Prison Labor: The Price of Prisons and the Lasting Effects of Incarceration

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Rising incarceration rates around the world have reignited debates around prison labor

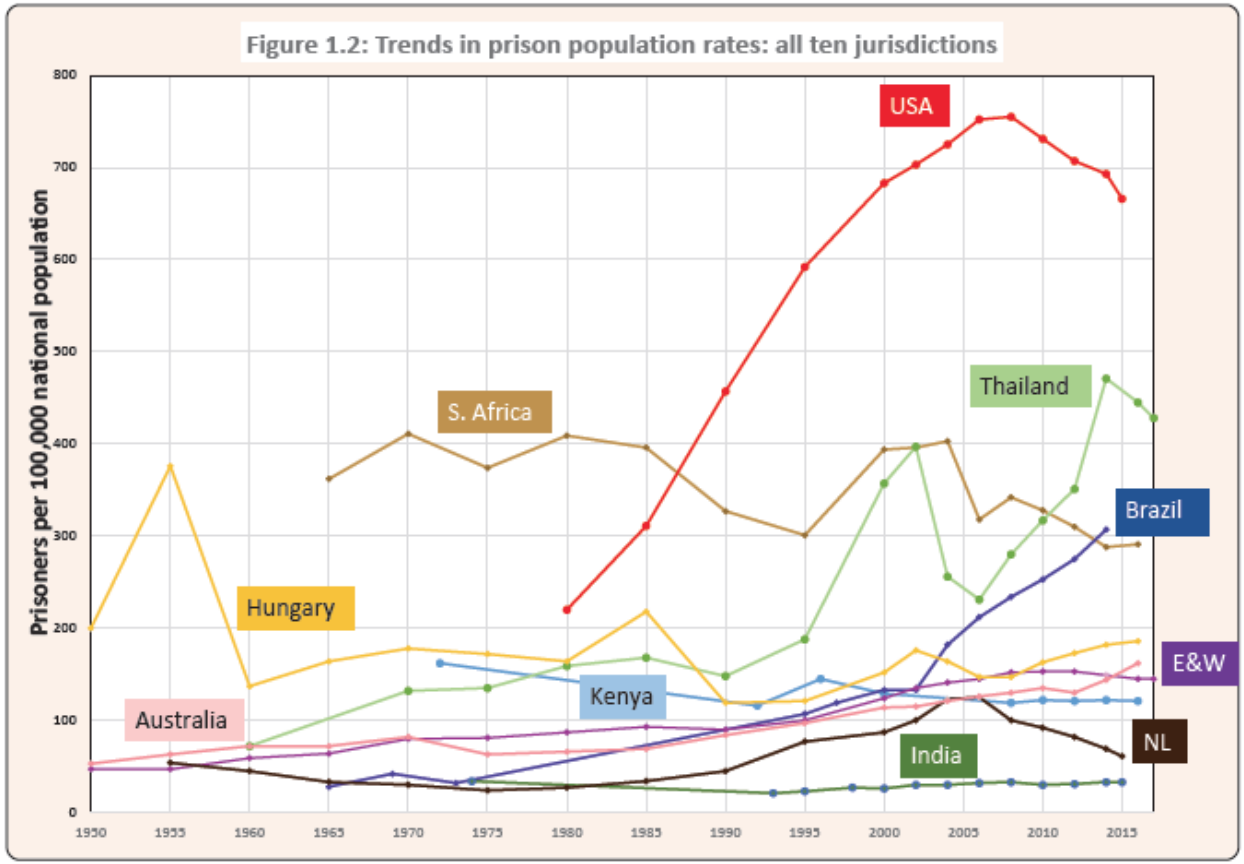

Figure: Incarceration rates globally, 1950-2015. Source: Institute for Criminal Policy Research

What are the effects on incarceration when prisoners are viewed and used as a source of labor to serve economic interests?

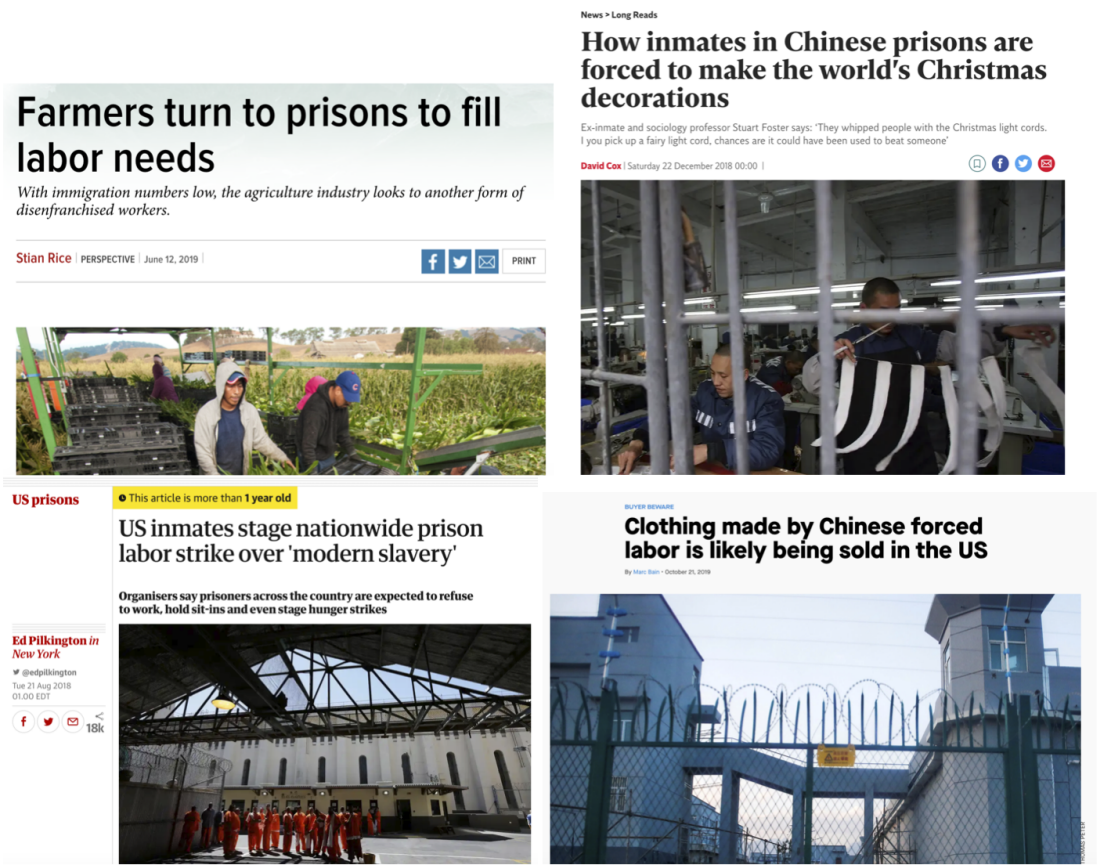

Figure: The US and China are 2 of the largest consumers of prison labor

And what are the potential implications for views of state legitimacy when an institution of state justice, like prisons, is used to serve economic/extrajudicial interests?

Figure: Racial gap in trust in police in US and protests against police brutality around the world

Key Questions: Evidence from prisons in colonial and postcolonial Nigeria

- Answer questions using evidence from colonial Nigeria (1920-1959) where prison labor was a feature of state policy and finance (first estimates)
- We examine the dynamics of incarceration, how it responded to economic shocks, and some long-term consequences (65 years of archival data on prisons)
- We answer 3 specific questions:
  - Q1: How important was prison labor for colonial public finance/public works construction and maintenance?

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  - Q1: How important was prison labor for colonial public finance/public works construction and maintenance?
  - Q2: How did incarceration rates respond to economic shocks when prison labor was an important part of state public finance?
    - Q2a: Falsification test: do we see the same relationship when prisoners are not being viewed and used as source of labor (evidence from postcolonial (post 1960) Nigeria, 1971-1995)

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  - Q3: What are there long-term effects of this prison labor system on perceptions of state legitimacy? Trust in legal institutions like police? When institutions of justice are used to serve economic or extrajudicial interests?

Why is colonial Nigeria an informative region to study these questions?

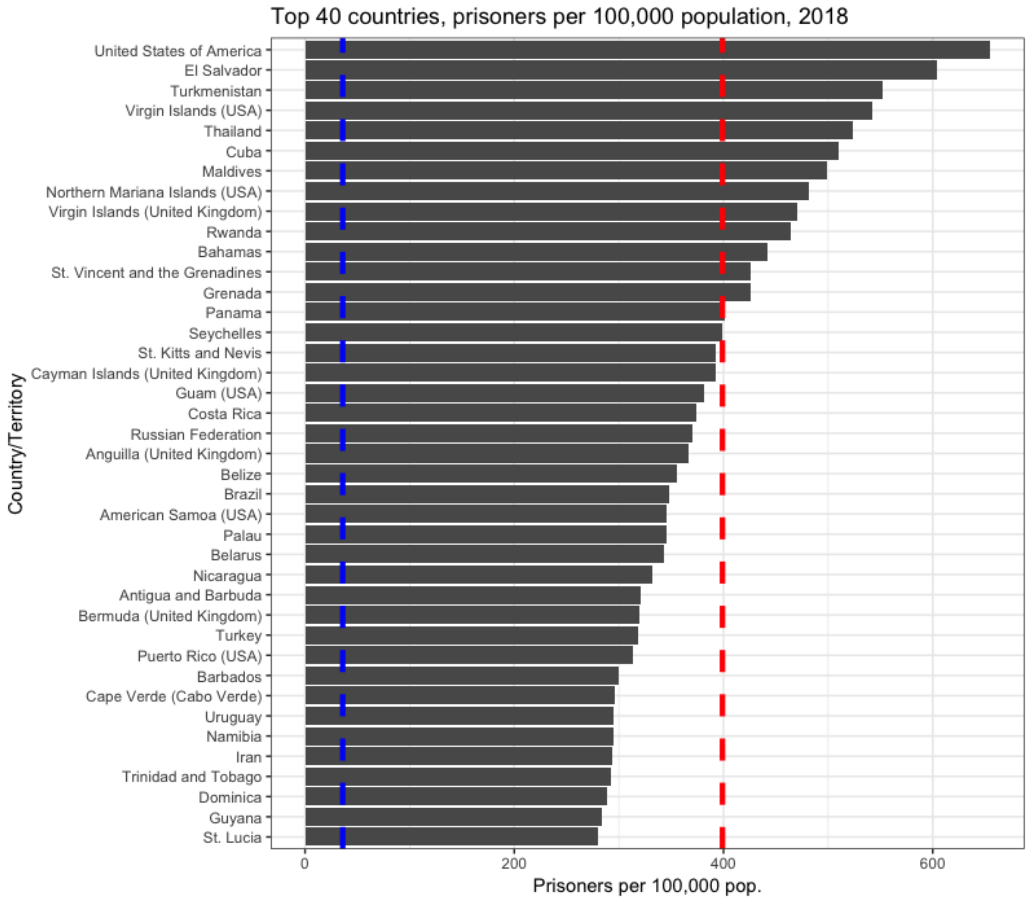

Figure: Top 40 countries/territories for incarceration rates, 2018 with Nigeria incarceration rates in red (year 1940) and blue (year 2018). Source: WPB

Preview of Results

- Q1: Prison labor is economically valuable to colonial regime. All able-bodied sentenced prisoners must work, unpaid labor:
  - Gross value of prison labor $>>$ 0 between 1920-1959 . Net value (all maintenance costs) $>>$ 0 $\approx$ 60% years
  - Significant share of colonial public works expenditures- 40-249% gross (mean 101%). Net: average 5%, max 42%. Govt departments like Public Works, railroad significantly use prison labor

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

Preview of Results

- Q2: Incarceration rates are procyclical during colonial period. Effect is reversed in postcolonial period:
  - Positive economic shocks increase incarceration rates and the use of prison labor in colonial era
  - Positive effect specific to short-term (ST) ($<$ 6mos) incarceration only. No effect for long-term (LT) ($>$ 2yr) incarceration.
  - Moderate positive rainfall shock that inc. agric. prod. increase ST rates by 12% (mean is 135)
  - Effect is reversed in postcolonial period: extreme negative rainfall shocks, like droughts, inc. incarceration (21% rel. to mean of 105)
  - 10% inc in export prices for major cash crop in producing regions $->$ 5% increase in ST incarceration rel. to mean
  - Pos shocks worsen labor shortages and $\uparrow$ demand for unpaid prison labor for construction and maintenance of public works (like rr) needed for exports of agric. comm. and colonial revenue
  - Mechanisms: intensifying prosecutions of minor crimes + sentence switching; exploiting distance to railroads; Δ prison time

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- Q3: Respondents from areas with high rates of colonial imprisonment report lower trust in legal institutions like police today, no effect on interpersonal trust

A History of Forced Labor

- Prison labor was a small part of a larger regime of domestic forced labor in colonial Africa
- European colonial revenue imperative and labor shortage question
- Answer: Construct public works infrastructure using coercive labor regimes. Examples:
  - Labor ordinances, labor taxes, Masters and Servants Ordinances, vagrancy laws, labor registration, pass laws, Native Authority Ordinances, etc
  - E.g. Road ordinance of 1894, "Chiefs' Bye-Laws and Road Maintenance" 1912
  - Consequences of not participating: fines, prison

Prison labor in British colonial Nigeria

- Nigeria colony from 1914-1960. Colonial prisons (and Native Admin. prisons)
- Colonial prisons: Mostly short-term prisoners: Convict prisons/LT- $> 2yrs$; Provincial/MT ($2 > y > .5$); Divisional/ST ($y <= .5$/ or 6 months)
- Goals- punish crimes/control African pop., cheap labor (unpaid, all prisoners work, hired out to govt. only)
- Similar crimes $\neq$ similar punishment

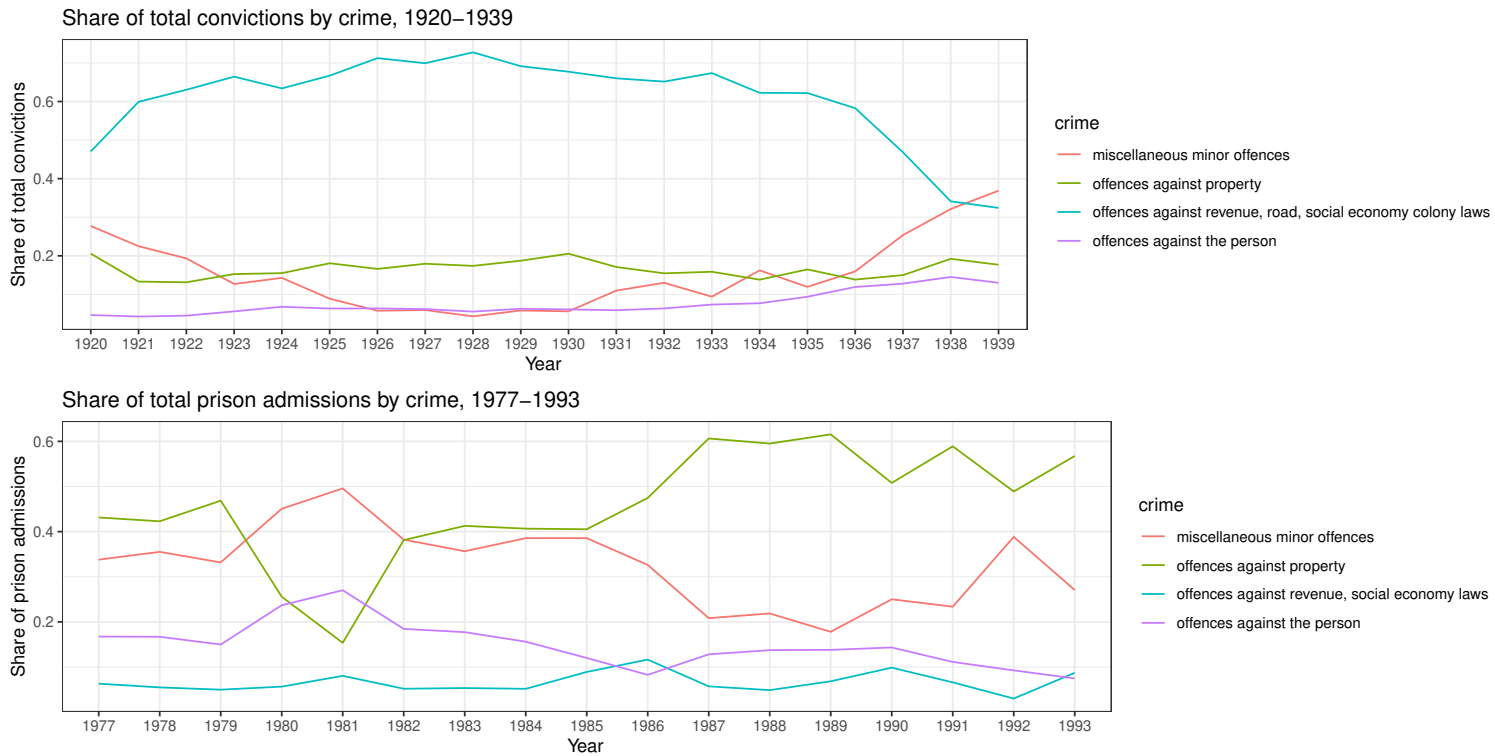


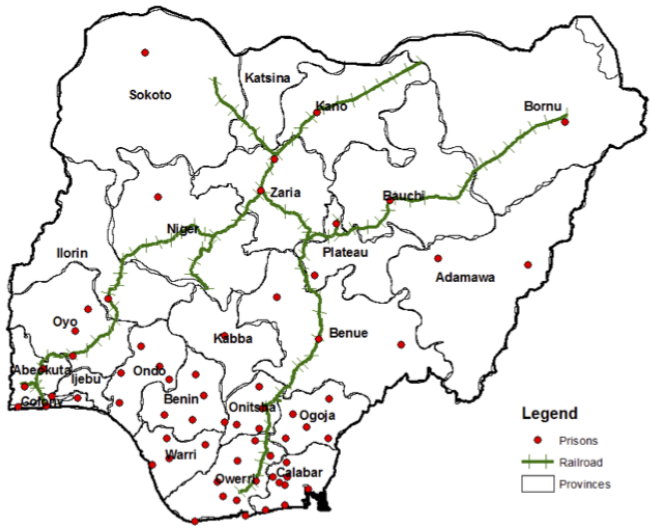
Figure: Share of total convictions in colonial courts and share of total prison admissions in postcolonial period by crime in Nigeria, 1920-1993.

Prison labor in British colonial Nigeria

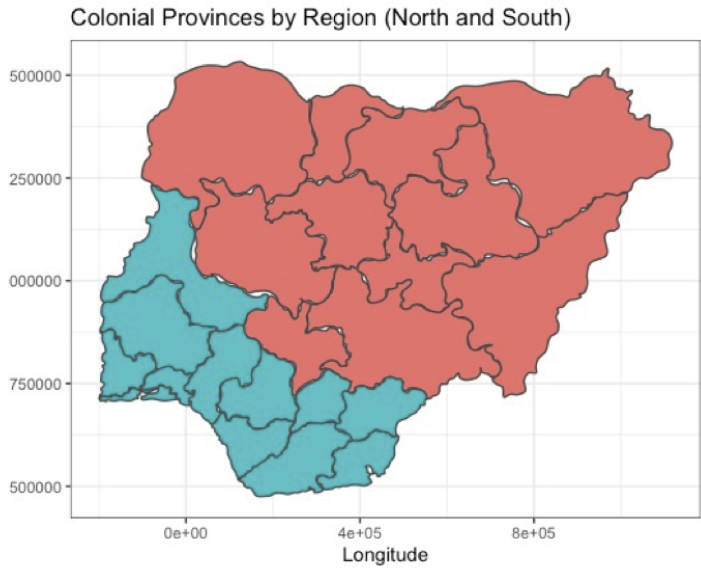
- North/South differences in Native Admin (>North) vs colonial (>South) Prisons
- Unpaid prison labor hired out to govt. depts only- public works department (PWD), Railways and Harbors, Police, Public Health, Education top consumers. Types HL and LL (73-91% in South):
  - Unskilled hard labor (HL): "coaling ship, grass-cutting, painting and refuse disposal" etc
  - Skilled hard labor: "basket-weaving, brick-making, carpentry, clerical work, cooking, laundering, mat-making, masonry and tailoring" etc
  - Light labor (LL): cell-cleaning, lamp-trimming, sweeping" etc
- In Nigeria- quarries in Abeokuta province, coalfields in Enugu, industries in Lagos, Eastern railway from Port-Harcourt in Enugu province all use large gangs of prison labor etc- much of coal mining and railroad construction in SE Nigeria
- LT prisoners- trade like carpentry, basket making (uniforms etc) for cash returns
- Change in tax structure of postcolonial economy $->$ prison labor no longer a major feature of state public finance

Prisons in British colonial Nigeria

(a)



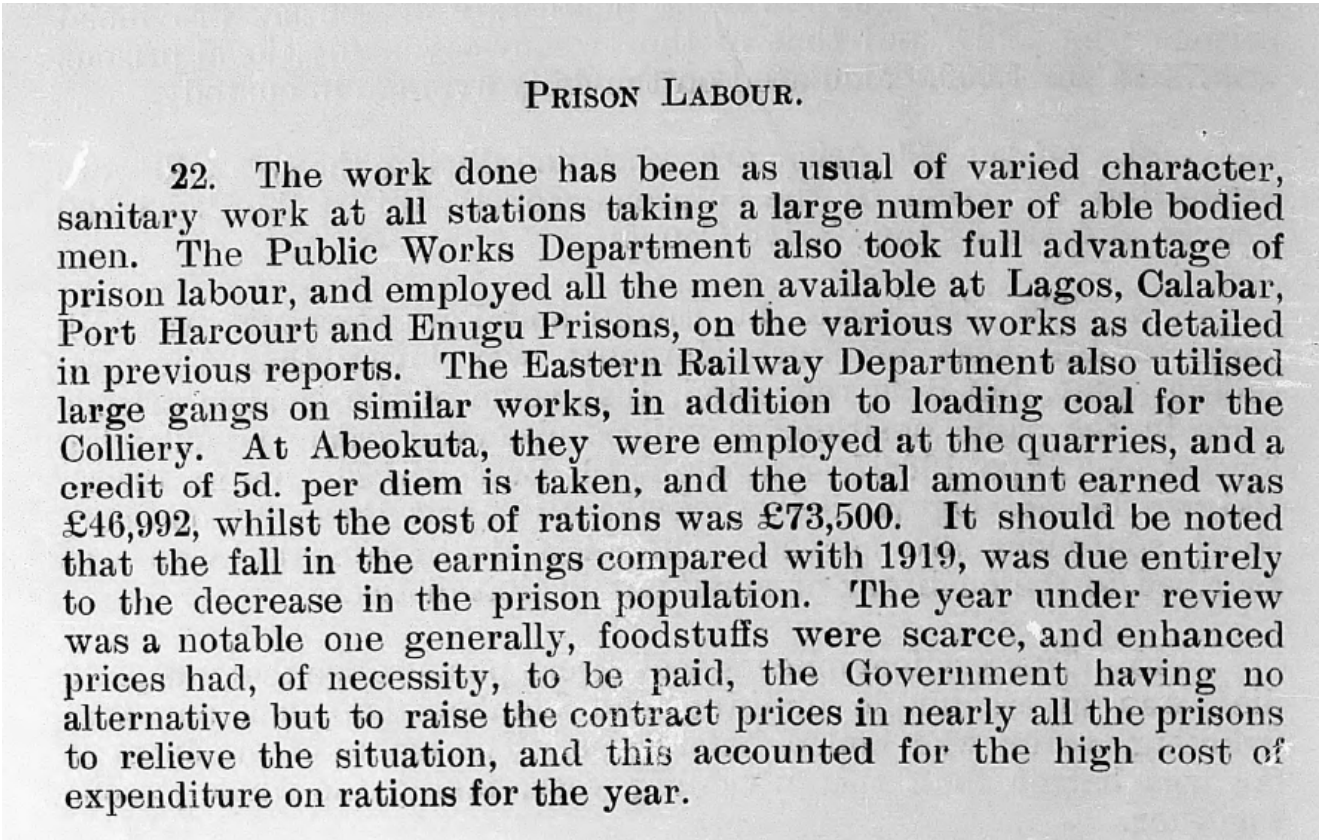
(b)



(c)

Figure: Colonial Nigeria with provinces outlined in 1937 (a), colonial prison locations and railroad network shown (b), and colonial provinces by region (c)

Prison labor in British colonial Nigeria: Evidence from colonial archives



PRISON LABOUR.

22. The work done has been as usual of varied character, sanitary work at all stations taking a large number of able bodied men. The Public Works Department also took full advantage of prison labour, and employed all the men available at Lagos, Calabar, Port Harcourt and Enugu Prisons, on the various works as detailed in previous reports. The Eastern Railway Department also utilised large gangs on similar works, in addition to loading coal for the Colliery. At Abeokuta, they were employed at the quarries, and a credit of 5d. per diem is taken, and the total amount earned was £46,992, whilst the cost of rations was £73,500. It should be noted that the fall in the earnings compared with 1919, was due entirely to the decrease in the prison population. The year under review was a notable one generally, foodstuffs were scarce, and enhanced prices had, of necessity, to be paid, the Government having no alternative but to raise the contract prices in nearly all the prisons to relieve the situation, and this accounted for the high cost of expenditure on rations for the year.

Figure: Excerpt from the colonial archives highlighting the value of prison labor for public works (Source: Annual Report on the Prisons Department, Colony and Southern Provinces, 1920)

Tight labor markets and labor shortages: Periods of higher average annual wages were positively correlated with a larger daily number of people in prisons

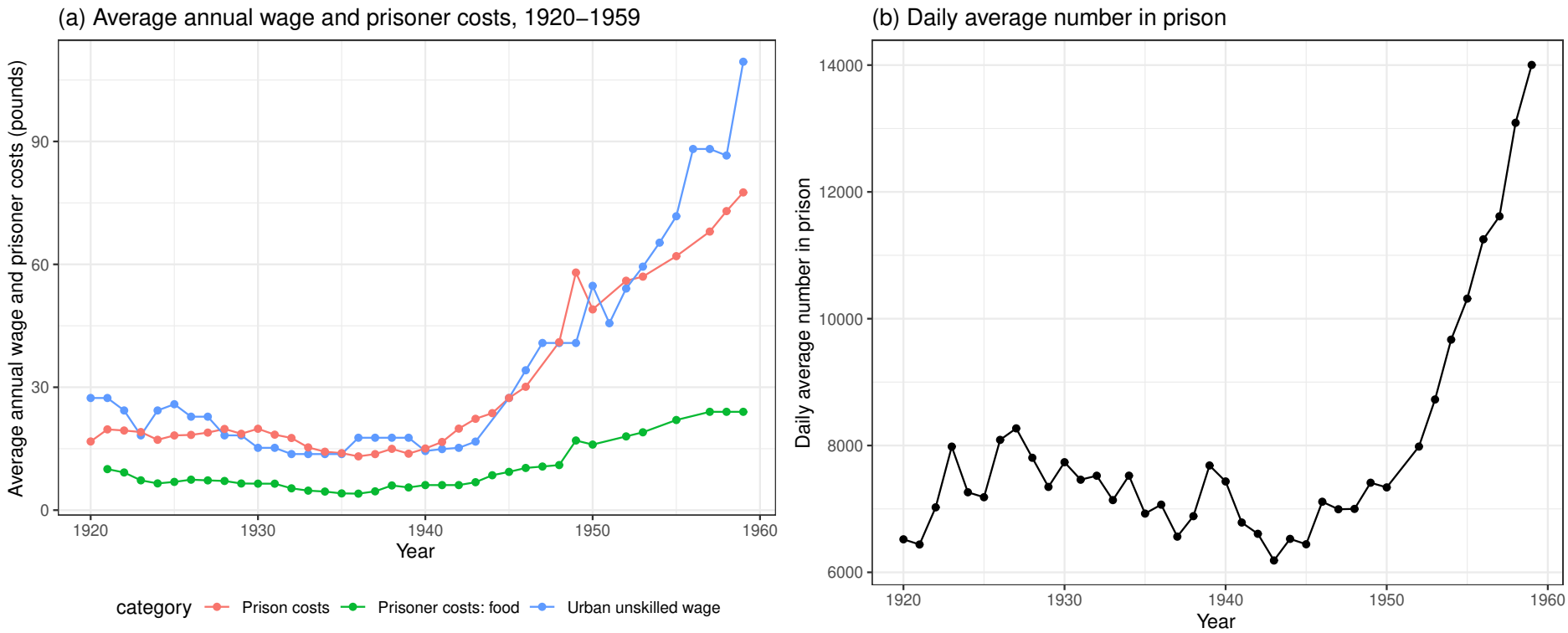


Figure: Wages, prisoner costs (a) and daily average number in prisons (b) in colonial Nigeria, 1920-1959

Change in composition of tax revenue in Nigeria, 1930-1980

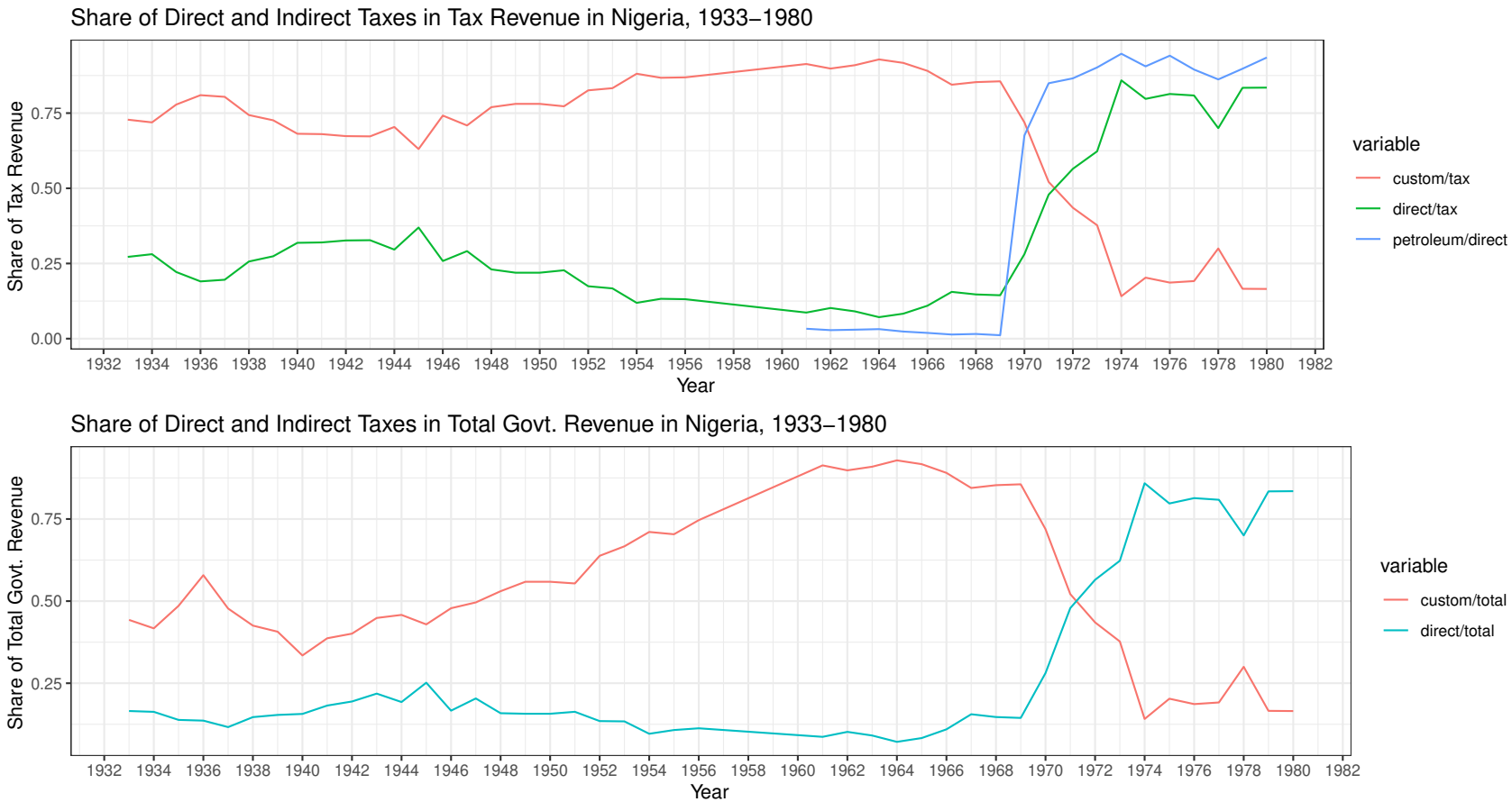


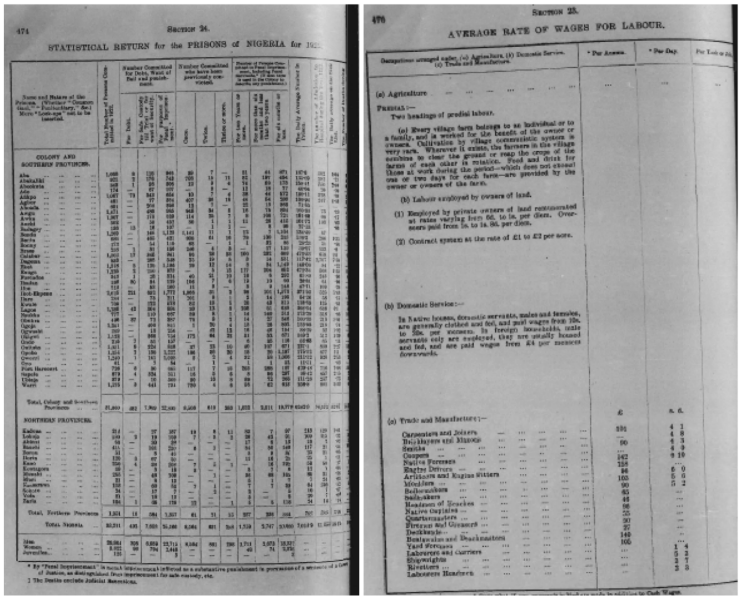
Figure: Composition of Tax Revenue in Nigeria, 1930-1980

Qualitative accounts: Addressing labor shortages with prison labor in British colonial Nigeria

- E.g.: 1920s "many of the inmates in Owerri prison in South-Eastern Nigeria were young men who had resisted compulsory labor, only to be imprisoned and employed in chains as prison labor" (Ekechi, 1989)
- 1911 Gov of NN: "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)
- Sometimes explicit: response to 1923 wage labor request of British sanitary inspector: '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." (NAI, CSO 26/2 09591 Vol.1 'Lieutenant Governor Southern Province to Resident Calabar Province: Memorandum on Prison labor' 23rd April 1923)
- Beverley in the 1916 Annual Report on Prisons lists 2 main reasons for creating categories of prisons according to prison sentence as (a) to place 'special prisons' in "townships which are on good lines of communication and afford the most suitable description of penal labour." and (b) "the ensuring, as far as possible, of an automatic and constant supply of prisoners to each class of prisons. At the end of the year, the system appeared to be working well; the prison population was evenly distributed, and nowhere was there shortage of convict labour."

Q1: Historical Data

- British colonial Blue Books and Annual Report on Prisons, Nigeria, 1920-1959, District/Province level
  - Prison data
  - Wages
  - Public works expenditure
  - Railroad (colonial only)
- A note on Native Administration prisons: Lower bound estimates



STATISTICAL RETURN for the PRISONS of NIGERIA for 192

AVERAGE RATE OF WAGES FOR LABOUR.

Figure: Example of archival data on prisons and wages from the British Blue Books (1922)

Colonial prisons, regions and railroad network in Nigeria

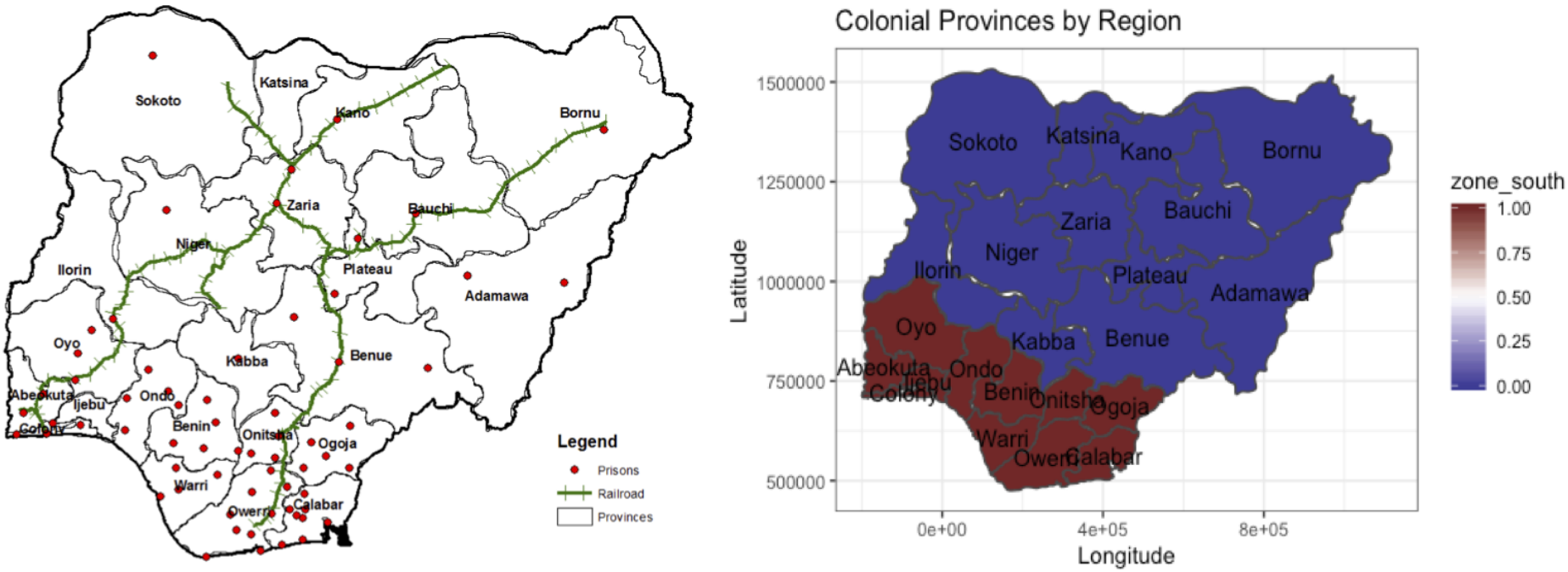


Figure: Nigeria provinces with colonial prison locations and railroad network shown (left) and regions (right)

Q1: How important was prison labor for colonial public finance/public works construction and maintenance?

$$\text{Value of prison labor}_t = \text{Annual wages}_t \times \frac{1}{N} \sum_{n=1}^{N} \text{Prisoners}_{nt} \quad (1)$$

- $Prisoners_{nt}$ is the daily average number of people in prisons over n days in the year from archival records
- Implied labor costs = Value of prison labor [lower bound estimate]
- Gross value of prison labor and net value of prison labor (less food (35%) and total prison maintenance costs (most expansive))
- Relative value of prison labor = Value of prison labor / Public works expenditure
- Robustness checks: Compare with colonial estimates of value of prison labor

Wages, prisoner costs and daily average number in prisons in colonial Nigeria, 1920-1959

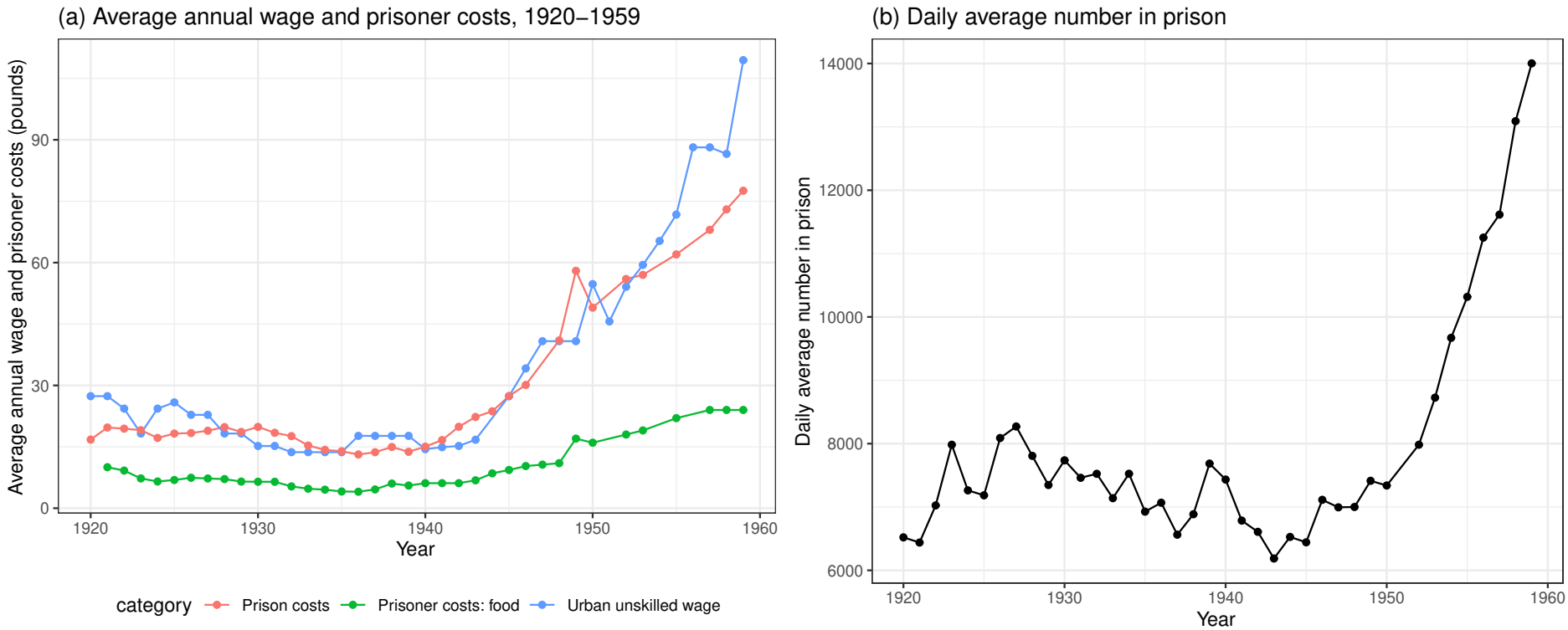


Figure: Wages, prisoner costs and daily average number in prisons in colonial Nigeria, 1920-1959

Positive correlation (0.7, $p < 0.001$) between estimated total value of prison labor and reported value, 1920-1959

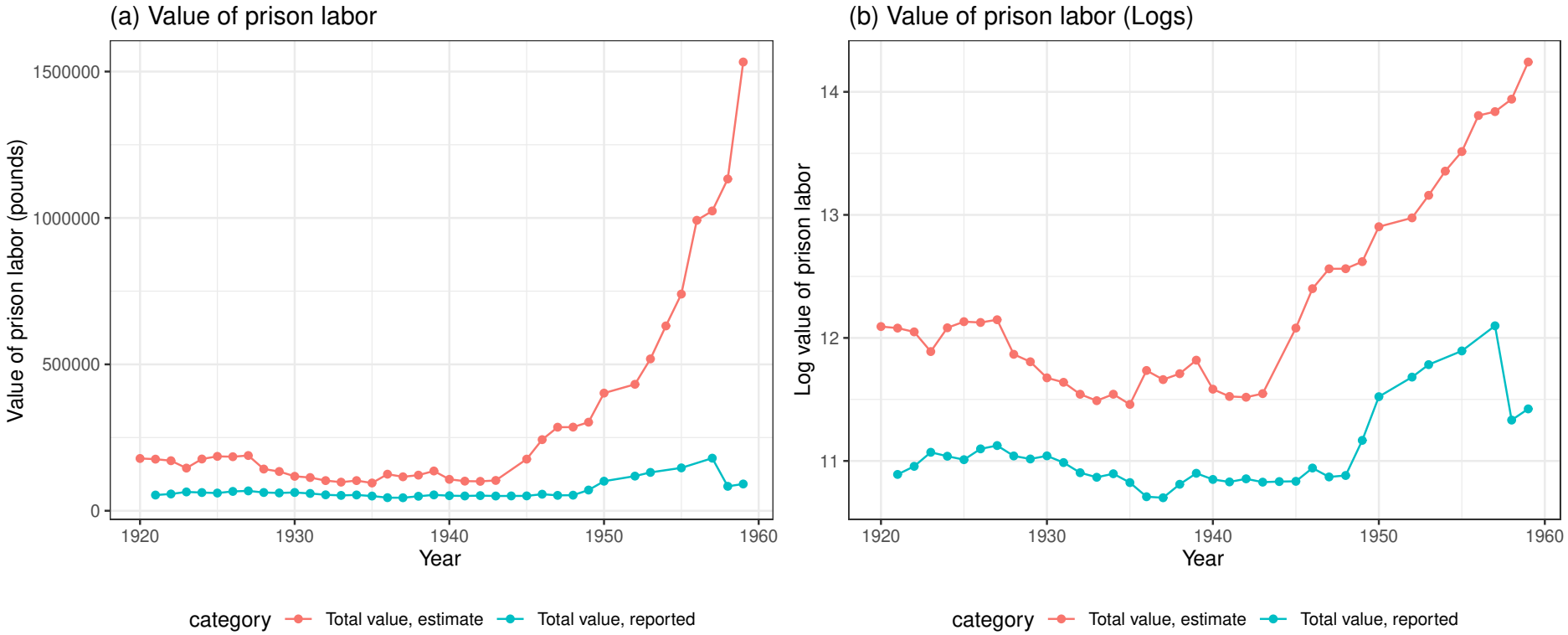


Figure: Total value of prison labor estimates versus value of prison labor reported by colonial government in pounds (a) and in log values (b), 1920-1959. Figure shows values in pounds (a) and log values (b)

Estimated total value of prison labor > reported value. Estimated net value < reported value and ≥0 in most years, 1920-1959

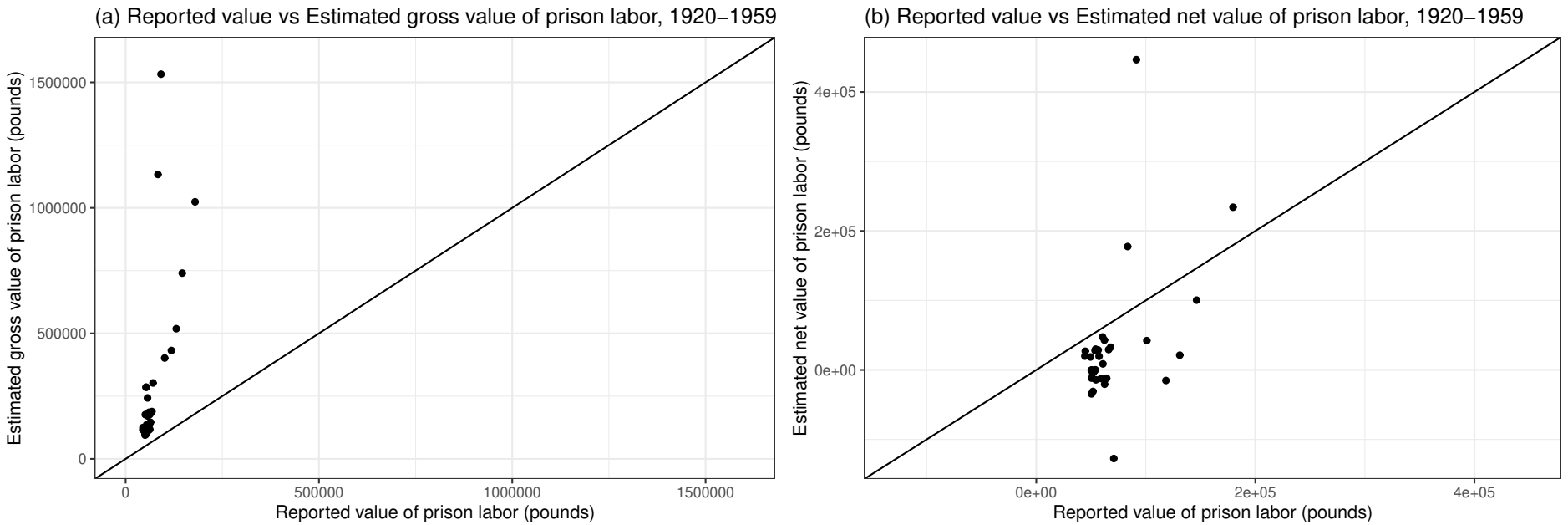


Figure: Comparing total values of prison labor estimates with value of prison labor reported by colonial government (a), and net value of prison labor estimates with reported colonial value of prison labor (b), plotted against the 45 degree line of equality, 1920-1959

Relative value of prison labor, 1920-1959

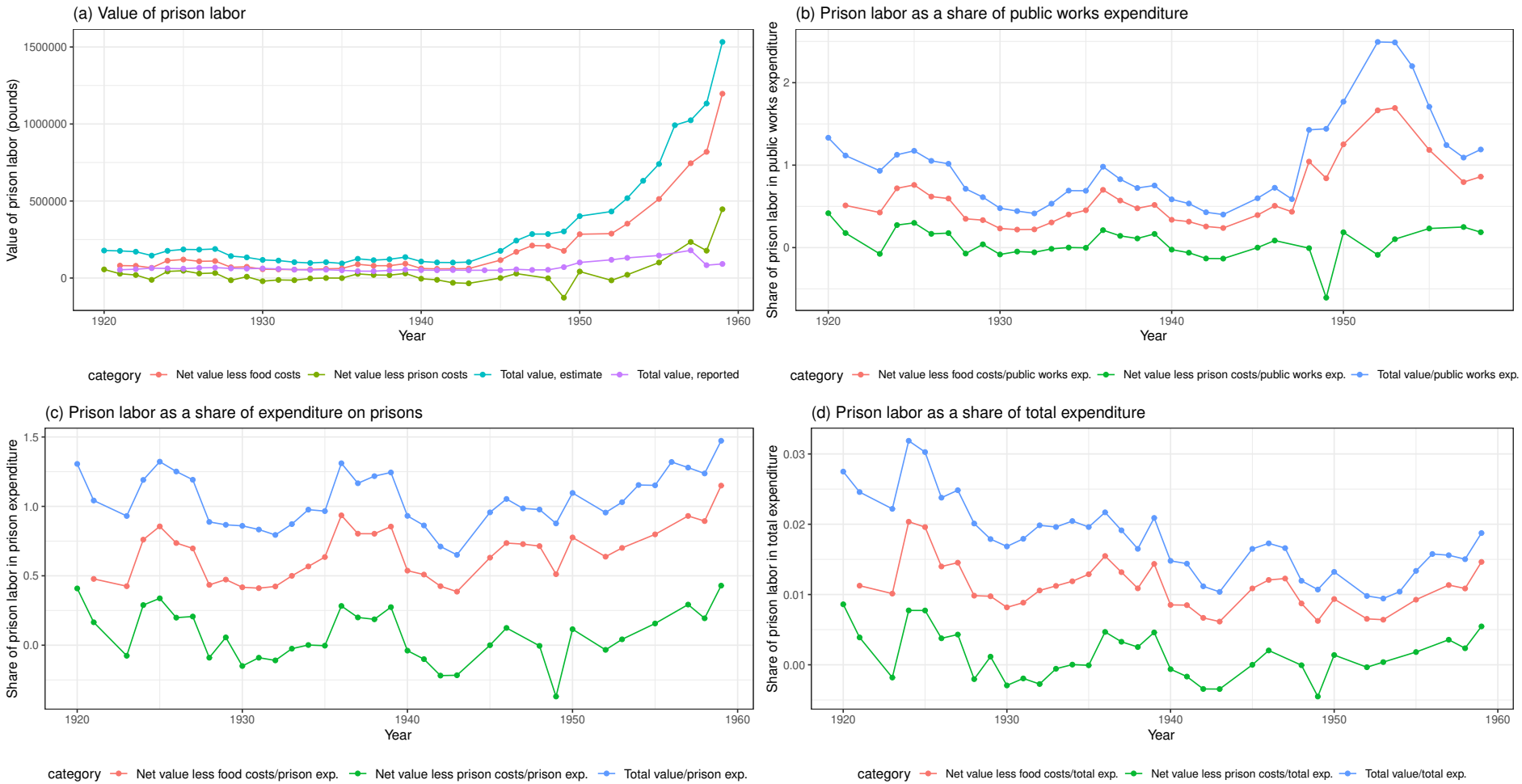


Figure: Relative value of prison labor, 1920-1959

Summary of results on value of prison labor in colonial Nigeria

- Prison labor is economically valuable to colonial regime. Significant share public works expenditure- gross value is 40-249% (mean 101%) of public works expenditure in colonial Nigeria [lower bound]
- Net value, accounting for most expansive costs of prisoner upkeep up to 42% (mean 5%), $>> 0 \approx 60\%$ years
- Colonial estimates: Prisoners' labor valued bet 60-80% below market rate over 1919-1925 (confirms historical lit trends). Underestimate value of prison labor to keep costs of administration for their peer departments low while attempting to balance their budgets

Q2: Data on Incarceration Rates and Economic Shocks

- Incarceration data:
  - British colonial Blue Books- Nigeria, 1920-1938, District/Province level:
  - Prison data: number of newly admitted prisoners per 100,000 pop., ST, LT (Falsification tests on sentence)
  - Nigeria Annual Abstract of Statistics, 1971-1995, District/State level:
  - Prison data: prisoners per 100,000 pop.
- Economic shocks data:
  - Rainfall z-scores, weather stations, Blue Books, 1920-1938
  - Rainfall z-scores, NASA MERRA-2, 1980-1995
  - Export price on major cash crop exports (cocoa, palm oil and groundnuts), Wageningen University African Commodity Trade Database (ACTD)
  - Land suitability and colonial crop production data from the Global Agro-Ecological Zones (GAEZ) and Blue Books

Average incarceration rate falls by ≈ 40% Between the colonial (1920-1938) and postcolonial (1971-1995) periods

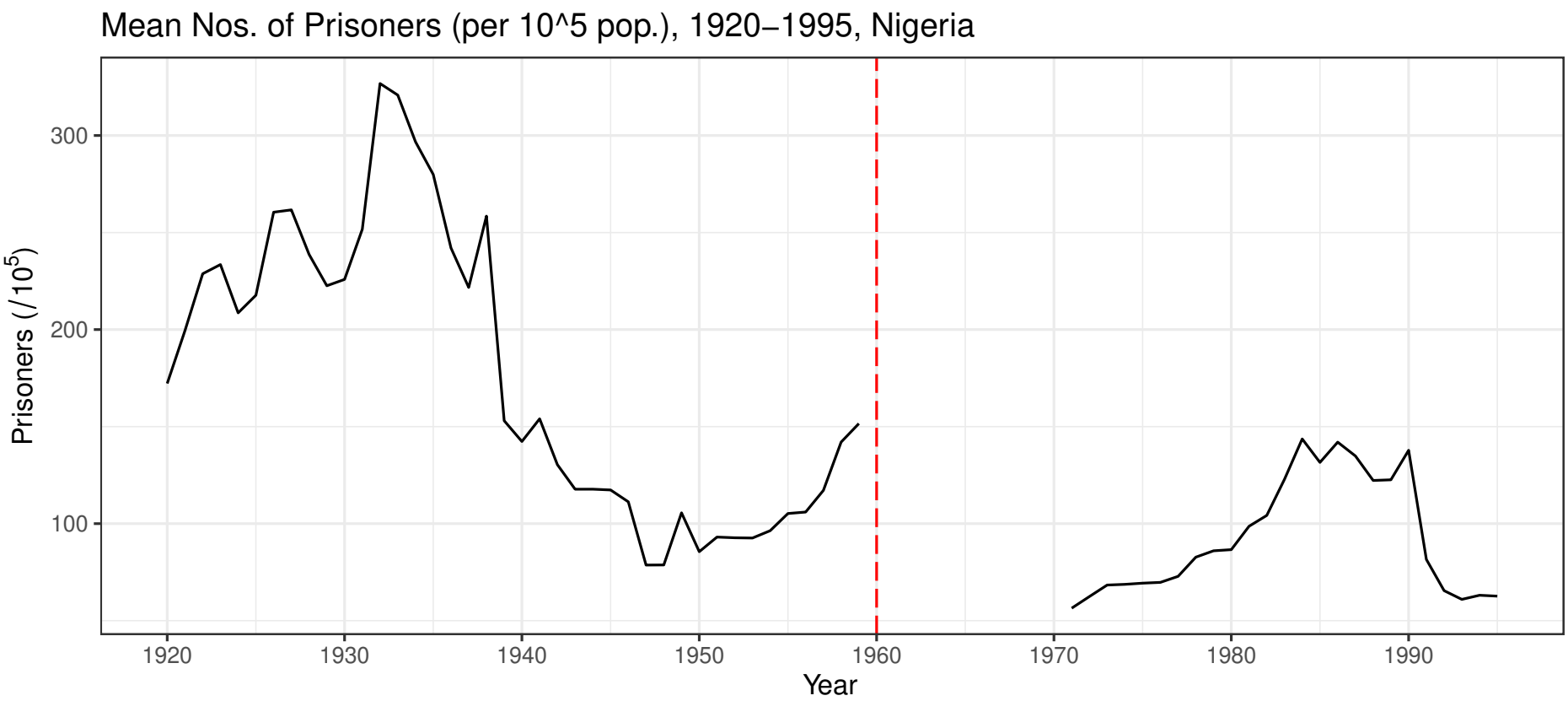


Figure: Mean number of prisoners per 100,000 population, 1920-1995

Spatial distribution of incarceration rates in colonial and postcolonial Nigeria

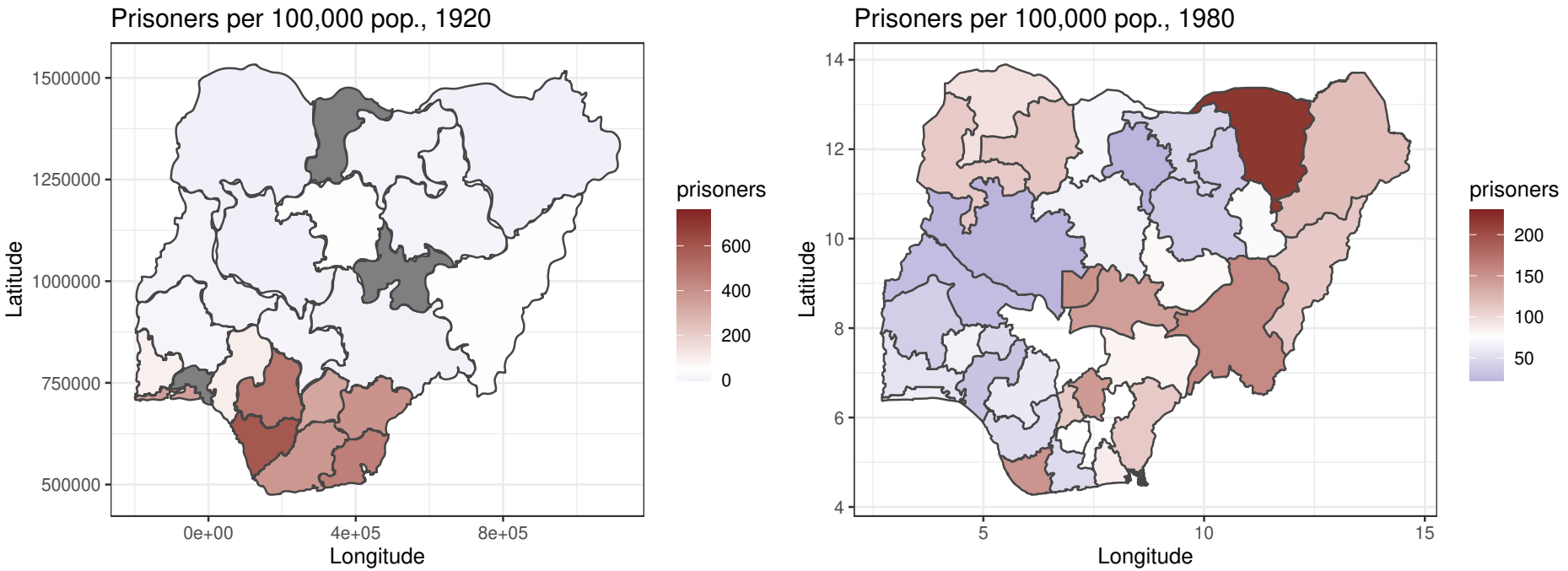


Figure: Prison populations in colonial (1920) and postcolonial (1980) Nigeria

Incarceration rates by sentence in colonial Nigeria

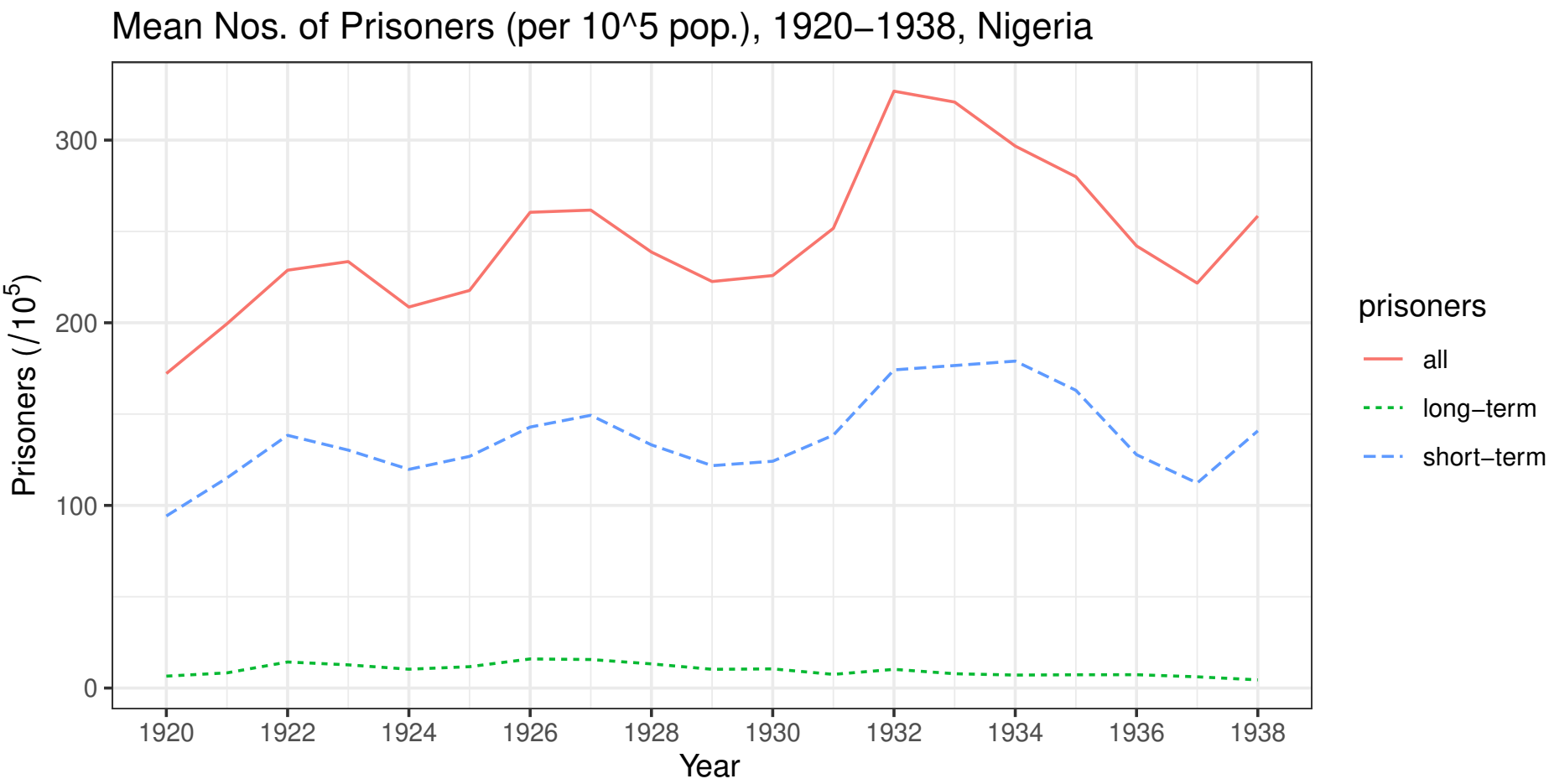
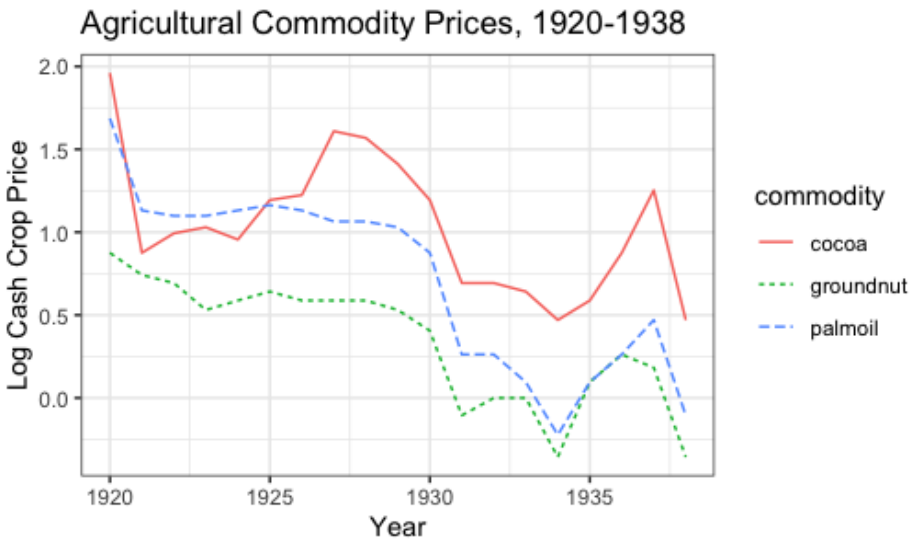
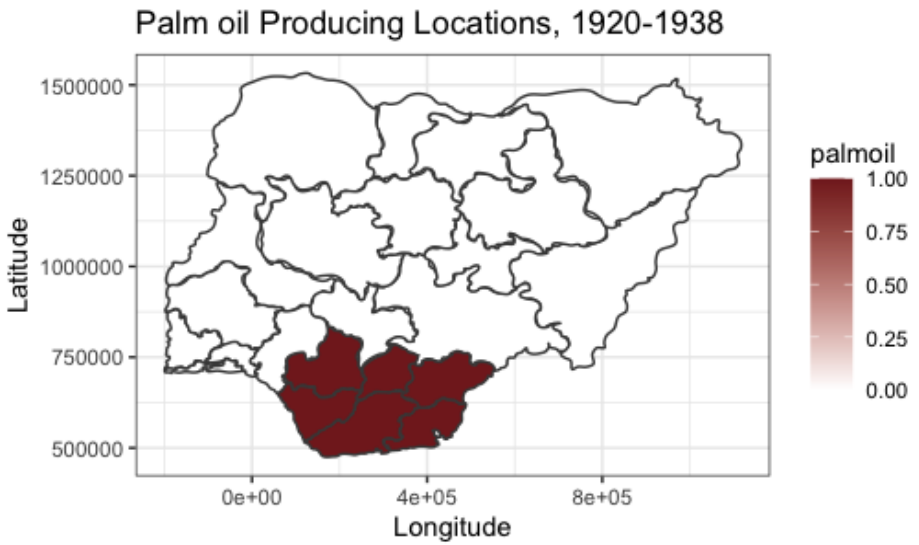
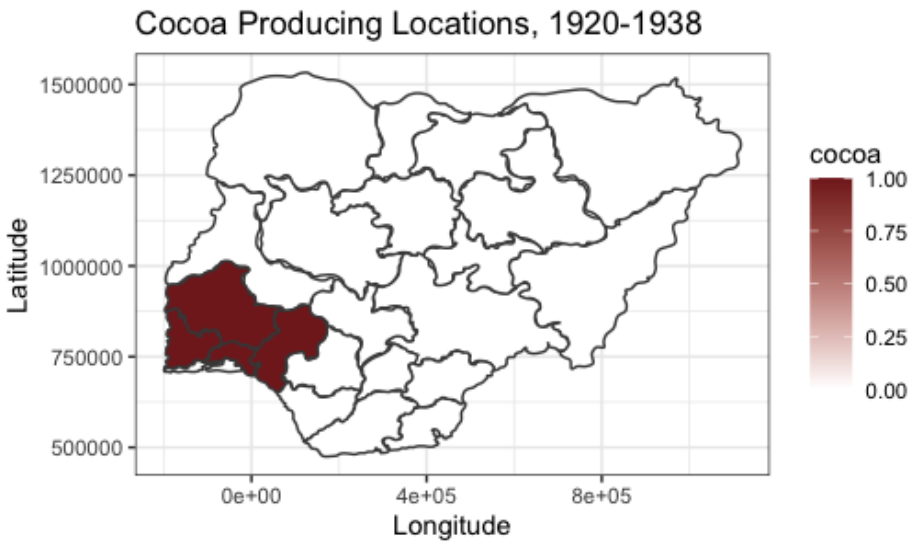


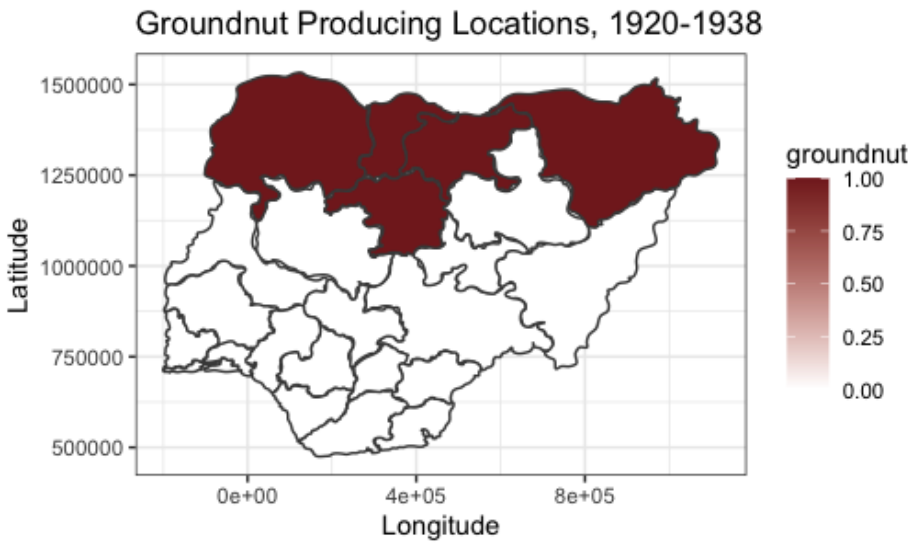
Figure: Incarceration rates by sentence in colonial Nigeria

Agricultural commodity export prices and production areas for the three major cash crops









Q2: How do incarceration rates respond to economic shocks when prison labor is an important part of state public finance?

- 3 models:
  1. Nonlinear effects of economic shocks on incarceration rates: inverted-u (colonial) vs u-shaped (postcolonial); Evidence from (1) agricultural lit; (2) crop yields data (1992-1995) and (3) colonial qualitative records

$$\text{Prisoners}_{it} = \beta_1 \text{RainfallDev}_{it} + \beta_2 \text{RainfallDev}_{it}^2 + \mu_i + \delta_t + \epsilon_{it} \quad (2)$$

  2. Distinguishing + and − shocks, a) Positive shock (M)=1 if $0 < \textit{RainfallDev}_{it} < 0.75$ (b) Positive shock (E)= 1 if $\textit{RainfallDev}_{it} > 0.75$, floods (c) Negative shock (E)= 1 if $\textit{RainfallDev}_{it} < -0.5$, droughts

$$\text{Prisoners}_{it} = \alpha \text{Positive shock (M)}_{it} + \mathbf{E}'_{it}\gamma + \mu_i + \delta_t + \epsilon_{it} \quad (3)$$

  3. Effects of export cash crop price shocks

$$\text{Prisoners}_{it} = \sum_{c=1}^{3} \gamma_c \text{Cash Crop}_{ci} \times \text{Cash Crop Price}_{ct} + \mu_i + \delta_t + \epsilon_{it} \quad (4)$$

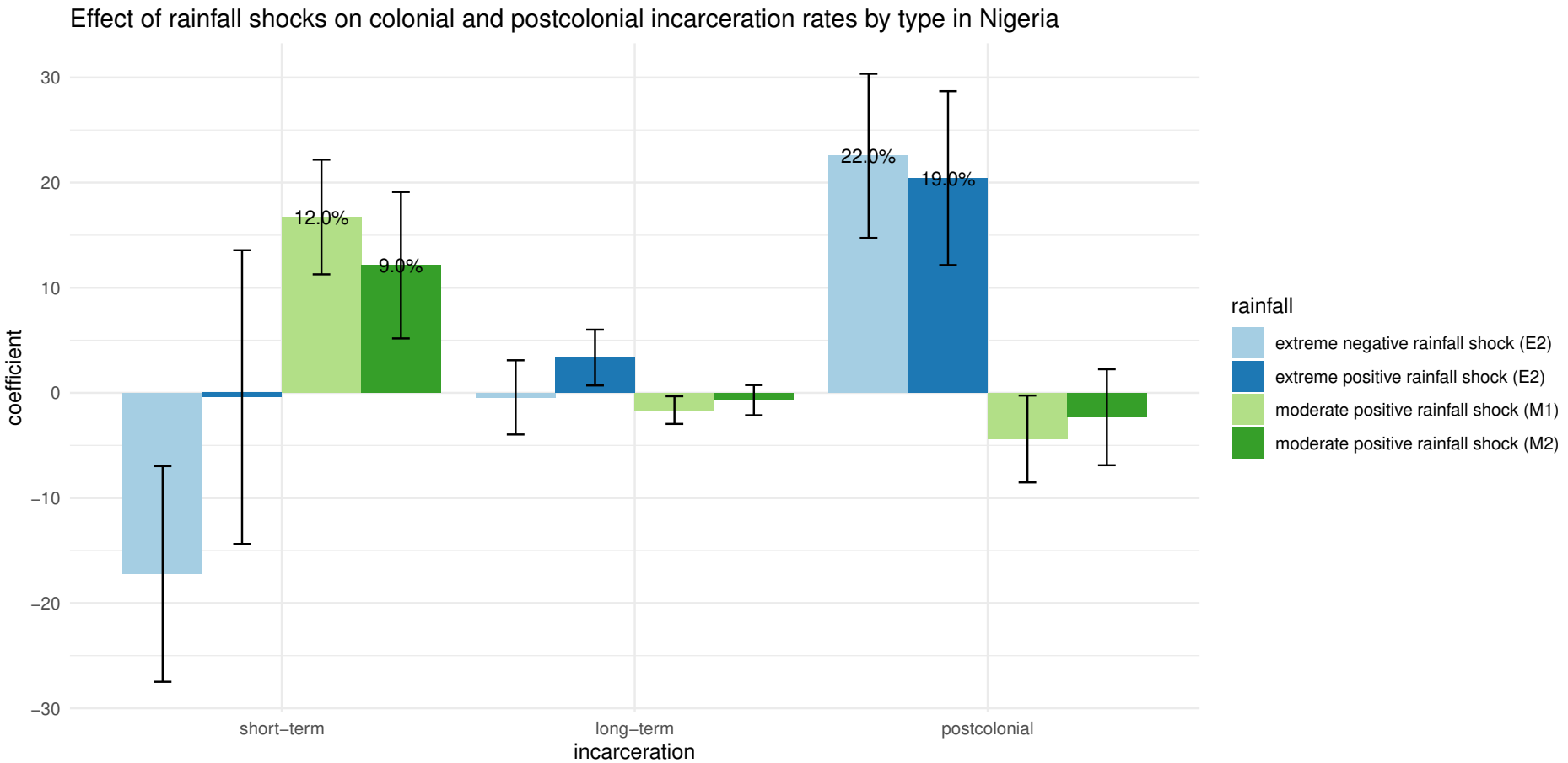
- Falsification tests with sentences, postcolonial incarceration rates; Multiple robustness ✓

Model 1: Nonlinear effects of rainfall shocks on colonial and postcolonial incarceration rates

Period:	**Colonial**				**Postcolonial**
Outcome:	All Penal	Short-Term	Medium-Term	Long-Term	All 1971-1995
	(1)	(2)	(3)	(4)	(5)
Rainfall Dev	14.147**	11.995*	1.796	0.759	−6.237
	(6.041)	(6.433)	(1.276)	(1.227)	(8.570)
	[0.038]	[0.065]	[0.212]	[0.655]	[0.454]
Rainfall Dev Sq	−3.569	−4.884*	0.205	0.752	34.275***
	(2.479)	(2.816)	(0.387)	(0.739)	(9.692)
	[0.246]	[0.068]	[0.629]	[0.494]	[<.001]
Mean of outcome	162.032	134.659	16.556	10.175	104.802
Observations	324	324	324	324	556
Clusters	21	21	21	21	36
District FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by district, where district is colonial province for colonial data, and postcolonial state for postcolonial data. Wild cluster bootstrap (by district) p-values are in brackets. Observations are provinces. Dependent variables in column (1)-(4) are prisoners per 100,000 population (1939 pop.) by province in Nigeria broken down by all prisoners, penal imprisonment, custody/awaiting trial, short-term (less than 6 months) sentence and medium-term (between 6 months and 2 years) sentence and long-term (greater than 2 years) sentence over 1920-1938. Dependent variable in (5) is prisoners per 100,000 population (1990 pop.) by state in Nigeria over 1971-1995. Results remain unchanged when we replace the denominator for the incarceration rates with the adult population of the province only. Rainfall deviation, and rainfall deviation squared (Rainfall Dev and Rainfall Dev Sq) as defined in text. District FE are colonial province fixed effects in (1)-(4), and postcolonial state fixed effects in (5). ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level based on clustered standard errors in parentheses.

Model 2: Moderate positive rainfall shocks increase ST colonial incarceration rates

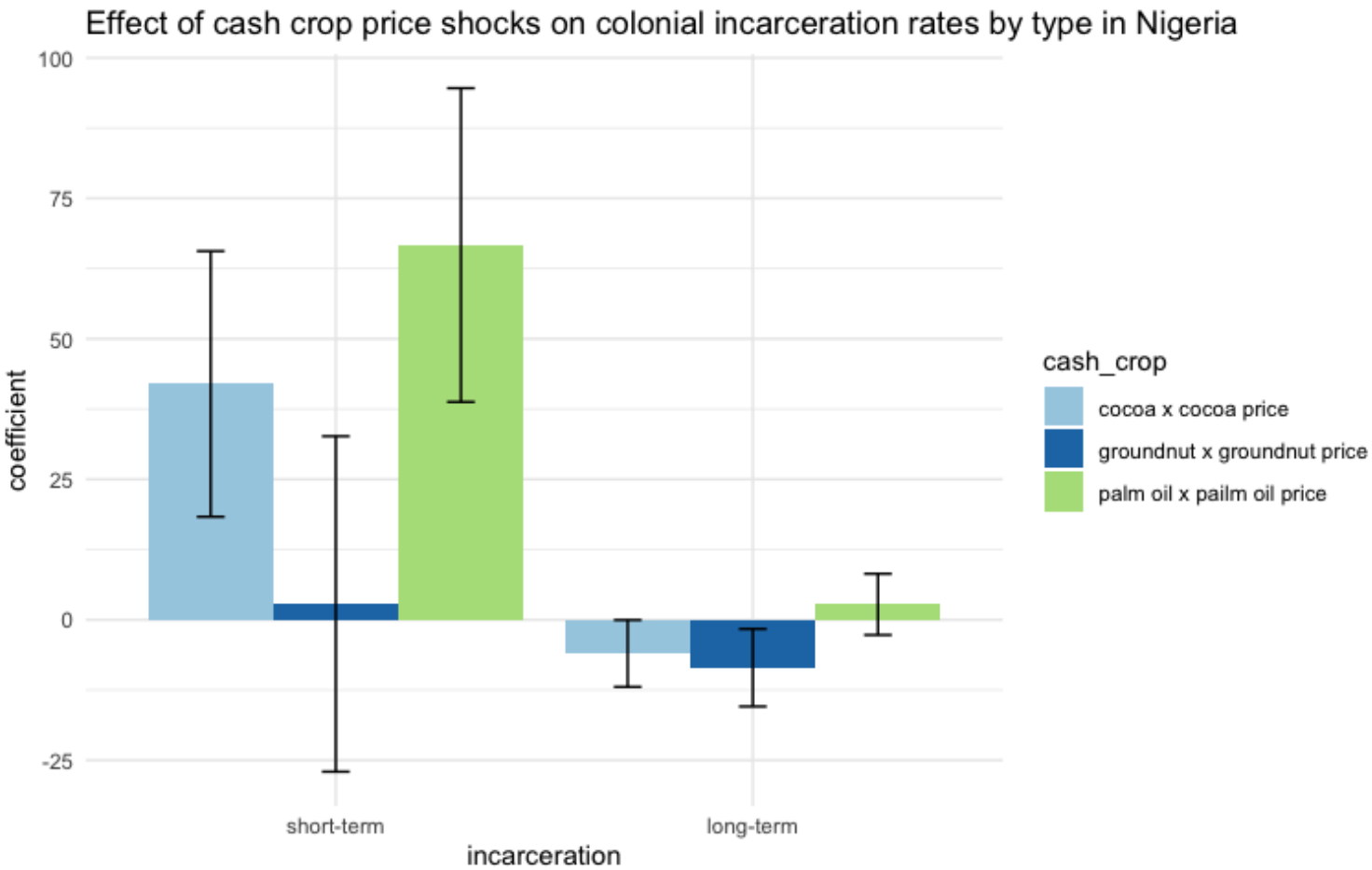


Model 2: Identifying the effects of positive rainfall shocks on incarceration rates results

Period:			**Colonial**				**Postcolonial**		
Outcome:	Short-Term			Long-Term			All 1971-1995		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Positive rainfall shock (M)	16.727***		12.142*	−1.638		−0.695	−4.387		−2.320
	(5.456)		(6.964)	(1.319)		(1.437)	(4.132)		(4.564)
	[0.016]		[0.093]	[0.336]		[0.683]	[0.320]		[0.620]
Negative rainfall shock (E)		−20.290**	−17.225*		−1.060	−0.429		22.722***	22.545***
		(9.484)	(10.259)		(2.894)	(3.530)		(7.814)	(7.807)
		[0.057]	[0.139]		[0.762]	[0.886]		[0.016]	[0.012]
Positive rainfall shock (E)			−0.404			3.358			20.423**
			(13.973)			(2.654)			(8.268)
			[0.977]			[0.293]			[0.046]
Mean of outcome	134.659	134.659	134.659	10.175	10.175	10.175	104.802	104.802	104.802
Observations	324	324	324	324	324	324	556	556	556
Clusters	21	21	21	21	21	21	36	36	36
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by district, where district is colonial province for colonial data, and postcolonial state for postcolonial data. Wild cluster bootstrap (by district) p-values are in brackets. Observations are districts. Dependent variables in columns (1)-(6) are prisoners per 100,000 population (1939 pop.) by province in Nigeria broken down by short-term (less than 6 months) sentence ((1)-(3)) and long-term (greater than 2 years) sentence ((4)-(6)) over 1920-1938. Dependent variable in columns (7)-(9) is prisoners per 100,000 population (1990 pop.) by state in Nigeria over 1971-1995. Positive rainfall shock (M) where (M) is moderate, and (E) is extreme as defined in text. District FE are colonial province fixed effects in (1)-(6), and postcolonial state fixed effects in (7)-(9). ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level based on clustered standard errors in parentheses.

Model 3: Increases in prices of relatively higher valued southern crops like palm oil increase ST incarceration rates

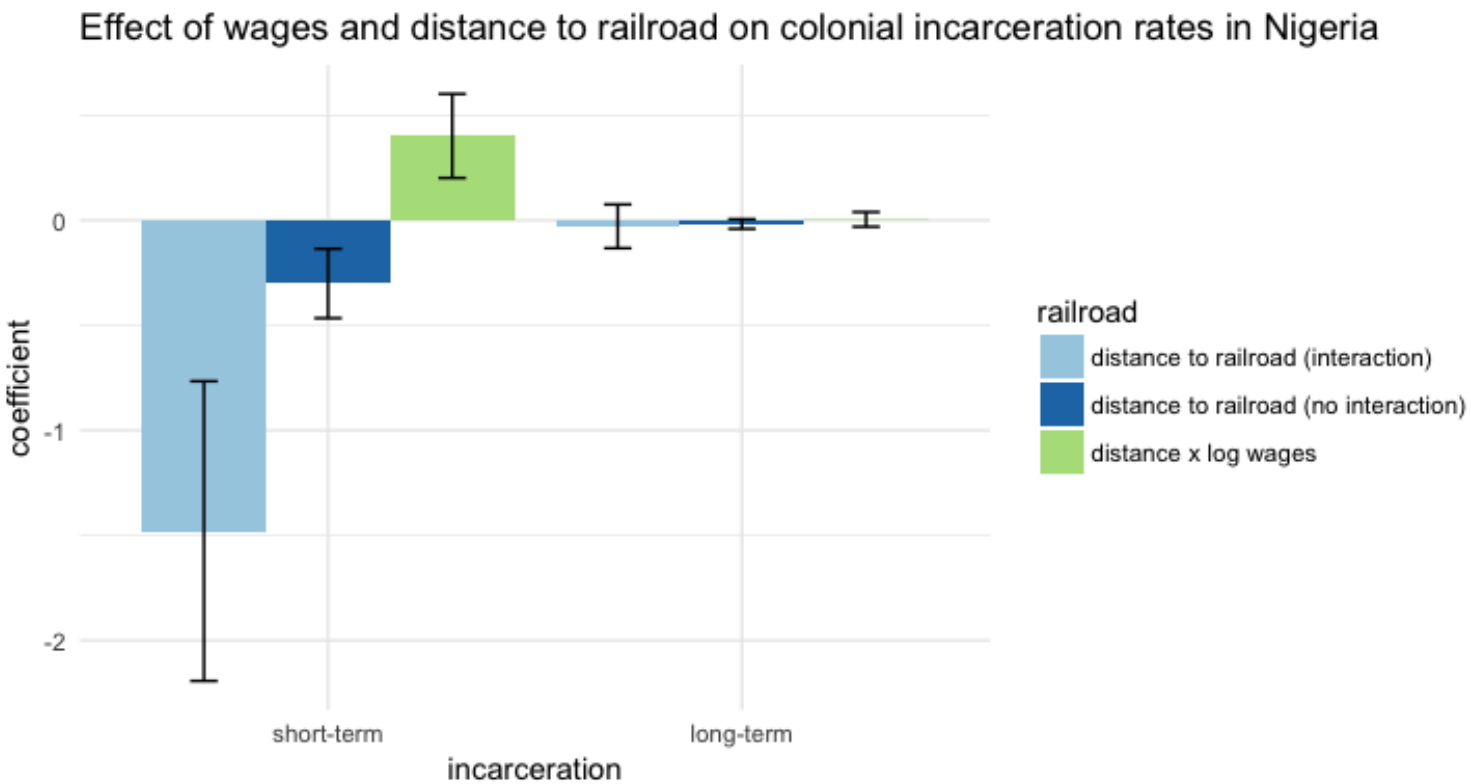


Model 3: Effects of cash crop price shocks on colonial incarceration rates results

Outcome:	Short-Term				Long-Term			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Palm oil x Palm oil price	66.681**	56.546**			2.738	5.481		
	(27.920)	(22.867)			(5.448)	(3.490)		
	[0.048]	[0.045]			[0.745]	[0.166]		
Cocoa x Cocoa price	41.965*		4.146		−6.000		−6.535***	
	(23.638)		(16.434)		(5.952)		(2.491)	
	[0.185]		[0.830]		[0.521]		[0.013]	
Groundnut x Groundnut price	2.809			−49.111**	−8.532			−9.130***
	(29.852)			(24.763)	(6.905)			(3.208)
	[0.956]			[0.092]	[0.416]			[0.015]
Mean of outcome	134.659	134.659	134.659	134.659	10.175	10.175	10.175	10.175
Observations	324	324	324	324	324	324	324	324
Clusters	21	21	21	21	21	21	21	21
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by district, where district is colonial province for colonial data. Wild cluster bootstrap (by district) p-values are in brackets. Observations are provinces. Dependent variables are prisoners per 100,000 population (1939 pop.) by province in Nigeria broken down by short-term (less than 6 months) sentence in columns (1) to (4) and long-term (greater than 2 years) sentence in columns (5) to (8) over 1920-1938. Prices are in logs. District FE are colonial province fixed effects. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level based on clustered standard errors in parentheses.

Prisons closer to the railroad have higher ST incarceration rates. Higher wages increase incarceration rates in prisons further away from the railroad



Effect of wages and distance to railroad on colonial incarceration rates

Outcome:	Short-Term		Long-Term	
	(1)	(2)	(3)	(4)
Distance to railroad	−0.301*	−1.479**	−0.018	−0.029
	(0.157)	(0.681)	(0.023)	(0.099)
	[0.144]	[0.074]	[0.941]	[0.778]
Distance x Log wages		0.401**		0.004
		(0.191)		(0.033)
		[0.078]		[0.917]
Mean of outcome	46.198	46.198	3.990	3.990
Observations	938	938	822	822
Clusters	21	21	21	21
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by district, where district is colonial province for colonial data. Wild cluster bootstrap (by district) p-values are in brackets. Observations are individual prisons. Dependent variables in (1)-(4) are prisoners in each prison per 100,000 population of the province broken down by short-term (less than 6 months) sentence and long-term (greater than 2 years) sentence over 1920-1938. Covariates are distance to railroad in km and log urban unskilled wages. District FE are colonial province fixed effects. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level based on clustered standard errors in parentheses.

Prisons closer to the railroad have higher ST incarceration rates. Higher export prices increase incarceration rates in prisons further away from the railroad

Outcome:	Short-Term				Long-Term			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Distance to railroad	−0.301*	−0.456**	−0.460**	−0.407**	−0.018	−0.022	−0.007	−0.019
	(0.157)	(0.216)	(0.213)	(0.194)	(0.023)	(0.023)	(0.024)	(0.023)
	[0.144]	[0.042]	[0.028]	[0.038]	[0.941]	[0.403]	[0.792]	[0.455]
Distance x Palm oil price		0.214**				0.005		
		(0.096)				(0.019)		
		[0.059]				[0.871]		
Distance x Cocoa price			0.151**				−0.010	
			(0.068)				(0.018)	
			[0.063]				[0.789]	
Distance x Groundnut price				0.306**				0.001
				(0.129)				(0.028)
				[0.045]				[0.984]
Mean of outcome	46.198	46.198	46.198	46.198	3.990	3.990	3.990	3.990
Observations	938	938	938	938	822	822	822	822
Clusters	21	21	21	21	21	21	21	21
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by district, where district is colonial province for colonial data. Wild cluster bootstrap (by district) p-values are in brackets. Observations are individual prisons. Dependent variables are prisoners in each prison per 100,000 population of the province broken down by short-term (less than 6 months) sentence in columns (1)-(4) and long-term (greater than 2 years) sentence in columns (5)-(8) over 1920-1938. Prices are in logs, and distance to railroad in km. District FE are colonial province fixed effects. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level based on clustered standard errors in parentheses.

Suggestive evidence of sentence-switching in response to short-term economic shocks

Qualitative accounts: For example, in 1926, C.W. Duncan, the Inspector-General of Police of the southern provinces, noted the uptick in cases and convictions in that year in his report. He then highlighted that while ' "offences against property show a decrease of 198 cases compared with those of the previous year", and there has been a decrease in "offences against persons", prosecutions of minor offenses have increased that year, accounting for the increase in cases and convictions'.

Outcome:	Custody		Short-Term		Custody − Short-Term	
	(1)	(2)	(3)	(4)	(5)	(6)
Positive rainfall shock (M)	5.623**	1.774	16.727***	12.142*	−11.104**	−10.368
	(2.201)	(2.795)	(5.456)	(6.964)	(4.554)	(6.475)
	[0.014]	[0.558]	[0.016]	[0.093]	[0.040]	[0.154]
Negative rainfall shock (E)		−6.703		−17.225*		10.523
		(6.396)		(10.259)		(8.004)
		[0.371]		[0.139]		[0.241]
Positive rainfall shock (E)		−6.734*		−0.404		−6.331
		(4.044)		(13.973)		(13.161)
		[0.093]		[0.977]		[0.615]
Mean of outcome	71.727	71.727	134.659	134.659	−62.932	−62.932
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	324	324	324	324	324	324
Clusters	21	21	21	21	21	21

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by district, where district is colonial province for colonial data, and postcolonial state for postcolonial data. Wild cluster bootstrap (by district) p-values are in brackets. Observations are provinces. Dependent variables in

Suggestive evidence of cost-cutting: Reduced diet is most popular punishment of prisoners for infractions while in prison in colonial Nigeria

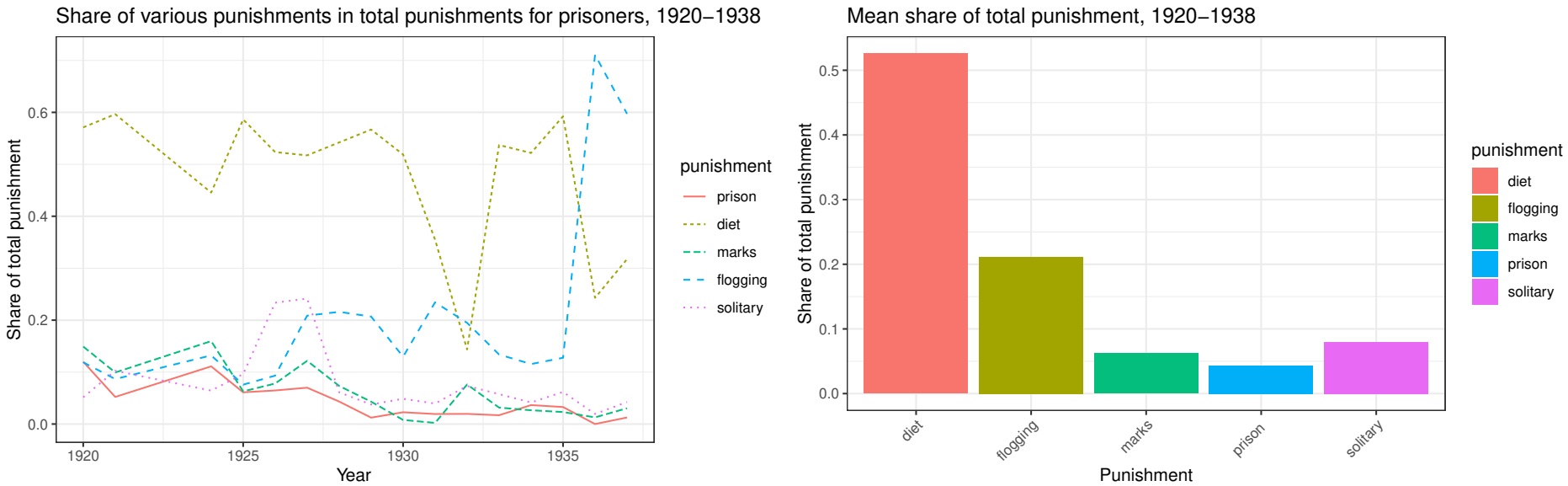


Figure: Share of various punishments in total punishments of prisoners for infractions while in prison in colonial Nigeria

Increases in palm oil export prices associated with more prison time assigned as punishment to prisoners ("stick"), but less forfeiture of marks assigned as punishment ("carrot")

Outcome:	Extra Imprisonment	Reduced Diet	Flogging	Solitary Confinement	Forfeit Marks
	(1)	(2)	(3)	(4)	(5)
Palm oil x Palm oil price	0.061**	0.040	0.028	−0.047	−0.114**
	(0.031)	(0.179)	(0.055)	(0.038)	(0.049)
	[0.075]	[0.846]	[0.657]	[0.260]	[0.115]
Cocoa x Cocoa price	0.133	0.542	−0.036	0.244	−0.089*
	(0.100)	(0.652)	(0.094)	(0.160)	(0.048)
	[0.494]	[0.580]	[0.738]	[0.226]	[0.240]
Groundnut x Groundnut price	0.066	0.135	0.084	−0.065	−0.129
	(0.040)	(0.339)	(0.142)	(0.049)	(0.168)
	[0.207]	[0.742]	[0.635]	[0.179]	[0.624]
Mean of outcome	0.050	0.556	0.166	0.087	0.071
Observations	228	228	228	228	228
Clusters	21	21	21	21	21
District FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by district, where district is colonial province for colonial data. Wild cluster bootstrap (by district) p-values are in brackets. Observations are provinces. Dependent variables are shares of total punishment assigned to prisoners from extra prison time (1), reduced diet (2), flogging (3), solitary confinement (4), and forfeiture of marks (5), as described in the text. Prices are in logs. District FE are

Q3: Data on Contemporary Trust

- Geocoded data on trust from Afrobarometer surveys
- Over 5 rounds, 2003-2014
- Trust in historical legal institutions: trust in courts, police, and trust in tax administration
- Falsification test: Interpersonal trust: trust in neighbors, trust in relatives, trust in local governing council member
- Population density, individual controls, geographic controls, disease controls and controls for precolonial and colonial institutions

Q3:What are there long-term effects of colonial prison labor system on perceptions of state legitimacy? Trust in legal institutions like police?

$$\text{Trust}_{aigst} = \beta \text{Colonial Imprisonment}_i + \mathbf{X}'_{aigst}\theta + \mathbf{X}'_{gs}\phi + \mu_s + \delta_t + \epsilon_{aigst} \quad (5)$$

- Hypothesis: Long-term exposure to colonial imprisonment centered around prison labor reduces views of state legitimacy through lowered trust in legal institutions like police today
- Measure: Colonial imprisonment (ST): share of short-term sentenced prisoners in colonial province bet 1920-1938
- Falsification test: No effect on interpersonal trust; LT colonial imprisonment
- Evidence from robust OLS correlations and qualitative historical accounts

Relationship between share of rank and file police in total police force and colonial imprisonment

Outcome:	Colonial Imprisonment (ST)	Colonial Imprisonment (LT)	Short-Term	Long-Term
	(1)	(2)	(3)	(4)
Share of rank and file police	0.021***	−0.001	5.000*	0.433
	(0.005)	(0.003)	(2.743)	(0.587)
	[0.000]	[0.692]	[0.078]	[0.547]
Mean of outcome	0.764	0.111	134.659	10.175
Observations	234	234	234	234
Clusters	19	19	19	19
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by colonial province. Wild cluster bootstrap (by district) p-values are in brackets. Observations are provinces. Covariate is the share of rank and file police in the total police force. Outcomes in columns (1) and (2) are Colonial imprisonment (ST or LT), which is the average share of short-term (ST) or long-term (LT) incarcerated populations in each colonial province over 1920 to 1938 as defined in the text. Outcomes in columns (3) and (4) are prisoners per 100,000 population (1939 pop.) by province in Nigeria broken down by short-term (less than 6 months) sentence ((3)) and long-term (greater than 2 years) sentence ((4)) over 1920-1938. District FE are colonial province fixed effects. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level.

Colonial imprisonment and contemporary trust in legal institutions

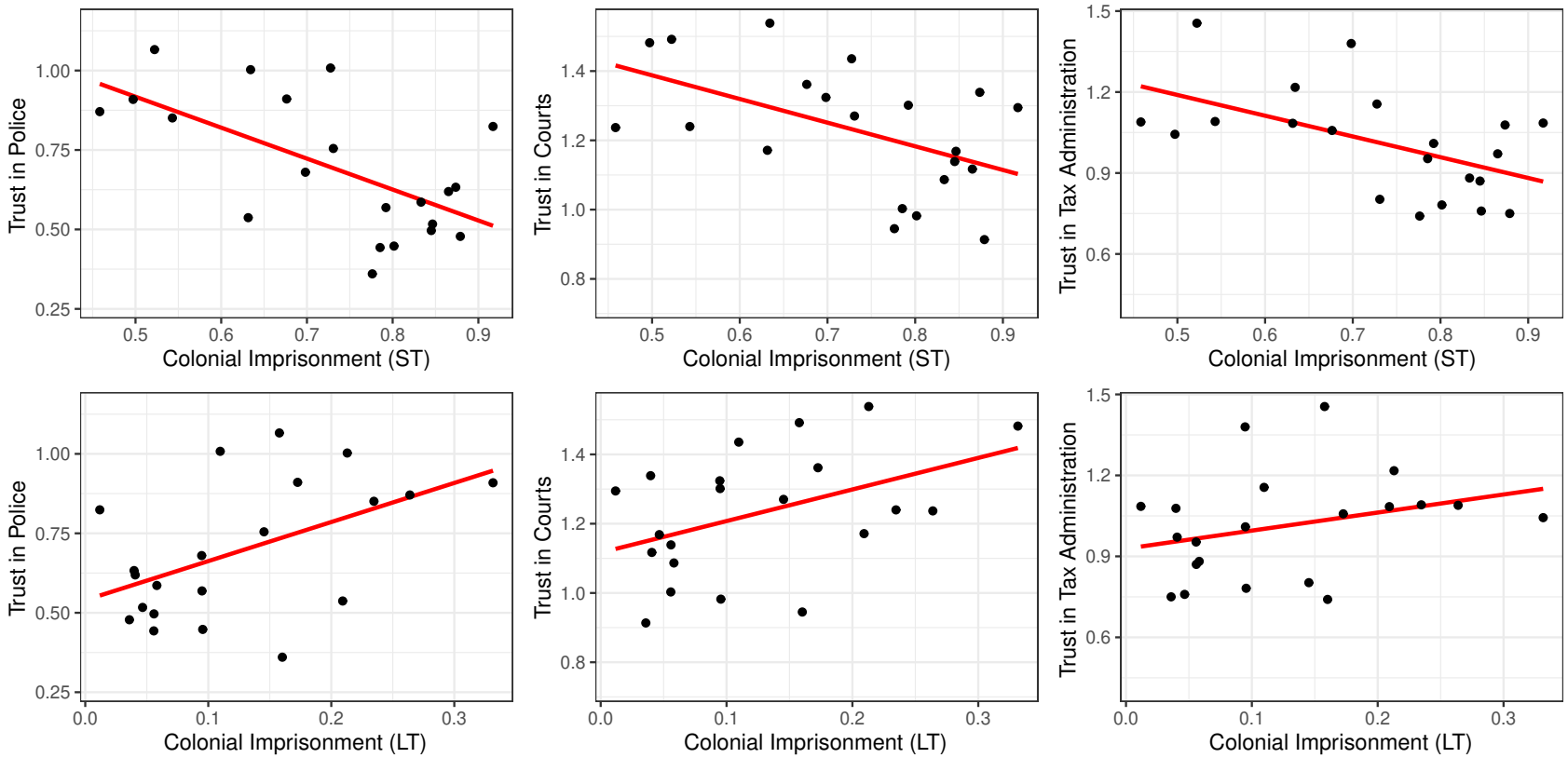
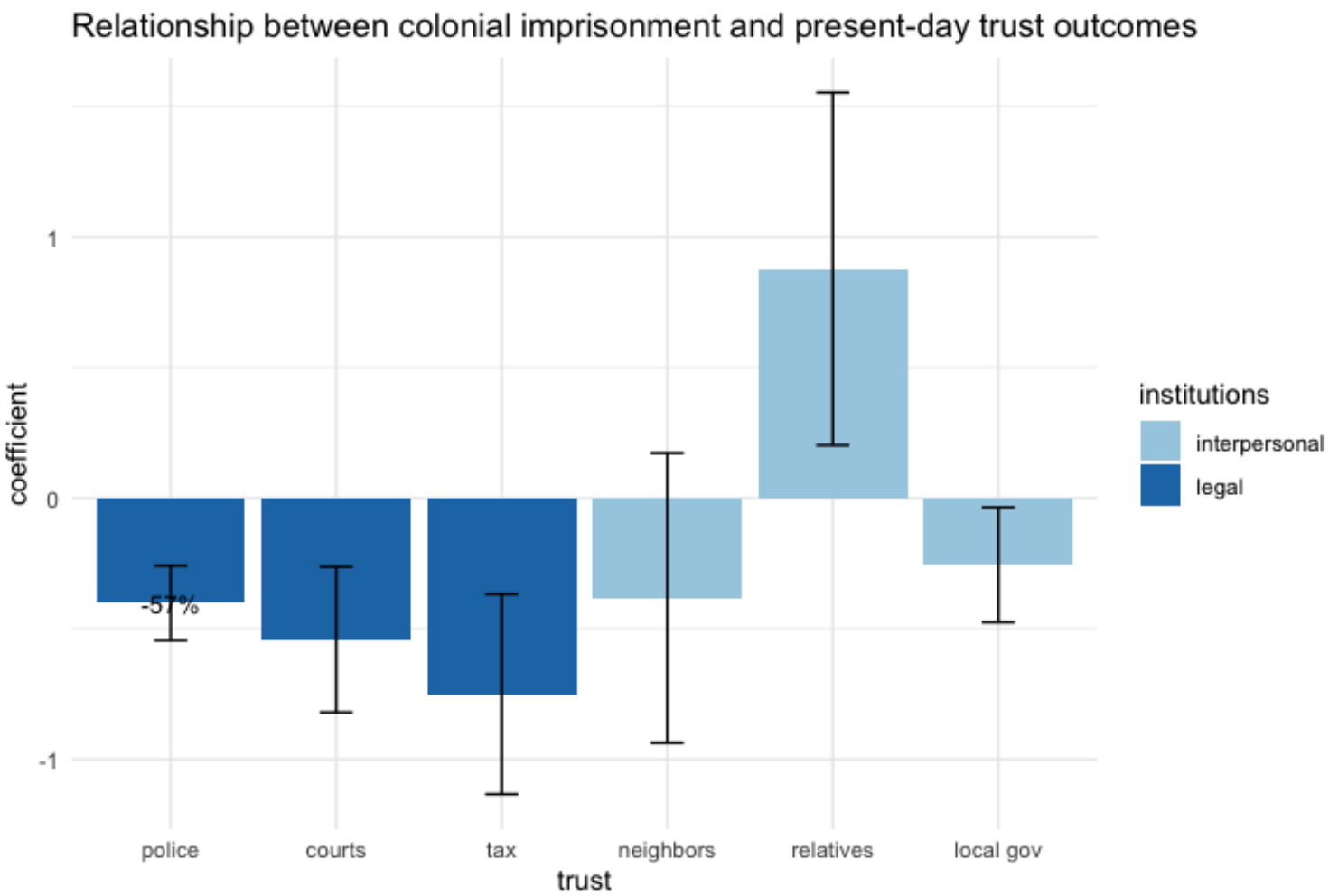


Figure: Colonial imprisonment and contemporary trust in legal institutions. Top panel uses the main measure of colonial imprisonment, the share of short-term prisoners in penal imprisonment. Bottom panel uses the share of long-term colonial imprisonment

OLS Estimates: Respondents from areas with higher colonial imprisonment report lower trust in legal institutions like police



OLS Estimates: Relationship between colonial imprisonment and present-day trust in historical legal Institutions versus interpersonal trust

Outcome:	**Panel A: Colonial Imprisonment (Short-Term) and Contemporary Trust Outcomes**					
	Trust in Historical Legal Institutions			**Interpersonal Trust**		
	Police	Courts	Tax	Neighbors	Relatives	Local Gov
	(1)	(2)	(3)	(4)	(5)	(6)
Colonial imprisonment (ST)	−0.401***	−0.541*	−0.750**	−0.382	0.878	−0.255
	(0.143)	(0.279)	(0.383)	(0.555)	(0.675)	(0.220)
	[0.002]	[0.187]	[0.136]	[0.544]	[0.376]	[0.354]
Mean of outcome	0.709	1.274	0.976	1.334	1.913	0.948
Outcome:	**Panel B: Colonial Imprisonment (Long-Term) and Contemporary Trust Outcomes**					
	Trust in Historical Legal Institutions			**Interpersonal Trust**		
	Police	Courts	Tax	Neighbors	Relatives	Local Gov
	(1)	(2)	(3)	(4)	(5)	(6)
Colonial imprisonment (LT)	0.285	0.401	0.304	0.635	−0.563	−0.061
	(0.291)	(0.386)	(0.523)	(0.619)	(0.908)	(0.375)
	[0.510]	[0.527]	[0.649]	[0.423]	[0.658]	[0.887]
Mean of outcome	0.709	1.274	0.976	1.334	1.913	0.948
Observations	6,642	6,590	3,126	3,439	3,317	4,899
Clusters	21	21	21	21	21	21
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geographic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Disease Controls	Yes	Yes	Yes	Yes	Yes	Yes
Precolonial and Colonial Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by colonial province. Wild cluster bootstrap (by district) p-values are in brackets. The unit of observation is an individual. Colonial imprisonment (ST or LT) is the average share of short-term (ST) or long-term (LT) incarcerated populations in each colonial province over 1920 to 1938 as defined in the text. Trust variables are from the Afrobarometer samples over 2003 to 2014 and as defined in the main text. Trust outcomes are reported trust levels on a scale of 0-3, where "Not at all"= "0", "Just a little"="1", "Somewhat"="2", "A lot"="3". All regressions use region fixed effects at the geopolitical zone level in Nigeria (for 6 geopolitical zones), year fixed effects and educational attainment fixed effects. Individual controls include age, age squared and gender. Geographic controls include an indicator for whether the respondent lives in an urban location, and, at the sub-district or local government area level, include ruggedness, indicators for petroleum

OLS estimates of the relationship between colonial imprisonment and present-day crime outcomes

Outcome:	Bribe Doc	Bribe HHS	Fear Crime	Bribe Doc	Bribe HHS	Fear Crime
Covariate:	Colonial Imprisonment (ST)			Colonial Imprisonment (LT)		
	(1)	(2)	(3)	(4)	(5)	(6)
Colonial imprisonment	0.026	−0.151	−0.467**	−0.263	0.108	0.256
	(0.139)	(0.175)	(0.231)	(0.245)	(0.246)	(0.404)
	[0.890]	[0.544]	[0.117]	[0.426]	[0.737]	[0.669]
Mean of outcome	0.225	0.229	0.571	0.225	0.229	0.571
Observations	4,279	4,343	6,700	4,279	4,343	6,700
Clusters	21	21	21	21	21	21
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geographic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Disease Controls	Yes	Yes	Yes	Yes	Yes	Yes
Precolonial and Colonial Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by colonial province. Wild cluster bootstrap (by district) p-values are in brackets. The unit of observation is an individual. Colonial imprisonment (ST or LT) is the average share of short-term (ST), in columns (1)-(3), or long-term (LT), in columns (4)-(6), incarcerated populations in each colonial province over 1920 to 1938 as defined in the text. Outcome variables are from the Afrobarometer samples over 2003 to 2014 and as defined in the main text. Bribe Doc and Bribe HHS is reported frequency of respondent bribery of government official for document and household services respectively where "Never"="0", "Once or Twice"="1", "A Few Times "="2", "Often"="3". Fear Crime is how often respondent or family has feared crime in their home where "Never"="0", "Just once or twice"="1", "Several times"="2", "Many times"="3", "Always"="4". All regressions use region fixed effects at the geopolitical zone level in Nigeria (for 6 geopolitical zones), year fixed effects and educational attainment fixed effects. Individual controls include age, age squared and gender. Geographic controls include an indicator for whether the respondent lives in an urban location, and, at the sub-district or local government area level, include, ruggedness, indicators for petroleum, seacoast and mean land suitability for agriculture and mean elevation in alternate specifications. Disease controls at the sub-district level include malaria suitability and tsetse fly suitability in alternate specifications with results unchanged. Precolonial and colonial controls at the ethnicity-level include the level of precolonial centralization and total exports of slaves from the region

Conclusion

1. Prison labor economically valuable to colonial regime. Significant share of public works expenditures. Strictly positive net value in most of colonial period
2. Incarceration rates are procyclical during colonial period. Positive economic shocks inc. colonial incarceration $->$ labor demand, shortages and tight labor markets
3. Result is reversed in the postcolonial period where prison labor is not a major feature of state policy and public finance
4. Areas with high rates of colonial imprisonment have lower trust in legal institutions like police today, no effect on interpersonal trust
5. First estimates on value of prison labor, effects on incarceration and long-term trust in police; lessons for long-run colonial development studies
6. Policy implications for the use of prison labor today

Native Administration prisons (1940)

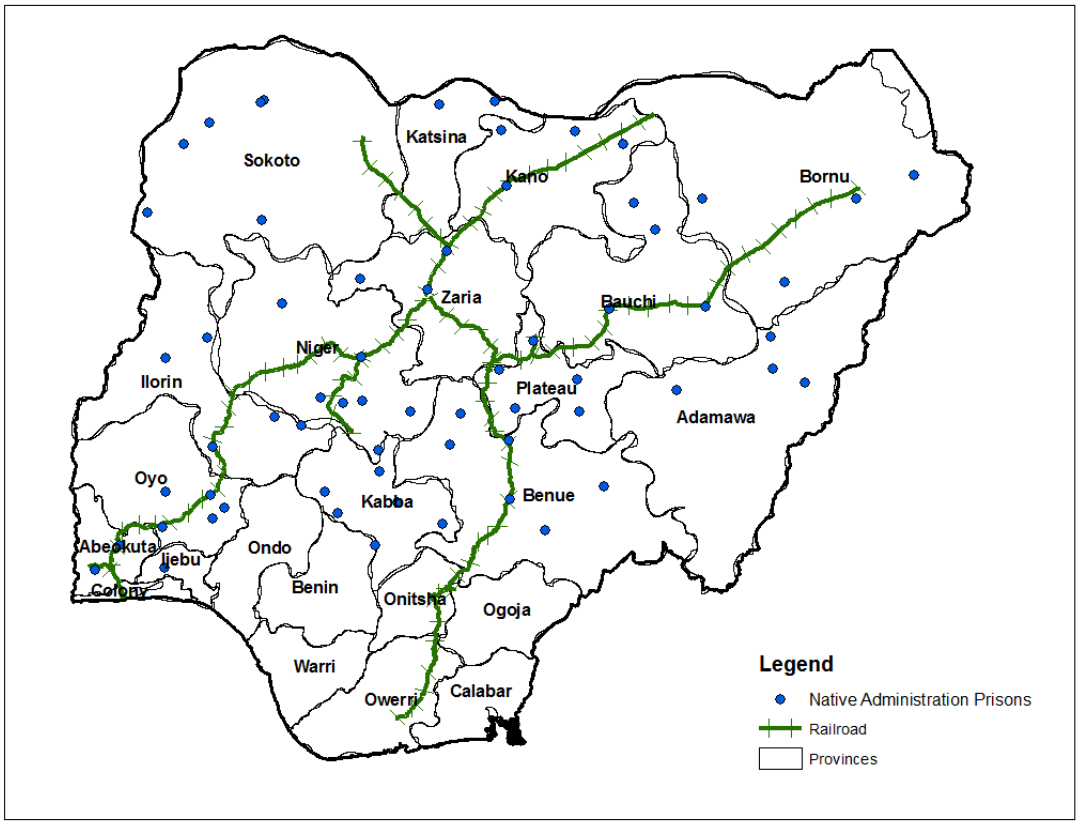


Figure: Native administration prisons, 1940

Native prison incarceration rates, 1940 and 1945

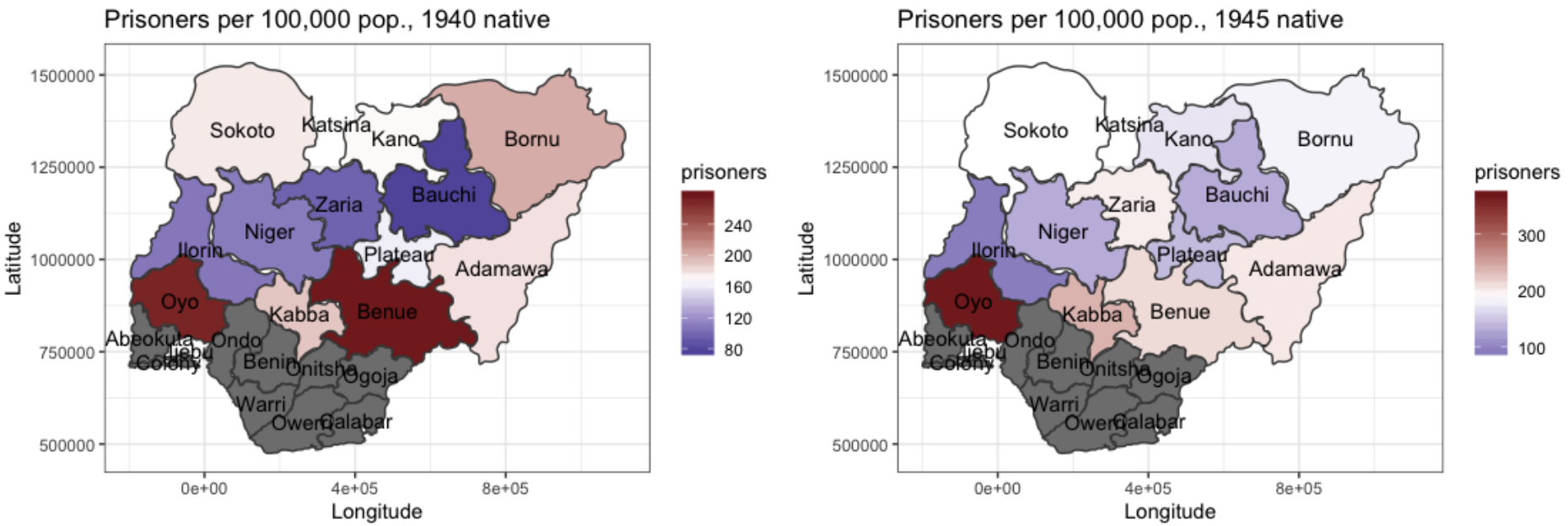


Figure: Native prison incarceration rates, 1940 and 1945

Value of wages for different skill categories in prison and market sectors, 1919-1925

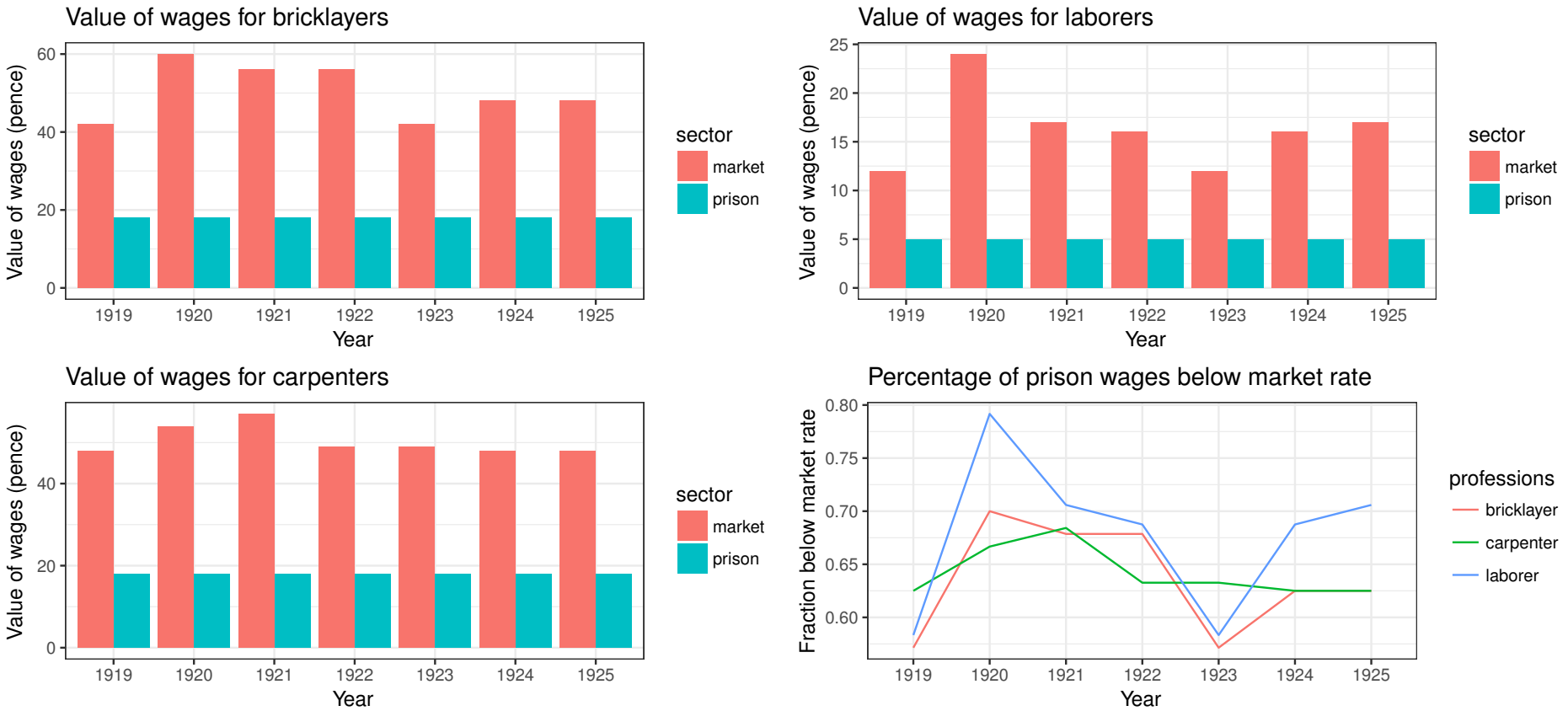


Figure: Value of wages for different skill categories in prison and market sectors, 1919-1925

Prison expenditures in colonial Nigeria, Southern provinces, 1919-1921

APPENDIX I.

COMPARATIVE TABLES.

Expenditure.	Amount. 1919.	1920.	1921.	Amount Allowed in Estimates.
	£	£	£	£
1. Personal Emoluments	21,404	23,554	24,384	34,356
1a. War Bonus	...	7,099	7,855	
2. Rations for Government Prisoners	55,841	74,872	92,641	82,500
3. Rations for Lock-up Prisoners	1,506	1,816	3,287	3,000
4. Clothing, Bedding and Necessaries	9,896	12,816	8,682	25,000
5. Clothing, Bedding and Necessaries, Lock-up Prisoners	...	574	188	700
6. Uniform for Staff	1,053	1,947	1,522	3,000
7. Tools for Prison Labour	237	180	142	240
8. Manufacturing Materials	924	1,683	1,688	2,000
9. Uniform Allowances to European Officers	90	105	113	105
10. Transport Allowances	112	144	150	260
11. Travelling and Bush Allowances	51	160	110	130
12. Passages	732	408	818	600
13. Transport of Prisoners	461	498	603	700
14. Transport, including Stores	220	305	408	350
15. Railway Transport	232	204	438	400
16. Contingencies	10	10	17	15
17. Rewards for Capture of Escaped Prisoners	9	10	15	15
Total	92,778	126,383	143,061	153,371
Total (Revised by Treasury figures)	93,279	123,691	...	*

ITEM 1. Including pay of Lock-up Guards, (£420) fines on Staff (£278) and overpayments recovered and paid into Revenue (£228).
ITEM 2. Including cost of maintenance, etc., of 30 Lunatics, which was £1,369.
ITEM 4. Including gear to the value of approximately £2,000 for Station tools and Sanitary Equipment.
* Not available at date of Report.

Figure: Prison expenditures in colonial Nigeria, Southern provinces, 1919-1921

Rainfall shocks and crop yields, 1992-1995

Outcome:	Yield per area				
	(1)	(2)	(3)	(4)	(5)
Rainfall Dev	−0.114				
	(4.254)				
	[0.985]				
Rainfall Dev Sq	−17.309***				
	(4.479)				
	[0.000]				
Positive rainfall shock (M)		−2.433	−0.952		
		(1.984)	(0.985)		
		[0.287]	[0.353]		
Negative rainfall shock (E)		−3.195*		−3.523**	
		(1.718)		(1.679)	
		[0.109]		[0.078]	
Positive rainfall shock (E)		−17.081***			−14.587***
		(2.275)			(0.723)
		[0.000]			[0.000]
Mean of outcome	2.827	2.827	2.827	2.827	2.827
Observations	122	122	122	122	122
Clusters	31	31	31	31	31
District FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by district or postcolonial state. Wild cluster bootstrap (by district) p-values are in brackets. Observations are postcolonial states. Dependent variable is average yield per area, measured in tons per hectare for 7 major crops recorded in the Nigerian Annual Abstract of Statistics: cowpea, mango, palm oil, pepper, soya beans, tomatoes and leafy vegetables from 1992 to 1995. Rainfall Dev and Rainfall Dev Sq are rainfall deviation and the squared rainfall deviation term as defined in the text. Positive rainfall shock (M) where (M) is moderate, and (E) is extreme as defined in text. District FE are postcolonial state fixed effects. ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level based on clustered standard errors in parentheses.

Q2: Summary Statistics: Economic shocks and incarceration rates

Statistic	N	Mean	St. Dev.	Min	Max
			Prisoners, 1920-1938		
All Prisoners Total	324	1,811.76	2,286.76	3.00	10,231.00
Penal Imprisonment Total	324	1,251.83	1,626.78	2.00	7,010.00
Custody Total	324	509.59	635.57	0.00	3,039.00
Short-Term (<= 6 Months) Total	324	1,051.05	1,409.20	2.00	6,377.00
Medium-Term (6Mo-2Y) Total	324	127.15	171.34	0.00	882.00
Long-Term (>=2yr) Total	324	68.93	84.10	0.00	417.00
All Prisoners /100,000	324	240.73	254.56	0.26	1,123.30
Penal Imprisonment /100,000	324	162.03	169.55	0.26	759.99
Custody /100,000	324	71.73	83.47	0.00	333.66
Short-Term /100,000	324	134.66	144.95	0.16	649.43
Medium-Term /100,000	324	16.56	18.26	0.00	80.45
Long-Term /100,000	324	10.18	12.88	0.00	83.45
Share w/ 1 Previous Conviction	324	0.11	0.15	0.00	0.90
Share w/ 2 Previous Convictions	324	0.02	0.03	0.00	0.32
Share w/ 3 Previous Convictions	324	0.02	0.03	0.00	0.18
			Agricultural Commodities and Rainfall Deviation, 1920-1938		
Cocoa Producing	393	0.15	0.35	0.00	1.00
Groundnut Producing	393	0.18	0.39	0.00	1.00
Palm Oil Producing	393	0.29	0.45	0.00	1.00
Log Cocoa Price	393	1.04	0.40	0.47	1.96
Log Groundnut Price	393	0.35	0.36	−0.36	0.88
Log Palm Oil Price	393	0.72	0.53	−0.22	1.69
Rainfall Dev.	393	−0.00	0.97	−2.21	4.08
Rainfall Dev. Sq.	393	0.95	1.83	0.00	16.67
Positive Rainfall Shock (M)	393	0.17	0.38	0.00	1.00
Negative Rainfall Shock (E)	393	0.30	0.46	0.00	1.00
Positive Rainfall Shock (E)	393	0.21	0.41	0.00	1.00
			Prisoners and Rainfall Deviation, 1971-1995		
All Prisoners Total	871	2,005.81	1,210.56	104.00	7,092.00
All Prisoners /100,000	871	92.48	60.43	9.91	361.99
Share w/ 1 Previous Conviction*	6	0.21	0.02	0.18	0.23
Share w/ 2 Previous Convictions*	6	0.12	0.02	0.10	0.16
Share w/ 3 Previous Convictions*	6	0.13	0.04	0.05	0.18
Rainfall Dev.	560	0.01	0.30	−0.62	1.06
Rainfall Dev. Sq.	560	0.09	0.12	0.00	1.11
Positive Rainfall Shock (M)	560	0.49	0.50	0.00	1.00
Negative Rainfall Shock (E)	560	0.04	0.19	0.00	1.00
Positive Rainfall Shock (E)	560	0.01	0.11	0.00	1.00

Notes: See text and online appendix for details. *denotes that data is based on available time series information from 1975-1980.

Accounting for Lags in Rainfall, Rainfall Controls

	Panel A: Rainfall Shocks and Incarceration Rates, Quadratic Specification					
Period:	Colonial				Postcolonial	
Outcome:	ST, t+1	LT, t+1	ST, t+2	LT, t+2	PC, t+1	PC, t+2
	(1)	(2)	(3)	(4)	(5)	(6)
Rainfall Dev	8.125	0.638	3.129	0.0005	−22.836***	6.114
	(6.208)	(1.361)	(7.472)	(1.287)	(8.453)	(9.394)
	[0.252]	[0.709]	[0.704]	[1.000]	[0.013]	[0.539]
Rainfall Dev Sq	−3.347	0.454	−0.365	0.327	−0.746	1.633
	(2.797)	(0.754)	(2.117)	(0.494)	(14.796)	(13.400)
	[0.353]	[0.765]	[0.913]	[0.628]	[0.960]	[0.893]
Mean of outcome	134.381	10.432	135.426	10.634	106.348	107.592
	Panel B: Rainfall Shocks and Incarceration Rates, Linear Specification					
Period:	Colonial				Postcolonial	
Outcome:	ST, t+1	LT, t+1	ST, t+2	LT, t+2	PC, t+1	PC, t+2
	(1)	(2)	(3)	(4)	(5)	(6)
Positive rainfall shock (M)	−0.112	−1.796*	−3.892	2.201	−6.504	0.183
	(8.073)	(1.027)	(8.632)	(2.530)	(6.488)	(4.804)
	[0.990]	[0.092]	[0.668]	[0.558]	[0.345]	[0.977]
Negative rainfall shock (E)	−27.309**	−2.054	−17.044	0.536	20.871**	14.779*
	(13.399)	(3.075)	(14.496)	(2.226)	(9.760)	(7.951)
	[0.074]	[0.608]	[0.340]	[0.861]	[0.042]	[0.098]
Positive rainfall shock (E)	−9.815	1.405	−10.440	0.565	−2.906	19.127**
	(12.121)	(2.345)	(13.238)	(1.695)	(11.747)	(8.176)
	[0.492]	[0.584]	[0.546]	[0.737]	[0.826]	[0.035]
Mean of outcome	134.381	10.432	135.426	10.634	106.348	107.592
Observations	310	310	296	296	555	554
Clusters	21	21	21	21	36	36
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by district, where district is colonial province for colonial data, and postcolonial state for postcolonial data. Wild cluster bootstrap (by district) p-values are in brackets. Observations are districts. Dependent variables in column (1)-(4) are colonial-era prisoners per 100,000 population (1939 pop.) by province in Nigeria broken down by short-term (ST) (less than 6 months) sentence and long-term (LT) (greater than 2 years) sentence over 1920-1938. Dependent variable in (5) and (6) are postcolonial period prisoners per 100,000 population (1990 pop.) by state in Nigeria from 1971-1995. Outcomes are denoted $t+1$ for outcomes 1 year later and $t+2$ for outcomes 2 years later. Rainfall deviation as defined in text. District FE are colonial province fixed effects in (1)-(4), and postcolonial state fixed effects in (5)-(6). ***Significant at the 1 percent level, **Significant at the 5 percent level, *Significant at the 10 percent level based on clustered standard errors in parentheses.

OLS Estimates: Relationship between colonial imprisonment and trust in historical legal Institutions versus interpersonal trust by southern ethnicity status

Outcome:	**Panel: Colonial Imprisonment (Short-Term) and Contemporary Trust Outcomes**					
	Trust in Historical Legal Institutions			**Interpersonal Trust**		
	Police	Courts	Tax	Neighbor	Relative	Local Gov.
	(1)	(2)	(3)	(4)	(5)	(6)
Colonial imprisonment (ST)	−0.584***	−0.599***	−0.766**	−0.326	1.106	−0.568**
	(0.161)	(0.212)	(0.367)	(0.545)	(0.735)	(0.287)
	[0.001]	[0.064]	[0.166]	[0.599]	[0.358]	[0.353]
Southern Ethnicity	−0.617	−0.025	0.193	0.207	0.709	−0.632
	(0.427)	(0.632)	(0.864)	(0.437)	(0.729)	(0.601)
	[0.327]	[0.974]	[0.867]	[0.719]	[0.437]	[0.482]
ST x Southern Ethnicity	0.762	0.083	−0.560	−0.417	−1.060	1.060
	(0.533)	(0.877)	(1.182)	(0.605)	(1.054)	(0.783)
	[0.312]	[0.932]	[0.756]	[0.581]	[0.441]	[0.374]
Mean of outcome	0.709	1.274	0.976	1.334	1.913	0.948
Observations	6,163	6,115	2,906	3,192	3,125	4,510
Clusters	21	21	21	21	21	21
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geographic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Disease Controls	Yes	Yes	Yes	Yes	Yes	Yes
Precolonial and Colonial Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by colonial province. Wild cluster bootstrap (by district) p-values are in brackets. The unit of observation is an individual. Colonial imprisonment (ST) is the average share of short-term (ST) incarcerated populations in each colonial province over 1920 to 1938 as defined in the text. Southern Ethnicity is an indicator that equals one if the respondent is from an ethnic group historically located in the former southern colonial provinces. Trust variables are from the Afrobarometer samples over 2003 to 2014 and as defined in the main text. Trust outcomes are reported trust levels on a scale of 0-3, where "Not at all"= "0", "Just a little"="1", "Somewhat"="2", "A lot"="3". All regressions use region fixed effects at the geopolitical zone level in Nigeria (for 6 geopolitical zones), year fixed effects and educational attainment fixed effects. Individual controls include age, age squared and gender. Geographic controls include an indicator for whether the respondent lives in an urban location, and, at the sub-district or local government area level, include, ruggedness, indicators for petroleum, seacoast and mean land suitability for agriculture

Summary Statistics: Afrobarometer Results

Statistic	N	Mean	St. Dev.	Min	Max
		Trust and Crime Outcomes			
Trust in Courts	11,354	1.21	0.92	0.00	3.00
Trust in Police	11,486	0.69	0.87	0.00	3.00
Trust in Tax Admin.	4,480	1.01	0.85	0.00	3.00
Trust Relatives	4,596	1.97	1.03	0.00	3.00
Trust Neighbors	4,682	1.37	1.00	0.00	3.00
Trust Local Gov.	8,961	0.93	0.87	0.00	3.00
Fear Crime	11,584	0.59	1.00	0.00	4.00
Bribe (HHS)	8,082	0.27	0.68	0.00	3.00
Bribe (Doc)	7,987	0.29	0.66	0.00	3.00
		Individual Controls and Fixed Effects			
Age	11,603	31.94	12.05	18.00	95.00
Age Squared	11,603	1,165.29	987.34	324.00	9,025.00
Female	11,654	0.50	0.50	0	1
Education	11,629	3.27	1.92	0.00	7.00
Urban	9,300	0.46	0.50	0.00	1.00
		Geographic and Disease Controls			
Agricultural Land Suitability	8,453	4.71	0.76	1.80	6.00
Malaria	9,095	1.00	0.02	0.79	1.00
Ruggedness	9,095	0.26	0.22	0.03	2.28
Mean Elevation	8,332	248.09	234.70	−0.25	1,284.11
Sea Coast	9,095	0.29	0.45	0.00	1.00
Petrol	9,095	0.34	0.47	0.00	1.00
Tsetse Suitability	7,147	0.91	0.46	−0.78	1.45
		Precolonial and Colonial Controls			
Precolonial Centralization	9,095	1.66	0.78	0.00	3.00
Slave Exports	9,095	150,841.30	206,271.70	0.00	665,966.00
		Colonial Imprisonment and Instrument			
Colonial Imprisonment (ST)	11,025	0.75	0.13	0.46	0.92
Colonial Imprisonment (LT)	11,025	0.11	0.08	0.01	0.33
Soil Suitability for Palm Oil x Share of Positive Shock (M) Years	11,025	3.09	7.95	0.00	32.34

Notes: See text and online appendix for details.

OLS Estimates: Relationship between colonial imprisonment and trust in historical legal Institutions versus interpersonal trust by southern ethnicity status

Outcome:	**Panel: Colonial Imprisonment (Short-Term) and Contemporary Trust Outcomes**					
	Trust in Historical Legal Institutions			**Interpersonal Trust**		
	Police	Courts	Tax	Neighbor	Relative	Local Gov.
	(1)	(2)	(3)	(4)	(5)	(6)
Colonial imprisonment (ST)	−0.584***	−0.599***	−0.766**	−0.326	1.106	−0.568**
	(0.161)	(0.212)	(0.367)	(0.545)	(0.735)	(0.287)
	[0.001]	[0.064]	[0.166]	[0.599]	[0.358]	[0.353]
Southern Ethnicity	−0.617	−0.025	0.193	0.207	0.709	−0.632
	(0.427)	(0.632)	(0.864)	(0.437)	(0.729)	(0.601)
	[0.327]	[0.974]	[0.867]	[0.719]	[0.437]	[0.482]
ST x Southern Ethnicity	0.762	0.083	−0.560	−0.417	−1.060	1.060
	(0.533)	(0.877)	(1.182)	(0.605)	(1.054)	(0.783)
	[0.312]	[0.932]	[0.756]	[0.581]	[0.441]	[0.374]
Mean of outcome	0.709	1.274	0.976	1.334	1.913	0.948
Observations	6,163	6,115	2,906	3,192	3,125	4,510
Clusters	21	21	21	21	21	21
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geographic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Disease Controls	Yes	Yes	Yes	Yes	Yes	Yes
Precolonial and Colonial Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by colonial province. Wild cluster bootstrap (by district) p-values are in brackets. The unit of observation is an individual. Colonial imprisonment (ST) is the average share of short-term (ST) incarcerated populations in each colonial province over 1920 to 1938 as defined in the text. Southern Ethnicity is an indicator that equals one if the respondent is from an ethnic group historically located in the former southern colonial provinces. Trust variables are from the Afrobarometer samples over 2003 to 2014 and as defined in the main text. Trust outcomes are reported trust levels on a scale of 0-3, where "Not at all"= "0", "Just a little"="1", "Somewhat"="2", "A lot"="3". All regressions use region fixed effects at the geopolitical zone level in Nigeria (for 6 geopolitical zones), year fixed effects and educational attainment fixed effects. Individual controls include age, age squared and gender. Geographic controls include an indicator for whether the respondent lives in an urban location, and, at the sub-district or local government area level, include, ruggedness, indicators for petroleum, seacoast and mean land suitability for agriculture

IV Estimates: Effect of relationship between colonial imprisonment and present-day trust in historical legal Institutions versus interpersonal trust

Outcome:	**Panel A: First-Stage Estimates Colonial Imprisonment (ST)**					
	(1)	(2)	(3)	(4)	(5)	(6)
Soil Suitability for Palm Oil x Share of Positive Shock (M) Years	0.013***	0.013***	0.013***	0.013***	0.013***	0.013***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
F-Stat of Excluded Instrument	15.31	15.14	15.30	16.72	11.83	16.25
Mean of outcome	0.769	0.769	0.770	0.769	0.768	0.768

Outcome:	**Panel B: Second-Stage 2SLS Estimates**					
	Trust in Historical Legal Institutions			**Interpersonal Trust**		
	Police	Courts	Tax	Neighbors	Relatives	Local Gov
	(1)	(2)	(3)	(4)	(5)	(6)
Colonial imprisonment (ST)	−0.531	−4.345**	−4.105***	−2.146**	−1.094	−1.357
	(0.565)	(1.730)	(1.525)	(1.012)	(1.354)	(0.978)
Mean of outcome	0.709	1.274	0.976	1.334	1.913	0.948
Observations	6,642	6,590	3,126	3,439	3,317	4,899
Clusters	21	21	21	21	21	21
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geographic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Disease Controls	Yes	Yes	Yes	Yes	Yes	Yes
Precolonial and Colonial Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regressions estimated by OLS. Robust standard errors in parentheses clustered by colonial province. Wild cluster bootstrap (by district) p-values are in brackets. The unit of observation is an individual. Colonial imprisonment (ST or LT) is the average share of short-term (ST) or long-term (LT) incarcerated populations in each colonial province over 1920 to 1938 as defined in the text. Trust variables are from the Afrobarometer samples over 2003 to 2014 and as defined in the main text. Trust outcomes are reported trust levels on a scale of 0-3, where "Not at all"= "0", "Just a little"="1", "Somewhat"="2", "A lot"="3". All regressions use region fixed effects at the geopolitical zone level in Nigeria (for 6 geopolitical zones), year fixed effects and educational attainment fixed effects. Individual controls include age, age squared and gender. Geographic controls include an indicator for whether the respondent lives in an urban location, and, at the sub-district or local government area level, include ruggedness, indicators for petroleum