TAX COMPLIANCE UNDER INDIRECT RULE IN BRITISH AFRICA

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Abstract

How states acquire the ability to raise taxes is a central question in the study of institutions and economic development in economic history. This paper uses new data on 'Native Authorities', or African local governments, to investigate tax compliance under indirect rule in British Africa. In theory, Native Authorities represented the integration of indigenous institutions into colonial rule. However, the relationships of African states with the colonial government varied, and African communities experienced considerable political and economic change during the colonial period. The paper investigates the relationship between tax compliance, the autonomy of African states within the colonial system, local levels of income and education, and Native Authority institutions. Understanding the dynamics of Native Authority tax collection helps address wider questions about African processes of state-building, the emergence of an 'uneven topography' of sub-national institutions during the colonial period, and the ways in which Africans shaped colonial rule.

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We want to tell you what is hardest on us Africans. About £250,000 is collected in this Province in the hut and poll tax every year. The Africans get this money by wages earning and sale of produce. Every year this money goes out of the Reserve in taxes and every little comes back to Africans to be spent by Africans in the Reserves. This keeps us poor.

Memorandum by the Kavirondo Taxpayers' Welfare Association, 1935

1. Introduction

In 1935, the Kavirondo Taxpayers' Welfare Association of central Kenya sent a memorandum to Sir Alan Pim, who was leading a commission of enquiry into Kenya's finances. In it, they outlined a series of proposals for the reorganization of the Kenyan colonial administration which would, among other things, improve African taxation. They recommended greater control over government funds be placed in the hands of what were called Local Native Councils in Kenya, or African local governments, instead of a central administration dominated by Europeans and Asians. 'We are confident', they wrote, 'that if more control be given to us Africans, we shall have more necessary things accomplished'.[1] However, they also noted that 'it would be good if printed copies of sanctioned estimates could be given to any taxpayer who wants one.'

Understanding why people do, or do not, pay taxes remains a question of central importance to both academics and policymakers. In many modern developing countries, a substantial share of potential tax revenue often remains uncollected, with considerable consequences for development spending and dependence on foreign aid (Fjeldstad and Semoja

[1] 'Memorandum presented to the Financial Commissioner', 13 November 1935, in Kenya National Archives PC/NZA/2/1/88.

2001: 2059; Cobham 2005). By contrast, in developed economies, relatively little is lost through non-compliance, despite the fact that developed economies often have higher tax burdens (Prak and van Zanden 2009: 143; Andreoni Erard and Feinstein 1998: 821-822). Historically, the ability of states to collect revenues is linked to dual processes of economic expansion and political reform, but the precise mechanism remains enigmatic (Dincecco 2009; Karaman and Pamuk 2013; Tilly 1990)

This paper examines taxation by a neglected but important layer of colonial government in Africa: local 'Native Authorities' created under policies of indirect rule.[2] Native Authorities formed a key part of the administrative infrastructure of colonial governments (Mamdani 1996; Herbst 2000). They were responsible for the collection of sometimes substantial shares of central government revenue, and thus formed the fiscal backbone of the colonial state. Further, they also played a key role in providing public goods. By the late colonial period, they were responsible for an expanding range of services which could include education, healthcare, road maintenance and other public works. In some colonies, nearly a quarter of total public spending was undertaken by Native Authority treasuries.

There was considerable variation in the extent to which Native Authorities could cope with increased responsibilities. The ways in which African elites were integrated into colonial government depended both on the structure of indigenous institutions and local geographic and political characteristics, creating what Boone (2003) calls an 'uneven institutional topography' at local level. This paper uses new data on the tax revenue and organizational structure of Native Authorities for four British colonies to investigate this topography. The paper explores the interaction of indigenous political structures and colonial-era economic and political change in shaping the ability of Native Authorities to collect taxes in the late colonial period.

[2] This paper follows Mamdani (1996) in putting this phrase in quotation marks in the first instance, then relying on the good sense of the reader to place it in its historical context thereafter.

It focuses on four factors which influenced the tax capacity of Native Authorities: 1) the autonomy of African institutions within the colonial system; 2) changing levels of income at local level; 3) investments in formal education, and 4) the capacity of Native Authority institutions and the extent to which they could be constrained by their constituents. It thus provides new insights into how (local) colonial institutions developed within a system of indirect rule.

The next section (2) considers the wider literature on determinants of tax compliance and state capacity, and their application to colonial Africa. Section 3 provides historical background on Native Authorities and their role as tax collectors. Section 4 presents descriptive statistics from a new dataset on the structure and revenue of Native Authorities in the late colonial period in four British colonies: Nigeria, Ghana, Kenya, and Malawi. Section 5 uses these data to examine how indigenous institutional structures and colonial-era economic change interacted to influence the tax capacity of Native Authorities. Section 6 concludes.

2. Tax compliance in Africa

Research on tax compliance has proposed a number of theories to explain why some states are able to collect more than others. Politics, economics and even psychology all play a role in helping to explain variations in the willingness of people to play taxes. While much of this research, particularly on the historical development of tax compliance, has focused on developed country contexts, there is also growing literature which takes into account the particular challenges faced by developing countries often hardest hit by tax evasion. This section briefly reviews this literature, and concludes by considering the application of these theories to colonial Africa.

Classic models of tax compliance identify coercion as the main motivating factor (Allingham and Sandmo 1972). They model the decision to pay or evade tax as a function of the potential benefits of evasion weighed against the costs of being caught. However, subsequent work has shown that people are more honest than they should be, and such models tend to predict a higher rate of evasion than is actually observed (Riahi-Belkaoui 2004). Further, in the United States at least, the share of taxpayers actually punished for evasion is relatively small, and penalties comparatively light (Andreoni, Errard and Feinstein 1998: 821)

This leaves the question of what motivates people to pay taxes, if not the risk of punishment. The theory of fiscal exchange suggests that the structure of political institutions plays an important role. Control over public authorities, and the ways in which they spend the revenue they raise, tends to make people more willing to pay taxes. Feld and Frey (2002) argue that tax compliance is higher in Swiss cantons with direct democracy than those with other systems. Taxpayers are also more willing if they believe the services they receive from government represent good 'value for money' (Alm, Jackson and McKee 1992).

Social motives also play a role. Compliance suffers if people believe they are having to pay more than their share or if the state appears to treat certain groups preferentially (Andreoni, Erard and Feinstein 1998: 891; Pommerehne et al 1994). Equally, the potential for social sanction due to tax evasion may increase the incentive to pay (Andreoni et al 1998: 822). Conversely, if taxpayers believe that many people around them cheat, they may feel more able to do so themselves (Fjeldstad and Semboja 2001).

Many theories of tax compliance draw from the historical rise of tax states in Europe from the medieval and early modern period (Karaman and Pamuk 2013: 603; Bonney 1995; Dincecco 2011). In this work, the development of effective fiscal systems is a crucial foundation for the emergence of centralized states capable of securing property rights and facilitating development. In a study of the Netherlands, a leader within Europe during the early modern period, Prak and van Zanden (2006) combine these aspects in what they refer to as an 'economic interpretation of citizenship', in which citizenship forms a contract between state and citizen. The citizen agrees to participate in the political process, including through the payment of tax, and the state agrees to provide certain services to its citizens.[3] Besley and Persson (2009) find that fiscal capacity and legal capacity are complementary, and that a number of political and economic factors influence investments in both.

There has been less research on tax compliance on African countries, but current literature largely supports the theoretical claims above. However, there are certain structural features of African economies which influence tax compliance. These include low levels of income and human development, high levels of inequality, low levels of state capacity and uneven provision of government services, weak provision for political participation and, finally, colonial histories which influence attitudes towards the state and taxation (Fjeldstad et al 2012: 8). Ethnic divisions and the extent to which taxpayers perceive their own ethnic groups to be treated unfairly also influence their willingness to pay tax (d'Arcy 2011; Fjeldstad et al 2014).

Research on African tax compliance has focused almost exclusively on contemporary periods. For historical periods, limits in the type and amount of data available has focused questions of taxation in other directions. There is little systematic evidence exists on revenues collected by pre-colonial states, though individual cases suggest that some pre-colonial states were able to collect substantial revenues (Heywood and Thornton 1988). These often came in the form of in-kind payments of 'tribute' from dependent communities, or in revenue from trade. The various commodities in which such payments were often made makes it particularly difficult to judge the tax capacity of pre-colonial African states. A wider literature on pre-colonial states has suggested that comparatively low population densities made it difficult for

[3] Bates and Lien (1985) make a similar argument.

African rulers to build broad tax bases, leaving them particularly reliant on the taxation of trade (Herbst 2000; Cooper 2002).

For the colonial period, there has been a recent resurgence of interest in colonial tax systems, in which tax revenue provides a proxy for the administrative capacity of colonial governments. However, this work has concentrated on national-level outcomes and tax structure rather than on compliance decisions by individual Africans.[4] Nor has this literature made much attempt to link pre-colonial tax systems with the colonial period, despite the fact that local conditions influenced the implementation of colonial tax policies (Guyer 1980). While colonial governments in Africa could only rarely co-opt indigenous tax systems for their own use, as they did in the case of the land tax in India, Native Authorities were an important link between African taxpayers and colonial treasuries.[5] The next section discusses their role in colonial taxation in more detail.

3. Native Authorities and Colonial Taxation

This section reviews the history of Native Authorities in British Africa from the beginning of colonial rule up to the late 1940s. It tells something of a stylized history, as the only constant of this system across the period was its local variation. It is this variation that will help to explain differences in tax compliance in subsequent sections.

British colonial administrations were chronically understaffed and under-resourced (Kirk-Greene 1980). As late as 1937, the number of Africans per administrator in British colonies ranged from 12,551 in Northern Rhodesia to 56,428 in Nigeria. The average was

[4] For examples, see de Roo (2017); Frankema (2011); Frankema and van Waijenburg (2014); Havik et al (2015). For partial exceptions, see discussions of tax revolts in Gardner (2012) and African responses to taxation in Bush and Maltby (2004).

[5] Northern Nigeria represents a partial exception to this.

37,374 (Richens 2009: 46-7). One important implication of this for colonial governance was the need to integrate indigenous structures into the administration in some form. Colonial governments relied on African elites to maintain law and order and mediate access to economic resources (Berry 1992; Rathbone 2000: 10). David Killingray jokes that an ideal exam question for a course on African colonialism might be: 'During colonial rule, Africa was mainly governed by Africans. Discuss'.[6] While this is something of an exaggeration, Native Authorities remained an important component of the institutional infrastructure of colonial governance.

The first Native Authorities were created with the recognition of an individual chief of a particular group or area (Hicks 1961: 87). Identifying the appropriate chief was a difficult task for colonial governments with little knowledge of African societies. In some cases, chiefs were not found from among existing hierarchies but rather appointed by colonial officials. In Nyasaland, for example, early colonial administrators claimed that due to social disintegration linked to the slave trade 'there were very few chiefs who could be of great assistance to it' (Hailey 1953: v2, 25). Another example is the warrant chiefs system in Eastern Nigeria, which has been the subject of considerable controversy both during the colonial period and since. Hicks (1961: 103) described the system as 'on the whole a sad failure', because the leaders appointed 'were completely alien to indigenous traditions'.

Cases like these have prompted some to argue that Native Authorities were simply inventions of the colonial state and bore few if any links to indigenous institutions. Terence Ranger coined the phrase 'invention of tradition' in this regard in a 1983 essay which, while actually focused on how Europeans reinvented their own traditions during colonial rule, also argued that colonial rulers invented traditions of chiefly hierarchies and ethnic identity in African societies to serve their own purposes. 'What were called customary law, customary

[6] Quoted in Institute of Commonwealth Studies (2013).

land-rights, customary political structure and so on were in fact *all* invented by colonial codification' (Ranger 1983: 250, emphasis in original). Subsequent work, including a revised view published by Ranger himself a decade later, has allowed for a greater degree of African agency in this process, noting the ways in which Africans used the potential advantages of connections to the colonial government, building on existing foundations.[7] Spear (2003: 25) argues that 'modern customs and political tribalism result from the impact of colonialism on traditions and forms of ethnic consciousness that lie in the past'. What the impact of colonialism was remains open to question. Mamdani (1996) argues that colonial policies of indirect rule empowered chiefs but stripped away traditional systems of checks and balances, creating a system of 'decentralized despotism'.

A central task of Native Authorities from early in the colonial period was the collection of tax for the colonial administration. Not all colonial governments imposed a direct tax – the Gold Coast, notably, did not, and in general direct taxes were a more important source of revenue in East and Central Africa than in West Africa (Frankema and van Waijenburg 2014; Gardner 2012). Where it was collected, however, colonial administrations relied on indigenous agents to collect or assess the tax, either exclusively or in combination with staff paid by central government. In Embu in central Kenya, for example, chiefs collected the poll tax with the assistance of a clerk paid two-thirds by the government in Nairobi and one-third by the Local Native Council, as Native Authorities were called in Kenya.[8] In Sokoto and other regions of Northern Nigeria, taxes assessed as a lump sum per village, and payment apportioned to the men of the village according to their wealth.[9]

Revenue collected in this way was shared according to sometimes variable formulas between the Native Authority and the colonial Treasury. By the late 1940s, Nyasaland Native

[7] See Ranger (1993)
[8] Hailey survey for Embu district, TNA CO 1018/22.
[9] Survey responses for Northern Nigeria, TNA CO 1018/39.

Authorities were allowed to keep 1/- in every tax collected, though the total rate varied by district. Chiefs in Kenya could not retain any of the tax revenue they collected, but were instead paid a salary by the governments. In Nigeria, the amount retained by the Native Authority was higher for those Native Authorities the colonial government deemed to be more ‘civilized’, by which was meant more centralized (Orewa 1966). For example, the in Sokoto, men paid 138 pence annually to the Native Authority, while in Calabar they paid on average less than 50 pence per annum.[10]

The system of individual Native Authorities formed during the early colonial period established the foundation for a more elaborate system from the 1930s, when colonial governments tried to transform ‘Native Authorities’ into local governments along a quasi-British model. During this phase, what Hicks (1961: 8) refers to as the ‘mature Native Authority system’, comprised of ‘the Native Court, the Native Treasury, and the Native Authority’ was put in place across most of Anglophone Africa. Additional responsibilities, including both tax collection and the provision of services, were delegated to these new local governments in an effort by colonial governments to implement more ambitious development plans following the upheavals of World War I and the Great Depression (Havinden and Meredith 1993: 187-205).

From the outset, there were serious challenges in this transition from individual native authorities to expanded local governments. Writing after World War II, Hinden (1950: 32) noted that ‘local government in Africa is, in reality, “tribal government”’, with different social functions than British local government. ‘Yet it is on these very tribal authorities that the status and powers of local administration are now increasingly being devolved. They are expected to organize a whole range of social services and an equitable taxation system, and to run a

[10] Survey responses for the Sokoto district, TNA CO 1018/39 and survey responses for the Calabar province, TNA CO 1018/36

Treasury on European lines. In some areas the traditional native institutions have proved quite ineffective for these purposes.'

As part of this change in policy, some governments expanded the share of direct tax revenue retained by Native Authorities, but the main gains in Native Authority revenue came from the expansion of their own revenue sources. These included fees for services and licenses, court fees, rents from land, and resource royalties. For most Native Authorities, the largest single source of revenue was a local 'rate', or direct tax imposed independent of central government. Rates were normally imposed as a flat annual tax, generally on men but sometimes also on women. They also imposed special rates, temporary measures generally earmarked to fund a particular project. Native Authority tax liabilities could therefore vary considerably within colonies. For example, Tumu in Northern Territories of the Gold Coast imposed a rate of 6 shillings on men and 1 shilling on women in 1951, and no special rates. Ehuren Division in Ashanti imposed rates of 50 and 25 shillings on men and women, respectively. Akwamu supplemented its rates of 8 and 3 shillings with a 40 shilling special rate on men only. The next section illustrates that the success of Native Authorities in raising this revenue varied considerably. Section 5 attempts to explain this variation by examining the relationship between tax revenue, on the one hand, and the four factors summarized above on the other, namely: the autonomy of African institutions within the colonial system, the incomes and education of taxpayers, their ability to hold Native Authorities to account and the administrative capacity of Native Authorities.

4. Native Authorities: A Quantitative Snapshot, 1948

Up until the late colonial period, information on Native Authority administrations, and their finances, is fragmentary and often presented only in aggregate form at district or provincial level. However, policies of fiscal decentralization from the 1930s focused increased attention by the imperial government on the diversity of institutions and practices between and within colonies, which in turn generated demand for systematic comparisons of Native Authorities. Response to this demand allow this paper to build the first quantitative snapshot of the structure and revenue of Native Authorities across four African countries (Ghana, Kenya, Nigeria, and Malawi).

Arguably the leading figure in contemporary research efforts was Lord Hailey, a retired officer of the Indian civil service who became a key producer of comparative scholarship on African colonial rule. His work began with the mammoth *African Survey*, published in 1938. It contained a chapter on 'Native Administration' which may have been written mainly by Sir Frederick Pedler, a colonial official and businessman who travelled with Hailey and took over work on the *African Survey* during a long period in which medical problems prevented Hailey from working (Cell 1989: 501). The chapter gives a descriptive history of the system of African administration in each British territory, with additional sections on French and Belgian policies. Hailey extended this research a few years later with a brief study focused explicitly on Native Administration, published in 1944. In 1947, the Colonial Office asked him to bring his 1941 work up to date, resulting in a 5-volume report published from 1951.

The underlying research for the 1951 report, preserved in the UK National Archives, forms the empirical foundation for this paper. Specifically, it uses data compiled from district-level surveys collected which give data on each Native Authority in that district.[11] The surveys asked about the physical, economic, and demographic characteristics of each Native Authority area, the structure of the Native Authority, its finances and its activities.[12]

[11] Districts often contained several Native Authorities.
[12] The core of the survey remained the same across all colonies, though there were occasional changes reflecting local conditions. For example, questionnaires in Kenya and Malawi asked about the presence of European settlement and alienated land, which was unnecessary in the West African colonies.

One reason for the Colonial Office's request was a growing concern about differences in the capacities of individual Native Authorities to cope with the additional demands they were facing. In 1948, a report published by the colonial government in Kenya noted that 'a distressing feature, accentuated during the war, is the lack of uniformity in the rate of progress between the semi-sophisticated and the backward tribes in the colony. The inhabitants of Nyanza and Kikuyu areas of Central Province might be living in a different world from the Masai and Elgeyo, for example' (Kenya, 1948).

Such variation was, in part, a product of the process by which Native Authorities were created, and is evident even in the size of the Native Authority areas and the populations they governed. Crowder and Ikime (1970: xiii) note that the British preoccupation with legitimacy for chiefs meant that they were 'willing to tolerate great variety in the size and shape of their Native Authorities'. Even where colonial officials attempted to combine Native Authorities for administrative convenience, they sometimes met with African opposition. In the Northern Territories of the Gold Coast, for example, the Kassena, Nankanni and Builsa resisted colonial efforts to unite them under one Native Authority (Ladouceur 1979: 55). Table 1 gives population data for Native Treasury areas in Kenya, the Gold Coast, Nigeria, and Nyasaland around 1950.[13] It shows that the size of Native Treasury constituencies varied enormously between and within colonies.

[13] Native Treasury, rather than Native Authority, populations are shown here to facilitate the use of the data on native authority finances in the next section. In most cases, each native authority had its own treasury. However, some smaller native authorities federated under a single treasury. Minimum populations would therefore be even smaller if native authority data were used.

Table 1: Population of Native Treasury areas

	Number of Native Authorities	Mean population	SD	Min	Max
Nigeria	226	153,796	311,439	3,273	2,882,414
Gold Coast	92	46,083	73,571	1,587	459,972
Kenya	26	171,873	169,959	15,341	633,568
Nyasaland	14	158,492	65,692	61,101	302,250

Source : See text

They also varied in terms of the composition of that population, in particular the level of ethnic diversity. In theory, 'indirect rule' should lead to largely homogenous Native Authority populations. In practice, however, most had some level of ethnic diversity owing to internal migration or to the consolidation of administrative units. For example, in Akyem Abuakwa in the Gold Coast, the survey reported that 'about 40 per cent (56,180) of the population of the sub-district are Akims of the Akan race who originally migrated from further north. With the advent of cocoa many farmers from Akwapim, Krobo, Anum and Shai moved into the sub-district buying the land outright or farming on the Abusa system. It is estimated that these strangers number about 63,210 or 45 per cent of the whole population… The remaining 15 per cent (21,070) consist of members of tribes whose homes lie to the North of the forest country'.[14]

Native Authorities also differed in their organization. While the reforms of the 1930s and 1940s were intended to introduce uniformity, these were adopted in an often piecemeal way, creating considerable diversity. In some areas, the chief alone was gazetted as the Native

[14] Survey response for Akim Abuakwa, TNA CO 1018/10.

Authority. In these cases, though the chief might have informal sources of advice, the chief had ultimate control over the Native Authority. In others, the Native Authority was the chief-in-council, and councillors had an official position within the colonial administration. Councils often provided some form of representation for different communities, such as ‘strangers’ or mission-educated Africans, who were not otherwise part of traditional hierarchies. Such combinations were not always smooth, and anecdotal reports suggest that there were tensions between traditional elites and what the surveys refer to as ‘new’ elites (Gardner 2012: 162-3; Rathbone 2000: 21).

The selection of chiefs and councillors varied, from ‘traditional’ (hereditary or selection from a small number of chiefly families, along patrilineal or matrilineal lines) to elected by the local population or appointed by the district officer. The surveys also asked whether they could be removed, by their constituents or the District Officer. In some regions, the popular removal of chiefs (often referred to as ‘destooling’) was common while in others chiefs were effectively in post for life.

The other two ingredients of the ‘mature’ Native Authority system as identified by Hicks were treasuries and courts. In most cases, individual Native Authorities had their own treasuries, but in some cases, smaller Native Authorities would federate for financial purposes. This was much more common in Malawi and Kenya, for example, than it was in Ghana or Nigeria. Native Authorities had varying degrees of responsibility for managing their own assets. Native Authorities with literate members and some degree of fiscal knowledge prepared their own estimates. However, where these were lacking, Native Authorities were dependent on the District Officer for setting the estimates. Capacity also differed in other areas of governance. Native Courts were responsible for hearing both local civil and criminal cases. The total number of cases heard relative to the population is an indication of how established and active these courts were. Table 2 summarizes the measures of what might be described as the degree of executive constraint and the administrative and legal capacity of Native Authorities.

Table 2 Capacity and Constraint in Native Authorities, c. 1948

		N	Present	Average
Constraint	Chief in Council	293	157	
	Council Only	293	66	
	Traditional Selection	294	203	
	Removal by DO	281	138	
	Removal by People	279	77	
Capacity	NA sets estimates	286	54	
	DO sets estimates	286	38	
	Native Court cases per 1000	204		29
	NAs per Treasury	294		6

Source: see text.

The surveys also contain data on the finances of individual Native Authorities, though not at a consistent level of detail. More systematic accounts submitted to the colonial administration provide supplementary data and allow for the calculation of revenue per capita for each Native Authority Treasury in 1948 (see appendix 4 for sources). Figure 1 gives these data geographically, using digitized colonial maps of Native Authority areas. The difficulty of compiling maps of these units, which are often considerably smaller than colonial districts, has meant that Native Authority boundaries have received less attention than national or regional boundaries in studies of African political or economic history.[15] Previous work on subnational

[15] For examples of work on larger-scale boundaries, see Green (2012), Griffiths (1986), and Nugent (2002)

variation during the colonial period has tended to aggregate up to the district or province level. However, there is considerable anecdotal evidence that Native Authority boundaries could be consequential for the lives and livelihoods of Africans. For example, Rathbone (1996) argues that in Akyem Abuakwa (Ghana) land scarcity led the Native Authority to draw ever-sharper distinctions between Akyemfo and ‘strangers’ who had come into the district (often at the initial encouragement of earlier chiefs) to grow cocoa.

The four colonies are mapped on the same scale, showing the considerable gap in levels of revenue per capita both between and within colonies (see also table 3).[16] In general, Native Authorities in Ghana and Nigeria raised higher levels of revenue per capita than those of Kenya and Malawi. However, there is overlap between wealthier regions of central Kenya or southern Malawi and poorer regions of the two West African colonies. The next section explores which factors influence this difference in revenue per capita, using the data collected from the surveys as well as additional data on underlying economic factors.

Table 3: Summary statistics for revenue collected per colony

	Mean revenue Pence pc	Standard Deviation	Maximum	Minimum
Gold Coast	69	46	272	3
Nyasaland	22	5	35	15
Kenya	22	11	47	0.2
Nigeria	28	15	108	6
Total sample	39	33	272	0.2

Source: see text

[16] The table gives nominal revenue figures. Unfortunately, prices and wages do not exist at suffiently local levels of disaggregation to deflate these data. However, using national unskilled wages does not eliminate the variation between colonies.

5. Explaining Native Authority revenue

Previous sections have suggested several possible sources explaining the variance in Native Authority tax revenue. One is the structure, or perceived structure, of African political entities at the beginning of the colonial period which may influence the Native Authority's degree of autonomy from the colonial government. Export earnings and market access might expand the tax base and thereby raise revenues. Access to formal education may increase willingness to fund local public services, although the extent to which mission-education Africans had a voice within Native Authorities varied. Finally, features of the Native Authority governments themselves, such as the extent to which taxpayers could constrain the actions of chiefs and their administrative capacity also played a role. This section will examine the influence of these factors on revenue per capita.

To capture the degree of African autonomy under indirect rule, the level of political centralization from the ethnographic atlas compiled by Murdock is used (1967) [17]. The period of observation of societies included in the Murdock Atlas is mostly in the early 20th century, so during the first half of the colonial period. This makes the Murdock data controversial when used as a measure of pre-colonial institutional quality. However, given that the compelling question in this paper is how indigenous societies played a role in the development of colonial institutions, this period of observation is appropriate. African institutions that were perceived to be more centralized were often given more autonomy within the colonial government. As these perceptions developed during the same period in which the observations used in the Atlas were recorded, this measure of centralization captures an intangible mediating factor for the inclusion of African regimes in the structures of colonial rule.

[17] Political centralization is measured as the level of jurisdictional hierarchy beyond the community level, and ranges from 0 to 4 for our observations.

The degree of political centralization for each Native Authority is measured by pairing colonial maps of Native Authorities and a map of the geographical location of indigenous societies, originally created by Murdock (1959) and digitized by Nunn (2008). By matching the colonial maps to the Murdock map, African societies are assigned to Native Authorities. These assignments are cross checked with information from the Hailey reports on which groups were living in the area. To obtain a measure of indigenous political centralization for each Native Authority, a weighted average of the political centralization score is calculated where the weights are determined by the share of the area inhabited by the different indigenous societies as given by the Murdock map.

Underlying income levels are another potentially important factor in determining potential tax revenue. Unfortunately there are no direct measures of income at the level of the Native Authority. To proxy for this, factors that capture the level of commercialization and market access are included. This included a dummy for the production of cash crops, such as cocoa or cotton, for the market. Further, the productivity and fertility of the soil may affect agricultural yields and export productions, and thus income and the tax base. The organic carbon stock in the soil as an approximate measure of agricultural potential in each Native Authority area is also included as a control.[18] To capture market access, the analysis includes the distance of each Native Authority to the closest large city, as many cash crops were internally traded[19]. Access to railways was another important source of market access. Railway networks in Africa were comparatively thin, but where they existed reduced transport costs considerably for exporters (Chaves et al 2014; Herranz-Loncan and Fourie 2018). They also

[18] Various measures of soil suitability, including cation exchange capacity, Ph content of the soil and bulk density of the soil, give very similar results.

[19] Measured as the shortest distance between the geometric mean of each Native Authority area to the nearest city with 35,000 inhabitants or more, obtained from colonial censuses. Minimum distance to the coast, measured as the shortest distance between the geometric mean of each Native Authority area to the nearest coast, was initially included as well. However, this measure did not correlate well with revenue per capita. This is perhaps not surprising as this measure does not take into account roads and or railways, and it therefore does not necessarily provide a very good measure for market access.

shaped the economic geography of African countries to a considerable degree, promoting urbanization and the development of domestic markets (Jedwab and Moradi 2016; Jedwab, Kerby and Moradi 2017; Buckwalter 2018). Access to railways is measured here by the density of railway stations per capita in each Native Authority using colonial maps from around the end of the colonial period.

A third factor that is included is the historical presence of missionaries in Native Authority areas. Missionaries played a crucial role in the establishment of formal education in colonial Africa. Until 1940, around 90 per cent of all formal education was provided by missionaries (Woodberry 2004; Bolt and Bezemer, 2009; Frankema 2012; Huillery 2014; Nunn 2014). The direction of the effect of missionary education on revenue collected is potentially ambiguous. On the one hand, increased access to formal education could increase willingness to fund local public services, and therefore should have a positive effect on local tax compliance. However, tension between mission-educated Africans and Native Authority officials may have mitigated this effect, and the presence of mission schools may have limited the need for Native Authority investments in schooling.

To capture access to missionary education, previous work in African economic history has often used a map published in 1924 to measure missionary presence within colonies. However, the geographic spread of missionaries was a dynamic process that did not stop in 1924, and which depended on a range of factors including demand from African communities as well as changing colonial policies and local conditions over time (Frankema, 2012; Meier zu Selhausen, Moradi, and Jedwab 2018). Further, the 1924 map only includes main mission stations occupied by Europeans, which were only a small minority of total mission presence. Geocoding the ecclesiastical returns in the colonial Blue Books provides a more comprehensive picture of missionary presence, and the analysis includes the density of missionary establishments relative to the population of each Native Authority area.

Finally, some political characteristics of Native Authorities themselves may also have had some impact on tax compliance. As noted in section 2, the literature on tax compliance suggests that the degree of political voice among taxpayers, possible preferential treatment of different groups, or the presence of legal capacity all has an impact on compliance rates. A final set of dummy variables is therefore included which indicate: the method by which chiefs were selected; whether chiefs had an official council that he needed to consult when making decisions; and whether chiefs and Native Authorities could be removed. Wider measures of the capacity of Native Authorities are also explored, such as a dummy variable indicating whether each Native Authority set its own estimates and the number of Native Authorities per treasury. As discussed before, most Native Authorities had their own treasuries, but in some cases, smaller Native Authorities which lacked the capacity to have their own treasury would federate. This also meant that individual authorities had less say in setting the estimates and that relative bargaining power between groups might have affected differential treatment of groups. Finally, the number of court cases heard per capita is also included as a measure of legal capacity.

A simple OLS model first illustrates the relationship between African autonomy under indirect rule, economic opportunities and access to formal education and revenue per capita (in pence) as the dependent variable.[20] Table 4 presents the results of this analysis. The capacity of Native Authorities to collect taxes seems to be higher in those areas where indigenous societies had (or were perceived to have) more developed state structures. For every level increase of jurisdictional hierarchy beyond the community level, the average revenue collected increases with roughly 8 pence per year. Compared to the sample average annual revenue of 39 pence per annum, this means a 20 percent increase in revenues for every level increase of

[20] The same analysis using the local tax rate finds broadly similar results, especially for the variables capturing capacity and constraint within NA's, with the exception of court cases per capita. See appendix 3. There are some notable differences with respect to the economic variables. Cash crop production seems unrelated or even negatively correlated with level of local tax rates. Access to the railway has a much smaller effect on level of local rates, while the effect of access to missionary schooling remains constant.

jurisdictional hierarchy. This could be because more centralized African states experienced less intervention by European administrators, could build on existing fiscal structures on the collection of local rates, and were possibly perceived as more legitimate by its population.

Table 4: Explaining Native Authority revenue[21]

	Revenue pc	Revenue pc	Revenue pc	Revenue pc
State centralisation	8.779***	9.277***	7.614***	7.440***
	(3.99)	(4.51)	(3.39)	(3.34)
Fertility of soil		-0.209	-0.399*	-0.364
		(-0.91)	(-1.65)	(-1.50)
Distance to city		-0.0374***	-0.0380**	-0.0348**
		(-2.64)	(-2.60)	(-2.40)
Cash crop dummy			6.095*	6.474**
			(1.93)	(2.03)
Railway stations (per population)			10.06**	10.40**
			(2.41)	(2.42)
Schools (per population)				2.819
				(1.18)
Constant	51.39***	58.58***	63.90***	59.92***
	(6.84)	(4.37)	(4.53)	(4.13)
Country dummies	Yes	Yes	Yes	Yes
N	303	256	206	206
R-sq	0.290	0.316	0.320	0.328

Robust t statistics in parentheses; * p<0.10, ** p<0.05, *** p<0.01

Commercialisation and market access also seem strongly related to the capacity to collect taxes. The farther Native Authorities were from large cities, the lower their revenue per capita. This could be because the greater the distance to markets, the more difficult and or more expensive it is to export produce, which might lead to lower taxable incomes. The magnitude of this effect is substantial, as 100 km additional distance from a major city is associated with 4 pence lower revenues on average. Conversely, the production of cash crops and access to

[21] As this analysis uses spatial data, it might be prone to spatial autocorrelation. The results remain similar controlling for spatial autocorrelation, but as the number of observations are substantially lower the standard OLS estimates are presented in the main text. See appendix 2.

railway stations are associated with higher revenue collection. The production of export crops is linked to 6 pence more revenue per capita on average per annum. Further, easier access to markets, measured by proximity to railway stations, is also associated with significantly higher revenue collection. One more railway station per 1000 people increases revenues by around ten pence per annum. This might be because both the availability of cash crops and access to the railway is likely to increase taxable incomes and expand the tax base. The only factor related to commercialisation that does not seem consistently related to revenue per capita is the fertility of the soil. The coefficient is negative and mostly insignificant. This might be related to the fact that the big Native Authorities in the Northern part of Nigeria collected substantial revenue, despite being located in areas that receive on average less rainfall (a crucial factor influencing general soil suitabilit)y. It is also possible that in an era of increasing specialization in agricultural production, general measures of soil suitability do not capture economic potential very well.

Finally, the availability of missionary education, captured by the number of missionary locations per capita is positively associated with the capacity to collect revenue. For every additional school per 1000 people, revenue collection is increased by a little over 2 pence per annum. However, this effect is non-significant. This is perhaps not unexpected given the potentially ambiguous effect of missionary education on Native Authority capacity as discussed before.

The effects of how Native Authorities were organized on their capacity to collect revenue is shown in table 5 below. As some variables capture different aspects of the same phenomenon, a few of them are highly correlated and including them in the same model would bias the results.[22] Therefore, the structural variables are added one at the time to the model discussed above. However, the final model presents the results of a general to specific

[22] See the appendix 1 for a correlation matrix.

approach, were all variables are included in the same model, after which those variables that are statistically insignificant (p > 0.25%) are omitted.

When chiefs are selected via traditional or hereditary procedures, the capacity to tax seems higher. On average, revenue collection in Native Authorities where chiefs are selected via traditional procedures is 10 pence higher compared to Native Authorities where chiefs or councils are appointed for example by the District Officer. This could be because traditional chiefs are perceived as more legitimate which might increase the willingness to pay. Conversely, when Native Authorities consisted of only councils, often in cases where the colonial government could not identify an appropriate chief, revenue collection is significantly lower, on average close to 20 pence per annum. This suggests that Native Authorities which were largely appointed by the colonial government were less able to collect revenue.

Measures for voice and accountability, i.e. whether Native Authorities consisted of chiefs and a council, and whether chiefs and Native Authorities could be removed, are both linked to around 13 pence more in tax collection compared to Native Authorities that lack these voice and accountability measures. The table only shows the effect of whether Native Authorities could be removed by the District Officer, but including the possibility of removal by the people gives the same result.[23] The positive and significant result for both variables suggest that indeed control over public authorities and the ways in which they spend the revenue raised, makes people more willing to pay (Feld and Frey, 2002). The Hailey files indicate that one of the main reasons why chiefs and Native Authorities are dismissed is because of financial misconduct. This link is also suggested by the Kavirondo Taxpayers Welfare Association memorandum quoted at the beginning of the paper.

The variables capturing administrative capacity of the Native authority are all significantly related to revenue collected. The number of court cases heard per capita and

[23] There are fewer observations for this variable. See table 2.

whether the Native Authority sets its own yearly estimates are an indication of legal and fiscal capacity.

Table 5: Explaining Native Authority revenue continued

	Revenue pc	Revenue pc	Revenue pc	Revenue pc	Revenue pc	Revenue pc	Revenue pc	Revenue pc
State centralization	6.072***	6.321***	7.609***	5.666**	5.235**	5.286**	5.842***	4.88*
	(2.73)	(2.87)	(3.26)	(2.50)	(2.27)	(2.28)	(2.61)	(1.88)
Soil fertiliy	-0.355	-0.768***	-0.331	-0.146	-0.127	-0.427*	-0.331	-0.56**
	(-1.52)	(-2.95)	(-1.37)	(-0.57)	(-0.42)	(-1.71)	(-1.39)	(-2.31)
Distance to city	-0.039***	-0.052***	-0.029**	-0.041***	-0.028	-0.029**	-0.036**	-0.015
	(-2.67)	(-3.73)	(-2.20)	(-3.13)	(-1.17)	(-2.04)	(-2.42)	(-1.21)
Cash crop dummy	6.452**	6.790**	5.078	3.781	9.614***	4.758	7.314**	5.382*
	(2.06)	(2.16)	(1.56)	(1.24)	(2.64)	(1.50)	(2.27)	(1.69)
Rail stations per 1000 pop	10.36**	9.342**	11.85***	10.39**	7.204*	10.50**	10.47**	13.08***
	(2.46)	(2.22)	(2.76)	(2.43)	(1.69)	(2.03)	(2.45)	(2.63)
Schools per 1000 pop	2.709	2.522	2.239	3.242	3.676	3.448	2.172	3.55
	(1.08)	(0.97)	(0.90)	(1.48)	(1.43)	(1.33)	(0.91)	(1.26)
Traditional selection	10.41***							
	(3.78)							
Only council NA		-18.88***						
		(-4.43)						
NA as chief in council			13.61***					13.46***
			(4.81)					(3.59)
Removal by DO				13.20***				11.07***
				(4.01)				(3.02
Court cases per 100 population					0.62***			
					(3.61)			
NA sets the estimates						22.16***		16.47***
						(4.02)		(2.75)
NA's per treasury							-0.594***	-0.50**
							(-4.27)	(-2.54)
Constant	52.19***	85.27***	43.65***	51.81***	55.98***	61.02***	63.46***	42.79***
	(3.71)	(5.30)	(2.89)	(3.48)	(3.54)	(4.10)	(4.36)	(2.73)
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	201	200	200	192	161	196	201	185
R-sq	0.343	0.361	0.361	0.38	0.441	0.410	0.351	0.44

Robust t statistics in parentheses; * p<0.10, ** p<0.05, *** p<0.01

Increased legal capacity, proxied for by the number of court cases per 100 people, increases revenue substantially (1 increase in court cases per 100 people, increases revenue by half a pence). The explanatory power of the model is substantially higher when it includes the number of court cases, although the number of observations is clearly lower. Further, revenue collected is substantially higher (22 pence on average per annum) in those Native Authorities that set their own estimates. These finding resonates well with the results of Besley and Persson (2009) that legal capacity and fiscal capacity often develop in parallel. Finally, the number of Native Authorities within one treasury is negatively related to revenue per capita. When Native Authorities were too small to run their own treasury, they might have also lacked the capacity to collect. Additionally, it might have been more difficult to agree on rates of taxation and patterns of expenditure within federations. Further, when various Native Authorities are federated in one treasury, there might be more scope for differential treatment of different groups. Both D'Arcy (2011) and Fjeldstad et al. (2014) argue that the extent to which taxpayers perceive their own ethnic groups to be treated unfairly influence their willingness to pay (see also Andreoni et al., 1998; Pommerehne et al., 1994).

6. Conclusions

This paper contributes to the literature on historical tax compliance by investigating the implications of Africa's 'uneven institutional topography' for local fiscal capacity. It focuses on an often neglected but important layer of the colonial government in Africa: local Native Authorities created under policies of indirect rule. Using new data on both the structure and tax revenue of Native Authorities, it explores the interaction of indigenous African political structures and colonial-era economic and political change in shaping the ability of Native Authorities to collect taxes in the late colonial period. The paper thus fits neatly into the gap identified by Michalopoulos and Papaioannou (2014) between studies of African economies that have a national focus, and the emphasis of historians on the weakness of national institutions and importance of subnational variation.

These data show that the capacity to collect taxes seems higher in those Native Authorities where indigenous societies were perceived to have more developed state structures, which often gave them greater autonomy within the colonial system. Taken further, this difference in capacity may help explain the persistent impact of African state centralization on sub-national development outcomes (Michalopoulos and Pappaioannou 2013; 2014; Bandyopadhyay and Green 2016) and perhaps also why local political competition and traditional leaders continue to have an impact on African development at a local level (Acemoglu, Reed and Robinson 2014; Baldwin 2015).

However, the organization of African institutions in the early colonial period only tells part of the story. Economic and social changes under colonial rule prompted sometimes considerable changes in local incomes and education. Late colonial income, proxied for the production of cash crops, access to the railway, and distance to major cities, is linked to higher tax collection. Access to education also shows a weak but positive relationship with higher tax collection.

There are clear associations between how Native Authorities were organized and their ability to raise taxes. This includes the (perceived) legitimacy of the chief or Native Authority, proxied for by traditional selection, as well as proxies for voice and accountability. When Native Authorities consists of Chiefs and council, and when they can be removed either by popular vote or by the District Officer, they raise more revenue. And finally, when the Native Authorities have established and active courts, and are able and allowed to set their own fiscal budget, both clear signals of more bureaucratic capacity, revenue per capita is significantly higher in those areas.

These findings have a number of implications, not just for the study of local tax compliance, but also for research on African governance more broadly. There remain debates about the extent to which theories of the state developed in Europe are relevant for understanding Africa (Osafo-Kwaako and Robinson 2013). The fact that the findings presented above follow the predictions of theories developed in other regions suggest, first of all, that the dynamics of state-building and taxation did not necessarily operate differently in Africa than in other parts of the world.

Secondly, this paper highlights the importance of understanding variation in local institutional capacity. Decentralization policies like those adopted by colonial governments in the final decades of colonial rule have also been championed by international organizations and implemented by a number of post-independence African governments, particularly under structural adjustment programmes in the 1990s (Oluwu and Wunsch 2004; Bratton and van de Walle 1997). Historical developments in local institutions may have influenced spatial inequalities in later periods.

Finally, they suggest that efforts to understand the effects of colonialism on African governance need to look beyond European-run institutions in colonial capitals, and take into account the ways in which indigenous institutions and societies were integrated into colonial institutions. The implementation of indirect rule varied considerably across and within colonies. However, in much of colonial Sub-Saharan Africa, Africans themselves played an important role in the exercise of colonial rule. Understanding how they did this remains and important, and often missing, ingredient in economic histories of colonialism in the region.

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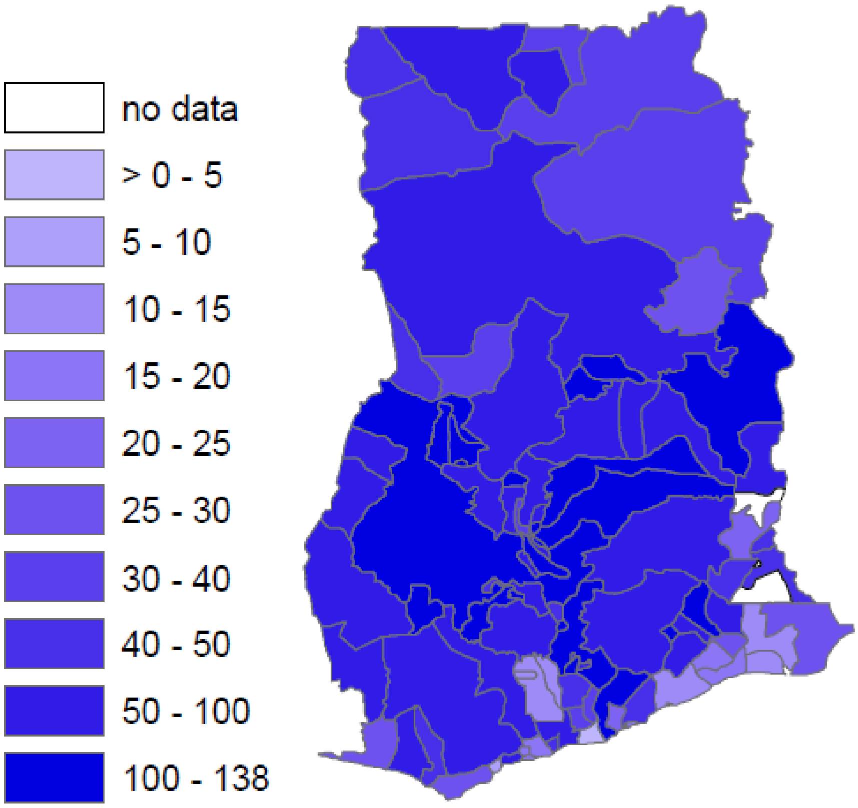
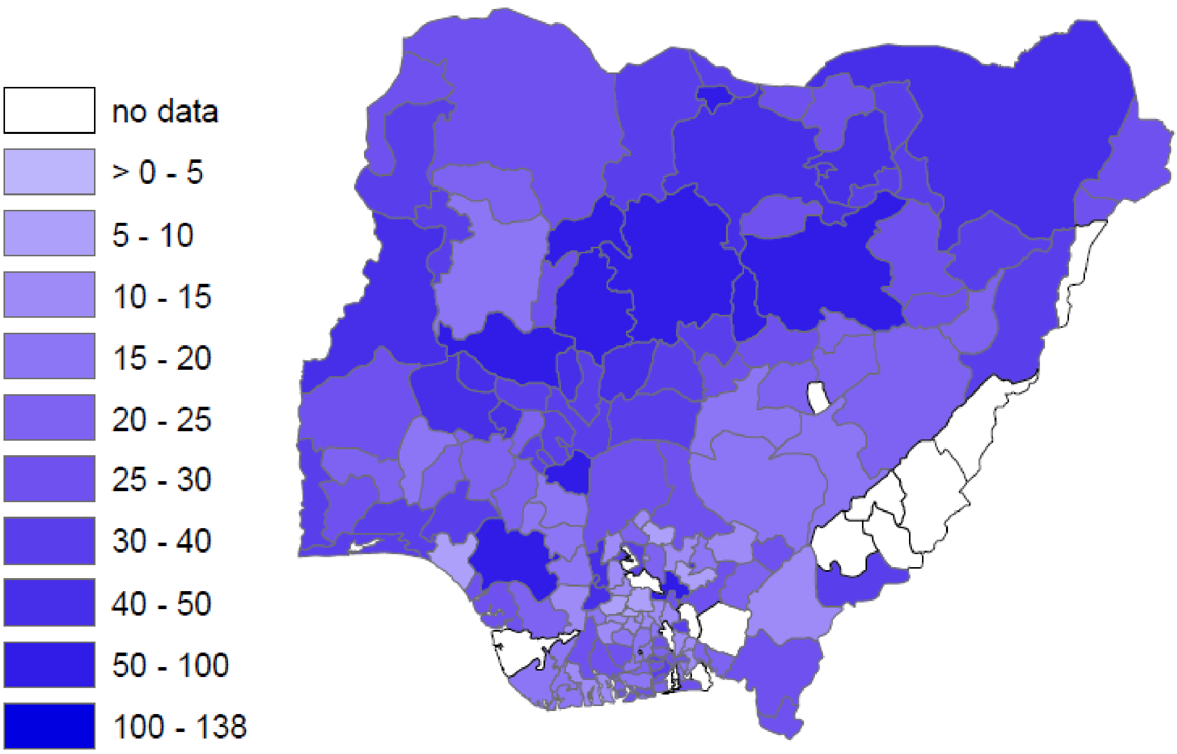
Figure 1 Native Authority revenue per capita

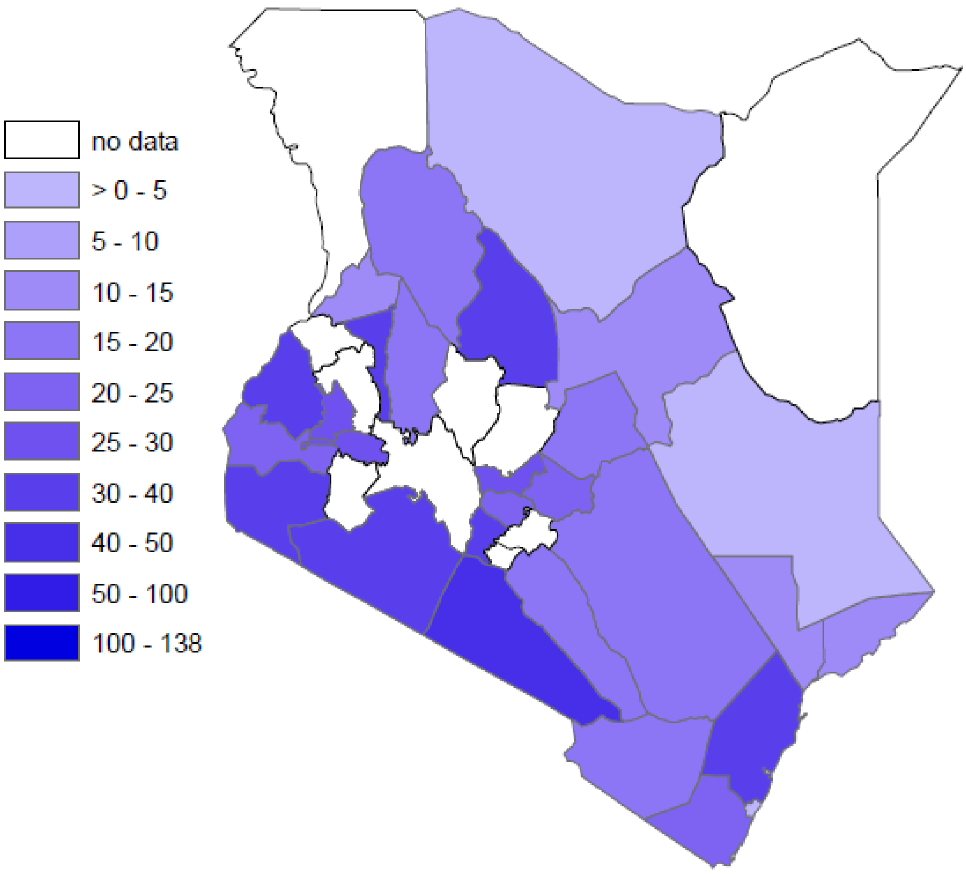
a. Ghana



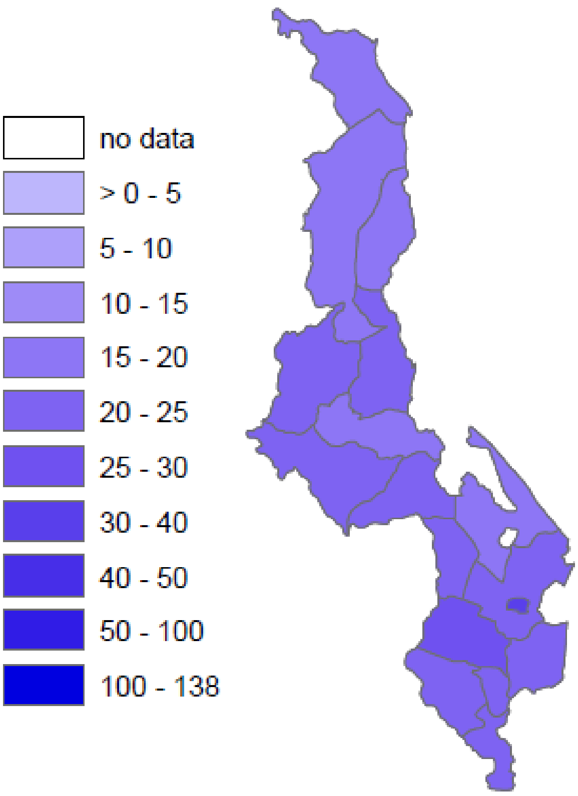
b. Nigeria



c. Kenya



d. Malawi



Appendix 1: Correlation of measures of Capacity and Constraint in Native Authorities

The variables capturing various aspects of capacity and constraint sometimes actually measure a different aspect of the same phenomenon, i.e. whether a Native Authority consists of a Chief-in-Council, or consists only of a Council. This implies that some of the dummy variables might be highly correlated, something that can indeed be seen in table A1 below.

Table A1: Correlation matrix of Capacity and Constraint in Native Authorities

	Revenue per capita	Traditional selection	Chief in council	Council	Removal by DO possible	Court cases per population
Traditional selection	**0.33**					
Observations	266					
p-value	0					
Chief in council	**0.41**	**0.63**				
Observations	265	292				
p-value	0	0				
Council	**-0.29**	**-0.74**	**-0.58**			
Observations	265	292	292			
p-value	0	0	0			
Removal by DO possible	**0.27**	**-0.05**	**-0.04**	**0.04**		
Observations	253	279	278	278		
p-value	0	0	0	1		
Court cases per population	**0.22**	**0.09**	**0.14**	**-0.07**	**-0.09**	
Observations	203	202	202	202	192	
p-value	0	0	0	0	0	
Native Authority sets estimates	**0.33**	**0.25**	**0.31**	**-0.26**	**0.13**	**0.21**
Observations	258	284	283	283	273	199
p-value	0	0	0	0	0	0

In the general to specific approach in the final model in table 5, some of the overlapping measures are left out. For example, a choice had to be made between whether a Native Authority was characterized by a Chief-in-Council or by only a Council. As the latter is also highly (and negatively) correlated with the measure capturing the selection procedure for

Native Authorities, the dummy for Council is not included in the general to specific approach. Further, the number of observations for court cases per population is much lower than the rest, reducing the sample for the model by one third. Court cases per population is therefore also not included in the general to specific approach.

Appendix 2: controlling for spatial autocorrelation

As the analysis presented in this paper uses spatial data, the outcomes might be affected by spatial autocorrelation. In this appendix the core regression is redone, but now controlling for spatial autocorrelation. Controlling for spatial correlation requires that the analysis is done only for cross sections for which we have observations for all variables included in the model. This however lowers the number of observations with one third for the structural variables. Therefore, only the results for the main model is presented.

Table A2: Controlling for spatial autocorrelation

	Revenue pc	Revenue pc	Revenue pc	Revenue pc
State centralization	6.195***	6.024***	4.713**	4.426*
	(2.73)	(2.64)	(2.06)	(1.94)
Soil fertility		-0.256	-0.0545	-0.00189
		(-0.94)	(-0.19)	(-0.01)
Distance to city			-0.0136	-0.00978
			(-0.83)	(-0.59)
Cash crop dummy			7.308**	8.012**
			(2.13)	(2.34)
Railway stations per 1000 population			10.20***	10.53***
			(2.61)	(2.71)
Schools per 1000 population				2.950*
				(1.77)
Constant	0.921	17.02	2.787	-2.360
	(0.11)	(0.89)	(0.14)	(-0.12)
rho	0.803***	0.781***	0.775***	0.778***
	(8.88)	(7.88)	(7.58)	(7.67)
sigma	21.79***	21.78***	21.25***	21.09***
	(20.40)	(20.41)	(20.41)	(20.41)
Country dummies	Yes	Yes	Yes	Yes
N	212	212	212	212
R-sq	0.40	0.40	0.43	0.44

Robust t statistics in parentheses; * p<0.10, ** p<0.05, *** p<0.01

The results indicate that the relationship between (perceived) indigenous state structures and revenue per capita is robust to spatial correlation. Similarly, the effect of railways stations per capita and revenues collected remains unchanged when we control for spatial correlation. Additionally, access to missionary schools is now also positively related to revenue collection. However, the effect of the distance to cities on revenues per capita, one of the variables most clearly linked to specific locations is now reduced albeit the coefficient is still negative.

Appendix 3: Explaining the level of the local tax rate

In this appendix the analysis central to the paper is repeated using the level of the local tax rate per capita as the dependent variable instead of revenues per capita. In table A2, the results of the basic model are presented which includes the political structure of indigenous societies and variables capturing economic change during the colonial period as explanatory variables.

Table A3: Explaining the level of local tax rate (1)

	Level of Local rate	Level of Local rate	Level of Local rate	Level of Local rate
State centralization	19.79***	16.83***	19.21***	19.13***
	(4.22)	(3.86)	(3.44)	(3.42)
Soil fertility		-0.559	-0.704	-0.680
		(-1.12)	(-1.24)	(-1.19)
Distance to city		-0.101***	-0.0998***	-0.0974***
		(-4.00)	(-3.35)	(-3.24)
Cash crop dummy			-6.601	-6.361
			(-0.82)	(-0.79)
Railway stations per 1000 population			3.787	4.002
			(0.65)	(0.68)
Schools per 1000 population				2.239
				(0.80)
Constant	39.45***	68.98**	76.30**	73.27**
	(2.91)	(2.26)	(2.19)	(2.07)
Country dummies	Yes	Yes	Yes	Yes
N	247	201	189	189
R-sq	0.044	0.124	0.115	0.116

Robust t statistics in parentheses; * p<0.10, ** p<0.05, *** p<0.01

Local tax rates seem higher in areas where indigenous societies had (or were perceived to have) more developed state structures. This could be because more centralized African states and its populations had longer traditions of collecting and paying taxes and therefore the imposition of colonial taxes met less resistance. Further, distance to the city is negatively associated with the level of local rates, similar to the model explaining revenue per capita. All other variables capturing economic variables during the colonial period do not seem strongly related to the level of local rates. So where the production of cash crops and access to railway stations is associated with the level of revenue per capita, the link to the level of local rates seems much weaker. The seems to suggest that the setting of the local rate is not clearly driven by income earning opportunities.

The relationship between the organizational features of Native Authorities and the level of the local rate seems very similar to the relationship between the organizational features and revenue per capita. All variables have the expected sign and are all significantly related to the level of local tax rates, with the exception of the number of court cases per capita. It might be that legal capacity is more related to capacity to collect than that it is a determining factor in setting the local rate.

Table A4: Explaining the level of the local tax rate (2)

	Local rate	Local rate	Local rate	Local rate	Local rate	Local rate	Local rate
State centralization	12.88***	15.76***	19.18***	15.43***	17.65***	14.15***	12.80**
	(2.67)	(3.01)	(3.38)	(2.89)	(3.11)	(2.76)	(2.49)
Soil fertility	-0.980**	-2.028***	-0.809	-0.733	-0.440	-0.909	-0.751
	(-2.03)	(-3.42)	(-1.53)	(-1.12)	(-0.61)	(-1.51)	(-1.63)
Distance to city	-0.092***	-0.13***	-0.060**	-0.083***	-0.031	-0.077**	-0.091***
	(-3.02)	(-4.34)	(-2.38)	(-2.95)	(-0.61)	(-2.57)	(-3.09)
Cash crop dummy	-3.445	-4.115	-6.059	-6.980	3.687	-7.456	1.739
	(-0.52)	(-0.54)	(-0.77)	(-0.90)	(0.39)	(-0.96)	(0.26)
Rail stations per	3.346	0.881	8.328	3.456	1.031	4.336	4.029
1000 pop	(0.64)	(0.16)	(1.52)	(0.69)	(0.16)	(0.55)	(0.80)
Schools per 1000 pop	1.482	1.218	0.601	3.050	0.638	3.491	0.0655
	(0.43)	(0.35)	(0.19)	(1.55)	(0.24)	(1.16)	(0.02)
Traditional selection	45.86***						
	(9.93)						
Only council NA		-50.73***					
		(-6.25)					
Chief in council			40.77***				
			(7.05)				
Removal by DO				34.05***			
				(4.52)			
Court cases per pop					-7.802		
					(-0.45)		
NA sets the estimates						40.85***	
						(3.69)	
NA's per treasury							-2.508***
							(-10.42)
Constant	54.66*	154.7***	32.59	75.04*	66.30	81.51**	90.94***
	(1.82)	(4.19)	(0.98)	(1.96)	(1.53)	(2.25)	(2.99)
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	188	187	187	182	150	184	188
R-sq	0.247	0.203	0.224	0.213	0.082	0.199	0.256

Robust t statistics in parentheses; * p<0.10, ** p<0.05, *** p<0.01

Appendix 4: Other sources of data

Sources of local government data and population data vary by colony, as below:

Gold Coast, Report on Local Government Finance (Accra 1952)

Kenya, Report on Native Affairs 1946-47 (Nairobi, 1949)

Nigeria, Native Treasury Estimates, 1947-8, in TNA CO 1019/41.

Nyasaland, 'Economic Statistics', in CO 1015/522; Provincial Annual Reports..

Population and cities:

Gold Coast, Census of Population 1948: Report and Tables (Accra 1948)

Kenya, Report on Native Affairs 1946-47 (Nairobi, 1949)

Nigeria, Population Census 1952-3 (Lagos, 1955)

Nyasaland, 'Economic Statistics', in CO 1015/522.