Convict Labor and the Costs of Colonial Infrastructure: Evidence from Prisons in British Nigeria, 1920-1938

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Abstract

This paper studies the role of labor coercion in fiscal capacity building in Europe’s African colonies. We estimate the value gained from labor coercion and compare this to other colonial expenditure using evidence from British colonial Nigeria. We use datasets on wages and prisoners from 1920 through 1938 to examine the evolution of value gained from labor coercion during the period. Our results show that coerced convict labor made up a significant part of colonial expenditures. The results provide insight on the costs of colonial infrastructure and the effects of the colonial revenue imperative on African populations.

JEL classification: H2, J47, O10, O43, N37

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1 Introduction

Following a slew of academic and political work with anti-colonial theses in the mid to late twentieth century, there has been a recent resurgence of political, journalistic, and scholarly literature citing and debating the benefits of European colonialism and British empire in particular for the economic development of former colonies (Ferguson, 2008; Said, 1978). While much of this work has focused on evaluating the supposed benefits of infrastructure projects spearheaded by colonial officials in former colonies, there is relatively little work focused on investigating the costs of this infrastructure, particularly relating to the contribution of indigenous forced labor. There is also relatively work investigating the impacts of forced labor regimes in Europe’s African colonies on the structure of wage contracts and formal labor markets, both historically and till today. Although recent research has begun estimating the contribution of “labor taxes” or forced indigenous labor to the construction of public works projects like the railroads and roads in the colonies, the literature remains thin regarding the use of another source of forced labor, convict labor, in Europe’s colonies, particularly in areas under British rule (van Waijenburg, 2018; Hynd, 2015; Abiodun, 2017; Bernault, 2007).

This is a significant gap in the economic history literature, particularly given that an often explicitly stated strategy to fulfill the colonial government’s revenue imperative and reduce costs associated with public works expenditure was to use convict labor (Foreign and Office, 1937). A primary aim of this paper is to provide new information that allows us to evaluate the importance of convict labor to the colonial regime. We do this by providing quantitative estimates of the share of labor coercion in colonial revenues and expenditures using evidence from prisons in British colonial Nigeria between 1920 and 1938. Investigating the single country case allows us to focus on the within country and temporal variation in the application of forced labor regimes in British colonial Africa. To our knowledge, this is
the first paper to provide estimates on the value of convict labor for colonial fiscal capacity in Britain’s African colonies.

Much of the work on convict labor and its use in industrial activities of ruling governments has focused on the role of convicts as “forced laborers”, performing legally unpaid, unfree work in contrast with their wage labor peers (De Vito and Lichtenstein, 2013; van der Linden, 2008; Adamson, 1984). The use of convict labor by government regimes extends as far back as the 15th century with examples ranging from the Roman empire to the French and Ottoman empires of the 16th and 17th centuries (De Vito and Lichtenstein, 2013; Brown and Dikotter, 2007). The 18th and 19th centuries have been cited by historians as marking periods of significant increase in the use of convict labor, largely driven by increased labor demand for industrial projects (De Vito and Lichtenstein, 2013; van der Linden, 2008; Adamson, 1984). This increased demand for convict labor is described as occurring alongside the increased demand for free labor, particularly in European colonies in Africa, Asia and the Americas (De Vito and Lichtenstein, 2013).

One of the most well-known historical cases of the use of convict labor for industrial projects is the United States in the 18th and 19th centuries, where laws like the Black Codes and convict labor were part of a state-led effort to criminalize Black populations following the abolition of slavery in 1865 (Fogel and Engerman, 1995; Myers, 1998; Worger, 2004; De Vito and Lichtenstein, 2013; Browne, 2007). The US case shared many of the same features of labor exploitation of domestic populations for public works and private industry consumption with American, African and Asian colonies under European control (Brown and Dikotter, 2007; Arnold, 1994; Paton, 2004; Worger, 2004).

In Britain’s African colonies, as in the French case outlined by Florence Bernault (2007), convict labor in the 19th through the mid 20th centuries, was a significant source of labor for public works and industrial projects with work on road and railway projects,
like the Eastern Railway in Nigeria, in some cases manned almost entirely by prison labor (Hynd, 2015; Akurang-Parry, 2000; Abiodun, 2017; Foreign and Office, 1937). The revenue imperative of the British colonial effort, motivated largely by a concern with stabilizing fiscal capacity and minimizing costs to the regime, and faced with chronic labor shortages in Africa, viewed prison labor as an essential part of maintaining fiscal solvency, alongside direct and indirect taxation in the colonies (Hynd, 2015; Akurang-Parry, 2000; Abiodun, 2017; Foreign and Office, 1937; van Waijenburg, 2018; Gardner, 2012).

Labor shortages, driven in part by rising demand for labor for industrial activities like railroad construction, viewed as necessary for minimizing the costs of transporting commodities to the coast for tax revenue and extending control over indigenous populations, translated to high market wages that colonial officials were often unwilling to pay in efforts to minimize costs (Gardner, 2012; Frankema, 2011). Like the Black Codes employed against Black populations in the United States, one way in which colonial governments responded to these labor demand pressures was to employ a number of coercive institutions including vagrancy laws, labor registration and pass laws that criminalized indigenous populations, and Native Authority Ordinances that mandated the conscription of African laborers to work on colonial public works projects (Hynd, 2015; Akurang-Parry, 2000; Thomas, 1973).

To estimate the contribution of convict labor to Britain’s fiscal resources and public works expenditure in colonial Nigeria, we adapt the empirical strategy from Marlous van Waijenburg (2018), and estimate the share of unpaid wages to prisoners in colonial revenues and expenditures. We assemble a new dataset on prisoners, wages, and fiscal spending from British colonial records over 1920 to 1938. We use this to estimate the value of unpaid wages to prisoners or the value of labor coercion in colonial revenues and public works expenditure. The results reveal a significant share of convict labor in public works expenditures in particular, ranging between almost 40% and 140% of public works expenditure through the
period of study. The imputed wages assigned to prisoners’ labor from colonial officials is also significantly below the market rate, with prisoners’ labor valued between 60% to 80% below market rate over 1919 through 1925 years of available data.

These findings add to the growing literature on the significance of domestic labor coercion in fiscal capacity building in Europe’s African colonies, and help fill the gap in the knowledge of the role of convict labor in funding colonial public works projects (Frankema, 2011; Hynd, 2015; Jumare, 1998; van Waijenburg, 2018; Hynd, 2015; Akurang-Parry, 2000; Thomas, 1973). Given the ongoing debate on the effects of European colonialism on development in Africa and Asia, the paper presents quantitative estimates, supplemented by qualitative sources, on the costs of colonial infrastructure by examining the contribution of the unpaid work of indigenous prisoners in these regimes. The results also add to the literature on the development of formal labor markets in Africa, including the ways in which coercive labor regimes shaped wage contracts and fiscal policy with implications for the functioning of present-day labor markets.

The rest of the paper is organized as follows: Section 2 provides historical background on the use of convict labor generally and in British colonial Nigeria. Section 3 describes the data and outlines our empirical methodology. Section 4 discusses our results estimating the share of labor coercion in colonial revenues and expenditures using the prisons data. Section 5 outlines our robustness checks using alternate measures of wages and the value of labor coercion and measuring the bias in our estimates. Section 6 discusses some of the wage trends in our results with implications for our measure of coercion. Section 7 concludes.
2 Historical Background

2.1 Forced Labor and Taxation in Colonial Africa

A small but rich and growing labor history of colonial Africa has documented the ways in which the so-called “revenue imperative” of colonial governments, whose objectives were to maximize revenue extraction while minimizing costs of administration in Africa, led to the establishment of coercive labor contracts in the region (Freund, 1984; Maul, 2007; Okia, 2012; Gardner, 2012; Cooper, 1996; Harris, 1914; Trevor, 1936; van Waijenburg, 2018; Alexopoulou and Juif, 2017). Following the signing of the Final Act of Congress of Vienna in 1815 to abolish slavery, a series of contentious debates about the nature of forced labor, and particularly the extent to which forced labor could be employed to fulfill the revenue demands in Europe’s African colonies continued through the middle of the 20th century (Maul, 2007). The debates highlighted a number of responses to Europe’s so-called “Africa labor question”, where, faced with the realities of labor scarcity, increased demand for labor from both private and public sector employers and a native labor force with their own preferences for work, the discussions shifted from questions about how to institute European systems of wage labor and private property ownership in the colonies to the amount of coercion a “civilized government” could use (Cooper, 1996).

The answer to this question involved the employment of a series of coercive labor regimes, enforced by legislation and through the participation of chiefs or Native Administrators. Over the period from 1900 through 1926, French and British colonial governments invested in public works infrastructure like roads, ports and railways in particular to better facilitate revenue extraction from cash crop exports and administration of the colonies (Okia, 2012). Attempts to raise revenue to fund expenditures on these projects crucially rested on the colonial government’s ability to raise revenue through direct or indirect taxation and cut
costs associated with expenditures. Labor shortages were an endemic feature of the African colonies. Shortages were driven partly by an unattractive wage labor market for government projects, which itself was partly spurred by artificially imposed below market wage compensation, set both as a cost-cutting measure and to prevent competition with the private sector and satisfy the economic and political demands of white settler employers (Okia, 2012; Maul, 2007).

Faced with these options- low pay for often dangerous, back-breaking work on railroads or in mines, under sometimes racist\(^1\), difficult employers- many Africans preferred self-employment in subsistence farming to working in the colonial wage labor market (Frankema and Van Waijenburg, 2012; Harris, 1914). To address these constraints, colonial governments enacted a series of strategies to meet labor and revenue demands. Among these strategies included the use of direct taxation like hut and poll taxes requiring cash payment to force Africans into the wage labor market, the use of labor tax legislation to force Africans to donate a certain number of hours of often unpaid labor to private and public sector work, and the use of precolonial communal labor requirements to force Africans, under the direction of the chiefs, to provide unpaid labor for private and public works projects (Okia, 2012; Harris, 1914; Trevor, 1936; van Waijenburg, 2018; Cooper, 1996).

While African labor and tax revenue remained a central component of European colonial government fiscal resources, very little social expenditure was invested in native populations (Trevor, 1936). In South Africa alone a combination of taxation, forced labor regimes and fees and fines associated with racially targeted laws like Pass Laws, combined to extract a significant amount of resources from the African population paying for elite (white settler) use of colonial infrastructure (Trevor, 1936). Under communal forced labor schemes like

\(^1\)Harris (1914) reports of the comments of a white employer, Mr E Tarlton in Kenya who, in complaining about labor shortages he faced, told the 1912 labor Commission in the East Africa Protectorate that “this is my busiest season and my work is entirely upset, and it is hardly surprising if I am in a red-hot state bordering on a desire to murder everyone with a black skin who comes within sight”, p. 821.
the ‘isibhalo’ in South Africa, young unmarried men were tasked with up to 6 months of forced labor on public works projects building roads and bridges and earning up to 25% to 50% below market wages (Okia, 2012). In Uganda and Kenya, ‘kasavuu’, another communal labor scheme, required African men to provide 1 month of paid labor each year on particular government projects. The Native Authority Ordinance laws passed across British Africa mandated the use of these coercive contracts through the 1920s (Okia, 2012). Violators of these ordinances could be sentenced to prison, where their labor was then employed for private and public sector consumption (Ekechi, 1989). In French Africa, the corvée labor tax system was a significant contributor to colonial revenues, with the share of corvée labor as high as 115% in some regions in the early 20th century (van Waijenburg, 2018).

Propping up the use of forced labor and coercive contracts were racist ideologies that deemed the ‘formal’ labor market as a necessary civilizing force for ‘lazy Africans’ (Buell, 1928). An example of these attitudes can be found in Cecil Rhodes’, then Minister of Native Affairs, comments following the passing of the Glen Grey Act in 1894 in Cape Colony mandating a labor tax and compulsory labor of Africans in private industry: “it is our duty as a government to remove these poor children from this life of sloth and laziness and give them some gentle stimulus to come forth and find out the dignity of labor” (Trevor, 1936), p. 217. Following a series of forced labor scandals, the most infamous of which was the sanctioning of torture, mutilation and murder of millions of Congolese for the rubber extraction trade under Belgium’s King Leopold through the 1890s, another debate on the labor question led to the passing of the Slavery Convention by the League of Nations in 1926. The Convention urged European powers to abolish slavery “in all its forms” and the League requested that the International Labor Organization (ILO) investigate the “best means of preventing forced or compulsory labor from developing into conditions analogous to slavery” (Cooper, 1996), p. 29. These exchanges led to the passing of the Forced Labor Convention at the 1930 ILO conference which forbade the use of forced labor for private industry where forced labor was
defined as “all work or service which is extracted from any person under the menace of any penalty and for which the said person has not offered himself voluntarily” (Cooper, 1996). p. 29. The Convention made exceptions for the use of forced labor for public works, ‘penal and communal labor in the public sector and compulsory military service’ (Kunkel, 2018; Killingray, 1989).

While Britain was the first to sign the ILO article, followed by France and a few other European governments in the mid 20th century, it, and its colonial peers continued, and in some cases intensified forced labor practices through the use of ‘unofficial’ communal labor for public works projects (Kunkel, 2018). The practice is exemplified in a 1944 statement made by the then district commissioner of Northern Ghana’s Builsa district, who, in showing the chief commissioner of the Northern territories the new projects the colonial government had started funding in the region over the past years, among which were schools, rural roads, bridges and dams, argued for the financial viability of the district by informing the commissioner that the chief had supplied the government with unpaid communal labor: “nearly all the labourers I find whom your Honour saw working in the new Sandema dam are ‘voluntary’ workers, there are only seven names on the time sheet which is encouraging.” (Wiemers, 2017), p.239. Many of these coercive labor practices continued through the end of the 1930s and as late as the 1950s in some regions, when African workers began to actively organize labor unions and strikes to protest labor contracts with fixed low wages amidst rising food prices in the mid to late part of the 1930s after the Depression (Cooper, 1996). Among the most famous strikes were the 1935 Copperbelt strike of African miners in Northern Rhodesia, the Mombasa general strike, the Dar es Salam dock strike and a number of strikes on the railways of the Gold Coast in 1939 (Cooper, 1996).

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2ILO 29, Article 2 s 2a, c, e, Articles 4 and 5
2.2 Prisons and the Use of Convict labor

Of the many forms of forced labor, from indentured servitude and labor taxes to slavery, that have received scholarly attention in economic history in recent years, the use of the prison labor, remains relatively understudied in the literature (Nunn and Wantchekon, 2011; Acemoglu and Wolitzky, 2011; van Waijenburg, 2018; Bernault, 2007; Freund, 1984; Juif and Frankema, 2018; Killingray, 1999). While there are multiple views regarding the classification of convict labor as discussed, we focus here on convicts who are “forced laborers”, performing officially unpaid, unfree work for a polity, in contrast with their wage labor counterparts\(^3\). Recorded histories of the use of convict labor by state authorities extend as far back as the 15th century, from regions as varied as the Roman Empire in the 15th century with convicts working aboard galleys in maritime transport and naval combat, the 16th century Ottoman empire’s naval galleys, and the 17th century French naval galleys (De Vito and Lichtenstein, 2013). In the Ottoman empire, the use of prisoners extended from galleys in the 16th century, to work in agriculture and small-scale industry by the beginning of the 19th century in Egypt (De Vito and Lichtenstein, 2013; Brown and Dikotter, 2007).

One well-known case of the use of convict labor for industrial projects was in the 19th century in the United States of America, where laws, punishment and convict labor were part of a regime involving the criminalization of Black populations following the abolition of slavery (Fogel and Engerman, 1995; Myers, 1998; Worger, 2004; De Vito and Lichtenstein, 2013; Browne, 2007). The use of primarily Black prison labor to work on public works projects like the roads or the railroad in the US South has been well documented in the historical literature (Fogel and Engerman, 1995; Myers, 1998; Worger, 2004; Browne, 2007).

\(^3\)Further discussion of Marxist conceptions of wage labor in capitalist settings as unpaid work are well-noted, though beyond the scope of this paper. For more on this literature, refer to De Vito and Lichtenstein (2013); van der Linden (2008); Adamson (1984)
The US case shared many of the same features of labor exploitation of domestic populations for public works and private industry consumption in the 18th, 19th and 20th centuries with American, African and Asian colonies under European control; including the “agricultural penitentiaries” of French north Africa and the exploitation of convict labor in De Beer’s Mining Company in South Africa (Brown and Dikotter, 2007; Arnold, 1994; Paton, 2004; Worger, 2004).

The use of convict labor was often a significant part of the empire-building efforts of European colonial regimes, with well-documented examples from periods of British, French and Portuguese rule in the 19th and 20th centuries (De Vito and Lichtenstein, 2013; Branch, 2005; Bretschneider, Bernault, and Roitman, 2011). The historical literature documents the transport of thousands of convicts to work on plantations and industrial projects in British colonies in New South Wales, Australia and from British India to penal colonies in the Malay Peninsula, Burma, Mauritius and the Andaman Islands (Arnold, 1994). In British colonial Africa, prisons played an important role as both centers of enforcement of colonial revenue collection and administrators of colonial ‘law and order’ (Killingray, 1999). So significant was convict labor to colonial empire building that De Vito and Lichtenstein (2013) write in their history of penal labor that “an account of the imperial expansions of the nineteenth-century world remain incomplete without acknowledging the centrality of penal labor to this process and penal transportation as a key aspect of imperial sovereignty” (De Vito and Lichtenstein, 2013; p. 303).

Two main reasons for the use of convict labor emerge in this literature. First, prisoners were employed to work as punishment for crimes, as defined by regimes, and second, prisoners were viewed as a source of cheap labor, particularly for industrial projects during the industrial booms of the 18th and 19th centuries (Adamson, 1984). In Europe’s colonies, penal labor was viewed as a necessary component of punishment with a civilizing effect on
“native” African populations who were stereotyped as lazy, and prone to avoidance of work without outside inducement (Adamson, 1984; Okia, 2012; Cooper, 1996; Harris, 1914; Buell, 1928). As a source of cheap labor, convict work was viewed as going hand in hand with the economic development of polities, so much so that some historians cite the notable increase in prisons in the latter half of the 19th century in the US as evidence for the connection between business demand for labor and incarceration rates (De Vito and Lichtenstein, 2013; Adamson, 1984).

In the US case, a series of laws from vagrancy laws and the Black Codes that limited access to owning property, voting and laws that criminalized everything from loitering to “breaking curfew”, sometimes served to increase the prison population in periods of higher labor demand and increased labor shortages (Adamson, 1984; Myers and Massey, 1991; Fraser and Freeman, 2012). The construction of public works projects like roads and railroads in particular were sometimes entirely funded by convict labor with one example being the Western North Carolina Railroad from 1855 to 1894 in the US (Abrams, 1976).

In British colonial Africa, similar crimes were prosecuted differently and assigned different, often unequal punishments depending on the race of the convicted individual. Where punishment for European convicts most often involved payments of fines, African convicts were much more likely to be imprisoned and subjected to physical punishment like whippings (Anderson, 2000; Branch, 2005; McCracken, 1986). Both prisons and the police force were tasked with protection of colonial private property and the security of the settler population as a primary objective. An example of the ways in which designation of crimes and punishment played out can be found in a 1907 account from Kenya. There, 3 Europeans flogged 3 Africans in front of a crowd of 100 Europeans on the steps of Nairobi magistrate’s court after

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4A prominent example of this view comes from the 1953 comments of the Prisons Commissioner of Southern Rhodesia, who stated that “The aims of prison labor are to: 1. Make [the African] amenable to discipline, 2. To develop habits of industry, and 3. To rehabilitate him”. Southern Rhodesia, Report of the Secretary, Department of Justice for the Year 1951. (Hynd, 2015).
the alleged guilty individuals had reportedly made ‘inappropriate’ comments to European women (Branch, 2005). Prison conditions were often unhealthy, unsanitary environments (despite colonial accounts to the contrary) and high mortality rates among prisoners were noted as a feature of prisons in the early part of the colonial period in Kenya (Branch, 2005).

In his study of punishment in British Kenya between 1895 and 1939, Anderson (2000) outlines the ways in which a combination of labor demands by the colonial government and racist views around physical punishment as a ‘necessary evil’ for ‘civilizing’ African populations, led to differential prosecution of African convicts versus their European and Asian counterparts under alleged violations of the 1906 Masters and Servants Ordinance. The Ordinance regulated employment contracts between workers and employers in the region and heavily favored private employers, most of whom were white European settlers in disputes. Among the possible punishment for violations of the ordinance, which included ‘desertion’ from work without prior notice, “absence during work hours”, “careless or improper work” and “using insulting language to the master”, were fines, prison time extending up to 6 months and whipping (Anderson, 2000), p. 462. Europeans and Asians convicted for breach of the Masters and Servants Ordinance were much more likely to get fines than prison time or whipping, with Africans more than three times likely to get prison time than their European counterparts and the only group to be whipped as punishment between 1931 and 1938 as shown in Figure 1. Similar crimes did not correspond to similar punishment, a fact which was sometimes exploited by European regimes in African colonies to address fiscal pressures and accompanying labor shortages (Branch, 2005).

2.3 Prisons and Convict Labor in British Colonial Nigeria

Prisons as a means of punishment were largely an invention of the colonial period in sub-Saharan Africa, where there is little evidence of a prison system in the precolonial period (Branch, 2005). In British colonial Nigeria as in much of British Africa, labor taxes and
labor laws worked in concert with Masters and Servants Ordinances, vagrancy laws, labor registration, pass laws and Native Authority Ordinances that mandated the conscription of African laborers to work on colonial public works projects (Hynd, 2015). Though there is little disaggregated data on the types of crimes individuals were convicted of, available data from colonial records in Nigeria show that over 50% of total convictions in colonial courts were from “offences against revenue laws, municipal, road and other laws relating to social economy of the colony”\(^5\) between 1920 and 1937 as shown in Figure 2.

Alongside the growth of coercive laws in the colonies, was the increased use of the prison system and convict labor to work on private and public works projects, particularly in the early part of the 20th century (Hynd, 2015; Akurang-Parry, 2000; Abiodun, 2017; Bernault, 2007). Individuals who refused or were unable to pay direct or labor taxes or the fines associated with non-payment, or committed petty crimes against the colonial regime or their Native Authorities, were arrested and placed in prison, after which their labor was subsequently used to work on colonial public works projects. An example of this is presented in accounts by Felix Ekechi (1989) and Stacey Hynd (2015) where a sizable number of the inmates in the Owerri prison in South-Eastern Nigeria were young men who had resisted mandated labor under the labor regulations, after which they were imprisoned and employed as convict labor. In Nigeria and the Gold Coast, Roger Thomas (1973) notes that convict labor was often used to manage labor shortages in cash crop production and mining through the 1920s.

In Nigeria, as of the time of its amalgamation from two separate Northern and Southern Provinces to a single entity under the governorship of Sir Frederick Lugard in 1914, the need for cheap labor combined with the reticence of indigenous workers to work at below market rate wages on often grueling industrial railroad, road construction and other public

\(^5\)British colonial Blue Books, multiple sources.
infrastructure projects, motivated Lugard to pass the 1916 Prisons Ordinances act giving, among other things, control of the use of convict labor to the Governor (Kingdon, 1923; Abiodun, 2017). The Prisons Ordinance along with the 1914 Native Courts Ordinance also outlined the functioning of Nigeria’s dual prison system, with the colonial prisons under the management of the Director of Prisons and Native Authority Prisons overseen generally by the local chiefs.\(^6\) (Kingdon, 1923; Abiodun, 2017).

Colonial prisons served a dual mandate, functioning as centers of control and repression of native populations, and a source of cheap labor, allowing the regime to address chronic labor shortages by providing government administrators with a steady supply of convict labor (Saleh-Hanna, 2017). So significant was the role of prison labor in the revenues and expenditures of the colonies, that in 1911, the Governor of Northern Nigeria remarked that “The value (calculated at 2/3 of the market rate) of prisoners’ labor in connection with public works, which would otherwise have had to be paid for in cash was 3,878 pounds. If calculated at the ordinary market rates the value of the prisoners’ useful labor would have exceeded the entire cost of the Prison Department” (Abiodun, 2017; Salau, 2015). Following Lugard’s Order in Council act on July 20, 1916, colonial prisons were classified into three types: convict prisons, with prisoners serving 2 or more years to life sentences, provincial prisons, with prisoners serving greater than 6 months and less than 2 years sentences, and divisional prisons, with prisoners serving less than or equal to 6 months sentences (Kingdon, 1923; Abiodun, 2017).

Most prisoners were unskilled laborers, with 65% to 90% of them in provincial or divisional prisons, having short sentences of less than 2 years, mainly for defaulting on tax payments, and minor offenses like petty thefts (Hynd, 2015; Foreign and Office, 1925).

\(^6\)There is little historical information on the functioning of the Native Authority prisons, and we use records on colonial prisons here. This means the number of prisoners presented here represent only a fraction of the total number of people imprisoned during this period.
Popular departments for the use of prison labor were Railways and Harbors, Native Administration, Police, Public Health and Education, particularly for short-term prisoners (with sentences less than 2 years). A robust prison industry system including bakeries, tailoring, shoe-making, carpentry, printing and blacksmithing, among others, meant that longer term prisoners (with sentences greater than 2 years) were taught and tasked with learning a trade like carpentry, basket making, and cloth weaving to create furniture, uniforms etc which could be sold for cash returns that were remitted to the prison department’s funds (Hynd, 2015; Foreign and Office, 1925). They were also tasked, as part of the partly punitive, partly “reformatory” motivation of prison work, with hard labor including activities like stone breaking and stone carrying.

Short-term prisoners were tasked with activities like “road construction, street clearing, grass-cutting, wood cutting, sanitation, conservancy and farm work”, with the labor of short-term prisoners contributing significantly to public works projects like quarries in Abeokuta province, coalfields in Enugu, industries in Lagos, and the Eastern Railway extending from Port-Harcourt in Enugu province which used large gangs of prison labor (Abiodun, 2017; Foreign and Office, 1937). The colonial government was heavily reliant on convict labor, with many of the coal mining projects and railroad construction work in southeastern Nigeria, for example through the early to mid 20th century, staffed by prison labor (Abiodun, 2017; Foreign and Office, 1937).

The recruitment of prisoners for labor was also sometimes stated explicitly, as illustrated in Abiodun (2017)’s account of the response of colonial government officials to a request for increased funds for the employment of wage labor by a British sanitary inspector in 1923: “the officials asked the prison department to find ways to either increase the prison population or recruit convicts from outstation prisons to complete the tasks.”

\[7\] NAI, CSO 26/2 09591 Vol.1 ‘Lieutenant Governor Southern Province to Resident Calabar Province: Memorandum on Prison labor’ 23rd April 1923.
convict labor for colonial public works projects continued through the 1940s, and in some cases the 1950s in British colonial Africa with between 1 in 300 and 1 in 500 Africans imprisoned over 1930 through the 1950s, in contrast with 1 in 2000 British natives in Britain (Hynd, 2015). Though the historical literature has detailed the significance of convict labor for colonial revenues and public works expenditure, this is the first paper that, to our knowledge, attempts to quantify the share of forced African prison labor in British colonial revenues and expenditures.

2.3.1 Colonial Classifications of Prison Labor

To estimate the value of prison labor and receive payment to the prison department from outsourced convict labor, prisoners’ labor was classified into three broad types: unskilled hard labor, skilled hard labor, and light labor\(^8\). Unskilled hard labor included work for which “no training was needed”, with examples given including “coaling ship, grass-cutting, painting and refuse disposal”. Skilled hard labor included work for which “special training was necessary” including jobs like “basket-weaving, brick-making, carpentry, clerical work, cooking, laundering, mat-making, masonry and tailoring”. Light labor consisted of “easy duties suitable to the bodily or mental infirmity of the prisoner” including “cell-cleaning, lamp-trimming, sweeping and preparation of foodstuffs for cooking” (Foreign and Office, 1937). In Nigeria’s Southern Provinces, between 73% and 91% of prisoners were engaged in hard or light labor over the 1920 to 1937 period of available data\(^9\). Prisoners engaged in hard labor alone made up over 70% of convicts over the same period. The vast majority of prisoners had to work, usually on public works projects like roads and railroads and in the

\(^8\)Source: British Blue Books, Nigeria, multiple years. Other similar classifications included “industrial labor, domestic labor and unskilled labor”, where ‘domestic labor’ was considered light labor and industrial and unskilled labor were considered hard labor.

\(^9\)Between 9% and 26% of prisoners were considered ‘unfit’ for work either due to being non-sentenced debtors or other not yet sentenced individuals in custody awaiting trial or being too sick to work. Source: British Blue Books, Nigeria, multiple years.
3 Data: Convict Labor, Wages and Colonial Public Finance

The primary source of our data for this study is the British colonial Blue Books, with supplementary data from the colonial Annual Report on the Prisons Department. The Blue Books were statistical returns that governors of British dependencies were required to submit on an annual basis. They contain data and information on a wide variety of topics such as revenue, wages, public works expenditure and, importantly for this paper, the prison population. We assemble data in the colonial Blue Books from 1920 to 1938\(^\text{10}\) to get a representation of how our variables of interest change over time. We also use data on wages and food prices from the African Commodity Trade Database (ACTD) (Frankema, Williamson, and Woltjer, 2018).

The goal of our paper is to understand the evolution of labor coercion over time, specifically focusing on the use of the prison system and prisoners as labor. Our first strategy is to estimate the size of unpaid wages by the colonial prisons as a primary measure of the value of labor coercion. Given that prisoners were used as free labor, how much would the colonial government have had to pay if they were required to hire that labor from the wage labor market? And what share of colonial expenditures on public works in particular, did this value represent? To answer these questions, it is essential to understand how wages evolved over time. We do this here using evidence from Nigeria over 1920 through 1938. A map of Nigeria with its provinces and colonial prison locations outlined is provided in Figure 3. We note 2 important facts here: first, the colonial prisons data represent only a small fraction of the overall prison population, since we lack data on Native Prisons administered by local chiefs in the Blue Books. Second, the colonial prisons data represent a very small

\(^{10}\text{The Blue Books data is missing some information between 1914 and 1920 so we start in 1920 for completeness.}\)
fraction of the overall level and value of labor coercion in the colonies, given the extensive
use of labor taxes, criminal codes and other forced labor regulation aimed at coercing native
labor, as described in Section 2\textsuperscript{11}.

3.1 Statistics on Wages and Classifications of Workers

The Blue Books report various data on wages although the exact type of data reported
changes through the sample. In general, wages are categorized into three groups; government
employment, agricultural employment, other industrial employment, and domestic service.
Under government employment different wage categories are reported. Wages are reported
for “established employees”, “skilled artisans”, and unskilled workers. Industrial wages are
listed for different sectors ranging from soap manufacturing to logging and saw-milling. The
wages are reported as the “average rates of wages distinguishing whether monthly, weekly,
daily, per hour, per task including the value of any payments in kind”. In most years the
wages are reported as absolute wages, however in some instances, wages are not reported as
absolute numbers but as a range\textsuperscript{12}. The number of hours worked per week are also reported
for certain types of employment\textsuperscript{13}.

We compute the annual wages for different categories of workers. We compute annual
wages for unskilled laborers and for bricklayers in the trade and manufacturing category.
These wages are typically lower than government employment of unskilled labor but capture
the types of wages that would have been paid for the type of work done in prisons. In some
instances, annual wages are reported directly in the Blue Books. In other cases, wages are
reported as monthly prices and so we compute the annual wage as simply the total wages
for 12 months. In the few instances where only daily wages are reported, we calculate the

\textsuperscript{11}This is in contrast to more extensive data on the corvée and labor coercion in France’s African colonies
used in van Waijenburg (2018).

\textsuperscript{12}In the range case, we use the more conservative, lower bound estimate where applicable.

\textsuperscript{13}Figure A1 in the Appendix shows one of the wage tables reported in the Nigeria 1927 Blue Book.
annual wage assuming the employee worked five days each week for the fifty-two weeks in a year\textsuperscript{14}.

In Figure 4(a) we plot wages paid to unskilled laborers categorized alternatively as “Labourers and Carriers” and “Unskilled Labourers” in the colonial records\textsuperscript{15}. The data shows an overall downward trend in average annual wages over the period of study. Wages start out relatively high in 1920 at £24, increase in the following year, peaking at around £35 and then fluctuate through the 1920s period till around 1930 when wages crash and remain relatively low at around £10 through the 1930s. Repeating the exercise and plotting wages for workers categorized as “Bricklayers and Masons”, a category of workers considered skilled labor in the Blue Books classification\textsuperscript{16}, in Figure 4(b) shows a similar pattern; wages exhibit a general downward trend, but remaining relatively high at around £60 in the early 1920s, then fall and remain lower through the 1930s, but with a less steep slope than their unskilled counterparts.

The wages serve as a starting point for calculating the value of unpaid convict labor or what we term the value of labor coercion here. The second important variable needed is the prison population and its transformation over time. The Blue Books report the daily average number of prisoners across the colonial prisons. Figure 5 shows the evolution in the number of prisoners between 1914 and 1938. The average number of prisoners rises up until the late 1920s and then declines. Note, the Blue Books and records from the prison department

\textsuperscript{14}This is a lower bound estimate than used in Frankema and Van Waijenburg (2012) and van Waijenburg (2018) which assume 6 days per week of labor.

\textsuperscript{15}We use the ‘unskilled laborers’ category under the government public works section to attain a lower bound estimate of wages that would have accrued to prisoners working as unskilled laborers in public works projects. In alternate specifications, we use relatively higher wages from the unskilled laborers category under the government railways section with results unchanged.

\textsuperscript{16}The “bricklayers and masons” category is subsumed into the “skilled artisans” category in later years. We use the “skilled artisans” wages under the government public works category to attain a lower bound estimate of wages that would have accrued to prisoners in this category. In alternate specifications, we use relatively higher wages from the skilled artisans category under the government railways section with results unchanged.
explicitly state that all prisoners were required to work (Foreign and Office, 1937) and as noted in Section 2.3.1, in the Southern provinces, between 73% and 91% of prisoners were engaged in hard or light labor over the period of study\textsuperscript{17}. The data on wages paid and the number of prisoners allow us to calculate a measure of the value of labor coercion, and study how that measure evolves during the period of observation. We provide raw numbers on the daily average in prisons and wages disaggregated by Northern and Southern provinces in Table 1. There are both fewer colonial prisons and fewer colonial prisoners in the Northern provinces than in the Southern Provinces as shown in Table 1 and Figure 3.

4 Results

We measure labor coercion by calculating the value of unpaid labor used through the prison population. To calculate our measure of labor coercion proxied as the value of unpaid labor over time, we adapt the strategy from van Waijenburg (2018). In essence we ask, ‘how much would the colonial state have had to pay if they had to hire all these non-remunerated prison workers for a market rate cash wage?’. This measure captures the benefits accrued from labor coercion and examines how those benefits evolved over time.

We calculate the overall value of unpaid labor or labor coercion in each year $t$ as:

$$Value\ of\ labor\ coercion_t = Annual\ wages_t \times Number\ of\ prisoners_t.$$  \hspace{1cm} (1)

This gives us an overall value of benefits accruing to the benefactors of prison labor. As a measure of wages, we use the annual average market wages paid to unskilled laborers as recorded in the colonial records. These wages capture the wages for some of the types of jobs that prisoners would have been required to perform, including felling trees and breaking

\textsuperscript{17}We do not have data on the proportion of prisoners employed in work for the Northern provinces and so use the full prisoner data in calculating our estimates.
rocks to clear areas for road and railroad construction (Abiodun, 2017; Foreign and Office, 1937). To measure the number of prisoners we use the daily average number in prisons. This measure takes the average of the number of people in prisons throughout the year and captures the amount of labor that was available on a given day.

Figure 6(a) shows the progression of this estimated value of labor coercion accruing to the colonial government over the period of study. The benefits decline from a high of over £236,000 thousand a year in 1926, and on average continues to decline until our last year of observation in 1938.

To get a sense of how large the value of labor coercion which accrued to the colonial government was, we contrast it with various other expenditures by the colonial government. The Blue Books report various other pieces of information on revenue and expenditure. This information allows us to compare the relative value of labor coercion to other monetary expenditure.

Specifically, we compare the value of labor coercion to overall prison expenditure, expenditure on public works, and overall expenditure by the colonial government. Note that the majority of the prison expenditure figure is composed of salary payments to prison employees as noted in the Blue Books records. Figure 6(b) shows the ratio of the value of labor coercion to overall prison expenditure. Two things stand out. First the value of labor coercion accruing to the colonial government is larger than the overall expenditure on prisons for most years pre 1930, with the ratio of value to prison expenditure greater than 1 for 5 out of 9 years between 1920 and 1930. The ratio drops and remains below one after 1930, reaching .6 at its lowest levels. This implies, at least from a profitability perspective, that the prisons were value for money, with the indirect returns on prisons positive once the value of labor was considered. The graph also shows the trend of the decreasing benefits of prison labor coercion continues even after taking prison expenditure into account.
Similar trends are also apparent when comparing the value of labor coercion to overall spending on public works expenditure by the colonial government in Figure 6(c). The value of labor coercion is larger than overall public works expenditure in 5 out of the 9 years pre 1930 in the sample. The general trend shows a declining value of labor coercion to public works expenditure ratio, with the ratio falling to about 40% of overall public works expenditure by 1938 as shown in Figure 6(c) and documented in Table 2.

Finally, comparing the value of labor coercion to overall expenditure by the colonial government in Figure 6(d) shows that the benefits were economically significant. At its peak the value of labor coercion from prison labor was equivalent to more than 3% of overall expenditure. The relative value of these benefits decline throughout the 1930s period in particular, plateauing at around 1% of overall expenditure in 1938. The numbers for the share of labor coercion in overall colonial expenditures are numerically small which is expected, given the fact that convict labor itself represented a very small fraction of overall labor coerced in the colonies, as mentioned previously.

Overall the data suggests that the value accruing to the colonial government from convict labor was considerably large in the earlier years of the sample especially in the earlier part of the 1920s, relative to other expenditure. That value however appears to have had a generally decreasing trend, falling almost continuously throughout the period of observation, with notable drops in the post 1930 period. Our estimates of the value of unpaid prison labor are also considerably higher than the reported value of prison labor in colonial estimates, particularly in the pre-1930 period as shown in Table 2, which we discuss further in Section 5.
4.1 Estimates of Costs of Prisoner Upkeep

4.1.1 Using Reported Food Costs

We calculate the value of labor coercion in prisons by assuming the authorities are appropriating value through wages that they would have had to pay if they simply hired that labor from the free labor market. However, one possible cost of using prison labor is that they would have incurred the costs of prisoner upkeep; that is for each prisoner they used as forced labor, they would have had to, at the very least, feed the prisoner which implies some costs.

One source to calculate the costs of prisoner upkeep is from the Annual Reports of Prisons. We examine annual prison reports from 1920 to 1937. These reports publish, among other things, the average costs of a prisoner per day as well as the average food costs per prisoner per day. Though detailed records of the average cost breakdown for each year are not available, the reports suggest that food costs alone made up a significant share of total prison expenditure. For example, in 1920, the largest expenditure category on prisoners was food or ‘rations’ (59%), followed by salaries of prison officials (19%)\(^{18}\). For all years where the breakdown of total prison expenditure is available, food and prison official salary expenditures are the top 2 spending categories on prisoners.

Given the significant share of food spending in total prisoner expenditure, we factor in the value of food as the major cost of prisoner upkeep, and estimate the reduction in the value of labor coercion from the inclusion of prisoner food costs. In order to account for the cost of prisoner upkeep we recalculate the value of labor coercion deducting the reported costs of feeding prisoners. We calculate the (net) value of labor coercion as;

\(^{18}\)Source: Annual Report on the Prisons Department, Colony and Southern Provinces for the year 1920.
(net) \text{Value of labor coercion}_t = (\text{Annual wages}_t - \text{Annual food costs}_t) \times \text{Number of prisoners}_t.

(2)

Given that costs per prisoner are reported separately for Northern and Southern provinces, we calculate labor coercion separately for each province and sum them up to get the total value for the country. As is shown in Figure 7(a), the wages are larger than food costs in all years of observation. This implies that the prison labor is not being coerced at a loss, at least as far as prisoner upkeep is concerned. The trends in the value of labor coercion and the shares of labor coercion to prison expenditure and public works expenditure also remain the same as shown in Figures 7(b), 7(c), and 7(d). In general, the value is significant but reduces over time, with detailed figures shown in Table 3.

4.1.2 Using Estimated Food Costs

The measure of food costs used in the previous subsection is the one published in the prison reports. It is uncertain how the numbers reported are calculated and there are differences between food costs for prisoners in the Northern and Southern provinces with costs in the Southern provinces, sometimes more than 4 times higher than costs in the Northern provinces as shown in Table 3 and Figure 7(a). An alternative way to measure food costs would be to use other available market prices for staple foods reported as composing prisoners’ diets in the archival records.

For example, in 1925 the reports publish the average food cost of a prisoner a day in the Southern Province as 6.26 pence. Food prices in the same year were reported as 0.41 pence per pound for cassava and 1.63 pence per pound for maize. In Figure 8(a) we compare the annual cost of prisoners per year in the Northern and Southern provinces as reported
in the prison reports and compare it to the average price of a standard cassava and maize basket as in Frankema, Williamson, and Woltjer (2018). A food basket is described as the costs of sustaining an adult male in a year and includes costs for food, energy, and other standard items. As is apparent from Figure 8(a), the costs reported per prisoner in the annual prison reports are significantly higher than the costs of either the cassava or maize baskets, particularly in the Southern province where the majority of prisoners are.

To deal with the potential upward bias from using costs of food in the prison reports, we use the alternative food price cassava baskets to calculate the costs of prisoner upkeep19.

Figure 9(a) compares wages for laborers with both the cost of cassava and maize baskets. As is apparent, wages for laborers is still significantly larger than the costs of prisoner upkeep. This implies that labor coercion was profitable per prisoner. We recalculate the value of labor coercion using both wages for laborers and deducting the costs of prisoner upkeep as calculated using the food baskets, as in the previous subsection. Figure 9(b) shows this measure of labor coercion over time. The broad trend of a decline in the value over time is still present. Using wages of laborers, the value of labor coercion peaks at 217,844 pounds in 1926 before dropping over time as shown in Table 4.

Figure 9(c) and Figure 9(d) show the evolution of labor coercion as a share of prison expenditure and as a share of public works expenditure. The evolution over time is very similar to those excluding costs of prisoner upkeep. In general, incorporating the cost of prisoner upkeep does not significantly change the patterns in terms of the trends in the value of labor coercion, with the share of prison labor in public works expenditure ranging between 35% and 129% between 1920 and 1938.

19Using the maize baskets does not significantly change the results. We use the cassava baskets because they should be closer to yam baskets which was the most common staple food at the time (Robins, 2010).
5 Robustness Checks

5.1 Alternative Wage Measures

The value of labor coercion in Section 4 used the wages paid to laborers. Given the type of work that prisoners were typically expected to do as described in Section 2.3, unskilled laborers are perhaps the best way to broadly categorize the value of prison labor. This measure is however likely to underestimate the true value of convict labor as some prisoners might have accumulated skills. As a robustness check, we use a different occupation to categorize prisoners. We use the average wages paid to bricklayers, a class of skilled labor, as an alternative measure of the value of a prisoner’s labor. Using the same technique outlined in Section 4, we calculate the value of labor coercion assuming that prisoners would have been paid as bricklayers if they had to be paid by the colonial government.

Wages for bricklayers were significantly higher than wages for laborers as shown in Figure 10(a). Hence, the value of labor coercion is also significantly higher if prisoners are assumed to be used as bricklayers as opposed to just laborers. The declining trend is however apparent through most of the sample.

Another alternative would be to use wages for unskilled urban labor as depicted in Figure 10(a). Urban unskilled labor would theoretically be close to the minimum wage that could be paid for workers in urban areas. This would therefore capture the theoretical minimum value of what it would have cost colonial governments assuming that laborers had no skills, although in the later years the wages for laborers are, in some instances, lower.

The evolution of wages for urban unskilled workers appears to closely mimic the wages for laborers. Although laborers’ wages are higher in some years, there is a convergence over time. The value of labor coercion using urban unskilled labor wages are lower on average
compared to when laborers’ wages are used, but the underlying implications are identical. The value of labor coercion is still significantly large but declining over time.

5.2 Adjusting for Real Values of Wages

The measures of labor coercion used so far have been calculated using nominal values. One potential side effect of using nominal values when observing trends over time is that it is difficult to disentangle the difference between changes in the observed variable and changes in the price level. To ensure that the trends in our measure of labor coercion are not driven by changes in the price level, we convert the values into real values using 1920 as the base year, following the technique outlined in Frankema (2011)\textsuperscript{20}.

Figure 10(b) shows the trends in labor coercion using real wages for laborers. As is clear, the trend is similar to that using nominal values. The value of labor coercion declines on average from the 1920s to the 19030s. Figure 10(b) shows that the trends in the value of labor coercion are not driven by changes in the price level.

5.3 Measuring Bias in Estimates

Using the daily average number of prisoners might not properly capture the entire sample of prisoners whose labor was appropriated by the colonial government. Those who were charged but sent out on bail for instance would still have to commit their labor but would not be counted as being in prison.

As an alternative measure to the daily average in prison, we use the number of people committed to penal imprisonment in each year, that is the number of people who were arrested and sent to jail for one reason or another and who were expected to serve penal labor. The number of people committed to prison however does not imply that they spend

\textsuperscript{20}Using Feinstein (1972)’s British price index data.
the entire year there. Since the Blue Books break down sentences into 3 categories: those committed for over 2 years, those committed for between 6 months and 2 years, and those committed for less than 6 months, we weight the number of people committed to prison by the categories of their duration of stay. Specifically, we assume that those with more than two-year sentences spend 2 years in prison, those between six-month and two-year sentences spend 1 year and 3 months in prison, and those with less than six-month sentences spend 3 months in prison. Finally, we assume that imprisonment started at the beginning of the year hence 1 year in prison would run from January 1st until December 31st.

Figure 11(a) compares the daily average number in prison to our weighted average measure of people committed to prison for penal imprisonment in each year. The daily average as measured in the Blue Books tends to be much lower than our weighted average measure of those committed to prison. This is true especially in the earlier years of our sample. There however seems to be a convergence in both measures over time.

Recalculating the value of labor coercion using our weighted measure of people committed to prisons shows that using the average number in prison underestimates the value of labor coercion. At its peak the value of labor coercion is more than 60% larger when using the weighted average of people committed for penal imprisonment compared to using the average number in prison as shown in Figure 11(b). The trend however remains the same with the value declining over time.

5.4 Alternative Estimates of the Value of Labor Coercion

As a final robustness check, we compare our estimates of labor coercion to the colonial authority’s own estimates of the value of prison labor, shown in Table 2, Table 3 and Table 4. In some years, the colonial authorities published more detailed information on prisoners and their use of prison labor in annual prison reports. In these reports they published their
estimated total value of labor of prisoners in Nigeria. They described this as the amount of the prisoners’ earnings for the prison department during the year, both in terms of cash and their valuations of prisoners’ work. This in essence was a measure of the colonial authorities own estimate of the value of the labor provided by the prisoners. Though detailed information on how colonial officials’ decided on the value of prisoners’ labor is not available, reports from multiple Director of Prisons accounts in the Blue Books suggest that the prisons departments may have been trying to price prison labor low enough to both minimize colonial government expenditure and balance the prison department’s overall expenditure.

The colonial officials\textsuperscript{21} or Directors of Prisons recorded per diem estimates of the value of labor between 1916 and 1921 in the Lagos colony and southern provinces for Nigeria. Using the classification of labor into skilled hard labor, unskilled hard labor and light labor, described in Section 2.3.1, hard labor, both unskilled and skilled are given a value of 5 pence per day, with light labor given a value of 3 pence per day in 1916. Starting in 1917, skilled hard labor is given a value of 1 shilling and 6 pence or 18 pence, unskilled hard labor is assigned a value of 5 pence and light labor is assigned a value of 3 pence. The rates for unskilled hard labor stay the same from 1918 through 1921, with no reporting on the exact value assigned to skilled hard labor or light labor over this time. After 1921, the reports appear to stop including information on the per diem value assigned to the different classes of labor.

We compiled these estimates where available, and they provide us with comparable data from 1919 to 1935. Figure 12 shows our estimates of the difference in the daily market wage rate versus the prison rate in the Lagos colony and southern provinces for laborers or unskilled hard labor and for carpenters and joiners and bricklayers and masons, two classes of skilled hard labor. Lacking data past 1921 on the per diem prison rates, we assume,}

\textsuperscript{21}For example, W.H. Beverly, E. Jackson or W. Reeder in the southern provinces over 1915 to 1921
based on the past record, that the rates remain stable through 1925. As shown in Figure 12, prisoners performing unskilled hard labor, which made up the majority of the prison population (prisoners with shorter-term sentences), were assigned a value between about 60% to 80% below the market wage rate over 1919 to 1925. Figure 13(a) and Tables 2 - 4 show a comparison of our measure of labor coercion against the estimates provided by the colonial authorities of the value of prison labor. Our measure of labor coercion is significantly higher than the estimates of the colonial authorities, though there appears to be a convergence towards the later years.

6 Wage Trends and Qualitative Evidence

The overall value of labor coercion at its peak during the period of observation was significant, surpassing overall prison expenditure in most of the pre 1930 period. It was also equivalent to more than 140% of overall expenditure on public works at its peak.

We estimate our measure of labor coercion using both wages and the number of prisoners. Although both variables change significantly through our period of observation, certain patterns are apparent. First, the number of prisoners increased during the earlier years, peaking around 1927 before changing to a downward trend. On the other hand, wages for both laborers and bricklayers tended to be much higher in the earlier years compared to later years. Wages for laborers collapsed at around 1930 while wages for bricklayers showed a slower long-term decline. If we assume that wages were exogenous then one hypothesis is that the average prison population responded to lower wages.

From a theoretical perspective and from that of a party benefiting from labor coercion of the prison population, higher market wages heighten the incentive to increase the number of prisoners whose labor can be used for free. Lower wages however decrease the incentives for use of prison labor. The trends in prison labor suggest that colonial authorities were re-
sponding to the downward trend in wages and reducing the numbers of prisoners. The trends in both the daily average number in prison and our weighted average penal imprisonment show drops from the late 1920s.

There is some anecdotal evidence that the wage dynamics were exogenous (Foreign and Office, 1925). Colonial revenues collapsed starting in 1927, only recovering after 1935 as shown in Figure 13(b). This was associated with the collapse in commodity prices and trade during the Great Depression which supposedly put downward pressure on wages (Frankema and Van Waijenburg, 2012). The downward trend in labor coercion through prisons could therefore be in response to exogenous wage movements during the period. On the other hand, the collapse in colonial revenues led to massive layoffs by the colonial authorities (Foreign and Office, 1925). These layoffs may have been part of fiscal consolidation, but they may also have been a means of wage repression. The drop in labor coercion from the prison population may therefore imply a change in strategy away from prisons and towards a wage driven strategy.

The patterns are however inconclusive but provide a foundation for further research on how the colonial authorities responded to changing wage dynamics, and if there were deliberate attempts to increase or decrease the prison population in response to labor demand shocks.

7 Conclusion

In this paper we document the evolution of labor coercion through prisons in British colonial Nigeria. Specifically, we show the evolution of the value of labor coercion from the early 1920s up until 1938. We show that the implied value of labor coercion was significantly large but declined through the period of observation. We also show that convict labor made up a significant part of colonial public works revenues and expenditures. We provide anecdotal
evidence that the evolution of the prison population is correlated with the evolution of wages, with prison populations increasing when wages are high and falling when wages are low. This provides empirical evidence, in support of the historical accounts, of the prison system being used for both revenue and labor extraction in the British colonies. The paper adds to research on the use of prisons as a tool for labor coercion, and one of fiscal significance in Britain’s African colonies. It also opens up opportunities for further research on understanding how the prison system influenced labor and market wages in the colonies and the long-term effects of these policies on current development outcomes of African populations.
Figure 1: Punishment of convicts by race under Masters and Servants Ordinance in Kenya, 1931 and 1938. Source: Anderson (2000)

Figure 2: Share of total convictions in colonial courts by crime in Nigeria, 1920-1940. Source: British Blue Books, multiple
Figure 3: Nigeria provinces with prison locations labeled and railroad network shown, 1920-1940

Figure 4: Wages in colonial Nigeria in Pounds Sterling
Table 1: Wages (pounds) and numbers of prisoners in Northern (NP) and Southern Provinces (SP), 1920-1940

<table>
<thead>
<tr>
<th>Year</th>
<th>Daily avg. prisoners NP</th>
<th>Daily avg. prisoners SP</th>
<th>Average annual wages-Laborers</th>
<th>Average annual wages-Bricklayers</th>
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<td>956</td>
<td>5674.43</td>
<td>24</td>
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Table 2: Value of labor coercion, 1920-1938

<table>
<thead>
<tr>
<th>Year</th>
<th>Value of labor coercion (LC)</th>
<th>Share of LC in prison exp.</th>
<th>Share of LC in public works exp.</th>
<th>Share of LC in total exp.</th>
<th>Reported value of prison labor</th>
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<tr>
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<td>1922</td>
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<td>0.66</td>
<td>0.02</td>
<td>62222</td>
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Figure 6: Relative value of labor coercion

Table 3: Value of labor coercion, deducting colonial estimated costs (food) of prisoners, 1921-1937

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<th>Year</th>
<th>Share of LC (less reported prisoner costs-rpc)</th>
<th>Share of LC in prison exp. (less rpc)</th>
<th>Share of LC in public works exp. (less rpc)</th>
<th>Reported value of prison labor</th>
<th>Annual cost (food) per prisoner NP</th>
<th>Annual cost (food) per prisoner SP</th>
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38
(a) Annual wages vs costs per prisoner

(b) Labor coercion deducting costs of prisoners (Net)

(c) Net labor coercion as a share of prison expenditure

(d) Net labor coercion as a share of public works expenditure

Figure 7: Value of labor coercion deducting colonial estimated costs (food) of prisoners
Figure 8: Comparing official prison food costs vs alternative food baskets

Table 4: Value of labor coercion, deducting costs of prisoners using alternate food basket measure, 1920-1938

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<th>Year</th>
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Figure 9: Value of labor coercion deducting cost of prisoners using alternative food basket measure.

Figure 10: Wage alternatives and value of labor coercion, incl. real values.
Figure 11: Alternate prison and value of labor coercion measures

Figure 12: Value of wages for different skill categories in prison and market sectors, 1919-1925
Figure 13: Labor coercion: authors versus colonial government estimates and colonial revenues
References


A Appendix

A.1 Archival Materials

- Nigeria, Annual Report on the Prisons Department, Northern and Southern Provinces, 1914-1937
- NAI, CSO 26/2 09591 Vol.1 ‘Lieutenant Governor Southern Province to Resident Calabar Province: Memorandum on Prison labor’ 23rd April 1923

![Table of Wages](image)

Figure A1: Wages from the British Blue Books, 1920-1938

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Figure A2: British colonial officials in records from African countries under colonial rule. Source: British online archives.

Figure A3: African laborers on a railroad c. 1930, Source: Alexander Keese, CEAUP, Porto