Tordesillas, Slavery and the Origins of Brazilian Inequality*

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Abstract

This article documents the long-term impact of slavery on inequality at the receiving end. We focus on Brazil, the largest importer of African slaves and the last country to abolish this institution in the Western Hemisphere in 1888. To deal with the endogeneity of slavery placement, we use a spatial Regression Discontinuity Design (RDD), exploiting the Tordesillas Treaty, which established the colonial boundaries between the Portuguese and Spanish empires within Brazil. We find that the number of slaves in 1872 is discontinuously higher on the Portuguese side of the border, consistent with this power's comparative advantage in transatlantic slavery. We then show how this differential slave rate led to a higher modern income inequality of 0.04 points (of the Gini index), close to 10% of the average income inequality in the country. In terms of mechanisms, we find a wider racial income gap, as well as important differences in education, employment and prejudice against blacks in modern times. We rule out the role of colonizer identity and other mechanisms proposed in the historical literature.

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1 Introduction

The transatlantic slave trade constituted a defining demographic, social and economic event in world history. Researchers now estimate that between the fifteenth and nineteenth centuries, more than 12 million slaves were taken from Africa, of which 10.7 million disembarked in the Americas (Eltis and Richardson, 2010). Although the negative impact of this massive human trafficking has been documented for exporting African nations (Nunn, 2008a; Nunn and Wantchekon, 2011), less is known about the long-term impact of slavery as an institution on the receiving end of the spectrum. The endogenous placement of slaves, as well as the lack of historical data, especially at a granular level, make the analysis complex.

To make progress on this important question, in this paper we focus on Brazil. As the largest recipient of African slaves in history, this country is particularly well suited to study the aftermath of slavery. Brazil was also the last country in the Western Hemisphere to abolish this institution in 1888. This allows us to use the 1872 census to estimate the intensity of slavery at the municipal level.[1] Brazil also remains one of the most unequal and immobile countries in the world today (Britto et al., 2022; Milanovic, 2011). Hence, our motivation here is twofold. First, we are interested in evaluating the impact of slavery on income inequality at the sub-national level. Conversely, we want to explore the historical roots of modern economic inequality in one of the most unequal societies in the world.

Conceptually, we perform a quantitative re-examination of the Engerman and Sokoloff (1997, 2002) hypothesis. According to this thesis, the development trajectories in the Americas can be explained by initial factor endowments and subsequent colonial productive structures, which affected inequality and development in the long run. In this paper, we focus on the link between transatlantic slavery and economic inequality. Even though this hypothesis has been examined at the cross-country level (Nunn, 2008b; Soares et al., 2012), a careful sub-national analysis could help to isolate the confounding effect of national-level institutional, historical and cultural legacies.[2] We are further interested in the underlying mech-

[1] The First Republic Census of Brazil from 1890 already does not report slave status. In modern times, according to the 2010 census, the majority of Brazilians defined themselves as mixed, pardo and black. The five ethno-racial categories in the census are black, pardo, indigenous, Asian and white.

[2] Different from Lagerlöf (2005) and Fenske and Kala (2015) we do not focus here on evaluating the impact of geography or climate on slavery, since these are continuous variables in our analysis, but rather on the impact of slavery on inequality and income.

anisms of transmission, in terms of education, labor and discrimination, leading to inequality and underdevelopment in the long run.

In our empirical analysis, we conduct a geographic Regression Discontinuity Design (RDD). We exploit the historical boundary provided by the Treaty of Tordesillas (1494), which divided the Spanish and Portuguese empires in the New World along a meridian (a line crossing the globe from north to south). Importantly, the drawing of the Tordesillas line pre-dated the European "discovery" of South America, which occurred during the third voyage of Christopher Columbus (1498). Still, the Tordesillas Treaty provided the foundation for the eventual Portuguese colonization of the continent (Seed, 1995; Herzog, 2015). Portugal had a comparative advantage in slave trade relative to Spain, as a result of its previous exploration of the African coast as well as its plantation experience in Sao Tomé and the Azores Islands.

To assess the effect of slavery, we use as a running variable a municipality's distance to the Tordesillas line. For estimation we use the non-parametric method proposed by Calonico et al. (2014) combined with the donut RDD of Barreca et al. (2011).[3] We use the earliest granular record of slave populations in Brazil (the 1872 census) and document that the share of population under slavery in 1872 is discontinuously higher on the Portuguese (east) side relative to the Spanish (west) side of the Tordesillas line, consistent with the historical narrative. In modern times, we observe a discontinuous jump in income inequality. The conservative estimates for 2010 are about 0.043 Gini index points, or slightly less than 10% of the 0.484 index for Brazil. We do not find a substantial effect on the level of income, as hypothesized by Engerman and Sokoloff (1997, 2002), suggesting that the effect of slavery is working in this case on the second moment of the income distribution (in line with Nunn (2008b)).

To better understand the effect of slavery on income inequality, we decompose our effects on inequality both within and between races and we find effects along both dimensions. Municipalities on the former Portuguese side of the border, where more slaves inhabited historically, present higher income gaps between blacks and whites. These gaps are economically large, in the order of 20%. Further income decompositions reveal important differences within the white and black populations. Gini indexes for both races are discontinuously higher at the border. The same is true for the Theil index, in general, as well as for decompo-

[3]Michalopoulos and Papaioannou (2013) apply "thick" borders (50 or 100 kilometers) that separate ethnic groups in Africa. Lowes and Montero (2021) also use a "Donut Hole" RD approach to test the effects of rubber colonial concessions on economic development.

sitions both between and within races.

To analyze intermediate historical outcomes, we use data from the 1920 census. We find an early indication of structural transformation, with manufacturing (agricultural) outcomes higher (lower) at the former Portuguese side of the border. In terms of specific crops, we find more cultivation of coffee. We find no large differences in international migration flows.

To examine the potential role of colonizer identity, we look at the case of Dutch Brazil. The Dutch had an important early colonial presence in the Brazilian Northeast. Even though they might have been more different culturally from the Portuguese than the Spaniards, they were also major slave traders. Hence, with this case we can distinguish between colonial cultural legacies and slavery regimes. Empirically, we conduct a spatial RDD, where we find no significant differences in the number of slaves imported, relative to the Portuguese, and no corresponding differences in terms of inequality later on. The results suggest that slavery mattered more than colonizer identity for Brazilian income inequality.

We then turn to our main mechanisms of transmission for income inequality. Slaves were, by definition, a population with no wages, but also no assets and essentially no education. Accordingly, we examine long-term trends in education, the labor market and racial prejudice. We find significant differences in literacy for blacks, even today. We also find that these discontinuities are more present for the parents than for their children's generation, suggesting some mobility. We find similar results for unemployment rates, which are also higher for blacks, and hourly wages, which appear lower. These labor disparities are present at both the extensive (participation) and intensive (hours worked) margins. Using a specialized survey on race by the PERLA project (Telles, 2014) and other relevant surveys, we also find suggestive evidence for prejudice in the labor market. We document a striking negative relationship between income, education and skin color in Brazil. We also show how skin color matters even after controlling for observables, and how respondents hold negative attitudes toward blacks in this nationally representative survey.

We also explore other mechanisms of persistence that have been suggested in the historical literature. We mostly follow S. Engerman and Sokoloff (1997), finding no significant effects on land inequality, historic or modern voting. We find no significant differences on a variety of measures of institutional presence and judicial capacity, but find important ones in self-organized racial equality councils. The effect on trust is observable, though muted, with the exception of trust in the judiciary (Nunn and Wantchekon, 2011). Demographically, there are no large jumps for white, pardo, black or international populations in modern times (cf. Fogel and Engerman, 1974; Bertocchi and Dimico, 2020).

Lastly, we provide several robustness tests for our baseline findings. These appear robust to changes in the parameters of the econometric estimation strategies, as well as alternative sources of historic and modern data. This holds for both slavery and modern income inequality.

1.1 Literature

Recent empirical research in economics has quantified the negative economic impact of slave trade on origin African countries. Nunn (2008a) explains a significant part of Africa's current underdevelopment with slave intensity, relying on data from shipping records and matching them to ethnicities today. Focusing on mechanisms of transmission, Nunn and Wantchekon (2011) show a negative relationship between an individual's reported level of trust in others and the number of slaves taken from that individual's ethnic group during the transatlantic slave trades. Follow-up papers have continued this line of inquiry. For instance, Fenske and Kala (2017) have related slavery to conflict, Bertocchi and Dimico (2019) to the prevalence of HIV/AIDS, Bertocchi and Dimico (2020) to family size, Teso (2019) to modern female labor force participation, while Lowes and Montero (2019) look at the particular case of the Congo rubber concessions.[4]

The effect of slavery as an institution on receiving and trading nations is relatively less well understood. Nunn (2008b) examines the Engerman and Sokoloff (1997, 2002) hypothesis empirically, using data at the national and sub-national levels. He finds again that slavery is related to underdevelopment, but that the relationship does not appear to be working through inequality. In turn, Soares et al. (2012) document a strong correlation between slavery and modern levels of inequality in a cross section of countries. Derenoncourt et al. (2021) reveal the staggering wealth gap between whites and blacks in the United States. For Europe, Derenoncourt (2018) finds a positive effect of slavery on European ports involved in this trade and Heblich et al. (2021) on British industrialization.

Focusing on the US, Fogel and Engerman's watershed work *Time on the Cross*

[4]Pierce and Snyder (2018) and Levine et al. (2020) document the impact of slavery on lower credit and access to finance. Zhang et al. (2021) look at the impact of this institution on conflict, while Edlund and Ku (2011), La Ferrara et al. (2020) tie it to polygyny and female genital cutting.

(1974) provided a critical historic and quantitative re-examination of the American slavery experience. The authors documented the relatively low levels of slave imports as well as the higher than average reproduction rates and quantified the productivity of the slave economy. This seminal piece led to many other contributions, including Smith (1984), Margo (1990), Coatsworth and Taylor (1998), and Mitchener and McLean (2003). More recently, Lagerlöf (2005) look at the role of geography, Naidu (2012) at suffrage and schooling, and Bertocchi and Dimico (2014) at education. Gouda and Rigterink (2013) and Buonanno and Vargas (2019) link slavery to higher crime, while Acharya et al. (2016, 2018) analyze its sweeping impact on Southern politics.

Still, our knowledge of the long-term economic impact of slavery remains relatively precarious going south of the border. Dell (2010) documents the negative long-term effect of the *mita* labor system in Peru and Bolivia. Though this forced labor institution was not equivalent to slavery, this article is conceptually close. In a lone exception, Acemoglu et al. (2012), show the negative impact of slavery in Colombia, using variation in gold mines historically. Naritomi et al. (2012) stress the importance of colonial booms for Brazilian economic development. Still, this paper is the first to quantify the effect of slavery in Brazil, the largest recipient of African slaves in the world. We contribute to this literature with new data and a novel econometric identification strategy, based on former colonial boundaries.

We also contribute to the booming literature on historical inequality (Piketty, 2014, 2020; Piketty and Saez, 2003, 2006, 2014), particualrly as it pertains to Brazil during both historical (Milá, 2015; Souza, 2016; Wigton-Jones, 2019) and modern times (Arretche, 2018; Bourguignon et al., 2007; Britto et al., 2022; Ferreira et al., 2008). We also add to the small literature on racial inequality in Brazil (Botelho et al., 2015; Hirata and Soares, 2020; Soares et al., 2012). We focus here on the underlying institutional and economic structures leading to these income distributions, rather than the political or ideological dimensions of this problem (Gethin, 2018; Piketty, 2020). To this end, we build on the historical comparative development literature, summarized by Bisin and Federico (2021), Michalopulos and Papaioannou (2017), Nunn (2009, 2014, 2020), Spolaore and Wacziarg (2013).

The rest of the paper is organized as follows. In the next section, we provide the historical background with regards to the Tordesillas Treaty, as well as slavery in South America in general and Brazil in particular. Section 3 describes the data and Section 4 presents the identification strategy and estimation framework.

Section 5 contains the main empirical results of the paper. Section 6 presents the mechanisms of transmission and Section 7 the robustness tests. Section 8 concludes.

2 Historical Context

2.1 Tordesillas Treaty: Spanish and Portuguese South America

The Treaty of Tordesillas was signed soon after the European arrival in the New World in 1492. After Columbus's return from the Americas, in 1493, King Ferdinand II of Aragon, Queen Isabella I of Castile and King John II of Portugal secured two papal bulls called *Inter Caetera*. The bulls entrusted the European monarchs with the duty to convert indigenous people in return for rights in territories discovered west of the meridian passing 370 leagues off the Cabo Verde and Azores Islands (Herzog, 2015). In 1494, the Spanish and Portuguese monarchs formally signed the Treaty of Tordesillas in the province of Valladolid, Spain.[5] The treaty effectively separated the globe by a meridian located 370 leagues (approximately 1,850 kilometers) to the west of the Cape Verde Islands. Lands to the east of the meridian would be Portuguese, while those to the west would be Spanish (see Figure A1). This treaty constitutes the first Western partition of ultramarine colonial territories.

Importantly, the demarcation of the Tordesillas Line pre-dated the Portuguese discovery of Brazil. The northern tip of South America was only sighted during Columbus's third voyage in 1498-1500. A fleet commanded by Pedro Álvares Cabral reached the Brazilian coast on April 22, 1500. Still, the pre-existing Tordesillas Treaty dictated the borders of the New World and secured the foundation for the Portuguese colonization of South America (Seed, 1995). The actual implementation of the Treaty was not without controversy (Cintra, 2013; Herzog, 2015). Spanish and Portuguese representatives met later in Badajoz and Elvas in 1524 and signed in 1529 the Treaty of Zaragoza. This treaty confirmed the American boundaries and additionally demarcated the anti-meridian, defining the Spanish and Portuguese claims in Asia settling the claims for the Moluccas Islands.

[5] The Tordesillas Treaty replaced the 1479 Alcáçovas Treaty between Spain and Portugal. Pope Julius II confirmed the Tordesillas Treaty in 1506.

In the 1530s, Spain and Portugal disagreed on the territory of the River Plate, in modern-day Argentina and Uruguay. From 1580 to 1640, Spain and Portugal were under the same kingdom, the Iberian Union, reducing hostilities. Immediately after, in 1641, Portuguese troops invaded the Spanish territory of Omaguas, in present-day Peru. An important flashpoint was the settlement of Colonia de Sacramento, in present-day Uruguay, on the River Plate delta, right in front of Buenos Aires. Disputes were later settled by the Lisbon Treaty of 1681. During the eighteenth century, disputes included territories that are currently located in Brazil, Paraguay, Uruguay, Argentina, Venezuela, Colombia, Ecuador, Peru and Bolivia. Again tensions were resolved with the Treaty of Utrecht in 1715, in the context of the War of Spanish Succession. But it was not until the Treaty of Madrid in 1750 that the modern Brazilian boundaries were roughly established. The treaty was annulled in 1761, integrated into the Treaty of Paris in 1763 and finally ratified by the San Idelfonso Treaty in 1777.

During most of the Brazilian colonial era, the Tordesillas Treaty demarcated the Spanish and Portuguese boundaries in South America (Herzog, 2015). For the Portuguese, it became strategic to downplay the limits of the Treaty. The central argument used by the Portuguese Crown was rooted in the idea of *uti possidetis*, which claimed the right to the land it already occupied. Alexandre de Gusmão was the main Portuguese negotiator of the Treaty of Madrid, and it was he who forged this argument to secure the westward lands occupied by independent explorers, called *bandeirantes* (Monteiro, 1994), looking for minerals and natives to be enslaved. While the Spanish agreed with the *uti possidetis* principle in the Treaty of Madrid, Spanish negotiators were always recurring to the Tordesillas line as a reference even after the San Idelfonso Treaty (1777). In 1800, for instance, the Spanish Crown was still accusing Portuguese demarcators (Buarque de Holanda, 1994). The implementation of the *uti possidetis* principle was always contentious and reveled afterward a preference for treaties instead of occupation (Herzog, 2015).

2.2 Slavery in South America

Modern historical scholarship, using port-to-port data, estimates that between the fifteenth and nineteenth centuries, more than 12 million slaves were taken from Africa, of which 10.7 million disembarked at their destinations (Eltis and Richardson, 2010). Of that total number of slaves, 45.6% arrived in Brazil from

1501 to 1867 (Figure A2), making it the largest recipient of slaves in the world.[6] Of that grand total, 21.5% landed in southeast Brazil, 14.7% in Bahia, 8.1%, in Recife, and 1.3% Amazonia, as detailed later. By 1790, slaves in Brazil outnumbered US slaves by two to one, and scholars estimate that as many as 4 million slaves—four times the US total—were imported to the country . Overall, Brazil was the destination for almost half of the African slaves who were shipped across the Atlantic, surpassing the flows in the Caribbean.

Portugal had a comparative advantage in slave trading for historical reasons. Since the times of Henry the Navigator in the fifteenth century, Portuguese sailors had started exploring the African coast. In 1488, Bartolomeu Dias rounded the Cape of Good Hope, and in 1498 Vasco da Gama reached India. The Portuguese established a seaborne empire reaching all the way to India and the Moluccas Islands (Boxer, 1969). In Africa, as in India and Asia, they set up a series of factories or trading posts along the coast. Additionally, they set up plantation economies in Madeira, Sao Tomé, the Azores and Cape Verde Islands, which served as pilot projects for the eventual colonization of Brazil.

Slavery was one of the main pillars of the Portuguese colonial model established in Brazil after 1500 (Klein and Luna, 2009). Slaves played an important role in agriculture and local societies, reflecting a key difference from previous systems. Several reasons led to the importing of African slaves into Brazil starting in 1570. One was the relative scarcity of Indian labor. Brazilian indigenous people were not used to agriculture or taxation, unlike the Amerindians located in Mexico or Peru. Second, Portuguese colonizers were eager to populate Brazil to avoid potential invasions from other European powers (such as the French, English and Dutch) increasingly interested in the Americas. As explained later, the funds to cover the import of African slaves would come mostly from increasing revenues from sugar exports.

In the Spanish case, transatlantic trade was mostly focused on Central America and the Caribbean (Figure A2).[7] Spaniards transported 8,000 slaves to Rio de la Plata, while the majority of the slaves went to Cuba (600,000 out of 885,000). Slavery was further developed in the Spanish Americas at the beginning of the sixteenth century. In countries such as Mexico, Peru and Central America, African slaves were employed in mining activities. But already as early as 1600, the

[6] The Yale transatlantic project takes this date, after the US Civil War, though slavery in Brazil was abolished two decades later in 1888.

[7] The New Laws of Charles V in 1542 limited—at least in principle—the enslavement of indigenous people in the Spanish Empire.

number of slaves arriving in Brazil surpassed the total number for the Spanish Americas. Over time, the Brazilian slave plantation model became a reference for English, French and Dutch colonies. Scholars estimate that European and North American countries brought about 64,000 slaves in Rio de la Plata (Borucki, 2011), representing 0.6% of the total slaves who landed between 1501 and 1867. In the rest of South America, 0.3% of the slaves landed in French Guiana, 2.8% in Dutch Guiana and 0.7% in British Guiana.

Haiti was the first country to abolish slavery in 1804, followed by Chile in 1823 and Mexico in 1829 (L. Bergad, 2007). These countries followed similar processes starting with the end of the trading of slaves, followed by a free birth or free womb law for newborns, and finishing with the final abolition of the slavery labor regime (see Table B1). Brazil was the last country in the Americas to end slavery in 1888. We expand on the abolition process there next.

2.3 Slavery in Brazil

Brazil received several waves of African slaves as early as the sixteenth century, closely following colonial economic booms (Bethell, 1987; Klein and Luna, 2009; Naritomi et al., 2012). The initial wave of slavery was channeled toward the production of sugar cane and was mostly concentrated in the Northeast of the country (Schwartz, 1974). By 1640, the number of slaves in Portuguese America was larger than in any other American colony. The Dutch also played an important role in the early development of Brazilian slavery with the invasion of Pernambuco from 1630 to 1651. The Dutch transported 28,000 slaves to Recife between 1630 and 1654. We examine the role of the Dutch slave trade empirically in Brazil in Section 5.3.

The discovery of gold and diamonds in the current state of Minas Gerais (general mines, in Portuguese) at the end of the seventeenth century started a new type of slave economy in Brazil. The number of slaves dramatically increased in the country. From 1716 to 1730, gold production was about 14,000 kilograms per year in Minas Gerais and the neighboring state of Goias. The gold period was followed by a precious stones export boom as Minas Gerais became the world's largest supplier of diamonds. By 1800, Brazil had one million African slaves, more than any other country in the world (Klein and Luna, 2009). The slave population growth resulted in an important native-born slave population by the end of the eighteenth century.

Another important economic product for slavery was cotton (Beckert, 2015;

L. W. Bergad, 2006). In the north of Brazil, the General Trade Company of Grao-Para and Maranhao had a monopoly over cotton plantations in the region using a slave workforce. The company exported raw cotton to England to produce textiles. By 1850, when England forcibly halted the maritime slave trade, internal slave trade grew substantially. The American Civil War (1861-1865) benefited Maranhao because the US South was the largest producer of cotton at the time, and its exports to the UK came to a halt. At the end of the eighteenth century, the production of cotton in the Brazilian northeast started to decay, and some plantations reverted to sugar production.

The last major boom was the production of coffee in Rio de Janeiro and, eventually, Sao Paulo states. These regions had already been connected with the slave trade of the mining areas. By 1872, the area of Rio de Janeiro and the neighboring region in Sao Paulo (Vale do Paraiba) had mastered the techniques of mass coffee production. It was only around the 1880s that coffee expanded to the west of Sao Paulo and the southern region of Minas Gerais. Brazil soon became the largest coffee producer in the world. Coffee production relied on slave labor at this stage, albeit not exclusively (Mello, 1977).

To summarize, of the total slave population, 53% were located in the northeast of the country producing sugar as late as the 1820s, and that number changed to 67% of slaves in the southeast producing coffee by the 1880s (S. Engerman, 2015). Table B2 shows the relative importance of the different colonial booms in relation to slavery. Our dataset provides one last granular snapshot of slavery in 1872, though we also corroborate our figures with sources for other years, going back to the 1830s.

Slaves represented 15.2% of the population in 1872, while the proportion of blacks was 19.7%. The 4.5% difference (447 thousand people) can be attributed to manumission (Schwartz, 1974)[8]. This process was accelerated boosted during the Paraguayan War (1864-1870) when slaves were encouraged to fight (Izecksohn, 2014), escapes or collective slave resistance (Schwartz, 1996), and Africans who arrived in Brazil after 1830 and were not officially enslaved (Mamigonian, 2017).

The end of slavery in Brazil did *not* translate into the end of racial prejudice and discrimination. A rich Brazilian sociological tradition has contrasted the seminal views of the so-called racial democracy of Freyre (1986) so-called "racial democracy" with the bleaker picture in the 1950s documented by Bastide and

[8]In Brazil, the instrument of manumission was an official document named *carta de alforria*.

Fernandes (1959)[9] and the empirically based and nationally representative studies in the 1980s by Silva (1985) and Hasenbalg (1985). Viotti da Costa (1998)) argued in the 1960s that slave values remained alive within Brazilian society, while black people did not receive reparations or targeted policies after the abolition of slavery.

Seyler and Silve (2021) show how abolition itself responded to the material interests of the legislators. Conditions for blacks did not improve overnight, even with the advent of new waves of migration. Andrews (1991) documents how the European wave of migration to Sao Paulo was motivated by a desire to "whiten" the population, granting them privileged access to the labor market relative to blacks. Skidmore (1992) expands on these racial realities for the rest of Brazil. Former slaves ended up at the bottom of this newly formed racial hierarchy, and their struggle for total emancipation would endure for decades. The issue of race and skin color in particular has been studied more recently by Telles (2014) and Monk Jr (2016). We incorporate these issues of migration and race in our empirical analysis.

3 Data

To study the long-term impact of slavery, we combine historical records with data on modern economic outcomes, along with geographic and weather controls. Historical data come from the Brazilian imperial census of 1872 and is matched to modern-day Brazilian municipalities.[10] The census records the age, sex, civil status, religion and crucially the status (slave or free) of the respondent. We use the ratio of slaves over the total population as a variable to capture slavery intensity at the municipal level. We corroborate this information using the aggregate figures provided by Eltis and Richardson (2010).[11] We also use information from the 1890 and 1920 censuses, as well as from the 1873 fiscal census and the 1910 voting records. We include in our analysis state-level census data from Minas Gerais and São Paulo from the 1830s.[12]

Modern outcomes come from the Brazilian IBGE, IPEA data and DataSUS

[9]This article and others were written in the context of the UNESCO project, which aimed to better understand racial and ethnic issues after World War II.

[10]IBGE (2011) provides the full history of the evolution of Brazilian municipalities. One important method of correspondence is the one proposed by Ehrl (2017) using *área mínima comparables* (AMCs), or minimum comparable areas.

[11]We also use information from the 1873 fiscal census and the 1890 census.

[12]We thank Francisco Vidal Luna for kindly sharing the data (Luna & Klein, 2003)

portals. Our main variables are income inequality and the racial income gap, defined here as the income of black households over the income of white households. These measures are from the 2010 census and are again at the municipality level. We also use *individual*-level data from the 2010 census to calculate our own Gini and Theil inequality measures and decompositions by race. For robustness, we also use information from the 1980, 1991 and 2000 censuses.

We use additional data from historic and modern times to test for alternative outcomes and mechanisms of transmission. These include modern measures of GDP per capita from 2012, information from the Municipal Profiles of 2014, data from the Latinobarometer survey of 2016 and institutional indicators from Naritomi et al. (2012). We employ data from the SAEB school test scores from the Ministry of Education and the PERLA skin color project of Telles (2014). We also use a host of geographic and weather controls, at a highly disaggregated level, coming from Brazil's National Institute of Geology (INGEO) or calculated using ArcGIS. These controls include rainfall, altitude, distance to the coast, distance to Portugal, latitude, longitude, sunlight, distance to the equator and temperature. All variables, definitions and their sources are detailed in the Appendix.

3.1 Summary Statistics

We present the summary statistics, divided between Portuguese and Spanish Brazil, in Table 1. For this division, we use the meridian $48^o42'$ (48.7 degrees) west for the Tordesillas line (Cintra, 2013), which is a consensus estimate. In total, our data contain the universe of Brazilian municipalities: 3,367 on the former Portuguese side and 2,138 on the former Spanish side. Using this basic split, we can already see that the number of slaves over the total population of Portuguese Brazil in 1872 was 13.6% on the Portuguese side and 9.4% on the Spanish side. The average number of black slaves by municipality in Portuguese Brazil was 2,628 and 1,184 in Spanish Brazil.

We can also see in Table 1 that the current income inequality—measured by the Gini index—in Portuguese Brazil is 0.514 and 0.486 in Spanish Brazil. The Theil index is also higher. The racial income gap (black over white) is higher in Portuguese Brazil, where black illiteracy, the number of black children out of school and the black unemployment rate are also higher. We explore the relationship between these variables more systematically in the empirical analysis.

Figure 1 shows the distribution of the municipalities around the Tordesillas line in 1872 (panel a) and in 2010 (panel b). At the time, 15.9% of the municipalities were located west of the Tordesillas and 84.1% to the east. The first city founded in Portuguese Brazil dates from 1534, while in Spanish Brazil it dates from 1635.[13] Despite this disparity, we note no differences in the figures between the number of municipalities at the two sides of the Tordesillas line in 1872 and 2010. We test this more formally using a McCrary test and again find no evidence of sorting across the threshold (in Figure 1, panel c). The same finding holds when we use the rddensity function of (Cattaneo et al., 2020) instead, in panel d.

4 Empirical Strategy

The fundamental challenge in conducting an empirical analysis of the long-term impact of slavery is the endogenous placement of slaves. Slaves were, for instance, sent to mines (Acemoglu et al., 2012) and employed in highly productive activities, such as cotton harvesting in the US South (Beckert, 2015; Fogel and Engerman, 1974) and sugar production in the Brazilian northeast (Naritomi et al., 2012). Hence, without isolating the independent roles of these activities, one can naively conclude that slavery resulted in higher economic activity. To tackle this issue, we propose a novel identification strategy based on early colonial territorial boundaries. The idea is to combine the latest cartographical and historical research with standard econometric techniques. To isolate the impact of slavery from other confounders, we use a Regression Discontinuity Design (Imbens and Lemieux, 2008; Angrist and Pischke, 2008; Calonico et al., 2014 and Lee and Lemieux, 2010; Cattaneo et al., 2015).

Historically, we will focus on what Tamar Herzog (2015) calls the "Frontiers of Possession" of the Spanish and Portuguese empires in the Americas. As can be seen in Figure 2, the Tordesillas Treaty line of 1494 delimited the Spanish and Portuguese empires in the New World.[14] The territory to the right of the line was colonized by the Portuguese, who had a comparative advantage in slave trading, as described before. The key for identification is to exploit econometrically this colonial discontinuity between the Portuguese and Spanish empires within modern-day Brazil while holding geographic, weather and other local factors constant (or continuous). We also rely on the fact that the Tordesillas line served as a reference in diplomatic negotiations between Portugal and Spain even after the

[13]Figure A3 confirms that there are indeed more original Portuguese settlements at the east of the line.

[14]Figure A4 shows the map at the AMC level.

San Idelfonso Treaty of 1777 (Buarque de Holanda, 1994).

Another territorial difference emerges from the Dutch colonization of Brazil, as can be seen in Figure A5. Though shorter lived, this colonization wave played an important role in northeast Brazil, leaving an imprint on the modern-day state of Pernambuco (De Mello, 2010). We explore this additional source of heterogeneity employing a geographic RDD (as in Dell, 2010) to get at the potential confounding effect of colonizer identity.

4.1 Estimation Framework

For our main specification, we use an RDD along the Tordesillas line. The geodesic distance to the Tordesillas line functions as an assignment variable to measure the long-term impact of slavery. We can also relax the linearity assumption and include polynomial functions in the regression model. A polynomial model generates global estimates of the regression function over all values of the assignment variable. It can be a disadvantage because the RD design depends on local estimates of the regression function at the cutoff point (Lee and Lemieux, 2010; Angrist and Pischke, 2008). Gelman and Imbens (2014), for instance, argue that estimators for causal effects based on high-order (third, fourth or higher) polynomials of the assignment variable can be misleading. The authors recommend using estimators based upon local linear and quadratic polynomials, which we follow.

In its simplest form, our regression equation has the form:

$$Y_i = \alpha + D_i\tau + X_i\beta + \varepsilon \tag{1}$$

where Y_i is the outcome variable of interest for a municipality i, D_i is the side on which the municipality is located with respect to the Tordesillas line (D_i=1 when the municipality is east of the Tordesillas line and D_i=0 if it is located west of this meridian), τ is the coefficient of interest and X_i is a vector of covariates. We follow this simple formulation only for the summary statistics. In our regressions, we reinterpret D_i as a distance variable from the centroid of a municipality to the Tordesillas line. In our convention, a distance to the east is positive and to the west, negative.

We implement the Donut RD approach used by Barreca et al. (2011). This method appears germane to our context, given the uncertainty of the Tordesillas Treaty line. The Donut RD estimates Equation 1 dropping observations right at the cutoff. Barreca et al. (2011) argue that a Donut RD results in unbiased estimates of the treatment effect on continuous data. The conventional RD design for heaped data can be unbiased, although it tends to reduce the bandwidth. In our baseline specification, we drop observations one degree from each side of the cutoff. For robustness, we present specifications with smaller and no bands. In our estimations, we also use standard errors clustered at the state or municipal (AMC) level and state fixed effects. We report line-segment fixed effects estimates and estimates with Conley standard errors in the robustness section, number 7. For our empirical estimations, we also apply the methodological framework developed by Cattaneo et al. (2015), which analyzes RD designs as local randomized experiments, employing a randomization inference setup. This method assumes exact finite-sample inference procedures, given that there might be few observations available close to the threshold where local randomization is more probable. This is a two-step procedure: first, we choose the window around the cutoff where the treatment is assumed to be as good as randomly assigned; and second, we apply the conventional randomization inference tools.

5 Results

5.1 OLS: Benchmarking

Before presenting the RDD results, we estimate OLS and fixed effect models for the full dataset to capture broader correlations (Table B3). While the results are not econometrically identified, they provide a quantitative benchmark for the later empirically analyses. The sample is restricted to the 73 to 1,000 kilometers used later. The estimates show a correlation between slavery—measured by the ratio of the number of slaves in 1872 over the total population—with income inequality. We find that a 1% increase in the number of slaves by municipality in 1872 increases the Gini index—our measure of income inequality—by around 0.03, as shown in the first column. This estimate increases in magnitude in the next columns, with geographic controls, region fixed effects and errors clustered at the AMC level.[15] Slavery also appears significantly correlated with the income gap between black and white people. For each 1% increase in the number of black slaves, the average income of a black household in relation to a white household declines by around 25% across the different specifications. These results are

[15]The geographic variables used are longitude, latitude, rain, distance to the coast, altitude, distance to the federal capital, sunlight, average monthly temperature and types of soils.

suggestive and can be confounded by the endogeneity of slavery, omitted variables or measurement error. To address these empirical challenges, we proceed with the analysis using the proposed Regression Discontinuity identification strategy.

5.2 Regression Discontinuity Design

As discussed before, in the historical and estimation framework sections, we perform a donut RD for our baseline estimates (Barreca et al., 2011). As the parameter for the interval around the Tordesillas line, we use the measure of 1^o, approximately 73 kms at the equator. This is similar to what Michalopoulos and Papaioannou (2013) term "thick borders" in their historical setting or the "Donut Hole" approach of Lowes and Montero (2021). The estimation of the local linear regressions follows the bias-corrected inference procedure, which is robust to "large" bandwidth choices (Calonico et al., 2014). We present local polynomial estimates and other specifications for robustness.

We start the analysis by empirically testing whether slavery presents any discontinuity at the threshold. Figure 3, panel a, shows the RD plots for the number of black slaves over the total population in 1872 using binned local averages. The first graph suggests that there were indeed more slaves on the Portuguese side relative to the Spanish side, consistent with the historical narrative. We further scrutinize this discontinuity using additional information from the historical census. Figure A6 shows that there is no discontinuity for the number of free people in 1872, while there is for the number of black slaves, suggesting no general demographic differences. The share of free population is discontinuously *lower* at the east of the Tordesillas line. Figure A7 confirms these trends by race. While there is no discontinuity in the share of caboclos (mixed race) in panela, or the share of free blacks in panel b, the share of black slaves increases discontinuously in panel c. There are also no discontinuities in the sex ratios or the share married (Figure A8).

We proceed with the empirical analysis of the Engerman and Sokoloff hypothesis by looking at potential discontinuities in inequality. The main empirical result can be observed in Figure 3, panel b. Here we test whether there is a corresponding discontinuity in the Gini index in 2010 at the same Tordesillas threshold. Indeed, we find this to be the case: inequality appears significantly higher at the east of the line relative to the west. This corresponds with the patterns observed before of higher slavery at the former Portuguese side of the border, consistent with the Engermann and Sokoloff hypothesis. In this case, colonial labor institutions led to higher levels of income inequality in Brazil.

As is standard in these types of exercises, we also show that a large number of covariates are smooth or continuous. The results of these empirical tests are reported in Figure 4. Geographical and weather characteristics such as rainfall, altitude, and sunlight appear smooth at the border. A series of distances such as to the coast, to the equator and to Portugal also appear continuous. The year of foundation of municipalities is also continuous at the cutoff.[16] These results assuage concerns about other characteristics varying at the threshold and are consistent with those presented before on the distribution of municipalities, as shown in Figure 1.

Table 2 presents our baseline specifications for slavery (top part) and income inequality (bottom part). We present different bandwidths, at 500, 1,000 and 200 kilometers, as well as different donuts at one degree and half a degree.[17] Panel A contains the RD estimates for the first-order polynomial. We see, in the first column, that the coefficient for slavery is positive, highly significant and in the order of 5%. This is a large gap when considering that the mean of the dependent variable is about 10% to 15%. This is consistent with the figures reported as well as the earlier summary statistics. The magnitude becomes larger, as shown in the second column, when we look at places as far away as 1,000 from the Tordesillas line.[18] It returns back to the smaller level in the third column, with the smaller donut, and goes up again in the smaller window of up to 200 kilometers. In the last column, we pick the optimal bandwidth, where again the estimates are about 5%.

Panel B presents estimates for the RD of second order. We find very similar estimates as above. Now the magnitude of the coefficients oscillates closer to the 5% number. The estimate is insignificant but of the same sign and magnitude in the fourth column and larger, positive, and highly significant in the last one. Panel C presents the estimates using the local randomization method from Cattaneo et al. (2015).[19] The results are again consistent and now slightly higher, in the order of 7 to 8% in the first three columns and slightly lower in the last two. The last specification uses the entire sample. In sum, regardless of the estimation method, the bandwidth or the size of the donut, we find a statistically significant

[16]The same holds for different suitabilities in Figure A14.

[17]In the context of RD, we are interested in the variation around the cutoff. Therefore, we believe that there is no substantial reason to evaluate the influence of the Tordesillas line more than 1,000 kms away from the line.

[18]We present additional results for additional bandwidths in the robustness section.

[19]In particular, here we use the rdlocand package.

increase in the number of slaves in 1872 at the threshold, consistent with the baseline figures.

The bottom part of Table 2 presents the estimates for income inequality, using the Gini index for 2010.[20] The basic structure is the same as the one for slavery. In Panel A, we find results of about 0.04 Gini points. This positive and significant effect is also economically significant, with a mean dependent variable of less than 0.5, so about 8%. The estimate is fairly stable across specifications, becoming larger in the smaller window, reaching almost 0.1. The implied elasticity for a 1% increase in slavery is around 2%, which is slightly lower than the OLS benchmark. Panel B reaches conclusions similar to before, with the second-order instead of the first-order polynomial estimates.[21] They are in the order of 0.04 Gini points in the first three columns and 0.1 in the last two. The local randomization estimates, in Panel C, give consistently smaller estimates close to 0.04. Again, the different estimation methods show a significant and sizable discontinuity in modern-day income inequality.

We present in the Appendix several additional tables for robustness. Table B4 presents the slavery results clustering at the AMC level, which is larger than the municipality. Results are essentially unchanged. Table B5 reproduces the main table, showing both variables, using state-level fixed effects. The results again appear very similar, both for slavery in 1872 and for income inequality in modern times. Table B6 combines both exercises, presenting estimates clustering at the AMC level and using state fixed effects. The results are largely unchanged. The robustness section presents additional estimations, such as line-segment fixed effects.

5.2.1 Racial Income Gap

We further investigate the differences in inequality by focusing on the racial income gap (i.e., the ratio of black over white incomes). Results from this exercise can be seen in Figure 5 and Table 3. We observe a significant decline in the racial income gap on the eastern side of the Tordesillas line.[22] This means that blacks earn *less* relative to whites on the former Portuguese side of the border—where slavery was higher historically—which helps explain the broader increase in inequality. To get a better sense of magnitudes, we report the results of the

[20] Figure A9, panel a, illustrates this outcome.

[21] Following Gelman and Imbens (2014) we do not use higher-order polynomials but instead report non-parametric localized estimates.

[22] Figure A9, panel b, illustrates this point.

estimation in Table 3. The first column with linear estimates shows a reduction of 0.07 in the gap, slightly more than 10% considering that the mean of the gap is 0.67. The estimate is even larger in the second-order formulation, shown in Panel B. The message is largely the same for the other formulations, where the magnitude remains closer to 8%, with some exceptions.[23] Again, the implied elasticities are smaller than in the OLS benchmark. Table B7 reports the estimates clustering at the AMC level and using fixed effects. We present a similar figure for pardos, in Appendix Figure A11, instead of blacks, which shows a similar discontinuity.[24] Table B8 presents the corresponding empirical estimates. The analysis shows that slavery causes income inequality not only between rich and poor but also between white and black households, more specifically.

5.2.2 Decompositions

We provide additional income inequality decompositions using data at the *individual* level. While the DataSUS, based on IBGE's census, provides aggregate Gini measures and income by race at the municipal level, it does not compute other relevant statistics such as Gini and Theil indexes by race. To supplement the analysis, we compute these statistics using individual-level data. When we restrict the sample to black respondents, we see a slight discontinuity in Figure 6, panel a. The same holds true, but is now more marked for the Gini of whites, in Figure 6, panel b. We conduct another decomposition using the Theil index, which is more suitable for such exercises. First we see a significant discontinuity with this alternative income index in Figure 6 panel c, and then we present the decompositions in panels d and e. Table 4 contains the results for the Theil index as a whole, revealing a positive impact across the board. We observe a discontinuity in the within-race (black and white) component in Figure 6 panel d as well as the between-race component in panel e. Tables B9 and B10 present the empirical estimates for the between and within components, respectively. The results point toward broader differences in economic structure that transcend purely racial lines, consistent with Engerman and Sokoloff.[25]

[23] We report modern population shares by race in Figure A10. These do not appear discontinuous at the border for Asians, whites, indigenous, pardo or black populations. Hence, we do not find substantial differences in household composition, as in Bertocchi and Dimico, 2020.

[24] The racial income gap is also discontinuous for non-whites when blacks and pardos are taken together, as shown in the right panel.

[25] We explore the origins of these disparities in Section 5.3. We also look at inequality over time in the robustness section.

5.2.3 Income

An important follow-up question is whether the results that we observe for inequality also translate into income and GDP. According to the Engerman and Sokoloff hypothesis, areas with more inequality should also be more underdeveloped in terms of income.[26] We do *not* find this to be the case at the discontinuity provided by the Tordesillas line, as can be seen in Figure 7. If anything, income is slightly higher on the Portuguese side, but the estimates are not significant. Table B11 confirms these inconclusive results. The same is true for the natural logarithm of GDP per capita in panel b. These small to insignificant results are confirmed when we use instead the Human Development index in Figure A12. The analysis shows that the empirical results are working through the second instead of the first moment of the income distribution, especially along racial lines. Our findings are in line with other analyses of the Engerman and Sokoloff hypothesis, such as Nunn (2008b), who also does not find that the association between slavery and development is working through inequality. We know from Kuznets (2019) that the relationship between inequality and income can vary significantly during the different stages of a country's development.

Specific mechanisms aside, the broader comparison with the United States is a relevant one.[27] In broad strokes, the system of racial discrimination was more institutionalized in the United States than in Brazil (Cottrol, 2013). Citing Andrews et al. (1992) the United States presented "greater racial rigidity, a more fluid class system, and the persistence of race as a political 'hot button'; in Brazil, a more fluid racial system, greater class rigidity." Acharya et al. (2018) show how Jim Crow laws perpetuated racism even after abolition in a process of behavioral path dependence, while Althoff and Reichardt (2022) confirm these findings statistically for black descendants. Institutionalized racism was present later on through redlining (Aaronson et al., 2021) and miscegenation laws (Brey et al., 2022; Skidmore, 1992). In Brazil, racial prejudice has in many cases existed despite the law, pointing toward a more decentralized process of discrimination than the one observed in the US. We explore these claims empirically in the mechanisms section.

[26] We note that this could be a semantic discussion, as inequality itself could be interpreted as a measure of underdevelopment.

[27] We thank Andrei Shleifer for suggesting this point.

5.3 Intermediate Historical Outcomes

Having covered the baseline results, we now explore relevant historical outcomes during the intervening periods.[28] We focus here on foreign migration and structural transformation using data from the 1872 and 1920 censuses.

5.3.1 Structural Transformation

To assess the historical origins of the income disparities examined, we use the 1920 census. No information on income is available for that time, but we have indicators for the manufacturing and agriculture sectors. For that time period, we observe a larger share of manufacturing on the Portuguese side of the border (shown in in panel a of Figure 8) as well as a lower share of agriculture (shown in panel b).[29] These early differences are consistent with the later income results. We observe no differences in mechanization with respect to railroads in 1920 in Figure A13. In terms of specific crops, we find no differences in the suitability for coffee in Figure A14 panel a and increased coffee production at the right of the cutoff, shown in Figure 8, panel d.[30] This result is consistent with the description of the coffee boom in the historical section.

5.3.2 Foreign Migration

Slavery itself was a form of forced migration. Here we focus on the voluntary immigration flows, which increased after abolition Andrews (1991). The role of migration has been stressed in the literature (Papadia, 2019; Rocha et al., 2015).[31] In the 1872 census, we observe fewer foreigners on the right part of the Tordesillas line, albeit from a very low base in Figure 9, panel a. These differences disappear by 1920, shown in panel b, after the first waves of European mass migration. We observe no significant discontinuities in the number of state-sponsored settlements in Sao Paulo, used by Rocha et al., 2015, in panel c.[32]

[28]We thank Eduardo Montero for guiding us in this direction.

[29]Results hold using the 1940 census as well.

[30]Figure A14 panel b shows the results for a plantationa suitability index from Wigton-Jones, 2019.

[31]See also de Carvalho Filho and Colistete (2010), de Carvalho Filho and Monasterio (2012) for the cases of Sao Paulo and Rio Grande do Sul.

[32]We also observe no corresponding discontinuities in the migration within Sao Paulo state in 1920 or in modern rates of international migration, as shown in Figure A10, panel d.

5.4 Dutch Brazil and Colonizer Identity

One important confounder of the slavery effect could be colonizer identity. A large literature in economics has explored this issue since the seminal papers of La Porta et al. (1997, 1998). In the case of Brazil, Portuguese and Spanish conquerors might have differed not only in the intensity of their slave regimes but also in other factors such as language and culture. To test the possible role of colonizer identity, we use the Dutch colonization of Brazil as a historical experiment. The Dutch presumably were more different culturally from the Portuguese relative to the Spanish, yet they were important players in the commerce of slaves, bringing a large quantity of them into Brazil. A good illustration of this fact can be seen in Figure A15 which plots the number of slaves over total population at the municipal level, comparing Portuguese and Dutch Brazil. We can see how the distribution overlaps, showing a high number of slaves in both cases.[33]

5.4.1 Geographic Regression Discontinuity

For our analysis, we digitized the map from the book by Hettema Jr. (1920) on Dutch Brazil. As can be seen in Figure A5, municipalities that were colonized by the Dutch all lie to the right of the Tordesillas line and are then surrounded by those originally colonized by the Portuguese. The territory is large, today covering 1,135 municipalities from nine states. For our Regression Discontinuity analysis, we compared the Dutch Brazil area with the area up to 600 kms away from Dutch Brazil's border, though we present robustness to varying cutoffs.

To test our hypothesis empirically, we conduct a geographic Regression Discontinuity analysis. As shown in Figure 10, first we do not find a significant discontinuity in slavery between the former Dutch and former Portuguese territories, in panel a. Carrying forward with the analysis, we do not find a corresponding jump in income inequality or the racial income gap (panels b and c).[34] Overall, the results for Dutch Brazil suggest that what mattered for the subsequent distributions of income was slavery more than colonizer identity per se.[35] Since the Dutch slave regimes were very similar to those of the Portuguese, it is not surprising to find similar levels of inequality in the long run. However, this leaves out the larger question of why we observe the baseline empirical results for

[33] The Appendix presents a fuller description of the Dutch colonization of Brazil. Table B12 presents summary statistics for Dutch Brazil and its closer neighbors.

[34] Tables B13 and B14 confirm these inconclusive results.

[35] We acknowledge that this wave of colonization might have other impacts.

slavery. For this, we turn to the key mechanisms of transmission.

6 Channels of Persistence

Our empirical results show a relationship between the institution of slavery in the colonial period and current income inequality in Brazil. In this section, we explore the main channels through which the persistence in inequality may have been enacted. Slaves were—by definition—a population with no wages but also no assets and essentially no education.[36] We follow the recent theoretical literature and focus on education as a key driver of intergenerational mobility (Becker et al., 2018). Similarly, we present results for the labor market (which mediates educational differences) and on racial prejudice, using data from the PERLA project (Telles, 2014) and other sources. We also follow the historical literature, which has postulated the importance of land inequality, the extension of the franchise and institutional capacity (S. L. Engerman and Sokoloff, 2002; S. Engerman and Sokoloff, 1997), as well as the centrality of cultural mechanisms (Nunn and Wantchekon, 2011).

6.1 Education

Education constitutes one of our main mechanisms of transmission. On net, we observe that illiteracy rates of the modern-day black population are much higher, but not discontinuously so, shown in Figure 11. Figure A9, panel c, illustrates this outcome.[37] The results are more apparent in the 1872 census, in Figure 11, panel c, for free over slave literacy rates.[38] We expand on the main education result to see whether the effect is working at the extensive or the intensive margin. We find first, at the extensive margin, that more black children are out of school at the right of the cutoff in a discontinuous manner, in Figure 11, panel b.

To evaluate performance at the intensive margin for children in school, we look at data from the 2011 SAEB national exams, which are taken in the fifth and

[36] The average literacy rate for slaves in 1872 was 0.09%.

[37] This result is also present for the 2000 and 1991 censuses, in Figure A16. We do not observe this to be the case for the white population or for the Brazilian population as a whole (results not shown).

[38] Figure A17 shows the total literacy rate for 1872, as well as the difference, instead of the ratio of literacy for free and enslaved populations. Results at the aggregate level are consistent with those using the 1920 census, where aggregate literacy does not show any discontinuity, results not shown. This census did not ask about race. The 1890 census did not ask about literacy.

ninth5th an 9th grades. We observe no significant discontinuities in performance in Portuguese and mathematics for students in either grade (Figure A18). The SAEB also reports information about the educational level of the parents. We look at this intergenerational level measure and find no discontinuity for the mother's education, but do find slightly lower levels of education for black fathers (Figure A19).[39] As a result, parents education is also discontinuous for parents as a whole.[40] Overall, the inequalities in education seem to be more present for the older generations, suggesting a process of convergence.

6.2 Labor Markets

A full labor market analysis is beyond the scope of this paper, but we speak to the recent literature on this topic (Derenoncourt et al., 2021; Gerard et al., 2021). In our setting, we perform a similar RDD analysis for labor markets and reach results similar to those for education. First, we find that unemployment for blacks (people actively looking for a job) is marginally higher at the right of the cutoff, as shown in Figure 12, panel a. At the intensive margin, hours worked also appears discontinuously lower at the right side, in panel b. Most notably, we find important differences in the hourly wage gap, in panel c, for the working-age population. As the recent literature on this topic has noted, there might also be racial differences with respect to firm wage setting, informality and minimum wage policies.[41] The question remains as to whether and why blacks and whites are earning differently in the labor market, for which we turn to prejudice and discrimination as a potential answer.

6.3 Racial Prejudice

To assess whether prejudice might be a driving force in discrimination and on racial inequality, especially in labor markets, we use the first survey for Brazil of the Project on Ethnicity and Race in Latin America (PERLA) (Telles (2014)). In this nationally representative survey, skin tones are recorded in a scale that goes from 1 (lighter) to 11 (darkest).[42] We create an index based on three ques-

[39] Britto et al. (2022) explore the issue of low economic mobility in Brazil.

[40] Additionally, we find no gaps in the probability of a father being part of the household, by race, results not reported.

[41] We do not observe significant discontinuities by race in the informal sector, results not reported. The minimum wage is set at the federal level, though there is geographical dispersion in how binding it is.

[42] The sample has 1,000 observations across the country.

tions related to prejudice against blacks in the labor market.[43] The higher the composite values, the higher the prejudice against black people.

We also use the second PERLA project's survey on Brazil to analyze the relationship between skin color and income and education. First, we document a very strong negative gradient between skin color and income in Figure 13, panel a. The result is equally striking for education, shown in panel b. Both results survive the inclusion of ethnicity fixed effects. We note that these results do not necessarily reflect discrimination. Lower earnings could, in part, be generated by lower education and lower labor force participation, as examined before. We then perform a Oaxaca-Blinder type decomposition, following Woo-Mora (2021). We find a larger coefficient for color on income on the former Portuguese side of the border, relative to the former Spanish side, as shown in Table 5.[44] In the fully controlled specification, the effect on the Portuguese side is negative and significant, about 8%, whereas the effect on the Spanish side it ceases to be significant. With the usual caveats of such compositions, which depend on the observables included, there seems to be evidence for more discrimination at the right of the cutoff. With respect to the prejudice index itself, the results shown in Figure 13, panel c, suggest more prejudice against blacks in the labor market on the right-hand side of the cutoff. Table B16 shows the estimated coefficients of PERLA's survey, in addition to two other relevant nationwide surveys. In general, we find some evidence for racial discrimination at the right of the threshold.[45]

Since the results in this section are from surveys, we also present additional

[43] Using a Likert scale that varies from 1 to 5, the statements are as follows: i. Blacks are poor because they do not work enough, ii. Blacks are poor because, in general, they are less intelligent, iii. Blacks are poor because they do not want to change their culture. The survey has 1,000 observations. We thank Guillermo Woo-Mora for kindly sharing the data for Brazil from his paper (Woo-Mora, 2021).

[44] We report his Spatial First Differences (SFD) method in Table B15. We can also replicate his results for income and educational inequality using the MLD index, though the small number of observations make some results insignificant.

[45] To complement our analysis, we also analyze the data from the Brazilian Social Survey (PESB, Pesquisa Social Brasileira) from 2002, following Bailey (2009). We analyze six answers from 2,364 respondents in a nationally representative sample. The interviewers showed them eight pictures of three white, three mixed and two black men wearing the same T-shirt and with an identical background in the photo. The six questions were related to the occupation people associated with the men when looking at the sorted pictures presented to them. We then created an index from 1 to 8 that averaged out the answers for the specific questions. Numbers 1-3 refer to white, 4-6 to mixed, and 7-8 to black men. Another survey used to measure racial prejudice at the school level was conducted by the Ministry of Education (INEP) with the University of Sao Paulo's Institute (FIPE). We created an index aggregating 17 answers that capture racial discrimination from 18,591 students, teachers and students' parents. The index varies from 1 to 4, the maximum value of discrimination.

evidence from the whole of Brazil, based on municipal census data.[46] We find discontinuously more racial equality councils at the right of the threshold, in Figure 13, panel d, suggesting that racism is still an active issue. These bodies were established between 1983 and 2014, while the majority of them dated from 2000. The increase in the number of legislative and administrative bodies to combat racism in the 2000s is more pronounced in areas where former slaves lived. We recognize the endogeneity of this relationship, but it suggests a recent reaction of local governments to fight for racial equality.

6.4 Other Mechanisms

Having covered what we think are the main mechanisms of transmission for the income inequality effect, we examine other important channels that have been suggested in the historical literature. We start with land inequality, following S. L. Engerman and Sokoloff (2002), S. Engerman and Sokoloff (1997)). As mentioned before, slaves were a population with no income and no assets. We do *not* find significant discontinuities in land inequality in modern times, as shown in Figure A20, panel a. Though the data are more sparse, we also do not find any discontinuities in the number or size of farms historically, when using the 1920 census, in panel b. These results are interesting, perhaps suggesting that the inequalities observed are not going through the asset side. Another interpretation is that the results observed are not due to historical land tenure patterns, but more about owning more or fewer slaves in a relatively similar land tenure regime.

We also look at voting, as an extension of the franchise has been suggested as a mechanism in the historical literature. We start with the caveat that most of these decisions are taken at the federal level, but we still try to see potential *de facto* variations at the sub-national level within the same *de jure* legal framework. We do not find any discontinuities in modern voting, measured as turnout in the 2010 elections, as shown in Figure A21, panel a. The same is true for historical elections using 1910 data, see panel b. Unfortunately, we have no information on turnout by race that we could exploit for this channel of transmission.

Public policies can contribute to the persistence of inequality by either not delivering public services or not managing them well. Hence, we look at other potential institutional mechanisms of transmission of the main effect, beyond voting, using data from Naritomi et al. (2012).[47] We do not find major discontinuities in

[46]IBGE, Municipal Profile ('Perfil Municipal'), 2014.

[47]We thank Joana Naritomi for sharing and helping us navigate the data.

access to justice or managerial capacity at the border (Figure A22, panels a and b). If anything, these appear slightly higher on the former Portuguese side. The judiciary has been suggested as a channel of persistence in racial inequality in the US context. To examine this potential mechanism, we use data from Ponticelli and Alencar (2016) on judicial backlogs, but find no evidence of discontinuities at the border (Figure A22, panel c).[48]

Following Nunn and Wantchekon (2011), we look at trust as a potential mechanism of transmission. Here we use Latinobarometer data, which does not cover the universe of Brazilian municipalities. Still, we find some slight discontinuities with respect to generalized trust, shown in Figure A23. The same pattern emerges for trust in different institutions such as the police in panel b, the government in panel c, and especially the judiciary in panel d, as discussed before. We find more muted results in Brazil than in Africa, suggesting that the mistrust channel is stronger at the sending rather than the receiving end. It is conceptually very clear how the threat of enslavement eroded trust in certain areas within Africa. It is less obvious why the historically enslaved population might generate lower levels of trust at the receiving end, where it interacted with populations from other places and ancestries. On the cultural dimension, we do find more respondents practicing the religion of Candomblé on the former Portuguese side of the border, shown in Figure A24, though the numbers are small. We interpret the prevalence of this traditional religion of African roots as a tangible cultural marker of the legacy of slavery.[49]

As hinted at before, we also observe no major demographic differences, in Figure A10 (cf. Bertocchi and Dimico, 2020). This is true for the major ethnic groups as well as for foreigners, see panels a-d. These results are consistent with the historical ones described before. There are also no apparent discontinuities for internal migration, a potential confounder, in panel e.[50]

7 Robustness

This section presents robustness exercises for the main empirical results. The first tests use different bandwidths and estimation strategies. Figure A25 shows the relative number of slaves in 1872 at different donut thresholds. We argue for one

[48] We thank Jacopo Ponticelli for sharing his data. The same is true for his other measures of bank branches and manufacturing value added.

[49] This interpretation is consistent with Lambais (2020).

[50] Pellegrina, Sotelo, et al. (2021), Porcher (2020) study internal migration in Brazil.

degree at each side of the border in the baseline specification, given the historical uncertainty about the Tordesillas line. However, the results for slavery are robust to using half a degree on each side, in panel a, a quarter of a degree, in panel b, or no donut at all, in panel c. Figure A26 instead presents estimates using different line-segment fixed effects. These range from 2 to 30 line segments. The results for slavery (panel a) and the Gini index (panel b), appear stable. Table B17 reports the estimates using two line segments, essentially North and South, which appear similar in magnitude and significance to the baseline results. The same is true for the racial income gap, shown in Table B18. Figure A27 reports the results for slavery and income inequality separately for the North and South. Figure A28 reports estimates for slavery and inequality with Conley standard errors at different degree thresholds. Lastly, Table B19 presents estimates with geographic controls, which leave the results largely unchanged.

The second set of robustness tests use different data. We also employ alternative data on slavery from the 1873 fiscal census.[51] These data have many missing observations and include a subset of the municipalities covered in the 1872 census. Still, the data shows a very high correlation with our baseline measure in Figure A29. This alternative measure of slavery is also discontinuous at the cutoff, shown in panel b. Slavery was abolished with the *Ley Áurea* on May 13, 1888. Hence, the 1890 census does not report any slavery measures but only the race of the respondent. Using this information, we find a higher share of blacks in 1890 at the right of the cutoff, in Figure A30. We also find a high correlation with slavery in 1872. We note, however, that not all blacks in 1890 were necessarily slaves in 1872, so these results are only suggestive.[52] Information before 1872 is scant, but in Figure A31, we present the correlation between our measure and slavery records for the 1830s. The high correlation between both periods suggests that, despite the internal migration of slaves from the North to the South after 1830, the 1872 data are informative about slavery density before the end of the ultramarine slave trade in Brazil (1850). [53]

With regard to the uncertainty of the Tordesillas line itself, we have used the consensus meridian by historians and geographers. However, we also present additional results for a further east meridian at $45^o17'$ west calculated by the cartographer Oviedo. Table B20 shows the RD estimates of two outcome variables (slavery and income inequality) using the distance to Oviedo's meridian

[51]We thank Thomas Fujiwara for pointing out this alternative source.
[52]As such, they also speak to the issue of freed blacks.
[53]Law Eusébio de Queirós.

as the assignment variable. We replicate the methodologies used before. The main results are consistent for slavery and income inequality in terms of sign and significance, though they are now smaller. We also employ a more data-driven approach by looking at *all* potential cutoffs, shown in (Figure A32). We observe there that the consensus Tordesillas line employed in the paper is essentially at the global maximum of the effect for inequality.

We also look at inequality over time using data from other censuses. The 2000 and 1991 censuses are the most comparable with the 2010 census we employ, in terms not only of time but also quality. We present these additional estimates in Figure A33. We observe a significant discontinuity for those years in panels a and b. We are less confident about the quality of the 1980 census and especially the 1970 census, the latter of which was run during a dictatorship and purposely excluded any information about race (Powell and Silva, 2018). Still, we present the estimates in the panels c and d, where, if anything, the discontinuities in inequality are even larger.[54] We note that inequality declined during the 2000s in Latin America, including in Brazil (Lustig et al., 2013), but increased again with the COVID epidemic. We perform a similar exercise with the racial income gap, though we are limited to starting in 1980 because of the reasons just described. We see in Figure A34 that this measure (the ratio of average income of blacks over whites) is lower to the right of the discontinuity, as in the baseline results. Figures A35 and A36 present the corresponding coefficient plots for both measures. Overall, we present here robustness results for the historical measures of slavery, different estimation strategies, and modern inequality measures, which support the validity of our baseline findings.

8 Conclusions

This paper exploits discontinuities in the Tordesillas line pre-dating the discovery of Brazil to show the impact of colonial slavery on modern-day inequality. Previous research has shown a correlation between slavery and modern levels of inequality at the national and sub-national levels, but to the best of our knowledge, a more rigorous empirical test of the Engerman and Sokoloff hypothesis was lacking. Also lacking was a serious scrutiny of the role of slavery for Brazilian underdevelopment, along with the intervening mechanisms of transmission, to

[54] A similar pattern can be observed using the Theil index instead, consistent with the baseline findings (results not reported).

improve our understanding of this institution on the receiving end of the spectrum. This examination is important for a country that was the largest importer of African slaves, is majority non-white today, and still struggles with these historical legacies.

Empirically, we use a Regression Discontinuity Design, where the assignment variable is the municipalities' distance to the Tordesillas line. With this technique, we show that the number of black slaves relative to the total population in 1872 was larger on the Portuguese side of the Tordesillas line compared with the Spanish side. Applying a Donut RD design, we find that the treatment effect on income inequality is about 10% of the Brazilian Gini index. We decompose the main income inequality effect along several dimensions. We use individual-level data to calculate Gini and Theil indexes by race. We then zoom into the racial income gap between blacks and whites as the main driver of the broader inequality measures. This racial income gap also appears to be discontinuous at the border.

We also expand on the intervening mechanisms of transmission of the main effect. During intermediate times, we observe early evidence of structural transformation, more coffee cultivation, and balanced migration flows. These mechanisms include education, employment and prejudice, where again we find important differences by race. Black Brazilians have lower literacy rates, have worse employment outcomes and face more racial prejudice, and these measures are discontinuously higher at the cutoff. We also explore other mechanisms that have been suggested by the historical literature, such as land inequality, voting, institutional and judicial capacity, and trust. These measures appear less relevant in this particular context.

As the issue of income inequality gains increased attention in the academic and popular literatures, our findings can help expand our knowledge of its historical roots. A better understanding of these deep-rooted determinants could be important for academics as well as policymakers who want to design policies that promote equality of opportunities for all, especially with regard to race, in developed and developing countries worldwide.

References

Aaronson, D., Hartley, D., & Mazumder, B. (2021). The effects of the 1930s holc" redlining" maps. *American Economic Journal: Economic Policy*, *13*(4), 355–92.

Acemoglu, D., Garcıa-Jimeno, C., & 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., & Sen, M. (2016). The political legacy of american slavery. *The Journal of Politics*, *78*(3), 621–641.

Acharya, A., Blackwell, M., & Sen, M. (2018). *Deep roots*. Princeton University Press.

Althoff, L., & Reichardt, H. (2022). Jim crow and black economic progress after slavery. *Manuscript, Princeton University.*

Andrews, G. R. (1991). *Blacks & whites in são paulo, brazil, 1888-1988*. Univ of Wisconsin Press.

Andrews, G. R. (2004). *Afro-latin america, 1800-2000*. Oxford University Press.

Andrews, G. R., da Costa, E. V., & Knight, F. W. (1992). George reid andrews," blacks and whites in são paulo, brazil, 1888-1988". madison, wi: University of wisconsin press, 1991. introduction, two comments, and a rejoinder by the author. *Luso-Brazilian Review*, 141–158.

Angrist, J. D., & Pischke, J. (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton university press.

Arretche, M. (2018). *Paths of inequality in brazil: A half-century of changes*. Springer.

Bailey, S. (2009). *Legacies of race: Identities, attitudes, and politics in brazil*. Stanford University Press.

Barreca, A. I., Guldi, M., Lindo, J. M., & Waddell, G. R. (2011). Saving babies? revisiting the effect of very low birth weight classification. *The Quarterly Journal of Economics*, *126*(4), 2117–2123.

Bastide, R., & Fernandes, F. (1959). Brancos e negros em são paulo: Ensaio sociológico sobre aspectos da formação, manifestações atuais e efeitos do preconceito de cor na sociedade paulistana. *Brasiliana*.

Becker, G. S., Kominers, S. D., Murphy, K. M., & Spenkuch, J. L. (2018). A theory of intergenerational mobility. *Journal of Political Economy*, *126*(S1), S7–S25.

Beckert, S. (2015). *Empire of cotton: A global history*. Vintage.

Bergad, L. (2007). *The comparative histories of slavery in brazil, cuba, and the united states*. Cambridge University Press.

Bergad, L. W. (2006). *Slavery and the demographic and economic history of minas gerais, brazil, 1720-1888* (Vol. 85). Cambridge University Press.

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

Bertocchi, G., & Dimico, A. (2019). The long-term determinants of female hiv infection in africa: The slave trade, polygyny, and sexual behavior. *Journal of Development Economics*, *140*, 90–105.

Bertocchi, G., & Dimico, A. (2020). Bitter sugar: Slavery and the black family.

Bethell, L. (1987). *Colonial brazil*. Cambridge University Press.

Bisin, A., & Federico, G. (2021). *The handbook of historical economics*. Academic Press.

Borucki, A. (2011). The slave trade to the rio de la plata, 1777–1812: Trans-imperial networks and atlantic warfare. *Colonial Latin American Review*, *20*(1), 81–107.

Botelho, F., Madeira, R. A., & Rangel, M. A. (2015). Racial discrimination in grading: Evidence from brazil. *American Economic Journal: Applied Economics*, *7*(4), 37–52.

Bourguignon, F., Ferreira, F. H., & Menéndez, M. (2007). Inequality of opportunity in brazil. *Review of income and Wealth*, *53*(4), 585–618.

Boxer, C. R. (1969). *Four centuries of portuguese expansion, 1415-1825: A succinct survey* (Vol. 3). Univ of California Press.

Brey, B., Ponsard, J., & Ziparo, R. (2022). Forbidden love: The impact of banning interracial marriages. *Manuscript, ULB and Aix-Marseille.*

Britto, D., Fonseca, A. d. A., Pinotti, P., Sampaio, B., & Warwar, L. (2022). Intergenerational mobility in the land of inequality. *BAFFI CAREFIN Centre Research Paper*, (2022-186).

Buarque de Holanda, S. (1994). *A época colonial: Do descobrimento à expansão territorial*. Bertrand Brasil, 20^{th}*edition*.

Buonanno, P., & Vargas, J. F. (2019). Inequality, crime, and the long run legacy of slavery. *Journal of Economic Behavior & Organization*, *159*, 539–552.

Calonico, S., Cattaneo, M. D., & Titiunik, R. (2014). Robust data-driven inference in the regression-discontinuity design. *Stata Journal*, *14*(4), 909–946.

Cattaneo, M. D., Frandsen, B. R., & Titiunik, R. (2015). Randomization inference in the regression discontinuity design: An application to party advantages in the us senate. *Journal of Causal Inference*, *3*(1), 1–24.

Cattaneo, M. D., Jansson, M., & Ma, X. (2020). Simple local polynomial density estimators. *Journal of the American Statistical Association*, *115*(531), 1449–1455.

Cintra, J. P. (2013). Reconstruindo o mapa das capitanias hereditárias. *Anais do Museu Paulista: História e Cultura Material*, *21*(2), 11–45.

Cintra, J. P. Et al. (2012). O mapa das cortes e as fronteiras do brasil. *Boletim de Ciências Geodésicas*, *18*(3), 421–445.

Coatsworth, J. H., & Taylor, A. M. (1998). *Latin america and the world economy since 1800*. Harvard University Press Cambridge, MA.

Cottrol, R. J. (2013). *The long, lingering shadow: Slavery, race, and law in the american hemisphere*. University of Georgia Press.

De Mello, E. C. (2010). *O brasil holandês: 1630-1654*. Companhia Das Letras.

de Carvalho Filho, I., & Colistete, R. P. (2010). Education performance: Was it all determined 100 years ago? evidence from são paulo, brazil.

de Carvalho Filho, I., & Monasterio, L. (2012). Immigration and the origins of regional inequality: Government-sponsored european migration to southern brazil before world war i. *Regional Science and Urban Economics*, *42*(5), 794–807.

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

Derenoncourt, E. (2018). 20. the historical origins of global inequality, In *After piketty*. Harvard University Press.

Derenoncourt, E., Gérard, F., Lagos, L., & Montialoux, C. (2021). Racial inequality, minimum wage spillovers, and the informal sector. May.

Edlund, L., & Ku, H. (2011). The african slave trade and the curious case of general polygyny.

Ehrl, P. (2017). Minimum comparable areas for the period 1872-2010: An aggregation of brazilian municipalities. *Estudos Econômicos (São Paulo)*, *47*, 215–229.

Eltis, D., & Richardson, D. (2010). *The trans-atlantic slave trade database voyages:introductory maps*. Emory University: Digital Library Research Initiative.

Engerman, S. (2015). 40 years of slavery studies. *História Econômica & História de Empresas*, *18*(1).

Engerman, S. L., & Sokoloff, K. L. (2002). *Factor endowments, inequality, and paths of development among new world economics* (tech. rep.). National Bureau of Economic Research.

Engerman, S., & Sokoloff, K. (1997). Factor endowments, institutions and differential paths of growth among the new world economies," in stephen haber, ed., how latin america fell behind, stanford: Stanford university press. stanford: Stanford university press.

Fenske, J., & Kala, N. (2015). Climate and the slave trade. *Journal of Development Economics*, *112*, 19–32.

Fenske, J., & Kala, N. (2017). 1807: Economic shocks, conflict and the slave trade. *Journal of Development Economics*, *126*, 66–76.

Ferreira, F. H., Leite, P. G., & Litchfield, J. A. (2008). The rise and fall of brazilian inequality: 1981–2004. *Macroeconomic Dynamics*, *12*(S2), 199–230.

Fogel, R. W., & Engerman, S. L. (1974). Time on the cross: The economics of american negro slavery.

Freyre, G. (1986). *The masters and the slaves*. University of California Press.

Gelman, A., & Imbens, G. (2014). *Why high-order polynomials should not be used in regression discontinuity designs* (tech. rep.). National Bureau of Economic Research.

Gerard, F., Lagos, L., Severnini, E., & Card, D. (2021). Assortative matching or exclusionary hiring? the impact of employment and pay policies on racial wage differences in brazil. *American Economic Review*, *111*(10), 3418–57.

Gethin, A. (2018). Cleavage structures and distributive politics.

Gouda, M., & Rigterink, A. S. (2013). The long-term effect of slavery on violent crime: Evidence from us counties. *Available at SSRN 2358389*.

Hasenbalg, C. (1985). Race and socioeconomic inequalities in brazil. *Race, Class and Power in Brazil, ed. P. Michel Fontaine, UCLA Center for Afro-American Studies*.

Heblich, S., Redding, S., & Voth, J. (2021). Slavery and the british industrial revolution. *Manuscript, Princeton University and University of Bonn*.

Herzog, T. (2015). *Frontiers of possession: Spain and portugal in europe and the americas*. Harvard University Press.

Hettema Jr., H. ((1920). Dutch brazil 1630-1654.

Hirata, G., & Soares, R. R. (2020). Competition and the racial wage gap: Evidence from brazil. *Journal of Development Economics*, *146*, 102519.

IBGE. (2011). Evolução da divisão territorial do brasil 1872-2010. IBGE Rio de Janeiro.

Imbens, G. W., & Lemieux, T. (2008). Regression discontinuity designs: A guide to practice. *Journal of econometrics*, *142*(2), 615–635.

Izecksohn, V. (2014). *Slavery and war in the americas: Race, citizenship, and state building in the united states and brazil, 1861-1870*. University of Virginia Press.

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

Kuznets, S. (2019). *Economic growth and income inequality*. Routledge.

La Ferrara, E., Corno, L., & Voena, A. (2020). Female genital cutting and the slave trade.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Trust in large organizations. *The American economic review*, 333–338.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of political economy*, *106*(6), 1113–1155.

Lagerlöf, N.-P. (2005). Geography, institutions and growth: The united states as a microcosm.

Lambais, G. (2020). Slave resistance, cultural transmission, and brazil's longrun economic development.

Lee, D. S., & Lemieux, T. (2010). Regression discontinuity designs in economics. *Journal of Economic Literature*.

Levine, R., Lin, C., & Xie, W. (2020). The african slave trade and modern household finance. *The Economic Journal*, *130*(630), 1817–1841.

Lowes, S., & Montero, E. (2019). Traditional medicine in central africa, In *Aea papers and proceedings*.

Lowes, S., & Montero, E. (2021). Concessions, violence, and indirect rule: Evidence from the congo free state. *The Quarterly Journal of Economics*, *136*(4), 2047–2091.

Luna, F. V., & Klein, H. S. (2003). *Slavery and the economy of são paulo, 1750-1850*. Stanford University Press.

Lustig, N., Lopez-Calva, L. F., & Ortiz-Juarez, E. (2013). Declining inequality in latin america in the 2000s: The cases of argentina, brazil, and mexico. *World development*, *44*, 129–141.

Mamigonian, B. (2017). *Africanos livres: A abolição do tráfico de escravos no brasil*. Companhia das Letras.

Margo, R. A. (1990). *Race and schooling in the south, 1880-1950: An economic history*. University of Chicago Press.

Mello, P. C. d. (1977). The economics of labor in brazilian coffee plantations, 1850-1888.

Michalopoulos, S., & Papaioannou, E. (2013). Pre-colonial ethnic institutions and contemporary african development. *Econometrica*, *81*(1), 113–152.

Michalopulos, S., & Papaioannou, E. (2017). *The long economic and political shadow of history: Europe and the americas*. CEPR Press.

Milá, M. M. (2015). Income concentration in a context of late development: An investigation of top incomes in brazil using tax records, 1933–2013.

Milanovic, B. (2011). *Worlds apart: Measuring international and global inequality*. Princeton University Press.

Mitchener, K. J., & McLean, I. W. (2003). The productivity of us states since 1880. *Journal of Economic Growth*, *8*(1), 73–114.

Monk Jr, E. P. (2016). The consequences of "race and color" in brazil. *Social Problems*, *63*(3), 413–430.

Monteiro, J. M. (1994). *Negros da terra: ndios e bandeirantes nas origens de são paulo*.

Naidu, S. (2012). *Suffrage, schooling, and sorting in the post-bellum us south* (tech. rep.). National Bureau of Economic Research.

Naritomi, J., Soares, R. R., & Assunção, J. J. (2012). Institutional development and colonial heritage within brazil. *The journal of economic history*, *72*(02), 393–422.

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

Nunn, N. (2008b). Slavery, inequality, and economic development in the americas. *Institutions and economic performance*, *15*, 148–180.

Nunn, N. (2009). *The importance of history for economic development* (tech. rep.). National Bureau of Economic Research.

Nunn, N. (2014). Historical development, In *Handbook of economic growth*. Elsevier.

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

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

Papadia, A. (2019). Slaves, migrants and development in brazil, 1872-1923.

Pellegrina, H. S., Sotelo, S. Et al. (2021). Migration, specialization, and trade: Evidence from the brazilian march to the west. Research Seminar in International Economics, Gerald R. Ford School of Public ...

Pierce, L., & Snyder, J. A. (2018). The historical slave trade and firm access to finance in africa. *The Review of Financial Studies*, *31*(1), 142–174.

Piketty, T. (2014). Capital in the 21st century.

Piketty, T. (2020). *Capital and ideology*. Harvard University Press Cambridge.

Piketty, T., & Saez, E. (2003). Income inequality in the united states, 1913–1998. *The Quarterly journal of economics*, *118*(1), 1–41.

Piketty, T., & Saez, E. (2006). The evolution of top incomes: A historical and international perspective. *American economic review*, *96*(2), 200–205.

Piketty, T., & Saez, E. (2014). Inequality in the long run. *Science*, *344*(6186), 838–843.

Ponticelli, J., & Alencar, L. S. (2016). Court enforcement, bank loans, and firm investment: Evidence from a bankruptcy reform in brazil. *The Quarterly Journal of Economics*, *131*(3), 1365–1413.

Porcher, C. (2020). Migration with costly information. *Unpublished Manuscript*, *1*(3).

Powell, B. M., & Silva, G. M. (2018). Technocrats' compromises: Defining race and the struggle for equality in brazil, 1970–2010. *Journal of Latin American Studies*, *50*(1), 87–115.

Rocha, R., Ferraz, C., & Soares, R. R. (2015). Human capital persistence and development.

Schwarcz, L. M. (2015). *Brasil: Uma biografia*. Editora Companhia das Letras.

Schwartz, S. B. (1974). The manumission of slaves in colonial brazil: Bahia, 1684-1745. *Hispanic American Historical Review*, *54*(4), 603–635.

Schwartz, S. B. (1996). *Slaves, peasants, and rebels: Reconsidering brazilian slavery* (Vol. 83). University of Illinois Press.

Seed, P. (1995). *Ceremonies of possession in europe's conquest of the new world, 1492-1640*. Cambridge University Press.

Seyler, F., & Silve, A. (2021). Frontier planters, immigrants, and the abolition of slavery in brazil. *Available at SSRN 3866950*.

Silva, N. d. V. (1985). Updating the cost of not being white in brazil. *Race, Class and Power in Brazil, ed. P. Michel Fontaine, UCLA Center for Afro-American Studies*.

Skidmore, T. E. (1992). Black into white, In *Black into white*. Duke University Press.

Smith, J. P. (1984). Race and human capital. *The American Economic Review*, *74*(4), 685–698.

Soares, R. R., Assunção, J. J., & Goulart, T. F. (2012). A note on slavery and the roots of inequality. *Journal of Comparative Economics*, *40*(4), 565–580.

Souza, P. H. G. F. d. (2016). A desigualdade vista do topo: A concentração de renda entre os ricos no brasil, 1926-2013.

Spolaore, E., & Wacziarg, R. (2013). How deep are the roots of economic development? *Journal of economic literature*, *51*(2), 325–69.

Telles, E. (2014). *Pigmentocracies: Ethnicity, race, and color in latin america*. UNC Press Books.

Teso, E. (2019). The long-term effect of demographic shocks on the evolution of gender roles: Evidence from the transatlantic slave trade. *Journal of the European Economic Association*, *17*(2), 497–534.

Viotti da Costa, E. (1998)). *Da senzala à colônia*. Editora da UNESP.

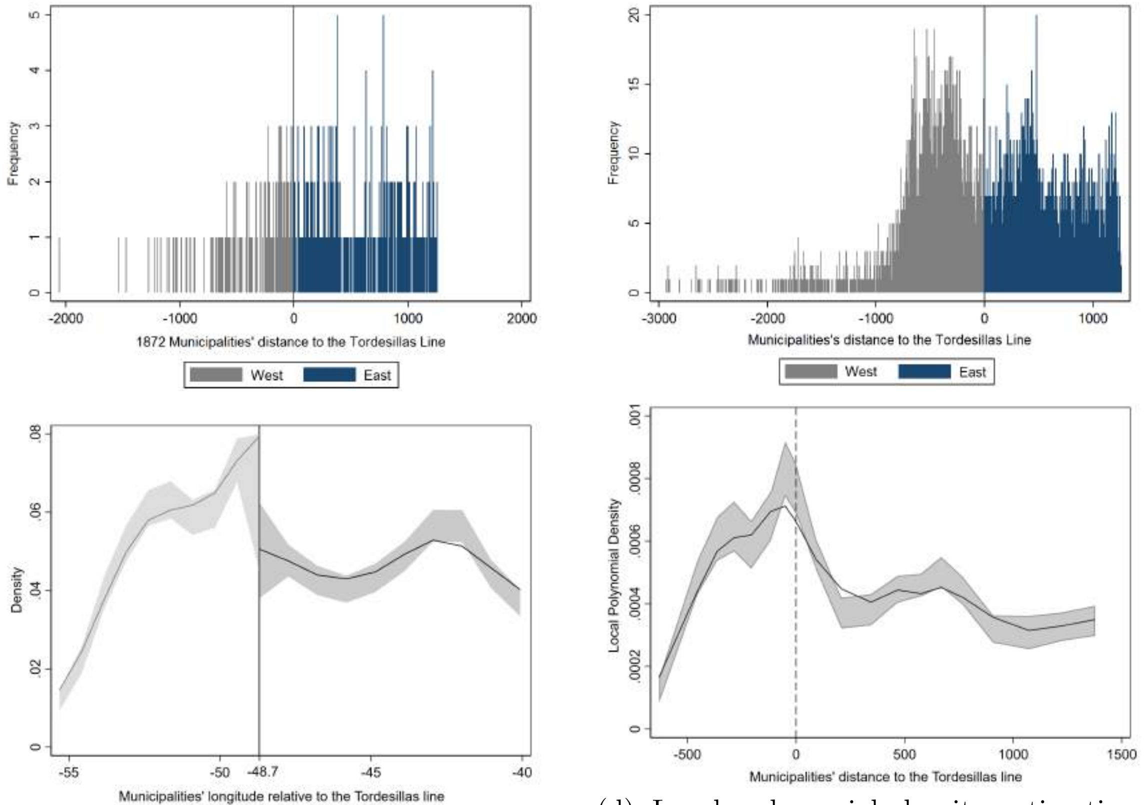
Wigton-Jones, E. (2019). *Legacies of inequality: The case of brazil* (tech. rep.). Working Paper.

Woo-Mora, L. G. (2021). Unveiling the cosmic race: Racial inequalities in latin america. *Available at SSRN*.

Zhang, Y., Xu, Z. P., & Kibriya, S. (2021). The long-term effects of the slave trade on political violence in sub-saharan africa. *Journal of Comparative Economics*, *49*(3), 776–800.

Figures

Figure 1: Frequency of Municipalities' by distance to the Tordesillas Line: 1872 and 2010



(a) Frequency of the Municipalities' distance to the Tordesillas Line: 1872

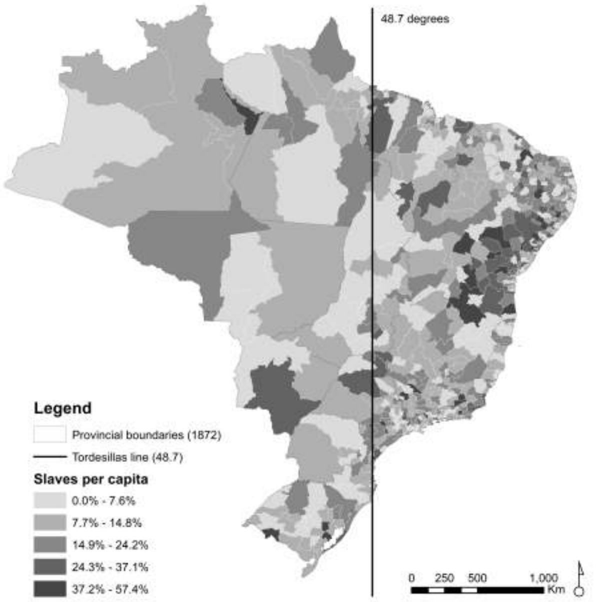
(b) Frequency of the Municipalities' distance to the Tordesillas Line: 2010

(c) Manipulation testing: Municipalities' longitude relative to the Tordesillas Line

(d) Local polynomial density estimation: Municipalities' distance to the Tordesillas Line

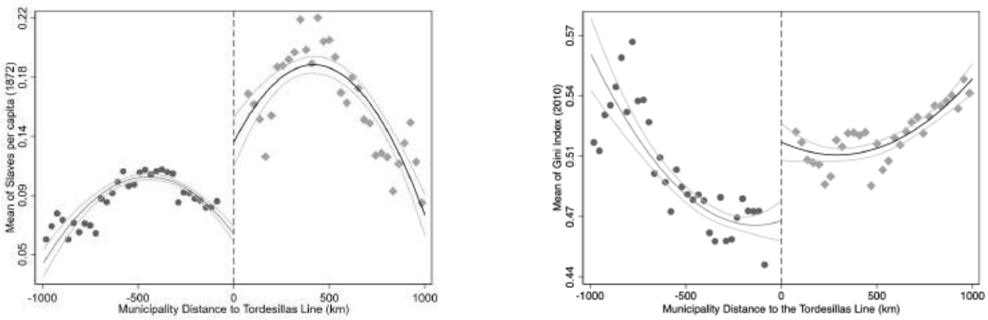
Plot (a) shows the histogram of distance from the Tordesillas line for municipalities founded before 1872. Plot (b) does the same for all 2010 municipalities. Plot (c) shows a kernel density estimate of the distribution of distance from Tordesillas line for modern municipalities. Plot (c) exhibits the local polynomial estimation of the cumulative distribution function (Cattaneo et al., 2020) Plot (d) shows the Manipulation test for the municipalities' longitude density, which shows that the distribution of location of modern day municipalities is not discontinuous close to the line. The local polynomial density estimates are presented with robust bias corrected confidence intervals (shaded in gray) (Cattaneo et al., 2020).

Figure 2: Tordesillas line and slave per capita in 1872



The map shows the distribution of slaves per capita in 1872 at municipal level. The Tordesillas line (48.7^0) is plotted in black.

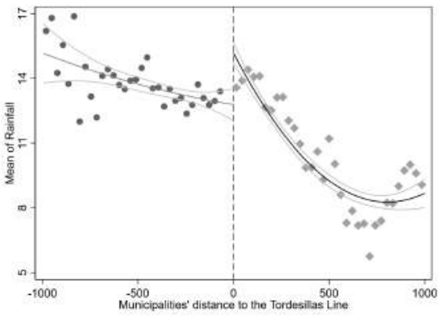
Figure 3: Regression Discontinuity Plots: Slaves per capita (1872) and Income Inequality (2010)



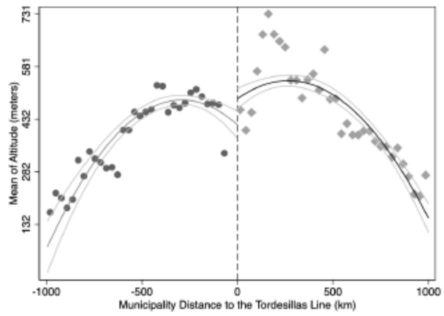
(a) Outcome: Slaves per capita (1872) (b) Outcome: Gini Index (2010)

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent the local averages of slaves as share of population in 1872 (Panel A) or the Gini index of monthly per capita household income in 2010 (Panel B). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

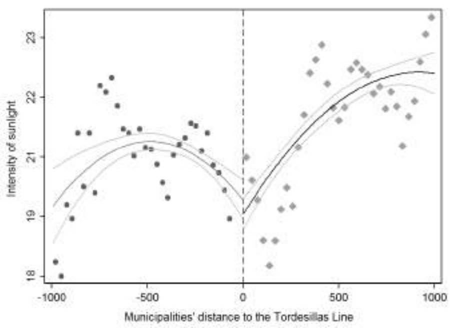
Figure 4: Regression Discontinuity Plots: Covariates



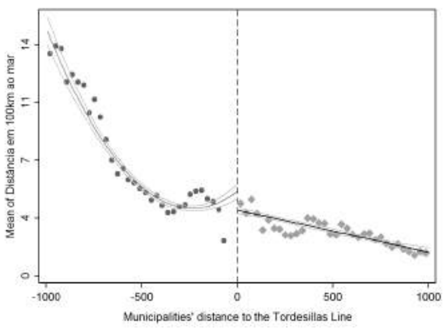
(a) Covariate: Rainfall



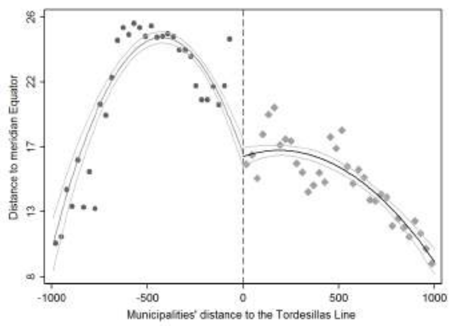
(b) Covariate: Altitude



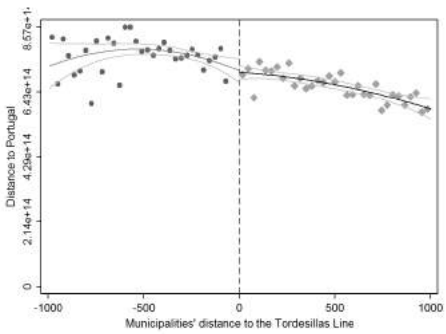
(c) Covariate: Sunlight



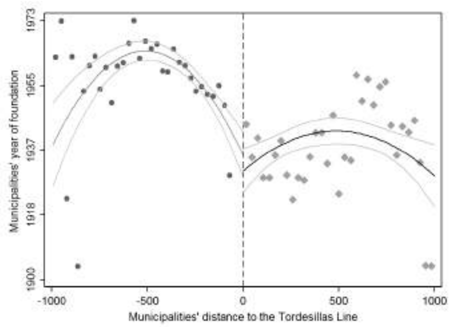
(d) Covariate: Distance to the coast



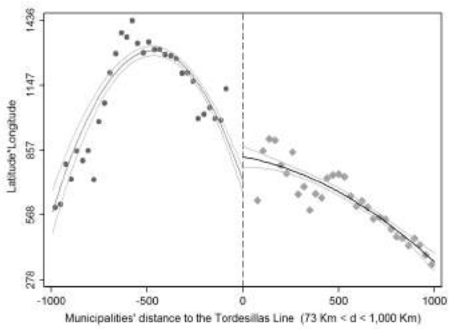
(e) Covariate: Distance to Equator



(f) Covariate: Distance to Portugal



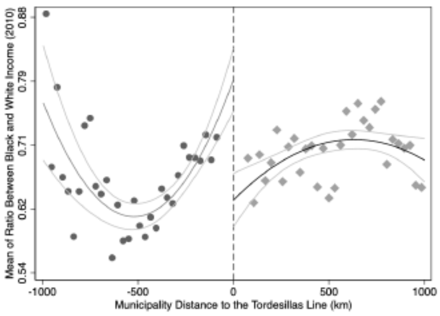
(g) Covariate: Year of Foundation



(h) Covariate: Latitude and Longitude

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent the local averages for each geographical covariate. Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

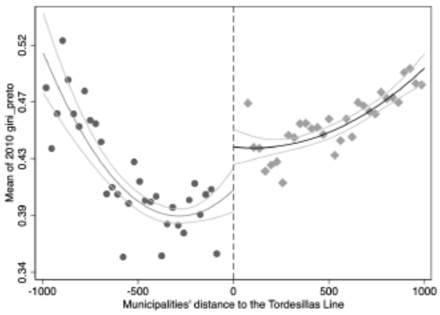
Figure 5: Regression Discontinuity Plots: Racial Income Gap



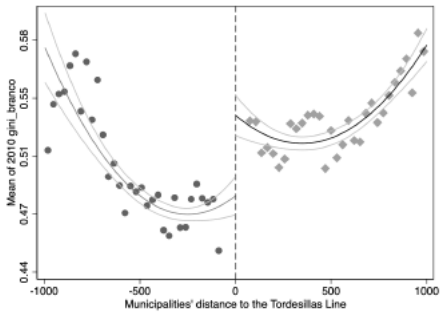
(a) Outcome: Ratio Between Average Black and White Income (2010)

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent the local averages of the ratio between average income of blacks and whites. Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

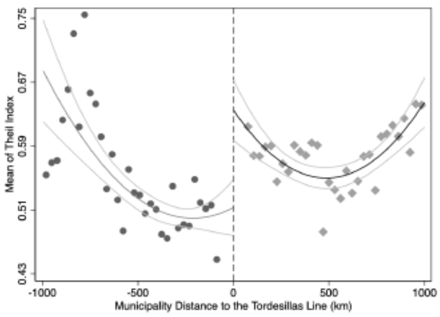
Figure 6: Regression Discontinuity Plots: Gini and Theil Index Decomposition (2010)



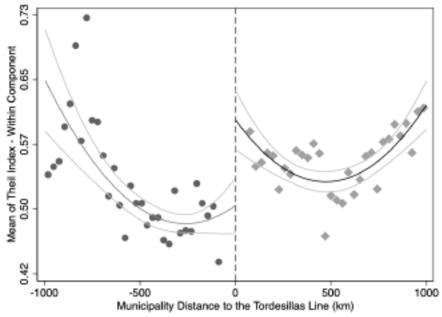
(a) Outcome: Gini Index - Blacks



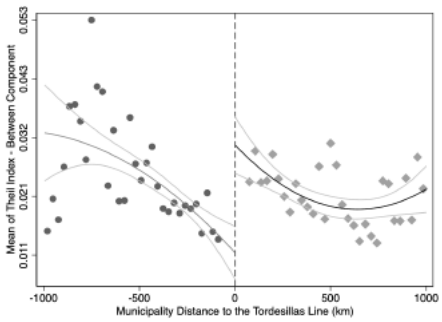
(b) Outcome: Gini Index - Whites



(c) Outcome: Theil Index



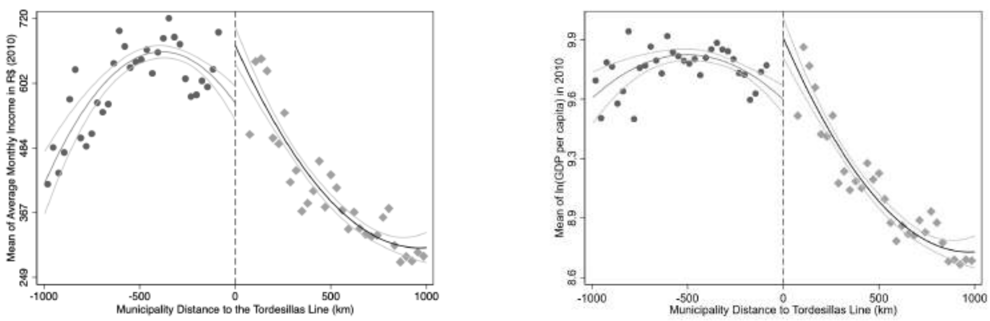
(d) Outcome: Theil Index - Within Race Component



(e) Outcome: Theil Index - Between Race Component

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of the Theil index for per capita household in come in 2010 and its different components. See text for further details on the decomposition. Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

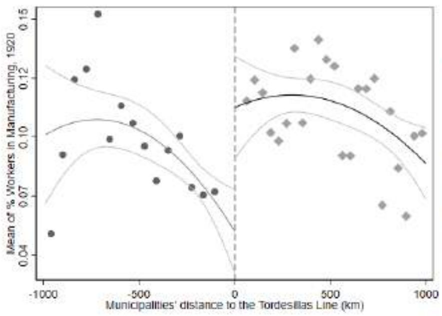
Figure 7: Regression Discontinuity Plots: Income and ln(GDP)



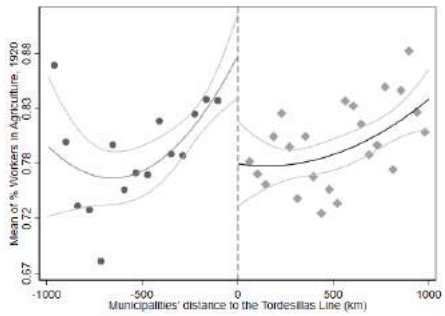
(a) Outcome: Average Income (2010)   (b) Outcome: ln(GDP per capita) (2012)

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent the local averages of average income in reais (Panel A) and ln(GDP per capita) (Panel B). Income is measured as monthly per capita household income in Brazilian reais (R$). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

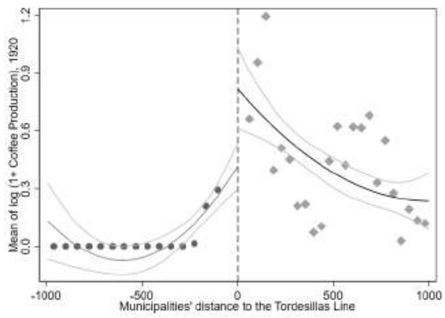
Figure 8: RD plots - Structural Transformation and Coffee Production: 1920



(a) Manufacturing in 1920



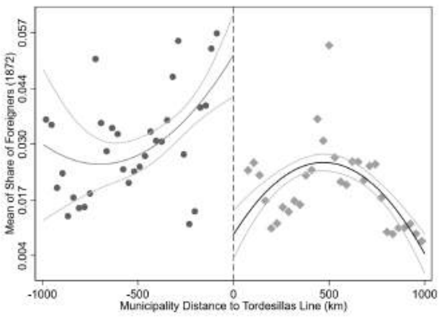
(b) Agriculture in 1920



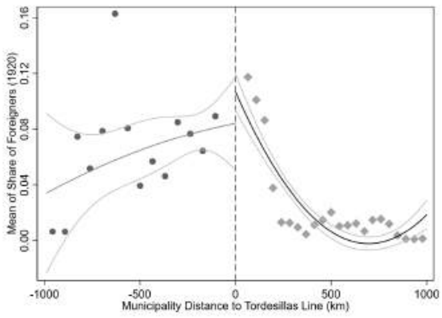
(c) Outcome: Coffee Production

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent the local averages of share of workers in manufacturing in 1920 (Panel A) and share of workers in agriculture in 1920 (Panel B), and the local averages of coffee production per sq. km in 1920 in Panel C. Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

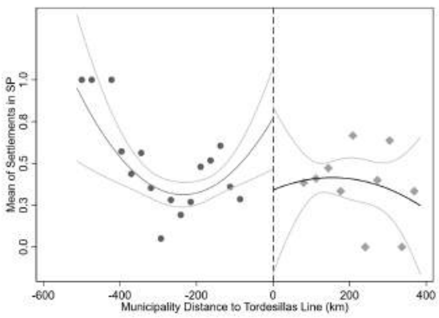
Figure 9: RD Plots: Immigration



(a) Outcome: Share of foreigners (1872)



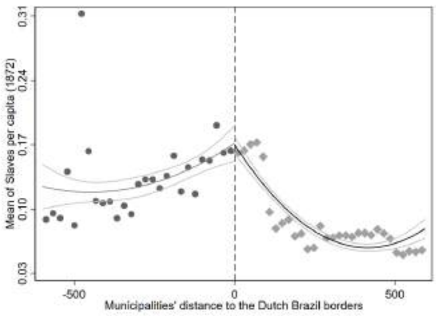
(b) Outcome: Share of foreigners (1920)



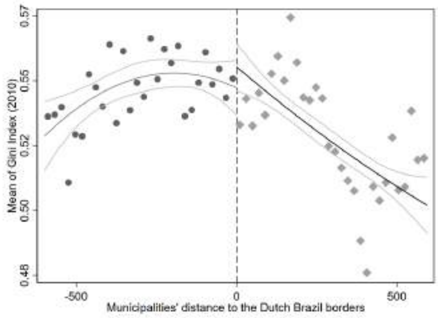
(c) Outcome: Settlements in SP

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent the local averages of share of foreigners in 1872 (Panel A), share of foreigners in 1920 (Panel B), and local average of dummy indicating whether a Sao Paulo municipality had a foreign settlement in the early 20th century (Panel C), from Rocha et al. (2015). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

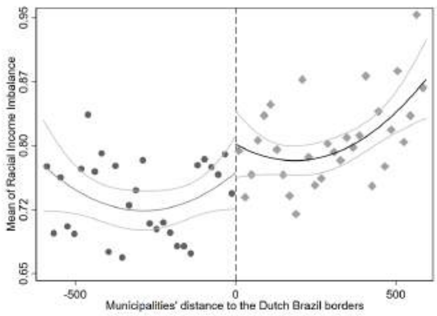
Figure 10: Regression Discontinuity Plots: Dutch Brazil



(a) Outcome: Slaves per capita (1872)



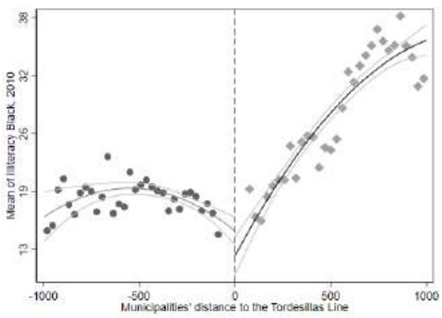
(b) Outcome: Gini Index (2010)



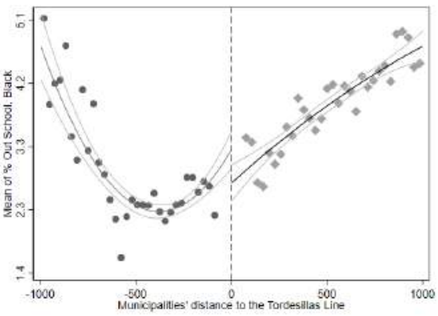
(c) Outcome: Racial Income Gap (2010)

Regression discontinuity plots with the municipality' distance to the Dutch Brazil as the assignment variable. Sample is restricted to municipalities with distance smaller than 600 km. Markers represent the local averages of slaves as share of population in 1872 (Panel A), the Gini index of monthly per capita household income in 2010 (Panel B) and the local averages of the ratio between average income of blacks and whites in 2010 (Panel C). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

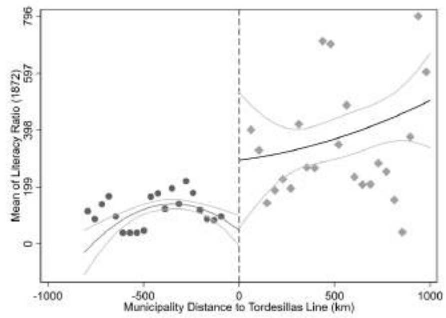
Figure 11: RD plots - Education in 1872 and 2010



(a) Illiteracy for Blacks in 2010



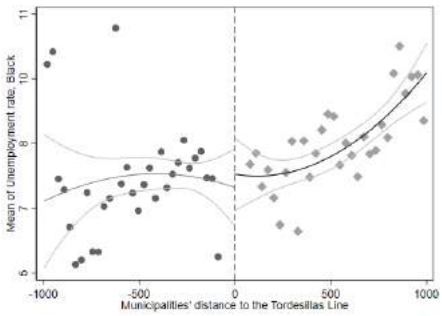
(b) Black Children out of School in 2010



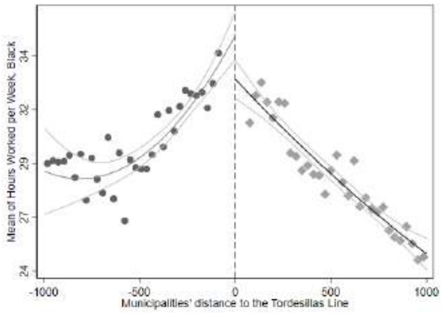
(c) Literacy Ratio: Free literacy rate over slave literacy rate in 1872

Regression discontinuity plots with the municipalities' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of (a) Illiteracy Rate of Blacks and (b) % of Black children out of school. Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

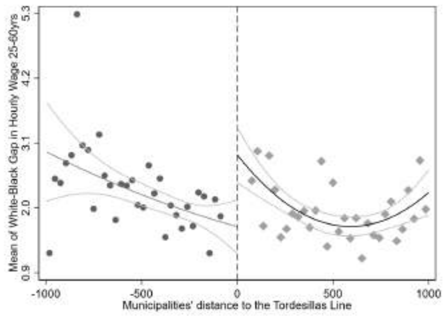
Figure 12: RD plots - Labor Outcomes for Blacks



(a) Unemployment for Blacks in 2010



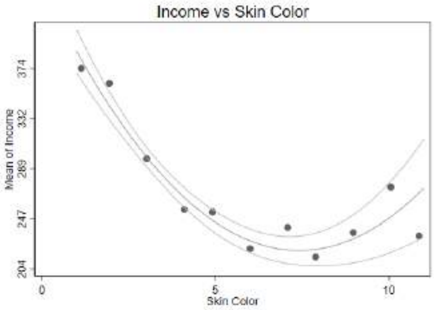
(b) Hours Worked in 2010



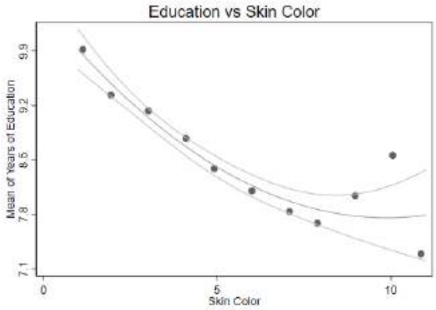
(c) White-Black Hourly Wage Gap in 2010

Regression discontinuity plots with the municipalities' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of Black workers' (a) Unemployment Rate of Blacks, (b) Hours Worked per Week and (c) White-Black Hourly Wage Gap. Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

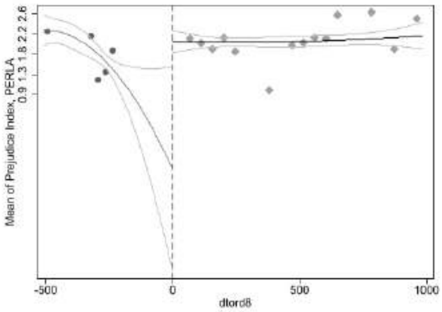
Figure 13: Skin Color: Binned Scatteplots and Regression Discontinuity Plot



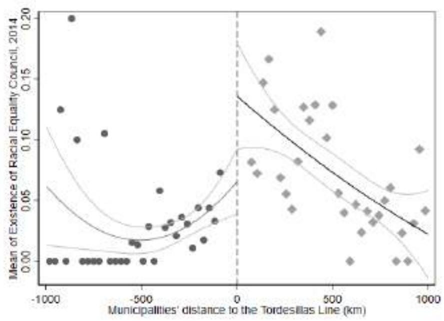
(a) Income vs. Skin Color



(b) Education vs. Skin Color



(c) Prejudice against black people in the labor market



(d) Racial Equality Councils in 2014

Panels (a) and (b) show correlations between individual income and education, and skin color. Markers represent local averages for each value on the PERLA scale (higher values mean darker skin tone), continuous lines are a quadratic fit, and 95% confidence intervals. Panel (c) shows a regression discontinuity plot with the municipalities' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of a composite index capturing racial attitudes towards blacks (higher values represent more prejudice against them). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

Tables

Table 1: Summary Statistics: Portuguese and Spanish Brazil

Portuguese Brazil					
	N	Mean	SD	Min	Max
Year of Foundation	3,172	1,936	64.62	1,534	1,997
Population (1872)	525	16,892	18,271	1,331	274,972
Number of Slaves (1872)	525	2,628	3,982	63	48,939
Slaves per Capita	3,314	0.136	0.098	0.012	0.939
Theil Index (2010)	3,367	0.480	0.120	0.190	1.360
Gini Index (2010)	3,367	0.514	0.058	0.329	0.797
Racial Income Gap (2010)	3,367	0.725	0.214	0.096	2.364
Blacks Illiteracy Rate (2010)	3,362	28.85	14.12	1.700	83.10
Black Children out of School (2010)	3,358	3.842	1.626	0.141	16.35
Black Unemployment Rate (2010)	3,053	8.286	5.027	0.600	46.24
Spanish Brazil					
	N	Mean	SD	Min	Max
Year of Foundation	2,063	1,958	40.80	1,635	1,997
Population (1872)	99	10,020	8,008	876	43,998
Number of Slaves (1872)	99	1,184	1,327	4	8,155
Slaves per Capita	2,117	0.094	0.036	0.006	0.254
Theil Index (2010)	2,138	0.418	0.136	0.140	1.280
Gini Index (2010)	2,138	0.486	0.075	0.284	0.808
Racial Income Gap (2010)	2,134	0.664	0.264	0.042	8.110
Blacks Illiteracy Rate (2010)	2,035	18.78	9.300	1.000	66.70
Black Children out of School (2010)	2,051	2.756	1.890	0.131	18.77
Black Unemployment Rate (2010)	1,551	7.167	4.922	0.390	55.56

The table shows Portuguese (east) and Spanish (west) Brazil divided by the Tordesillas line. Population and number of slaves are the counts for 1872 municipalities. Slaves per capita is the number of slaves per capita in 1872 for a 2010 municipality. We imputed the value in a 1872 municipality to all 2010 municipalities that composed a 1872 municipality. Racial Income Gap is the ratio of the income of black people over the income of white people.

Table 2: Slavery, Income inequality and Tordesillas

	Dependent variable: Slaves per capita				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0548***	0.104***	0.0440***	0.110***	0.0514***
	(0.00785)	(0.00522)	(0.00553)	(0.0227)	(0.0139)
	Panel B: RD order 2				
Distance to Tordesillas	0.0473**	0.0658***	0.0305***	0.0772	0.152***
	(0.0184)	(0.00884)	(0.00946)	(0.0809)	(0.0409)
	Panel C: Local Randomization RD				
					All
Distance to Tordesillas	0.083***	0.066***	0.073***	0.059***	0.045***
Observations	2,468	4,036	2,692	788	1,226
Mean Dep. Variable	0.130	0.131	0.129	0.108	0.120

	Dependent variable: Income inequality - Gini Index (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0403***	0.0450***	0.0391***	0.0958***	0.0421***
	(0.00695)	(0.00449)	(0.00565)	(0.0185)	(0.00966)
	Panel B: RD order 2				
Distance to Tordesillas	0.0431***	0.0444***	0.0370***	0.140*	0.121***
	(0.0150)	(0.00782)	(0.0109)	(0.0714)	(0.0250)
	Panel C: Local Randomization RD				
					All
Distance to Tordesillas	0.038***	0.038***	0.037***	0.038***	0.030***
Observations	2,493	4,072	2,717	788	1,601
Mean Dep. Variable	0.484	0.497	0.485	0.483	0.504

The dependent variables are the number of slaves per capita in 1872 and 2010 Gini index. Distance to Tordesillas is the distance, in kilometers, to the east side of the Tordesillas meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Panel C presents the estimates for local randomization RD. Robust standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Tordesillas and Racial Income Gap

	Racial Income Gap - Ratio between average income of blacks and whites (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	-0.0794***	-0.0256	-0.0843***	-0.0836	-0.0837**
	(0.0268)	(0.0183)	(0.0229)	(0.0537)	(0.0329)
	Panel B: RD order 2				
Distance to Tordesillas	-0.114**	-0.164***	-0.0850**	0.1140	-0.0962
	(0.0519)	(0.3016)	(0.0381)	(0.0381)	(0.0636)
Observations	2,490	4,068	2,714	787	1,860
Mean Dep. Var.	0.673	0.679	0.672	0.692	0.703

The dependent variable is ratio between the income of black population over the income of white population. Distance to Tordesillas is the distance, in kilometers, to the east side of the Tordesillas Meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Robust standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Income Inequality and Tordesillas: Theil Index

	Theil (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
			Panel A: RD order 1		
Distance to Tordesillas	0.0748***	0.0797***	0.0741***	0.169***	0.0568***
	(0.0135)	(0.00866)	(0.0105)	(0.0348)	(0.0170)
			Panel B: RD order 2		
Distance to Tordesillas	0.0728**	0.0852***	0.0686***	0.0686***	0.201***
	(0.0285)	(0.0151)	(0.0195)	(0.0195)	(0.0403)
Observations	2,493	4,072	2,717	788	1,842
Mean Dep. Var.	0.417	0.443	0.417	0.406	0.458

The dependent variable is 2010 Theil index. Distance to Tordesillas is the distance, in kilometers, to the east side of the Tordesillas meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Robust standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table 5: OLS estimates of skin color on individual income

	Spanish Brazil					Portuguese Brazil				
	Dependent variable: Individual income (log)					Dependent variable: Individual Income (log)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Skin Color	-0.093***	-0.170***	-0.087***	-0.071	-0.065	-0.059***	-0.188***	-0.074**	-0.084***	-0.081***
	(0.010)	(0.033)	(0.033)	(0.072)	(0.040)	(0.009)	(0.032)	(0.031)	(0.024)	(0.029)
Skin Color sq.		0.008**	0.003	0.002	0.001		0.012***	0.005*	0.006*	0.005*
		(0.003)	(0.003)	(0.008)	(0.004)		(0.003)	(0.003)	(0.002)	(0.003)
Female			-0.152***	-0.158***	-0.160***			-0.255***	-0.259***	-0.259***
			(0.036)	(0.020)	(0.030)			(0.036)	(0.029)	(0.036)
Age			0.014***	0.014***	0.014***			0.011***	0.011***	0.011***
			(0.002)	(0.001)	(0.001)			(0.002)	(0.001)	(0.002)
Education			0.069***	0.069***	0.066***			0.060***	0.060***	0.059***
			(0.005)	(0.004)	(0.006)			(0.005)	(0.006)	(0.007)
Afro			0.159*	0.122*	0.121			-0.096	-0.083	-0.093
			(0.089)	(0.061)	(0.087)			(0.087)	(0.059)	(0.088)
Indigenous			-0.251*	-0.184	-0.173			-0.092	-0.091	-0.094
			(0.142)	(0.195)	(0.173)			(0.137)	(0.137)	(0.144)
Mulata			0.036	0.072	0.083			-0.061	-0.074	-0.076
			(0.074)	(0.116)	(0.085)			(0.075)	(0.065)	(0.063)
White			0.104	0.067	0.075			0.078	0.026	0.003
			(0.076)	(0.113)	(0.078)			(0.077)	(0.061)	(0.072)
Wave F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
State F.E.				✓					✓	
Municipality F.E.					✓					✓
Covariates* F.E.			✓	✓	✓			✓	✓	✓
Observations	1,739	1,739	1,708	1,708	1,708	1,943	1,943	1,906	1,906	1,906
Adjusted R^2	0.08	0.08	0.33	0.37	0.39	0.03	0.04	0.31	0.33	0.34

Covariates* include employment, location, marital status, and religion fixed-effects.
The dependent variable is log of individual income. Each panel includes separate estimates for municipalities on the Spanish and Portuguese sides of the Tordesillas line. The data pools 4 waves of the AmericasBarometer Survey data LAPOP (2012, 2014, 2016, and 2018).
Standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Appendix

Description of the variables

1. **Slavery** The main variable used is number of black slaves over total population measured by the Imperial census of 1872. The data sources is IBGE, 2011.IBGE also provides the 2010 municipality code that we can calculate slave per capita for the current Minimum Comparable Areas (AMC) (Ehrl, 2017), increasing the number of observations. We also report results for the slavery population according to the Fiscal census in 1873.

2. **Income inequality** Gini index of household income per capita. Source: Census 1991, 2000 and 2010, DataSUS (https://datasus.saude.gov.br/). We also redid the variable using census micro-data from 1970 to 2010 (IBGE). We also use Theil Index to capture income inequality. They are produced based on the census micro-data from 1970 to 2010 (IBGE).

3. **GDP per capita** Municipal GDP divided by estimated population in 2012. Source: IBGE (www.ibge.gov.br).

4. **Racial income gap** The ratio average household income between blacks and white. The source is DataSUS (https://datasus.saude.gov.br/). We also redid the variable using census micro-data from 1970 to 2010 (IBGE).

5. **Distance to the Tordesillas line** Municipalities' (center of the city) geodesic distance to the Tordesillas line (48.7^o)in Km. We calculated the distance using ArcGis.

6. **Free population** The number of people that were not enslaved in 1872. The source is the census 1872.

7. **Black slave population** The number of enslaved people that were black in 1872. The source is the census 1872.

8. **Free black population** The number of free people that were black in 1872. The source is the census 1872.

9. **Share of Caboclo** The share of people identified as "caboclo" in the 1872 Brazilian census.

10. **Sex ratio** Sex ratio in 1872. The source is the census 1872.

11. **Share of married people** The share of married people in 1872. The source is the census 1872.

12. **Share of Foreigners in 1872** The share of foreigners among the whole population in 1872. The source is the census 1872.

13. **Literacy rate** Literacy rate in 1872. The source is the census 1872.

14. **Literacy Rate difference between free and slavery population** Ratio of literacy rate between free people and slaves. The source is the census 1872.

15. **Free literacy rate over slave literacy rate** Literacy ration between free people and slaves in 1872. The variable is based on the 1872 census (IBGE).

16. **Black Population in 1890** Ratio of black over total population in 1890. The variable is based on the 1890 census (IBGE).

17. **Manufacturing** Percentage of workers in Manufacturing in 1920. The variable is from the 1920 census (IBGE).

18. **Agriculture** Percentage of workers in Agriculture in 1920. The variable is from the 1920 census (IBGE).

19. **Coffee Production** Coffee production per square kilometers in 1920. The variable is from the 1920 census (IBGE).

20. **Share of Foreigners in 1920** The share of foreigners among the whole population in 1920. The source is the 1920 census (IBGE).

21. **Settlements in SP** This variable is a dummy equal to 1 if a municipality in the state of Sao Paulo had a foreign settlement in the early 20th century. The source is Rocha et al., 2015.

22. **Year of Foundation** The year of the municipality foundation reported by the Municipal Information System, considering the year 2000 as reference.

23. **Unemployment for blacks** The average unemployment rate of black households. Source: census 1991, 2000 and 2010, The source is DataSUS (https://datasus.saude.gov.br/).

24. **Hours worked per week for blacks** The average hours worked per week for black households. Source: Census 1991, 2000 and 2010, The source is DataSUS (https://datasus.saude.gov.br/).

25. **White-Black Hourly Wage Gap in 2010** The difference between the average hourly wage of whites and blacks in 2010.

26. **Black illiteracy** The average household illiteracy rate of blacks. DataSUS (https://datasus.saude.gov.br/). We also redid the variable using micro-data from 1970 to 2010 (IBGE).

27. **Black children out of school** Percentage of black children out of school in 2010. The variable using the 2010 census micro-data (IBGE). The source is the 2010 census micro-data (IBGE).

28. **Prejudice** Three different measures are used throughout the paper. The index using the PERLA survey is based on three questions related to prejudice against blacks (i. Blacks are poor because they do not work enough; ii. Blacks are poor because, in general, they are less intelligent; iii. Blacks are poor because they do not want to change their culture). This comes from the PERLA project (Telles, 2014). The index based on the PESB survey include the answers of six questions related to the perceived occupation (lawyer, high school teacher, carrier) and status (less opportunities, criminal and poor) of pictures presented to the respondents. And finally, the racial prejudice at school measure is based on the answers from seventeen questions at the INEP-FIPE survey.

29. **Existence of Racial Equality Councils** Municipal Profile (Perfil Municipal), 2014, IBGE (www.ibge.gov.br).

30. **Inequality of land distribution** Gini index of the land distribution, constructed with data from 1920 and 2010 census.

31. **Voting Turnout** Percentage of the population who were voters in 1910 and 2010.

32. **Access to Justice** Average of three binary variables indicating the existence of: (i) Small Claims Courts ("Tribunal de Pequenas Causas"), (ii) Youth Council ("Conselho Tutelar") and (iii) Consumer Commission ("Comissão de Defesa do Consumidor"). It was constructed using information available in 2001 (IBGE) and compiled by Naritomi et al. (2012).

33. **Judicial Backlogs per Judge** It is the number of pending cases in a court at the beginning of the year over the number of judges working in that court over the year. The data is from Ponticelli and Alencar (2016).

34. **Human Development Index (HDI)** Composite of average achievement in key dimensions of human development: health, education and income. The HDI is the geometric mean of normalized indices for each of the three dimensions. The data source is the United Nations Development Programme (UNDP) from 2010.

35. **Skin color** Eleven skin tones that go from 1 which is lighter to 11 which is darkest. This survey is part of the PERLA project (Telles, 2014).

36. **Public institutions** Simple average of four qualitative indicators, normalized from 1 to 6: the year in which the database of the tax on urban property ("IPTU") was updated, the IPTU payment rate in 1999, the number of administrative instruments, and the number of planning instruments; from the Brazilian Census Bureau; calculated using data between 1997 and 2000. Source: Ministry of Planning.

37. **Portuguese Settlements** This is a dummy variable equal to 1 if that municipality was a Portuguese settlement during colonial periods. The source is the *Atlas Digital da America Lusa*: http://lhs.unb.br/atlas/.

38. **SAEB Children Test Scores** Mean of student's test scores in Portuguese and Mathematics in 2011. SAEB is the Evaluation System of Basic Education and it is a set of external and large-scale evaluation program led by the Ministry of Education (INEP). Among other variables, they also include students' parents education in the questionnaire.

39. **Modern Population Demographics (2010)** The share of whites, blacks, pardos and foreigners among the population comes from the 2010 census.

40. **Share of people born outside their current municipality** This is the number of people that were not born in the municipality that they were living in 2010 divided by the population of the municipality. This variable comes from the 2010 census.

41. **Railway** The number of railway stations and railway lines in each municipality in 1920. The source is XXX.

42. **Coffee Suitability** This variable comes from the Global Agro-ecological Zones Data Portal version 3.0, that measures the coffee suitability per square km in 1920.

43. **Plantation Suitability Index** This is an index indicating the region suitability for plantation crops when compared to smallholder agricultural crops, calculated using temperature and precipitation from Food and Agriculture Organization (FAO). It comes from Wigton-Jones, 2019.

44. **Trust** Latinobarometer survey (2016-2017) captures generalized trust, trust in the Police, trust in the Government and trust in the Judiciary.

45. **Candomblé** Percentage of people practicing camdomblé, a traditional religion based on African beliefs. The data source is the 2010 (IBGE)

46. **Slavery in 1830s** For the state of Sao Paulo, we use the data from 1835 consolidated by Luna and Klein, 2003 at the municipal level, who kindly shared with us. For Minas Gerais, we use the state-level census data ("Lista Nominativas da Década de 1830") from the 1830s, available at the UFMG/Cedeplar website: http://www.nphed.cedeplar.ufmg.br/poplin-minas-1830/.

47. **Geographical variables**[55]

    - *Rainfall* The average quantity of water precipitation in each municipality for the period of 1931-1990, expressed in 100 millimeters per year, obtained from the National Institute of Geology (INGEO).
    - *Altitude* The average altitude of each municipality, reported in the "Cadastro de cidades e vilas" published by the Brazilian Census Bureau in 1998.
    - *Distance to the coast* Distance (in kilometers) from the municipality center to the Brazilian coast, calculated by the Federal University of Rio de Janeiro (UFRJ).
    - *Distance to Portugal* Absolute value of the latitude coordinate of each municipality center, obtained from the National Institute of Geology (INGEO).

[55] We thank Naritomi et al. (2012) for sharing those variables with us. The variables' descriptions are consistent with their original paper.

- *Interaction Latitude and Longitude* Interaction of latitude and longitude of the municipalities.
- *Sunlight* The average quantity of water precipitation in each municipality for the period of 1931-1990, expressed in 100 millimeters per year, obtained from the National Institute of Geology (INGEO).
- *Distance to Equator* Absolute value of the latitude coordinate of each municipality center, obtained from the National Institute of Geology (INGEO).
- *Temperature* A set of 12 variables indicating the average monthly temperatures (degrees Celsius) in each municipality, obtained from the Brazilian Agricultural Research Institute (EMBRAPA). We use only the months of June and December in our controls.
- *Region* A set of 5 dummy variables indicating the Brazilian macro-regions: North, Northeast, Central-West, Southeast and South. We use this variable as a cluster the standard errors.

History of Dutch Brazil

The Dutch invaded the second richest region of Brazil – Pernambuco - and installed there from 1531 to 1651. The Dutch occupation negatively affected the colonial economy because they started competing in the international sugar cane market and drove the slave prices up (Klein and Luna, 2009).

The Netherlands were at war against Spain from 1568 to 1648. Both countries disputed maritime supremacy. Portugal and the Netherlands were trade partners. In 1580 the Spanish Habsburg Crown incorporated Portugal after the death of Dom Sebastiao in the north of Africa. Until 1640, the Portuguese empire became a target for the Dutch as well.

In 1604 the Netherlands attacked Salvador, the center of Colonial Brazil, counting with a potential collaboration of the Portuguese. The endeavour failed. Between 1609 and 1621 Habsburg rulers of Spain, the Southern Netherlands and the Dutch Republic ceased their mutual hostilities. The Twelve Years' Truce ended in the same year that the Dutch West India Company (WIC), a chartered company of merchants, was launched. The WIC secured trade monopoly in the Caribbean and the jurisdiction over the Atlantic slave trade in the Americas.

The WIC attacked Salvador again in 1624 for 24 hours. In 1628, the maritime fleet led by Piet Heyn attacked Salvador twice, stealing boats loaded with local products. The captain also stole a Spanish fleet loaded with Silver in Cuba, raising 8 million florins that paid dividends for the shareholders and also financed a new project in Brazil: the invasion of the DC of Pernambuco and neighboring areas of Itamaraca, Paraiba and Rio Grande do Norte (De Mello, 2010; Schwarcz, 2015). The Dutch had many reasons to attack Brazil (De Mello, 2010). First, the Portuguese America was the fragile bond of the Spanish Crown. Second, the opportunity to make considerable profits exploring both brazilwood and sugar cane. The WIC calculated an investment of 2.5 million florins to conquer Pernambuco and a return of 8 million florins per year (or 77 tons of gold). Third, the population in Brazil was based on the coast making it easier and cheaper to conquer than the Spanish colonies located in the altiplanos. Finally, Brazil was an excellent operation base to fight against the Spanish fleets in the Caribbean and the Portuguese in the Orient.

The Pernambuco area in 1630 was the most important area for sugar cane production in the world. The region produced 659 thousands tons of sugar. There were 160 sugar cane mills in operation (De Mello, 2010). Pernambuco was the first DC to have sugar cane plantation in 1535.

The 67 ships transporting seven thousand men of the WIC left the Netherlands in 1629 and arrived in February 1630. Until 1637, the Dutch expanded their area of influence between Ceara and Sao Francisco River. The Dutch colonization in the Brazilian Northeast lasted until 1654, and the Dutch West India Company (WIC) installed their headquarters in Recife.

The most prosperous period of the Dutch Brazil period was between 1637 and 1644, when John Maurice of Nassau acted as governor. When Nassau arrived in Pernambuco, he found several sugar cane mills destroyed, a debilitated economy and unsatisfied population with the Dutch command (Schwarcz, 2015). Nassau sold the abandoned sugar cane mills and provided loans for the buyers, reestablished the slave trade, guaranteed credit for the purchase of new machinery in the sugar cane mills, incentivized farmers to grow manioc to fight the lack of food in the region. The Calvinist governor also promoted religious freedom and invited artists and scientists to the colony to help promote Brazil and increase immigration.

Nassau also substantially improved the infrastructure of Recife that had an estimated population of seven thousand inhabitants. He built new public buildings, bridges, channels and gardens in the then Dutch style. Nassau invested in sanitation. He established representative councils in the colony for local government, and developed Recife's transportation infrastructure. The governor prohibited the citizens to throw garbage in the streets or throw sugarcane bagasse in lakes and rivers that prevented the procreation of fishes (Schwarcz, 2015).

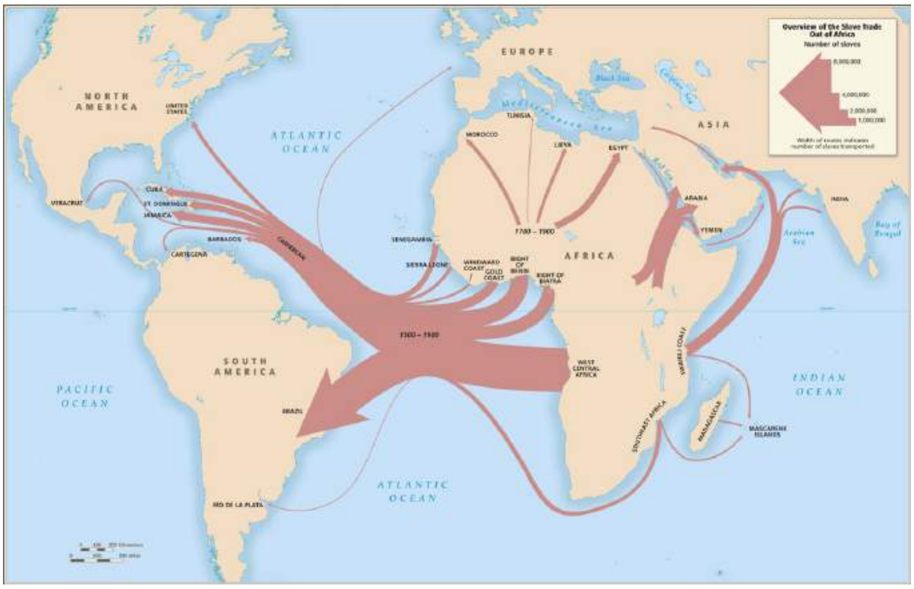
The local population used to refer to Nassau as "the Brazilian", evidencing his popularity. But the Board of the WIC argued that he was overspending and requested his return to Holland in 1644.

The Dutch Brazil decayed after the departure of Nassau. By 1648 and 1649, the Portuguese, indigenous people and slaves joined forces to fight against the Dutch. They were defeated in Guararapes, 10 Km south of Recife. There are historians who call this war the "ground zer" of Brasil because the war involved a "racial mix". The Dutch controlled Recife until 1654, when the Portuguese took over the city. The conflict between Portugal and the Dutch Republic finally ended in 1661 when both parties signed the Treaty of Hague.

Additional Figures

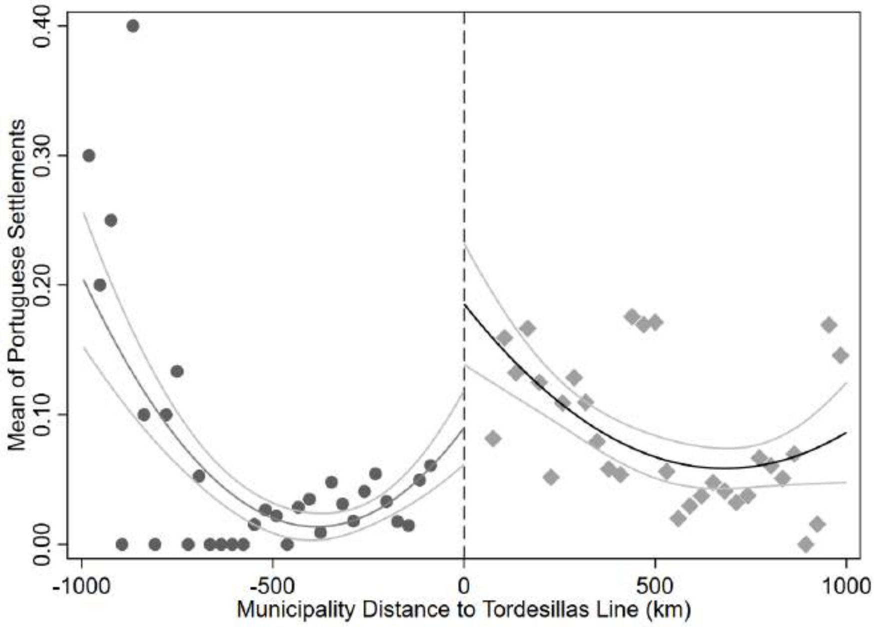
Figure A1: Early Tordesillas Line: Cantino (1502)

Figure A2: The Transatlantic Slave Trade Flows, from Eltis and Richardson (2010)



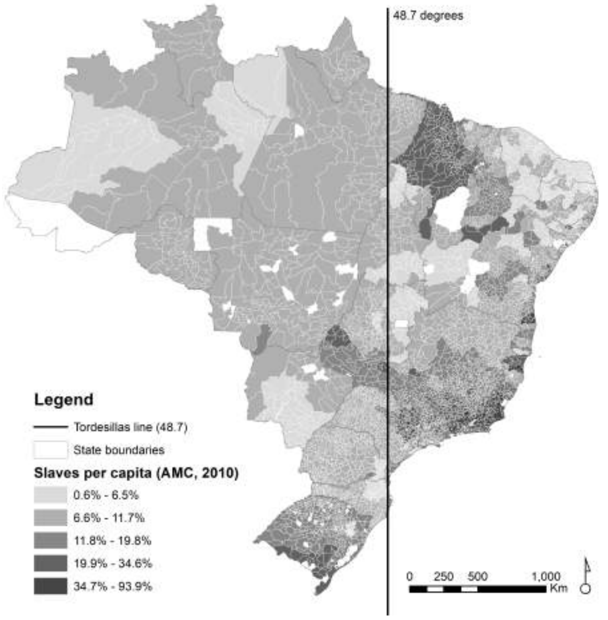
Source: Eltis and Richardson (2010).

Figure A3: Tordesillas and Portuguese Settlements



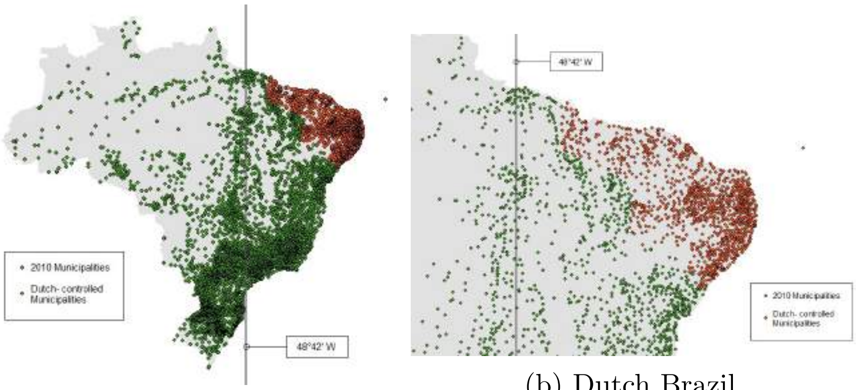
Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of a dummy indicating whether that municipality was a Portuguese settlement. Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

Figure A4: Slaves per capita in 2010 Municipalities boundaries (AMC)



Source: Census 1872, Cintra et al. (2012), Ehrl (2017) and Authors' calculation and elaboration.

Figure A5: Dutch Brazil and slave distribution in 1872

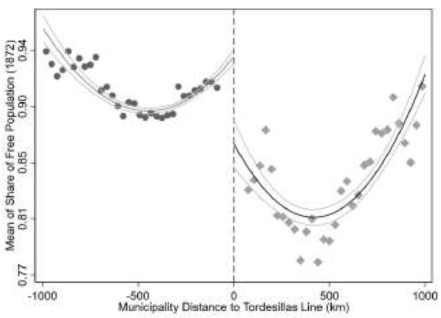


(a) Dutch Brazil

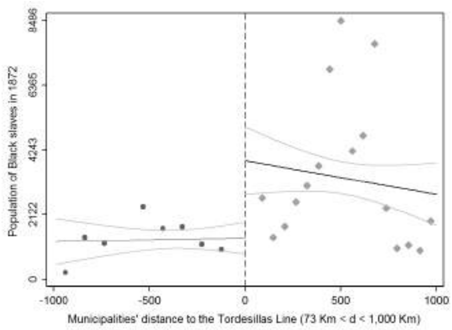
(b) Dutch Brazil

Map (a) shows the intensity of the slaves presences by municipality in 1872. Map (b) exhibit in orange the area colonized by the Dutch (Hettema Jr., 1920).

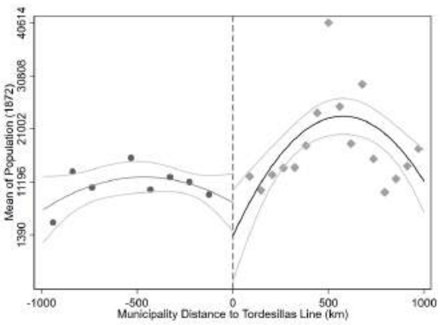
Figure A6: Donut RD plots: Free and black slave population (Tordesillas Line)



(a) Outcome: Share of Free population



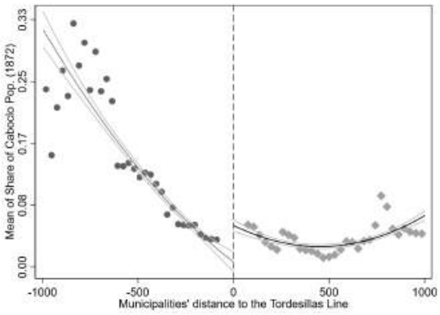
(b) Outcome: Black slave population



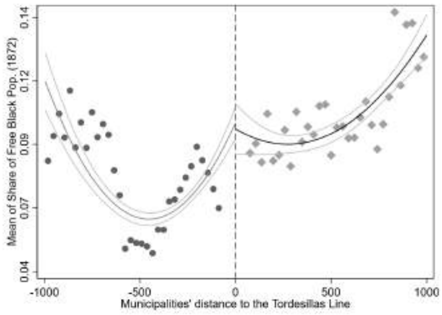
(c) Outcome: Total population

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of the share of free population in 1872 (Panel A), the black slave population in 1872 (Panel B) , and the total population in 1872 (Panel C). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

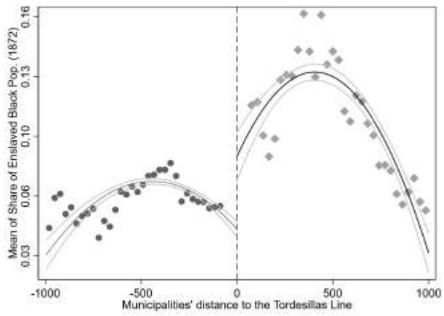
Figure A7: Donut RD plots: Caboclo and Black Population (Tordesillas Line)



(a) Outcome: Share of Caboclo (1872)



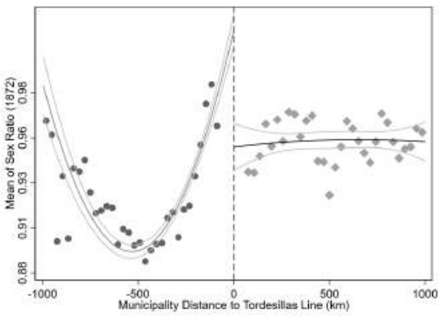
(b) Outcome: Share of Free Black (1872)



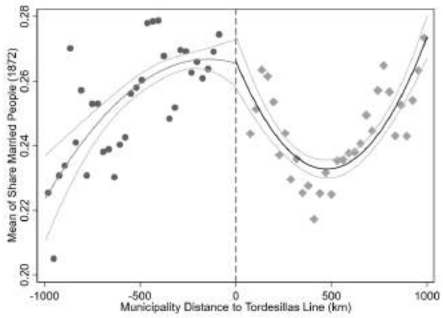
(c) Outcome: Share of Enslaved Black (1872)

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of the share of caboclo population in 1872 (Panel A), share of free black population in 1872 (Panel B), and share of enslaved black population in 1872 (Panel C). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

Figure A8: Donut RD plots: Sex Ratios and Share of Married



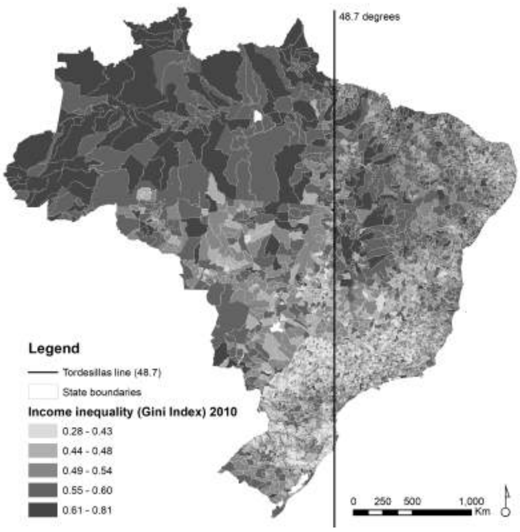
(a) Outcome: Sex Ratio in 1872



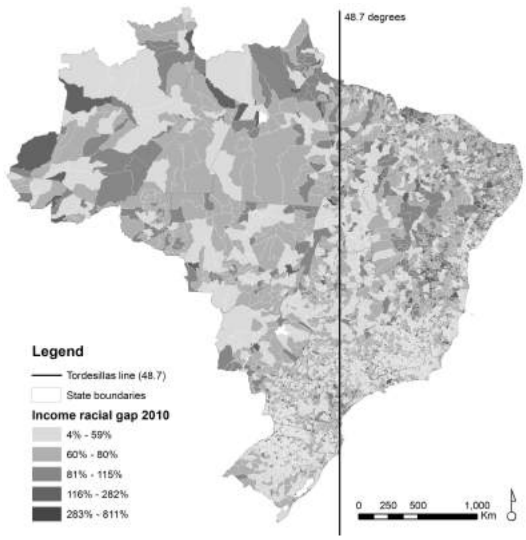
(b) Outcome: Share of married people in 1872

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of the population sex ratio in 1872 (Panel A), and the share of married people in 1872 (Panel B). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

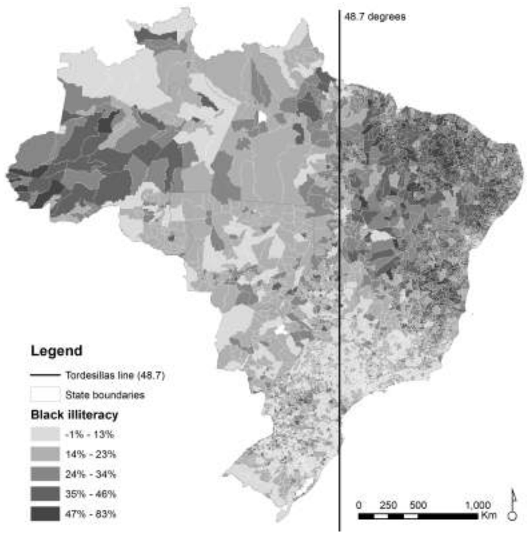
Figure A9: Gini Index, racial income gap, and Black illiteracy (2010)



(a) Income inequality (Gini Index) 2010

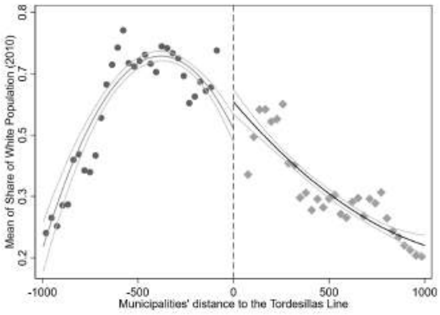


(b) Racial income gap (Ratio of average income between Blacks and Whites) 2010

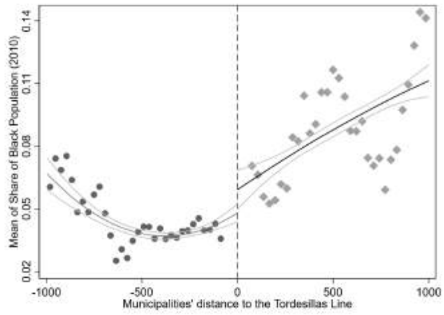


(c) Black illiteracy 2010

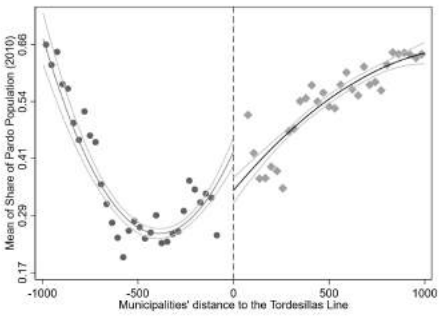
Figure A10: Modern Population Demographics, 2010



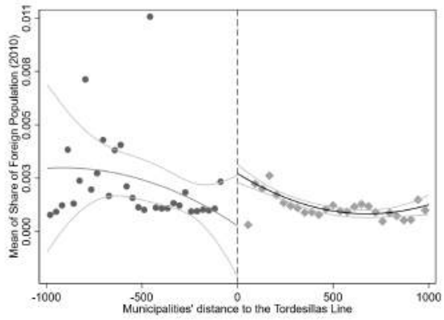
(a) Outcome: White Population (2010)



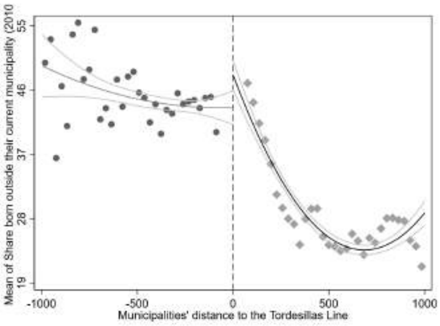
(b) Outcome: Black Population (2010)



(c) Outcome: Pardo Population (2010)



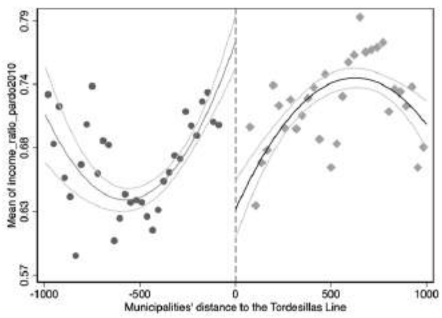
(d) Outcome: Foreign Population (2010)



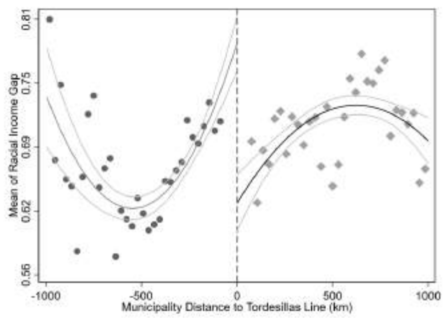
(e) Outcome: Share born outside their current municipality (2010)

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of the share of white population in 2010 (Panel A), the share of blacks in 2010 (Panel B) , the share of 'pardos' in 2010 (Panel C), the share of foreign population in 2010 (Panel D), and the share of people born outside their current municipality in 2010 (Panel E). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

Figure A11: Racial Income Gap: Ratio average income between ‘pardos’ and non-whites and whites



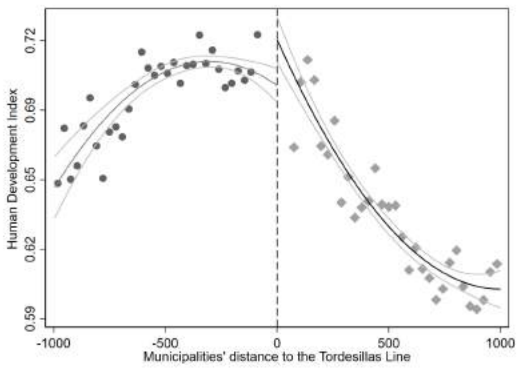
(a) Outcome: Average income of ‘pardos’ over whites’ income (2010)



(b) Outcome: Average income of non-whites over whites income (2010)

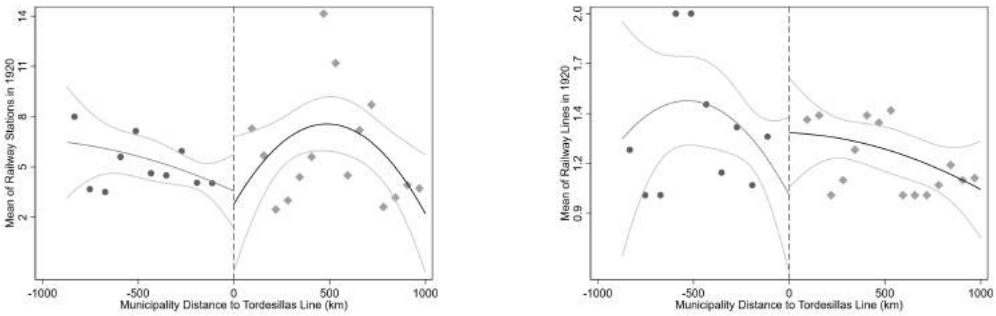
Regression discontinuity plots with the municipality’ distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of racial income imbalance measured defined as the average income of ’pardos’ over whites’ income (Panel A), and as the average income of ’non-whites’ over whites’ income (Panel B). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

Figure A12: Human Development Index



Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of the municipality's human development index in 2010. Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

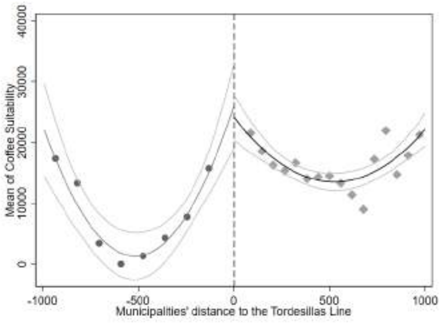
Figure A13: Donut RD plots: Railway Stations and Lines



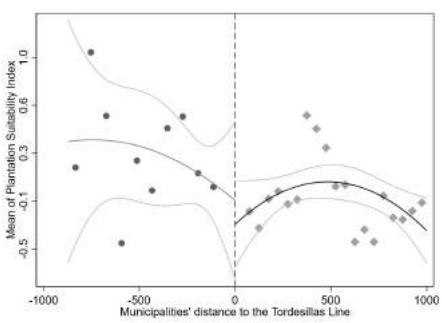
(a) Outcome: Railway Stations in 1920 (b) Outcome: Railway Lines in 1920

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of the number of railway stations in 1920 (Panel A), and the number of railway lines in 1920 (Panel B). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

Figure A14: Donut RD plots: Coffee Suitability and Plantation Suitability Index



(a) Outcome: Coffee Suitability



(b) Outcome: Plantation Suitability Index

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent the local averages of coffee suitability obtained from the Global Agro-ecological Zones Data Portal version 3.0 per sq. km in 1920 (Panel A) and the plantation suitability index (developed by Wigton-Jones, 2019), indicating the region suitability for plantation crops when compared to smallholder agricultural crops, calculated using temperature and precipitation from Food and Agriculture Organization (FAO) in Panel B. Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

Figure A15: Slavery in Portuguese and Dutch Brazil

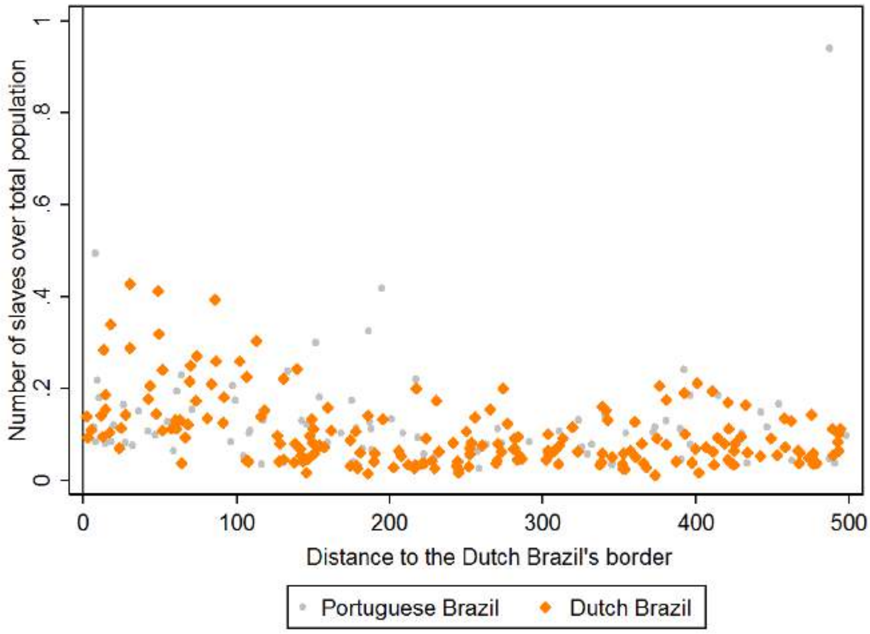
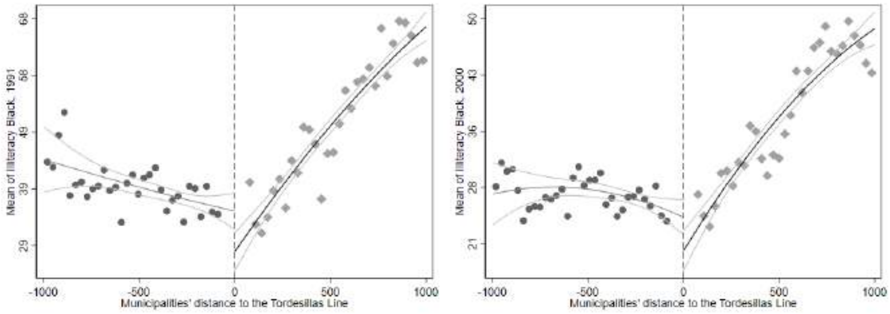


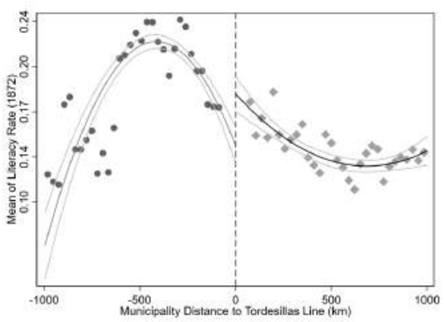
Figure A16: RD plots - Education for Blacks



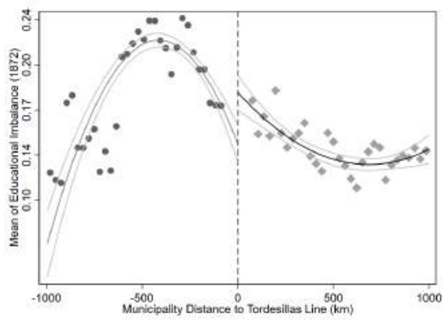
(a) Literacy for Blacks in 1991 (b) Literacy for Blacks in 2000

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of the literacy rate for black population in 1991 (Panel A), and the literacy rate for black population in 2000 (Panel B). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

Figure A17: Donut RD plots: Literacy Outcomes



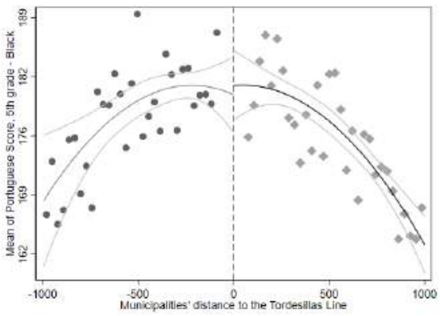
(a) Literacy Rate (1872)



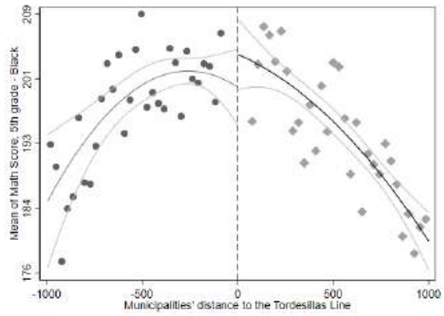
(b) Literacy Rate difference between free and slavery population

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages for the literacy rate in 1872 (Panel A), and for the literacy rate difference defined as the difference between the number of literate free people and literate enslaved people in 1872 over the total population (Panel B). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

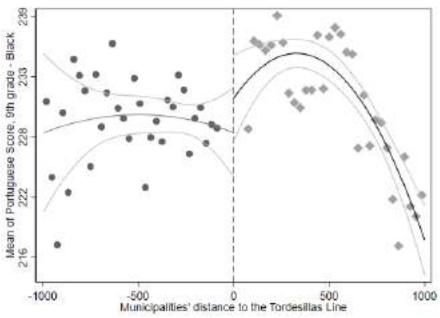
Figure A18: Education: SAEB Children Test Scores



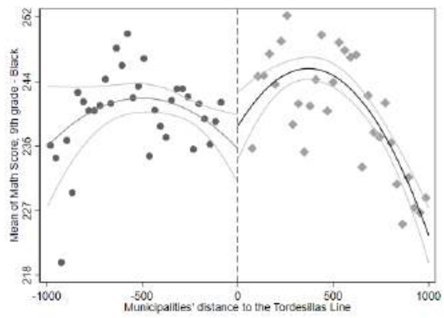
(a) Outcome: Portuguese 5th Grade



(b) Outcome: Mathematics 5th Grade



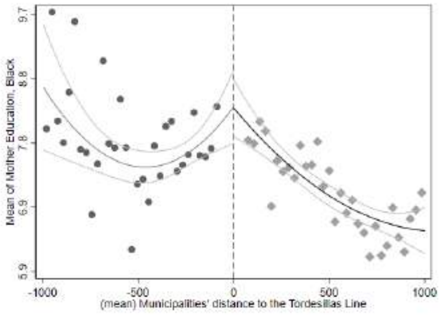
(c) Outcome: Portuguese 9th Grade



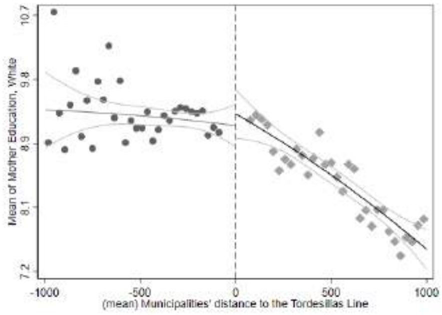
(d) Outcome: Mathematics 9th Grade

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages of SAEB grades in Portuguese exam in 2011 for 5th graders (Panel A), SAEB grades in Mathematics exam in 2011 for 5th graders (Panel B), SAEB grades in Portuguese exam in 2011 for 9th graders (Panel C), of SAEB grades in Mathematics exam in 2011 for 9th graders (Panel D). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

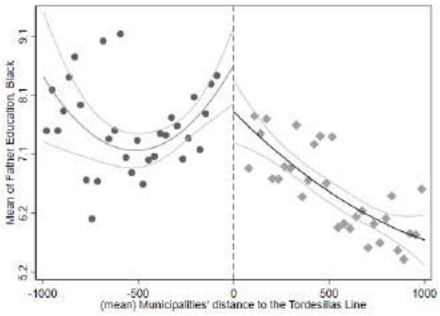
Figure A19: Education: SAEB Parents Education



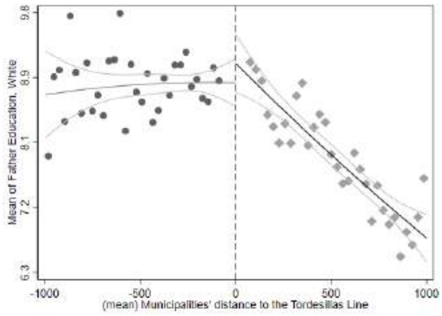
(a) Outcome: Mother's Education: Black



(b) Outcome: Mother's Education: White



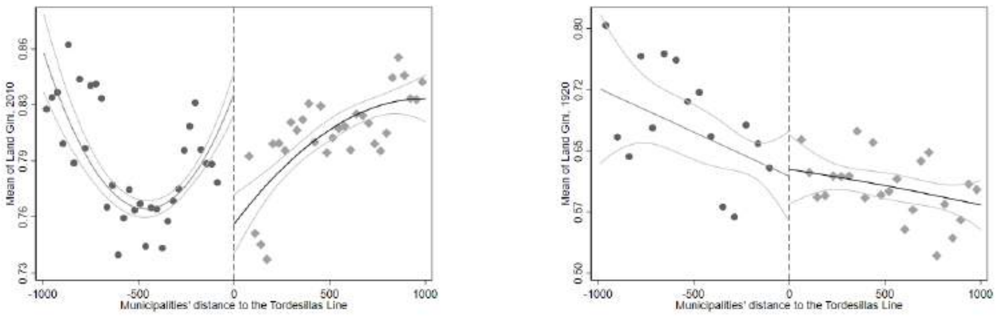
(c) Outcome: Father's Education: Black



(d) Outcome: Father's Education: White

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages for the mother's education among black students that took the SAEB exam in 2011 (Panel A), mother's education among white students that took the SAEB exam in 2011 (Panel B), father's education among black students that took the SAEB exam in 2011 (Panel C), and father's education among white students that took the SAEB exam in 2011 (Panel D). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

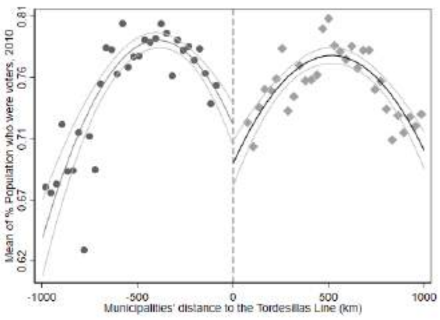
Figure A20: Donut RD plots: Land Inequality



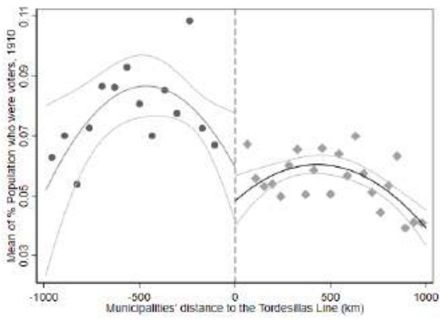
(a) Outcome: Land Inequality in 2010 (b) Outcome: Land Inequality in 1920

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages for land inequality measured by land gini index in 2010 (Panel A), and for land inequality measured by land gini index in 1920 (Panel B). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

Figure A21: Voting Turnout in Historical and Modern Times



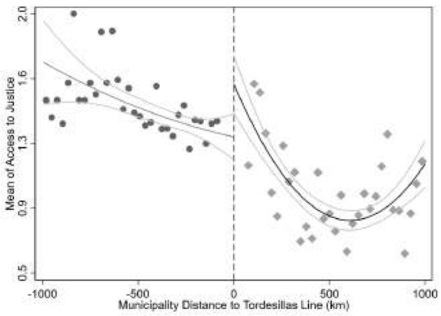
(a) Outcome: Voting Turnout in 2010



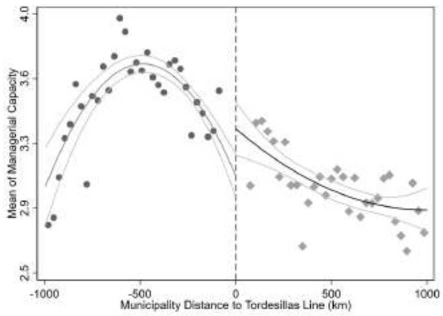
(b) Outcome: Voting Turnout in 1910

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages for voting turnout in 2010 (Panel A), and for voting turnout in 1920 (Panel B). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

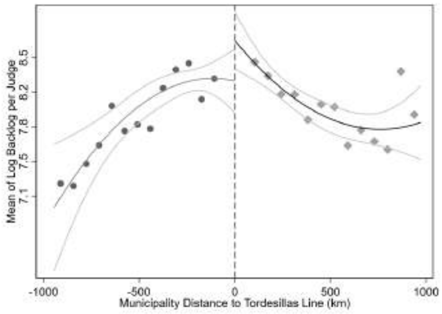
Figure A22: Institutional and Judicial Mechanisms



(a) Outcome: Access to Justice



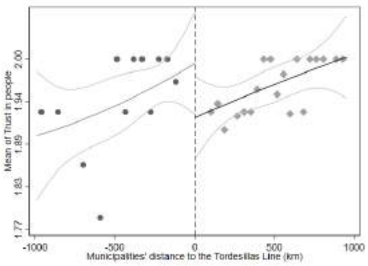
(b) Outcome: Managerial Capacity



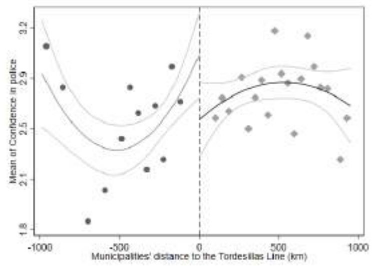
(c) Outcome: Judicial Backlogs

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages for the presence of small claims court, youth councils or consumer comission in 2001 (Panel A), for managerial capacity (Panel B), and for the number of pending cases in a court at the beginning of the year over the number of judges working in that court over the year from Ponticelli and Alencar, 2016 (Panel C). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

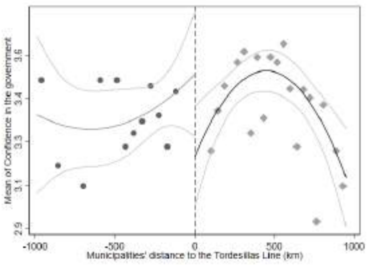
Figure A23: Trust



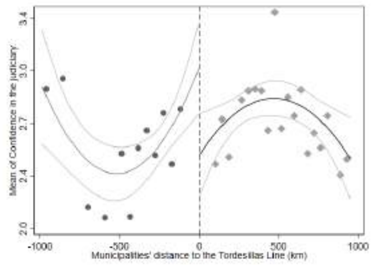
(a) Generalized Trust



(b) Trusts in the Police



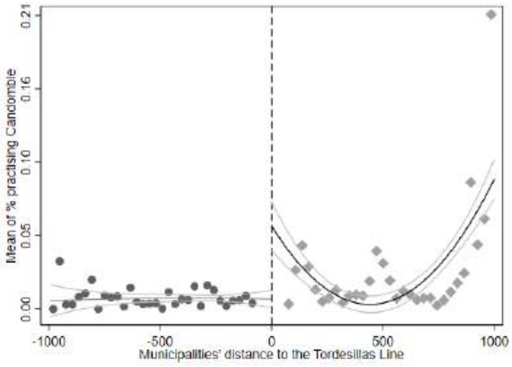
(c) Trust in the Government



(d) Trusts in the Judiciary

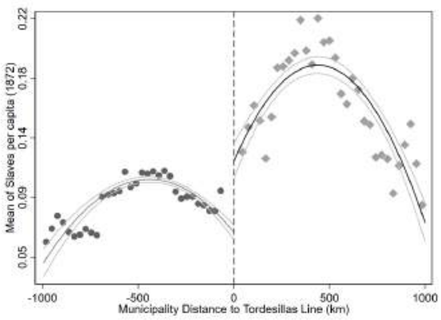
Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages for trust measure in 2016-17 (Panel A), for trust in the police in 2016-17 (Panel B), for trust in the government in 2016-17 (Panel C), and for trust in the judiciary (Panel D). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

Figure A24: Traditional Religion: percentage of people practicing Candomblé

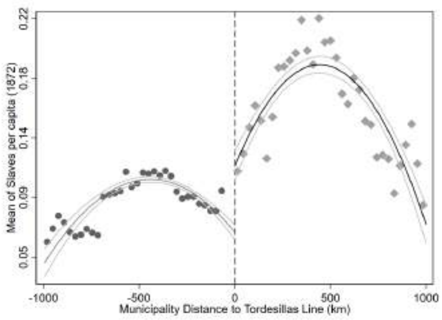


Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent local averages for the share of people practicing Camdomblé, a traditional religion based on African beliefs in 2010. Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

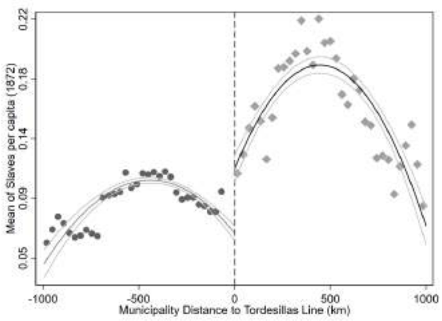
Figure A25: RD plots - Relative number of slaves with different donuts



(a) 36.5 kms donut



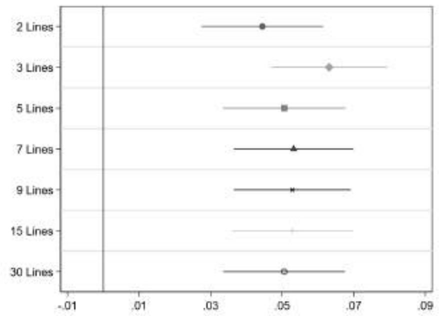
(b) 18.25 kms donut



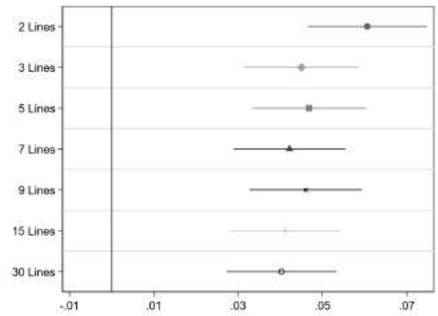
(c) 0 km donut

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance smaller than 1,000 km. Markers represent local averages for slaves per capita in 1872 using a 36.5 kms donut (Panel A), a 18.25 kms donut (Panel B), and no donut (Panel C). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

Figure A26: Tordesillas, Slavery and Inequality: Line Segment Fixed Effects - $73 < d < 1,000$



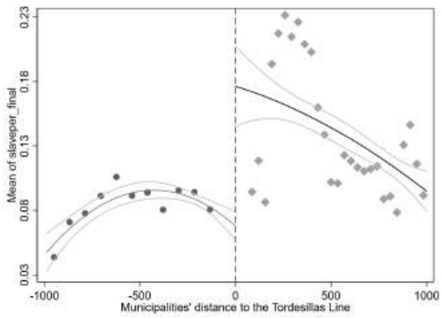
(a) Outcome: Slaves per capita (1872)



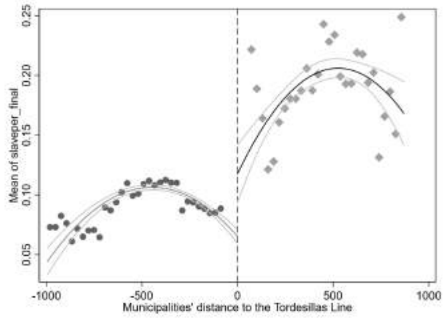
(b) Outcome: Gini Index (2010)

Both panels presents the RD estimates for using different number of line segments fixed effects. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Panel A presents the results for slave per capita in 1872, whereas Panel B presents the results for gini index in 2010

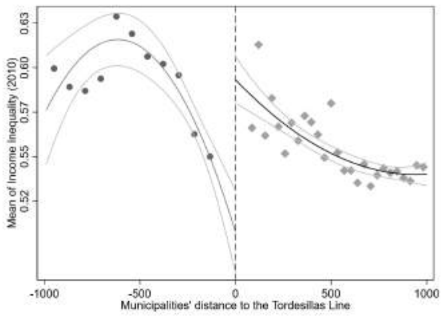
Figure A27: Tordesilas, Slavery and Inequality in the North and in the South: $73 < d < 1,000$



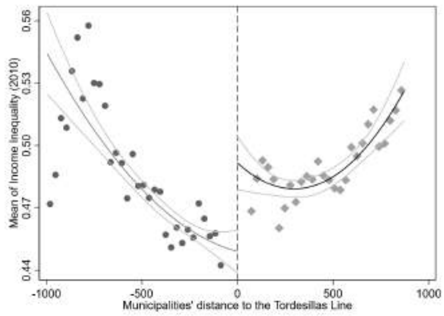
(a) Slavery in the North



(b) Slavery in the South



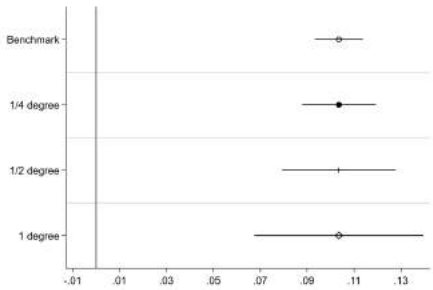
(c) Gini 2010 in the North



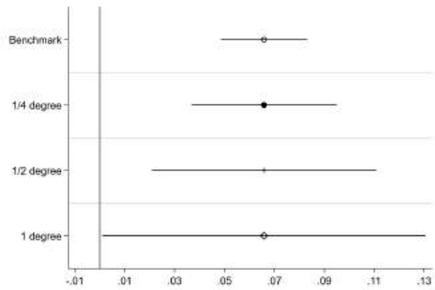
(d) Gini 2010 in the South

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent the local averages of slaves per capita in 1872 for municipalities in the North (Panel A), slaves per capita in 1872 for municipalities in the South (Panel B), the Gini index in 2010 for municipalities in the North (Panel C), and the Gini index in 2010 for municipalities in the South (Panel D). A municipality is defined as being in the North if they are located in the North region or the Northeast region, and they are classified as South if they are in the South, Southeast or Midwest region. Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

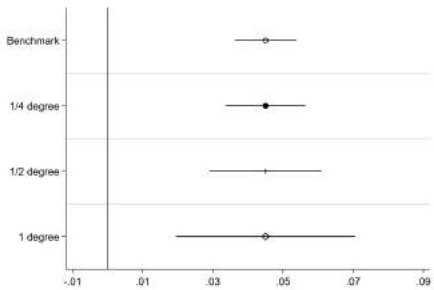
Figure A28: Tordesillas, Slavery and Inequality: Conley Standard Errors - 73 $<$ $d < 1,000$



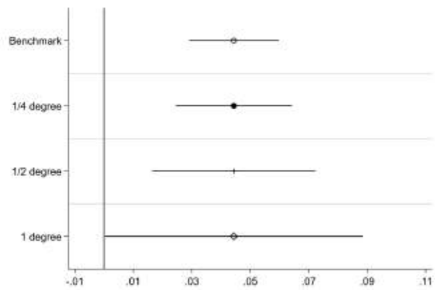
(a) Outcome: Slaves per capita (1872) - RD order 1



(b) Outcome: Slaves per capita (1872) - RD order 2



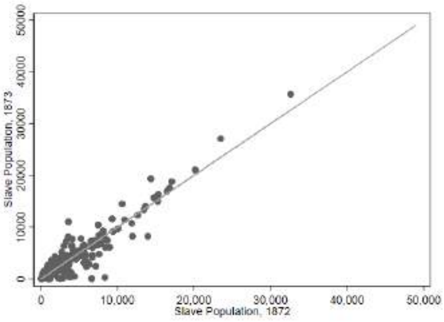
(c) Outcome: Gini Index (2010) - RD order 1



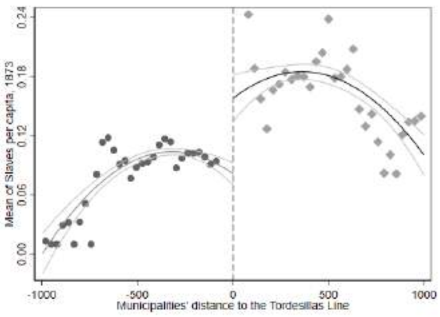
(d) Outcome: Gini Index (2010) - RD order 2

All panels presents the RD estimates using different distances cutoffs when calculating Conley standard errors. Panel A presents the estimates for slaves per capita in 1872 in a RD order 1, whereas Panel B uses an RD order 2. Panels C and D repeat the exercise using the Gini Index in 2010 as the outcome. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km.

Figure A29: Slavery Measures: 1872 and 1873

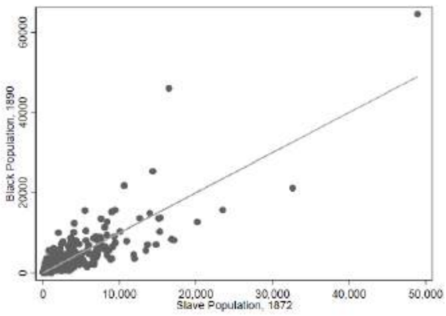


(a) Slavery in 1873 vs. Slavery in 1872

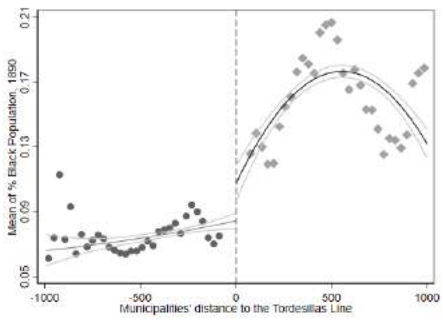


(b) Slavery in 1873

Figure A30: Black Population: 1890



(a) Black Population in 1890 vs. Slavery in 1872



(b) Black Population in 1890

Figure A31: Slavery in 1872 vs. Slavery in 1830s

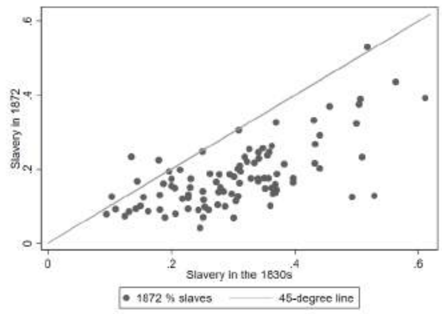
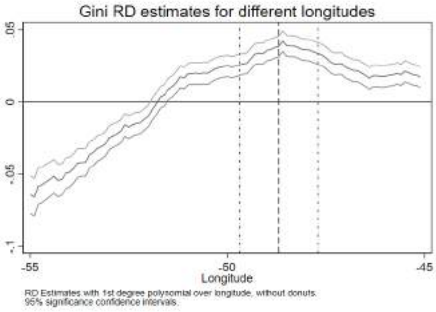
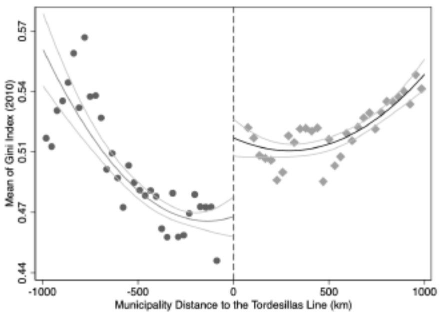


Figure A32: Robustness: Gini RD Estimates

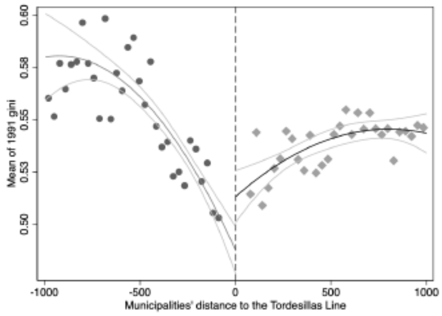


The graph shows RD Estimates varying the discontinuity longitude. The darker line shows RD estimates for each longitude. The lighter lines show the 95% confidence interval for each estimate. The vertical lines represent the actual Tordesillas line and the 73km donut around it.

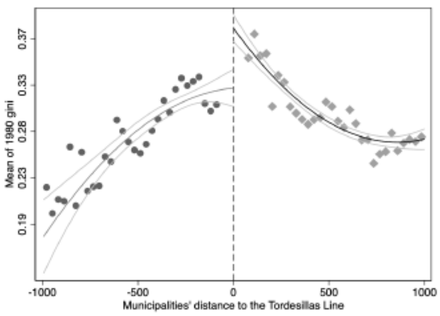
Figure A33: Inequality over Time: Gini 1970-2000



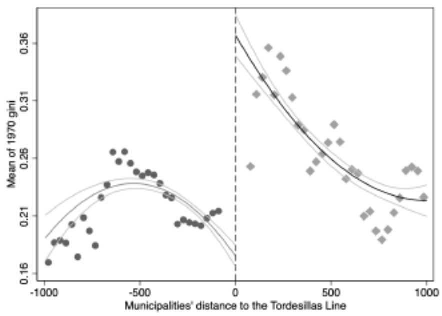
(a) Outcome: Gini (2000)



(b) Outcome: Gini (1991)



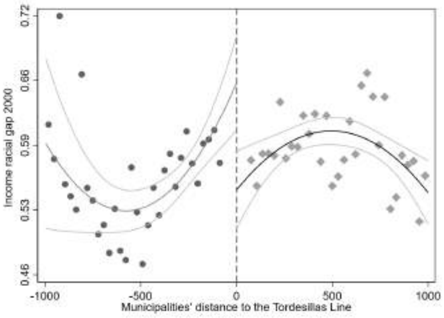
(c) Outcome: Gini (1980)



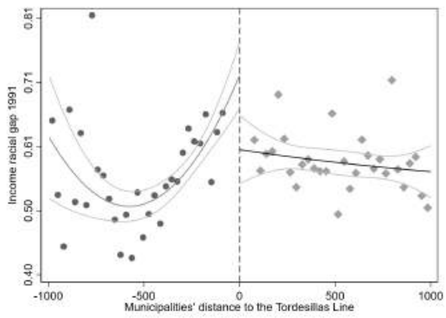
(d) Outcome: Gini (1970)

Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent the local averages of the Gini Indexes in 2000 (Panel A), in 1991 (Panel B), in 1980 (Panel C), and in 1970 (Panel D). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

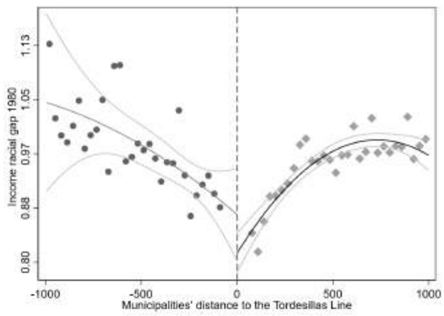
Figure A34: Inequality over Time: Ratio between average income of blacks and whites (Racial Income Gap) between 1980 and 2000



(a) Outcome: Racial Income Gap (2000)



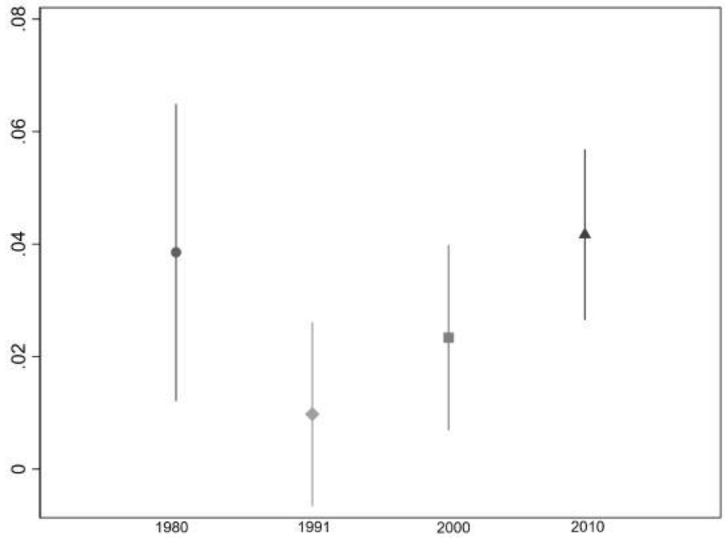
(b) Outcome: Racial Income Gap (1991)



(c) Outcome: Racial Income Gap (1980)

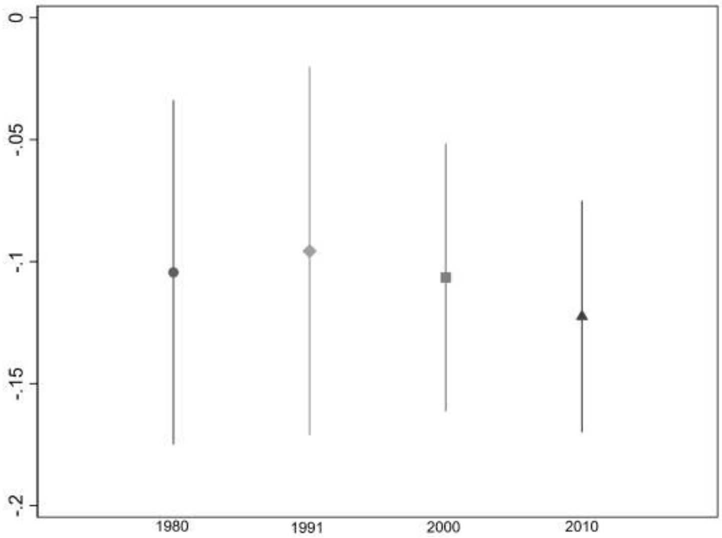
Regression discontinuity plots with the municipality' distance to the Tordesillas line as the assignment variable. Sample is restricted to municipalities with distance greater than 73 km and smaller than 1,000 km. Markers represent the local averages of the Racial Income Gap in 2000 (Panel A), in 1991 (Panel B), and in 1980 (Panel C). Averages are calculated using 33 equally-wide bins on each side of the cutoff (horizontal axis). Continuous lines are a quadratic fit over the original (unbinned) data and its 95% confidence interval.

Figure A35: Coefficient Plot: Gini Index from 1980 to 2010



The graph shows the average treatment effects of the Gini Index in the years 1980, 1991, 2000, and 2010. The assignment variable is the Municipalities' distance to the Tordesillas line. The 'donut' used is the distance between 73 and 1,000 Km from the centroid of the Municipality to the colonial boundary.

Figure A36: Coefficient Plot: Racial Income Gap from 1980 to 2010



The graph shows the average treatment effects of the racial income gap (ratio of average income between blacks and whites) in the years 1980, 1991, 2000, and 2010. The assignment variable is the Municipalities' distance to the Tordesillas line. The 'donut' used is the distance between 73 and 1,000 Km from the centroid of the Municipality to the colonial boundary.

Additional Tables

Table B1: Abolition of slavery in the Americas

Country	End of Slave Trade	"Free Birth" Law	Abolition
Chile	1811	1811	1823
Mexico	1824	-	1829
Uruguay	1825	1811	1842
Ecuador	1821	1821	1851
Colombia	1821	1821	1852
Argentina	1813	1813	1853
Peru	1821	1821	1854
Venezuela	1821	1821	1854
Bolivia	1840	1831	1861
Paraguay	1842	1842	1869
Brazil	1850	1871	1888

Source: Andrews (2004)

Table B2: Slavery population and Economic activities: change in relative importance of the slave population by province from 1819 to 1886/87

Province	1819	1872	1886/87
Minas Gerais	15.2	24.5	26.5
Rio de Janeiro	13.2	22.6	23.5
Sao Paulo	7.0	10.4	14.8
Bahia	13.3	11.1	10.6
Pernambuco	8.8	5.9	5.7
Maranhao	12	5	4.6
Other	30.5	20.5	14.3
Total	100	100	100

The table shows the change in relative importance of the slave population by province from 1819 to 1886/87. These changes are directly related to the economic activities in the colony during this period. Source: Klein and Luna (2009), pag. 76.

Table B3: Slavery and Development Outcomes: OLS and Fixed Effects estimates - $73 < d < 1,000$

	Dependent variables							
	Gini Index (2010)				Racial Income Gap			
Slaves per capita (1872)	0.0281***	0.0489***	0.0655***	0.0590**	-0.261***	-0.229***	-0.256***	-0.242***
	(0.0107)	(0.0120)	(0.0124)	(0.0267)	(0.0370)	(0.0405)	(0.0521)	(0.0569)
Observations	4,036	3,500	3,500	3,500	4,032	3,498	3,498	3,498
R-squared	0.001	0.308	0.328	0.361	0.009	0.062	0.065	0.079
Geographic Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Region FE	No	No	Yes	Yes	No	No	Yes	Yes
AMC Cluster	No	No	No	Yes	No	No	No	Yes
Mean Dep. Var.	0.497	0.497	0.497	0.497	0.679	0.679	0.679	0.679

The table shows the correlation of slavery - measured by the ratio of number of slaves in 1872 over total population - with current development outcomes (income inequality (Gini Index), and racial income gap (ratio between average income of blacks and whites (2010). We used the numbers from the interval of distance to the Tordesillas line greater than 73 Km and smaller than 1,000 Km to compare with the Donut RD estimates. The first estimate of each dependent variable is OLS, while the other three equations are region fixed effects estimates. The geographic variables used are longitude, latitude, rain, distance to the coast, altitude, distance to the federal capital, sunlight, average monthly temperature and types of soils. We also control for the foundation year of the municipality.

Table B4: Slavery and Tordesillas: Clustered Standard Errors at AMC Level

	Dependent variable: Slaves per capita				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0548**	0.104***	0.0440***	0.110**	0.0514
	(0.0225)	(0.0186)	(0.0165)	(0.0523)	(0.0346)
	Panel B: RD order 2				
Distance to Tordesillas	0.0473	0.0658**	0.0305	0.0772	0.152*
	(0.0465)	(0.0281)	(0.0264)	(0.144)	(0.0884)
Observations	2,468	4,036	2,692	788	1,226
Cluster at AMC level	✓	✓	✓	✓	✓
Mean Dep. Var.	0.130	0.131	0.129	0.108	0.120

The dependent variable is the number of slaves per capita in 1872. Distance to Tordesillas is the distance, in kilometers, to the east side of the Tordesillas Meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas Meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Standard errors are clustered at the AMC (*Áreas Mínimas Comparáveis*) level and are reported in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table B5: Slavery, Inequality and Tordesillas: State Fixed Effects

	Dependent variable: Slaves per capita (1872)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0519***	0.0571***	0.0404***	0.115***	0.0518***
	(0.00728)	(0.00622)	(0.00497)	(0.0205)	(0.0126)
	Panel B: RD order 2				
Distance to Tordesillas	0.0332**	0.0758***	0.0145*	0.162**	0.206***
	(0.0169)	(0.00833)	(0.00830)	(0.0747)	(0.0374)
Observations	2,468	4,036	2,692	788	1,226
State FE	✓	✓	✓	✓	✓
Mean Dep. Variable	0.130	0.131	0.129	0.108	0.120

	Dependent variable: Income inequality - Gini Index (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0417***	0.0467***	0.0307***	0.0365**	0.0454***
	(0.00605)	(0.00498)	(0.00493)	(0.0154)	(0.00819)
	Panel B: RD order 2				
Distance to Tordesillas	0.0323**	0.0425***	0.0139	-0.0920	0.0455**
	(0.0125)	(0.00693)	(0.00941)	(0.0598)	(0.0209)
Observations	2,493	4,072	2,717	788	1,601
State FE	✓	✓	✓	✓	✓
Mean Dep. Variable	0.484	0.497	0.485	0.483	0.504

The dependent variables are the number of slaves per capita in 1872 and 2010 Gini index. Distance to Tordesillas is the distance, in kilometers, to the east side of the Tordesillas meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. All specifications are state fixed effects. Robust standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table B6: Slavery, Inequality and Tordesillas: AMC Cluster and State Fixed Effects

	Dependent variable: Slaves per capita (1872)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0519**	0.0571***	0.0404***	0.115**	0.0518
	(0.0225)	(0.0201)	(0.0154)	(0.0491)	(0.0329)
	Panel B: RD order 2				
Distance to Tordesillas	0.0332	0.0758***	0.0145	0.162	0.206**
	(0.0409)	(0.0260)	(0.0196)	(0.140)	(0.0863)
Observations	2,468	4,036	2,692	788	1,226
State FE		✓	✓	✓	✓
Cluster at AMC Level	✓	✓	✓	✓	✓
Mean Dep. Variable	0.130	0.131	0.129	0.108	0.120

	Dependent variable: Income inequality - Gini Index (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0417***	0.0467***	0.0307***	0.0365**	0.0454***
	(0.00605)	(0.00498)	(0.00493)	(0.0154)	(0.00819)
	Panel B: RD order 2				
Distance to Tordesillas	0.0323**	0.0425***	0.0139	-0.0920	0.0455**
	(0.0125)	(0.00693)	(0.00941)	(0.0598)	(0.0209)
Observations	2,493	4,072	2,717	788	1,601
State FE	✓	✓	✓	✓	✓
Mean Dep. Variable	0.484	0.497	0.485	0.483	0.504

The dependent variables are the number of slaves per capita in 1872 and 2010 Gini index. Distance to Tordesillas is the distance, in kilometers, to the east side of the Tordesillas Meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. All specifications have state fixed effects. Standard errors are clustered at the AMC (*Áreas Mínimas Comparáveis*) level for Slaves per capita (1872) and are reported in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table B7: Tordesillas and Racial Income Gap: AMC Cluster and State Fixed Effects

	Racial Income Gap - Ratio between average income of pardos and whites (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	-0.102***	-0.0811***	-0.104***	-0.144**	-0.0965**
	(0.0318)	(0.0257)	(0.0255)	(0.0608)	(0.0438)
	Panel B: RD order 2				
Distance to Tordesillas	-0.138**	-0.191***	-0.115**	-0.136	-0.163**
	(0.0683)	(0.0405)	(0.0502)	(0.287)	(0.0683)
Observations	2,490	4,068	2,714	787	1,860
Mean Dep. Var.	0.673	0.679	0.672	0.692	0.703
State FE	Yes	Yes	Yes	Yes	Yes
Cluster at AMC level	Yes	Yes	Yes	Yes	Yes

The dependent variable is the ratio between the income of black population over the income of white population. Distance to Tordesillas is the distance, in kilometers, to the East side of the Tordesillas meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. All specifications have state fixed effects. Standard errors are clustered at the AMC (*Áreas Mínimas Comparáveis*) level. When *** p<0.01, ** p<0.05, * p<0.1.

Table B8: Tordesillas and Racial Income Gap: Pardos

	Racial Income Gap - Ratio between average income of pardos and whites (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	-0.0826***	-0.0242**	-0.0806***	-0.0568	-0.0890***
	(0.0152)	(0.0101)	(0.0121)	(0.0431)	(0.0201)
	Panel B: RD order 2				
Distance to Tordesillas	-0.109***	-0.145***	-0.0667***	-0.0667***	-0.0523
	(0.0324)	(0.0175)	(0.0227)	(0.0227)	(0.0520)
Observations	2,493	4,072	2,717	788	1,646
Mean Dep. Var.	0.686	0.696	0.685	0.698	0.714

The dependent variable is the ratio between the income of the pardo population over the income of the white population. Distance to Tordesillas is the distance, in kilometers, to the east side of the Tordesillas meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Robust standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table B9: Theil Index: Between

	Theil Between (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0131***	0.0110***	0.0118***	0.0194***	0.0140***
	(0.00314)	(0.00216)	(0.00236)	(0.00627)	(0.00344)
	Panel B: RD order 2				
Distance to Tordesillas	0.0173***	0.0193***	0.0110***	0.0110***	0.0144**
	(0.00566)	(0.00355)	(0.00387)	(0.00387)	(0.00719)
Observations	2,493	4,072	2,717	788	2,175
Mean Dep. Var.	0.0214	0.0218	0.0214	0.0201	0.0210

The dependent variable is the 2010 between Theil index. Distance to Tordesillas is the distance, in kilometers, to the east side of the Tordesillas meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Robust standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table B10: Theil Index: Within

	Theil Within (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
			Panel A: RD order 1		
Distance to Tordesillas	0.0796***	0.0781***	0.0737***	0.167***	0.0954***
	(0.0226)	(0.0149)	(0.0187)	(0.0608)	(0.0302)
			Panel B: RD order 2		
Distance to Tordesillas	0.0811*	0.103***	0.0785**	0.0785**	0.212***
	(0.0455)	(0.0253)	(0.0345)	(0.0345)	(0.0788)
Observations	2,493	4,072	2,717	788	1,586
Mean Dep. Var.	0.510	0.525	0.513	0.518	0.535

The dependent variable is the 2010 within Theil index. Distance to Tordesillas is the distance, in kilometers, to the east side of the Tordesillas meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Robust standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table B11: Income, ln (GDP per capita) and Tordesillas

	Dependent variable: Average Income (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	61.55**	-70.14***	35.88*	-180.9***	64.10
	(25.28)	(15.31)	(19.34)	(69.28)	(41.67)
	Panel B: RD order 2				
Distance to Tordesillas	120.9**	105.4***	22.06	-1,250***	-490.2***
	(55.31)	(27.92)	(36.00)	(244.4)	(105.7)
Observations	2,493	4,072	2,717	788	1,354
Mean Dep. Variable	579.1	514.2	582.2	614.1	472.4

	Dependent variable: ln (GDP per capita) in 2012				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.187***	-0.0630	0.111**	-0.0768	0.380***
	(0.0684)	(0.0427)	(0.0516)	(0.190)	(0.117)
	Panel B: RD order 2				
Distance to Tordesillas	0.657***	0.338***	0.255***	-2.228***	-0.665**
	(0.153)	(0.0760)	(0.0930)	(0.658)	(0.312)
Observations	2,493	4,071	2,717	788	1,286
Mean Dep. Var.	9.590	9.398	9.595	9.665	9.303

The dependent variables are the average income in 2010 and GDP per capita in 2012. Distance to Tordesillas is the distance, in kilometers, to the east side of the Tordesillas meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Robust standard errors in parentheses. When *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table B12: Dutch Brazil and Portuguese Brazil: Summary Statistics

	Dutch Brazil				
	N	Mean	SD	Min	Max
Year of Foundation	1,025	1,934.8	63.7	1,537	1,997
Population (1872)	210	14,867.7	11,293.7	2,843	116,671
Number of Slaves (1872)	210	1,383.6	1,541.5	120	15,136
Slaves per Capita (1872)	1,119	0.085	0.058	0.012	0.393
Population (2012)	1,135	31,741.0	111,867.3	1,633	2,500,194
GDP per Capita (2012)	1,135	6,847.0	6,776.3	2,727.1	138,273.0
Gini Index (2010)	1,135	0.528	0.048	0.368	0.705
Racial Income Gap	1,135	0.801	0.220	0.284	2.112

	Portuguese Brazil: 600 Km distance to the Dutch Brazil border				
	N	Mean	SD	Min	Max
Year of Foundation	679	1,945.7	65.3	1,534	1,997
Population (1872)	88	17,485.7	19,545.1	1,331	129,109
Number of Slaves (1872)	88	2,125.6	2,894.8	41	16,468
Slaves per Capita (1872)	700	0.132	0.106	0.034	0.939
Population (2012)	732	28,418.0	107,452.4	1,236	2,710,968
GDP per Capita (2012)	732	7,460.2	8,642.3	2,720.3	107,164.4
Gini Index (2010)	732	0.546	0.051	0.406	0.789
Racial Income Gap	732	0.739	0.231	0.096	2.715

Summary statistics are calculated for municipalities located inside Dutch Brazil and for those outside Dutch Brazil and located up to 600 kilometers from the border. Population and number of slaves are the counts for 1872 municipalities. Slaves per capita is the number of slaves per capita in 1872 for a 2010 municipality. We imputed the value in a 1872 municipality to all 2010 municipalities that composed a 1872 municipality. Racial Income Gap is the ratio of the income of black people over the income of white people.

Table B13: Slavery, Income inequality and Dutch Brazil

	Dependent variable					
	Slave per capita			Income Inequality - Gini Index (2010)		
	0 < d < 600	0 < d < 400	0 < d < 200	0 < d < 600	0 < d < 400	0 < d < 200
	Panel A: RD order 1					
Distance to Dutch Brazil	-0.0254	-0.0232	0.0143	-0.00109	0.00890	-0.0162
	(0.0217)	(0.0211)	(0.0222)	(0.00733)	(0.00884)	(0.0109)
	Panel B: RD order 2					
Distance to Dutch Brazil	-0.00151	0.0201	0.000537	0.00730	-0.0191*	-0.0187
	(0.0223)	(0.0217)	(0.0224)	(0.0101)	(0.0116)	(0.0159)
Observations	1,880	1,386	678	1,928	1,431	695
Mean Dep. Var.	0.105	0.110	0.136	0.535	0.540	0.547

The dependent variables are the number of slaves per capita in 1872 and 2010 Gini index. Distance to Dutch Brazil is the distance, in kilometers, to the Dutch Brazil border. Each column has a different sample based on the municipality's absolute distance to the border. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Standard erros are clustered at the AMC level. When *** p<0.01, ** p<0.05, * p<0.1.

Table B14: Dutch Brazil and Racial Income Gap

	Racial Income Gap (2010)		
	0 < d < 600	0 < d < 400	0 < d < 200
	Panel A: RD order 1		
Distance to Dutch Brazil	0.0297	0.0259	0.0154
	(0.0220)	(0.0228)	(0.0314)
	Panel B: RD order 2		
Distance to Dutch Brazil	0.0335	0.0132	-0.0137
	(0.0274)	(0.0339)	(0.0552)
Observations	1,928	1,431	695
Mean Dep. Var.	0.776	0.767	0.765

The dependent variable is ratio between average income of black population over the average income of white population. Distance to Dutch Brazil is the distance, in kilometers, to the Dutch Brazil border. Each column has a different sample based on the municipality's absolute distance to the border. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Standard errros are clustered at the AMC level. When *** p<0.01, ** p<0.05, * p<0.1.

Table B15: SFD estimates of skin color on individual income

	Spanish Brazil					Portuguese Brazil				
	Dependent variable: Individual income (log)					Dependent variable: Individual Income (log)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Skin Color	-0.065***	-0.121***	-0.107***	-0.107	-0.107**	-0.052***	-0.185***	-0.129***	-0.129**	-0.129***
	(0.009)	(0.032)	(0.032)	(0.068)	(0.045)	(0.009)	(0.032)	(0.034)	(0.043)	(0.037)
Skin Color sq.		0.006*	0.006*	0.006	0.006		0.013***	0.010***	0.010**	0.010***
		(0.003)	(0.003)	(0.007)	(0.005)		(0.003)	(0.003)	(0.004)	(0.004)
Female			-0.138***	-0.138***	-0.138***			-0.265***	-0.264***	-0.264***
			(0.030)	(0.022)	(0.034)			(0.035)	(0.032)	(0.040)
Age			0.014***	0.014***	0.014***			0.012***	0.012***	0.012***
			(0.001)	(0.001)	(0.002)			(0.002)	(0.002)	(0.002)
Education			0.057***	0.057***	0.057***			0.057***	0.057***	0.057***
			(0.005)	(0.005)	(0.006)			(0.005)	(0.007)	(0.007)
Afro			0.186**	0.187**	0.187**			-0.119	-0.118	-0.120
			(0.078)	(0.079)	(0.087)			(0.090)	(0.079)	(0.113)
Indigenous			-0.007	-0.006	-0.006			-0.081	-0.081	-0.083
			(0.122)	(0.168)	(0.156)			(0.142)	(0.152)	(0.172)
Mulata			0.127**	0.127	0.127			-0.035	-0.034	-0.036
			(0.063)	(0.109)	(0.090)			(0.077)	(0.092)	(0.081)
White			0.112*	0.113	0.113			0.000	0.001	-0.000
			(0.066)	(0.117)	(0.095)			(0.080)	(0.097)	(0.093)
Wave F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
State F.E.				✓					✓	
Municipality F.E.					✓					✓
Covariates* F.E.			✓	✓	✓			✓	✓	✓
Observations	2088	2088	2034	2034	2034	1826	1826	1761	1761	1761
Adjusted R^2	0.02	0.02	0.26	0.26	0.25	0.02	0.03	0.23	0.23	0.21

Covariates* include employment, location, marital status, and religion fixed-effects.
The dependent variable is log of individual income. Each panel includes separate estimates for municipalities on the Spanish and Portuguese sides of the Tordesillas line. The data pools 4 waves of the AmericasBarometer Survey data LAPOP (2012, 2014, 2016, and 2018).
Standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table B16: Racial prejudice and Tordesillas

	Dependent variable: Racial prejudice (PERLA survey)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	1.784***	1.219***	1.019***		
	(0.289)	(0.238)	(0.121)		
	Panel B: RD order 2				
Distance to Tordesillas	2.291*	2.682**	0.999***		
	(1.222)	(1.175)	(0.207)		
Observations	428	645	508		
Mean Dep. Variable	0.750	0.818	0.692		

	Dependent variable: Racial prejudice (PESB survey)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.194	0.0704	0.172	0.211	0.461**
	(0.128)	(0.0885)	(0.104)	(0.333)	(0.215)
	Panel B: RD order 2				
Distance to Tordesillas	0.628**	0.290**	0.298	3.043	0.286
	(0.290)	(0.141)	(0.185)	(1.963)	(0.493)
Observations	908	1,431	1,024	293	629
Mean Dep. Variable	0.592	0.660	0.565	0.587	0.485

	Dependent variable: Racial prejudice at school (INEP-FIPE survey)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0472	-0.0265	0.0814***	0.338***	0.368***
	(0.0329)	(0.0205)	(0.0237)	(0.0936)	(0.111)
	Panel B: RD order 2				
Distance to Tordesillas	0.0385	0.0603	0.171***	0.589*	0.828*
	(0.0778)	(0.0390)	(0.0406)	(0.337)	(0.456)
Observations	7,425	12,139	8,485	3,205	1,902
Mean Dep. Variable	0.6608	0.6766	0.6327	0.7461	0.6079

The dependent variables are indices capturing racial prejudice. The higher the composite values, the higher the prejudice against black people. The index using the PERLA survey is based on three questions related to prejudice against blacks (i. Blacks are poor because they do not work enough; ii. Blacks are poor because, in general, they are less intelligent; iii. Blacks are poor because they do not want to change their culture). The index based on the PESB survey include the answers of six questions related to the perceived occupation (lawyer, high school teacher, carrier) and status (less opportunities, criminal and poor) of pictures presented to the respondents. The racial prejudice at school is based on the answers of seventeen questions at the INEP-FIPE survey. Panel A uses a linear RD, while Panel B uses a quadratic RD. Robust standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table B17: Slavery, Income inequality and Tordesillas: Line Segment Fixed Effect using two line segments

	Dependent variable: Slaves per capita				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0498***	0.107***	0.0420***	0.122***	0.0524***
	(0.00750)	(0.00522)	(0.00534)	(0.0226)	(0.0137)
	Panel B: RD order 2				
Distance to Tordesillas	0.0447**	0.0449***	0.0355***	0.136*	0.171***
	(0.0174)	(0.00868)	(0.00949)	(0.0804)	(0.0410)
Observations	2,468	4,036	2,692	788	1,226
	Dependent variable: Income inequality - Gini Index (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0487***	0.0420***	0.0427***	0.0668***	0.0477***
	(0.00628)	(0.00420)	(0.00510)	(0.0162)	(0.00863)
	Panel B: RD order 2				
Distance to Tordesillas	0.0470***	0.0601***	0.0290***	-0.00263	0.0790***
	(0.0134)	(0.00721)	(0.00988)	(0.0626)	(0.0229)
Observations	2,493	4,072	2,717	788	1,601

The dependent variables are the number of slaves per capita in 1872 and 2010 Gini index. Distance to Tordesillas is the distance, in kilometers, to the East side of the Tordesillas meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Robust standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table B18: Racial income inequality and Tordesillas: Line Segment Fixed Effect using two line segments

	Dependent variable: Racial Income Gap				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	-0.0695***	-0.0317*	-0.0807***	-0.102*	-0.0725**
	(0.0257)	(0.0186)	(0.0225)	(0.0564)	(0.0314)
	Panel B: RD order 2				
Distance to Tordesillas	-0.109**	-0.135***	-0.0929**	0.0260	-0.132**
	(0.0514)	(0.0306)	(0.0389)	(0.268)	(0.0660)
Observations	2,490	4,068	2,714	787	1,860
Mean Dep. Var.	0.673	0.679	0.672	0.692	0.703

The dependent variables is the ratio between the income of black population over the income of white population. Distance to Tordesillas is the distance, in kilometers, to the East side of the Tordesillas meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Robust standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.

Table B19: Slavery, Income inequality and Tordesillas: Geographical Controls

	Dependent variable: Slaves per capita (1872)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0501***	0.0989***	0.0430***	0.179***	0.0802***
	(0.00858)	(0.00625)	(0.00614)	(0.0239)	(0.0147)
	Panel B: RD order 2				
Distance to Tordesillas	0.0672***	0.0672***	0.0460***	0.308***	0.235***
	(0.0187)	(0.0104)	(0.0104)	(0.0833)	(0.0427)
Observations	2,166	3,500	2,369	715	1,089
Mean Dep. Var.	0.130	0.131	0.129	0.108	0.120
Geographical Controls	Yes	Yes	Yes	Yes	Yes
	Dependent variable: Income inequality - Gini Index (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0255***	0.0274***	0.0230***	0.0131	0.0318***
	(0.00690)	(0.00440)	(0.00546)	(0.0165)	(0.00886)
	Panel B: RD order 2				
Distance to Tordesillas	0.0394***	0.0359***	0.0189*	-0.143**	0.0163
	(0.0133)	(0.00792)	(0.00968)	(0.0665)	(0.0232)
Observations	2,186	3,530	2,389	715	1,421
Mean Dep. Var.	0.484	0.497	0.485	0.483	0.504
Geographical Controls	Yes	Yes	Yes	Yes	Yes

The dependent variables are the number of slaves per capita in 1872 and 2010 Gini index. Distance to Tordesillas is the distance, in kilometers, to the east side of the Tordesillas meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. All regressions controls for rainfall, altitude, sunlight, distance to the coast, distance to Portugal, distance to the equator line, foundation year and latitude*longitude When *** p<0.01, ** p<0.05, * p<0.1.

Table B20: Slavery, Income inequality and Tordesillas ($46^o37'$): Linear, Polynomial and Local Randomization RD estimates

	Dependent variable: Slaves per capita (1872)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	0.0479***	0.0879***	0.0432***	0.0390	0.0317***
	(0.00944)	(0.00561)	(0.00798)	(0.0275)	(0.0113)
	Panel B: RD order 2				
Distance to Tordesillas	0.0176	0.0537***	0.0174	-0.107	0.0900***
	(0.0179)	(0.0106)	(0.0132)	(0.106)	(0.0262)
	Panel C: Local Randomization RD				
					All
Distance to Tordesillas	0.060***	0.029***	0.060***	0.057***	0.026***
Observations	2,342	4,560	2,479	590	1,716
Mean Dep. Variable	0.141	0.120	0.144	0.175	0.115

	Dependent variable: Income inequality - Gini Index (2010)				
	73 < d < 500	73 < d < 1000	36.5 < d < 500	73 < d < 200	73 < d < Opt. BW
	Panel A: RD order 1				
Distance to Tordesillas	-0.0181**	0.0151***	-0.00679	0.0413*	0.0113
	(0.00737)	(0.00435)	(0.00639)	(0.0226)	(0.0116)
	Panel B: RD order 2				
Distance to Tordesillas	0.0128	-0.0475***	0.0287**	0.0399	0.0820**
	(0.0161)	(0.00834)	(0.0115)	(0.0921)	(0.0329)
	Panel C: Local Randomization RD				
					All
Distance to Tordesillas	0.025***	0.038***	0.025***	0.007	0.029***
Observations	2,374	4,608	2,513	611	1,249
Mean Dep. Variable	0.500	0.498	0.500	0.509	0.503

The dependent variables are the number of slaves per capita in 1872 and 2010 Gini index. Distance to Tordesillas is the distance, in kilometers, to the east side of the Tordesillas meridian. Each column has a different sample based on the municipality's absolute distance to the Tordesillas meridian. Each panel presents the estimates for a different specification. Panel A uses a linear RD, while Panel B uses a quadratic RD. Panel C presents the estimates for local randomization RD. Robust standard errors in parentheses. When *** p<0.01, ** p<0.05, * p<0.1.