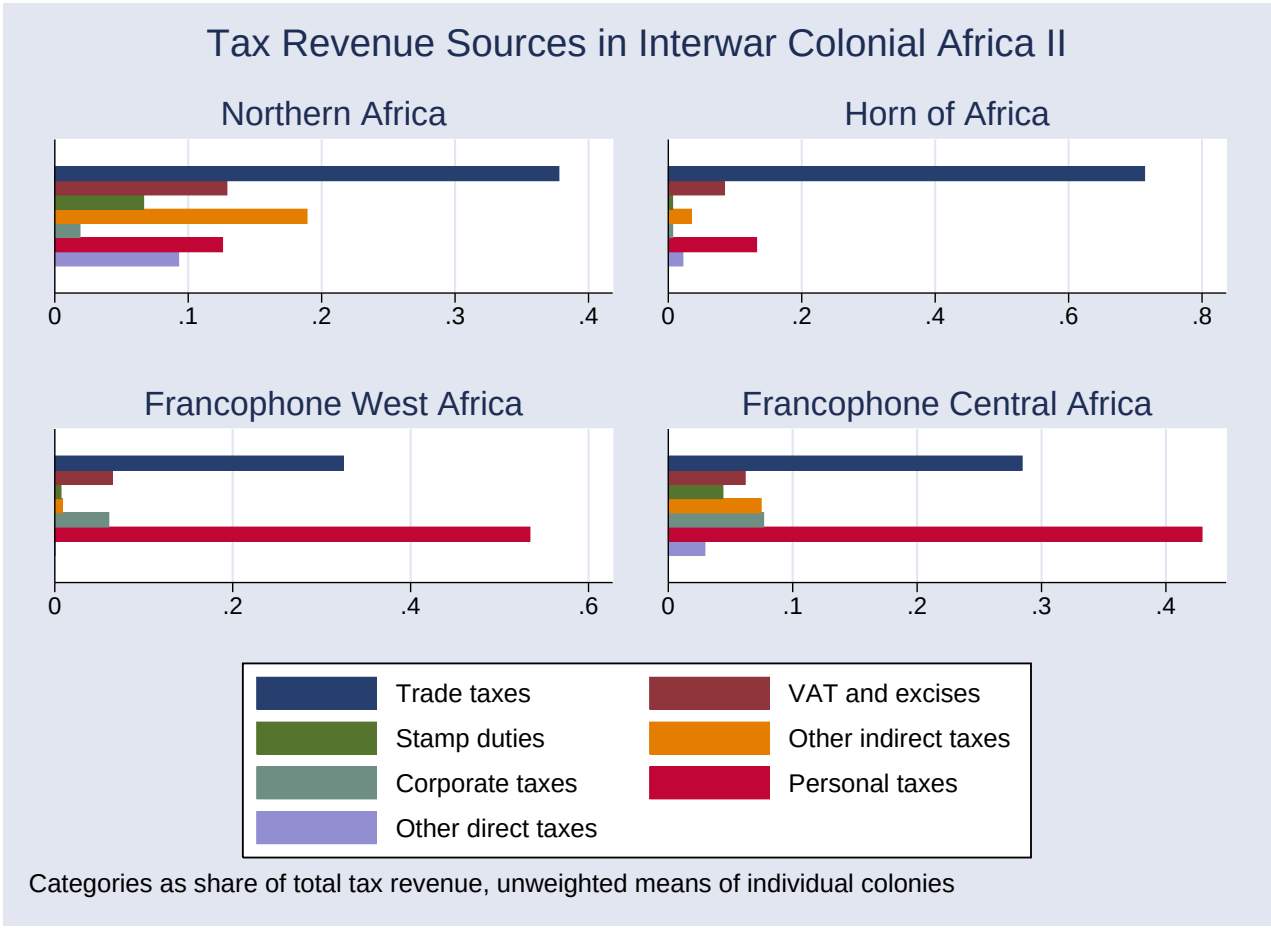

Figure 8: Disaggregation of colonial *tax* revenue into categories II

Table 4: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
colonial direct share	48	.432	.259	0	.966
direct share 72 to 05	1234	.353	.183	.012	1.038
direct share 72_76	44	.293	.143	.088	.645
change in direct share from 1972_76	41	.055	.186	-.382	.614
IMF loans, cumulative, % of GDP	45	.051	.097	0	.608
ODA received, cumulative, % of GDP	48	10.725	8.052	.02	38.039
natural resource income, cumulative, % of GDP	48	312.747	919.276	0	5521.363
GDP deflator, change	48	45.02	150.364	1.695	861.469
Terms of Trade, change	25	-12.019	58.315	-207.561	76.57
coups, cumulative	48	.079	.066	0	.227
conflict incidence, cumulative	48	.208	.354	0	2.13
state repression score, change	48	.042	.837	-1	2
real GDP per capita	48	3019.412	3476.864	348.222	15617.78
GDP per capita, change	48	.209	1.336	-4.202	6.682
polity IV 70_75	45	-5.913	3.917	-9	8
rule of law	48	-.785	.583	-2.36	.61
Gini	43	44.179	7.607	31.556	66.517
ethnic fractionalization	46	.658	.233	.039	.93
population	48	1.91e+07	2.56e+07	484098	1.41e+08
year since independence	48	44.917	14.257	14	105
british colony	54	.333	.476	0	1
french colony	54	.389	.492	0	1
italian colony	54	.056	.231	0	1
portuguese colony	54	.056	.231	0	1
belgian colony	54	.056	.231	0	1
distance to coast	48	321.214	358.786	.744	1071.81