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Pre-colonial states, economic change
and the origins of colonial institutions in
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De-compressing history? Pre-colonial states, economic change and the origins of colonial institutions in British Africa

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Abstract:
Colonial institutions in Africa were shaped by a variety of factors, including local conditions prior to colonial rule, the policies of the imperial power, and rapid economic change during and after the period of colonial conquest. This paper contributes to a growing literature on the origins and structure of colonial institutions. It examines a neglected but important part of colonial governments, namely local-level “native authorities” using a new dataset of native authority tax revenue in four countries (Nigeria, Ghana, Kenya and Malawi). These data are combined with anthropological records on indigenous political organization as well as indicators of colonial-era economic change to examine how these factors interacted to create the institutional patterns of colonial rule, emphasizing the extent of sub-national variation in institutional capacity which emerged as a result.
1. Introduction

The focus of efforts to understand colonial institutions and their legacies has been predominantly on the national units created during the colonial period, examining the implications of different institutional histories or historical capacities at the level of what became the national government after independence. More recent work has asked whether the nation-state is really the appropriate unit of analysis in understanding the structure and legacies of colonial institutions as well as African governance more broadly. Colonial boundaries cut across existing political, cultural or economic units which maintained some continuity even after being partitioned (Green 2012; Griffiths 1986). Further, colonial and post-independence national governments have often exercised variable control over the full extent of their territories, leading to considerable variation in economic and political outcomes within African countries.

One possibility is that this reflects long-run path dependence in regional inequality. A number of papers have identified a positive relationship between measures of pre-colonial state centralization and current development outcomes (Gennaioli and Rainer 2007; Michalopoulos and Papaioannou 2013; Alsan 2015; Bandyopadhyay and Green 2016). This work has been subject to several criticism about the way in which it measures pre-colonial institutional quality and the way ‘compresses’ history, neglecting the considerable changes in local conditions and institutions which took place during the colonial period.1

This paper attempts to both ‘de-compress’ history and address sub-national variation in colonial institutions by examining a neglected but important layer of colonial government: local ‘native authorities’ created under policies of indirect rule.2 With limited resources and knowledge of the societies they were attempting to govern, colonial officials turned to African

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1 See Austin (2008).
2 We follow the convention established by Mamdani (1996) in using this phrase without quotation marks in the rest of the paper and leaving it to the good sense of the reader to understand it within its historical context.
elites to both maintain law and order and mediate access to economic resources (Rathbone 2000, p. 10). The ways in which those African elites were integrated into colonial government depended both on the perceived structure of indigenous institutions and local geographic characteristics. Boone (2003) argues that in both the colonial and post-independence period, the ‘communal structure’ of rural society influenced the relationship of local elites to the central state, creating what she terms an ‘uneven institutional topography’.

It is the development of this uneven topography up to the late colonial period that this paper seeks to study. It uses new data on tax revenue collected by native authorities in four British colonies (Nigeria, the Gold Coast, Kenya and Nyasaland) to examine how both colonial assessments of pre-colonial institutional quality and colonial-era economic change influenced the capacity of local institutions. While tax revenue and other fiscal indicators have been widely used at national level as proxies of institutional capacity (Frankema 2011), local government finances have been largely neglected (for an exception see Gardner 2012).

And yet, given the resource constraints of colonial administrations, native authorities formed a key part the administrative infrastructure of colonial government (Mamdani 1996; Herbst 2000). David Killingray jokes that the ideal exam question for a course on African colonialism might be: ‘During colonial rule, Africa was mainly governed by Africans. Discuss’.3 This is an exaggeration – studies of indirect rule have shown that colonial officials often exercised considerable control over native authorities, even if informally (see, eg, Tibenderana 1988). However, native authorities made multiple contributions to imperial governance at local levels (Johns and Riley 1975). By the late colonial period, native authorities were responsible for the provision of a number of government services, including some part of education, healthcare, public works and regulation. In some colonies nearly a quarter of total public spending was undertaken by native authority treasuries. The ability of these institutions

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3 Quoted in Institute of Commonwealth Studies (2013).
to cope with these demands is therefore an important ingredient in the experience and legacies of colonial rule. Our findings suggest that that capacity of native authorities reflected both the structure of African societies in the early colonial period and economic change during the colonial period.

The paper proceeds as follows. Section 2 reviews in more detail the literature on the economic legacies of pre-colonial states, focusing particularly on the transmission mechanisms identified by current work. Section 3 provides the first quantitative comparison of native authorities in the late colonial period. Section 4 analyses the factors influencing local fiscal outcomes, and finds that higher levels of state centralization are linked to higher levels of capacity in colonial-era native authorities. Section 5 concludes by using the history of indirect rule policies to propose some explanations for the link between Murdock’s measurements of state centralization and late-colonial fiscal outcomes.

2. Pre-colonial institutions and current development outcomes

Over the last decade, a small but influential literature has proposed a link between current development outcomes and the nature of pre-colonial institutions. The consensus which has emerged is that sub-national regions where pre-colonial states were more centralized enjoy, on average, higher levels of development today. This research fits neatly into the gap between studies of African economies which have a national focus, and research by historians which has re-emphasized the weakness of national institutions and the importance of subnational variation in many African countries (Michalopoulos and Papaioannou 2015). It also links to recent work on parallel institutions of governance, which shows that traditional leaders of various kinds continue to have an impact on African development even in countries where they no longer have a formal role in government administration (see, eg, Baldwin 2015). However, there remain considerable doubts about the measures of pre-colonial institutional structure used in this work. Further, the mechanisms by which indigenous institutions might continue to
influence development outcomes remain unclear. This section reviews the conclusions of this literature and the questions they raise.

The main source for quantitative studies of pre-colonial political structures in Africa is the *Ethnographic Atlas* compiled by George Murdock (1967). The Atlas, which is based on material previously published in the journal Ethnology, contains a wealth of ethnographic information on 485 African societies, with variables on political and social structures as well as modes of agricultural production. The sources underlying the Atlas are diverse and based on ethnographic readings from the Yale Library and Murdock’s personal collection of monographs and articles.

The most widely used indicator from the Atlas is a measurement of the degree of political centralization. This variable measures the jurisdictional hierarchy or political authority beyond the local community and ranges from stateless societies (no levels beyond the community) via petty chiefdoms and larger chiefdoms to states and larger states. Societies are described as politically centralized when they are organized in at least petty chiefdoms.

To measure the influence of pre-colonial institutions on long-term development, these data are correlated with a variety of current measures of economic and political development. Gennaoli and Rainer (2007), for example, show a correlation between the share of national population belonging to more centralized ethnic groups and the later provision of public goods. Using the same data on pre-colonial centralization, Broich, Szirmai and Thomsson (2015) show a link to recent measures of bureaucratic capacity. A key weakness of the methods used in both, however, is that the unit of analysis is at the national rather than sub-national level, reflecting the difficulty of measuring economic outcomes below national level. Subsequent studies have tried to address this problem, using data on light density (Michalopoulos and Pappaioannou

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4 Grey (1999) published a corrected and digitized version of the Ethnographic Atlas which we use for our analysis.
2013, 2014) or later census and survey data (Bandyopadhyay and Green 2016; Dalrymple-Smith and Papaioannou 2015) to measure sub-national development outcomes.

All of these studies find a link between pre-colonial centralization and current development outcomes. Indirect rule appears as a common, if sometimes implicit rather than explicit, explanation. Gennaoli and Rainer (2007) note that ‘the impact of pre-colonial institutions was enhanced by the weakness of the colonial and post-colonial state’. Michalopoulos an Papaioannou (2013), citing Mamdani (1996) argue that ‘European colonizers on several occasions strengthened tribal chiefs and kings via their doctrine of indirect rule’.

One difficulty with using indirect rule as an explanation for the persistent role of indigenous institutions is that ‘indirect rule’ is a highly imprecise term, so much so that Lord Hailey avoided using it in his study of native administration. One reason for this lack of precision is that the implementation of indirect rule policies varied between and within colonies. Descriptions of indirect rule before and since have emphasized its flexibility. In 1934, Margery Perham described indirect rule as ‘a highly adaptable system which incorporated native societies as subordinate units of government (Perham 1934: 322). Mamdani (1995: 60) offers a similar, if somewhat less benign, interpretation, writing that ‘indirect rule was never just a commonsense, pragmatic, and cost-efficient administrative strategy that utilized local personnel to fill its lowest tiers. Its point was to create a dependent but autonomous system of rule, one that combined accountability to superiors with a flexible response to the subject population, a capacity to implement central directives with one to absorb local shocks’.

Beyond references to indirect rule, proposed mechanisms are uncertain. Some argue that more centralized pre-colonial states were better able to provide public investment through the colonial period. REF. However, in a study of Uganda, Badyopadyay and Green (2016) find no link to public goods provision and argue instead that the link reflects the persistence of pre-
colonial regional inequalities. Dalrymple-Smith and Papaioannou (2015) use data on public good provision in Nigeria to argue that while pre-colonial institutional capacity influenced investments during the colonial period, these trends were overtaken by post-independence politics which led to a pattern of local investment not apparently linked to pre-colonial institutions.

Further, there remain questions about the extent to which the Murdock Atlas actually measures the character of ‘pre-colonial’ institutions. The actual time period for which societies are included is dependent on the earliest period for which Murdock could find satisfactory data. For most African societies, this was generally the first quarter of the twentieth century. Murdock focuses on the earliest date for which information was available to avoid the cultural effects of contact with Europeans as much as possible (Murdock and White 1969). However, the fact that many of the earliest observations come only after in some cases sustained contact with Europeans means that the use of Murdock data as a reflection of ‘pre-colonial’ Africa has been widely criticized (Cogneau and Dupraz 2015).

Further, by ‘compressing’ history, this literature misses a number of factors during the colonial period which may have influenced the capacity of local institutions to provide public goods and contribute to local economic development. These included the introduction of new cash crops (Auston 2014), the construction of railways (Jedwab and Moradi 2016; Jedwab, Kerby and Moradi 2017) and the introduction of mission education (Bolt and Bezemer 2009; Cogneau and Moradi 2014; Frankema 2012; Wantchekon et al 2015). Not only did these factors influence local incomes and development, but anecdotal evidence suggests they influenced the structure of local governance as well.

This paper contributes to these debates using new data on the structure and capacities of ‘native authorities’, as African local governments in the colonial period, were described. The next section presents a snapshot of the size and resources of native authorities in four
African countries in the late colonial period, while the following section links these new data to the Murdock state centralization measure.

3. Native Authorities in the late colonial period

This paper draws on a new dataset on native authorities in four British colonies (Ghana, Nigeria, Malawi and Kenya) in around 1950. Two factors influenced the selection of this time period. First, it captures the capacity of native authorities after the economic and political shifts of the early- and mid-colonial period had taken effect. Second, it takes advantage of the revived interest of colonial administrations and imperial government in the development of local authorities. Up to World War II, information on native administrations was generally reported to colonial capitals by district officers, but these reports lacked a standard format and were often aggregated by province. Data become more prevalent and more detailed in the late colonial period, when heightened imperial interest also prompted demands for a comparative picture.

The highest-profile comparative study was Lord Hailey’s *African Survey*. From the data collected for the survey, a preliminary report on native administration was published in 1942, which was then followed by a longer report in 1953. Hailey’s reports provide a wealth of information on the structure and functions of local authorities throughout sub-Saharan Africa, as well as their relationship to the colonial government. The snapshot presented here uses the primary records used in Hailey’s research, now held by the National Archives, to supplement data compiled by individual colonies. These new sources enable us to collect data at the level of individual native authorities rather than at the more aggregated level of the district or province, illustrating the degree of within-country variation as well as variation between
Native authorities after World War II were a product of two political processes which occurred under colonial rule. The first included early decisions about the implementation of ‘indirect rule’. The second was comprised of a series of reforms intended to expand the role of local governments (native authorities) in more ambitious colonial development programmes from the 1930s. The first native authorities were created with the recognition of an individual chief of a particular group or district (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 appointed by colonial officials. In Nysaland, 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). Under the District Administration (Native) Ordinance of 1912, headmen were appointed on a district level but not necessarily drawn from amongst pre-colonial rulers. Another example is the warrant chiefs system in Eastern Nigeria, the subject of considerable controversy both during the colonial period and since. Hicks (1961: 103) described the systems as ‘on the whole a sad failure’, because the leaders appointed ‘were completely alien to indigenous traditions’.

Both efforts to link native authorities to pre-colonial institutions, as well as their frequent failure, shaped the institutional landscape of colonial Africa. 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’. This splitting of territory meant that native authorities also differed in the populations they governed. Table 1 gives population data for native treasury areas in Kenya, the Gold Coast, Nigeria and colonies. This section presents these data in summary form, illustrating the state of native authorities at the end of the colonial period.
Nyasaland around 1950. It shows that the size of native treasury constituencies varied enormously between and within colonies.

Table 1 Population of native treasury areas

Source: See appendix

They also varied in terms of the composition of that population, in particular the level of ethnic diversity. The Hailey surveys give data on the ethnic identity of the population in each native authority. In theory, ‘indirect rule’ should lead to largely homogenous native authority populations. In practice, however, most had some level of ethnic diversity. Table 2 shows data for each country on the share of the population in each native authority comprised of the most dominant ethnic group, a rough measure of the diversity of the population. Overall, Nysaland shows the highest average level of ethnic diversity (indicated by the lowest percentage of native authority populations belonging to the group in power), and Kenya the least.

Table 2 Ethnic diversity of native treasury areas

Source: See appendix

The system of individual native authorities formed during the early colonial period established the foundation for a more elaborate system which developed from the 1930s following the efforts of colonial governments 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

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Native treasury, rather than native authority, populations are shown here to facilitate the use of the data on native authority finances below. 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.
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 native authorities in an effort by colonial governments to implement more ambitious development plans following the upheavals of world war and the Great Depression.

There were, from the outset, serious challenges in creating a more bureaucratic system from individual native authorities. In some areas, the creation of individual native authorities had undermined indigenous systems of consultation and accountability, creating a system of what Mamdani (1996) refers to as ‘decentralized despotism’. This lack of accountability created challenges in terms of both the raising and management of revenue. Vaughan (2003, p. 297) notes that perceptions of corruption in the Ibadan native authority led to frequent resistance to taxation.

A second problem was in the capacity of native authorities to exercise their new functions. Writing after the war, Hinden (1950, p. 32) noted that ‘local government in Africa is, in reality, “tribal government”’, with different social functions than British local governments. ‘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 Treasury on European lines. In some areas the traditional native institutions have proved quite ineffective for these purposes’. In an effort to address this, the colonial government made an effort to integrate mission-educated Africans into native authority councils.

In studies of colonial Africa at the national level, the level of government revenue is a widely used measure of institutional capacity (Frankema 2010; Frankema and van Waijenburg 2014; Gardner 2012). For colonial administrations, revenue was comprised of a combination of taxes on trade, fees and direct taxes imposed in the form of hut, poll, and, later, income taxes (Gardner 2012: 5-9). Direct and indirect taxation are often differentiated in discussions of state
capacity. Taxes on trade are thought, both historically and today, to be less demanding both administratively and politically. Direct taxes, by contrast, require a greater degree of cooperation from taxpayers, suggesting either greater political legitimacy or greater coercive capacity.

Unlike central governments, native authorities were not able to raise revenue from trade. Instead, they relied on a combination of direct taxation, fees for services within their jurisdictions, including court fees and fines, rents from land, grants-in-aid from central government and reimbursements from central governments for services performed on an agency basis (Gardner 2012: 180-1). For most native authorities, the largest single source of revenue was a local ‘rate’, or direct tax imposed independent of central government. Allowing the collection of such rates was part of the effort to increase the responsibilities of local authorities; colonial officials believed, like later proponents of decentralization, that native authorities would enjoy greater local support than central government and be able to raise more tax revenue.

Rates were normally imposed as a flat annual tax, generally on men but sometimes also on women. Native authorities 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 the 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. In that same year, Akwamu supplement its rates of 8 and 3 shillings with a 40 shilling special rate on men only (Gold Coast 1951).

Table 3 gives data on revenue per capita for native treasuries in each of the four colonies. It shows wide variance in the ability of different native authorities to raise the revenue needed to provide the increasing number of services for which they had responsibility.
Particularly notable are the much higher maximum levels of revenue per capita in Nigeria and the Gold Coast. Mean revenue per capita is also higher in the Gold Coast. This contrasts with relatively low numbers in Nyasaland. This variance is diminished, but not eliminated, if per capita totals are deflated using wage rates for each colony, as in Table 4.

Figure 1 maps these revenue data by native authority, with darker shades indicating higher levels of revenue per capita. White sections are either areas for which we have no data (in the Gold Coast) or for settler areas (Kenya) which had a separate system of local government for Europeans.

To our knowledge, this paper is the first to map native authority boundaries for this period. Maps are in many cases difficult to come by, or drawn only at local rather than national levels. The difficulty of compiling maps for these units of governance has meant that native authority boundaries have received less attention than national boundaries in research on African history. A considerable literature has considered the impacts on development and governance of what are often seen as arbitrary lines drawn by Europeans, which divided trade routes and ethnic groups and created states which were either too small or too large to be governable. However, there is a wealth of anecdotal evidence to suggest that native authority boundaries could be just as consequential for the lives and livelihoods of Africans. Falola
(2010: 7) documents a range of small conflicts over native authority boundaries in Nigeria, noting that in many cases ‘once some members of a group within an administrative unit believe that they are not getting enough, they demand an autonomous unit. The colonial government had to create various districts and reorganized local governments to meet the pressures’. The stakes surrounding local boundaries increased as resources such as land became scarce by the late colonial period. Rathbone (2000) argues that in Akyem Abuakwa, land scarcity led to increasing distinctions in the terms of landholding between members of the dominant ethnic group in migrants.

Fig 1 Maps of native authority revenue per capita
Source: See Appendix

The maps presented here show that levels of revenue per capita collected by native authorities varied within colonies as well as between. Some areas, such as the Ashanti native authorities in Ghana, were able to collect quite considerable revenues, and by consequence were able to provide a wide range of local services. Other regions collected very little. The next section uses the geographic variation in revenue per capita to assess the relative importance of political centralization and other features, such as the presence of infrastructure, in explaining differences in revenue per capita.

4. Explaining native authority revenue

How can we explain the variation in the capacity of native authorities in the late colonial period? Based on the previous sections, we examine the correlation between revenue per capita
and both indigenous state centralization and colonial-era economic change. The literature linking African state-centralization to better contemporary development outcomes suggests and that more centralized societies should have higher levels of revenue. Export earnings generated through the introduction of new crops or a reduction of transports costs could expand the tax base. Alternatively, for example access to formal education could increase willingness to fund local public services, but conflict within the native authority between ‘traditional’ and ‘new’ elites might make taxpayers less willing to cooperate.

To determine pre-colonial state centralization for each native authority, we have used colonial maps of native authorities, and a map of the geographical location of indigenous societies, which was originally created by Murdock (1959) and digitized by Nunn (2011). Matching the colonial maps to the pre-colonial map allowed us assign societies to the various native authorities. We cross checked our findings with information from the Hailey reports on which groups were living in the area, and added groups when the Hailey report clearly indicated the importance of certain groups which we did not include based on the Murdock map.

Matching the societies on the pre-colonial map and those described in the Hailey reports to the societies included in the Atlas allowed us to determine the level of state centralization for each society. By calculating a weighted average of the level of state centralization for all groups living in a native authority, based on the share of the area each group inhabited with a native authority, we obtained the level of state centralization for each native authority. In various instances the colonial boundary around the native authority area split groups between various native authorities. In those cases, we used the level of state centralization of those groups in calculating state centralization for all areas of which they were a part, based on the area that they inhabited in each native authority.

The period of observation of societies included in the Atlas is mostly during the first half of the colonial period. As mentioned above, this makes the data controversial as it is
unclear to what extent these measures actually capture the situation before the colonial period. But given that we are interested in how indigenous societies played a role in the development of (local) colonial institutions, this period of observation might actually be to our advantage. The reason is that the establishment of colonial rule strengthened some indigenous authorities while weakening others and much depended on colonial officials’ perceptions of African regimes. As these ‘perceptions’ developed during the same time period as in which the observations used in the Atlas were recorded, by using the Atlas for our analysis we perhaps capture part of the perceptions which were an important mediating factor for the inclusion of pre-colonial regimes into native authority rule.

Beyond pre-colonial state centralization there are a number of other factors that could increase per capita revenue collection. The first factor we included in our analysis is the distance of each native authority to the coast. The closer to the coast, the easier it is to sell produce and earn incomes. As trade is often associated with increases in income, the closeness to the coast is expected to increase the per capita tax rates. To capture distance to the coast, we have calculated the shortest distance between the geometric mean of each native authority to the nearest seacoast. The second factor is related to access to the coast and trade, namely access to the railroad. Cash crop production can only result in increased incomes if the produce can be marketed. For the access to markets, especially when markets were further away, railways were important (Jedwab and Moradi, 2016; Jedwab, Kerby and Moradi, 2017). To capture the access of native authority areas to railways, we calculated the density of railway stations over the population inhabiting a native authority using colonial maps from around the end of the colonial period. The potential importance of the railway line will only materialize if the train stations are actually close by, which means access to the train is easy. Given that cities are likely to arise around railway stations, access to railway stations is more accurately captured
by the density of stations relative to the population rather than by stations per geographical area (Jedwab, Kerby and Moradi, 2017).

The third factor which we explore is the historical presence of missionaries in native authorities. Missionaries played a crucial role in the establishment of formal education in colonial Africa, as until 1940, around 90 percent of all formal education in colonial Africa was provided by missionaries (Meier zu Selhausen, ?; Woodberry, 2004; Frankema, 2012; Huillery, 2013; Nunn, 2014). As increased access to formal education could increase willingness to fund local public services, this suggests a positive relationship between historical missionary presence and the per capita tax rates. We obtain our data on historical presence of missionaries from the ecclesiastical returns recorded in the colonial blue books. We used the last edition of the blue books published by the colonial government, to acquire the most comprehensive record of establishments. For Ghana, Nigeria and Malawi, the last blue book was published in 1938, and for Kenya this was in 1946. In each return, the denomination of the missionary body is given, alongside the name and situation of churches of chapels. Under the latter category, the number of establishments per location is recorded. We geocoded all those establishments to pinpoint their exact location. To capture the access to formal education we calculate the density of the missionary establishments relative to the population of each native authority.

The last variable we include in our analysis is the productiveness and fertility of the soil. As the fertility of the soil might affect the yields in agriculture, especially of cash crops, a higher fertility might be related to higher export production and therefore expand incomes and the tax base. Therefore, the suitability of the soil to grow cash crops is expected to increase tax revenue per capita. To capture the suitability of the soil, we use Soil Organic Carbon (SOC) stock in the soil, which is the main source of energy for soil microorganisms and therefore
captures total fertility of the soil. To understand what explains the variation in the capacity of native authorities in the late colonial period, we set up a simple OLS framework and include the control variables one by one (see table 5).

Table 5 Explaining native authority revenue

The capacity of native authorities to collect taxes seems to be higher in those areas were indigenous societies were deemed to have had more developed state structures. This could be because more centralized African states might have been able to draw on existing fiscal systems in the collection of local rates (Heywood and Thornton, 1988). The distance to the coast is negatively related to fiscal capacity, but loses significance when access to the railway is included. Railway density is positively and significantly related to fiscal capacity. This suggests that access to the market matters for the development of fiscal capacity, and that access to the railway is more important than direct access to the sea. The effects however are also likely to be indirect, and run via per capita income. Areas that are able to market export crops might see income rise which expands the tax base of the native authorities.

The historical presence of missionaries, which is associated with the establishment of formal education in the areas we study, is positively but non-significantly related fiscal capacity. This weak effect may be linked to the a-priory ambiguous relationship between formal education and strength of native authority rule. On the one hand, formal education is often found to influence economic expansion thought the development of human capital. This is expected to affect incomes and the tax base positively. Conversely, local political conflicts between the educated elite and traditional rulers might actually hamper the development native

6 This analysis will be extended to include various soil suitability measures, some also specific for certain crops such as cocoa, cotton and coffee.
authority rule and fiscal capacity. Where missionary influence was strongest, chiefs may have struggled to build a tax base. Finally, soil suitability as measured by the organic carbon content of the soil has a negligible effect on fiscal capacity of native authorities.

5. Indirect rule and native authority finance

The results above suggest that the fiscal capacity of native authorities in the late colonial period was shaped by both the relationship of early native authorities to the colonial state as well as the ways in which African institutions responded to the economic and social upheavals of the colonial period. This section revisits the literature on indirect rule to examine the historical dynamics which helped shape local governance in late colonial Africa.

Lonsdale and Berman (1979, pp. 491-2) characterize one of the core ‘contradictions’ of colonial rule as balancing the institutional conservatism of indirect rule with the promotion of economic development. For example, they note that the expansion of peasant agriculture ‘might also, from initially strengthening the patronage relations by which chiefs and others made their contribution to the politics of collaboration, go on to transform these props of colonial authority into exploitative employers or landlords through the discontinuities of class formation’. Nor was this only a problem in Kenya or Africa. ‘Ever since the Indian Mutiny, British colonial officials had nervously suspected that social change, however inevitable in the cause of accumulation, was nevertheless subversive of social order and colonial control.’

Addressing this contradiction was one motive for the reforms of the 1930s and 1940s, integrating educated Africans in the process of local governance and expanding the capacity of native authority institutions. However, this was not a straightforward process owing to the conflicts between different interest groups. Vaughan (2003, p. 302) notes that the conflict between ‘traditional’ and ‘modern’ elites ‘should not be mistaken for an irreconcilable
confrontation between a reactionary traditional aristocracy and a progressive modernizing elite. With a strong emphasis on the subject of development and democracy, the conflict also entailed a struggle over the distributive resources of the local colonial state’. The outcome of these conflicts, and the success with which each group mobilized narratives of traditional authority, influenced fiscal outcomes.

Further, colonial governments took different approaches to individual native authorities, with some enjoying greater fiscal autonomy than others in various parts of the colonial period. In Nigeria, the colonial government divided native authorities into two categories – more and less developed – in determining revenue-sharing formulas in the early colonial period. Individual relationships between district officers and chiefs could influence how much control over their budgets chiefs could exercise. Mizuno and Okazawa (2009) argue that differences in the way in which the colonial government related to different African societies under indirect rule could have a persistent effect on political relationships into the post-independence period. Native authorities granted greater autonomy may have also had greater legitimacy in the collection of tax revenue.

6. Conclusions

By studying the development of local native authorities created under colonial policies of indirect rule, this paper attempts to shed light on the origins of colonial institutions in 4 former British colonies in Africa. Due to limited financial resources and limited knowledge of the societies they were governing, colonial officials often turned to local elites to maintain law and order and mediate access to economic resources. Variations in economic resources and the communal structure of rural society influence the relationship of local elites to the central state, creating an ‘uneven institutional topography’ (Boone, 2003).
This paper provides the first quantitative analysis of this uneven institutional topography, by examining factors that influence native authority fiscal capacity. We include both economic factors such as the access to markets and the suitability of the soil for growing cash crops and human capital development, as well as organizational features of African societies. We find that societies who were perceived to be more organized (represented by the level of state hierarchy), collected more revenue per capita. Additionally, we find that certain economic features, such as access to the market as captured by access to the railway was also positively associated with revenue per capita. Conversely, human capital development measured by the density of missionary education and the suitability of the soil for growing cash crops seem unrelated to fiscal capacity of local level governments.

Our overall argument suggests that in order to understand the continuing influence of pre-colonial institutions, it is necessary to understand how colonial perceptions of African societies interacted with decisions about fiscal decentralization and investment in infrastructure. The combination of these factors certainly influenced the level of tax revenue native authorities could collect; future work will examine the extent to which native authority spending influenced patterns of development.
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Roome, W.R.M. (1924). Ethnographic Survey of Africa: Showing the tribes and languages; also the stations of missionary societies [map], 1:5,977,382


Appendix: Sources of data

Data on central government finances in all cases collected from the colonial Blue Books before 1945 and the Financial Reports thereafter.

Sources of local government data and population data vary by colony, as below:
Gambia, Protectorate Treasuries progress Report 1945 (Bathurst 1955)
Gold Coast, Report on Local Government Finance (Accra 1952)
Northern Rhodesia, Annual Report on African Affairs for 1948 (Lusaka 1949)
Northern Rhodesia, Report of the Auditor General of the Federation on Accounts of the Northern Rhodesia Native Treasuries for the year ended 31st December 1957 (Lusaka 1958).
Nyasaland, ‘Economic Statistics’, in CO 1015/522; Provincial Annual Reports..
Tanganyika, The Development of Local Government in Tanganyika (Dar-es-Salaam, 1957)
Uganda, Annual Reports on the Kingdom of Buganda, Eastern Province, Western Province, Northern Province for the year ended 31st December 1947 (Entebbe 1949)

Population:
Gold Coast, Census of Population 1948: Report and Tables (Accra 1948)
Nigeria, Population Census 1952-3 (Lagos, 1955)
Table 1 Population of native treasury areas

<table>
<thead>
<tr>
<th></th>
<th>Number of native treasuries</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigeria</td>
<td>226</td>
<td>153,796</td>
<td>311,439</td>
<td>3,273</td>
<td>2,882,414</td>
</tr>
<tr>
<td>Gold Coast</td>
<td>92</td>
<td>46,083</td>
<td>73,571</td>
<td>1,587</td>
<td>459,972</td>
</tr>
<tr>
<td>Kenya</td>
<td>26</td>
<td>171,873</td>
<td>169,959</td>
<td>15,341</td>
<td>633,568</td>
</tr>
<tr>
<td>Nyasaland</td>
<td>14</td>
<td>158,492</td>
<td>65,692</td>
<td>61,101</td>
<td>302,250</td>
</tr>
</tbody>
</table>

Source: See appendix

Table 2 Ethnic diversity of native treasury areas

<table>
<thead>
<tr>
<th></th>
<th>Number of native treasuries</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigeria</td>
<td>226</td>
<td>.72</td>
<td>.30</td>
<td>.07</td>
<td>1</td>
</tr>
<tr>
<td>Gold Coast</td>
<td>92</td>
<td>.76</td>
<td>.24</td>
<td>.15</td>
<td>1</td>
</tr>
<tr>
<td>Kenya</td>
<td>26</td>
<td>.82</td>
<td>.13</td>
<td>.5</td>
<td>1</td>
</tr>
<tr>
<td>Nyasaland</td>
<td>14</td>
<td>.61</td>
<td>.23</td>
<td>.18</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: See appendix

Table 3 Per capita revenue (pence)

<table>
<thead>
<tr>
<th></th>
<th>Number of native treasuries</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigeria</td>
<td>226</td>
<td>28</td>
<td>15</td>
<td>6</td>
<td>108</td>
</tr>
<tr>
<td>Gold Coast</td>
<td>92</td>
<td>72</td>
<td>52</td>
<td>10</td>
<td>304</td>
</tr>
<tr>
<td>Kenya</td>
<td>26</td>
<td>23</td>
<td>11</td>
<td>3</td>
<td>47</td>
</tr>
<tr>
<td>Nyasaland</td>
<td>14</td>
<td>10</td>
<td>6</td>
<td>4</td>
<td>27</td>
</tr>
</tbody>
</table>

Source: See appendix

\[^7\] Native treasury, rather than native authority, populations are shown here to facilitate use of the data on native authority finances below. In most cases, each native authority had its own treasury. However, some smaller native authorities federated under a single treasury. Minimum populations may therefore be even smaller if native authority data are used.
Table 4 Per capita revenue (number of days worked)

<table>
<thead>
<tr>
<th></th>
<th>Number of native treasuries</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigeria</td>
<td>226</td>
<td>0.9</td>
<td>0.5</td>
<td>0.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Gold Coast</td>
<td>92</td>
<td>2.1</td>
<td>1.5</td>
<td>0.1</td>
<td>8.8</td>
</tr>
<tr>
<td>Kenya</td>
<td>26</td>
<td>0.8</td>
<td>0.4</td>
<td>0.1</td>
<td>1.7</td>
</tr>
<tr>
<td>Nyasaland</td>
<td>14</td>
<td>1.6</td>
<td>0.3</td>
<td>1.2</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Source: Revenue data see appendix; wages from Frankema and van Waijenburg (2012).

Table 5 Explaining Fiscal capacity

<table>
<thead>
<tr>
<th></th>
<th>Revenue per capita</th>
<th>Revenue per capita</th>
<th>Revenue per capita</th>
<th>Revenue per capita</th>
<th>Revenue per capita</th>
<th>Revenue per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>State hierarchy</td>
<td>12.84*** (5.49)</td>
<td>13.06*** (5.35)</td>
<td>13.38*** (5.67)</td>
<td>13.17*** (5.62)</td>
<td>12.93*** (5.51)</td>
<td>12.80*** (5.50)</td>
</tr>
<tr>
<td>Distance to the coast</td>
<td>-1.397** (-2.17)</td>
<td>-1.069* (-1.69)</td>
<td>-0.818 (-1.31)</td>
<td>-0.482 (-0.75)</td>
<td>-0.519 (-0.82)</td>
<td></td>
</tr>
<tr>
<td>Railway station pc</td>
<td>186.1** (2.17)</td>
<td>183.0** (2.05)</td>
<td>178.8** (2.02)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missionary station pc</td>
<td>6.212 (1.35)</td>
<td>6.066 (1.31)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil suitability a</td>
<td>-1.208 (-0.98)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>6.483 (1.26)</td>
<td>14.65*** (2.71)</td>
<td>6.945 (1.41)</td>
<td>4.979 (1.00)</td>
<td>3.406 (0.68)</td>
<td>7.386 (1.27)</td>
</tr>
<tr>
<td>N</td>
<td>291</td>
<td>203</td>
<td>230</td>
<td>230</td>
<td>230</td>
<td>230</td>
</tr>
<tr>
<td>R-sq</td>
<td>0.103</td>
<td>0.134</td>
<td>0.127</td>
<td>0.163</td>
<td>0.181</td>
<td>0.184</td>
</tr>
</tbody>
</table>

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

a Soil organic carbon stock
Figure 1 Mapping revenue per capita

Gold Coast

Kenya

Nigeria

Nyasaland