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Origins of Latin American Inequality

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Origins of Latin American Inequality*

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Abstract

How deep are the roots of Latin America's economic inequalities? In this chapter we survey both the history and the literature about the region's extreme economic disparities, focusing on the most recent academic contributions. We begin by documenting the broad patterns of national and sub-national differences in income and inequality, building on the seminal contributions of Engerman and Sokoloff (2000; 2002, 2005) and aiming to capture different dimensions of inequality. We then proceed thematically, providing empirical evidence and summarizing the key recent studies on colonial institutions, slavery, land reform, education and the role of elites. Finally, we conduct a "replication" exercise with some seminal papers in the literature, extending their economic results to include different measures of inequality as outcomes.

JEL Codes: D02, D63, I24, N10, N16, O43, Q15

Keywords: Inequality, Latin America, History, Colonization, Persistence, Slavery, Land Reform, Education, Elites

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"I conceive two species of inequality among men; one which I call natural, or physical inequality, because it is established by nature, and consists in the difference of age, health, bodily strength, and the qualities of the mind, or of the soul; the other which may be termed moral, or political inequality, because it depends on a kind of convention, and is established, or at least authorized, by the common consent of mankind. This species of inequality consists in the different privileges, which some men enjoy, to the prejudice of others, such as that of being richer, more honoured, more powerful, and even that of exacting obedience from them."

(Rousseau, 1761)

1 Introduction

How deep are the roots of Latin America's extreme levels of economic inequality? We know from previous studies that this region is one of the most unequal in the world, along with the Middle East and Sub-Saharan Africa (De Ferranti, Perry, Ferreira, & Walton, 2004; Chancel, Piketty, Saez, & Zucman, 2022). However, we know less about how historical factors might have led to the socioeconomic inequities that we observe today. In this chapter, we go back in time to garner some answers and formulate new questions. We stress the role of colonial institutions in general, and slavery, land reform and education, in particular, as determinants of the contemporary levels of inequality in the region. We learn how historical processes have shaped the contours of modern income distributions at the national and sub-national levels.

The interest in the economic inequality of Latin America has exploded, and is as high as the levels of economic disparities that have characterized the region. A simple check in Google trends reveals how the mentions of Latin American inequality are at an all time high. In part, this follows from the international focus on the topic, for both developed and developing regions (Milanovic, Lindert, & Williamson, 2007; Milanovic, 2016; Piketty, 2017).[1] But this general interest has a particular Latin flavor. The discussions about inequality in the region have far transcended the academic boundaries and have been manifested in the public debate, the political discourse and even the battlefield. Here we remain academic and provide first a broad overview of some general patterns and motivating figures. We then delve deeper into the potential roots of these apparent inequities. We are not the first authors to examine these topics and we continue an important tradition, building on previous contributions such as De Ferranti et al. (2004). Having said that, it is important to note that as late as the Washington Consensus agenda of the early 2000s, inequality was not part of the reforming agenda in the region (Birdsall, De la Torre, & Valencia Caicedo, 2010).

This chapter aims to survey the existing literature on the origins of Latin American inequality. As such, it is an exercise in historical development, through which we aim to uncover the "deep roots" that have determined the staggering economic disparities in the region (Spolaore & Wacziarg, 2013; Nunn, 2014). First, we revisit the history of economic inequality in the region, setting the scene by providing motivating figures and maps of these economic disparities. We then delve deeper into the seminal papers and modern contributions that have argued for the role of colonial experiences and past events in generating differing development patterns in the long-run. After this panoramic assessment,

[1] See Milá (2015) for a comparable exercise for Brazil.

documenting differences between and within countries, we focus on what we view are some of the fundamental determinants of inequality in Latin America. As in the classic writings of Engerman and Sokoloff, stressing the role of colonial institutions, we look at slavery and how these plantation societies generated unequal economic development. We then discus the role of land, as well as attempts to redistribute this key asset under different policies in history. Next, we focus on education as another fundamental, and portable asset that determines income patterns at the individual and macro levels. Lastly, we cover in less depth other topics such as the role of elites, health campaigns, and wage distributions. We provide historical foundations for other important topics discussed in this volume, such as land and economic power. Finally, we revisit some classic articles on the deep determinants of regional income, focusing instead on the second moment of the income distribution. We learn, if anything, how hard it is to move this variable.

1.1 Literature and Trends

Though it falls beyond the scope of this article, we note that the interest in the deep roots of global economic inequality are not new. In his recent book, (Galor, 2022) goes back in time to track differences between modern economies and within societies. In his sobering account, Scheidel (2017) makes the argument that violence and catastrophes have been the main drivers of reducing inequality throughout history. Bowles and Gintis (2002) show how inequality can be inherited inter-generationally in various ways. Recent scholarship has leveraged newly available information on pre-colonial tax schemes and found that the high levels of inequality seem to predate the arrival of the Spanish conquerors (Alfani & Caraballo, 2023). Going even further back in time, Lalueza-Fox (2022) documents how inequality has been a constant in human history, leaving an imprint in our own genes. For the rest of the chapter we focus on Latin America and and its colonial past.

Prados de la Escosura (2007) provides a long-run exploration of regional inequality and poverty. He reports a secular increase in inequality during the twentieth century for essentially all countries in the region. Though the series do not go as far back as for other developed economies, the author shows that different sets of countries in the region faced an increase in inequality during the second half of the XXth century. Some countries, such as Colombia and Mexico, even saw an acceleration of these inequality growth rates. The poverty figures, on the other hand, are less bleak, declining during most of the century. The author concludes that trade is associated with an increase in inequality.

Williamson (2015) provides a contrarian view. He tries to distinguish between myths and realities of Latin American inequality in the long run. Rather than stressing colonial origins, where the levels of inequality may not have been particularly high, the author argues that what mattered were the commodity booms of the nineteenth century. For instance, only a few Latin American colonies—most notably New Spain in 1790—are close to the inequality possibility frontier of Milanovic et al. (2007).[2] So, the argument goes, it was not until the continent was more integrated to the world markets, during the *Belle Epoque*, that inequality exploded in the region. Moreover, Latin America did

[2]The inequality possibility frontier is defined as the maximum possible inequality that can exist in a society. It is computed as a "... special condition under which all but an infinitesimal minority of people in a society live at physiological subsistence" (Milanovic, 2013). These estimates should be taken with a grain of salt. The computation of inequality statistics requires disaggregated and high-quality data. This type of information is often lacking for historical time periods.

not experience a process of leveling as in other developed nations, which tried to remedy historical inequities through fiscal policies and other government programs. Hence, this view stresses the potential role (or absence) of national policies.

Coatsworth (2008) goes even further, in another classic piece. He focuses on the link between colonial institutions and contemporary levels of inequality. But rather than stressing factor endowments, he studies the adaptation of Iberian practices in the American colonies "under conditions of imperial weakness". He argues that colonial inequality varied across the Americas and that it was not correlated with colonial economic performance, but it determined the extent of resistance from local elites. After independence, these elites determined new patterns of inequality. This view is somewhat in line with the one of Williamson, again giving agency to national leaders.

The gist of these arguments is that larger inequities arose when Latin America became more integrated to the world economy. This view is explained in detail by Abad (2013) in her work "Persistent Inequality?" She argues that inequality varied substantially throughout the century and across the region, and stresses how important changes occurred during post-colonial times. Similarly, Musacchio, Fritscher, and Viarengo (2014) stress the importance of trade flows and inequality during the *Belle Epoque*, a topic we revisit in Section 5. They stress the interaction between economic shocks and policies.

For more recent times, Lustig, Lopez-Calva, and Ortiz-Juarez (2013) report a decrease in inequality, measured by the Gini coefficient, in 13 out of 17 Latin American countries during the 2000s. They then focus their attention on the three largest countries in the subcontinent: Argentina, Brazil and Mexico, They explain these declining trends with a fall in the premium of skilled labor and more progressive government policies, such as conditional cash transfers. For the most recent period, Bertola and Ocampo (2023) stress how the COVID-19 pandemic erased many of the developmental gains in Latin America, and José Luis Ocampo even goes as far to call the current period a new lost decade for the continent.[3] In their analysis, they extend the broader overview of Bértola and Williamson (2017), and the now classic Bértola and Ocampo (2012). If anything, inequality in Latin America is now as high and as important as ever before. We provide the contours of these inequitable distributions in the next section.

1.2 Motivating Figures

The heterogeneity in both income and inequality levels across the continent is stark and noticeable at first glimpse. To illustrate this point, Figures 1 and 2 show respectively the variation in income inequality and income across all countries in the Americas. In particular, Figure 1 shows the national Gini coefficient for income inequality drawn from the World Bank DataBank, for the most recent year available for each country. Similarly, Figure 2 shows the variation in the (logarithm of) income per-capita.

Although preliminary, these figures already show a few trends worth noticing in terms of the indicators of interest and their correlation. On the one hand, Figure 1 shows how the most unequal countries in the region are located in the southern hemisphere, with Colombia and Brazil standing out as particularly unequal. In contrast, Canada appears to be the least unequal country in the continent as measured by the Gini coefficient. The United States does not appear as a paragon of equality either (in line with Piketty, 2017).

[3]See www.project-syndicate.org.

On the other hand, and when analyzing per-capita income, Figure 2 highlights some of the Central and Southern American countries as being the poorest of the continent; while once again northern nations end up in a better position. Notably, some Caribbean countries and those in the "Southern Cone" outperform their immediate neighbors in terms of income, a pattern that does not emerge when observing inequality.[4]

In summary, the data presented indicates a distinct regional divide within the continent. The northernmost countries (Canada and the United States) consistently rank as the wealthiest and least unequal nations in the region. Conversely, certain Caribbean countries still bear the enduring consequences of the extensive slave trade that occurred during the rule of European colonial powers, as we will explore further. Finally, Central and South America represent the sub-regions with the highest disparity in terms of inequality and income measures. While countries like Argentina and Uruguay have levels comparable to those found in North America, the opposite can be said for countries such as Honduras and Bolivia, which resemble the poorer Caribbean nations more than their immediate neighbors.

The main goal of this chapter is to review the seminal articles in the economics literature that seek to give the patterns described above an explanation based both on historical data and modern empirical methods. The rest of the chapter is organized as follows. We begin in Section 2 by documenting key studies that seek to tie differences in general development with the colonial experience of Latin American countries. In Sections 3, 4 and 5 we review those topics that we consider fundamental for the understanding of the colonial experience and legacy in the continent, namely: slavery, land rights and education. In Section 6 we replicate and extend some of the most influential pieces in the literature of Latin America to show what their original results look like when considering inequality as the outcome of interest. Our key insight from these exercises is that inequality is a slow-moving variable that is hard to perturb. Section 7 concludes.

2 Colonial Origins of Inequality

In this section we examine the colonial origins of Latin American inequality. The seminal contribution of this literature is a series of studies by Stanley Engerman and Kenneth Sokoloff (2000; 2002, 2005). According to their hypothesis, natural endowments are responsible for the differential growth paths of countries in the Americas. When and how did countries in Latin America lag behind the richer ones in the North? This national-level divergence appears later than what one might think, since as late as the 1800s some Latin American countries (Argentina and Cuba) had higher levels of GDP per-capita than the US. By the end of the twentieth century, only Canada stayed relatively close to the US and most of the continent had diverged, as illustrated above. This stylized fact was explained with a theory of natural endowments, generating colonial institutions, which would then affect economic performance. For instance, the sugar suitable soils of Brazil were conducive to developing slavery as a colonial labor institution, and this led to higher levels of inequality and general underdevelopment. This was very different from the settler colonies of North America, where groups of Pilgrims brought themselves along

[4]The same patterns emerge when considering the share of income belonging to the top 10% of the income distribution as measure of inequality of interest; and when considering wealth (measured in assets per-capita). Results presented in Appendix Figure A1.

with their families. The development argument is centered on inequality, which given the transition to a modern economic system of production, became pervasive for growth over time. In a knowledge and innovation economy, open access to schooling and opportunities became fundamental. One keystone of the argument is slavery, which we discuss in more detail in the next section. According to the authors, one interesting region to look at the role of endowments, colonizer identity and slave regimes is the Caribbean. This line of inquiry was pursued later by Nunn (2007), while the broader Engerman and Sokoloff hypothesis has been tested in the literature up to today.[5]

Perhaps the most famous work that took the Engerman and Sokoloff hypothesis seriously was Acemoglu, Johnson, and Robinson (2001). These authors were able to develop a largely qualitative argument into a quantitative and econometric one, including identification through an instrumental variables strategy. In particular, the authors leveraged differences in the mortality rates of European colonizers to show that in places where the environmental conditions were harsher towards them, they established worse (extractive) institutions. The authors then argue that this initial difference has persisted in time and explains the divergence in economic performance across the region. Hence, they focus on the centrality of institutions, as opposed to just natural factors, a line of inquiry we develop in this paper.

A series of papers have looked at the particular colonial institutions that might have impacted modern development outcomes in the Americas. Most notably, Dell (2010) looks at the continued effect of the *mita* labor system on economic development in Peru and Bolivia. This type of colonial labor arrangement was set up by the Spanish colonizers to exploit mines and was active from 1573 to 1812, right until independence. The system required one seventh of the adult population to work in the silver mines of Potosi and the mercury mines of Huancavelica. Dell uses highly disaggregated data and a geographic regression discontinuity design, based on the colonial boundaries of the *mita*. She finds significant negative effects on consumption as well as higher stunting (a measure of malnutrition) of children. This historical paper was also one of the first ones to look at mechanisms of transmission empirically. She argues that *mita* districts had less *haciendas* (large farms), worse public good provision and faced a slower structural transformation of their economies, remaining tied to agricultural as opposed to manufacturing activities. Interestingly, the author relates larger land holdings (i.e., more economic inequality) with a better provision of public good such as roads and education. We delve deeper into these relationships in Section 4, on Land, and when we explore the differences between economic and political power.[6]

The particular role of *haciendas* in development is further explored by Arias and Flores-Peregrina (2021) for Mexico. In their study, the authors use census data to show that municipalities that were located closer to a colonial *hacienda* are now more urban, have better schooling outcomes and a less marginalized population. Again, it seems that these institutions provided local goods, in a context with low public good provision. The authors rely on a "neighbor matching" analysis, comparing municipalities that share similar observable characteristics but that differ in the influence of this type of colonial settlements. Finally, the authors show how the effect on schooling is concentrated on

[5]We also revisit these topics in the Replication Section.

[6]See the chapter by Fergusson, Robinson, and Torres (in press) on this same report for a more detailed discussion of the relationship between inequality and political power in Colombia.

Jesuit *haciendas*, which is a result consistent with the literature on missions, covered later in this chapter.

Faguet, Matajira, and Sánchez (2022) look instead at the impact of the *encomienda* system in Colombia at the sub-national level. This was another forced labor institution, similar to the *mita*, whereby indigenous people were tied to the land in almost feudal terms. The authors find that despite this being an extractive institution, municipalities with more *encomiendas* in 1560 have better development indicators in modern times, in terms of lower poverty rates, infant mortality and higher secondary school enrollments. The authors make sense of these counter-intuitive findings by arguing that the first *encomenderos* also founded the local states where they settled. So it is through increased state capacity and investments in public goods that these areas became more prosperous, in line with the previous evidence for Peru. An important point to make sense of these findings is that the level of analysis matters. In this case, *encomiendas* might be "good" institutions locally, but "bad" globally.[7]

For Ecuador, Rivadeneira (2021) studies the impact of the *concertaje* colonial institution, which lasted for three hundred years. This system allowed landlords to retain indigenous workers due to unpaid debts and work on their *haciendas* in feudal fashion. The author finds that places with more *conciertos* are almost five percent poorer today. To identify the effect, he exploits variations in the suitability for crops with different labor requirements. In terms of mechanisms, the author finds that places that had *conciertos* are associated with lower educational attainment. Illiterate people were also disenfranchised from the political process, so were not able to petition for public goods, such as roads. Most notably, concertajes restricted labor mobility historically and ended up tying people to agricultural activities in the long run. To show this, the author uses data both at the municipal and the individual levels. All of these papers have in common the importance of land allocations from historical times, generating long-term development patterns, a topic we expand on in Section 4. Overall, all of these modern empirical papers confirm the important role of colonial institutions on economic development.

3 Slavery

A fundamental determinant of economic inequality that emerges from our review of the literature and empirical analyses is slavery. Recall that this colonial institution was already one of the main channels posited by Engerman and Sokoloff in their classic argument about underdevelopment in Latin America. The empirical literature has moved to test some of these qualitative findings in a more rigorous way at the national and sub-national levels, at a high degree of disaggregation. Lagerlöf (2005), for instance, links geographic characteristics to slave regimes in the US South, stressing the importance of factor endowments.

We begin by motivating the evidence in this subsection with Figure 3, where we show the prevalence of slavery in the Americas in 1750. Using data from Nunn (2007), we plot the number of slaves as a share of the total population for each country, where available. At first glance, the map shows a concentration of enslaved populations in three big regions: Brazil and the Guyanas in South America, the United States, and the Caribbean Islands.

[7] We thank Leopoldo Fergusson for suggesting this point.

An initial empirical test of the Engerman and Sokoloff hypothesis was by Nathnan Nunn in a book chapter published in 2007. The author begins by documenting a negative relationship between slavery in 1750 and income in the 2000s (Nunn, 2007). Countries such as the United States and Canada, which had few slaves in 1750 appear richer, while others, that had higher intensity of slavery, especially Haiti, appear poorer. We reproduce these findings in Figure 3 which, at least visually, corresponds well with the previous one presented on inequality. Nunn tests this relationship at the national level econometrically and finds a negative and significant coefficient for income. This robust finding survives removing the United States and Canada as outliers, as well as focusing only on the British West Indies. This is an interesting social and historical experiment, where colonizer identity is fixed, so the test of the Engerman and Sokoloff hypothesis can be run in a cleaner fashion. Again, slavery emerges as a negative determinant of income, when using measures of plantation slavery in 1830. All measures of plantation slavery, at small, medium and large scales emerge as negative determinants of income in the long run.

Nunn goes further in his article, documenting a negative relationship between slavery and income at the sub-national level for the United States. These data at the state level is last available for 1860, at the dawn of the US Civil War, which was mostly fought on slavery grounds. The relationship is very marked at this level of disaggregation: states that had many slaves such as South Carolina and Mississippi appear to be poorer in the 2000s, while most of the northern states, with essentially no slaves in 1860 seem richer. We recreate these findings visually at the state level in Figure 4, once again employing Nunn's original data. The horizontal axis on both panels shows the share of enslaved population in 1750 for each state and county respectively, while the vertical one the logarithm of per-capita GDP in 2000. Nathan tests for inequality as the main channel of the slavery effect and finds that indeed states with more slaves are those that are also most unequal, when using a measure of land concentration in the 1860s. The northern states, with little to no slaves, appear more equal as well when using this measure of land distribution. Furthermore, this early measure of land inequality in 1860 appears highly correlated, still at the state level, with income inequality in modern times.

The last step in testing the Engerman and Sokoloff hypothesis is to show whether inequality indeed caused lower income in the long run, which appears not to be the case for the United States. The coefficient for land inequality emerges as an insignificant predictor of income. We recreate these findings at both the state and county levels in Figure 5. In this case, the vertical axis in each panel shows the Gini coefficient for land inequality in 1860 at the state and county level respectively, while the horizontal axis is once again the share of enslaved population. To conclude, Nathan finds a negative relationship between slavery and income at the national and sub-national levels, as well as a significantly negative relation between this colonial variable and modern inequality measures. The relationship between inequality and income appears more complex, as we also document in other contexts, such as Brazil.

The findings in Nunn (2007) are confirmed at the sub-national level for a panel of countries in Maloney and Valencia Caicedo (2016), as well as in Bertocchi and Dimico (2014) for US counties. In Appendix C of their published paper, the first set of coauthors document the negative effect of slavery on modern income levels. This is done at the state level for Brazil, Colombia and the United States. A visual representation of this result, with

regards to slavery, can be found in Figure 6. There we observe a positive correlation between percentage of the enslaved population in 1850s and modern inequality measures. This relationship is present both in the raw data and including basic geographic controls such as altitude, distance to the nearest coast, average rainfall and temperature, among others. Results are presented in Table 1. There we see how the Southern dummy becomes insignificant once we add a measure of slavery in Column 3. For this sub-sample, some of the results are confounded with geographic controls.[8]

Bertocchi and Dimico (2014) conduct a similar exercise for the United States at the county level, and further stress the role of human capital as a main mechanism of transmission of the slavery effect. The authors show how the share of enslaved population in 1860 correlates with overall inequality in US counties in the 20th century; and how the said correlation is driven by "between" race inequality. Furthermore, they use the suitability for tobacco plantations as an exogenous source of variation for the presence of slaves and find consistent IV estimates. They then proceed to test the mechanisms behind this effect and show that counties with a higher proportion of slaves in the past tend to show lower levels of per-capita expenditure in education in the present. Finally, they argue that these results are consistent with a story where slave descendants were historically excluded from political power in counties where slaveholders elites had influence, and that the under-provision of education is just a by-product of the elite's efforts to maintain the status quo, in a process of historical path dependence (an argument revisited by Acharya, Blackwell, and Sen, 2018).

Perhaps one of the cleanest tests of the Engerman and Solokoff hypothesis in the modern literature is by Laudares and Valencia Caicedo (2023), for Brazil. In this article, the authors document the long-term effect of slavery on inequality at the receiving end of the spectrum. They 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, they use a spatial Regression Discontinuity Design (RDD), exploiting the colonial boundaries between the Portuguese and Spanish empires within Brazil. In particular, they use the Treaty of Tordesillas, which divided the spheres of influence between these two empires in 1494, before the discovery of South America. They 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. They then show how this differential slave rate led to higher modern income inequality of 0.04 points (of the Gini coefficient), close to 10% of average income inequality in the country. In terms of mechanisms, they find a wider racial income gap, as well as important differences in education, enfranchisement, employment and prejudice against blacks in modern times. They rule out the role of colonizer identity and other mechanisms proposed in the historical literature.

Figure 7 reproduces the main results in Laudares and Valencia Caicedo (2023). In the upper left panel, we observe that the number of slaves over total population in 1872 is higher at the Portuguese side of the Tordesillas line, consistent with this power's comparative advantage in the trafficking of slaves. This difference between the Portuguese and the Spanish side of the line is then paralleled in the panel at the upper right, for income inequality. In it, and consistent with Engerman and Sokoloff (2000; 2005), we observe a sharp and significant increase in the measure of income inequality in 2010,

[8]We also revisit this paper in the Replication Section.

using municipal-level data. As in Nunn (2007), the authors further test the Engerman and Sokoloff hypothesis by looking at income. In panel c, the authors find only a slight increase in GDP per-capita, so there is no significant impact of slavery on this variable, in this setting. However, once this income is further divided by race, into the income of black relative to white households (racial income gap), they find a significant drop in panel d. So the effect of slavery appears to be acting through the second, instead of the first moment of the income distribution.

Laudares and Valencia further document mechanisms of transmission in their paper. As in Bertocchi and Dimico (2014) and Sacerdote (2005), they stress the role of human capital. They document higher rates of illiteracy for blacks in 2010 on the Portuguese side of the line, as well as higher rates of children out of school, also in 2010. Historically, they show a higher rate of free to slave literacy in 1872 for that same side of the line. These educational differences have also translated into differential enfranchisement. Moreover, they document differences in the labor market. There is a higher rate of black unemployment for blacks and less hours worked, at the right of the cut off. The (white to black) hourly racial wage gap is also higher on the Portuguese side of the line. Lastly, the authors find evidence of racial prejudice, using a survey on skin color devised by Telles (2014). First, they document a strong negative gradient between both income and education with respect to skin color. They then show that on the Portuguese side of the line there is more evidence of prejudice against black people in the labor market. Beyond education, employment and racial discrimination, the authors explore other potential mechanisms of transmission. They do not find significant results for land inequality, institutional presence or judicial capacity. Trust appears marginally significant, except for trust in the judiciary, while there are no demographic differences, as in Bertocchi and Dimico (2014).

One additional study linking slavery to long-run development in Latin America is by Acemoglu, García-Jimeno, and Robinson (2012), where they use the presence of gold mines as a source of (exogenous) variation in the demand for enslaved labor force. The authors compare neighboring municipalities with and without gold deposits and show that places where this mineral was present are nowadays poorer, education expenditure is lower and so are vaccination rates. Yet, the authors do not find any correlation between the presence of slaves in 1835 and the current level of inequality in Colombian "mining" municipalities (see Tables 3 and 4). Still, the results are somewhat consistent with those presented before on slavery at the receiving end of the spectrum and point towards the importance of controlling for extractive activities (such as mining) associated with slavery. They show the economic impact of slavery in the United States, Brazil and Colombia. We turn next to land, as another key asset generating disparities in income.

4 Land and Land Reform

An important asset generating the observed patterns of inequity in Latin America is land. This factor has been tied perennially to political movements, rebellions and conflict in the region (Sánchez, López-Uribe, & Fazio, 2010). Historically, the original distribution of territories in colonial times, followed practices such as *encomiendas*, *resguardos*, *conciertos* and *corregimientos* in the Spanish territories and the *capitanias* or *cartas forales* in the Portuguese colonies. This initial concentration of land in very few hands contributed, in a process of path dependence, to determine the patterns seen today. Thinking about this

topic in economics goes back to at least De Janvry and Ground (1978), but we focus on the modern empirical contributions here.

Although cross-country data on land inequality is scarce, we try to overcome this limitation by leveraging off the recent efforts made by the World Inequality Database team of (Alvaredo, Atkinson, Piketty, & Saez, 2020). In particular, in Figure 8 we use the most recent information on the distribution of land holdings by size in each country to build a Gini index of land concentration defined as the (cumulative) number of land-holdings in each bracket size, for a total of 12 bracket sizes.[9] We weight the number of plots per bracket by the total area of plots in said bracket, but results are analogous when using the unweighted measure (available upon request). Regarding the patterns that emerge in the map, we see a higher concentration of land holdings in South American countries with respect to the rest of the continent, with the exception of the United States, which shows an equally high level of land concentration. Chile appears as an inequality champion using this measure. With some exceptions, the lack of data for the Caribbean countries does not allow us to conclude more generally about the persistence of the land-holding patterns induced by the plantation economies.

Because of these extreme levels of land concentration, governments have taken steps towards establishing different land reform programs. A modern literature in economics has examined the impact of these programs, focusing in the region. In a path-breaking study, Dell (2012) links short term weather shocks with the fateful Mexican Revolution. In particular, Dell exploits within-state variation in drought severity to identify insurgency events during the revolution, and how these uprisings had a long-term effect on development in this large Latin American country. Insurgents eventually demanded land reform, and Mexico redistributed more than half of its surface area in the form of *ejidos*. These individual and communal plots were non-transferable and could not be rented. Melissa finds that in modern times, municipalities with more *ejidos* are more agricultural and less industrial. Incomes in these municipalities are lower and have political turnover is scarcer. This article shows the importance of historical shocks for long-term development, with land tenancy as a main channel of transmission.

A more recent paper by Montero (2022) looks squarely at the role of cooperative property rights and development in El Salvador. In cooperative property rights systems, workers jointly own and manage production, whereas in outside-ownership systems, an owner contracts workers. Despite the importance of this issue for development, there existed little empirical evidence about this question before Montero's work. Eduardo exploits a land reform that the military government conducted in El Salvador in 1980. Crucially, the government reorganized land holdings that had more than 500 hectares into cooperatives. Montero uses this threshold in a regression discontinuity design as his identification strategy and finds that cooperative rights affect specialization and productivity by shifting the type of agriculture practiced from cash to staple crops.

Michael Albertus, also from the University of Chicago, examines the link between land

[9]The dates range between 1990 for countries such as Dominica and the Bahamas, to 2010 for countries such as the United States and Brazil. Gáfaro, Ibañes, and Sánchez-Ordóñez (in press), part of this same report, construct their own measure of land inequality using data from the FAO's *World Program for the Census of Agriculture* (Nayo, Nkoro, Turtoi, & Cara, 2019). Although not identical, our ranking of Latin-American countries by land inequality resembles theirs in broad terms, despite the fact that they both use different data, methodology and sample of countries.

reform and conflict in Peru. Again, this has been a topic of continued debate in the social sciences literature at large, yet little progress had been made due to the lack of data. Albertus (2020) leverages original data on all land expropriations under the military rule from 1969 to 1980 along with event-level data from the Peruvian Truth and Reconciliation Commission on rural killings during Peru's internal conflict from 1980 to 2000. As the previous study, Albertus uses a regression discontinuity design that in this case takes advantage of Peru's regional approach to land reform through specific zones. He finds that districts that experienced more land reform decreased subsequent conflict, relative to comparable adjacent districts. In terms of mechanisms of transmission, the author finds that land reform mitigated conflict by facilitating counterinsurgency and intelligence gathering, building local organizational capacity later used to deter violence, providing a counter-force to the Marxist narratives of the Shinning Path.

In follow up work, Albertus, Espinoza, and Fort (2020) look at the impact of the same land reform in Peru on human capital development. The article argues that land reform can generate distinct supply versus demand effects on education. Furthermore, the author argues that land reform can lower human capital accumulation by decreasing demand. Accordingly, he finds that land reform negatively impacted number of years of school attended in Peru. In particular, individuals exposed to land reform stay in rural areas and have kids working on farms. This counter-intuitive result echoes the findings for coffee cultivation in Colombia by Uribe-Castro (2019).[10]

The contributions for El Salvador and Peru have in common the fact that they were undertaken under military dictatorships. This political angle has been further developed in a book by Albertus (2015). In particular, the author looks at the political conditions under which land reform occurs, when is land reform re-distributive, and what political purposes does it serve, including who are the chief beneficiaries of reform. The author finds, "First and foremost [...] that the most re-distributive variety of land reform occurs under autocratic rule, not under democracy." This surprising finding challenges the existing literature and raises questions about the role of democracy in protecting landed elites. Autocratic governments, can either face less hurdles in implementing their policies or may want to garner support of the population, given the lack of political liberties. These lessons resonate with the findings in Ferraz, Finan, and Martinez-Bravo (2020) for Brazil, where the dictatorship also broke down the more traditional landed elite class.

López-Uribe (2022) also looks at the political dimension of land redistribution, in Colombia. She focuses on the national peasant movement, from 1957 to 1985. Consistent with the previous discussion, Lopez-Uribe finds that democratic reforms during this time period in Colombia did *not* increase broad redistribution. The government, through the organization of the ANUC (National Peasant) social movement extended political rights to the threatening group, by identifying leaders and providing them private goods, in exchange for preventing social unrest and encouraging demobilization, essentially "buying them off." In order to conduct the analysis, the author contributes with granular data that allows her to match the names of peasant leaders to the beneficiaries of land reform. These leaders receive more benefits, especially in places where the Communist threat was higher. This political scheme appears to have worked as a counter-insurgency strategy in

[10]New work by Héctor Paredes Castro revisits the Peruvian evidence. Nicholas Gachet, focusing on Ecuador, stresses the role of land property rights.

the longer term.[11]

In a related piece, Galán (2022) uses discontinuities in the land-titling program carried on by the Colombian government starting in the 1960's to test the inter-generational effects of land access. The author shows that families that were granted land parcels have better housing conditions and higher wealth index. He then estimates these same effects on the offspring of these families, finding largely positive and significant effects on outcomes such as wages, the probability of participating in the formal labor market and general upward mobility. Finally, Galán argues that these effects are consistent with a relaxation of the credit constraint derived from the fact that households were provided with a marketable asset (i.e., their plot of land).

Two other papers study the experience with land reform in Chile. Lillo (2018) looks at the impact of the reform during the 1960s and 1970s on land inequality, crop choice and development. Different from the other cases discussed, in Chile the military coup of Pinochet interrupted and reversed the reform process carried out during the democratic government. This switch allows for studying the effect of the counter-reform. Using a panel fixed effects estimation, the author shows that the reform had a negative impact on land inequality. Moreover, areas that had more redistribution increased their share of land cultivated with vineyards and lowered those devoted to forest plantations. Lillo argues that the crop choice change, which is the perhaps the most novel aspect of the paper, is driven by the size constraint and not the owner's type. Contrary to the case of Peru, land reform also led to increased human capital, as well as public infrastructure and private home dwelling quality.

Jaimovich and Toledo (2021) also look at the impact of land reform, but link it instead to the ongoing indigenous self-determination conflict of the Mapuches. Members of this indigenous tribe were actively involved in the land reform process, so they were also affected by the aforementioned counter-reform process. According to the authors, this failed land reform generated grievances that can explain some of the current insurrections. The authors focus on the Araucania region and, for identification, uses an instrumental variables strategy based on historical rainfall in the region. They find that plots involved in the land reform process historically are more likely to be invaded and attacked. In line with the previous Chilean paper, the authors show that the development of intensive forestry plantations is a potential channel for the main result. This piece also complements the evidence on conflict and land reform in Peru.

In ongoing work, Secco and Valencia Caicedo (2023) look at the *capitanias* colonial institution on land inequality. In this system, the king assigned large land allocations of Brazil to his acquaintances. The historiographic literature has argued that this could have led to the high levels of land concentration in Brazil (Cintra, 2013). To this end, the authors digitize one of the first national censuses with land holding information for Brazil. Using data at the municipal level, the authors find that areas where *capitanias* lasted longer, income and state capacity are lower. The role of plantations and land inequality in Brazil has also been studied by Wigton-Jones (2020).

Some of the lessons from Latin America also resonate with other cases internationally. In the United States, a series of papers have looked at the impact of the Homestead Act

[11]See also the work by Albertus and Kaplan (2013) on land reform as a counterinsurgency strategy and Torres (2022), who shows how landed elites benefited from the land reform.

of 1862. Lillo Bustos (2020) finds that the rates of literacy converged between settled and non-settled areas after the reform. He finds that even though land redistribution was important, selective migration also played a role. Smith (2020) also looks at land concentration and long-run development in the United States. He finds that historical land concentration lowered land values, investment and population in the long run. The author argues that inefficiencies in share tenancy caused landlords to under-invest and avoid crop farming in favor of less intensive activities. Mattheis and Raz (2019) also study the long-term impact of the Homestead Act, using a spatial regression discontinuity design. The authors find that areas with greater historical exposure to homesteading are poorer and more rural today. It appears that the program retarded structural transformation, consistent with the Peruvian and Colombian experiences. Outside of the continent, researchers have also looked at the electoral impact of wealth redistribution. In Italy, Caprettini, Casaburi, and Venturini (2021) use a spatial regression discontinuity to show how land reform there benefited the incumbent Christian Democratic party.[12] These electoral benefits persist for decades. The authors argue that the short-term shock generated a new cooperative political equilibrium. This article expands on the political dimension of land reform, studied in the book by Albertus. In sum, land emerges as a key economic asset in the region, where the impact of land reform is both multifaceted and complex, as it interacts with the underlying political structures.[13]

5 Education

Education is the other main (portable) asset that can explain inequality and mobility patterns theoretically (Becker, Kominers, Murphy, & Spenkuch, 2018). Mariscal and Sokoloff (2000) had already postulated the importance of early schooling and the persistence of inequality in the Americas. We complement their data set with information from Frankema (2009) to provide a picture of early educational inequalities in the region, prior to the 1900s. We observe in Figure 9 the now familiar pattern: a leading North and a lagging Latin/South America. But even the within regional inequality is interesting, with Uruguay, Argentina and Mexico taking the lead over their Latin counterparts.

A simple correlation between the per-capita number of students during the late 1800s and the modern Gini coefficient confirms this pattern (Figure 10). Canada and the United States appear as extreme outliers in the continent, with very high enrollment rates and comparatively lower levels of income concentration. Latin American countries appear with less than half of the northern enrollment rates. Uruguay and Costa Rica stand out, amongst the group, with relatively higher levels, while Bolivia, Peru and Brazil appear lagging behind. Brazil and Colombia also appear with very high levels of inequality, as opposed to Uruguay. This result is interesting, as it extends the results of inequality to public good provision. Still, the results are not causal and we can just identify the arrow of time going from education to inequality, as there could be other omitted factors.

The interplay between education and political concentration, suggested in Mariscal and Sokoloff (2000), is examined empirically by Acemoglu, Bautista, Querubín, and Robinson

[12] See also Bianchi-Vimercati, Lecce, and Magnaricotte (2022) on land redistribution and structural transformation also in Italy.

[13] See Fergusson (2013) and Fergusson, Larreguy, and Riaño (2022) for additional theoretical and empirical evidence on this regard.

(2008). These second set of authors look at the case of the Colombian state of Cundinamarca. Using data at the municipal level, they find that more economic inequality, measured by the land Gini, is positively correlated with secondary school enrollment in 1993. The opposite is true, when looking at a political concentration index, as a measure of economic inequality: more politically concentrated municipalities show worse educational outcomes later on. This relation between political and economic power and how elites may have hindered educational investments is further explored by Galor and Moav (2006) and Goñi (2022), for England.[14]

Valencia Caicedo (2019) also focuses on human capital at the basic level, and looks at Jesuit and Franciscan missions in South America. That article examines the long-term consequences of a historical human capital intervention. The Jesuit order founded religious missions in 1609 among the Guarani, in modern-day Argentina, Brazil, and Paraguay. Before their expulsion in 1767, missionaries instructed indigenous inhabitants in reading, writing, and various crafts. Using archival records, as well as data at the individual and municipal levels, the author shows that in areas of former Jesuit presence—within the Guarani area—educational attainment was higher and remains so (by 10%–15%) 250 years later. These educational differences have also translated into incomes that are 10% higher today. The identification of the positive effect of the Guarani Jesuit missions emerges after comparing them with abandoned Jesuit missions and neighboring Franciscan Guarani missions. When looking at inequality directly, the author finds significant results, reported in Table A17 of the Online Appendix of the paper.[15] The farther away a municipality is to a former Jesuit mission, the higher its income inequality, measured using a Theil index. The opposite is true for the distance to a former Franciscan mission, which decreases the level of income inequality. These additional results are also present for health outcomes, as a broader measure of human capital, omitted here in the interst of space.

Maloney and Valencia Caicedo (2022) look instead at the upper tails of knowledge and education, by studying at the number of engineers in the Americas. The article constructs a database with the share of engineers in the labor force during the Second Industrial Revolution (1870–1914) at the county level for the United States and the state and national levels for several Latin American countries. These measures are robustly correlated with income today after controlling for literacy, other types of higher-order human capital (college graduates, lawyers, physicians, patenting) and demand-side factors, as well as after instrumenting engineering using the 1862 US Land Grant Colleges program. Differences in engineering density in 1880 account for 10% of US county income today, while national disparities in engineering density can explain approximately a quarter of the income divergence in the Americas. To document the mechanisms through which engineering density works, the authors show how it is correlated with higher rates of technology adoption and structural transformation across intermediate time periods, and with numerous measures of the knowledge economy today.

Here we replicate the findings for engineers in the United States at the county level, while focusing on inequality. We find, as in the later set of replications in this article, no effect on inequality, using a measure of the Gini coefficient, in the first panel of Table 2. However,

[14]Ongoing work by Americo and Ferraz looks at the Brazilian case.

[15]Results are restricted to Brazil and Paraguay, given the lack of data at this level of disaggregation for Argentina. Waldinger (2017) presents a similar argument for Mendicant orders in Mexico.

the other innovation variable, historical patenting, appears robustly correlated with the modern-day Gini coefficient at the county level, in the second panel. This relationship is robust in all specifications, with population, education and tertiary education controls, as well as with state fixed effects. Maloney and Valencia Caicedo (2022) use the distance to land grant colleges as instruments for engineers. The third panel shows the relationship of this variable with inequality, which is significantly positive and robust. The farther away from a land grant college, the higher the inequality in a county. It appears that the infrastructure of innovation, in terms of patents (a more legal dimension) and land grant colleges (physical infrastructure) are the ones that affect inequality in this setting, more so than the mobile asset (engineers). These are findings for the leading economy in the continent at the upper echelons of knowledge for the time. The results complement those at other points of the educational distribution for Latin American countries such as Colombia and Paraguay.

There are other important factors related to the accumulation of human capital in the region, most notably migration. In the case of Brazil, Rocha, Ferraz, and Soares (2017) tie human capital to the waves of European mass migration in the country.[16] Musacchio et al. (2014) link the early expansion of primary schooling to states that had larger commodity booms. Yet, such positive effect of commodity booms on education expenditures was muted in states that either had more slaves before abolition or cultivated cotton during colonial times. Pérez (2021) and Droller (2018) study the European migration to Argentina in the 20th century, finding in both cases positive effects on human capital accumulation. We turn next to other potential factors affecting inequality.

5.1 Other Factors: Elites, Health and Wages

There are other factors, beyond slavery, land tenure and education which have also shaped the economic disparities in the region. A novel literature has tied network theory with the formation and spread of regional elites (Mejia, 2018). We already saw how elites are important, not only for land distribution, but also for educational attainment. This new article follows a long tradition dating back to Hirschman (1968) and Twinam (2014) in trying to explain Antioquia, along with Monterrey and Sao Paulo, as one of the main poles of industrialization in the region. The novelty here is to detail and characterize the actual networks of manufacturing and banking elites in this Colombian state. This emphasis on elites has also been important for the country at large, on the political dimension and its relationship to conflict (Fergusson & Vargas, 2023). This message transcends Colombia and is also present in the narrative of intra-elite conflict and economic crises affecting Venezuela, as depicted by Kronick and Rodriguez (2023).[17]

Another factor contributing to economic inequality in Latin America is health. In "Disease, Disparities, and Development: Evidence from Chagas Disease in Brazil" Denton-Schneider and Montero (2022) track the impact of this tropical disease in the country. They focus on a campaign to eliminate this disease from 1984 to 1989. Using a differences in differences strategy and municipality level data, the authors find that adult employment rates rose after spraying began, and that these gains were larger for non-

[16]We expand on this paper in the Replication Section. See also, work by de Carvalho Filho and Monasterio (2012) for Rio Grande do Sul. Recall that education was also one of the main channels of transmission of the slavery and inequality effect for Brazil in Laudares and Valencia Caicedo (2023).

[17]Chapters prepared for (Valencia Caicedo, 2023), which expands on these topics.

white Brazilians, adding an interesting racial disparity angle. The campaign also had a large impact in terms of savings for the Brazilian health system. This article follows the classic contribution by Bleakley (2010) on malaria eradication in the Americas, where the author finds significant economic gains after the eradication campaigns of the twentieth century in the United States, Brazil, Colombia and Mexico. Another novel study, which transcends economic outcomes is by Ramos-Toro (2019), who looks at how social exclusion in a leper colony in Colombia affected pro-sociality. Descendants of socially excluded individuals are more locally altruistic and distrust doctors.

Perhaps one last channel of transmission of the economic inequality effect in the region is wages. This appears as an obvious factor, but there was a lack of data for the region. Astorga (2015) provides such new information for Argentina, Brazil, Mexico, Chile, Colombia and Venezuela. The author distinguishes between four occupational groups: the top group includes employers, managers and professionals; the remaining three groups are defined according to the workers' skill level, largely receiving wage income. Pablo stresses the heterogeneity of experiences of these six countries during the twentieth century. Still, at a general level, one can see an explosion in the gaps of these four categories of workers in the region, with the exception of Venezuela. Some of these patterns could have been policy mistakes. For instance, less than optimal investments in education in Brazil during the times of Import Substitution Industrialization (ISI), could have been a foregone opportunity, relative to what happened in East Asia (Birdsall, Sabot, & Sabot, 1996).[18] There are other topics that remain beyond the scope of this chapter, such as the direct role of conflict on inequality, expropriations and political regimes.[19] On this last point, Edwards (2010) warns us in his book about the perils of populism. Having concluded the main factors, we turn to empirical replications.

6 Replications

In this last section, we provide replications of classic studies in the literature, focusing on inequality instead of income. The main message that emerges from these exercise is how hard it is to shift income inequality measures with some classic historical determinants. Perhaps the clearest way to see this is through a replication of the seminal Acemoglu et al. (2001) study. As described next in more detail, the now famous relationship between historical settler mortality and modern measures of income disappears once we look at inequality instead.

Figure 11 shows the replication of Acemoglu et al. (2001) for their sample of former colonies. The original figure, which is the foundation for Acemoglu, Johnson, and Robinson (2002) reversal of fortune piece, can be found in panel a. This is the so-called "reduced form" version of the regression, where the instrument is plotted against the outcome variable directly. There we observe a strong negative relationship between log per-capita income in 1995 and log setter mortality during historical times for a selection of colonized countries. Countries that had low mortality levels such as Australia, Canada and the United States now have high levels of income, while those with high levels such as Gambia, Nigeria and Mali are now relatively poor. This negative relationship becomes

[18] We thank Aldo Musacchio for suggesting this point.

[19] In the region, Alix-Garcia, Schechter, Valencia Caicedo, and Zhu (2022) look at the multifaceted impact of the War of the Triple Alliance, but do not focus on inequality per se. Related, Heldring, Robinson, and Whitfill (2022) explore the relationship between conflict and inequality in England.

flat once we change income for income inequality, in panel b. The distribution of settler mortality is the same as before, in the horizontal axis, but now Australia and Canada appear with inequality levels that are similar to those of the African countries mentioned above. Only the middle income Latin American countries, with medium levels of settler mortality, emerge with high levels of inequality. The results of the corresponding regression are reported in Table 3 and, as expected, mimic those in the figures. There, we see a negative instrumented relationship with income, in the first three columns, and an insignificant relationship with inequality across the board: for Gini, top 10% over bottom 10% and top 20% over bottom 20%. Of course, the validity of the instrument might not hold for inequality, if the exclusion restriction for this variable is violated. The stark difference in these findings can be explained by looking at the relationship between income and inequality, in panel c. There we observe, consistent with Kuznets, a hump-shaped relationship between the two variables. At both low and high levels of modern income, there appear to be low levels of income inequality. It is again for middle income countries, especially Latin American ones, where we observe higher degrees of income inequality. It is worth noting that this complex relationship between income and inequality is not only present at the national level, but can be replicated at the sub-national level, for countries such as Brazil. Figure A2 shows this correlation between inequality and income for the case Brazil in 1920 and 2010. Results are consistent with Kuznets, in showing a non-linear relationship between inequality and income at different stages of development.

The results or lack thereof also extend to other studies that followed the publication of the seminal study just analyzed. For instance, Bruhn and Gallego (2012) revisit the topic of colonization at the sub-national level. To this end, they use measures of good, bad and ugly colonial activities. In their published study, they find a negative and significant effect of bad and sometimes ugly colonial activities on modern levels of income for states in the Americas.[20] These results become largely insignificant when looking instead at inequality. The results are marginally significant only for the bad activities (plantations) dummy, and they become insignificant with a larger set of controls. Table 4 shows our replication of the results presented in Column 2 of Table 9 of their original paper. We find that the main non-result regarding inequality is consistent and stable regardless of the exact specification used. All in all, we find a weaker relation with the measure of inequality, now at the sub-national level.

These patterns for the Americas at the sub-national level are also present within a country, at the municipal level, for Brazil. In "Institutional Development and Colonial Heritage within Brazil" Naritomi, Soares, and Assunção (2012) examine the deep rooted determinants of institutions. They find that colonial booms such as coffee and sugar are responsible for the establishment of more or less extractive institutions, while they find little impact of the post-colonial coffee boom, at odds with the more traditional literature cited at the beginning of the article on post-independence trade shocks. When looking at land Gini as a measure of inequality, the authors find a significant effect for sugar, but not for gold. These results echo those at the national and regional levels described above.

Maloney and Valencia Caicedo (2016) report similar results at the sub-national level. In their article, the authors document a strong persistence of fortune at the regional level. First they show how geographic and weather characteristics predict where pre-colonial populations settled in the Americas. Then they uncover a very strong relationship

[20]Some of these institutions include others covered in this paper, such as slavery.

between pre-colonial population density and current population density, at the state level. This relationship extends to modern income as well, also at the sub-national level. However, as before, this relationship with pre-colonial population density becomes insignificant when the outcome variable is sub-national income inequality instead. This non-significant result is reported in Appendix D of the published version of the article, and is omitted here in the interest of space.

Another influential study for the region is that by Rocha et al. (2017), where the authors look at the role of foreign migration to Brazil and document the persistence of human capital over time, highlighting its role as a determinant of long-term economic development.They exploit variation induced by a state-sponsored settlement policy that attracted mostly European migrants to the state of Sao Paulo during the late 19th and early 20th centuries. They show that one century after this policy, municipalities that received more high human capital migrants have higher levels of schooling today, as well as higher incomes. This robust result, however, becomes insignificant once one looks at inequality. Their settlement indicator has no effect on this measure of economic concentration when we replicate their estimates, in Table 5, in what by now seems a common pattern. The results for inequality using common proxies in the literature are puzzling. They points towards a more complex relationship between income and inequality than what is often assumed, suggesting avenues for future research.[21]

7 Conclusions

In this article we explore the historical roots of Latin America's high level of income inequality. We argue that these economic disparities matter and stress their colonial origins. Factor endowments along with ensuing colonial institutions such as the *mita*, *encomienda*, *hacienda* and *concertaje* helped to determine the high levels of regional economic inequality. Other post-independence factors and (often failed) policies may have perpetuated and even exacerbated these historical conditions. We stress the role of slavery in generating patterns of underdevelopment in the region, and increased income concentration in the United States and Latin America. We also highlight the importance of land, land reform and redistribution, revisiting the modern literature on this topic. The impact of land reform in the region is multifaceted, as it interacts with the underlying political regimes and interests. We focus on education, at different levels, as the pre-eminent mobile asset that affects income distributions at the micro and macro levels. We then extend the analysis to a more empirical exploration of the literature. We provide replications and extensions of classic studies, where we learn how hard it is to move the inequality variable with commonly used income proxies. We hope that this exercise of condensing and critically assessing the existing literature can prove useful for scholars and policymakers in the region and beyond. Our hope is that this modern approach to the topic of inequality in Latin America and the Caribbean could foster new directions for future research. Ultimately, this type of work can inform policies that are more cognizant of the historical forces determining our current socioeconomic realities, making them more effective in providing equal opportunities for all Latin Americans.

[21] An alternative reading is that the proxies used are not entirely adequate for these settings. We thank William Maloney for this interpretation.

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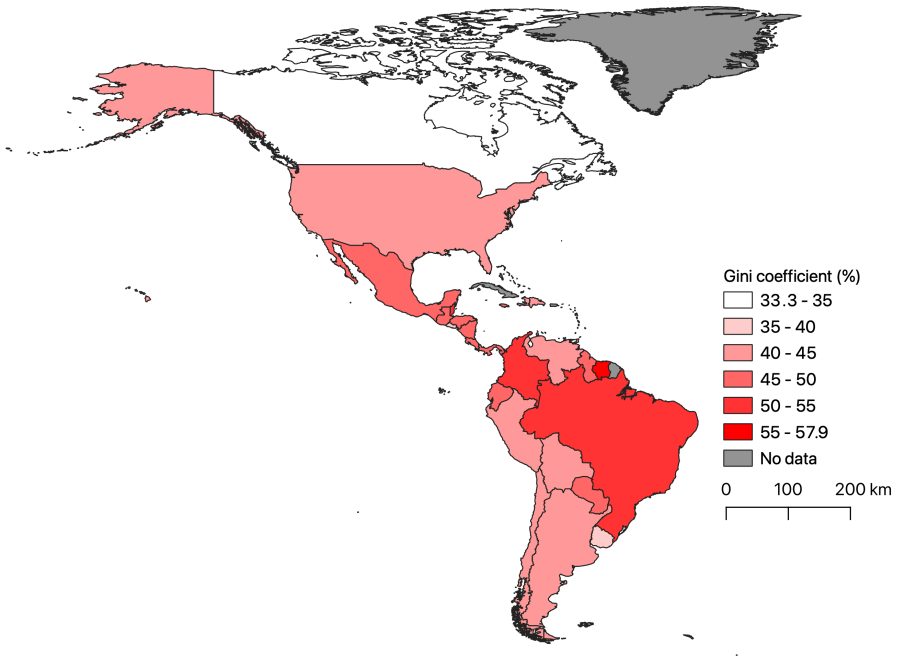
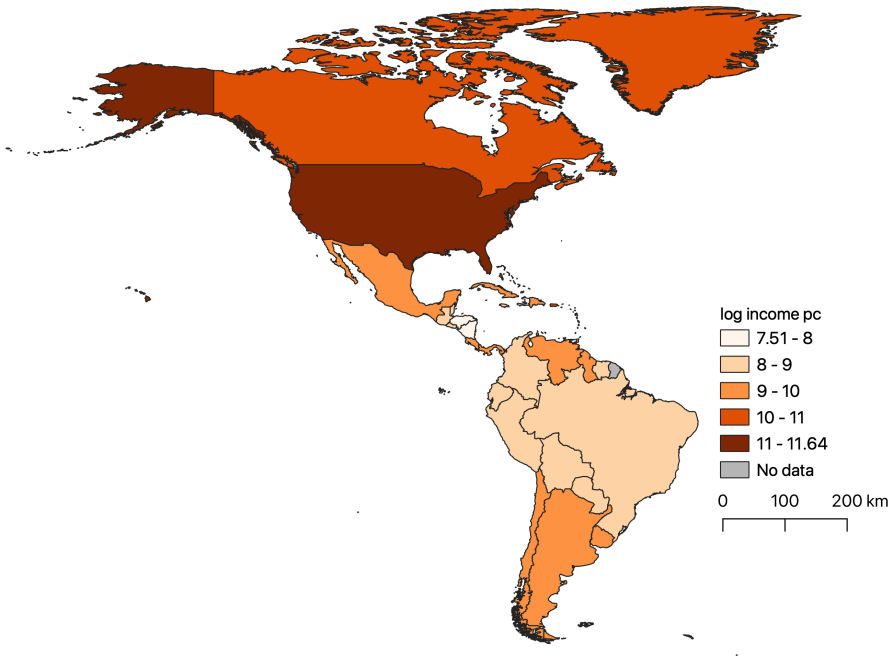
Figures

Figure 1: Income Inequality — Gini coefficient



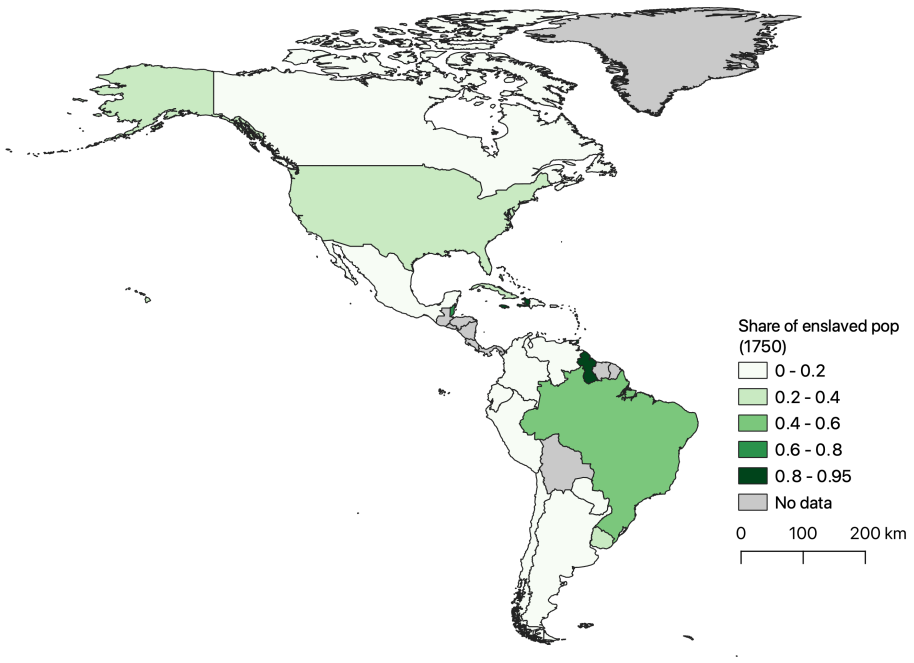
Notes: Data source is the World Bank DataBank.

Figure 2: Income per capita (in logs) in the 2000's



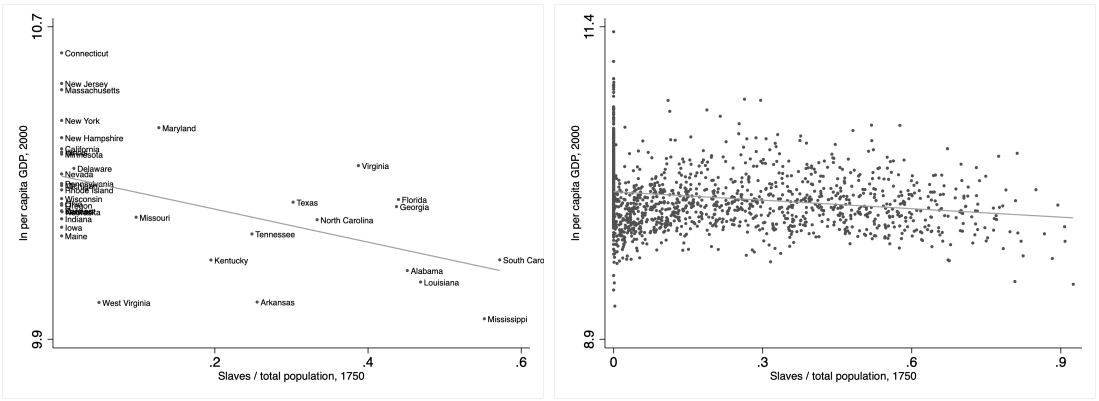
Notes: Data source is the World Bank DataBank.

Figure 3: Slavery in the Americas in the 18th Century



Notes: Data source is Nunn (2007).

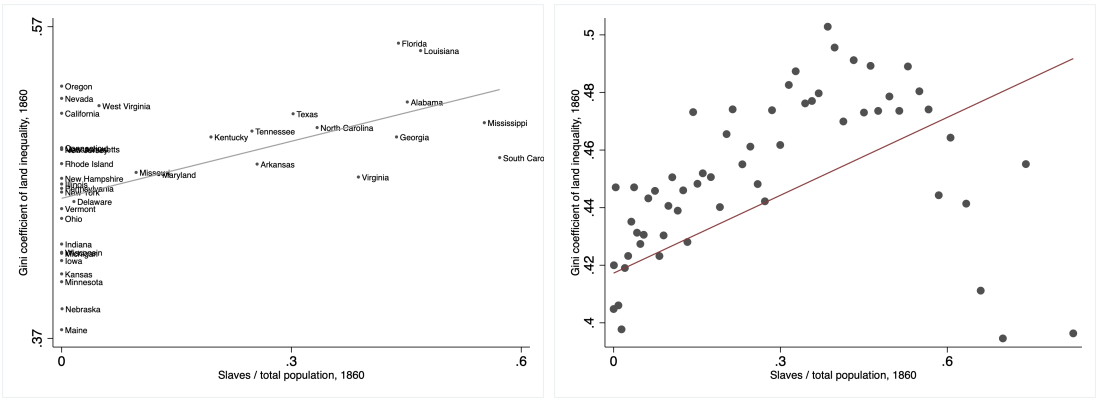
Figure 4: Slavery and Income in the US



(a) States **(b) Counties**

Notes: Data source is Nunn (2007).

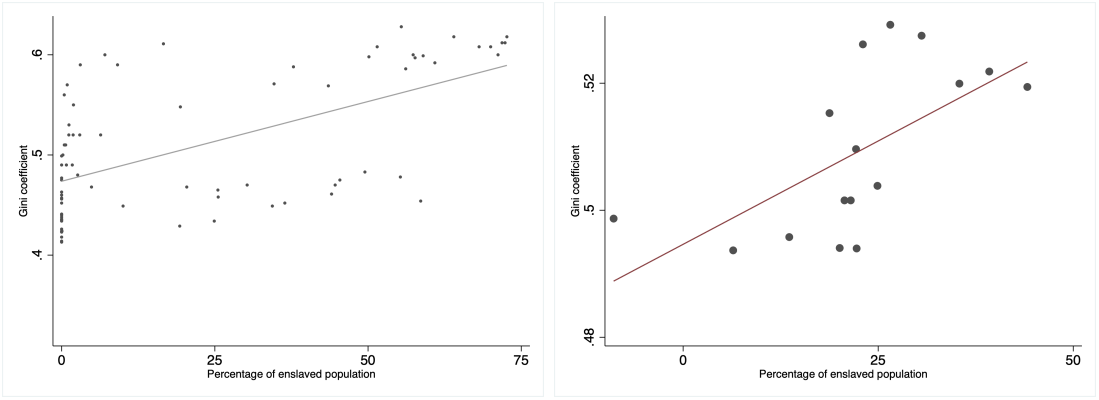
Figure 5: Slavery and Inequality in the US



(a) States **(b) Counties**

Notes: Data source is Nunn (2007).

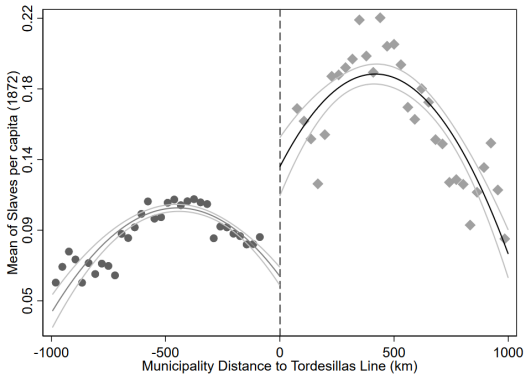
Figure 6: Slavery and Inequality in Latin America (Gini)



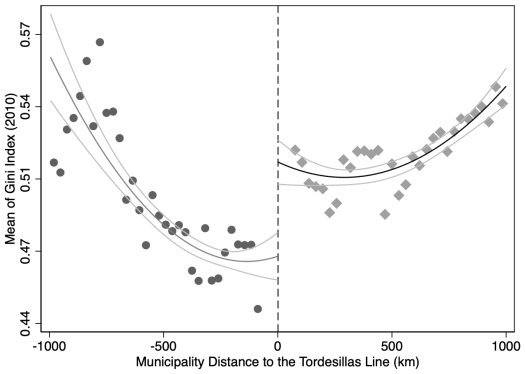
(a) Raw Correlation **(b) Including Controls**

Notes: Data source is Maloney and Valencia Caicedo (2016).

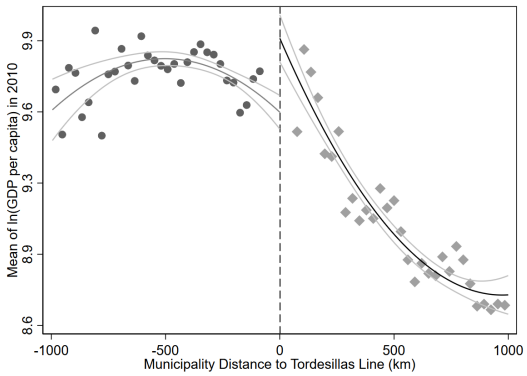
Figure 7: Slavery and Inequality in Brazil



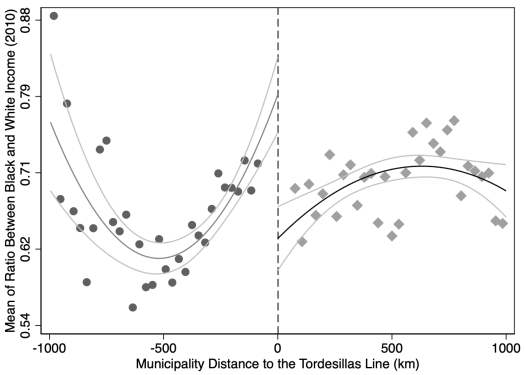
(a) Panel A: Density of Slaves in 1872



(b) Panel B: Income Inequality



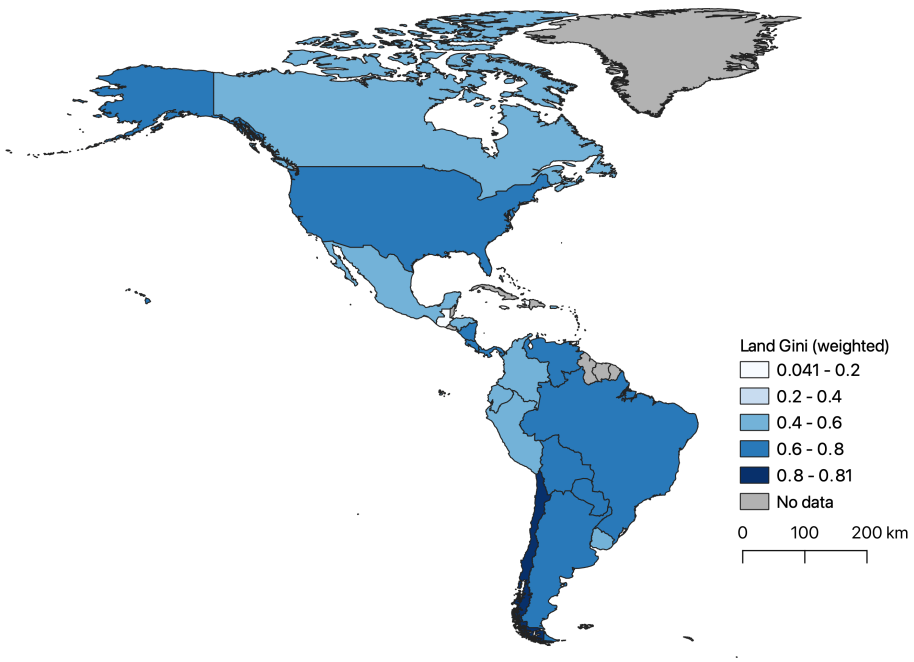
(c) Panel C: Per capita income (logs)



(d) Panel D: Income Racial Gap

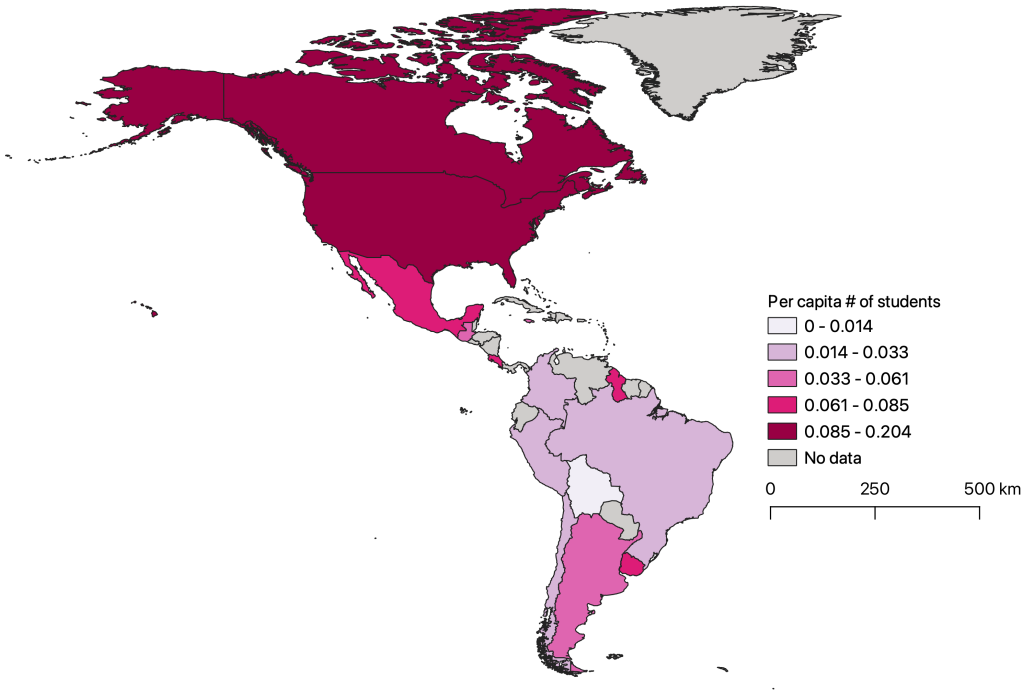
Notes: Data source is Laudares and Valencia Caicedo (2023).

Figure 8: Land Gini



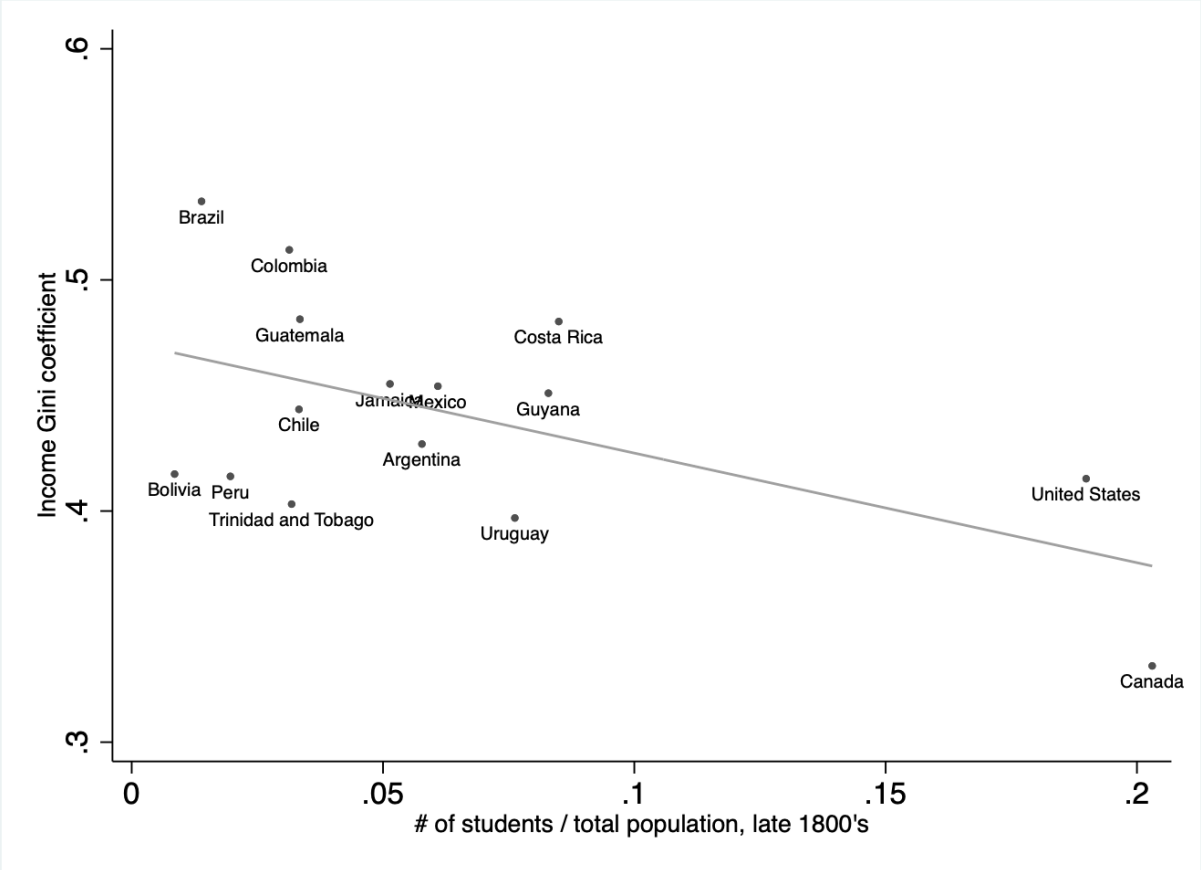
Notes: Source for the data is the World Inequality Database (WID). Land Gini coefficients constructed weighting the number of holdings in each plot-size bracket by the total area in said bracket.

Figure 9: Per-capita Educational Attainment in the 19th Century



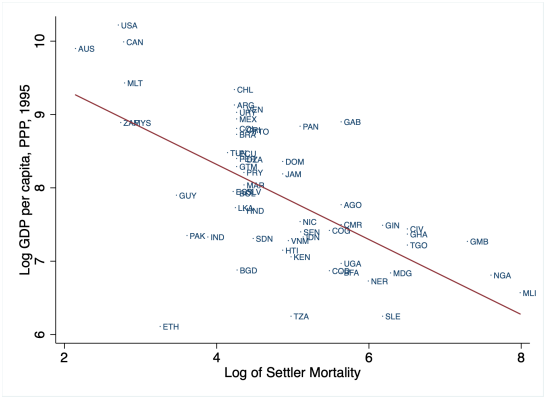
Notes: Data are the per-capita number of pupils in school in 1870 or earliest date (a country has missing value if there is no data available before 1890). Source is Mitchell (2003).

Figure 10: Education in the 19th Century and Modern Inequality

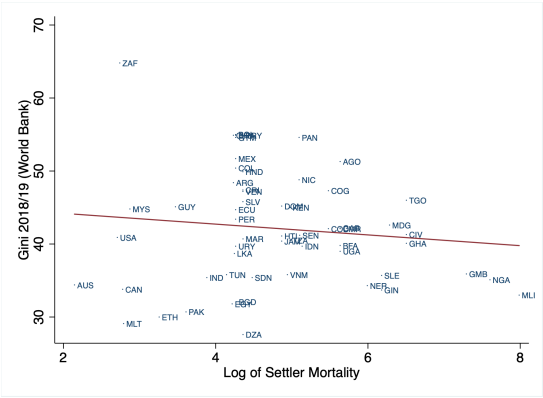


Notes: Data source is the World Bank DataBank and Mitchell (2003).

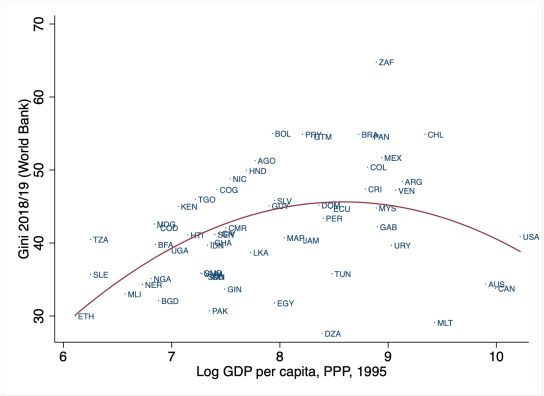
Figure 11: Log Settler Mortality, Income and Inequality



(a) (Acemoglu et al., 2001) Original Figure (replicated)



(b) Log Settler Mortality and Gini coefficient



(c) Income on Inequality (quadratic)

Notes: All figures use same sample as Acemoglu et al. (2001). Panels (b)-(c) use data from the World Bank DataBank.

Tables

Table 1: Inequality and Slavery in the Americas

Dependent variable: Gini coefficient						
	(1)	(2)	(3)	(4)	(5)	(6)
Pre-colonial density	0.0584	-0.0746	-0.106	0.0411	-0.174	0.0920
	(0.165)	(0.159)	(0.152)	(0.180)	(0.223)	(0.292)
Brazil	0.153***	0.157***	0.122***	0.0994***	0.122***	0.0996***
	(0.00640)	(0.00790)	(0.0163)	(0.0180)	(0.0162)	(0.0186)
Colombia	0.0814***	0.0906***	0.0906***	0.0405*	0.0937***	0.0372
	(0.0148)	(0.0143)	(0.0140)	(0.0221)	(0.0169)	(0.0281)
South	0.0194***	0.0169***	-0.00538	-0.0129	-0.00386	-0.0136
	(0.00520)	(0.00636)	(0.0106)	(0.0122)	(0.0104)	(0.0125)
Slavery			0.000670***	0.000259	0.000609**	0.000281
			(0.000240)	(0.000272)	(0.000235)	(0.000278)
Slavery × population					0.00287	-0.00184
					(0.00373)	(0.00511)
Agriculture				0.0117		0.0139
				(0.0239)		(0.0252)
Rivers				0.00783		0.00750
				(0.00700)		(0.00720)
Distance to coast				0.0769**		0.0781**
				(0.0380)		(0.0374)
Temperature				0.00185*		0.00189
				(0.00109)		(0.00114)
Altitude				0.00623		0.00628
				(0.00586)		(0.00600)
Rainfall				0.00652**		0.00682**
				(0.00320)		(0.00334)
Ruggedness				-0.000354		-0.000402
				(0.000736)		(0.000705)
Malaria				0.00174		0.00165
				(0.00311)		(0.00314)
Observations	97	75	75	75	75	75

Robust standard errors in parenthesis. Data is from Maloney and Valencia Caicedo (2016). *** p<0.01, ** p<0.05, * p<0.1.

Table 2: Engineering, Patents, Land Grant Colleges and Inequality (US)

Dependent variable: Gini coefficient	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
# of engineers per 1000 inhabitants	-0.00698	-0.00339	-0.0125	0.0112	-0.00909	-0.0293	-0.0171	-0.0118
	(0.0234)	(0.0233)	(0.0281)	(0.0273)	(0.0275)	(0.0270)	(0.0260)	(0.0260)
# of patents per 1000 inhabitants	0.00280*	0.00339*	0.00863***	0.0101***	0.00863***	0.00829***	0.00849***	0.00862***
	(0.00153)	(0.00184)	(0.00295)	(0.00273)	(0.00287)	(0.00266)	(0.00277)	(0.00255)
Dist. to land grant colleges	0.00354**	0.00312*	0.00355**	0.00367***	0.00339**	0.00342**	0.00363**	0.00283**
	(0.00171)	(0.00167)	(0.00133)	(0.00133)	(0.00134)	(0.00133)	(0.00137)	(0.00127)
Controls:								
Population:	X	X	✓	✓	✓	✓	✓	✓
Education:	X	X	X	✓	✓	X	✓	✓
Tertiary education:	X	X	X	X	X	✓	✓	✓
State FE :	X	X	X	X	X	X	X	✓

All regressions have 1,904 observations, except for column 1 that has 2,380. Robust standard errors clustered at the state level in parenthesis. *** p<0.01, ** p<0.05, * p<0.1. Coefficients in Panel A are to be interpreted "per 1000". Data is from Maloney and Valencia Caicedo (2022).

Table 3: Replication and extension of Acemoglu et al. (2001)

Dependent variable	Log GDP			GINI			% income of $\frac{Top\ 10\%}{Bottom\ 10\%}$			% income of $\frac{Top\ 20\%}{Bottom\ 20\%}$		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Log settler mortality	-0.512***	-0.417***	-0.272***	0.154	-0.607	-0.155	-1.585	-2.617	-1.460	-0.509	-0.881	-0.557
	(0.0821)	(0.0888)	(0.0938)	(0.888)	(0.983)	(0.970)	(1.433)	(1.597)	(1.549)	(0.577)	(0.646)	(0.651)
Observations	60	60	60	59	59	59	59	59	59	59	59	59
Controls:												
Latitude	*X*	✓	✓	*X*	✓	✓	*X*	✓	✓	*X*	✓	✓
Continent FE's	*X*	*X*	✓	*X*	*X*	✓	*X*	*X*	✓	*X*	*X*	✓

Columns 1-3 use the original Acemoglu et al. (2001) variable as outcome. Columns 4-12 use data form the World Bank DataBank. All columns use sample used by Acemoglu et al. (2001). *** p<0.01, ** p<0.05, * p<0.1.

Table 4: "Good, Bad and Ugly" Colonial Activities and Inequality

Dependent variable: log Gini Coefficient					
	(1)	(2)	(3)	(4)	(5)
Good activities dummy	0.00567	0.00265	0.00167	0.000608	0.00306
	(0.0186)	(0.0154)	(0.0145)	(0.0144)	(0.0144)
Bad activities dummy	0.0409*	0.0351**	0.0328*	0.0168	
	(0.0241)	(0.0170)	(0.0178)	(0.0181)	
Ugly activities dummy	0.0156	0.00835	0.00551	-0.00542	-0.00718
	(0.0256)	(0.0191)	(0.0199)	(0.0201)	(0.0208)
Observations	268	268	268	268	268
R-squared	0.724	0.725	0.728	0.738	0.740
Controls:					
Pre-colonial population density:	X	✓	✓	✓	✓
Weather:	X	X	✓	✓	✓
Geographical:	X	X	X	✓	✓
Mining & Plantation dummies :	X	X	X	X	✓

All regressions include country fixed effects. Robust standard errors clustered at the pre-colonial population dummy level. *** p<0.01, ** p<0.05, * p<0.1. Weather controls are: average temperature and total rainfall (linear and squared). Geographical controls are altitude (linear and squared) and a dummy of being landlocked. Data is from Bruhn and Gallego (2012).

Table 5: Migration and Inequality in Brazilian Municipalities

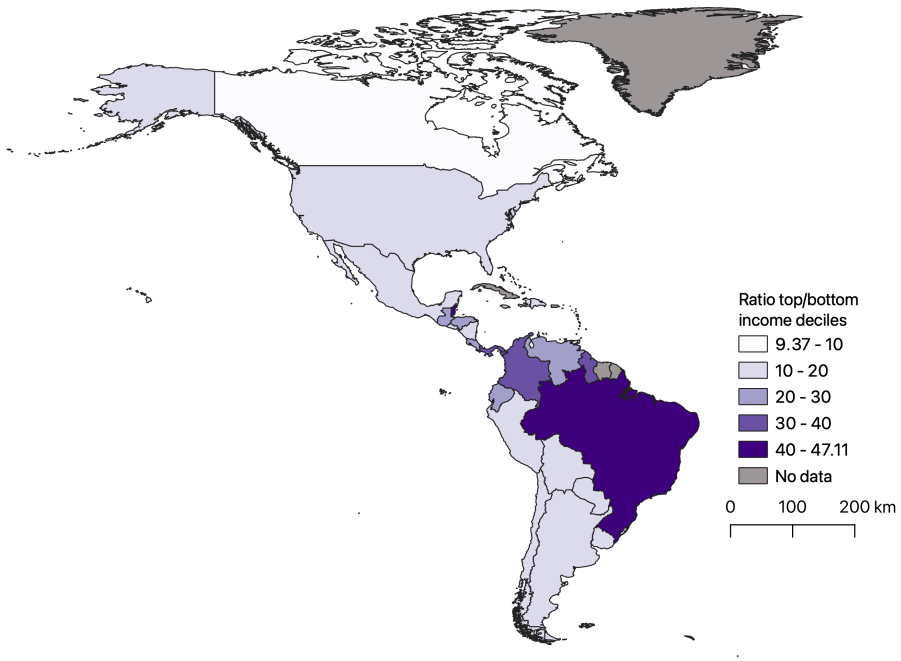
Dependent variable: Gini coefficient				
	(1)	(2)	(3)	(4)
Settlement indicator	0.0112	0.00444	0.0113	0.00601
	(0.0115)	(0.0116)	(0.0119)	(0.0114)
Observations	200	200	200	200
R-squared	0.005	0.186	0.048	0.200
Controls:				
Geography	X	✓	X	✓
Historic	X	X	✓	✓

Robust standard errors clustered at the 1872 census boundaries in parenthesis. *** p<0.01, ** p<0.05, * p<0.1. All columns report the results from OLS regressions. Geographic controls are (distance to the capital, latitude, longitude, elevation, and indicators for different types of soil). Historic controls are (presence of railway, share of foreigners, share of slaves, share of literate population, share of children attending school, population density, total number of workers in public administration and legal professions relative to total population, share of workers in agriculture, manufacturing, services, and retail computed over total number of occupied workers) all measured in 1872. All variables are computed according to the 1920 census boundaries. Data is from Ferraz et al. (2020).

Appendix

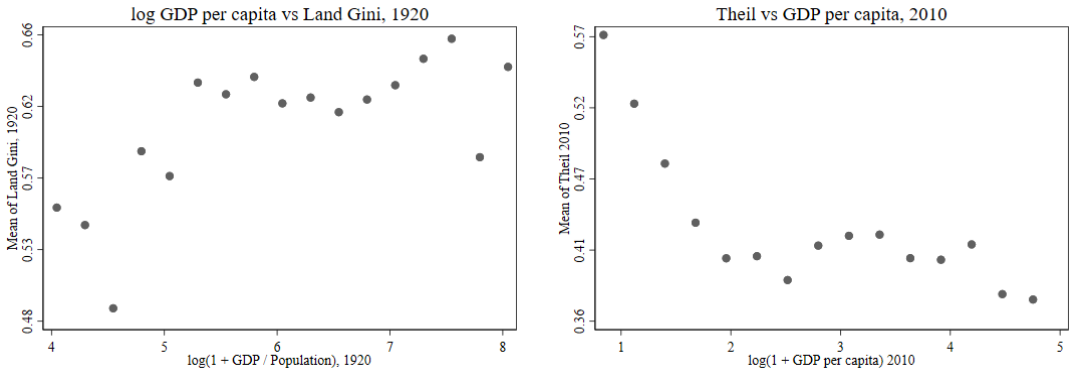
A Figures

Figure A1: Income Inequality — Income of the top 10%



Notes: Data source is the World Bank DataBank.

Figure A2: Correlation between Income and Inequality in Brazil (1920 and 2010)



(a) 1920 **(b) 2010**

Notes: Data source is Laudares and Valencia Caicedo (2023).