Slavery, political attitudes and social capital: evidence from Brazil

François Seyler*

March 30, 2021

Abstract

This papers investigates the long-term influence of slavery and its abolition on development, political attitudes and social capital in Brazil. I show that slavery and support for coercive institutions—measured by legislators' voting decisions on emancipation related bills at the end of the 19th century—had a persistent negative effect on development, as measured by GDP, poverty and inequality. These finding are robust to instrumenting slavery and voting decisions using both standard and heteroskedasticity-based instrumental variables. Focusing on political attitudes and social capital as persistence mechanisms, I show that the evidence is consistent with slavery and support for coercion having durably negatively affected social capital. In particular, individuals living in historically slavery-intensive municipalities with stronger support for coercive institutions exhibit lower levels of generalized trust today, and are more likely to be less supportive of democracy and to have weaker beliefs on corruption.

First draft.
Work in progress, please do not circulate.

*Université Laval, Department of Economics. Email: francois.seyler.1@ulaval.ca

1 Introduction

What is the cultural, political and institutional legacy of labour coercion? This article investigates the long-term influence of slavery and its abolition on development, political attitudes and social capital in Brazil. The roots of slavery are deep in the Americas, and its shadow particularly long. I ask whether institutions of legal coercion continue to shape norms of social and political behavior long after their extinction. In Brazil, the abolition of slavery was the result of a drawn-out legislative battle between members of the elite, who did not equally profit from the coercion system. I exploit variation in the voting decisions of legislators on abolition-related bills to capture political support for coercive institutions and the reliance of local elites on captive workers. I then explore how this affected not only subsequent economic outcomes, but also political beliefs and social capital.

In 1888, Brazil was the last Western country to abolish slavery. It is also the country that imported the largest number of African slaves (de Alencastro, 1979; Paquette and Smith, 2010). Between 1550 and 1866, 5,532,120 Africans disembarked in Brazil, nearly twelve times more than the 472,382 slaves that arrived in mainland North America during the same period (Slave Voyages Database, 2018). Between 1801 and the extinction of the Atlantic slave trade in the 1850s, 80% of the slaves wrested from African shores were destined to Brazil (de Alencastro, 1979). Brazil thus offers a compelling setting to examine the long-run influence of coercive labor institutions.

There are many reasons why labor coercion may have persistent negative effects on economic growth and development. A long tradition has argued that forced labor induces important distortions in incentives and resource allocation (North and Thomas, 1973; Brenner, 1976; Acemoglu et al., 2012; Markevich and Zhuravskaya, 2018). Systematic legal coercion may also have hampered social capital and engendered norms of cooperation conducive of weaker institutions. Tabellini (2008) demonstrates how the transmission of cultural norms across generations can affect the quality of institutions in equilibrium. As emphasized by Nunn and Wantchekon (2011), the complementarity between norms and institutional choices may drive mistrust and weak institutions to endure. In turn, social capital has been shown to constitute a fundamental driver of economic development (Putnam, 1992; Knack and Keefer, 1997; Alesina and La Ferrara, 2002; Algan and Cahuc, 2010; Tabellini, 2010).

Yet, causally identifying the influence of slavery is no easy task, in particular because of the nonrandom distribution of slaves across space. Coerced workers were likely to be sent to the most productive regions, often to work in mines or cultivate exports crops (Fogel and Engerman, 1974, 1977; Dell, 2010; Acemoglu et al., 2012). One thus has to be careful in disentangling the impact of slavery from those of underlying local conditions (Fujiwara et al., 2019; Palma et al., 2020; Papadia, 2017; Summerhill, 2010; Funari, 2017; Reis, 2017).

In addition to the endogeneity of slavery, this identification challenge has been complicated by heterogeneity and the scarcity of existing disaggregated data with extensive geographical coverage. We typically have to rely on the Empire of Brazil first demographic census, which provides a cross-section of the slave population at the municipality and parish level in 1872. However, Brazil underwent deep structural changes in the course of the 19th century. The center of gravity of the export economy switched from north to south and from sugarcane to coffee, rekindling economic growth (Klein and Luna, 2009). In the 1850s, the extinction of the Atlantic trade induced—along with a secular rise in slave prices—an extensive interprovincial slave trade, with massive amounts of captive workers converging towards the more productive coffee regions. According to Stein (1957), coerced workers in the Northeast went from accounting for 23% of the region's population in 1823 to nearly 10% in 1872. In the meantime, the Centre-South asserted its economic dominance, and in 1874 more than 50% of the country's slave population was located in the major coffee provinces (Conrad, 1972). Even within the latter, whereas most of the production had traditionally taken place in the coastal region known as the Paraíba Valley (southwest of Rio de Janeiro and northeast of São Paulo), the coffee boom generated an expansion of the producing region towards the interior of São Paulo and Minas Gerais (Klein and Luna, 2009). Overall, whereas slaves represented over 50% of the population in 1822, they accounted for about 5% of the population before abolition in 1888 (Viotti da Costa, 1989).

I propose to complement existing extensive margin measures of slavery prevalence—how many coerced workers were there?—with an intensive margin measure: how strong were local political interests for the continuation of coercive institutions? I argue that the voting behaviour of legislators on labor emancipation-related bills provides such a measure, and that it allows to better understand the long-run effects of slavery in Brazil.

My empirical strategy leverages variation, both across electoral districts and over time, in the support of legislators to abolition-related bills. I exploit the universe of roll-call votes on emancipation-related bills from the annals of the Brazilian Parliament (*Câmara dos deputados*), starting in 1882 and leading up to the final abolition in 1888, and use it to build a dataset linking these disaggregated archival voting data to contemporary economic, social and political outcomes. Seyler and Silve (2021) show that the conversion of legislators to abolitionism in slavery-prevalent districts critically depended on the possibility for the slaveholding elites they represented to rely on alternative sources of labor and on the coercion costs they faced. Within slavery-prevalent areas, the refusal by legislators to vote in favor of emancipation-related bills therefore constitutes an equilibrium outcome capturing local political support for coercive institutions, as well as the reliance of local slaveholding elites on captive labor.

I hypothesize that the wound left by slavery runs deeper in areas where political support

for coercion was greater. This hypothesis is best illustrated with a simple observation: in the long-run, slavery appears to be more strongly negatively associated with several economic outcomes in places where legislators refused to convert to abolitionism. I find that these municipalities tend to be more unequal and poorer, both in terms of overall GDP and individual poverty. In a slavery-intensive municipality with 50% slaves in 1872, a standard deviation increase in political support for coercion is associated with 5.6 percentage points increase (an 8.9% increase from the sample mean) in poverty more than one hundred years later. Similar observations can be made for a wide range of development indicators. All else equal, people tend to be worse off in places where political support for coercion was stronger.

In order to better understand these effects, I investigate the persistence of political attitudes and social capital. I find that, while voters from these municipalities appear to participate more in the elections I consider, they also tend to elect representatives supporting less redistributive policies (perhaps surprisingly, as we might have expected a poorer electorate to yield more redistribution, in line with e.g. Fujiwara (2015) and models in the spirit of Meltzer and Richard (1981)). Moreover, I find that individuals from municipalities with high historical slavery prevalence and strong political support for coercion exhibit lower levels of trust today. They are also more likely to believe that corruption may be acceptable in certain circumstances and that democracy may not always be the best type of government. Overall, the evidence is consistent with slavery and support for coercion having durably negatively affected the consolidation of social capital in these municipalities. This is coherent with the idea that cultural norms prevalent under coercive institutions may have been transmitted across generations and continue to shape social and political behavior today (in line with e.g. Henrich et al. (2001); Alesina and Fuchs-Schündeln (2007); Tabellini (2008); Nunn and Wantchekon (2011)).

While I believe that this approach brings new evidence on the long run effects of slavery, it does raise challenges of its own, and there a several threats to identification. In particular, we may be worried that political support collides with the relationship between slavery and modern outcomes, and that there exists an omitted variable simultaneously driving the local intensity of slavery, the political support for coercion and contemporary variables of interest (i.e. a progressive culture specific to particular areas).

State fixed effects do a great deal to alleviate these concerns (e.g. the aforementioned progressive culture would have to be limited to specific areas within states, and it appears unlikely given that we focus on slavery-intensive municipalities). Nonetheless, in order to plausibly establish causation, I extend the two-pronged instrumental variables strategy developed by Seyler and Silve (2021). In order to instrument the allocation of slaves in 1872, I rely on the preceding historical variation in slave-related economic activity engendered by the late 17th century mining boom *outside* the mining region. This variation is captured by

the distance to Gold Paths, major trade routes built by slaves under the Portuguese Crown to guarantee the supply of mining areas and transport gold from the latter to the coast (where it would be shipped to Portugal). I circumscribe this variation to early-settlement municipalities by interacting it with measures of the repression of Indigenous peoples between the 16th and 18th centuries. Places from which Tupis and Guaranis were driven out during the early days of the colonization of Brazil are more likely to have afterwards received settlers and slaves, which strengthens the instrument. But because my framework amounts to an empirical model with three endogenous variables, I also complement the instrument for slavery with three sets of heteroskedasticity-based instruments, following Lewbel (2012). These internally generated instruments exploit heteroskedasticity with respect to exogenous regressors, and allow to (over) identify the model.

This paper contributes to the large body of work that investigates long-run economic persistence and the historical determinants of economic development (Michalopoulos and Papaioannou, 2017; Nunn, 2020). In particular, this paper speaks to the literature documenting the long-run consequences of coercive labor arrangements on development (Nunn, 2008; Dell, 2010; Nunn and Wantchekon, 2011; Acemoglu et al., 2012; Bertocchi and Dimico, 2014; Markevich and Zhuravskaya, 2018), and specifically slavery in Brazil (Summerhill, 2010; Naritomi et al., 2012; Papadia, 2017; Funari, 2017; Reis, 2017; Palma et al., 2020; Fujiwara et al., 2019). Notably, Fujiwara et al. (2019) provide systematic evidence of the long-run effects of slavery on inequality in Brazil, while Palma et al. (2020) and Papadia (2017) respectively provide evidence suggesting that slavery slowed down industrialization at the start of the 20th century and hampered fiscal capacity in the states of São Paulo and Rio de Janeiro. I build on this literature by focusing not only of the influence of slavery, but also of political support for coercive institutions, on subsequent development.

Furthermore, this work relates to the broad discussion in economics and political science on the influence of historical events on cultural norms of behavior, most notably social capital and political attitudes (Nunn and Wantchekon, 2011; Voigtländer and Voth, 2012; Acharya et al., 2016; Becker et al., 2016; Guiso et al., 2016; Lowes et al., 2017). I specifically draw on the branch of this literature that focuses on conflict and political violence (Cassar et al., 2013; Rohner et al., 2013; Besley and Reynal-Querol, 2014; Lupu and Peisakhin, 2017; Fontana et al., 2018; Rozenas and Zhukov, 2019; Iwanowsky and Madestam, 2019; Tur-Prats and Valencia Caicedo, 2020), and extend it by examining the legacy of political support for coercive institutions on political attitudes and trust today.

The remainder of the paper proceeds as follows. Section 2 describes the data. Section 3 presents the empirical strategy. Section 4 lays out the results. Section 5 concludes.

2 Data

I use archival parliamentary records from the Empire of Brazil's three last legislatures (1882-1889) to build a dataset linking political decision-making on emancipation-related bills to a wealth of historical and contemporary covariates and outcomes.[1] Appendix A.1 provides additional details on the historical context of the abolition of slavery in Brazil. Also see Seyler and Silve (2021) for additional details on data collection. Tables 1-2 provides summary statistics of the main variables.

A) Voting decisions on emancipation-related bills

Starting from the onset of the 1882 legislature and up to the fall of the monarchy in 1889, Seyler and Silve (2021) explored the annals of the lower house of the Brazilian parliament (the *Câmara dos Deputados*) and documented each occurrence of roll-call voting on emancipation-related bills (13 bills in total between 1884 and 1888). The data thus describe individual voting decisions on every event of nominative voting, and relate each legislator to the district in which they where elected (122 electoral districts, for a total of 1,586 individual votes, minus absences) and the latter to a wealth of covariates at different levels (historical municipalities, modern municipalities, and individuals in municipalities sampled by the 2018 Latinobarómetro).

B) Historical and geographical covariates and controls

Along with the 1882-1888 voting behavior on emancipation-related roll calls, the most important explanatory variables in my analysis are designed to capture the historical prevalence of slavery, using either the share of slaves or the share of slaves employed in agriculture within a municipality's population in 1872. These variables are built using Brazil's first demographic census (Brazil, 1874). This census also provides a number of baseline demographic controls, most notably the share of literates and the share of free non-Whites. In some regressions, I also use the following census (1890, the first after the abolition of slavery) to compute the share of foreigners in 1890.

My favorite specifications also include a range of geographic controls. I obtain shapefiles for municipality boundaries in 2000 from the IBGE (2000) and compute the latitude and longitude of each municipality's centroid, the shortest distance between each municipality's

[1] A particular difficulty of the construction of this dataset is the matching of geographical units across different levels and over time. I match 1881 electoral districts with 1872 municipalities, and the latter with contemporary municipalities (using year 2000 as baseline). Because electoral districts generally comprise several municipalities, and the latter tend to split over time (in which case I assign to new municipalities the value attributed to the original one), I cluster standard errors at the electoral district-level in the empirical analysis. I also use Conley (1999, 2010) spatial HAC standard errors with a 100km window.

centroid and the coast, as well as each municipality's surface and population density in 1872 (combining the imperial census with municipality boundaries in 1872, also from the IBGE (2000)). I also rely on IIASA/FAO (2012) to build municipality-level measures of average rainfall, average soil suitability for coffee, sugar and cotton cultivation, and I use Özak (2010, 2018) to compute the average Human Mobility Index (HMI).

Moreover, I use data and shapefiles from Fundação Palmares (2020) and INCRA (2020) to compute the number and surface of *quilombos*.[2] Finally, I use a number of digitised maps from CPDOC (2016) to build a additional variables: the distance between a municipality's centroid and the closest historical supply road to mining areas in the eighteenth century, the distance between a municipality's centroid and the closest eighteenth-century diamond mine, the distance to the nearest quilombola insurrection, the surface of a municipality that intersects zones of Indian repression between the 16th and the 18th century, and distances to/presence of abolitionist newspapers, abolitionist clubs and pro-slavery clubs (*clubes da lavoura*).

C) Outcome variables

Socioeconomic outcomes. Most of the outcome variables used in the analysis are available at the municipality-level from IPEA (2006). In particular, I use a wide range of socioeconomic outcomes designed to capture both aggregate wealth and individual development, namely total GDP, sectoral GDP, poverty (measured as the percentage of individuals living with less than 50% the minimum wage), the Theil L index, household income (measured in shares of the minimum wage), literacy rate over fifteen years old, and infant mortality (before one year old, per thousands of births).

Political outcomes. I obtain information on voter turnout and election results from Brazil's electoral commission (TSE, 2016). In particular, the main municipality-level political outcomes I use are voter turnout in presidential elections and the party of the most voted candidate in municipal elections. In preferred specifications, I use political outcomes closest in time to the contemporary socioeconomic outcomes previously discussed. Most importantly, this also means that for election results, I can use the index of party position on the left-right scale developed by Power and Zucco (2009).[3] Power and Zucco (2009) provide a systematic measure of Brazilian political parties' ideology, for each legislature between 1990 and 2005. The authors use survey responses from federal legislators to map each party's ideology on a left-right scale ranging from zero to ten (increasing with rightmost ideology, e.g. scores closer to zero are associated with more redistributive politics, etc.) Estimates are

[2] Quilombos are communities founded by runaway slaves, typically hidden in remote areas.

[3] This index has notably previously been used by Fujiwara (2015).

Table 1: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
(A) 1884-1888 legislative variables					
Average pro-abolition voting decisions	5437	.677	.288	0	1
Average affiliation to the Liberal party	5437	.591	.37	0	1
(B) Historical demographic variables					
Share of slaves in 1872	5435	.119	.08	.001	.575
Share of slaves in agriculture in 1872	5437	.046	.045	0	.448
Share of the free colored population in 1872	5435	.538	.19	.03	.926
Share of literates in 1872	5435	.165	.093	.014	.625
Share of foreigners in 1890	5437	.011	.026	0	.306
Population density in 1872	5437	4.936	9.073	.009	232.297
(C) Geographic variables					
Latitude	5505	-16.397	8.265	-33.691	4.596
Longitude	5505	-46.173	6.397	-72.896	-32.411
Area	5505	1544.04	5709.762	2.859	159695.9
Av. rainfall	5505	1441.053	390.404	549.792	3244.316
Av. soil suitability to sugarcane	5505	25.738	14.758	0	93.892
Av. soil suitability to coffee	5505	24.725	17.135	0	79.23
Av. soil suitability to cotton	5505	24.947	12.86	0	72.15
Ruggedness	5505	.375	.356	.001	3.889
Human Mobility Index	5504	.29	.032	.215	.39
Dist. to the coast	5504	371.918	382.742	.172	2739.128
Gold mining zone	5505	.083	.276	0	1
Dist. Gold Paths	5504	252.914	296.054	.161	2171.038
Dist. Diamond Mines	5504	698.225	392.911	5.116	2136.231
(D) Socioeconomic outcomes					
GDP 1920	1293	8.751	42.545	.08	1383.976
GDP 1939	1574	28.578	244.002	.343	7539.449
GDP 1949	1889	42.839	410.206	.041	12810.11
GDP 1959	2763	56.866	697.521	.029	29262.64
GDP 1970	3951	78.389	1156.659	-4.224	60571.14
GDP 1980	3991	192.565	2336.217	-53.397	120028.5
GDP 1996	4974	190.198	2449.615	-45.164	140386.9
GDP 2000	5507	214.179	2593.027	1.537	160285.6
GDP in Agriculture 1970	3951	9.055	14.122	-8.197	408.958
GDP in Agriculture 1980	3991	19.473	23.36	-55.036	246.878
GDP in Agriculture 1996	4974	15.021	21.052	-135.604	301.028
GDP in Agriculture 2000	5507	10.394	16.113	0	285.383
GDP in Industry 1970	3951	28.094	494.168	0	28335.39
GDP in Industry 1980	3991	78.826	975.489	.001	53219.91
GDP in Industry 1996	4974	62.665	824.108	0	49338.44
GDP in Industry 2000	5507	51.447	545.398	.105	35358.47
GDP in Services1970	3951	41.24	681.908	.099	32224.92
GDP in Services1980	3991	94.266	1393.876	.182	66783.06
GDP in Services1996	4974	112.512	1654.016	.372	91042.39
GDP in Services 2000	5507	123.676	1646.695	1.251	98058.79
Poverty 1991	4491	62.823	21.822	4.83	98.85
Theil index 1980	3991	.438	.135	.12	1.26
Theil index 1991	4491	.504	.135	.18	1.36
Household income	4491	.725	.432	.14	3.48
Literacy over 15 y.o. 2000	5507	78.23	12.46	39.339	99.093
Infant mortality 1991	5507	49.45	24.996	10.648	130.744

Notes: Distances in km, surfaces in km^2, time in hr, density in km^{-2}. GDP in millions of year 2000 R$. Poverty in percents of individuals living with less than 50% of the minimum wage in 1991. Household income measured in shares of the minimum wage. Literacy in percents of individuals 15 y.o. or older. Infant mortality in deaths before 1 y.o. per thousands of births.

Table 2: Summary statistics (cont.)

Variable	Obs	Mean	Std. Dev.	Min	Max
(E) Political and social capital outcomes					
Turnout 1994	5016	.788	.092	.199	.965
Turnout 2002	5556	.804	.07	.344	2.157
Power & Zucko index 1996	5100	5.041	1.065	2.153	6.231
Power & Zucko index 2004	5004	4.689	.988	2.34	5.83
Generalized trust	1204	.041	.198	0	1
Self-positioning on left-right scale	1035	4.548	2.894	0	10
View on democracy	1204	.258	.438	0	1
View on corruption	1204	.096	.294	0	1
View on autocracy	1204	.138	.345	0	1
Satisfaction with democracy	1204	.011	.103	0	1
Quality of democracy	1204	.027	.161	0	1
Agreement with the president	1204	.056	.229	0	1
Candidates/parties distributing gifts/favors	1192	.286	.452	0	1
Non-private voting	1157	.342	.475	0	1
(F) Miscellaneous variables					
Quilombos	5596	.495	2.01	0	48
Area occupied by quilombos	5505	522.069	12170.89	0	719771.9
Dist. quilombo insurrection	5504	326.361	344.428	2.125	2701.353
Abolitionist journal	5437	.004	.061	0	1
Dist. Abolitionist journal	5437	559.081	430.089	3.521	2910.334
Abolitionist club	5437	.024	.152	0	1
Dist. Abolitionist club	5504	357.958	249.809	3.191	1566.21
Lavoura club	5437	.028	.164	0	1
Dist. *Lavoura* club	5505	519.254	420.348	2.874	3998.048
16th cent. Indigenous repression	5437	.211	.408	0	1
17-18th cent. Indigenous repression	5437	.186	.389	0	1
16th cent. Indigenous repression area	5505	267.98	1445.522	0	47247.9
17-18th cent. Indigenous repression area	5505	79.752	254.3	0	4031.344

Notes: Distances in km, surfaces in km^2, time in hr, density in km^{-2}. GDP in millions of year 2000 R$. Poverty in percents of individuals living with less than 50% of the minimum wage in 1991. Household income measured in shares of the minimum wage. Literacy in percents of individuals 15 y.o. or older. Infant mortality in deaths before 1 y.o. per thousands of births.

based on self and reciprocal perceptions of federal legislators. Hence, a possible drawback of this index is that it may not fully reflect party ideology at the local level. I therefore complement this information with individual-level self-positioning on the left-right scale from the 2018 Latinobarómetro, described below.

Social capital outcomes. To capture social capital along various dimensions, I use data at the individual level from the latest edition of the Latinobarómetro (2018b), a nationally-representative opinion survey conducted in eighteen countries in Latin America. From the 20,204 initial respondents, I only keep the 1,204 sampled in Brazil. These respondents were selected in 111 municipalities and census sectors (representative of both the urban and rural population), which I match with my municipality-level data.[4] The Latinobarómetro asks a number of questions associated with social capital and cultural norms, chief among which is generalized trust.[5] In addition to the latter, I use a number of variables related

[4]Additional information on the sampling process in available in the 2018 methodological report (Latinobarómetro, 2018a).

[5]Trust in people: would you say that most people can be trusted, or that one can never be too careful

to social capital and political attitudes, in particular self-positioning on the left-right scale, individual view on democracy, individual view on corruption, individual view on autocracy, satisfaction with democracy, individual opinion of the quality of democracy in Brazil, and general agreement with president Bolsonaro. I provide further description of these variables as they come up in the text. To tentatively assess the existence of clientelistic practices, I also use answers to questions asking whether or not respondents saw candidates and party members distributing gifts and favors during the last electoral campaign, and whether or not they believe the government/the parties can know for whom they voted.

3 Empirical approach

3.1 Estimating equations

In the analysis, I begin by estimating the relationship between the historical prevalence of slavery and a number of economic, social, political and cultural outcomes. The corresponding baseline estimating equation is

$$y_{jkds} = \alpha + \beta S_k + \mathbf{x}'_{jkds}\boldsymbol{\gamma} + \mathbf{z}'_{kds}\boldsymbol{\zeta} + \mathbf{w}'_{ds}\boldsymbol{\eta} + \delta_s + \varepsilon_{jkds}, \tag{1}$$

where y_{jkds} is any given outcome of interest in municipality j, historical municipality k, electoral district d, and state s.[6] The variable S_k measures the historical prevalence of slavery, as captured by either the share of slaves or the share of slaves employed in agriculture within municipality k's population in 1872. The vector $\mathbf{x}_{jkds}$ includes controls at the contemporary municipality-level, which encompasses most geographic controls, in particular geographic coordinates, area, rainfall, HMI, distance to the coast, and soil suitability to specific crops. Similarly, $\mathbf{z}_{kds}$ and $\mathbf{w}_{ds}$ respectively include historical municipality- and district-level controls, most importantly population density in 1872, literacy in 1872, share of free colored in 1872 and average political affiliation during the abolition period (1882-1888). The latter is, in general, the only district-level control included, so that $\mathbf{w}_{ds}$ will be a scalar in most specifications. δ_s denotes state fixed effects.

My preferred specifications also include an (inverse) measure of political support for

when dealing with others? See Alesina and Giuliano (2015) for a discussion and a review of relevant work.

[6]We must introduce an additional dimension when looking at individual-level outcomes from the Latinóbarometro. In this case, the baseline equation is

$$y_{ijkds} = \alpha + \beta S_k + \mathbf{x}'_{jkds}\boldsymbol{\gamma} + \mathbf{z}'_{kds}\boldsymbol{\zeta} + \mathbf{w}'_{ds}\boldsymbol{\eta} + \delta_s + \varepsilon_{ijkds},$$

where i indexes individuals, and all other subscripts are the same as for equation 1.

coercive institutions. The estimating equation then becomes

$$y_{jkds} = \alpha + \beta_0 S_k + \beta_1 A_d + \beta_3 A_d \times S_k + \mathbf{x}'_{jkds}\boldsymbol{\gamma} + \mathbf{z}'_{kds}\boldsymbol{\zeta} + \mathbf{w}'_{ds}\boldsymbol{\eta} + \delta_s + \varepsilon_{jkds}, \qquad (2)$$

where A_d captures the voting decisions of the legislator representing district d, averaged across 1884-1888. A_d increases with pro-abolition voting, and is equal to one when a legislator systematically voted in favor of emancipation. In what follows, in addition to β_1, I will be particularly interested in the sign and magnitude of β_3. I expect that within historically slavery-prevalent municipalities (high S_k), slavery had a stronger impact on development/social capital outcomes when political support for coercion was higher (low A_d). In other words, if y_{jkds} is a positive measure of development/social capital, we should have $\beta_3 > 0$.

3.2 Threats to identification

Considering equation 2, a causal interpretation of the association between slavery prevalence, political support for abolition and contemporary outcomes requires assuming that both the allocation of slaves and of pro-abolition votes across municipalities (within states) is as good as random, conditionally on pre-existing geographic, political and demographic controls. This is arguably plausible, but by no means guaranteed. It is arguably plausible, because once unobserved heterogeneity across states is absorbed by fixed effects, and once geographical factors (such as soil suitability, ruggedness or remoteness), political factors (such as party loyalty) and demographic factors (such as education or population composition) are accounted for, remaining variation driving the allocation of slaves and votes might be exogenous and indeed as good as random.

Nevertheless, there are several possible threats to identification. First, pro-abolition voting may be a 'bad control' and bias the relationship between slavery prevalence and contemporary outcomes. This would however require there to be a reverse causation between 1884-1888 abolition voting and contemporary outcomes, which appears unlikely.[7] Second, while reverse causation is implausible in this setting, we may be worried about omitted variables. Specifically, we may worry that there exists a municipality- or district-level (i.e. unaccounted for by state fixed effects) progressive culture in specific places simultaneously determining the allocation of slaves, the voting behavior of legislators, and further modern economic outcomes. That being said, we are ultimately comparing municipalities with a large population of slaves. We are interested in the differences in outcomes between high slavery

[7] According to the graphical classification proposed by Cinelli et al. (2020), it may be argued that slavery is instead a good control for voting decisions, i.e. slavery is likely to affect both voting decisions and outcomes, whereas voting decisions are likely to only affect outcomes.

prevalence-high political support for coercion municipalities and high slavery prevalence-low support municipalities. The existence of such a forward-thinking culture in highly slavery-intensive municipalities seems improbable. For example, while São Paulo planters and the legislators representing them started slowly converting to abolitionism during the last few years prior to emancipation, it is also in the newly cultivated areas of São Paulo that the growth of the slave population was highest during the last decades of slavery (Conrad, 1972). Furthermore, Seyler and Silve (2021), show that legislators' conversion to abolition in slavery-prevalent municipalities can be explained by the cost of enforcing slavery faced by planter elites, and the extent to which these elites were able to secure alternative labor supplies.

Still, in order to alleviate endogeneity concerns, I extend the instrumental variables strategy developed in Seyler and Silve (2021), which exploits within-province historical variation in slave-related activity engendered by the late 17th century mining boom, in combination with heteroskedasticity-based instruments, following Lewbel (2012). At the end of the 17th century, the discovery of large gold deposits in current Minas Gerais ushered an unprecedented Gold Rush. In order to facilitate the transport of gold and diamonds from mining zones to the coast and ensure a continuous supply of slaves and cattle to Minas Gerais, the Portuguese Crown commanded the construction of major trade routes, known as *Estradas Reais* (Royal Roads) or *Caminhos do Ouro* (Gold Paths) (Zemella, 1990). These Gold Paths were built by slaves and altered economic activities in their wake, with cattle ranches and plantations being established in the vicinity of major roads (Klein and Luna, 2009). By the end of the 18th century, the mining economy started to decline, and the Gold Paths slowly fell into disuse.

We may however expect the distance to these roads to predict historical slave-related activity at the local level, i.e. among early-settlement municipalities.[8] Whether at the time of the construction of the roads under the Portuguese Crown or later under the Empire of Brazil, a large portion of the country was still uncharted territory to settlers. For the distance to Gold Paths to be a good predictor of slavery, we thus have to circumscribe it to colonized regions. To do this, I interact the distance to Gold Paths with measures (either dichotomous or continuous) capturing the repression of Indigenous peoples (mostly Tupis and Guaranis) between the 16th and 18th century. The early Portuguese settlers that laid the foundations of the plantation system in the 16th century first experimented with an enslaved Indigenous labor force. They later turned to African slave labour, mostly because of widespread epidemics and continuous conflict with free Indigenous peoples, and the latter were uniformly driven out from the Brazilian coastline (Klein and Luna, 2009). As a result, places were Tupis and Guaranis were displaced between the 16th and 18th century are more likely to have afterwards received African slave labor.

[8] Appendix A.2 provides first stage plots to support this assumption.

Therefore, this instrument predicts the allocation of slaves across municipalities by interacting the distance to Gold Paths with either dummies or areas of 16th-18th century zones of Indigenous repression. For this instrument to be valid, it should not influence contemporary development outcomes other than through its influence on the local prevalence of slavery. This exclusion restriction is plausible for several reasons. First, within states and controlling for a wide array of controls, Gold Paths are unlikely to have a persistent influence on economic activity, other than by how they influenced slave-related activity. They became free and were no longer maintained after Brazil became independent from the Portuguese crown in 1822, and they did not retain a significant importance for economic activity past the beginning of 19th century. Moreover, Indigenous peoples were uniformly driven out from the country's coastline. There were no longer any Tupi or Guarani in the population of slavery-intensive regions by the 19th century, and Indian repression is thus unlikely to have durably affected the outcomes I evaluate.

By itself, this instrument is however unable to alleviate all endogeneity concerns. This setting amounts to an empirical model with three endogenous variables: the share of slaves in 1872, the average of 1884-1888 voting decisions on emancipation-related roll calls, and the interaction between the two. As in Seyler and Silve (2021), I propose to complement the instrument for slavery described above with heteroskedasticity-based instruments, following Lewbel (2012). These internally-generated instruments offer a useful tool when no standard instrument exists, and they are particularly adequate when we suspect measurement errors or omitted variables, which is precisely the concern here. Lewbel instruments are generated as a function of the empirical model's data, and they exploit heteroskedasticity of first-stage error terms with respect to exogenous regressors. For the sake of brevity, I describe the tests I implement to assess the identification assumptions underlying heteroskedasticity-based instruments as they become relevant in the text.

4 Main results

4.1 Economic evidence

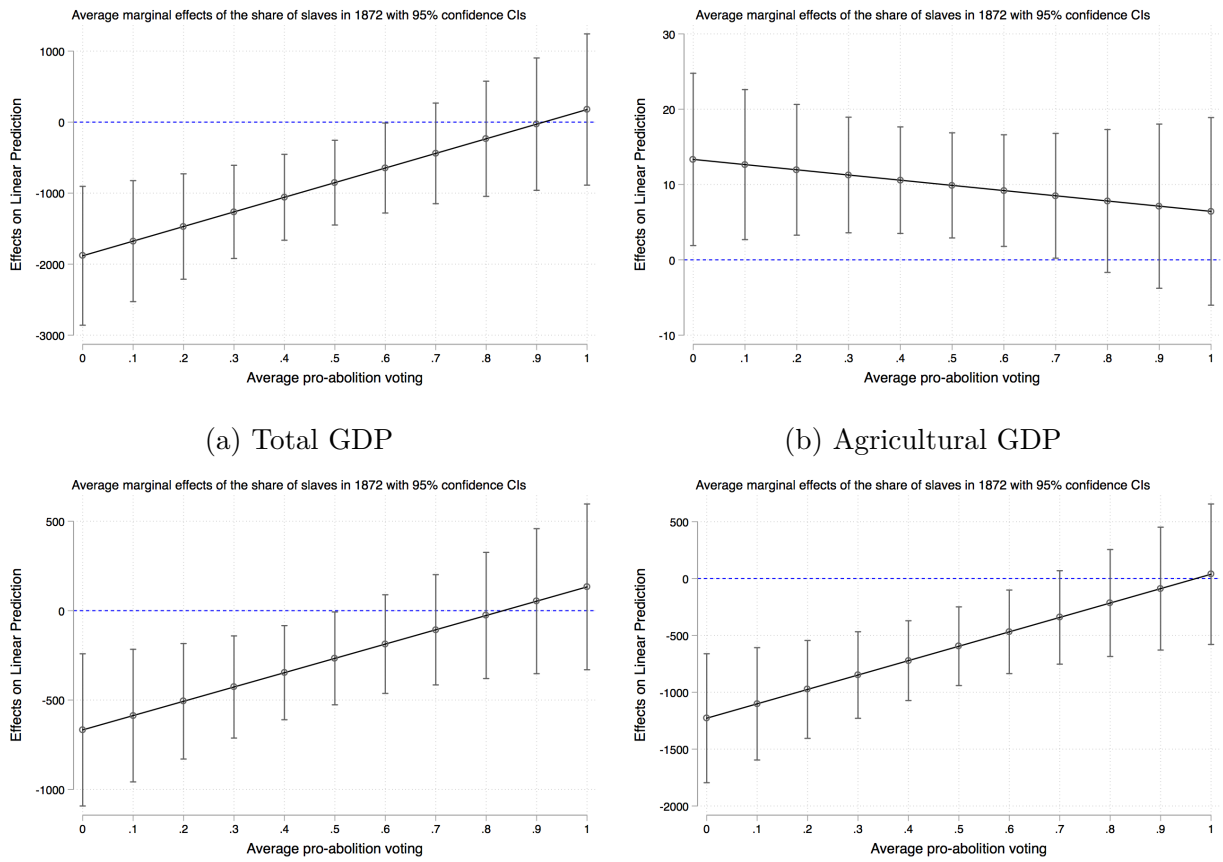
Prior to having a closer look regression tables, it is useful the briefly examine the graphical evidence. Figure 3 plots the marginal effect of the share of slaves in 1872 on municipality-level GDP (in millions of R$) nearly one hundred years later, in 1970, as a function of legislators' 1882-1888 average pro-abolition voting decisions. An average pro-abolition voting score of one indicates that the legislators representing a given district systematically voted in favor of emancipation, whereas a score of zero indicates that they never did. Panel 3a shows that the marginal effect of slavery on overall municipal GDP in 1970 is much stronger in

municipalities that were represented by an anti-abolitionist legislator several decades earlier. According to this figure, a 1 percentage point (p.p.) increase in the share of slaves in 1872 is associated with a nearly R$20 million decrease in total municipal GDP in 1970. The same marginal effect is however not statistically significantly different from zero in municipalities systematically represented by abolitionist legislators. In general, slavery thus appears to be negatively associated with economic wealth in the long run, and this relationship appears to be significantly stronger in municipalities that exhibited stronger support for coercive institutions.

Furthermore, these municipalities also appear more unequal and to have a higher share of poor individuals today. This is especially true of former plantation municipalities, as illustrated in figure 2. This figure plots the relationship between the municipality-level share of poor individuals in 1991 (as measured by the share of individuals living with less than half the minimum wage) and the share of slaves employed in agriculture in 1872. In the top panel, this relationship does not take into account legislators' voting decisions on abolition-related roll calls, whereas the bottom panel looks specifically at anti-abolitionist municipalities. In the former, this relationship is slightly negative but insignificant (with a t-statistic of -1.59), whereas it is positive and significant in the latter (with a t-statistic of 3.19). In other words, the historical prevalence of slavery is strongly associated with increased poverty whenever legislators strongly supported to continuation of coercive institutions. Figure 4 in Appendix A.3 provides an added-variable version of these plots.

In tables 3, 4 and 11 I further investigate this evidence. In table 3, I regress GDP in 2000 at the municipality level on the share of slaves in 1872, both alone (columns 1 to 3) and alongside legislators' average voting decisions on emancipation-related roll calls, and the interaction between the two (columns 4 to 6). No controls are included in columns 1 and 4, whereas I add geographic controls in columns 2 and 5, and demographic and political controls in columns 3 and 6. All regressions also include state fixed effects. Geographic controls are population density in 1872, municipality area, average soil suitability to main cash crops (coffee, sugarcane and cotton), average rainfall, longitude, latitude, distance to the coast, and the human mobility index. Demographic and political controls include the share of the free colored population in 1872, the share literates in 1872 and legislators' average party affiliation during the abolition period. The latter are added last because they seem slighlty more likely than geographic controls to be colliders (i.e. possibly bad controls: they could be endogenous to slavery), as opposed to confounders.

The point estimate in column 1 suggests a positive (insignificant) association between the share of slaves in 1872 and contemporary GDP levels, illustrating the usual pitfall in attempting to isolate the impact of slavery: coerced workers were employed in highly productive regions. This association becomes negative (still insignificant) once geographic covariates



(a) Total GDP

(b) Agricultural GDP

(c) Industrial GDP

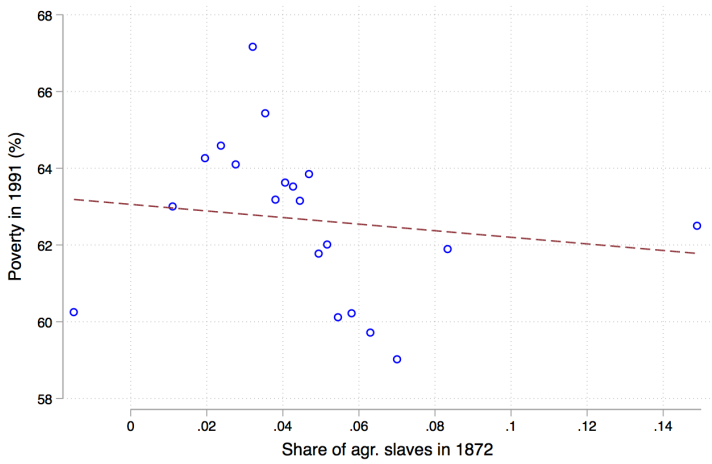
(d) Services GDP

Figure 1: Marginal effects of 1872 slavery on 1970 municipal GDP

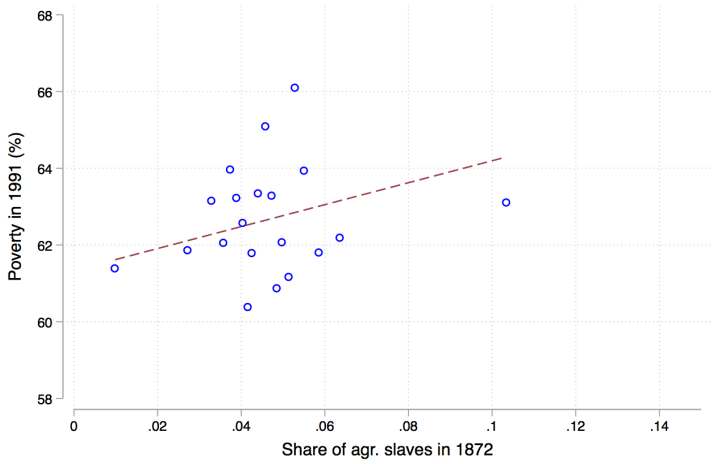
Notes: margins plots of the influence of slavery on municipal GDP (in millions of year 2000 R$), total and by sector, as a function of average pro-abolition voting behavior. Controls include, in addition to states fixed effects, population density in 1872, municipality area, average soil suitability for coffee, sugar and cotton, average rainfall, longitude, latitude, distance to the coast, human mobility index, average party affiliation in 1882-1888, share of free colored in 1872 and literacy share in 1872. The regression tables underlying these graphs are presented in Appendix section A.3.

are introduced, and remains as much when the rest of the controls are added.

In columns 4 to 6, I start investigating the possibility that the long-term effects of slavery in Brazil can be better understood by taking into account the local interests in the continuation of coercive institutions. In these regressions, I am particularly interested in the coefficient associated with the interaction term between slavery and pro-abolition voting. Within slavery-prevalent areas, I expect a lower support for coercion to be associated with better economic outcomes. Taken in isolation, the coefficient associated with the share of slaves captures the influence of slavery in municipalities represented by systematically anti-abolitionist legislators (which I expect to be negative on positive economic outcomes). Similarly, when taken in isolation, the coefficient associated with average pro-abolition voting captures the influence of the latter in places without slaves. Because of the aforementioned



(a) Irrespective of abolitionist voting



(b) Conditional on anti-abolitionist voting

Figure 2: Poverty in 1991 (%) and share of slaves in 1872

Notes: binned scatter plots between the municipality-level share of poor individuals in 1991 and the municipality-level share of slaves in 1872, both unconditional to abolition voting (top panel) and conditional to systematic anti-abolition voting (bottom panel). Poverty is defined as the share of individuals living with less than half the minimum wage in 1991. Variables are residualized on controls and state fixed effects, and the mean of each variable is added back to its residuals before plotting. Controls include population density in 1872, municipality area, average soil suitability for coffee, sugar and cotton, average rainfall, longitude, latitude, distance to the coast, human mobility index, average party affiliation in 1882-1888, share of free colored in 1872 and literacy share in 1872. Added-variable versions of these plots are presented in Appendix A.3 figure 4.

pitfall, I expect this coefficient to generally be negative (places without slaves tended to be lagging behind economically).

Column (6) corresponds to my preferred specification.[9] According to this column, in

[9]As standard errors and coefficients remain relatively stable when demographic and political controls are introduced in addition to geographic covariates, I hereafter tend to focus on regressions including all controls.

Table 3: Total municipal GDP, slavery and average pro-abolition voting

	Total GDP 2000					
	(1)	(2)	(3)	(4)	(5)	(6)
Share of slaves	340.2	-1,756.6	-1,394.4	-1,683.7	-3,468.0	-3,540.6
	(606.5)	(1,337.5)	(1,225.8)	(1,599.1)	(2,002.7)*	(2,035.6)*
	{542.7}	{1,343.3}	{1,236.7}	{1,519.1}	{2,005.4}*	{2,052.1}*
Av. abo. voting				-359.7	6.8	-37.6
				(233.7)	(256.4)	(345.5)
				{210.0}*	{189.4}	{256.6}
Sh. slaves × Av. abo. voting				4,281.2	3,895.7	4,509.6
				(2,383.2)*	(1,821.1)**	(2,086.5)**
				{2,308.2}*	{1,760.2}**	{2,045.4}**
Observations	5,435	5,435	5,435	5,435	5,435	5,435
R-squared	0.009	0.051	0.052	0.011	0.053	0.055
Mean dep. var.	214.2	214.2	214.2	214.2	214.2	214.2
Controls	None	Geo.	All	None	Geo.	All
State FEs	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *p<0.1; **p<0.05; ***p<0.01. Electoral district-level clustered standard errors in parentheses. Conley standard errors (with a 100km window) in curly brackets. Columns (1) and (4) do not include controls. Columns (2) and (5) include geographical controls: population density in 1872, municipality area, coffee, sugar, and cotton suitability, rainfall, longitude and latitude, distance to the coast, and human mobility index. Columns (3) and (6) include, in addition to geographical covariates, political and demographic controls: party affiliation during the abolition period, share of free colored in 1872 and literacy in 1872.

an average municipality in terms of voting decisions, a 1 p.p. increase in the share of slaves in 1872 is associated with a R$4.74 million decrease in municipal GDP in 2000. A standard deviation (8 p.p.) increase in the share of slaves would therefore be associated with a nearly R$38 million GDP decrease in such a municipality, which corresponds to an 17.7% decrease from the sample mean. Of course, pro-abolition voting tended to be lower in high-prevalence municipalities. Hence, in a more slavery-intensive municipality with 50% pro-abolition voting, a 1 p.p. increase in the share of slaves is instead associated with an R$12.86 million decrease in overall GDP in 2000 (and a standard deviation is thus associated with a R$102.88 million drop). As an alternative way of looking a these results, in an average municipality in terms of slavery prevalence, a 1 p.p. increase in pro-abolition voting decisions is associated with a R$5.04 million increase in total GDP.

In tables 4 and 11 (the latter is only presented in Appendix A.3 for the sake of brevity), I further examine the influence of slavery prevalence and support for coercion on a range of development outcomes. In table 4, slavery prevalence is again measured by the share of slaves in 1872, whereas it is measured by the share of slaves employed in agriculture in 1872 in table 11. Overall, these tables suggest that all else equal, people tend to fare better in places where support for coercive institutions was lower. In table 4, I look at poverty (again defined as the share of individuals living with less than half the minimum wage in 1991, see columns 1-3), inequality (measured by the Theil index in 1980, see columns 4-6), and

household income (measured as the share of a 1991 minimum wage available per household member, see columns 7-9). Columns 1, 4 and 7 include no controls, whereas columns 2, 5 and 8 include geographic controls (defined as before), and columns 3, 6 and 9 include all controls (and the latter constitute my preferred specifications). In addition to these three outcomes, I examine the association between slavery prevalence, support for coercion and log GDP, literacy, and infant mortality in table 11 (always including all controls).

Table 4: Development outcomes, slavery and average pro-abolition voting

	Poverty, inequality and household income								
	% Poverty 1991			Theil index 1980			HH income 1991		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Share of slaves	-3.493	1.698	2.908	0.102	0.143	0.144	0.183	0.021	0.003
	(16.552)	(15.473)	(15.383)	(0.082)	(0.073)*	(0.074)*	(0.305)	(0.281)	(0.281)
	{10.207}	{9.370}	{9.380}	{0.066}	{0.062}**	{0.064}**	{0.196}	{0.183}	{0.182}
Av. abo. voting	10.922	6.492	0.299	0.021	0.035	0.000	-0.187	-0.101	-0.010
	(4.305)**	(4.340)	(5.519)	(0.025)	(0.021)*	(0.030)	(0.072)**	(0.073)	(0.095)
	{2.731}***	{2.813}**	{3.354}	{0.021}	{0.019}*	{0.024}	{0.051}***	{0.053}*	{0.062}
Sh. slaves × Av. abo. voting	-51.076	-43.016	-39.165	-0.126	-0.167	-0.135	1.056	0.904	0.860
	(24.067)**	(24.540)*	(24.322)	(0.131)	(0.118)	(0.122)	(0.479)**	(0.480)*	(0.487)*
	{16.536}***	{15.397}***	{15.209}**	{0.114}	{0.107}	{0.110}	{0.359}***	{0.336}***	{0.339}**
Observations	4,443	4,443	4,443	3,944	3,944	3,944	4,443	4,443	4,443
R-squared	0.651	0.673	0.680	0.105	0.129	0.131	0.538	0.561	0.564
Mean dep. var.	62.823	62.823	62.823	0.438	0.438	0.438	0.725	0.725	0.725
Controls	None	Geo.	All	None	Geo.	All	None	Geo.	All
State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *p<0.1; **p<0.05; ***p<0.01. Electoral district-level clustered standard errors in parentheses. Conley standard errors (with a 100km window) in curly brackets. Columns (1), (4) and (7) do not include controls. Columns (2), (5) and (8) include geographical controls: population density in 1872, municipality area, coffee, sugar, and cotton suitability, rainfall, longitude and latitude, distance to the coast, and human mobility index. Columns (3), (6) and (9) include, in addition to geographical covariates, political and demographic controls: party affiliation during the abolition period, share of free colored in 1872 and literacy in 1872.

The first point estimate in table 4 column 3 implies that in a strictly anti-abolition municipality, slavery is positively but insignificantly associated with poverty. When I instead measure slavery prevalence by the share of slaves employed in agriculture in 1872 (i.e. looking specifically at plantation slavery), this point estimate is positive and statistically significant (see table 11 column 2). Moreover, the coefficient associated with the interaction term is always significant. According to table 4, in an average municipality, a standard deviation (29 p.p.) increase in pro-abolition voting is associated with a 1.28 p.p. reduction in the share of poor households in 1991. In a slavery-intensive plantation municipality with 50% slaves, the same increase is instead associated with a 5.59 p.p. decrease in poverty, an 8.91% drop from the sample mean. Turning to the Theil index, column 6 indicates that the prevalence of slavery is positively and significantly associated with inequality up to 1980 in anti-abolition municipalities (and analogously in table 11 column 3 for 1991).[10] Similarly, column 9 (and

[10]Overall slavery is no longer significantly associated with the Theil by 1991, whereas agricultural slavery

column 4 in table 11), indicates that household income is significantly higher in municipalities historically less inclined to support coercive institutions, maintaining constant the share of slaves.

In table 5, I investigate the robustness of these results to simultaneously instrumenting the share of slaves in 1872, the average voting decisions of legislators, and the interaction between the two in a single regression. In order to identify this regression model with three endogenous variables, I complement my slavery instrument—based on distance to Gold Paths and repression of Indigenous peoples until the 18th century—with heteroskedasticity-based instruments, following Lewbel (2012). The standard instrument predicts slavery by exploiting historical slave-related activity occasioned by the Brazilian Gold Rush at the end of the 17th century, *outside* the gold mining area. In these regressions, I therefore also control for gold mining zones and distances to diamond mines.[11] The Lewbel instruments exploit heteroskedasticity with either a subset or all of the regressors. This approach is particularly appropriate when we suspect that a variable is endogenous either because of measurement errors or omitted variables, which is exactly what we have in mind here (e.g. pre-existing local progressive culture simultaneously explaining local slavery levels, voting decisions in parliament, and future economic outcomes).

In addition to the linearity of the model and the exogeneity of controls (which we implicitly assume all the way), sufficient (but not necessary) conditions for the assumptions underlying heteroskedasticity-based identification to hold are that *i)* first stage error terms should be heteroskedastic with respect to all regressors and *ii)* second stage error terms should be homoskedastic with respect to internally generated instruments. To assess the former, I run a series of Breusch-Pagan tests in first-stage regressions, and report the highest p-value (which is always 0.000) in table 5. To test the latter, I run Pagan-Hall tests on generated instruments, and report the p-value in table 5. There is typically a tradeoff in using a sufficient number of heteroskedasticity-based instruments to make sure that they generate a strong enough association to pass weak identification tests, while also ensuring that they satisfy second-stage homoskedasticity, which becomes harder as the number of instrument increases. In table 5, I present both results using either heteroskedasticity-based instruments generated using *all* regressors (i.e. fifteen instruments per endogenous variable, which must all be included in all regressions, see columns 1-4), or only *one* regressor (see columns 5-8). In the latter case, I use heteroskedasticity with respect to natural resources (either gold mining zones or soil suitability to sugarcane).

To test for weak identification, I use the Kleibergen-Paap rank (Wald) test F statistic (hereafter K-P F-stat), which is suitable for cluster robust standard errors. In columns 1 to

always is.

[11] Results remain identical if these controls are also added to previous regressions.

4, where I leverage heteroskedasticity with respect to all the regressors, this statistic is always satisfyingly high, but the second stage Pagan-Hall test rejects the null hypothesis that errors are homoscedastic with respect to generated instruments. When I use only one regressor to generate instruments in columns 5 to 8, second-stage homoskedasticity is never rejected but the standard K-P F-stat becomes somewhat low. Nevertheless, even in these cases, underidentification Kleibergen-Paap rank LM tests (also suitable for cluster robust standard errors) always allow rejecting the null, indicating that the model is indeed identified. Still, I also adapt the code developed by König et al. (2017) to compute spatial HAC Conley (2010, 1999) standard errors in a 2SLS setting, along with corresponding K-P F-stats. Reassuringly, the latter are always high enough to assuage concerns regarding weak instruments (and I therefore tend to prefer the specifications presented in columns 5-8).

Table 5: 2SLS - Main outcomes, slavery and average pro-abolition voting

2SLS 2nd stage: Main economic outcomes								
	Using heteroskedasticity in all regressors				*Using heteroskedasticity in one regressor*			
	Ln(GDP) (1)	% Pov. (2)	Theil (3)	HH inc. (4)	Ln(GDP) (5)	% Pov. (6)	Theil (7)	HH inc. (8)
Share of slaves	-1.160	7.432	0.124	-0.137	-1.212	7.818	0.345	-0.128
	(0.783)	(12.937)	(0.078)	(0.229)	(0.735)	(13.582)	(0.203)*	(0.232)
	{0.774}	{8.748}	{0.063}**	{0.211}	{0.681}*	{8.678}	{0.206}*	{0.189}
Av. abo. voting	-0.218	-8.407	0.014	0.162	-0.469	-5.594	0.078	0.113
	(0.357)	(6.877)	(0.038)	(0.113)	(0.343)	(8.181)	(0.106)	(0.121)
	{0.262}	{7.547}	{0.037}	{0.130}	{0.270}*	{7.965}	{0.067}	{0.129}
Sh. slaves × Av. abo. voting	4.001	-47.011	-0.277	1.110	4.421	-52.987	-0.925	1.142
	(1.737)**	(22.416)**	(0.141)*	(0.468)**	(1.716)**	(25.047)**	(0.443)**	(0.497)**
	{2.163}*	{23.954}**	{0.150}*	{0.627}*	{2.003}**	{25.744}**	{0.438}**	{0.659}*
Observations	4,159	3,328	2,926	3,328	4,159	3,328	2,926	3,328
R-squared	0.115	0.149	0.030	0.116	0.115	0.149	0.007	0.116
Mean dep. var.	10.464	62.823	0.438	0.725	10.464	62.823	0.438	0.725
Controls	All	All	All	All	All	All	All	All
State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
K-P. F stat.	135.7	66.1	42.8	66.1	8.3/14.2	5.6/16.0	2.5/44.5	5.6/16.05
Hansen-J p-value	0.275	0.205	0.165	0.180	0.294	0.270	0.842	0.153
Endog. test p-value	0.435	0.633	0.935	0.190	0.153	0.153	0.043	0.199
1st st. BP p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2nd st. PH p-value	0.000	0.000	0.047	0.000	0.131	0.560	0.510	0.978

Notes: *p<0.1; **p<0.05; ***p<0.01. Electoral district-level clustered standard errors in parentheses. Conley standard errors (with a 100km window) in curly brackets. To compute the latter in a 2SLS setting, I adapt the code developed by König et al. (2017). Controls include population density in 1872, municipality area, coffee, sugar, and cotton suitability, rainfall, longitude and latitude, distance to the coast, human mobility index, party affiliation during the abolition period, share of free colored in 1872 and literacy in 1872. In columns (5)-(8) the Kleibergen-Paap F-statistic is low but the null is always safely rejected in Kleibergen-Paap rk LM underidentification tests. In addition, KP F-statistics computed using spatial HAC standard errors are always above 10. First stage table reported in Appendix A.2 table 8.

Finally, table 5 reports the results of two additional tests: an overidentification test (Hansen's J statistic) and an endogeneity test (similar to a C-statistic and robust to heteroskedastiticy and autocorrelation). Across columns 1-8, the overidentification test is never

able to reject the null hypothesis that over-identifying restrictions are valid, indicating that instruments yield the same estimates and lending additional support to their validity. The endogeneity test assesses whether endogenous regressors can be treated as exogenous. Except for the Theil in column (7), this test is never able to reject the null, indicating that one might prefer the OLS counterparts to these regressions, technically more efficient.

The 2SLS results are extremely consistent both across columns 1-4 and 5-8 and when compared to OLS results. Coefficients associated with slavery prevalence and its interaction with pro-abolition voting are noticeably larger in 2SLS regressions, in line with the idea that OLS regressions underestimate the true impact of slavery as a result of the endogeneity of slaves' distribution across municipalities (still in general not enough to reject endogeneity tests, which indicates that controls already do a decent job in taking these factors into account). The coefficients associated with the un-interacted component of pro-abolition voting is never significant in 2SLS specifications, but it is also less often negatively associated with development outcomes than in OLS regressions, in line with the idea that in the latter, these coefficients partly capture the economic backwardness of places that never received slaves.

4.2 Mechanisms

Overall, the evidence presented in the previous section points to a plausibly causal relationship between slavery prevalence, support for coercive institutions and a range of development outcomes. In this section, I investigate persistence mechanisms possibly driving this effect. After making sure that previous results are not driven by determinants of pro-abolition voting, I focus on political and social capital factors. I also present suggestive evidence on clientelism.

4.2.1 Determinants of pro-abolition voting

A first possibility that comes to mind is that my equilibrium measure of support for coercive institutions may essentially be capturing underlying determinants of legislators' voting decisions. In other words, factors affecting legislators' voting decisions—especially related to local elites' reliance on captive labor, i.e. factors allowing them to transition more easily to free labor, and thus affecting the decisions of the legislators representing them—may themselves influence contemporary outcomes. In Seyler and Silve (2021), we investigate the importance of intra-elite divisions as a driver of institutional change, and we show that legislators' voting decisions in slavery prevalent municipalities depended on the cost of enforcing slavery faced by planter elites, and the extent to which these elites were able to secure alternative labor supplies. We measure the latter with the immigrant population in

1890, and the former with a set of functions of the allocation of quilombos (communities of maroons, usually hidden in the hinterland) across municipalities. The cost of enforcing coercive institutions depended on how difficult it was for slaves to escape from plantations. We use the presence of quilombos to measure the 'openness of the frontier': to what extent were slaves able to durably escape when they managed to run away.

In table 12, I verify that previous results are not driven by these determinants, despite their importance. I reexamine the results on poverty in columns 1 to 4, on inequality in columns 5 to 8, and on household income in columns 9 to 12. For each of these outcomes, I progressively introduce measures of labor availability (the share of foreigners in 1890) and coercion costs (the log of the area occupied by quilombolas' communities) both alone and interacted with the share of slaves. In all cases, the results are robust to the inclusion of these drivers of pro-abolition vote and remain qualitatively identical.

4.2.2 Political attitudes and social capital

I now turn to examining political attitudes and social capital as possible persistence mechanisms of the long-term effects of slavery. In table 6, I first investigate the association between slavery prevalence, support for coercive institutions, and contemporary political behavior, namely participation (measured by turnout in presidential elections) and ideology (applying the left-right scale of Brazilian parties developed by Power and Zucco (2009) to elected representatives in municipal elections). Before looking at the results, it is useful to discuss possible priors we might have regarding the long-run effects of slavery on political behavior.

Bearing in mind the literature on victimization and the influence of repression on political attitudes (Lupu and Peisakhin, 2017; Fontana et al., 2018; Rozenas and Zhukov, 2019; Iwanowsky and Madestam, 2019; Tur-Prats and Valencia Caicedo, 2020; Bautista et al., 2021), we might expect slavery to increase political participation and opposition to the party most associated with slavery's status quo. In the case of Brazil, pro-slavery legislators were overwhelmingly (though not always) Conservatives. The original Conservative party disappeared with the Empire in 1889, but we might still expect individuals located in municipalities where slavery was more prevalent/where legislators strongly supported coercive institutions to show greater support for more progressive/leftist parties (assuming these municipalities retained a relatively large number of former slaves and slaves' descendants over the years). Additionally, we may expect greater support for leftist (i.e. more redistributive) parties because—as the results presented in the previous section indicate—the median voter is poorer in municipalities where legislators supported slavery (in line with e.g. Fujiwara (2015) and models in the spirit of Meltzer and Richard (1981)).

Alternatively, one might also expect lower turnout in municipalities with historically more

slavery prevalence/support for coercion if, as in the US, former slaves continued to be *de facto* disenfranchised and excluded from the political arena (Bertocchi and Dimico, 2014; Acharya et al., 2016). As has been shown for slavery at the sending end of the spectrum (Nunn and Wantchekon, 2011) and violence/conflict in general (Rohner et al., 2013; Cassar et al., 2013; Tur-Prats and Valencia Caicedo, 2020), we may also suspect that slavery negatively affected the consolidation of social capital. This may lead to lower participation in politics, preferences for less redistributive policies, or both. Another reason why we may expect less redistributive policies is ongoing elite persistence and state capture. It is possible that former slavery-supportive municipalities feature more clientelistic relationships today, leading to vote buying and increased support for right-wing parties (Baland and Robinson, 2008; Robinson and Verdier, 2013; Anderson et al., 2015).

Table 6 paints a somewhat mixed picture. By itself (columns 1-2 and 5-6), slavery prevalence does not appear significantly associated with either participation or ideology of elected representatives. However, individuals from high prevalence-high support for coercion municipalities were more likely to participate in 1994 elections (column 3), but this association is no longer present in 2002 (column 4). In turn, individuals from high prevalence municipalities where legislators were more inclined to vote for emancipation were also less likely to elect representatives from right-wing parties in 1996 (column 7), but this association also disappears by 2004 (column 8). A (possibly transitory) higher participation in high prevalence-high support for coercion municipalities is consistent with both increased victimization in these municipalities (e.g. as in Lupu and Peisakhin (2017)) and the existence of ongoing clientelism and vote-buying (e.g. as in Anderson et al. (2015)). In turn, the evidence presented in columns 7-8 appears to a certain extent inconsistent with the existence of a political backlash of descendants of victims of slavery on parties more associated with the status quo. Moreover, voters from poorer municipalities as a result of slavery do not appear to vote for representatives aligned with more redistributive parties. This is consistent with both persistent clientelistic relationships and lower social capital in these municipalities.

To further investigate a possible persistent effect of slavery on social capital and political attitudes, I examine individual-level outcomes from the 2018 Latinobarómetro in table 7 and Appendix A.3 table 13. In table 7, I look specifically at generalized trust (columns 1-2), self-positioning on the left-right scale (columns 3-4), individual views regarding democracy[12] (columns 5-6), and individual views regarding corruption[13] (columns 7-8). I provide evidence regarding additional outcomes in table 13, namely support for autocracy[14] (columns 1-2),

[12]Measured by a dummy variable switching on when a respondent strongly agrees with the statement "Democracy may have problems but it is the best system of government."

[13]Measured by a dummy variable switching on when a respondent strongly agrees with the statement "A certain degree of corruption is acceptable as long as the problems of the country are solved."

[14]Measured by a dummy variable switching on when a respondent stated that "Under some circumstances,

Table 6: Political outcomes, slavery and average pro-abolition voting

	Political outcomes							
	Participation				Partisanship			
	1994	2002	1994	2002	P&Z 1996	P&Z 2004	P&Z 1996	P&Z 2004
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of slaves	0.059	0.048	0.128	0.065	-0.362	-0.052	0.208	-0.128
	(0.036)	(0.030)	(0.066)*	(0.052)	(0.272)	(0.238)	(0.415)	(0.341)
	{0.040}	{0.035}	{0.061}**	{0.049}	{0.236}	{0.229}	{0.406}	{0.325}
Av. abo. voting			0.039	0.011			0.222*	-0.053
			(0.022)*	(0.018)			(0.129)*	(0.125)
			{0.020}*	{0.016}			{0.132}*	{0.112}
Sh. slaves × Av. abo. voting			-0.131	-0.031			-1.122	0.143
			(0.091)	(0.081)			(0.669)*	(0.577)
			{0.088}	{0.065}			{0.675}*	{0.551}
Observations	4,950	5,431	4,950	5,431	5,035	4,939	5,035	4,939
R-squared	0.595	0.359	0.597	0.359	0.042	0.030	0.043	0.030
Mean dep. var.	0.788	0.804	0.788	0.804	5.041	4.689	5.041	4.689
Controls	All	All	All	All	All	All	All	All
State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *p<0.1; **p<0.05; ***p<0.01. Electoral district-level clustered standard errors in parentheses. Conley standard errors (with a 100km window) in curly brackets. Controls include population density in 1872, municipality area, coffee, sugar, and cotton suitability, rainfall, longitude and latitude, distance to the coast, human mobility index, party affiliation during the abolition period, share of free colored in 1872 and literacy in 1872.

satisfaction with democracy[15] (columns 3-4), individual views on the quality of democracy in Brazil[16] (columns 5-6) and individual views on the president[17] (columns 7-8).

According to the column 2 of table 7, in an average municipality in terms of slavery prevalence, a standard deviation increase in pro-abolition voting (0.29) is associated with a 0.8 p.p. increase in the probability that a respondent answers that most people can be trusted, which may appear low but corresponds to a sizeable 20% increase above the sample mean. Column 4 confirms the political ideology results of table 6: on a left-right scale, respondents from high prevalence-high support for coercion municipalities tend to position themselves largely to the right of respondent from municipalities equivalent in terms of slavery prevalence but where legislators were more inclined to vote in favor of emancipation. Respondents from high prevalence-high support for coercion municipalities are also much more likely to believe that democracy is not necessarily the best type of government and that corruption is acceptable under certain circumstances. Similarly, according to table 13, respondents from high prevalence-high support for coercion municipalities are also more

an authoritarian government can be preferable to a democratic one."

[15]Measured by a dummy variable switching on when a respondent claimed to be 'Very satisfied with democracy."

[16]Measured by a dummy variable switching on when a respondent stated that democracy in Brazil is a "Full democracy."

[17]Measured by a dummy variable switching on when a respondent claimed to "approve the way president Bolsonaro is leading the country."

Table 7: Social capital, slavery and average pro-abolition voting

	Social capital/political outcomes in 2018							
	Generalized trust		Left-right position		View on democracy		View on corruption	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of slaves	0.039	-0.091	0.529	3.972	-0.492	-0.867	0.291	0.607
	(0.098)	(0.119)	(1.740)	(2.494)	(0.258)*	(0.412)**	(0.110)**	(0.185)***
	{0.110}	{0.100}	{1.679}	{2.376}*	{0.227}**	{0.332}***	{0.106}***	{0.132}***
Av. abo. voting		-0.013		2.066		-0.178		0.170
		(0.041)		(1.159)*		(0.104)*		(0.076)**
		{0.036}		{1.154}*		{0.106}*		{0.068}**
Sh. slaves × Av. abo. voting		0.341		-7.702		0.849		-0.696
		(0.180)*		(5.351)		(0.595)		(0.343)**
		{0.145}**		{4.320}*		{0.496}*		{0.285}**
Observations	1,204	1,204	1,035	1,035	1,204	1,204	1,204	1,204
R-squared	0.018	0.020	0.039	0.041	0.026	0.027	0.033	0.035
Mean dep. var.	0.041	0.041	4.548	4.548	0.258	0.258	0.096	0.096
Controls	All	All	All	All	All	All	All	All
State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *p<0.1; **p<0.05; ***p<0.01. Electoral district-level clustered standard errors in parentheses. Conley standard errors (with a 100km window) in curly brackets. Controls include population density in 1872, municipality area, coffee, sugar, and cotton suitability, rainfall, longitude and latitude, distance to the coast, human mobility index, party affiliation during the abolition period, share of free colored in 1872 and literacy in 1872.

likely to believe an authoritarian government can be preferable under some circumstances, to be less satisfied with democracy, and to agree with the way president Bolsonaro is leading the country.

Overall, the evidence presented in these tables is consistent with lower social capital in high prevalence-high support for coercion municipalities. To clarify, this is consistent with models and empirical findings according to which cultural norms associated with lower cooperation may have been transmitted across generations and yield preferences still associated with weaker institutions today (Henrich et al., 2001; Alesina and Fuchs-Schündeln, 2007; Tabellini, 2008; Nunn and Wantchekon, 2011; Alesina and Giuliano, 2015). Another possibility is that these areas feature ongoing state capture. Representatives may be more corrupt or clientelistic in these municipalities, i.e. resources that would otherwise be assigned to public goods might be diverted, possibly in exchange for private benefits.

4.2.3 Evidence on elite persistence

While my data do not allow me to explore the existence of a potential clientelism channel in depth, in Appendix A.3 table 14 I provide suggestive evidence from specific questions asked by the 2018 Latinobarómetro. More specifically, I examine whether slavery prevalence and support for coercion are associated with respondents stating that they saw "candidates or people from the parties distributing gifts or favors in [their] neighborhood" (columns 1-2), and that they think "the parties or the government can find out who [they] voted

for" (columns 3-4). The evidence is rather mixed: while respondents from slavery-prevalent municipalities with low political support for coercion are more likely to believe that their vote is secret, they are not more likely to have seen evidence of vote-buying. If anything, and perhaps somewhat surprisingly, respondents from municipalities with more slaves in 1872 are in general less likely to have seen candidates or party members distributing gifts or favors.

5 Conclusions

This paper investigates the long-term influence of coercive labor institutions and political support for their continuation, taking the setting of Brazil, the last nation to abolish slavery in the Americas and the largest importer of slaves during the Atlantic slave trade. In combination with the historical prevalence of slaves, I use the variation in legislators' voting decisions on emancipation-related bills across electoral districts and over time to capture local political support for the continuation of coercive institutions.

I show that all else equal, individuals living in historically slavery-prevalent municipalities where legislators supported the continuation of the coercion system are worse off today, as measured by a wide range of development indicators. These results are robust to simultaneously instrumenting slavery prevalence, support for coercive institutions, and their interaction with both standard and heteroskedasticity-based instruments. Turning to persistence mechanism, I find that the evidence is consistent with significantly lower levels of social capital in these municipalities. In particular, individuals living in slavery-prevalent municipalities with stronger support for coercive institutions exhibit lower levels of generalized trust today, and are more likely to be less supportive of democracy and to have weaker beliefs on corruption. This is consistent with—and adds to—the growing body of work exploring the persistence and interplay of institutions and cultural norms of behavior.

In future work, I aim to attempt to further disentangle the effects of support for coercive institutions, in particular exploring issues of racial fragmentation and relaxing the linearity assumption underlying my measure of pro-abolition voting. Additional data on political outcomes closer in time to the abolition period may also help to better understand the persistent influence of slavery and support for coercion.

References

Acemoglu, D., García-Jimeno, C., and Robinson, J. A. (2012). Finding eldorado: Slavery and long-run development in colombia. *Journal of Comparative Economics*, 40(4):534–564.

Acharya, A., Blackwell, M., and Sen, M. (2016). The political legacy of american slavery. *The Journal of Politics*, 78(3):621–641.

Alesina, A. and Fuchs-Schündeln, N. (2007). Goodbye lenin (or not?): The effect of communism on people's preferences. *American Economic Review*, 97(4):1507–1528.

Alesina, A. and Giuliano, P. (2015). Culture and institutions. *Journal of Economic Literature*, 53(4):898–944.

Alesina, A. and La Ferrara, E. (2002). Who trusts others? *Journal of public economics*, 85(2):207–234.

Algan, Y. and Cahuc, P. (2010). Inherited trust and growth. *American Economic Review*, 100(5):2060–92.

Anderson, S., Francois, P., and Kotwal, A. (2015). Clientelism in indian villages. *American Economic Review*, 105(6):1780–1816.

Baland, J.-M. and Robinson, J. A. (2008). Land and power: Theory and evidence from chile. *American Economic Review*, 98(5):1737–65.

Bautista, M. A., González, F., Martinez, L. R., Munoz, P., and Prem, M. (2021). The geography of repression and opposition to autocracy. *American Journal of Political Science*.

Becker, S. O., Boeckh, K., Hainz, C., and Woessmann, L. (2016). The empire is dead, long live the empire! long-run persistence of trust and corruption in the bureaucracy. *The Economic Journal*, 126(590):40–74.

Bertocchi, G. and Dimico, A. (2014). Slavery, education, and inequality. *European Economic Review*, 70:197–209.

Besley, T. and Reynal-Querol, M. (2014). The legacy of historical conflict: Evidence from africa. *American Political Science Review*, pages 319–336.

Brazil (1874). Recenseamento do Brasil em 1872. Typ. G. Leuzinger. Retrieved from `https://biblioteca.ibge.gov.br/biblioteca-catalogo?id=225477&view=detalhes`. Last accessed Dec 14, 2019.

Brenner, R. (1976). Agrarian class structure and economic development in pre-industrial europe. *Past & present*, (70):30–75.

Cassar, A., Grosjean, P., and Whitt, S. (2013). Legacies of violence: trust and market development. *Journal of Economic Growth*, 18(3):285–318.

Cinelli, C., Forney, A., and Pearl, J. (2020). A crash course in good and bad controls. *Available at SSRN 3689437*.

Conley, T. G. (1999). GMM estimation with cross sectional dependence. *Journal of econometrics*, 92(1):1–45.

Conley, T. G. (2010). Spatial econometrics. In Durlauf, S. N. and Blume, L. E., editors, *Microeconometrics*, pages 303–313. Springer.

Conrad, R. E. (1972). *The destruction of Brazilian slavery, 1850-1888*. University of California Press.

CPDOC (2016). Atlas histórico do Brasil. Centro de Pesquisa e Documentação de História Contemporânea do Brasil, Fundação Getúlio Vargas. Retrieved from `https://atlas.fgv.br/` on Dec. 14, 2019.

de Alencastro, L. F. (1979). La traite négrière et l'unité nationale brésilienne. *Outre-Mers. Revue d'histoire*, 66(244):395–419.

Dell, M. (2010). The persistent effects of peru's mining mita. *Econometrica*, 78(6):1863–1903.

Fogel, R. W. and Engerman, S. L. (1974). Time on the cross: The economics of american negro slavery. *Boston: Little, Brown*, 49:170–71.

Fogel, R. W. and Engerman, S. L. (1977). Explaining the relative efficiency of slave agriculture in the antebellum south. *The American Economic Review*, 67(3):275–296.

Fontana, N., Nannicini, T., and Tabellini, G. (2018). Historical roots of political extremism: The effects of nazi occupation of italy. *Available at SSRN 3091588*.

Fujiwara, T. (2015). Voting technology, political responsiveness, and infant health: Evidence from brazil. *Econometrica*, 83(2):423–464.

Fujiwara, T., Laudares, H., and Valencia, F. (2019). Tordesillas, slavery and the origins of brazilian inequality.

Funari, P. P. P. (2017). Inequality, institutions, and long-term development: A perspective from brazilian regions. In *Has Latin American Inequality Changed Direction?*, pages 113–142. Springer, Cham.

Fundação Palmares (2020). Comunidades quilombolas certificadas. `http://www.palmares.gov.br/?page_id=37551`. Retrieved on June 21, 2020.

Graham, R. (1994). *Patronage and politics in nineteenth-century Brazil*. Stanford University Press.

Guiso, L., Sapienza, P., and Zingales, L. (2016). Long-term persistence. *Journal of the European Economic Association*, 14(6):1401–1436.

Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H., and McElreath, R. (2001). In search of homo economicus: behavioral experiments in 15 small-scale societies. *American Economic Review*, 91(2):73–78.

IBGE (2000). Evolução da divisão territorial do brasil.

IIASA/FAO (2012). Global agro-ecological zones (gaez v3.0). IIASA, Laxenburg, Austria and FAO, Rome, Italy.

INCRA (2020). Acervo fundiário: áreas de quilombolas. http://acervofundiario.incra.gov.br/acervo/acv.php. Retrieved on June 24, 2020.

IPEA (2006). Ipeadata. *Instituto de Pesquisa Econômica Aplicada*, http://www.ipeadata.gov.br/Default.aspx. Retrieved on February 12, 2021.

Iwanowsky, M. and Madestam, A. (2019). State repression, exit, and voice: Living in the shadow of cambodia's killing fields. Technical report, Tech. rep., working paper.

Jobim, N. and Porto, W. C. (1996). Legislação eleitoral no Brasil : do século XVI a nossos dias. Brasília : Senado Federal, Subsecretaria de Biblioteca. Retrieved from http://www2.senado.leg.br/bdsf/handle/id/224494 on Dec. 14, 2019.

Klein, H. S. and Luna, F. V. (2009). *Slavery in Brazil*. Cambridge University Press.

Knack, S. and Keefer, P. (1997). Does social capital have an economic payoff? a cross-country investigation. *The Quarterly journal of economics*, 112(4):1251–1288.

König, M. D., Rohner, D., Thoenig, M., and Zilibotti, F. (2017). Networks in conflict: Theory and evidence from the great war of africa. *Econometrica*, 85(4):1093–1132.

Latinobarómetro (2018a). Informe metodológico latinobarómetro 2018. https://www.latinobarometro.org/latContents.jsp. Retrieved on February 12, 2021.

Latinobarómetro (2018b). Latinobarómetro 2018 survey. https://www.latinobarometro.org/latContents.jsp. Retrieved on February 12, 2021.

Lewbel, A. (2012). Using heteroscedasticity to identify and estimate mismeasured and endogenous regressor models. *Journal of Business & Economic Statistics*, 30(1):67–80.

Lowes, S., Nunn, N., Robinson, J. A., and Weigel, J. L. (2017). The evolution of culture and institutions: Evidence from the kuba kingdom. *Econometrica*, 85(4):1065–1091.

Lupu, N. and Peisakhin, L. (2017). The legacy of political violence across generations. *American Journal of Political Science*, 61(4):836–851.

Markevich, A. and Zhuravskaya, E. (2018). The economic effects of the abolition of serfdom: Evidence from the russian empire. *American Economic Review*, 108(4-5):1074–1117.

Meltzer, A. H. and Richard, S. F. (1981). A rational theory of the size of government. *Journal of political Economy*, 89(5):914–927.

Michalopoulos, S. and Papaioannou, E. (2017). *The Long Economic and Political Shadow of History Volume I. A Global View*. Centre for Economic Policy Research.

Naritomi, J., Soares, R. R., and Assunção, J. J. (2012). Institutional development and colonial heritage within brazil. *The journal of economic history*, pages 393–422.

Nogueira, O. and Firmo, J. S. (1973). *Parlamentares do Império (obra comemorativa do sesquicentenário da instituição parlamentar no Brasil)*, volume 1. Centro Gráfico do Senado Federal.

North, D. C. and Thomas, R. P. (1973). *The rise of the western world: A new economic history*. Cambridge University Press.

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

Nunn, N. (2020). The historical roots of economic development. *Science*, 367(6485).

Nunn, N. and Wantchekon, L. (2011). The slave trade and the origins of mistrust in africa. *American Economic Review*, 101(7):3221–52.

Özak, Ö. (2010). The voyage of homo-economicus: Some economic measures of distance.

Özak, Ö. (2018). Distance to the pre-industrial technological frontier and economic development. *Journal of Economic Growth*, 23(2):175–221.

Palma, N. P. G., Papadia, A., Pereira, T., and Weller, L. (2020). Slavery and development in nineteenth century brazil.

Papadia, A. (2017). Slavery, fiscal capacity and public goods provision in brazil: evidence from río de janeiro and são paulo, 1836-1912. In *III Seminar in Economic History*, volume 5.

Paquette, R. L. and Smith, M. M. (2010). Slavery in the americas. In *The Oxford Handbook of Slavery in the Americas*.

Power, T. and Zucco, C. (2009). Estimating ideology of brazilian legislative parties, 1990–2005. *Latin American Research Review*, 44(1):218–46.

Putnam, R. D. (1992). *Making democracy work: Civic traditions in modern Italy*. Princeton university press.

Reis, E. (2017). Historical perspectives on regional income inequality in brazil, 1872–2000. In *Has Latin American Inequality Changed Direction?*, pages 143–170. Springer, Cham.

Ridings, E. (2004). *Business interest groups in nineteenth-century Brazil*. Number 78. Cambridge University Press.

Robinson, J. A. and Verdier, T. (2013). The political economy of clientelism. *The Scandinavian Journal of Economics*, 115(2):260–291.

Rohner, D., Thoenig, M., and Zilibotti, F. (2013). Seeds of distrust: Conflict in uganda. *Journal of Economic Growth*, 18(3):217–252.

Rozenas, A. and Zhukov, Y. (2019). Mass repression and political loyalty: Evidence from stalin's' terror by hunger'. *American Political Science Review (forthcoming)*.

Seyler, F. and Silve, A. (2021). Frontier planters, immigrants, and the abolition of slavery in brazil.

Slave Voyages Database (2018). Slave voyages: The trans-Atlantic slave trade database. Retrieved from `http://www.slavevoyages.org/estimates/kCBqlBWr` and `http://www.slavevoyages.org/estimates/r3lNeZuD` on Feb. 2, 2020.

Stein, S. J. (1957). Vassouras, a brazilian coffee county, 1850-1900. *New York: Antheneum*.

Summerhill, W. (2010). Colonial institutions, slavery, inequality, and development: Evidence

from são paulo, brazil. *Slavery, Inequality, and Development: Evidence from Sao Paulo, Brazil (April 14, 2010)*.

Tabellini, G. (2008). The scope of cooperation: Values and incentives. *The Quarterly Journal of Economics*, 123(3):905–950.

Tabellini, G. (2010). Culture and institutions: economic development in the regions of europe. *Journal of the European Economic association*, 8(4):677–716.

TSE (2016). Repositório de dados eleitorais. *Tribunal superior eleitoral*, `https://www.tse.jus.br/eleicoes/estatisticas/repositorio-de-dados-eleitorais-1`. Retrieved on February 12, 2021.

Tur-Prats, A. and Valencia Caicedo, F. (2020). The long shadow of the spanish civil war.

Viotti da Costa, E. (1989). 1870-1889. In Bethell, L., editor, *Brazil: empire and republic, 1822-1930*, volume Vol. 3. Cambridge University Press.

Voigtländer, N. and Voth, H.-J. (2012). Persecution perpetuated: the medieval origins of anti-semitic violence in nazi germany. *The Quarterly Journal of Economics*, 127(3):1339–1392.

Zemella, M. P. (1990). *O abastecimento da capitania das Minas Gerais no século XVIII*, volume 19. Editora HUCITEC.

A Appendix

A.1 Abolition in Brazil: historical background

The Empire of Brazil featured an oligarchical political system, with a limited enfranchised elite holding a strong influence over political decision-making (Klein and Luna, 2009; Conrad, 1972; Viotti da Costa, 1989). In spite of the institution's deep roots and the stark resistance from the old guard of the planter class, the 1888 abolition of slavery put an end to almost four centuries of systematic coercion. In an economy largely driven by agricultural exports and dominated by a planter elite heavily dependent on captive labour, one might wonder how such an achievement was possible.

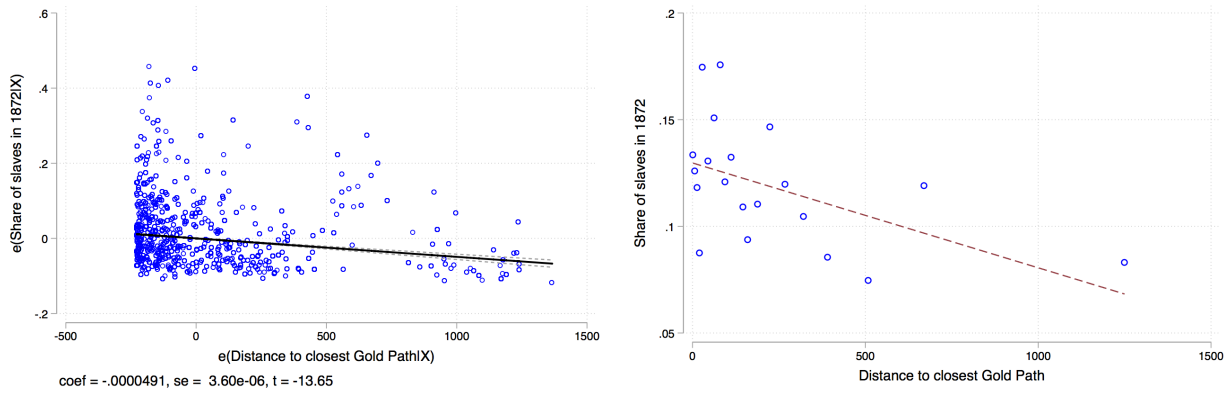
The abolition of slavery was the result of a drawn-out legislative process. After the extinction of the Atlantic slave trade (largely driven by pressure from the British Crown) in the 1850s, it took another twenty years (and the build-up of domestic and foreign abolitionist pressure, especially after the American Civil War) for a first emancipation bill to be voted in parliament. In 1871, the *Lei do Ventre Livre* (Law of the Free Womb) liberated every children born of slave mothers. Although it constituted an important step towards abolition, the 1871 law had limited effects in the short-run and reflected the lenience of the central power to the slaveholders (most liberated newborns remained enslaved and had to provide labour their majority). Moreover, the Lei do Ventre Livre became a powerful argument by which slavocrats were able to quell the abolitionists' voice for several years (Ridings, 2004).

A decade later, its relative failure was however widely acknowledged. The question of abolition was brought back into parliamentary discussions in the 1880s, especially after a wave of unrest from Northeastern abolitionists culminated with the *de facto* abolition of slavery in Ceará. This prompted a reaction from the Throne, and Emperor Pedro II charged a new cabinet to move forward with the question of emancipation in 1884. The proposal drafted by this new cabinet (known as the Dantas Project) gave rise to an unprecedented rallying of pro-slavery interest groups (Ridings, 2004) and a parliamentary crisis of unrivalled proportions (Conrad, 1972; Viotti da Costa, 1989). The second half of the 1880s were marked by an intensification of parliamentary debates and a number of bills progressing towards the emancipation of labor. In 1885, the *Lei dos Sexagenários* emancipated slaves over sixty years old (with a number of provisions amicable to slaveholders' interests). Towards the end of the 1880s, several planters (mostly in São Paulo) started to gradually convert to abolitionism, especially after efforts to attract European migrants to work in the coffee plantations started paying off. Emancipation movements also began to radicalise, and when a new legislative session opened in May 1888, it had one priority: finally bring a solution to the question of emancipation. Merely days later, a bill—later known as the *Lei Áurea*, the Golden Law—

proclaiming the abolition of slavery was voted and approved by the Princess Regent, thus putting an end to the last remnants of legal slavery in the Americas (Klein and Luna, 2009).

A.2 Instrumental variables strategy

A.2.1 Supporting graphs and tables



(a) Added-variable

(b) Binned

Figure 3: First stage unconditional plots

Notes: Added-variable plot and binned scatter plot between municipality-level share of slaves in 1872 and distance (in km) from the municipality's centroid to the closest gold path. No controls.

Table 8: 2SLS - First stage

	Using heteroskedasticity in all regressors			*Using heteroskedasticity in one regressor*		
	(1) Sh. of slaves	(2) Av. abo. voting	(3) Interaction	(4) Sh. of slaves	(5) Av. abo. voting	(6) Interaction
Ln(16th Ind. rep. area)	-0.002	-0.006	-0.001	-0.002	-0.000	-0.002
	(0.002)	(0.005)	(0.002)	(0.002)	(0.007)	(0.002)
Ln(17-18th Ind. rep. area)	0.001	-0.033***	0.001	-0.001	-0.025*	-0.001
	(0.003)	(0.013)	(0.002)	(0.004)	(0.014)	(0.003)
Ln(Dist. G. Path)	0.007	-0.053***	0.003	0.004	-0.018	0.002
	(0.005)	(0.021)	(0.004)	(0.004)	(0.020)	(0.003)
Ln(16th Ind. rep. area) × Ln(Dist. G. Path)	-0.001	0.003**	-0.000	-0.000	0.001	-0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.002)	(0.000)
Ln(17-18th Ind. rep. area) × Ln(Dist. G. Path)	-0.000	0.005**	-0.000	-0.000	0.003	0.000
	(0.001)	(0.002)	(0.000)	(0.000)	(0.002)	(0.000)
Het(Gold dummy): Sh. of slaves	-6.495***	-4.353	-2.039	-11.551***	2.896	-0.799
	(2.042)	(3.165)	(1.322)	(0.823)	(2.437)	(0.521)
Het(Gold dummy): Abo. voting	-0.645	-3.785**	-0.324	-0.900**	-5.939***	-0.405
	(0.392)	(1.838)	(0.259)	(0.433)	(2.162)	(0.294)
Het(Gold dummy): Interaction	2.699*	3.706	-1.595	4.929*	-6.099	-6.181**
	(1.416)	(4.558)	(1.556)	(2.535)	(4.927)	(2.505)
Observations	4,159	4,159	4,159	4,159	4,159	4,159
Controls	All	All	All	All	All	All
State FEs	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *p<0.1; **p<0.05; ***p<0.01. Electoral district-level clustered standard errors in parentheses. Columns (1)-(3) use 45 different heteroskedasticity-based instruments, but only three are reported for the sake of space. Columns (4)-(6) use only the reported heteroskedasticity-based instruments. First stage results are qualitatively identical across outcomes (not numerically when there are differences in the number of observations). The results reported in this table correspond to the observations of a year 2000 outcome. Controls include: population density in 1872, municipality area, coffee, sugar, and cotton suitability, rainfall, longitude and latitude, distance to the coast, human mobility index, party affiliation during the abolition period, share of free colored in 1872, literacy in 1872, a dummy for gold mining areas, and distance to the closest diamond mine.

A.3 Additional tables and graphs

Table 9: Municipal GDP, slavery and average pro-abolition voting

	Total Municipal GDP (in MR$) by year							
	1920	1939	1949	1959	1970	1980	1996	2000
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PANEL A: No controls								
Share of slaves	-13.8	-90.8	-116.1	-79.3	-91.6	77.0	243.7	340.2
	(26.7)	(119.1)	(170.1)	(236.7)	(334.0)	(737.1)	(608.3)	(606.5)
	{20.8}	{91.5}	{140.3}	{208.2}	{322.5}	{709.5}	{565.4}	{606.4}
R-squared	0.036	0.020	0.017	0.012	0.010	0.011	0.008	0.009
Share of slaves	-59.1	-309.9	-454.7	-652.0	-1,078.9	-2,296.2	-1,775.7	-1,683.7
	(71.3)	(322.1)	(482.2)	(694.0)	(984.1)	(1,993.4)	(1,721.7)	(1,599.1)
	{49.1}	{220.1}	{350.2}	{528.5}	{837.0}	{1,702.4}	{1,337.9}	{1,368.8}
Av. abo. voting	-7.2	-33.6	-61.6	-84.2	-159.8	-374.4	-320.2	-359.7
	(9.9)	(46.8)	(73.6)	(101.4)	(140.9)	(292.0)	(243.2)	(233.7)
	{5.1}	{25.1}	{42.3}	{66.2}	{106.2}	{217.6}*	{159.8}**	{175.6}**
Sh. slaves × Av. abo. voting	113.5	571.7	854.2	1,385.6	2,255.1	5,411.0	4,319.1	4,281.2
	(110.3)	(513.0)	(775.1)	(1,094.7)	(1,513.5)	(3,075.1)*	(2,572.7)*	(2,383.2)*
	{82.2}	{383.6}	{597.2}	{874.7}	{1,311.1}*	{2,689.4}**	{2,035.1}**	{2,076.3}**
R-squared	0.043	0.025	0.021	0.014	0.012	0.014	0.010	0.011
PANEL B: Geographical controls								
Share of slaves	-46.7	-305.9	-494.2	-716.7	-1,119.5	-2,129.6	-1,904.0	-1,756.6
	(34.0)	(186.5)	(303.6)	(473.1)	(740.9)	(1,514.11)	(1,404.14)	(1,337.5)
	{29.4}	{160.7}*	{276.1}*	{446.7}	{730.1}	{1,483.9}	{1,385.1}	{1,330.7}
R-squared	0.334	0.227	0.190	0.106	0.073	0.076	0.061	0.051
Share of slaves	-66.2	-403.8	-654.8	-1,054.1	-1,814.6	-3,955.1	-3,650.5	-3,468.0
	(49.0)	(258.3)	(416.6)	(665.9)	(1,074.8)*	(2,178.0)*	(2,104.3)*	(2,002.7)*
	{37.2}*	{190.4}**	{332.0}**	{539.4}*	{937.7}*	{1,901.6}**	{1,789.4}**	{1,810.1}*
Av. abo. voting	3.6	22.2	24.6	46.4	32.6	15.4	4.5	6.8
	(9.0)	(43.4)	(65.6)	(93.4)	(132.0)	(281.3)	(264.4)	(256.4)
	{8.2}	{40.0}	{58.3}	{88.1}	{118.0}	{249.5}	{225.8}	{224.8}
Sh. slaves × Av. abo. voting	59.2	315.6	487.3	925.6	1,726.6	4,434.1	3,957.4	3,895.7
	(49.5)	(248.2)	(382.1)	(598.6)	(954.8)*	(1,946.0)**	(1,870.5)**	(1,821.1)**
	{38.1}	{181.5}*	{289.1}*	{460.2}**	{795.0}**	{1,671.3}***	{1,494.0}***	{1,647.7}**
R-squared	0.339	0.231	0.193	0.109	0.076	0.081	0.064	0.053
PANEL C: All controls								
Share of slaves	-43.3	-270.1	-438.0	-611.5	-963.2	-1,767.8	-1,549.1	-1,394.4
	(32.7)	(175.3)	(285.6)	(445.6)	(689.2)	(1,408.2)	(1,296.8)	(1,225.8)
	{28.3}	{151.6}*	{262.6}*	{421.6}	{677.4}	{1,381.9}	{1,282.1}	{1,226.4}
R-squared	0.337	0.230	0.193	0.108	0.075	0.079	0.063	0.052
Share of slaves	-69.9	-424.7	-695.3	-1,101.0	-1,882.9	-4,092.9	-3,772.6	-3,540.6
	(50.2)	(264.5)	(431.2)	(683.7)	(1,096.5)*	(2,222.2)*	(2,144.8)*	(2,035.6)*
	{38.0}*	{197.2}**	{344.3}**	{558.3}**	{965.1}*	{1,960.7}**	{1,864.0}**	{1,870.2}*
Av. abo. voting	10.7	41.3	45.1	54.0	35.9	-14.8	-46.9	-37.6
	(12.4)	(58.2)	(90.7)	(125.8)	(175.7)	(373.0)	(347.2)	(345.5)
	{11.8}	{54.7}	{82.3}	{113.6}	{147.9}	{309.0}	{283.1}	{272.0}
Sh. slaves × Av. abo. voting	70.4	405.3	643.9	1,154.8	2,059.5	5,156.1	4,666.2	4,509.6
	(53.4)	(274.6)	(433.2)	(678.9)*	(1,067.9)*	(2,186.3)**	(2,150.9)**	(2,086.5)**
	{38.8}*	{191.6}**	{310.7}**	{512.0}**	{893.1}**	{1,929.4}***	{1,815.9}**	{1,974.8}**
R-squared	0.344	0.236	0.197	0.111	0.078	0.083	0.065	0.055
Observations	1,278	1,554	1,869	2,733	3,908	3,944	4,913	5,435
Mean of dep. var.	8.8	28.6	42.8	56.9	78.4	192.6	190.2	214.2
State F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

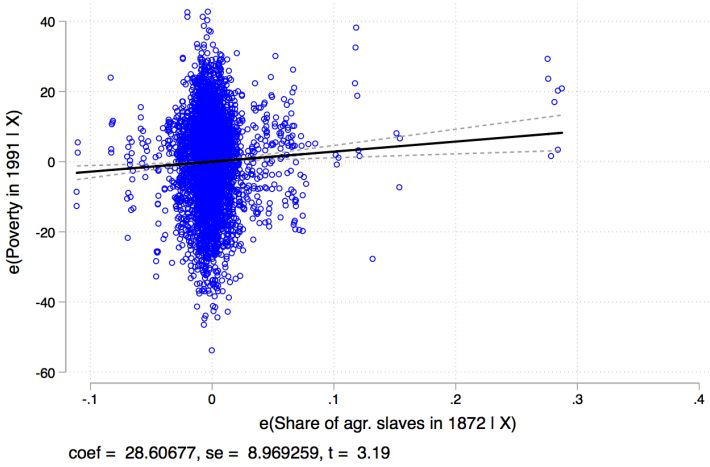
Notes: *p<0.1; **p<0.05; ***p<0.01. Electoral district-level clustered standard errors in parentheses. Conley standard errors (with a 100km window) in curly brackets. Geographical controls: population density in 1872, municipality area, coffee, sugar, and cotton suitability, rainfall, longitude and latitude, distance to the coast, and human mobility index. Panel C includes, in addition to geographical covariates, political and demographic controls: party affiliation during the abolition period, share of free colored in 1872 and literacy in 1872.

Table 10: Municipal sectoral GDP, slavery and average pro-abolition voting

	Total Municipal GDP (in MR$) by year and sector							
	1970	1980	1996	2000	1970	1980	1996	2000
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PANEL A: Agricultural GDP								
Share of slaves	9.9	10.7	13.9	11.7	13.3	27.0	10.7	4.5
	(4.8)**	(10.6)	(8.2)*	(6.7)*	(8.6)	(15.9)*	(14.8)	(10.2)
	{5.7}*	{10.7}	{8.6}	{7.1}*	{8.1}*	{14.6}*	{10.7}	{8.0}
Av. abo. voting					2.9	10.5	4.0	0.8
					(2.5)	(6.2)*	(4.4)	(3.0)
					{2.0}	{4.9}**	{4.6}	{2.6}
Sh. slaves × Av. abo. voting					-6.9	-32.9	8.1	15.5
					(13.9)	(32.7)	(24.7)	(18.4)
					{10.5}	{26.1}	{17.6}	{13.7}
R-squared	0.149	0.211	0.120	0.166	0.149	0.213	0.121	0.167
PANEL B: Industrial GDP								
Share of slaves	-310.1	-546.7	-413.0	-108.3	-667.0	-1,530.2	-1,194.6	-482.7
	(214.6)	(487.7)	(390.5)	(188.8)	(344.5)*	(756.3)**	(640.3)*	(328.5)
	{217.4}	{466.0}	{385.3}	{170.2}	{318.9}**	{678.3}**	{566.4}**	{307.2}
Av. abo. voting					14.1	-12.5	-36.2	-18.2
					(61.3)	(142.9)	(112.4)	(70.2)
					{49.8}	{115.2}	{88.9}	{52.1}
Sh. slaves × Av. abo. voting					800.0	2,179.2	1,634.1	783.0
					(353.6)**	(798.4)***	(665.6)**	(394.1)**
					{323.4}**	{775.4}***	{625.3}***	{428.1}*
R-squared	0.040	0.054	0.050	0.036	0.043	0.058	0.052	0.037
PANEL C: Services GDP								
Share of slaves	-663.0	-1,231.8	-1,150.1	-1,008.4	-1,228.4	-2,589.6	-2,588.6	-2,359.5
	(481.2)	(935.4)	(916.6)	(798.8)	(763.8)	(1,482.9)	(1,514.6)	(1,318.7)
	{466.3}	{924.9}	{899.2}	{815.0}	{665.3}*	{1,318.3}**	{1,312.0}**	{1,248.5}*
Av. abo. voting					18.9	-12.8	-14.7	-19.1
					(118.2)	(236.7)	(240.1)	(218.5)
					{100.8}	{198.8}	{196.7}	{173.6}
Sh. slaves × Av. abo. voting					1,266.4	3,009.8	3,024.0	2,840.4
					(732.5)*	(1,430.9)**	(1,519.6)**	(1,339.7)**
					{602.5}**	{1,231.6}**	{1,243.5}**	{1,276.7}**
R-squared	0.105	0.098	0.068	0.054	0.108	0.102	0.071	0.057
Observations	3,908	3,944	4,913	5,435	3,908	3,944	4,913	5,435
Controls	All	All	All	All	All	All	All	All
State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *p<0.1; **p<0.05; ***p<0.01. Electoral district-level clustered standard errors in parentheses. Conley standard errors (with a 100km window) in curly brackets. Controls include population density in 1872, municipality area, coffee, sugar, and cotton suitability, rainfall, longitude and latitude, distance to the coast, human mobility index, party affiliation during the abolition period, share of free colored in 1872 and literacy in 1872.

(a) Irrespective of abolitionist voting



(b) Conditional on anti-abolitionist voting

Figure 4: Poverty in 1991 (%) and share of slaves in 1872

Notes: Added-variable plots between the municipality-level share of poor individuals in 1991 and the municipality-level share of slaves in 1872, both unconditional to abolition voting (top panel) and conditional to systematic anti-abolition voting (bottom panel). Poverty is defined as the share of individuals living with less than half the minimum wage in 1991. On the y-axis, e(Poverty in 1991|X) are the residuals from the regression of poverty on all controls and fixed effects, and on the x-axis, e(Share of agr. slaves in 1872|X) are the residuals from the regression of the share of slaves on all controls and fixed effects. The figure thus plots the variation in the share of slaves not correlated with X against the variation in poverty not correlated with X. Controls include population density in 1872, municipality area, average soil suitability for coffee, sugar and cotton, average rainfall, longitude, latitude, distance to the coast, human mobility index, average party affiliation in 1882-1888, share of free colored in 1872 and literacy share in 1872.

Table 11: Development outcomes, agricultural slavery and average pro-abolition voting

	Development outcomes					
	Ln(Tot. GDP 2000)	% Poverty 1991	Theil index 1991	HH inc. 1991	% Lit. 2000	Inf. Mort. 1991
	(1)	(2)	(3)	(4)	(5)	(6)
Share of agr. slaves	-1.426	28.607	0.220	-0.229	-0.500	0.517
	(1.298)	(24.059)	(0.133)	(0.493)	(8.563)	(19.033)
	{1.143}	{15.058}*	{0.105}**	{0.342}	{6.106}	{13.385}
Av. abo. voting	-0.141	0.219	-0.004	0.020	-1.385	2.640
	(0.275)	(5.492)	(0.030)	(0.096)	(2.620)	(5.848)
	{0.221}	{3.104}	{0.022}	{0.060}	{1.664}	{3.336}
Sh. agr. slaves × Av. abo. voting	3.856	-84.101	-0.289	1.398	23.325	-47.387
	(2.916)	(47.321)*	(0.246)	(1.009)	(18.394)	(43.051)
	{2.101}*	{27.552}***	{0.183}	{0.684}**	{11.790}**	{24.902}*
Observations	5,435	4,443	4,443	4,443	5,435	5,435
R-squared	0.258	0.679	0.106	0.562	0.762	0.790
Mean dep. var.	10.464	62.823	0.504	0.725	78.230	67.230
Controls	All	All	All	All	All	All
State FEs	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *p<0.1; **p<0.05; ***p<0.01. Electoral district-level clustered standard errors in parentheses. Conley standard errors (with a 100km window) in curly brackets. Controls include population density in 1872, municipality area, coffee, sugar, and cotton suitability, rainfall, longitude and latitude, distance to the coast, human mobility index, party affiliation during the abolition period, share of free colored in 1872 and literacy in 1872.

Table 12: Contemporary outcomes and historical determinants of pro-abolition voting

	Outcomes											
	% Poverty 1991				Theil index 1980				HH income 1991			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Share of slaves	4.711	9.297	2.823	2.935	0.153	0.142	0.143	0.142	-0.050	-0.095	0.003	0.003
	(14.219)	(14.000)	(15.363)	(15.413)	(0.073)**	(0.077)*	(0.074)*	(0.074)*	(0.250)	(0.245)	(0.281)	(0.281)
	{8.956}	{9.065}	{9.374}	{9.397}	{0.066}**	{0.065}**	{0.064}**	{0.064}**	{0.170}	{0.167}	{0.182}	{0.183}
Av. abo. voting	0.770	0.427	0.271	0.132	0.003	0.004	0.000	0.001	-0.024	-0.021	-0.010	-0.010
	(5.222)	(5.177)	(5.506)	(5.500)	(0.029)	(0.028)	(0.030)	(0.030)	(0.089)	(0.088)	(0.095)	(0.095)
	{3.261}	{3.258}	{3.349}	{3.347}	{0.024}	{0.024}	{0.024}	{0.024}	{0.060}	{0.059}	{0.062}	{0.062}
Sh. slaves × Av. abo. voting	-36.554	-46.094	-39.225	-39.343	-0.122	-0.098	-0.135	-0.134	0.784	0.877	0.860	0.861
	(23.811)	(24.648)*	(24.291)	(24.297)	(0.123)	(0.139)	(0.122)	(0.122)	(0.474)	(0.471)*	(0.487)*	(0.488)*
	{14.769}**	{15.280}***	{15.201}***	{15.210}***	{0.111}	{0.113}	{0.110}	{0.110}	{0.325}**	{0.315}***	{0.340}**	{0.340}**
1890 immigration	-42.860	-106.427			-0.199	-0.052			1.254	1.876		
	(24.561)*	(29.256)***			(0.153)	(0.280)			(0.433)***	(0.642)***		
	{14.720}***	{27.555}***			{0.112}*	{0.194}			{0.289}***	{0.613}***		
Sh. slaves × 1890 immigration		113.098				-0.269				-1.107		
		(59.302)*				(0.622)				(1.303)		
		{45.420}**				{0.377}				{1.114}		
Ln. quilombo area			0.119	-0.165			0.001	0.003			-0.000	0.001
			(0.128)	(0.310)			(0.001)	(0.003)			(0.003)	(0.007)
			{0.124}	{0.261}			{0.001}	{0.003}			{0.003}	{0.006}
Sh. slaves × Ln. quilombo area				0.418				-0.003				-0.001
				(0.444)				(0.003)				(0.010)
				{0.370}				{0.004}				{0.008}
Observations	4,443	4,443	4,443	4,443	3,944	3,944	3,944	3,944	4,443	4,443	4,443	4,443
R-squared	0.682	0.683	0.680	0.680	0.133	0.133	0.132	0.132	0.569	0.569	0.564	0.564
Controls	All	All	All	All	All	All	All	All	All	All	All	All
State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *p<0.1; **p<0.05; ***p<0.01. Electoral district-level clustered standard errors in parentheses. Conley standard errors (with a 100km window) in curly brackets. Controls include population density in 1872, municipality area, coffee, sugar, and cotton suitability, rainfall, longitude and latitude, distance to the coast, human mobility index, party affiliation during the abolition period, share of free colored in 1872 and literacy in 1872. Similar results are available for GDP, not included for the sake of space.

Table 13: Social capital, slavery and average pro-abolition voting - Additional outcomes

	Social capital/political outcomes in 2018							
	Supp. for autocracy		Sat. with democracy		Qual. of democracy		View on the President	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of slaves	-0.559	0.105	-0.167	-0.174	-0.011	-0.184	-0.006	0.247
	(0.226)**	(0.253)	(0.041)***	(0.059)***	(0.077)	(0.108)*	(0.074)	(0.141)*
	{0.182}***	{0.281}	{0.052}***	{0.067}***	{0.087}	{0.118}	{0.074}	{0.149}*
Av. abo. voting		0.274		0.001		-0.053		0.086
		(0.100)***		(0.024)		(0.045)		(0.048)*
		{0.111}**		{0.027}		{0.046}		{0.049}*
Sh. slaves × Av. abo. voting		-1.539		0.022		0.417		-0.607
		(0.504)***		(0.084)		(0.187)**		(0.238)**
		{0.523}***		{0.085}		{0.191}**		{0.242}**
Observations	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204
R-squared	0.030	0.036	0.063	0.063	0.026	0.028	0.038	0.040
Mean dep. var.	0.138	0.138	0.011	0.011	0.027	0.027	0.056	0.056
Controls	All	All	All	All	All	All	All	All
State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *p<0.1; **p<0.05; ***p<0.01. Electoral district-level clustered standard errors in parentheses. Conley standard errors (with a 100km window) in curly brackets. Controls include population density in 1872, municipality area, coffee, sugar, and cotton suitability, rainfall, longitude and latitude, distance to the coast, human mobility index, party affiliation during the abolition period, share of free colored in 1872 and literacy in 1872.

Table 14: Clientelism, slavery and average pro-abolition voting

	Clientelism outcomes			
	Gifts and favors		Non-private voting	
	(1)	(2)	(3)	(4)
Share of slaves	-0.351	-0.250	0.028	0.665
	(0.235)	(0.231)	(0.338)	(0.584)
	{0.208}*	{0.229}	{0.323}	{0.605}
Av. abo. voting		-0.127		0.159
		(0.148)		(0.188)
		{0.128}		{0.193}
Sh. slaves × Av. abo. voting		-0.403		-1.604
		(0.620)		(0.992)
		{0.517}		{0.961}*
Observations	1,192	1,192	1,157	1,157
R-squared	0.046	0.051	0.051	0.056
Mean dep. var	0.286	0.286	0.342	0.342
Controls	All	All	All	All
State FEs	Yes	Yes	Yes	Yes

Notes: *p<0.1; **p<0.05; ***p<0.01. Electoral district-level clustered standard errors in parentheses. Conley standard errors (with a 100km window) in curly brackets. Controls include population density in 1872, municipality area, coffee, sugar, and cotton suitability, rainfall, longitude and latitude, distance to the coast, human mobility index, party affiliation during the abolition period, share of free colored in 1872 and literacy in 1872.