African Slavery and the Reckoning of Brazil

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Abstract

More enslaved Africans disembarked in Brazil than in any other country in the New World. Using new archival data (over 12,000 observations), we analyze the consequences of the slave trade. We build the first real wages and inequality series covering more than three centuries (1574 to 1920) in Brazil and find that these were initially on a similar level to Europe, but as the slave trade increased, wages decreased, and inequality increased. Real wages for unskilled workers became among the lowest in the world, and only recovered with the end of the slave trade. We use slave trade prohibition shocks (1808, 1831, and 1850) to estimate the causal effect of ending slave imports on wages and inequality. The first prohibition led to an average increase of 24% in unskilled wages and a decrease of 25% in wage inequality, while later prohibitions led to even larger wage increases. We propose a mechanism suggesting that the slave trade affected long-run development through a labor market supply channel.

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Keywords: comparative development, inequality, slave trade, colonial Brazil, frontier settlement, synthetic control methods.

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1 Introduction

Over twelve million people were forcibly taken from Africa to the Americas over the four centuries of the Atlantic slave trade. More enslaved Africans disembarked in Brazil than in any other country in the New World.[1] In this paper, we use new long-run historical real wage data to analyze the consequences of the slave trade for the first time.[2] Using archival data (over 12,000 observations), we establish real wages series for skilled and unskilled workers in Brazil extending more than three centuries: 1574 to 1920. We focus on Bahia, a major slaving port in the Americas, which was the heart of Brazil's early settlement and is still one of Brazil's most important states today.

We document that Bahia's unskilled real wages were initially among the highest in world, being comparable to the European average and above those in the Americas, Africa, and Asia. However, coincident with the increase in the slave trade, unskilled real wages in Bahia declined, becoming some of the world's lowest. Over the same period, wage inequality increased. Unskilled wages and wage inequality only improved during the nineteenth century, when the slave trade died down. To show that this relationship is causal, we use slave trade prohibition shocks to estimate the effect of halting slave imports on unskilled wages and wage inequality in Bahia, using the synthetic difference-in-differences method (Arkhangelsky et al., 2021). We find that slave trade prohibition shocks had a large and significant positive effect on unskilled wages, which were in direct competition with the slaves: there was an average increase of 24% under our baseline specification. At the same time, there was an equally large and significant negative effect on wage inequality as measured by the skill premium (the ratio of the wages of skilled workers relative to unskilled ones), with an average 25% decrease in inequality.

[1] Estimates point to 12.5 million embarkations in Africa and 10.6 disembarkations in the Americas (Slave Voyages, 2023c). Considering only documented voyages, there were approximately 8.4 million slaves taken from Africa to the Americas: Brazil received 3.2 million, compared with 520,000 taken to the Spanish Empire mainland, 4.4 million taken to the Caribbean as a whole, and 300,000 to mainland North America (Slave Voyages, 2023b). Even considering the intra-American slave trade, the disparity remains high: Brazil received 85,0000 slaves in this trade, the Spanish Empire mainland 172,000, the Caribbean 205,000, and mainland North America 130,000 (Slave Voyages, 2023a).

[2] Previous studies have documented the negative effects of the slave trade in Africa (Nunn & Wantchekon, 2011). In turn, long-run real wages have been used to study, for example, the Industrial Revolution (Clark, 2005) and the income divergence in historical Europe (Allen, 2001), as well as more contemporary topics (Ashenfelter, 2012).

We construct real wages for Bahia using a new, hand-collected dataset of more than 12,000 observations of prices and wages from various primary and secondary sources.[3] We then use information from other studies with available real wages to build global comparisons. We find that unskilled real wages started high but fell with the upsurge in the slave trade, only beginning to increase again in the nineteenth century, following the abolition of the slave trade. The pattern we find is consistent with the reversal of fortune hypothesis (Acemoglu et al., 2001, 2002). In addition, we are able to describe the timing of the reversal. Unskilled real wages start off in the late sixteenth-century as comparable to those in Europe, and the highest in the Americas, Asia, and Africa. However, they became some of the lowest in the world by the eighteenth century. Skilled real wages were initially also high, but then converge and fall behind European levels. As a consequence, the wage inequality was initially low, with unskilled workers receiving two times or less than skilled workers. Wage inequality doubled with the discovery of gold in the eighteenth century, and the related increase in the slave imports, only converging back following the slave trade prohibition shocks.

Our results contrast with some of the previous literature on the historical development of Brazil.[4] Despite its large size and historical importance, Brazil is usually left out of real wage international comparisons.[5] Existing studies, using only partial and indirect evidence, suggest slow or even negative income growth in nineteenth-century Brazil.[6] Instead, we find that during most of that century, real wages for unskilled workers increased moderately, while those for skilled workers stagnated.

Our results contribute to the literature documenting the negative effects of the slave trade in Africa (Nunn & Wantchekon, 2011), while also relating to research that explains differential development paths based on high initial slave dependence and in-

[3]Our sources include historical account books of longstanding firms and century-old institutions like the charitable Holy House of Mercy (*Santa Casa de Misericórdia*). These account books describe revenues and expenses, including daily wage bills and the market prices of various foodstuffs and non-foodstuffs.

[4]For an overall review of Brazil during the colonial and post-independence periods, see Alden (1984), Russell-Wood (1984), and Bértola and Ocampo (2012). Schwartz (1985) examines in detail the history of the sugar economy and plantation society in Bahia over three centuries.

[5]Studies of historical wages in the American continent include Haber (1997) and Lindert and Williamson (2013, 2016a, 2016b), among others.

[6]These include Leff (1973), Engerman and Sokoloff (1997), and Maddison (2006). By contrast, Summerhill (2003, 2005) argues that given the development of railroads, slow or negative growth during that century is hard to believe.

equality.[7] Engerman and Sokoloff (1997, 2012) argue that among former New World colonies, a nation's past dependence on slave labor mattered for its subsequent economic development through a path-dependent effect, meaning that large-scale plantation slavery caused high economic inequality. This was disputed by Nunn (2008), who found that while slavery was detrimental to economic development, there is no evidence that large-scale plantation slavery was more harmful to growth than other forms of slavery, or that slavery's adverse effect on development happened because of its effect on initial economic inequality.[8] Using a new approach, we find that high initial inequality was not present in Brazil and that the slave trade is correlated with lower levels of development. To illustrate, in Figure 1 we pool our Bahia real wage data with a cross-section of studies with comparable real wages for the Americas and look at how many enslaved Africans disembarked in these places. It shows a strong, negative correlation between slaves disembarked and real wages.

To investigate whether the relationship between wages and the slave trade is causal, we use slave trade prohibition shocks to show that slave imports are causally connected to the level of unskilled wages and, consequently, to wage inequality. We explore as treatments the 1807 Slave Trade Acts of the British Empire and of the United States, for which enforcement began in 1808. These acts were followed by the 1831 and 1850 slave trade prohibition laws in Brazil, which were passed under British pressure. In all prohibition dates we find a sizable negative shock to the number of enslaved Africans arriving at the Bahia port, showing that the shock was unanticipated. These prohibitions, because they are being pushed by the British due to exogenous factors relative to Brazil (Bethell, 1970), are unlikely to be correlated to other factors that are also driving wages in Bahia.

[7] Evidence from multiple contexts shows the negative effects of coerced labor (Acemoglu & Wolitzky, 2011; Geloso et al., 2023). Historical case studies for contexts different from Brazil include Jamaica and the US South. For Jamaica, Burnard et al. (2019) finds low standards of living for its enslaved population and the free unskilled population that competed with slave labor. While Hornbeck and Naidu (2014) argue that some areas with a large formerly enslaved population create a "low-wage economy" in the US South and that unexpected black out-migration then creates the conditions for investment in agricultural technology and development.

[8] The argument about high initial inequality was also disputed by Abad (2013) in the context of Spanish Latin America.

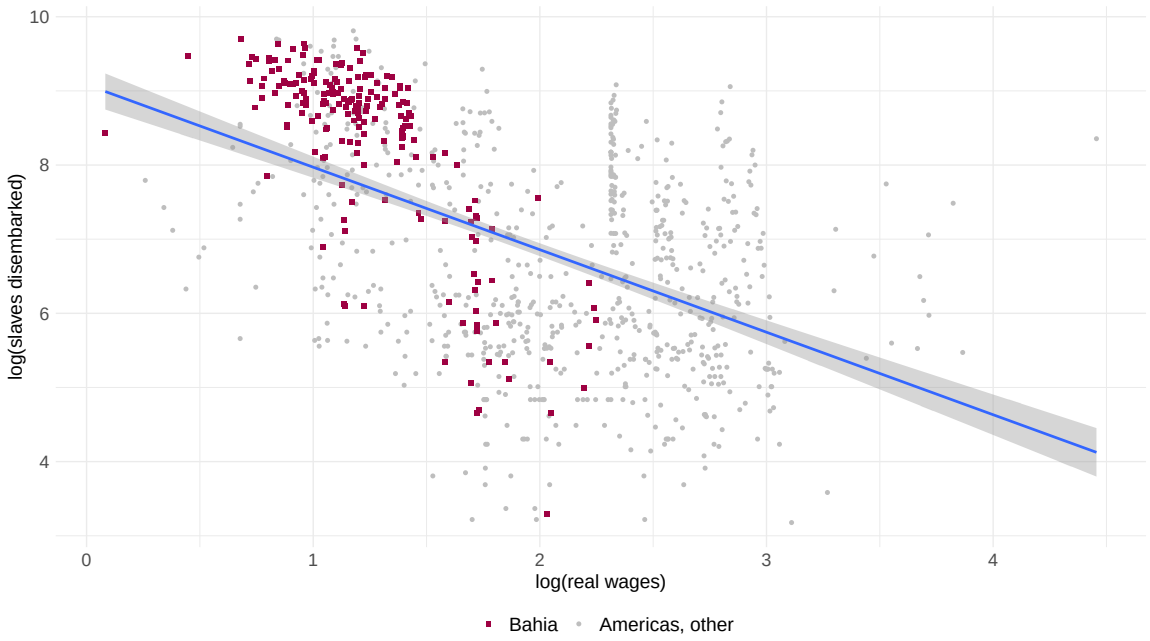

Figure 1: Slaves disembarked and real wages in the Americas

Sources: See Section 2 for real wages in Bahia, Section 3 for real wages in the other places, and Slave Voyages (2023b) for disembarked slaves.
Notes: Each observation corresponds to a place-year with an annual real wage matched to the total number of slave disembarkations in that year. We aggregate places for which we have real wages to match them to corresponding specific regions of disembarkation in the Slave Voyages (2023b) database. "America, other" does not include any observations from other regions of Brazil. We only include observations that had one or more disembarked slave in that year. The correlation is robust to including places with zero disembarked slaves and is driven by wages rather than by prices.

We then use the slave trade prohibition shocks as policy changes with the synthetic difference-in-differences (SDID) method. The SDID builds on the strengths of the synthetic control and the difference-in-differences approaches, combining unit and time fixed effects with unit and time weights (Arkhangelsky et al., 2021). The units are Bahia and other places across the globe for which we could find comparable wages in the period. The double-weighting process gives a few highly desirable properties, the main being that if only one of the weighting approaches is effective, the treatment parameter is free from the bias associated with the systematic component composed of the time and unit fixed effects. Still, there would be a problem if the idiosyncratic component associated with the error matrix is confounded with the treatment assignment. We show that it is not the case that other potential idiosyncratic drivers

of wages, such as the increase in agricultural exports and general equilibrium effects arising from factor reallocation from the Northeast to the Southeast in the nineteenth century, are correlated with the slave trade prohibition shocks.

We find that the first prohibition led to an average 24% increase in unskilled wages and a similar decrease in wage inequality. Later shocks led to even larger increases in wages: 40% in 1831 and 55% in 1850 but with no further decrease in inequality. Our results are robust to placebo tests randomly backdating the tests and to changing the donor pool for the controls in many ways. Since the slave trade prohibition shocks negatively affect the number of enslaved Africans arriving at Bahia, and unskilled workers were in direct competition with enslaved Africans for jobs, our interpretation is that the positive effect of the shocks on wages operates through a labor market supply channel. Prohibition shocks decrease unskilled labor supply and thus increase wages. Enslaved Africans were in direct competition with unskilled free workers for two main reasons. The first is that the enslaved population could have a "wage slave" arrangement (*escravo de ganho*) with their master. In this arrangement, which existed in some form in all slave societies but was especially common in Bahia, the enslaved person could take on any job that they could find, only to pay back a stipulated amount to their master every week (Reis, 1997a). The second reason is that slave masters could rent out their slaves in bulk for large tasks, such as in the construction sector, directly undercutting the bargaining power of individual wage earners (Mattoso, 1992).[9] Additionally, there was an equilibrium effect whereby the labor supply provided by slaves distort the market, indirectly pushing down the wages of free workers.[10] Finally, we exclude two alternative mechanisms that could affect labor supply associated with the increase in unskilled wages that we observe.[11]

[9]The slave trade also continuously increased the number of new entrants in the unskilled free labor market: enslaved persons could self-purchase their manumission, a relatively common event in nineteenth-century Bahia, as a direct consequence of the "wage slave" regime; there were many slave runaways who would look for jobs in the free market; and there was a great deal of racial mixing and Brazilian-born blacks. See Findlay (1975), Schwartz (1992), Nishida (1993), and Parés (2011).

[10]For evidence that the labor demand curve is downward sloping, see Borjas (2003).

[11]We rule out the role of potential out-migration from the city and the increase in European free immigration during the nineteenth century. We show that these two alternative mechanisms are not correlated with our preferred mechanism.

2 Wages and inequality in Bahia, 1574–1920

We provide the historical background about Bahia in Section 2.1, then in Section 2.2 we explain how to build prices and wages series to arrive at internationally comparable real wages for skilled and unskilled workers, including a detailed description of the primary sources and how we built our final dataset. In Section 2.3, we conclude with the series for skilled and unskilled workers combining new hand-collected archival data with information available in secondary sources to build the first-ever three-and-a-half century price and wage series for Brazil. Our dataset includes more than 13,000 observations for wages and prices (12,164 from the archives and 947 from secondary sources), and pertains to the cities of *Salvador*, *São Francisco do Conde*, and *Ilhéus*. The data covers from fist settlement until the twentieth century (1574 to 1920).[12]

2.1 Historical background

Bahia was the region where the Portuguese first settled and made contact with natives in 1500. At the entrance of a large bay lays the city of *São Salvador da Bahia de Todos os Santos*, today simply known as Salvador. It was Brazil's first capital, founded in 1549. Further inward the All Saints Bay, is the city of São Francisco do Conde, home to some of the leading earliest sugar mills in Brazil. The city of Salvador was Brazil's most populous until the nineteenth century, with an estimated 51,000 people in 1807 (Morse, 1974; Alden, 1984).[13] It was the seat of the colonial government since 1549, and in addition to the governor-general, by the early seventeenth century the city had a bishop and a high court (Boxer, 1952, p. 18). Following around two decades of conflict with the indigenous population, the settlement gradually expanded around the bay, with many fully functioning sugar mills by the 1570s (Schwartz, 1985). In 1614, the settled area still did not extend for more than 30 kilometers, but it gradually expanded over the following decades (Boxer, 1952, p. 18). Salvador remained Brazil's capital until 1763, when it was replaced by Rio de Janeiro. By contrast, nearby São Francisco do Conde was a smaller city. In 1659, it had a population of more

[12]The first year we were able to get reliable information on market-set prices and wages was 1574, and we stopped in 1920 because it was the year of Brazil's first census that reported income levels (there was an earlier demographic census in 1872 that did not report income). From the early twentieth century, there exist credible national accounting studies (Haddad, 1974).

[13]This was the case even though narrative sources suggest that Olinda, the former capital of the Captaincy of Pernambuco during the colonial era (but now part of Recife), was richer (Mauro, 1997).

than 2,700 and 14 sugar mills (Mattoso, 1992, p.73). We additionally collect some complementary data from Ilhéus, located more than 200 kilometers to the south.

According to one contemporary estimate, there were 180 sugar mills in Brazil in 1584, producing around 1,000 metric tonnes per year; 36 of these mills were located in Bahia (Boxer, 1952, p. 179). These figures grew considerably over the following decades, and there were 40 mills in Bahia by 1628, along with technical improvements in the method of grinding the cane (Boxer, 1952, p. 180). As late as the mid-seventeenth century, sugar produced in Brazil was the world's best in quality and quantity (Boxer, 1952, p. 179). In addition to sugar, Bahia was a great producer of tobacco, cassava, and cattle (Barickman, 1998). Tobacco in particular was central to the slave trade, Bahia was responsible for over 90% of the country's production and much of it was traded for slaves in West Africa's "Mina Coast," which is from where the majority of the enslaved population was taken to Bahia (Alden, 1984; Schwartz, 1985).[14] Bahia was not central to the gold rush, which took place in neighboring Minas Gerais, but it did also have some gold production and had pathways that connected the Salvador port to the mines and to other cattle regions of the Northeast (Baerlocher et al., 2023).

2.2 Building internationally comparable real wages

The primary sources Price and wage data collection in new world economies is a major challenge because there are not many century-old institutions with record keeping like in Europe, such as universities, monasteries, hospitals, charities, and royal administrations, which can also provide market values of goods and services. One of the oldest institutions in Brazil is the Holy House of Mercy of Bahia (*Santa Casa de Misericórdia da Bahia*), established in Salvador in 1549, which functioned as a church, charity, orphanage, and hospital.[15] The Holy House is the only institution still in existence in Bahia that can provide continuous information since the seventeenth century. We use account and receipts books from the Holy House since the first book

[14]The Mina Coast was the combination of the Gold Coast and the Slave Coast (or Bight of Benin), corresponding to present-day Ghana, Togo, Benin, and Nigeria. After the Mina Coast, Angola was the place that sent the most number of slaves to Bahia (see, for example, Miller (1996) for the history of the trade with Angola).

[15]The Holy House in Salvador is almost as old as the first Holy House created in Lisbon in 1498, which was the model that was followed by those who created it in Brazil.

we were able to find (1647) up to 1920.[16] In the Franciscan archive in Recife, we were also able to find the account books of the *São Francisco* Convent in Salvador, which is a novel addition to the literature. The account book covers 1790 to 1820.

For the earlier centuries we take advantage of documentation available at the *Torre do Tombo* National Archive in Lisbon. There we find the post-mortem inventory documents of Mem de Sá (1504–1572), third Governor-General of Brazil, which was the first owner of the sugar mill *Sergipe do Conde* in *São Francisco do Conde* and *Sant'Ana* in *Ilhéus*.[17] Later, the sugar mill changed hands to the Jesuits. In the Torre do Tombo we also find account records spanning the years 1611 to 1742 that have survived from the Sergipe do Conde sugar mill, largely recognized in the literature as the most complete sugar mill account documentation from Brazil.[18]

We complete this data with post-mortem inventories from Salvador and São Francisco do Conde found in the State Public Archive of Bahia. We restricted our selection to inventories from the eighteenth century because that is the earliest period available at the archive, while data for the nineteenth century was already available from other sources.[19] All archival sources are detailed in Appendix B and in Appendix C where we show some sample images of manuscripts from the archives.

The subsistence bare-bones price basket To construct the price series, we gather annual information on a "bare-bones" basket of goods. The bare-bones basket was first proposed in Allen et al. (2011) as a practical solution to the "index number problem." We want to compare the change in aggregate welfare of a representative family between two points in time and between two places in relation to a basket of goods. In our period, many transactions with different prices are taking place, changing the aggregate basket price. In theory, comparing the income in the two periods to the price index should show the change in welfare. There are then two

[16]We thank Rosana Souza and staff at the Santa Casa archives in Salvador for the support.

[17]Some documents related to Mem de Sá were transcribed in Instituto do Açúcar e do Álcool (1963).

[18]This is also the difference of our dataset from earlier works that used the São Francisco do Conde account books such as Schwartz (1985). We use the complete set of manuscripts, combining the account book already transcribed in Instituto do Açúcar e do Álcool (1956) with newly transcribed manuscripts, making this also a novel addition to the literature, so it is not necessary to use these authors as secondary sources.

[19]We selected the inventories based on a mix of early availability at the archives and a random 10% sample. In all, we were able to find some data points between 1700 and 1793. Note that the post-mortem inventories that we reference in Appendix B are the ones that we found these data points, but that we have read *many* more.

problems, however. One is choosing whether we are fixing the basket in the initial or the final period, and the other which actual goods we are including in the basket, if we want to compare two different places.

We want to compare workers in Brazil to workers in Europe, for example, but the food available in each place was widely different. While people in Brazil consumed manioc flour and beans, those in Europe consumed oats, wheat bread, butter, cheese, beer, and wine. To build the index, in theory, the same products should be available in both places so the worker can choose to consume the first bundle when presented with Brazilian prices and the second bundle when presented with European prices. People in Brazil, however, did not have access to the European basket at local prices, so comparing living standards in both continents is not trivial. One solution is to use the most basic substitutes in the basket. In Brazil, for example, the most basic substitute for oats is cassava flour. We use the most basic food items in quantities with the amount of calories and proteins necessary for daily survival and also add a necessary bundle of non-foodstuffs that is approximately the same everywhere: cloth, soap, fuel (firewood), candles, and lamp oil.[20]

The bare-bones solution represents an empirical approach to the theoretical ideal because we are choosing the most basic items that are necessary for subsistence, thus the worker's choice is already tangential to the indifference curve. The Brazilian bare-bones basket can then be considered the Laspeyres index and the European basket the Paasche index. Allen et al. (2011) compare Chinese and European baskets (and also China and Japan) in local prices and an average of the two, which gives the Fisher index, and find there is not much of a difference between the three indexes. This result, they argue, gives us the confidence to work just with an equivalent of the Laspeyres index, since a fixed subsistence basket of goods gives many intuitive interpretations. The bare-bones approach has since been adopted in the literature.[21]

We adapt the bare-bones foodstuffs to Brazilian standards following Mattoso (1986, 1992), who documents in detail the historical consumption patterns in Bahia.[22] Mattoso (1992) finds that a family of five had an annual consumption of 870 kilos

[20]The bare-bones basket contrasts with a basket with more variety known as the "respectability basket" (Allen, 2001; Allen et al., 2011; Allen et al., 2012).

[21]See, for example, Allen et al. (2012), Abad et al. (2012), Frankema and van Waijenburg (2012), Lindert and Williamson (2013), Rönnbäck (2014), Challú and Gómez-Galvarriato (2015), Geloso (2019), Palma and Reis (2019), Burnard et al. (2019), and Kumon (2022).

[22]The need to adapt baskets to local consumption patterns is well established in the literature (Allen, 2017, 2020).

of cassava flour, 156 kilos of beans, and 156 kilos of meat.[23] We re-balance these amounts and set the annual consumption of one adult to 120 kilos of cassava flour, 70 kilos of beans, and 70 kilos of meat. This translates to approximately the same amount of daily calories and proteins as the standard in the Europe, United States, Mexico, Peru, Bolivia, and Colombia, with proteins slightly below Argentina and Chile and above West Africa. Table 1 shows a summary of the bare-bones basket for Bahia in comparative perspective.

Table 1: Bahia's bare-bones baskets in global perspective

Good (per person per year)	Bahia, Brazil	Europe	USA	Mexico, Peru Bolivia, Colombia	Argentina Chile	South China, Japan	North China	West Africa
Cassava flour (kg)	120	-	-	-	-	-	-	-
Meat (kg)	70	5	5	35	105	3	3	3
Beans/peas (kg)	70		20	45		20	20	-
Wheat/oats (kg)	-	155	-	-	132	-	-	-
Maize (kg)	-	-	165	165	-	-	-	185
Sorghum (kg)	-	-	-	-	-	-	179	-
Butter (kg)	-	3	3	-	-	-	-	-
Rice (kg)	-	-	-	-	-	171	-	-
Oil (kg)	-	-	-	-	-	3	-	3
Soap (kg)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Linen/cotton (m)	3	3	3	3	3	3	3	0
Candles (kg)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Lamp oil (l)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Fuel (M BTU)	3	3	2	3	3	3	3	2
Total daily calories	1926	1936	1936	1943	1938	1939	1942	1939
Total daily protein	58	60	60	60	89	63	71	43

Sources: For Bahia, foodstuffs adapted from Mattoso (1992); for Europe, Allen et al. (2011); for South America Abad et al. (2012); for the United States Allen et al. (2012), for Asia Allen et al. (2011); and for Africa Frankema and van Waijenburg (2012). See Appendix A for conversion metrics and further details.

Occupations and wages We collect daily wages for six types of occupations in the construction sector: carpenters, masons, master-carpenters, master-masons, and free and enslaved unskilled workers. The unskilled workers were called *serventes* which we translate to "helpers." The choice of these construction sector occupations is typical in this literature because it is a type of work that change little between countries, enabling a comparative analysis. These occupations are also the most largely available for extended periods of time, since first settlement as is the case of Bahia. They also

[23]The earliest histories of Brazil mention cassava (also known as manioc) as the main staple which substituted for bread, e.g. Gândavo (2004, p. 63).

represent a large share of the urban labor market: artisans made up on average 28% of the workers in Salvador around the middle of the nineteenth century (Nascimento, 2021).[24]

In addition to masons, carpenters, and unskilled workers, which are the most common series in the literature, we also collect wages for master masons, master carpenters, and enslaved workers. These three additional occupations give a better context of the Brazilian labor market at the time. While blacks and mulattos were allowed to be masons, carpenters, and of course helpers, they where barred by the guilds to become masters (Flexor, 2008). Including masters gives us a group that was certainly composed by all whites.[25] For helpers, free and enslaved, we were able to collect data for males and females. In this period, there were no female carpenters or masons found in the primary sources or in the literature.

The daily wages are always market wages and do not include in-kind transfers. To build annual series we assume a labor year with 250 working days, as it is standard in the literature.[26] We use annual wages only in the comparative analysis in Section 3, where for all the other places we are also assuming 250 working days, so none of the results depend on this assumption. In the analysis of the slave trade prohibition shocks, in Section 4, we use daily wages for all places including Bahia.

Real wages Using the price of the annual bare-bones basket for an adult individual, we deflate the nominal annual wage series to arrive at the real wage series. Table 2 shows some descriptive statistics for our eight occupational categories. Looking at male carpenters, masons, and free unskilled workers, which is what the literature focuses on and what we need to use to have comparable data, we have almost 2,000 observations for carpenters and more than 2,500 observations for masons and unskilled workers each. White master carpenters and master masons represent a clear upper bound on the real wage, while female unskilled workers represent the lower bound, but not by a large margin compared with male unskilled workers. Carpenters and masons are in between, earning on average almost two times the unskilled worker.

[24] Depending on the parish and census year, the share of artisans varied from 18% to 36%.

[25] It is not possible to directly recover race from the archival manuscripts. If the worker is black, race is occasionally mentioned.

[26] Mattoso (1992) shows that discounting holidays and one resting day per week, the 250-day assumption is realistic for the Brazilian case.

Table 2: Individual-level annual real wages by occupation and group

Occupation	Gender	Group	Median	Mean	Std. Dev.	N
Master carpenter	male	free white	10.424	12.499	5.654	134
Master mason	male	free white	7.237	8.325	2.056	302
Carpenter	male	free black, mulatto or white	5.600	5.635	2.185	1938
Mason	male	free black, mulatto or white	5.600	5.933	2.013	2628
Unskilled	male	enslaved black or mulatto	3.083	3.029	0.220	1241
Unskilled	male	free black, mulatto or white	2.833	2.908	0.544	2564
Unskilled	female	enslaved black or mulatto	2.466	2.419	0.171	942
Unskilled	female	free black, mulatto or white	1.962	2.036	0.368	674

Notes: Annual real wages are calculated using daily wage rates multiplied by 250 working days and divided by the cost of an individual annual bare-bones consumption basket. Groups are constructed based on race and legal status (free or enslaved).

The final dataset To build the final dataset we combine the primary sources with data from Mattoso (1986) and Alden (1990).[27] Their source is mainly the Holy House in Salvador. Mattoso (1973) explains that she arrived at the annual prices and wages by taking averages of the available observations for a given year. While there is no explanation in Alden (1990) of how he constructed the series, we suspect that he also calculates the average for each year because that was the most common method at the time. Neither author discloses how many observations they have per year and we suspect that they have used some type of sampling. In contrast, our dataset builds on all manuscripts available for each year sourced at the Holy House. We only use their data in the years we do not have any observations from our primary sources.

To build our annual series we take the median of the price and wage observations in each year. We use the median because it is more representative of the price on might encounter in the market and less prone to outliers influencing the annual series than the average. Our results are robust to taking the average of the observations.[28] After we have an observation for each product-year and occupation-year we interpolate the missing years.[29] We show in the Appendix D Figure D.1 to Figure D.4 the collapsed

[27]We thank William Abitbol at Sorbonne's *Bibliothèque Serpente* for providing us with a copy of Mattoso's doctoral thesis (Mattoso, 1986) and Eustáquio Reis for pointing us to this source. The thesis was later consolidated in Mattoso (1992). The data collection was explained and the series partially explored first in Mattoso (1973, 1978). From Mattoso (1986) we use data on cassava flour, beans, meat, lamp oil, carpenters, masons, free helpers, master carpenters, and master masons. From Alden (1990) we use data on cassava flour and meat.

[28]See Table D.1 in the Appendix D.

[29]See Tables D.2 and D.3 in the Appendix D for coverage rates by product and occupation.

annual data points and interpolated series for both prices and wages.[30]

2.3 Real wages and wage inequality

We now describe our main results for real wages and wage inequality in Bahia. Figure 2 shows real wages for skilled and unskilled workers and wage inequality between male skilled and unskilled workers.[31] We find that real wages were well above subsistence from first settlement until the beginning of the eighteenth century.[32]

Real wages in Bahia then trended down over time, even reaching subsistence for brief periods in the case of unskilled male and female workers in the early eighteenth century, though remaining well above it for skilled workers. Real wages for skilled workers show a temporary rise during the gold boom era during the eighteenth century.[33] After the gold boom peak, real wages temporarily plateaued and then began to quickly fall again, similar to the macroeconomic performance of European Portugal (Palma & Reis, 2019).[34] This fall continued into the early decades of the nineteenth century, before a period of slow but sustained improvement began, particularly for unskilled workers. Wage inequality thus resembles the mirror image of unskilled real wages: it starts relatively low, reaches its peak in the first half of the eighteenth century, and then steadily declines throughout the nineteenth century.

[30]Since we are effectively combining two cities, Salvador and São Francisco do Conde, in the Appendix E.1 we show that the prices and wages of the two cities are on a comparable level when they overlap or even when there is a time gap between the series of the two cities. Furthermore, to have an idea if our results can be potentially generalized to other cities in Bahia in the Appendix E.2 we compare some prices in São Francisco do Conde with Ilhéus, which was the most important port south of the province, finding that prices were on a comparable level.

[31]In this figure, skilled workers correspond to carpenters. In the Appendix F, Figure F.1, we show real wages for the remaining groups. The results are similar if masons are used instead. Note that throughout the analysis we do not use the wages of master masons or master carpenters, for whom the real wage levels would be higher, but correspond to a smaller whites-only group. In Figure F.2 we measure the real wage in working days instead, following Allen and Weisdorf (2011).

[32]Research for other frontier societies also suggests that early settlers chose the most productive locations to initially settle (Cilliers et al., 2023). Schwartz (1973) classifies the Brazilian sugar mill (*engenho*) as a "frontier institution."

[33]This is consistent with Brazilian historiography that shows a massive increase in demand for skilled workers in the mining regions, increasing their wages in all other regions (Boxer, 1969). There was much migration from Portugal to Brazil during the eighteenth century gold boom, and again in the nineteenth century (Palma et al., 2020).

[34]Large quantities of gold were found in Minas Gerais, far away from Bahia; but as they generated much internal and external migration in the context of the ensuring gold rush, this affected the labor market back in Bahia. As elsewhere in Latin America, precious mineral resources enabled the geographic expansion of the empire and shaped political institutions, labor regimes, the fiscal apparatus, economic activity, and population density (Abad & Palma, 2021; Baerlocher et al., 2023).

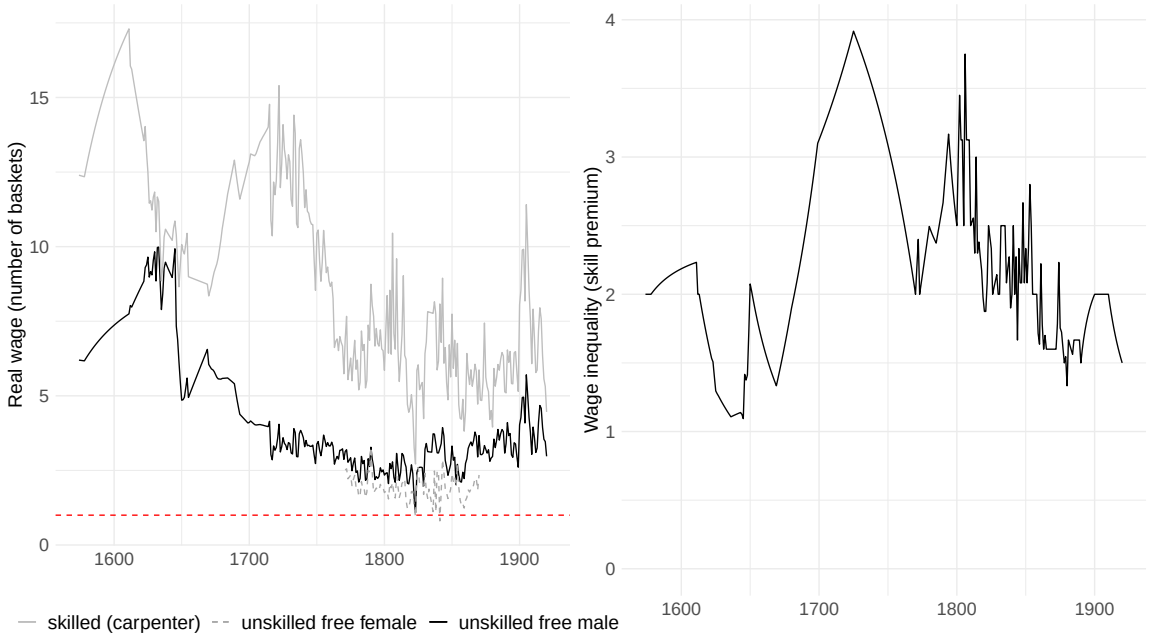

Figure 2: Real wages (left) and wage inequality (right), 1574–1920

Sources: ANTT (1574–1740), ASCMB (1648–1920), APF (1790–1820), APEB (1700–1793), Mattoso (1986), and Alden (1990). See Section 2.2 and Appendix B for details on the sources.
Notes: In the left panel, real wages are measured in annual subsistence baskets. The horizontal dashed line is equal to one basket. A real wage equal to one or more means an individual worker can provide at least bare-bones subsistence. In the right panel, wage inequality is measure by the skill premium which is simply the wage of the skilled worker divided by the wage of the unskilled worker.

The high real wages observed for wage-earners in the first few decades of our period are surely related to the scarcity of labor, which was a recurring complaint and concern of colonists.[35] This also resulted from the Crown's efforts, in alliance with the Jesuits, to prevent natives from being enslaved in order to reduce the risk of revolts (Mauro, 1997, pp. 203–4). Boxer (1952, p. 26) points out that in addition to not taking kindly to routine labor, Brazilian natives died in great numbers due the unsanitary conditions combined with low resistance to the epidemics introduced by Europeans. As a result, bringing enslaved Africans was seen as fundamental and would fundamentally change the long-run development path. In the next section, we relate the results in this section to real wages and wage inequality across the globe

[35]Some of the earliest published works about Brazil were motivated to encourage immigration there (Gândavo, 2004).

and their relationship with the slave trade.

3 Bahia's wages and slave trade in global perspective

We now compare Bahia's real wages and wage inequality with those from several places across the globe. The baskets are comparable across regions, as they correspond to similar quantities of goods and foodstuffs which match protein and caloric content, as shown in Table 1. In Figure 3, we show Bahia compared with various places in almost all continents.[36] The important general trend to highlight is that, with the exception of Europe, Bahia tends to be the place with the highest real wages until the middle of the seventeenth century, even in comparison with North America. In the same period, Bahia is comparable to the European average, with real wages higher than many places, including Lisbon, Strasbourg, and Valencia, but lower than Amsterdam and London, for example. After the second half of the seventeenth century, real wages in Bahia enter in a long period of decline, becoming one of the world's lowest in the eighteenth century. Bahia's real wage then partially recovers in the nineteenth century, ending the period still as one of the lowest but higher than in some places in Latin America and Asia.

[36] In Appendix G, we breakdown this figure and show Bahia's annual series compared with each place individually.

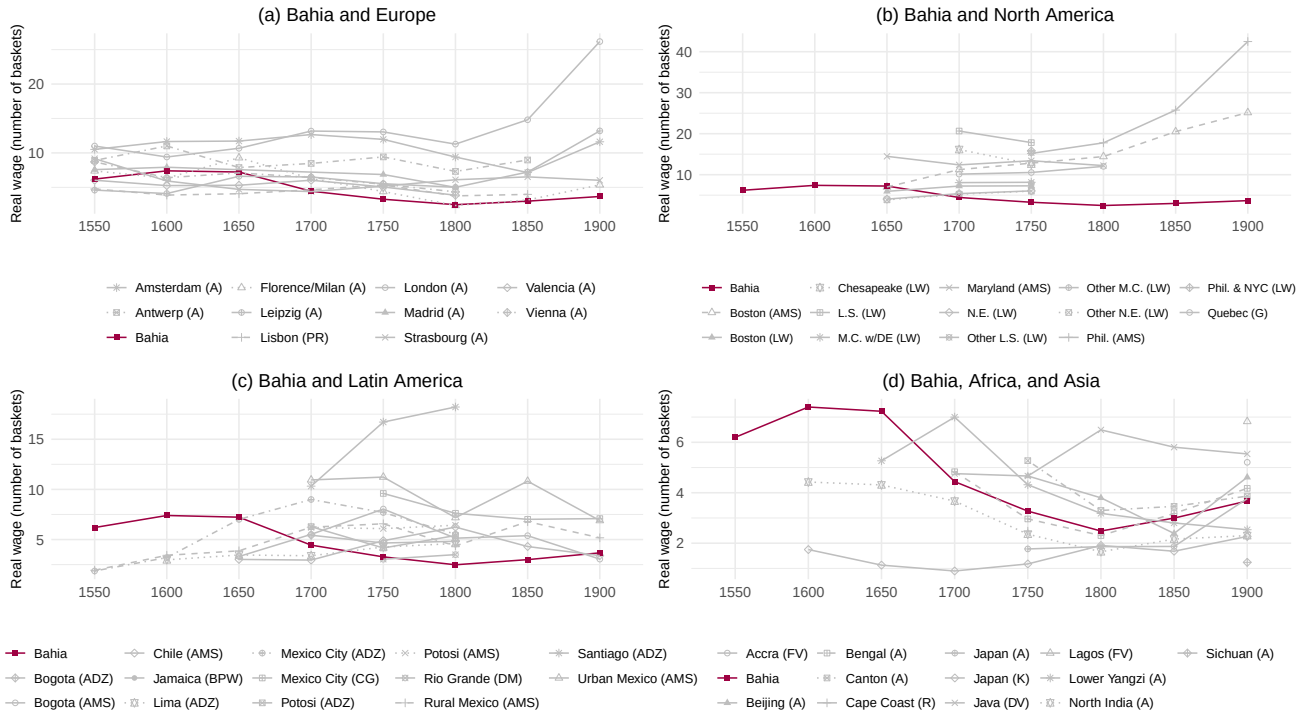

Figure 3: Unskilled real wages for Bahia compared with places in Europe, North America, Latin America, Africa, and Asia

Sources: Bahia: ANTT (1574–1740), ASCMB (1648–1920), APF (1790–1820), APEB (1700–1793), Mattoso (1986), and Alden (1990); see Section 2.2 and Appendix B for details on the sources. (A): Allen (2001) and Allen et al. (2011); (ADZ): Abad et al. (2012); (AMS): Allen et al. (2012); (BPW): Burnard et al. (2019); (CG): Challú and Gómez-Galvarriato (2015); (DM): Djenderedjian and Martirén (2020); (DV): de Zwart and van Zanden (2015); (FV): Frankema and van Waijenburg (2012); (G): Geloso (2019); (K): Kumon (2022); (LW): Lindert and Williamson (2013, 2016a); (PR): Palma and Reis (2019); (R): Rönnbäck (2014). (A) and (AMS) updated in Allen (2023).
Notes: The observations correspond to fifty-year averages around the dates shown in the figure. Real wages are measured in annual subsistence baskets and are for comparable unskilled workers. L.S.: Lower South; M.C.: Middle Colonies; N.E.: New England.

In Figure 4, we turn to skilled workers and wage inequality.[37] Again, the most important general trend to highlight is that Bahia's skilled real wages is among the highest in the world at least until the beginning of the seventeenth century. It then steadily declines until the nineteenth century when it stabilizes, ending as the world's lowest. As a result, wage inequality was not particularly high at first settlement, and even declines in the seventeenth century, but in the eighteenth century it skyrockets to become the world's highest. Wage inequality then declines in the nineteenth century ending the period in the higher bunch.

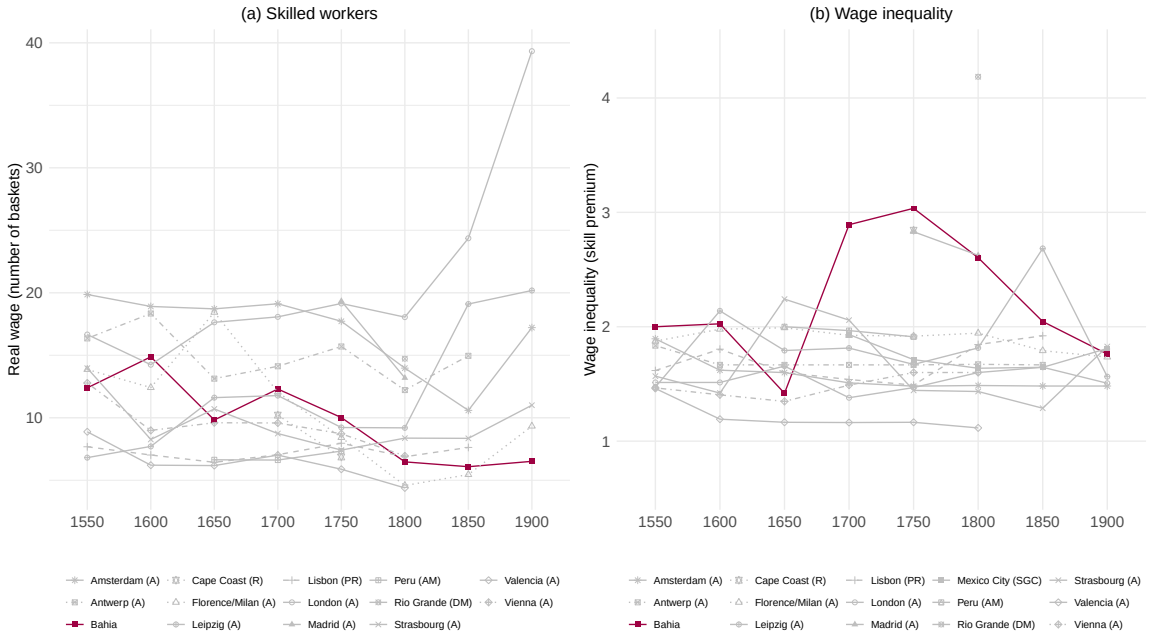

Figure 4: Skilled real wages and wage inequality for Bahia compared with places in Europe, Latin America, and Africa

Sources: Bahia: ANTT (1574–1740), ASCMB (1648–1920), APF (1790–1820), APEB (1700–1793), Mattoso (1986), and Alden (1990); see Section 2.2 and Appendix B for details on the sources. (A): Allen (2001) and Allen et al. (2011) updated in Allen (2023); (AM): Abad and Noel (2020); (DM): Djenderedjian and Martirén (2020); (PR): Palma and Reis (2019); (R): Rönnbäck (2014); (SGC): Solares et al. (2023).

Notes: The observations correspond to fifty-year averages around the dates shown in the figure. Real wages are measured in annual subsistence baskets and are for comparable skilled workers. Wage inequality is measured as the skill premium (the skilled wage divided by the unskilled wage).

[37] In Appendix G, we show skilled real wages separately by place.

What could explain these general trends in real wages? In Figure 5, we plot in panel (a) the number of slaves disembarked in various regions of the Americas for which we have shown real wages.[38] Bahia was by far the region where most slaves disembarked, only comparable to Jamaica.[39] In panel (b), we overlay Bahia's slave trade series and real wage series for unskilled workers, which were in direct competition with the enslaved and newly freed populations. The inverse correlation is striking. As soon as the slave trade increases, the real wage starts to fall. In fact, the height of the slave trade coincides with period with the lowest real wage. Real wages only start to improve when the slave trade dies down. In the next section we argue that this correlation is likely a causal relationship.

[38] While it would be interesting to include Cuba, which is also known to have participated heavily in the slave trade, we are not aware of real wage data for it in the nineteenth century or before. But the information that exists for the twentieth century suggests that Cuba became a prosperous middle-income economy after the end of slavery, and by the 1920s had an income per capita level which approached that of Western Europe and the US South (Ward & Devereux, 2012).

[39] It is interesting to note that for the only year that we have a real wage observation for Jamaica it is at the same level as in Bahia (see Figure G.6 in the Appendix G).

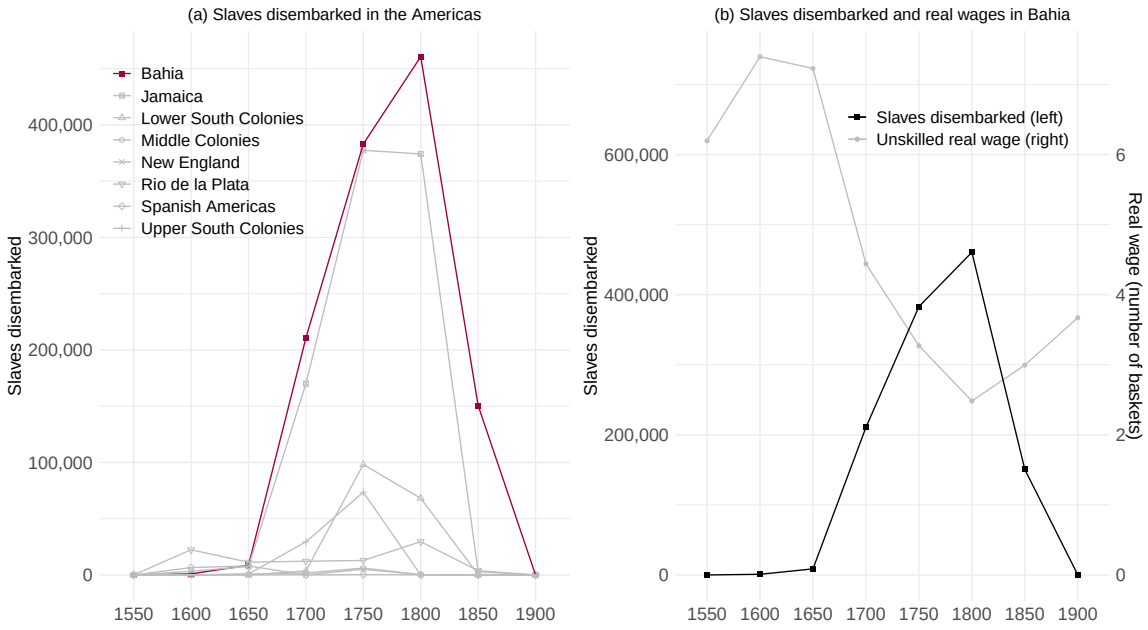

Figure 5: The slave trade and real wages

Sources: Slaves disembarked: Slave Voyages (2023b). Real wages in Bahia: ANTT (1574–1740), ASCMB (1648–1920), APF (1790–1820), APEB (1700–1793), Mattoso (1986), and Alden (1990); see Section 2.2 and Appendix B for details on the sources.
Notes: The observations correspond to fifty-year averages around the dates shown in the figure. In the left panel, we aggregate places for which we have real wages to match them to corresponding specific regions of disembarkation in the Slave Voyages (2023b) database. In the right panel, real wages are measured in annual subsistence baskets.

4 The effects of slave trade prohibition shocks

In this section, we present estimates of the causal effect of slave trade prohibition shocks on wages and wage inequality. In Section 4.1, we document the institutional and legal background of the slave trade prohibition laws. In Section 4.2, we discuss our empirical strategy and the estimation sample. In Sections 4.3 and 4.4, we present the main results, placebo tests, and various robustness checks. In Sections 4.5 and 4.6, we discuss our labor supply mechanism and alternative mechanisms.

4.1 The slave trade prohibition laws

In 1807 the British prohibited the slave trade in all of the empire. Following the British empire, the United States declared the prohibition of all slave imports in its territories. The enforcement of such acts entered in effect in 1808. The British Royal Navy established the West Africa Squadron and between 1808 and 1860 seized approximately 1,600 slave ships (Sullivan, 2020). As West Africa was Bahia's main slave trade partner, the British enforcement resulted in the capture of 17 of 32 slave ships in activity in 1810, resulting in the closure of five of the main commercial houses in Salvador (Manchester, 1933). Thus, even as Brazil was not part of the British empire, the British enforcement of the slave trade prohibition dealt a blow to the trade in Bahia. Enforcement was, however, weak and indirect.

The slave trade recovered in Bahia, as slavers were able to reorganize to evade the British prohibition. After much British pressure, Brazil's government passed into law the first slave trade prohibition in 1831 (*Lei Feijó*), which established that all slaves brought into Brazil would be free, a fine to slave traffickers, and a cash reward to anyone that reported trafficking. The law was enforced for a few years but it soon became known only "for the English to see."[40] Finally, with concrete threats by the British that included invading Brazilian ports and seizing any suspect ship in the Atlantic, the slave trade finally ended in 1850 (Bethell, 1970). The 1850 law (*Lei Eusébio de Queirós*) was more incisive than the 1831 law and prohibited any disembarkation of slaves in Brazil, criminalizing anyone who violated the order.

In Table 3, we summarize the enforcement across regions. The history of the slave trade shows that the enforcement of the prohibitions were external to the Brazilian economy, and exogenous to the prior wage dynamics in Bahia. Figure 6 shows quantitatively the effects of these prohibitions in the number of slaves disembarked in the Americas. The 1807 prohibitions were enforced in 1808 in all regions except for Brazil, so we treat it as a "1808 shock". In Bahia, there was a fall in slave trade in the year of the shock but the trade recovered, only to be hit again in 1831, from which it recovered once more, before it finally stopped in 1850.

[40]The expression *para inglês ver* is still commonly used today in Brazil to mean some rule that is not enforced.

Table 3: Enforcement of slave trade prohibitions

1807 prohibitions	1831 prohibition	1850 prohibition
Brazil		
WEAK & INDIRECT	TEMPORARY	YES
Elsewhere		
YES	YES	YES

Notes: Elsewhere includes territories of the British Empire and the United States.

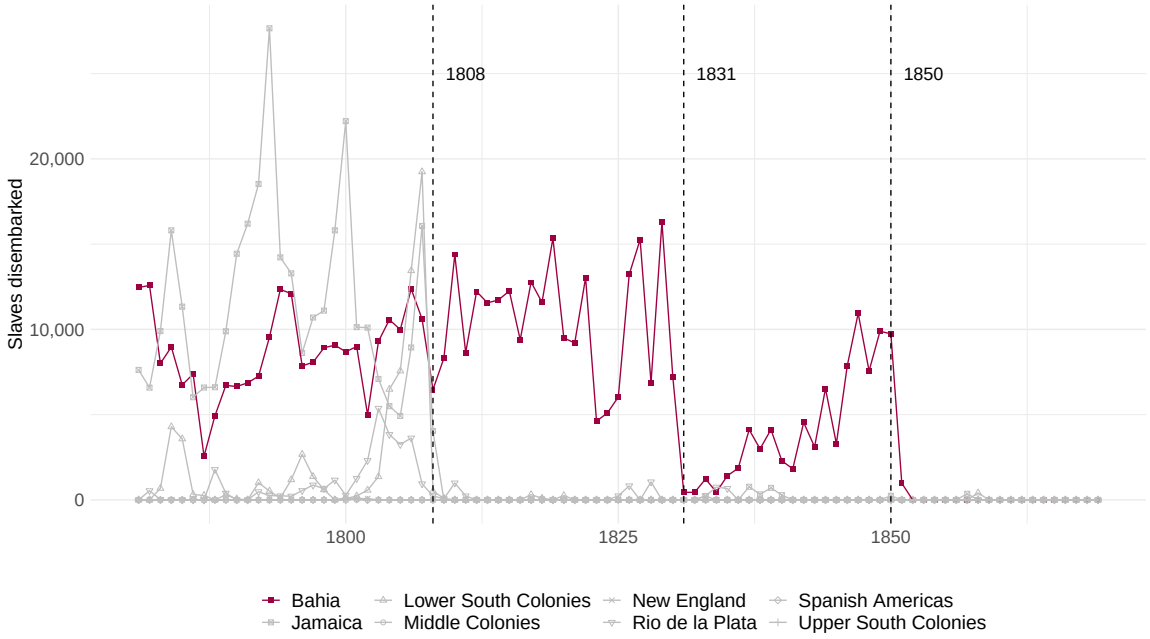

Figure 6: Slave trade prohibition shocks

Source: Slave Voyages (2023b).

Notes: We only consider places for which we have wage data. The first vertical line represents the 1808 British and American prohibition shock, the second line is the 1831 prohibition shock in Brazil, and third line is the final 1850 prohibition shock in Brazil.

4.2 Empirical strategy

In this section, we present the synthetic difference-in-differences (SDID) method used to estimate the treatment effect of the slave trade prohibition shock on wages and

wage inequality. We begin by presenting the assumed data generating process, which is useful for us to discuss the identifying assumptions. Then we present the estimator in its weighted regression form. This facilitates understanding the mapping of the model to the data and how the estimator works in practice, so that the advantages of the double-weighting process become clear.[41] We finish the section with a brief summary of the estimation sample.

The method by Arkhangelsky et al. (2021) assumes the following data generating process:

$$\mathbf{Y} = \mathbf{L} + \mathbf{W}\tau + \mathbf{E}, \tag{1}$$

where, in our setup, $\mathbf{Y}$ is wages or wage inequality, $\mathbf{W}\tau = W_{it}\tau_{it}$ follows a block treatment assignment of the slave trade prohibition shocks in W_{it}, $\mathbf{L}$ is the systematic component or factor matrix, and $\mathbf{E}$ represents the idiosyncratic component or error matrix. It is not required to estimate the true factor matrix $\mathbf{E}$, which can include two-way fixed effects α_i and β_t. The treatment assignment matrix $\mathbf{W}$ is allowed to depend on the systematic component $\mathbf{L}$ but not on the idiosyncratic component $\mathbf{E}$. It is assumed that $\mathbf{E_i}$ is independent of $\mathbf{E'_i}$ for each pair of units $\mathbf{i}, \mathbf{i'}$ but it is allowed to be correlated across time periods within an unit.

We want to estimate the average treatment effect for the treated unit τ, thus a first crucial assumption is that the treatment assignment is not correlated with the idiosyncratic component. Even as we established in Section 4.1 that the slave trade prohibition shocks were likely exogenous and unanticipated, there could be idiosyncratic drivers of wages that are correlated with the slave trade prohibition laws. There were mainly two important events happening in the nineteenth century that could be driving wages in Bahia. First, the slave imports were directed to areas of increasing agricultural exports (Leff, 1973). It could be then that the slave trade prohibition dates are correlated with the increase in exports, especially of sugar and coffee. Absell (2023) documents, however, that the sugar export series for Bahia are not correlated with the dates of the slave trade prohibition shocks. Furthermore, Absell (2020) shows that coffee exports from Bahia were insignificant and that coffee exports in the Southeast were displacing sugar exports in the Northeast as producers exited the market.

[41] The SDID weighted double-differencing estimator is similar to certain specifications of the "augmented synthetic control" in Ben-Michael et al. (2021).

As this shift in the economy took place, the second important event was the factor reallocation from the Northeast to the Southeast that led to the emergence of regional inequality (Leff, 1972). The rise of the Southeast could have led to increasing domestic trade between regions. In that case, a potential increase in internal demand for products from Bahia could have been related to the demand of slaves leading to a correlation with the slave trade prohibition shocks. It is unlikely that this was the case. Until at least well into the twentieth century, the only reasonable trade route between the southeast region and Bahia was by sea. The alternative was to spend many months traveling by horses, mules, and canoes (Nash, 1926). Marcondes (2012) shows that Bahia's domestic trade imports and exports by coastal shipping were relatively low and decreasing, from around 10% to 5% of the total toward the end of the nineteenth century.

We can now interpret Equation (1) as a weighted regression to facilitate our understanding of how the SDID estimator works in practice. Consider a balanced panel with N units, T time periods, and a block assignment treatment W_{it}:

$$(\hat{\tau}, \hat{\mu}, \hat{\alpha}, \hat{\beta}) = \underset{\tau,\mu,\alpha,\beta}{\arg\min} \left\{ \sum_{i=1}^{N} \sum_{t=1}^{T} (Y_{it} - \mu - \alpha_i - \beta_t - W_{it}\tau)^2 \hat{\omega}_i \hat{\lambda}_t \right\} \tag{2}$$

where, in our preferred specification, the outcome Y_{it} takes the form of an index of the unskilled wage or the skill premium between the skilled and the unskilled worker, with the index equal to 100 set to the shock date. The α_i are unit fixed effects, β_t are time fixed effects, and μ is the error.

The SDID estimator finds unit weights $\hat{\omega}$ to make the average outcome for Bahia approximately parallel to the weighted average outcome for the control units. Analogous time weights $\hat{\lambda}$ are found to balance a weighted average of pre-treatment periods outcomes for the control units that predict treatment-period outcomes for the same control units. Since the SDID method takes a data-driven approach to selecting the time weights, it does not need to rely on arbitrary covariates and time periods to adjust the data to support the parallel trends assumption, as is often the case when using difference-in-differences. It also not necessary to perfectly match the pre-treatment outcome of the control group and the treatment, as in the synthetic control method, they only need to be approximately parallel, because the unit fixed effects will absorb any constant differences between units.[42] Finally, standard errors are constructed by

[42]Including unit fixed effects is equivalent to the synthetic control practice of centering the data

a placebo method where placebo evaluations are conducted replacing the treatment unit with each of the control units.[43]

The data for the estimation samples are as follows. For Bahia, we use our wage series for unskilled and skilled workers. For the other places across the globe, the sources are multiple and described in Section 2 and the Appendix G. We use all available places that have wage series for the whole period around the prohibition shocks, excluding places directly affected by the shocks. Thus, we only have to actively exclude Lisbon and London from the control donor pool.[44]

We restrict the sample from 1792 to 1875. We start in 1792 because that gives a reasonable pre-treatment period for the first shock in 1808 and since it is the year of the Haitian revolution; going back even further would include it as relevant shock in the period which is not recommended. We stop in 1875 because that gives 25 years of post-treatment period for the last shock, which is around the upper bound of years that we could reasonably expect a treatment from a policy change. For each prohibition shock we have the similar number of pre- and post-treatment periods as used for instance by Abadie (2021), except for the 1831 prohibition shock that we can start only in 1824 after the independence war.

In the unskilled wage regressions we use as controls Amsterdam, Antwerp, Beijing, Bengal, Bogota, Canton, Chile, Florence/Milan, Japan, Krakow, Leipzig, Lower Yangzi, Madrid, Mexico City, North India, Paris, Rural Mexico, Strasbourg, Urban Mexico, Vienna, and Warsaw. For the wage inequality regressions, we use as controls Amsterdam, Antwerp, Florence/Milan, Leipzig, Madrid, Mexico City, Strasbourg, and Vienna. For these regressions we do not have as much variety because we are restricted by the availability of both skilled and unskilled wages in the period.

4.3 Main results

Figure 7 and Table 4 shows the results for the three slave trade prohibition shocks of estimating Equation (2) with unskilled wages as the outcome. In Figure 7, in the top panel we plot the trends over time for Bahia and the control-weighted average, with triangles indicating time weights, and the arrows indicating the size of the treatment

by subtracting each unit's trajectory from its pre-treatment mean as in Ferman and Pinto (2021).

[43]The algorithm is described in Arkhangelsky et al. (2021). This is somewhat equivalent to the placebo evaluations used in the synthetic control method.

[44]Other places directly affected such as Jamaica and North America do not have available wage series for the period.

effect. We can see that approximate parallel trends hold very well for all prohibition shocks. In the below panel, we show the place-by-place differences in adjusted outcomes with the corresponding control weight. We can see that the algorithm seldomly excludes a place and does not give too much weight on any one place, varying the places with more weights depending on the prohibition period. In Table 4, we show the coefficients and placebo standard errors. The estimates are economically large and statistically significant at the 5% level. The increase in unskilled wages was, on average, on the order of 24% following the 1807 prohibitions, 40% after the 1831 prohibition, and 55% after the 1850 final prohibition.

In the same way, in Figure 8 and Table 5 we show the results for the three slave trade prohibition shocks of estimating Equation (2) with wage inequality as an outcome. Wage inequality is measured by the skill premium, which is the wage of skilled workers divided by the wage of unskilled workers. In this case, Figure 8 shows parallel trends that are somewhat noisy but are still a reasonable approximation for the first two prohibition periods. The period after the 1807 prohibitions shows a clear reduction in wage inequality, while the period after the 1831 shows a noisy trend but with a small increase in wage inequality on average. The last prohibition do not show any effect. In relation to the control weights, again the algorithm does not put much weight in one place only, almost evenly distributing the weights among the controls. In Table 5, we show the estimates and placebo standard errors. The 1807 prohibition led to a 25% reduction in wage inequality and the 1831 then led to a 9% increase, leading to an overall net reduction in wage inequality of 16%. The results are significant at the 10% level. What could explain these trends is that with the first decrease in wage inequality, the unskilled workers already had a large gain relative to the skilled workers, so it is unreasonable to expect that the unskilled workers keep closing that gap because there will always be a skill premium.

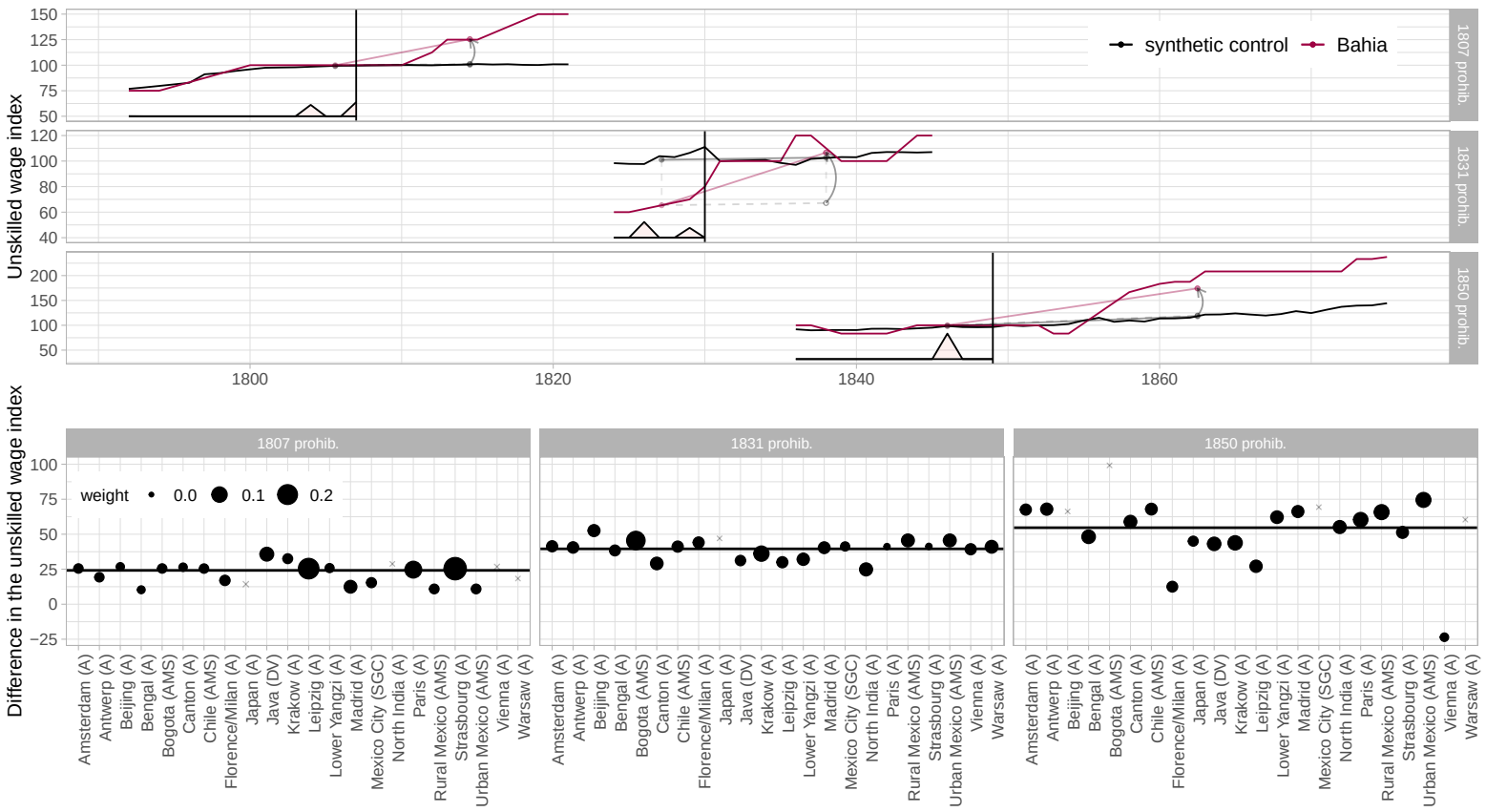

Figure 7: The effects of slave trade prohibition shocks on unskilled wages using synthetic difference-in-differences

Notes: The panel above shows trends in the unskilled wage index over time for Bahia and the weighted average for the controls, with time weights $\hat{\lambda}_t$ used to average the pre-treatment time periods as triangles. The vertical lines represents the prohibition shocks. The arrows indicate the size of the estimated effect. The panel below shows place-by-place differences in adjusted outcomes, with the control weights $\hat{\omega}_i$ indicated by dot size. The weighted average is represented by a horizontal line. Places with zero weight are denoted by an $\times$ symbol.

Table 4: Estimates of the effects of slave trade prohibition shocks on unskilled wages

	1807 prohibition	1831 prohibition	1850 prohibition
SDID coefficient	24.157**	39.546***	54.648**
s.e.	(11.186)	(10.016)	(23.862)
Time FE	Yes	Yes	Yes
Unit FE	Yes	Yes	Yes
N units	23	23	23
T years	30	22	40

Notes: Estimates of the average treatment effect of slave trade prohibition shocks on unskilled wages in Bahia using the synthetic differences-in-differences (SDID) method. Only Bahia is treated in each prohibition period. The control unit and time weights are shown in the accompanying figure. The dependent variable is the annual wage transformed to an index equal to 100 in the year of each prohibition. All estimates include time and unit fixed effects. The number of units and time periods in each estimation are shown in the table. Standard errors are constructed using the placebo method detailed in Arkhangelsky et al. (2021), where placebo evaluations are conducted replacing the treatment unit with each of the control units. $^{*}p < 0.1,^{**} p < 0.05,^{***} p < 0.01$

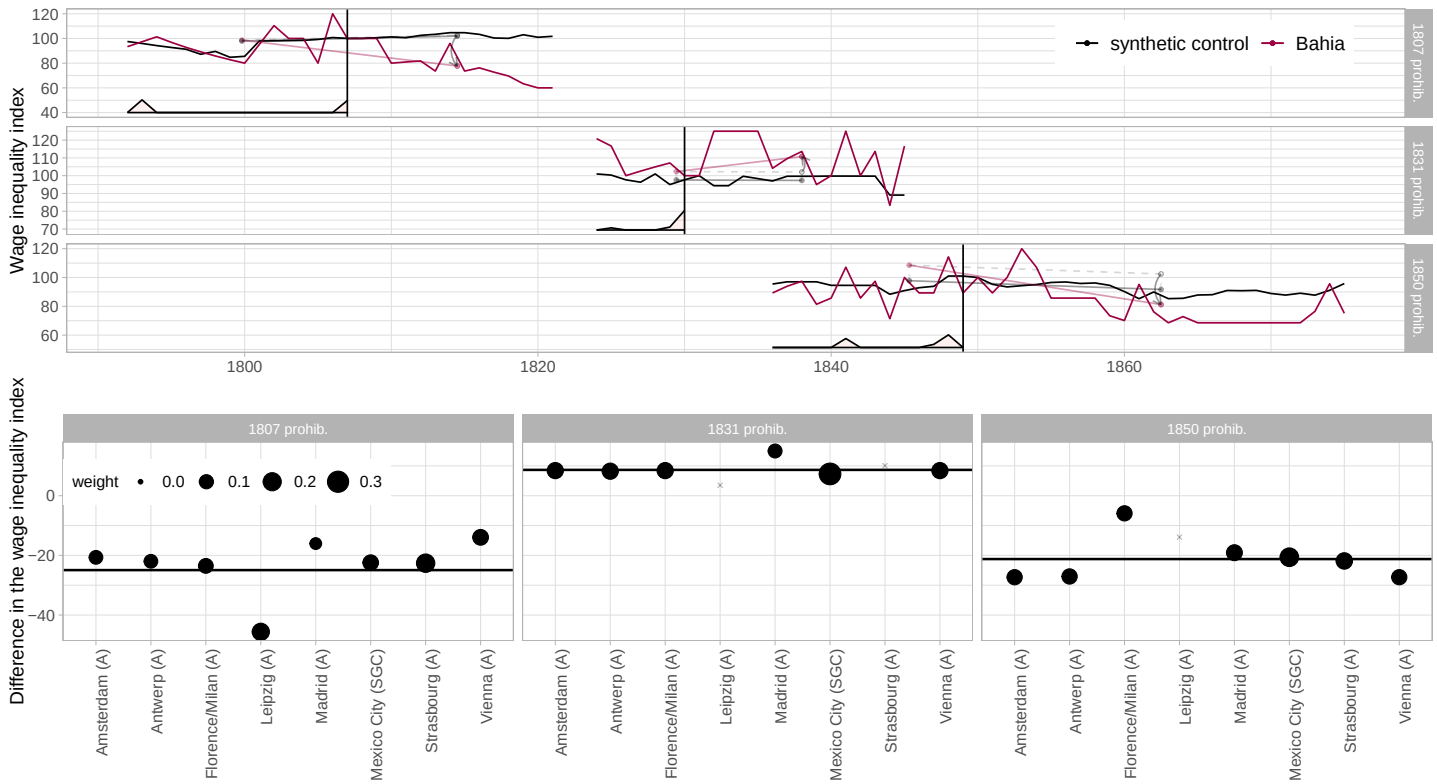

Figure 8: The effects of slave trade prohibition shocks on wage inequality using synthetic difference-in-differences

Notes: The panel above shows trends in the wage inequality (skilled wage/unskilled wage) index over time for Bahia and the weighted average for the controls, with time weights $\hat{\lambda}_t$ used to average the pre-treatment time periods as triangles. The vertical lines represents the prohibition shocks. The arrows indicate the size of the estimated effect. The panel below shows place-by-place differences in adjusted outcomes, with the control weights $\hat{\omega}_i$ indicated by dot size. The weighted average is represented by a horizontal line. Places with zero weight are denoted by an $\times$ symbol.

Table 5: Estimates of the effects of slave trade prohibition shocks on wage inequality

	1807 prohibition	1831 prohibition	1850 prohibition
SDID coefficient	-24.939*	8.659*	-21.236
s.e.	(13.362)	(4.797)	(14.012)
Time FE:	Yes	Yes	Yes
Unit FE:	Yes	Yes	Yes
N units:	9	9	9
T years:	30	22	40

Notes: Estimates of the average treatment effect of slave trade prohibition shocks on wage inequality in Bahia using the synthetic differences-in-differences (SDID) method. Only Bahia is treated in each prohibition period. The control unit and time weights are shown in the accompanying figure. The dependent variable is the skill premium (skilled wage/unskilled wage) transformed to an index equal to 100 in the year of each prohibition. All estimates include time and unit fixed effects. The number of units and time periods in each estimation are shown in the table. Standard errors are constructed using the placebo method detailed in Arkhangelsky et al. (2021), where placebo evaluations are conducted replacing the treatment unit with each of the control units. $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$

4.4 Placebo tests and robustness

First, to further validate our identification strategy we run placebo tests that randomly backdate the prohibition shocks. These tests address the concern that the prohibition shocks are just picking up some generally increasing trend in wages or some other ongoing process associated with increasing wages. The results are presented in Table H.1 in the Appendix H. Reassuringly, all results are robust to the placebo tests.

For the robustness results we apply two types of checks. The first changes how we measure the outcome and the second changes how we compose the donor pool for the controls. To check for robustness in the way we measure our outcomes, we re-estimate our main results with unskilled wages as log wages and wage inequality

as the skill premium level. The results are presented in Tables H.2 and H.3 in the Appendix H. The results remain very similar, except that the estimate of the effect of the 1807 prohibition on log wages becomes statistically insignificant and the estimate of the effect of the 1807 prohibition on the skill premium level becomes statistically significant at the 1% level.

In our main analysis, to choose the donor pool we do not actively pre-screen or engage in any type of selection; we are only constrained by the data availability in the literature. We included all studies we could find that have comparable wages in the period of the prohibition shocks. Still, one could argue we do not have an appropriate donor pool because the control places are too different from Bahia. In addition, one could argue that some places in the donor pool are indirectly affected by the slave trade prohibition shocks, such as Antwerp and Amsterdam that were relevant trading ports in the nineteenth century. We address these issues by changing the control groups in many ways for the estimates using unskilled wages:[45] 1) keeping only places in Latin America, which arguably are more similar to Bahia, and Java, which had a similar economy based on sugar exports; 2) keeping only places with similar levels of real wages during the period of the shocks independent of the continent; 3) a "leave-one-out" approach with all available places. Our results, presented in Tables H.4 to H.6 in the Appendix H, are robust to all donor pool changes.

4.5 Labor supply mechanism

The economic activity described in Section 2.1 made Salvador the main port of the Americas well until the turn of the eighteenth century, and contributed to the creation of a robust urban labor market. A peculiarity of the Brazilian urban labor market was that it was composed of a substantial population of free blacks and mulattos represented in all types of occupations coexisting with an enslaved population characterized by the existence of the "wage slave" and relatively large amounts of manumissions, these being especially common in Salvador.[46] Many slaves did not

[45] For wage inequality we are already quite limited in the number of places for constructing a donor pool, so it is not possible to carry out the same checks.

[46] Alden (1984) documents that whites were only 20% of the population in Bahia around 1810, while free blacks and mulattos amounted to 32%, and enslaved blacks and mulattos were the largest group with 47%. Klein (1969) documents the general patterns of the free black and mulatto population in various parts of Brazil, finding that free blacks and mulattos accounted for 47% of the craft artisans. Klein (2012) surveys manumission patterns in many parts of Brazil, including Bahia, and finds that Africans were over represented among the the self-purchased manumissions.

live with their masters, renting out houses and basements to live with or to marry free persons or other slaves that had the same "wage slave" arrangement with their masters (Reis, 1997b). Another important characteristic of the urban labor market was that slave masters would be able to rent out slaves in bulk for many types of unskilled tasks, which diminished the bargaining power of the free unskilled population.[47] Additionally, the presence of slavery had a equilibrium effect that distorted the labor market, pushing down the wages of free workers.

The slave trade prohibition shocks, as shown in Figure 6, reduced and eventually halted the import of all slaves into Bahia. This broke the mechanism of an ever increasing enslaved unskilled labor supply, diminishing the number of enslaved workers in direct competition with free workers, also increasing the bargaining power of free unskilled workers. These changes in the labor supply then led to a new equilibrium with higher wages. In addition to the historical narrative record, we have three extra pieces of evidence to support this argument.

Table I.1 in the Appendix I confirms the reduction of total slave imports following the periods of each slave trade prohibition shock. In Table I.2 in the Appendix I, we show the free population increasing and the enslaved population decreasing in Salvador according to the three available censuses for our period (1775, 1855, and 1872). In Figure 9 we plot the nominal wage series for unskilled males and females, both free and enslaved, with the prohibition shocks indicated by vertical lines. This figure further confirms our argument by showing that unskilled slave workers disappear from our primary sources following the slave trade prohibition shocks. The figure also shows that the wages of female unskilled workers followed a similar pattern as the male unskilled workers, indicating that we can generalize our results for the total population of unskilled workers.

[47] For example, Graham (2010) documents a case in which slave masters were able to rent out slaves to break a strike in the unskilled meat cutter labor market in Salvador, undermining the demands of the free workers for higher wages.

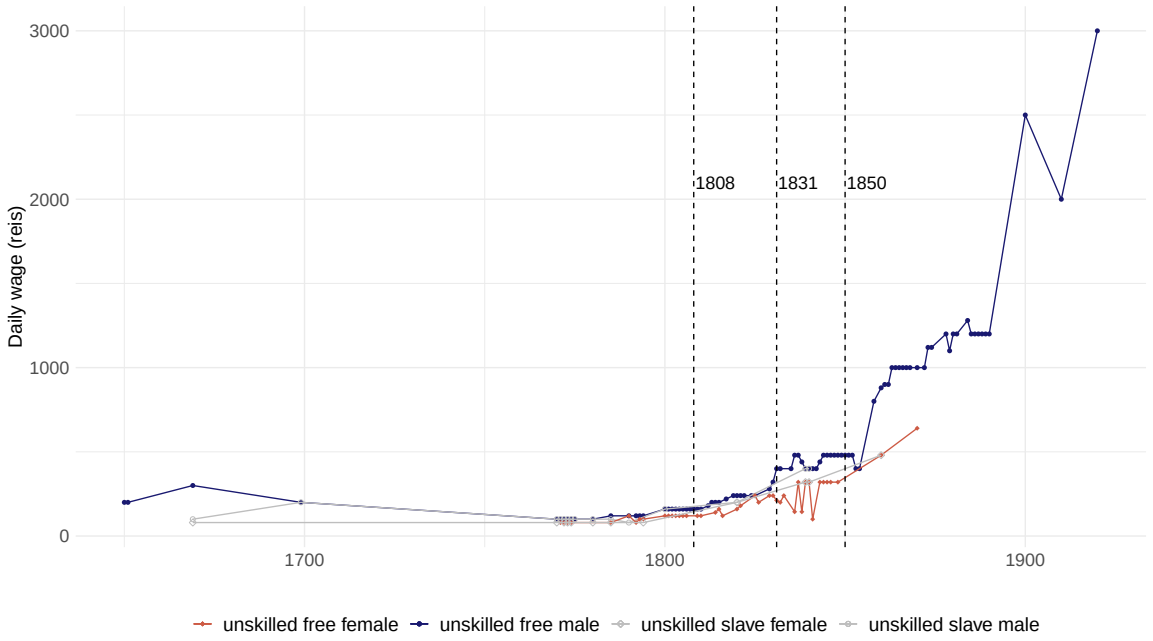

Figure 9: Male and female unskilled wages and slave trade prohibition shocks in Bahia

Source: ANTT (1574–1740), ASCMB (1648–1920), and Mattoso (1986). See Section 2.2 and Appendix B for details on the sources.
Notes: The first vertical line represents the 1808 British and American prohibition shock, the second line is the 1831 prohibition shock in Brazil, and third line is the final 1850 prohibition shock in Brazil.

4.6 Alternative mechanisms

In this section, we show that two other potential mechanisms that could be affecting labor supply are likely not the driver of the change in wages and wage inequality we observe: European free immigration and out-migration from the city.

In the case of European immigration, it could be that the slave trade prohibition shocks coincided with the inflow of Europeans. Potential complementarities between skilled immigration and unskilled natives could then improve unskilled wages. Table I.1 in the Appendix I shows that this is not the case. There was very little European immigration in the period of the slave trade prohibitions. In fact, large flows of immigration start exactly with the end of the slave trade, when the labor market would be less distorted.

In the case of out-migration from the city, the forced migration of enslaved Africans

could have been driving out the native population, causing a shortage of labor supply and increasing unskilled wages. Table I.2 in the Appendix I shows that this is also not the case. The free population in nineteenth-century Salvador was always increasing, thus it seems to be the case that migration to the city was a more dominant force than out-migration.

5 Conclusion

In this paper, we have shown for the first time the consequences of the slave trade for unskilled wages and wage inequality in Brazil. To do so, we built real wage series for various occupations, male and female, free and enslaved, that extend more than three centuries (1574–1920) for Bahia. We documented an association between the import of enslaved Africans and the level of real wages. Unskilled real wages in Bahia start relatively high, but as soon as the slave trade increases, real wages start to decrease. Unskilled real wages only recovered following the progressive end of the slave trade. Using synthetic difference-in-differences, we show that this relationship was plausibly causal; slave trade prohibition shocks led to an increase in unskilled wages. Brazil's reckoning with the slave trade served to improve living standards in the nineteenth century, but came too late to recover lost ground compared with other countries in the Americas and Europe.

Online Appendix

A Weights and measures

Table A.1: Conversions to the metric system

unit	conversion factor	to	source
alqueire	36.27	litro	Mattoso (1992, p. 503)
alqueire beans	29.016	kg	Mattoso (1973, p. 170)
litro beans	0.8	kg	Mattoso (1973, p. 170)
alqueire cassava (I)	23.5	kg	Canabrava (1972, p. 116)
litro cassava (I)	0.65	kg	Canabrava (1972, p. 116)
litro cassava (II)	0.69	kg	Barickman (2003, p. 214)
alqueire cassava (II)	24.99	kg	Barickman (2003, p. 214)
sirio cassava (I)	44.06	kg	Canabrava (1972, p. 116)
sirio cassava (II)	46.86	kg	Barickman (2003, p. 214)
arroba	14.75	kg	Schwartz (1985, p. xxiii)
quintal	58.98	kg	Schwartz (1985, p. xxiii)
moio	2178	litro	Schwartz (1985, p. xxiii)
sirio	1.87	alqueire	Schwartz (1985, p. xxiii)
libra	0.46	kg	Mattoso (1973, p. 170)
pipa	424	litro	Simonsen (1977)
canada	6.85	litro	Mattoso (1973, p. 170)
vara	1.1	m	Schwartz (1985, p. xxiii)
covado	0.66	m	Mattoso (1992, p. 503)
tarefa firewood	106.66	MBTU	conversion based on Miller (1995)
feixe firewood	0.13	MBTU	conversion based on Miller (1995)

Notes: For cassava we found two slightly different measures in the literature, indicated as (I) and (II), so we take a simple average of the two measures.

B Archival sources

Arquivo Nacional da Torre do Tombo (Lisbon)

- Maço 13: n. 19 (PT/TT/AJCJ/CJ013/00019);
- Maço 14: n. 4 (PT/TT/AJCJ/CJ014/00004);
- Maço 17: n. 4, 19, 22, 24, 25, 27, 28, 29, 31, 32, 33 (PT/TT/AJCJ/CJ017/00004; PT/TT/AJCJ/CJ017/00019; PT/TT/AJCJ/CJ017/00022; PT/TT/AJCJ/CJ017/00024; PT/TT/AJCJ/CJ017/00025; PT/TT/AJCJ/CJ017/00027; PT/TT/AJCJ/CJ017/00028; PT/TT/AJCJ/CJ017/00029; PT/TT/AJCJ/CJ017/00031; PT/TT/AJCJ/CJ017/00032; PT/TT/AJCJ/CJ017/00033);
- Maço 30 (PT/TT/AJCJ/CJ030).

Arquivo da Santa Casa de Misericórdia da Bahia (Salvador)

- Account books (1648–1709): 843; 845; 848; 849; 850.
- Receipt folders, various years 1770–1920.

Arquivo Público do Estado da Bahia (Salvador)

- Tribunal da Relação da Bahia, série inventários: 03/1416/1885/02; 07/3148/05; 04/1766/2236/08.

Arquivo Provincial Franciscano do Recife

- Account book Convento de São Francisco (1790–1820).

C Sample images from the archives

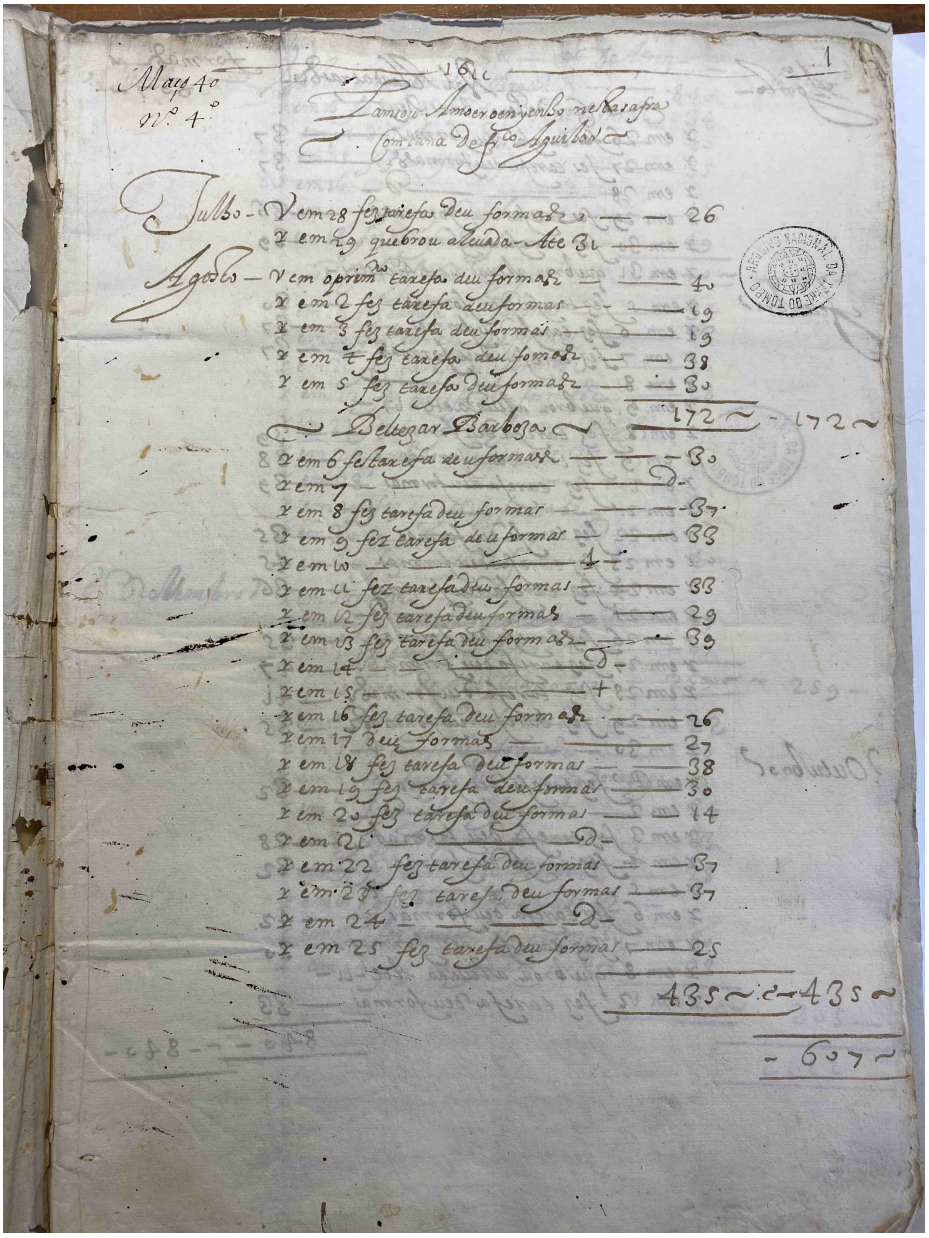

Figure C.1: Sugar mill account book, 1611

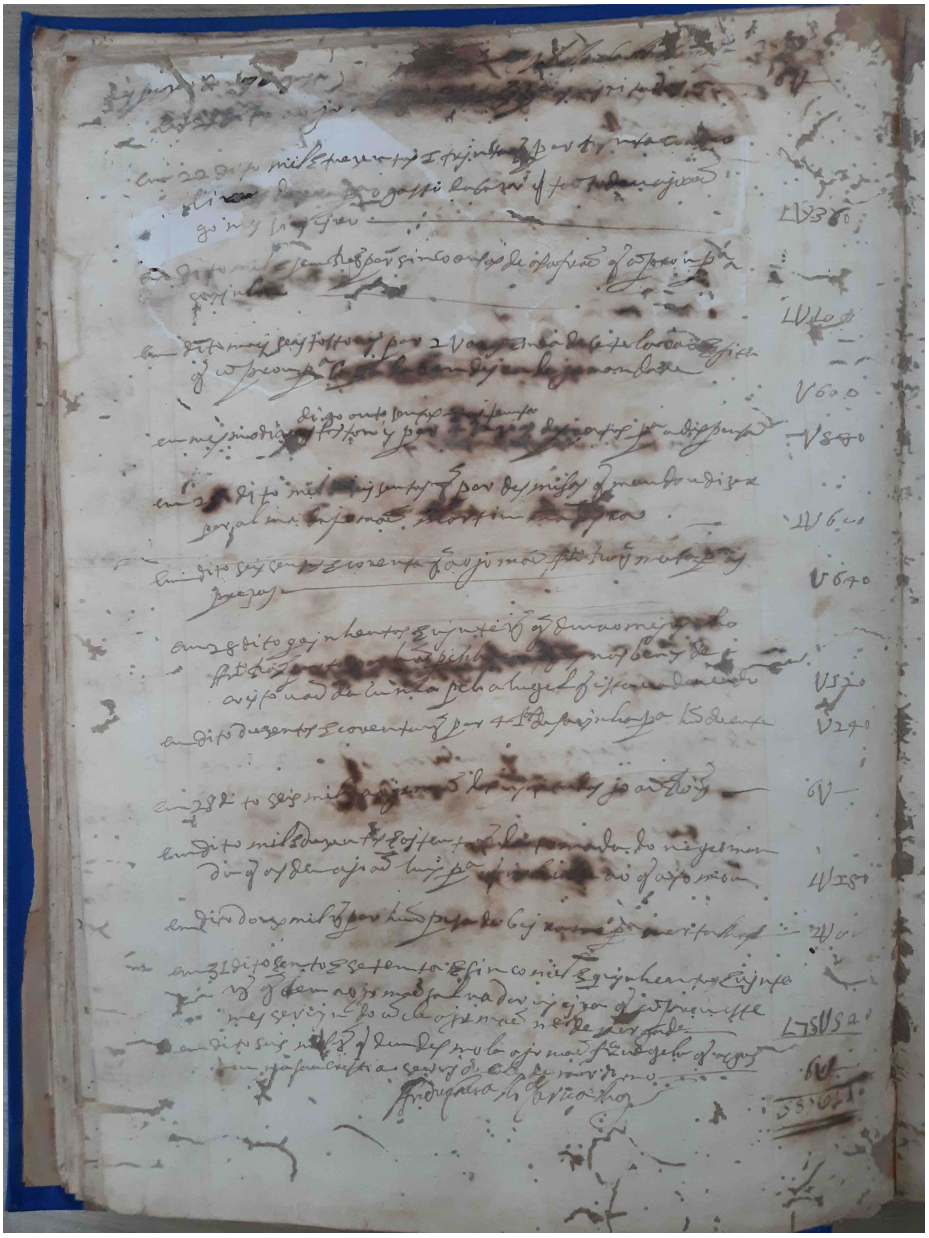

Figure C.2: Holy House account book, 1647

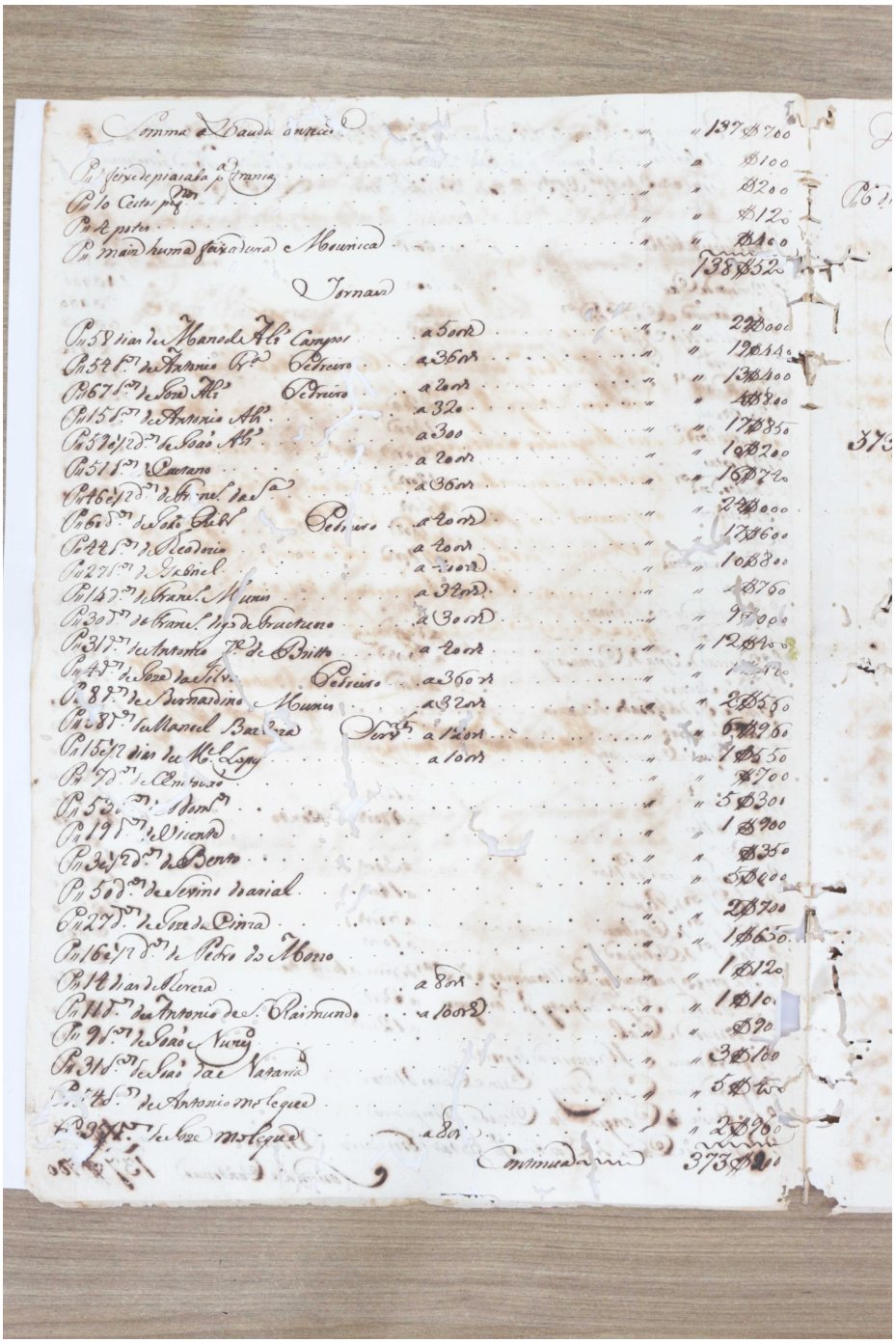

Figure C.3: Holy House account book, 1790

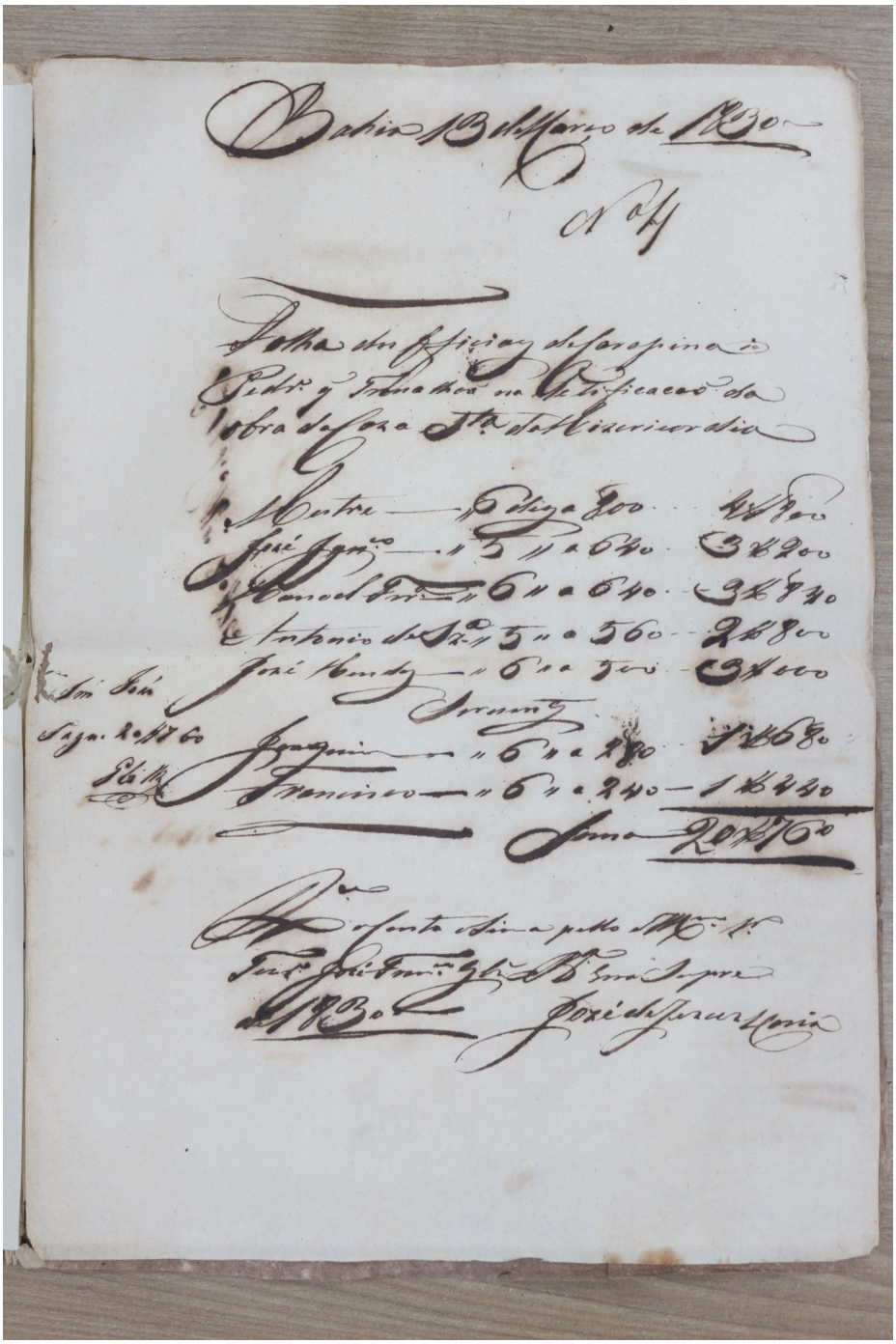

Figure C.4: Holy House receipts, 1830

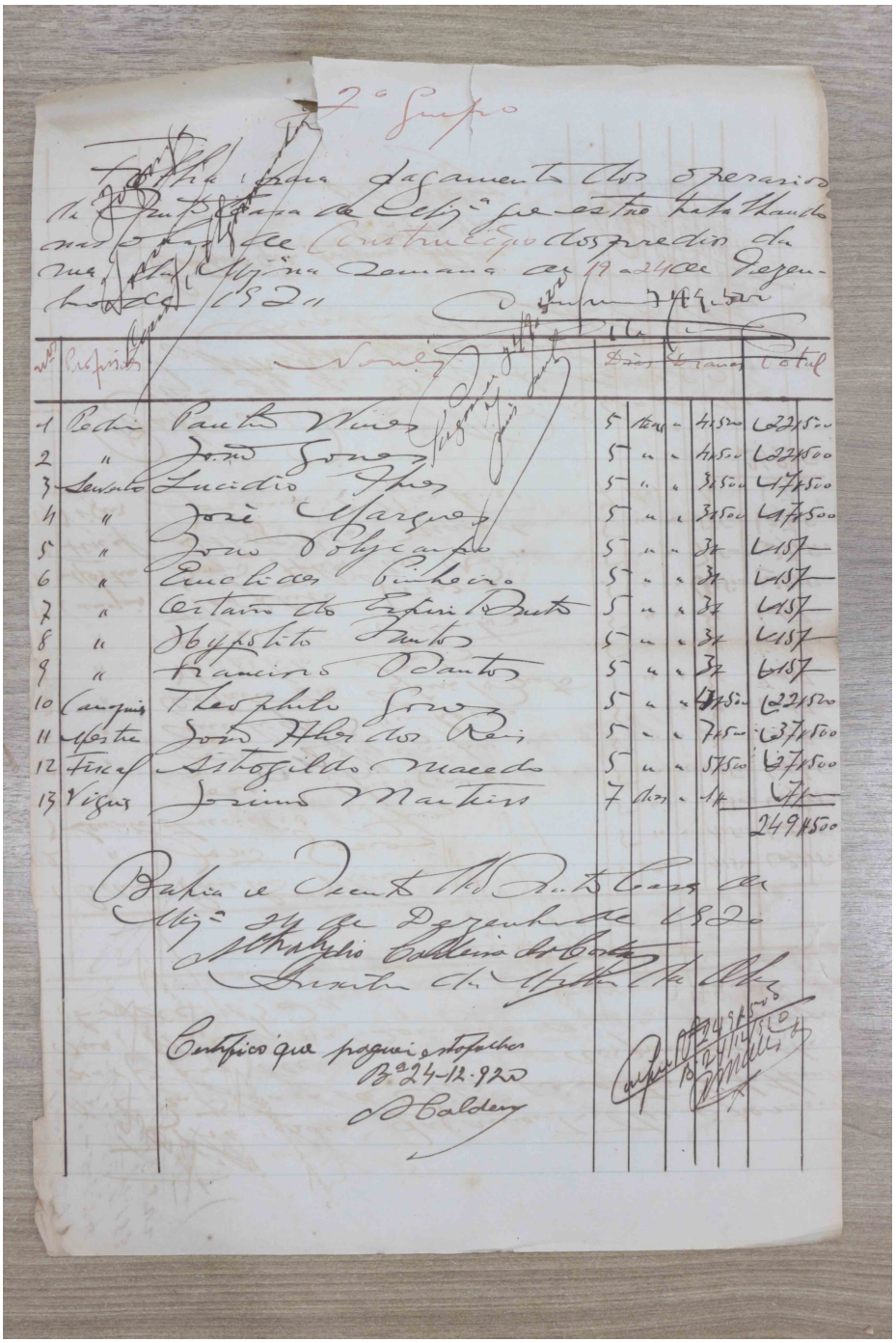

Figure C.5: Holy House receipts, 1920

D The final dataset

We use simple interpolation to build annual series from the annual-level observations. The annual bare-bones basket cost is always adjusted for any missing product. Weights for the missing products are based on Abad et al. (2012). Table D.1 shows the differences in sample means using the average of daily wages or the median of daily wages. The values are very similar and none of the differences are statistically significant. Tables D.2 and D.3 shows the percentage of years covered in each period for prices and daily wages, and in parentheses the number of observations in each period. Figure D.1 shows all price observations where each observation is the median of all prices found in that year. Figure D.2 shows the interpolated series for all the products in the subsistence "bare-bones" basket. Figure D.3 shows all observations for daily wages for all occupations where each observation is the median of all daily wages in that year. Figure D.4 shows the interpolated series for the daily wages for all occupations.

Table D.1: Real wages differences using averages and medians to build aggregate wage time series

Occupation	Mean (avg)	Mean (median)	p-value
Carpenter	3.01	3.01	0.98
Master carpenter	4.37	4.33	0.76
Mason	2.74	2.80	0.44
Master mason	2.40	2.41	0.87
Unskilled free	1.42	1.43	0.84
Unskilled slave	0.95	0.95	0.98

Notes: The "Mean" column reports the mean of two timeseries ('avg' and 'median') over the whole period. The '(avg)' column aggregates individual-level wages to aggregate wage timeseries using the average of all wages, while the '(median)' column uses the median of all wages. p-values are reported for a t-test of difference in means.

Table D.2: Frequency of observations by product. Percent of the period covered, and in parenthesis the number of prices available for each period.

Period	Cassava	Beans	Meat	Nonfood stuffs
1574–1599	19% (6)	0% (0)	0% (0)	19% (10)
1600–1699	34% (256)	13% (27)	8% (38)	41% (383)
1700–1799	89% (409)	50% (125)	85% (303)	63% (219)
1800–1899	90% (391)	89% (287)	88% (575)	35% (239)
1900–1920	100% (21)	100% (25)	100% (67)	10% (4)

Table D.3: Frequency of observations by occupation. Percent of the period covered and in parenthesis the number of wages available for each period.

Period	Carpenter	Master carpenter	Mason	Master mason	Unskilled free	Unskilled slave
1574–1599	19% (5)	19% (5)	19% (5)	0% (0)	0% (0)	0% (0)
1600–1699	26% (57)	24% (39)	24% (43)	0% (0)	10% (12)	2% (3)
1700–1799	6% (40)	5% (26)	12% (403)	12% (159)	12% (511)	9% (126)
1800–1899	75% (1867)	36% (97)	78% (2155)	43% (172)	71% (1992)	4% (1112)
1900–1920	14% (31)	0% (0)	14% (85)	5% (5)	14% (99)	0% (0)

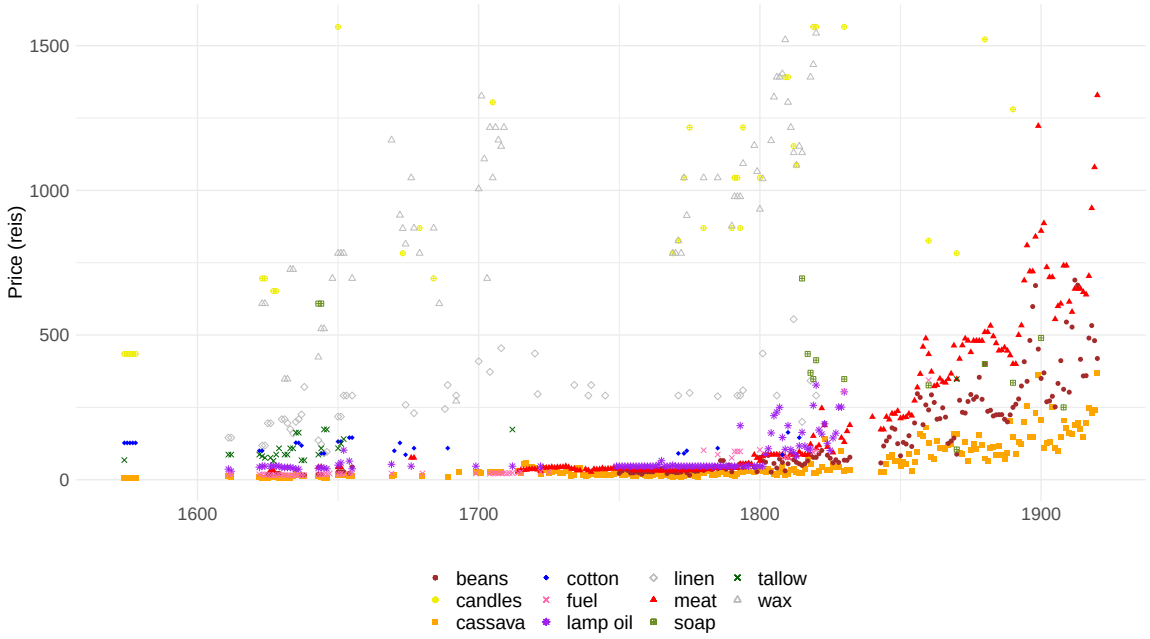

Figure D.1: Price observations for the bare-bones subsistence basket

Sources: ANTT (1574–1740), ASCMB (1648–1920), APF (1790–1820), APEB (1700–1793), Mattoso (1986), and Alden (1990). See Section 2.2 and Appendix B for details on the sources.
Notes: Annual observations for each product are built taking the average of all prices observed in that year for each product.

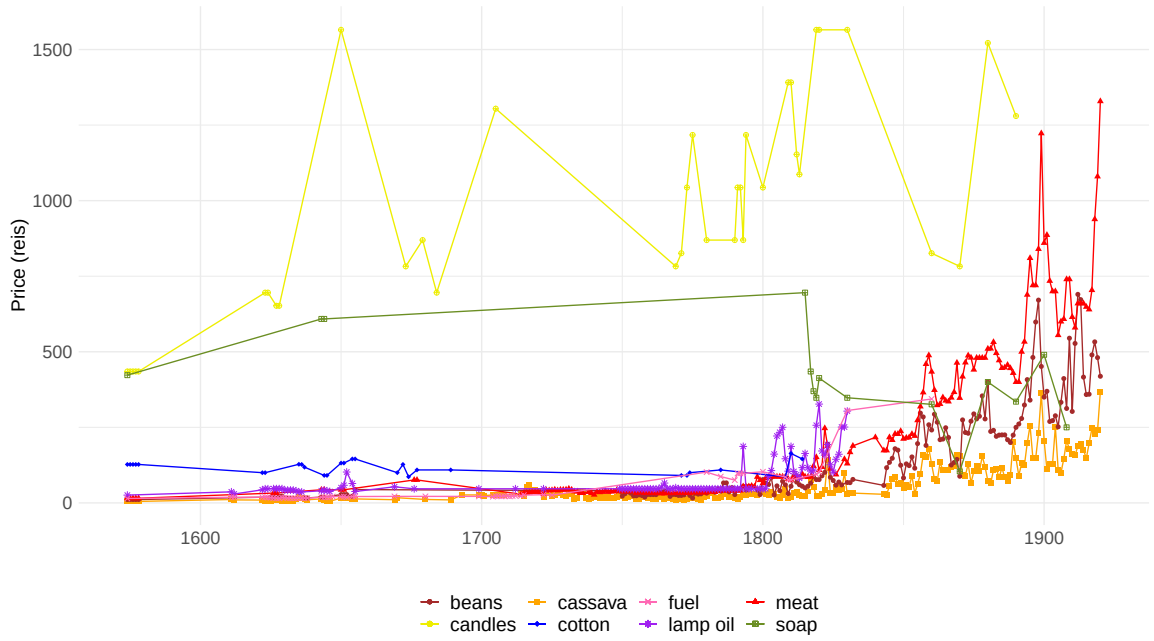

Figure D.2: Series by product for the bare-bones subsistence basket

Sources: ANTT (1574–1740), ASCMB (1648–1920), APF (1790–1820), APEB (1700–1793), Mattoso (1986), and Alden (1990). See Section 2.2 and Appendix B for details on the sources.
Notes: Annual observations for each product are built taking the average of all prices observed in that year for each product. Years without observations are connected by a simple interpolation.

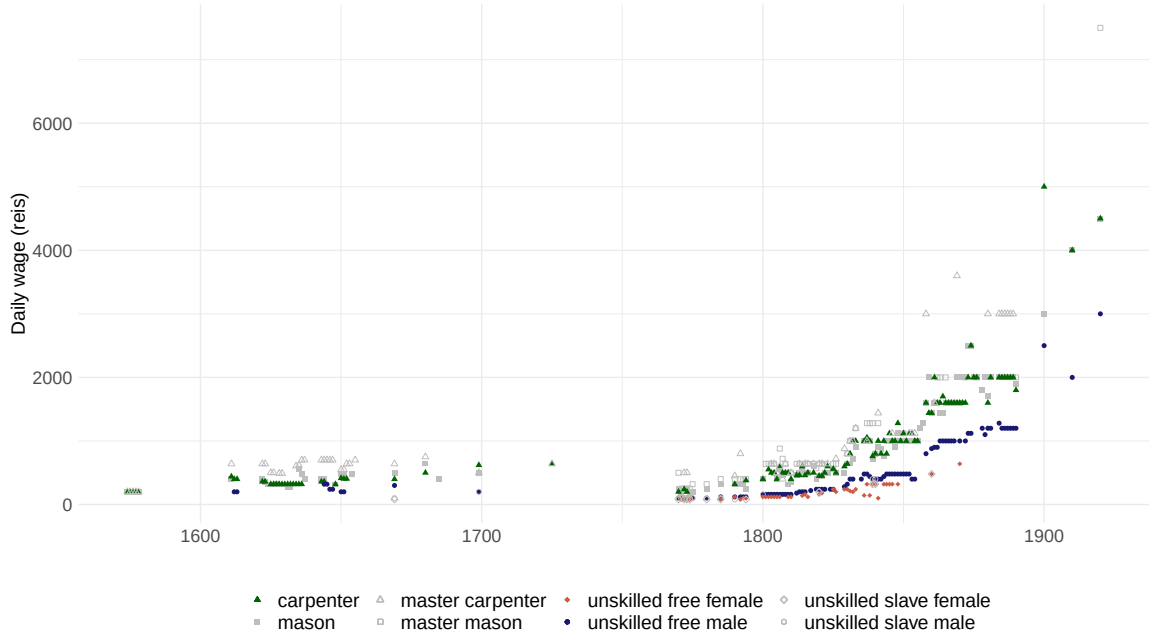

Figure D.3: Wage observations

Sources: ANTT (1574–1740), ASCMB (1648–1920), APF (1790–1820), APEB (1700–1793), Mattoso (1986), and Alden (1990). See Section 2.2 and Appendix B for details on the sources.
Notes: Annual daily wages are built taking the average of all daily rates observed in that year for each occupation.

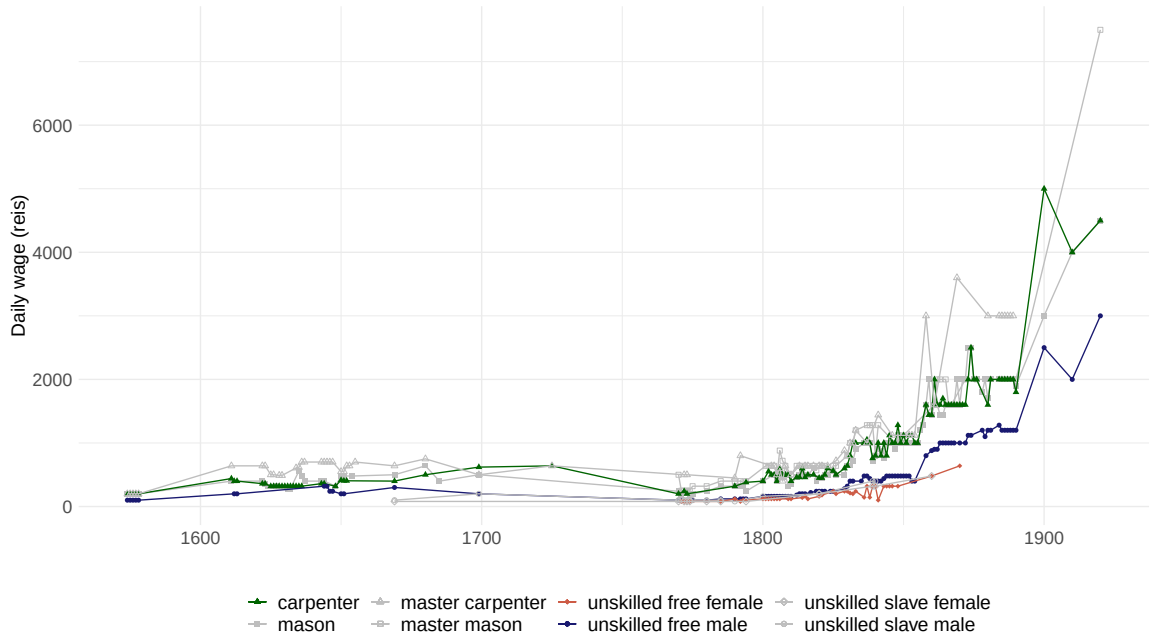

Figure D.4: Wage series by occupation

Sources: ANTT (1574–1740), ASCMB (1648–1920), APF (1790–1820), APEB (1700–1793), Mattoso (1986), and Alden (1990). See Section 2.2 and Appendix B for details on the sources.
Notes: Annual daily wages are built taking the average of all daily rates observed in that year for each occupation. Years without observations are connected by a simple interpolation.

E Price and wage comparisons between cities

In Appendix E.1, we compare prices and wages in Salvador and São Francisco do Conde. All figures graphs document that observations either show overlap or show continuity at the same level. In Appendix E.2, we compare prices for products that we could find in both cities and of different types of slaves. All prices are on a similar level, suggesting that we can generalize our findings beyond the All Saints Bay.

E.1 Prices and wages in Salvador and São Francisco do Conde

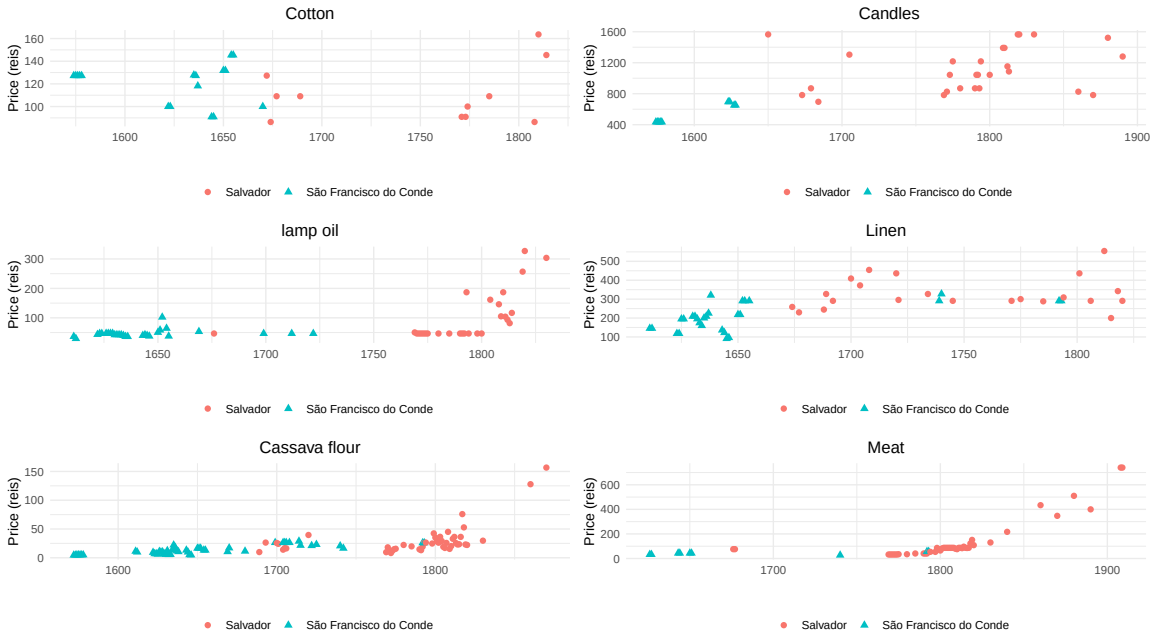

Figure E.1: Prices in Salvador and São Francisco do Conde

Sources: ANTT (1574–1740), ASCMB (1648–1920), APF (1790–1820), and APEB (1700–1793). See Section 2.2 and Appendix B for details on the sources.
Notes: Includes only primary source observations at the micro level.

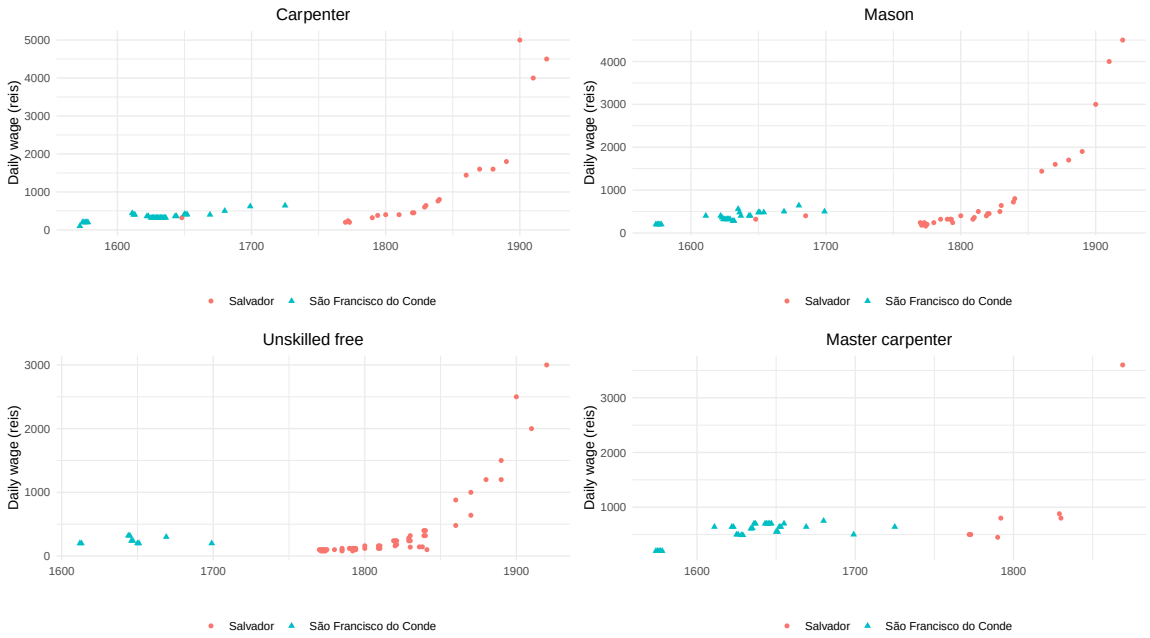

Figure E.2: Wages in Salvador and São Francisco do Conde

Sources: ANTT (1574–1740), ASCMB (1648–1920), APF (1790–1820), and APEB (1700–1793). See Section 2.2 and Appendix B for details on the sources.

Notes: Includes only primary source observations at the micro level.

E.2 Prices in Ilheús and São Francisco do Conde

Figure E.3: Prices for comparable products in Ilhéus and São Francisco do Conde around 1574

Sources: ANTT (1574–1740). See Section 2.2 and Appendix B for details on the sources.
Notes: The figure shows average prices. Includes only comparable products found at the Francisco do Conde and Sant'Ana sugar mills.

Figure E.4: Prices for slaves in Ilhéus and São Francisco do Conde around 1574

Sources: ANTT (1574–1740). See Section 2.2 and Appendix B for details on the sources.
Notes: The figures show average prices including all comparable slaves found at the Francisco do Conde and Sant'Ana sugar mills around the same year.

F Additional real wages

In Figure F.1, we show real wages for those occupations not shown in the main text. In Figure F.2, we show our main real wages series measured in working days necessary to purchase an annual subsistence basket. This might be useful for comparison of our series to other studies that use this type of real wage measure.

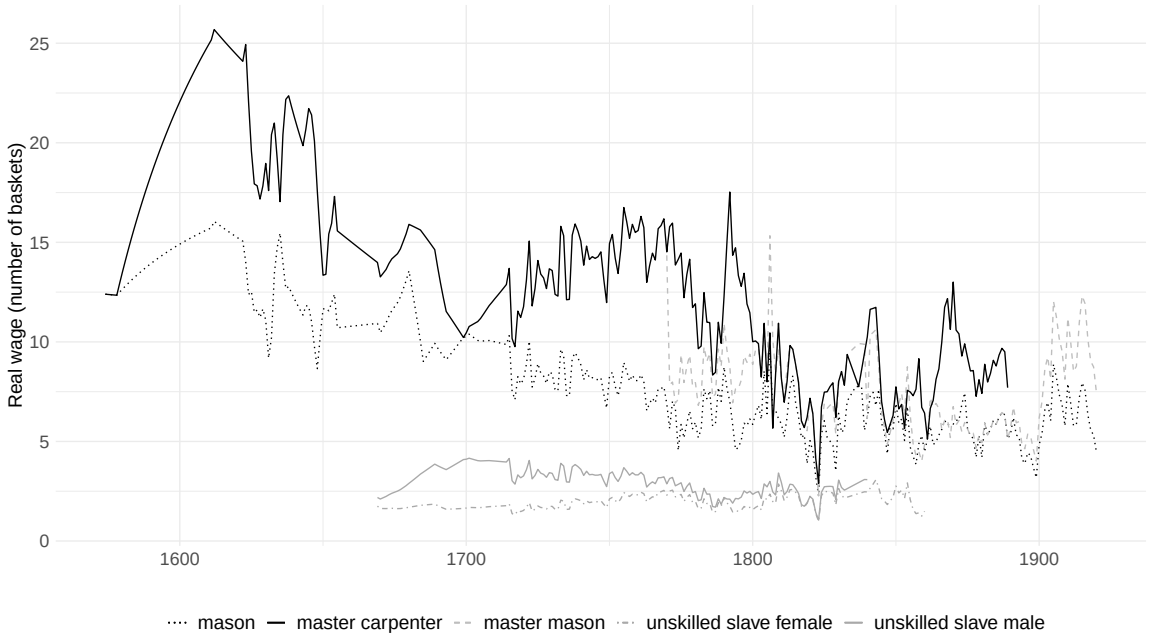

Figure F.1: Real wages for master carpenters, master masons, masons, and unskilled slaves

Sources: ANTT (1574–1740), ASCMB (1648–1920), APF (1790–1820), APEB (1700–1793), Mattoso (1986), and Alden (1990). See Section 2.2 and Appendix B for details on the sources.
Notes: Real wages are measured in annual subsistence baskets.

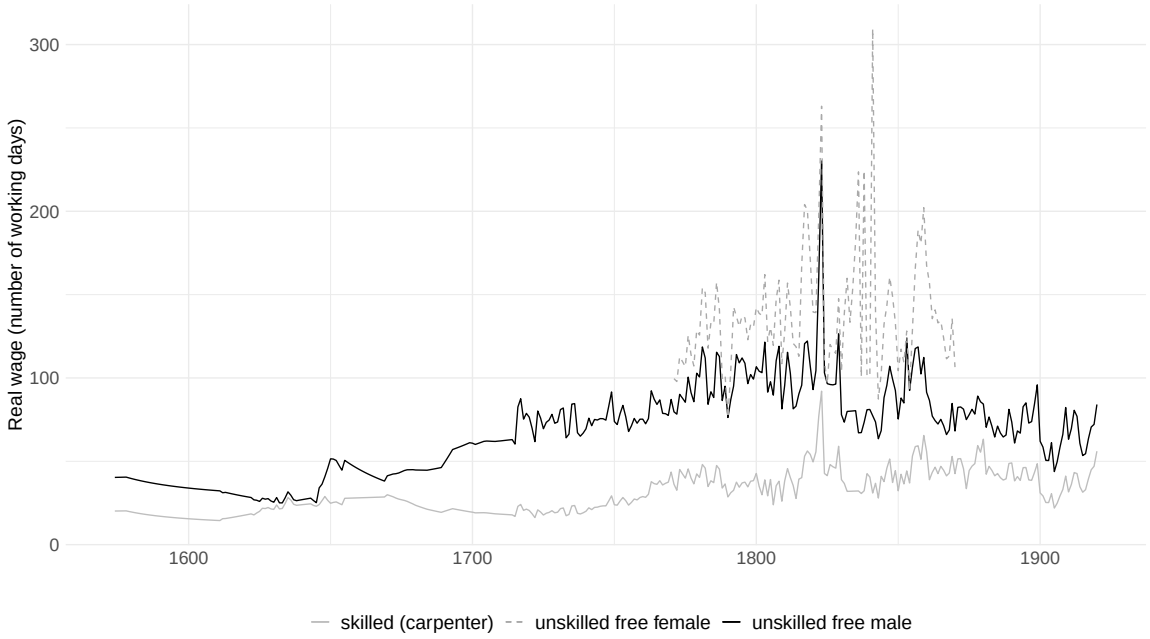

Figure F.2: Real wages in working days for skilled and unskilled workers

Sources: ANTT (1574–1740), ASCMB (1648–1920), APF (1790–1820), APEB (1700–1793), Mattoso (1986), and Alden (1990). See Section 2.2 and Appendix B for details on the sources.
Notes: Real wages are measured in number of working days necessary to purchase an annual subsistence basket.

G International comparisons by place

In this section, we show all places of Figures 3 and 4 in the main text separately by place.

Figure G.1: Unskilled real wages for Salvador and London, Florence/Milan, Lisbon, Strasbourg, Valencia, and Madrid

Sources: (A): Allen (2001) and Allen et al. (2011) updated in Allen (2023).

Notes: Real wages are measured in annual subsistence baskets.

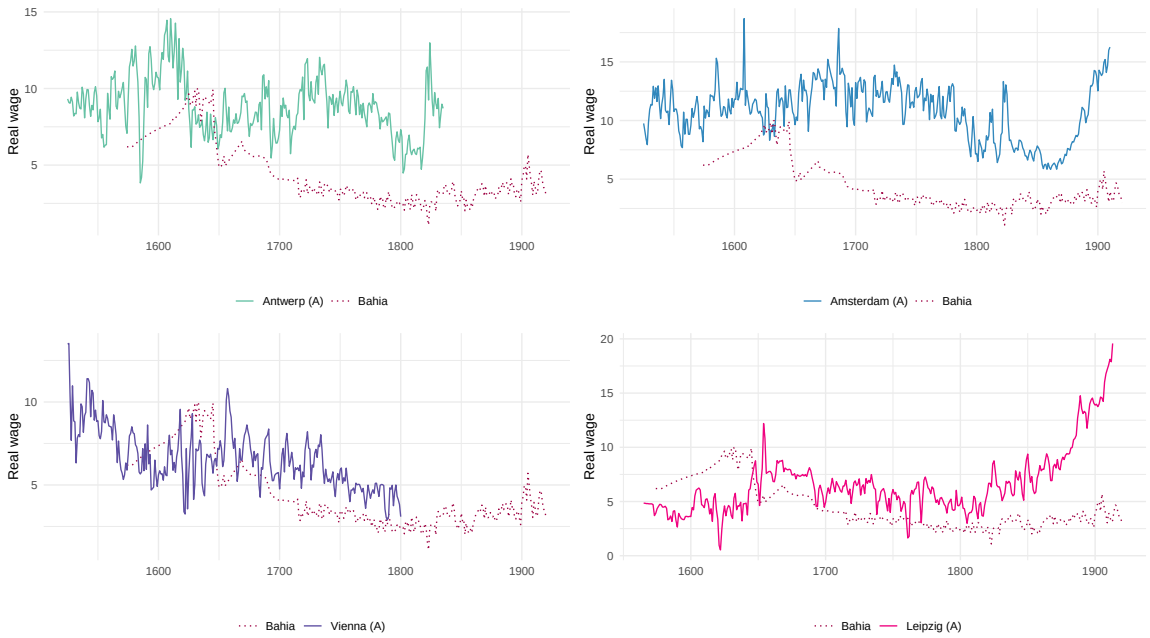

Figure G.2: Unskilled real wages for Salvador and Antwerp, Amsterdam, Vienna, and Leipzig

Sources: (A): Allen (2001) and Allen et al. (2011) updated in Allen (2023).

Notes: Real wages are measured in annual subsistence baskets.

Figure G.3: Unskilled real wages for Salvador and Quebec, Boston, Philadelphia, Maryland, and New England

Sources: (AMS): Allen et al. (2012) updated in Allen (2023); (G): Geloso (2019); (LW): Lindert and Williamson (2013, 2016a).

Notes: Real wages are measured in annual subsistence baskets.

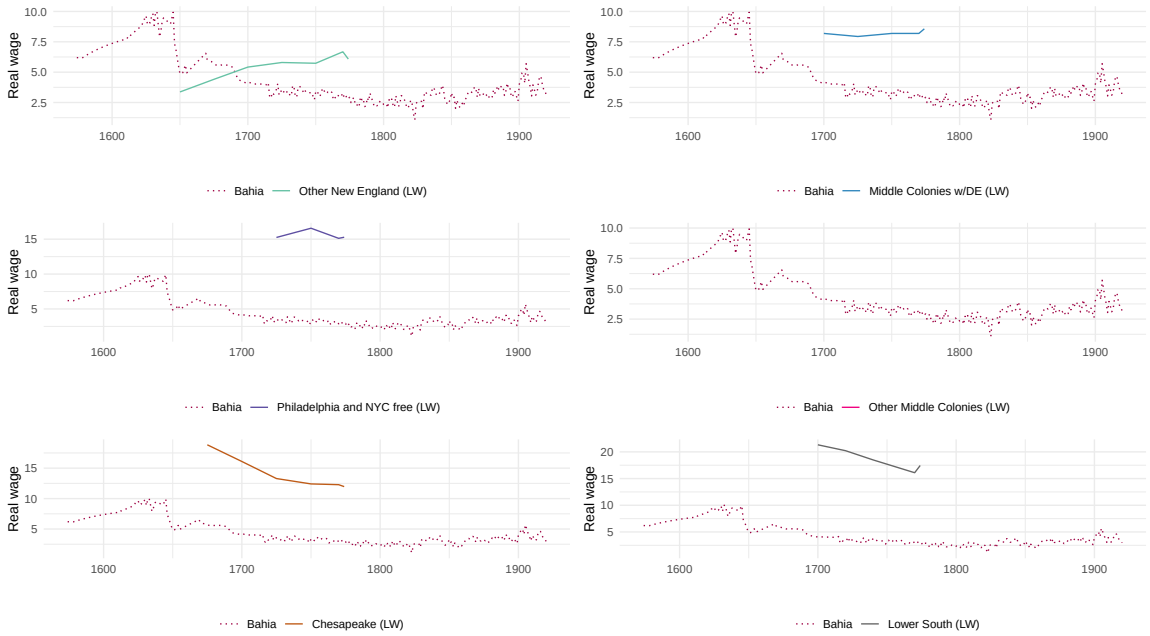

Figure G.4: Unskilled real wages for Salvador and Other New England, Middle Colonies with Delaware, Philadelphia and New York City, Other Middle Colonies, Chesapeake, and Lower South

Sources: (LW): Lindert and Williamson (2013, 2016a).

Notes: Real wages are measured in annual subsistence baskets.

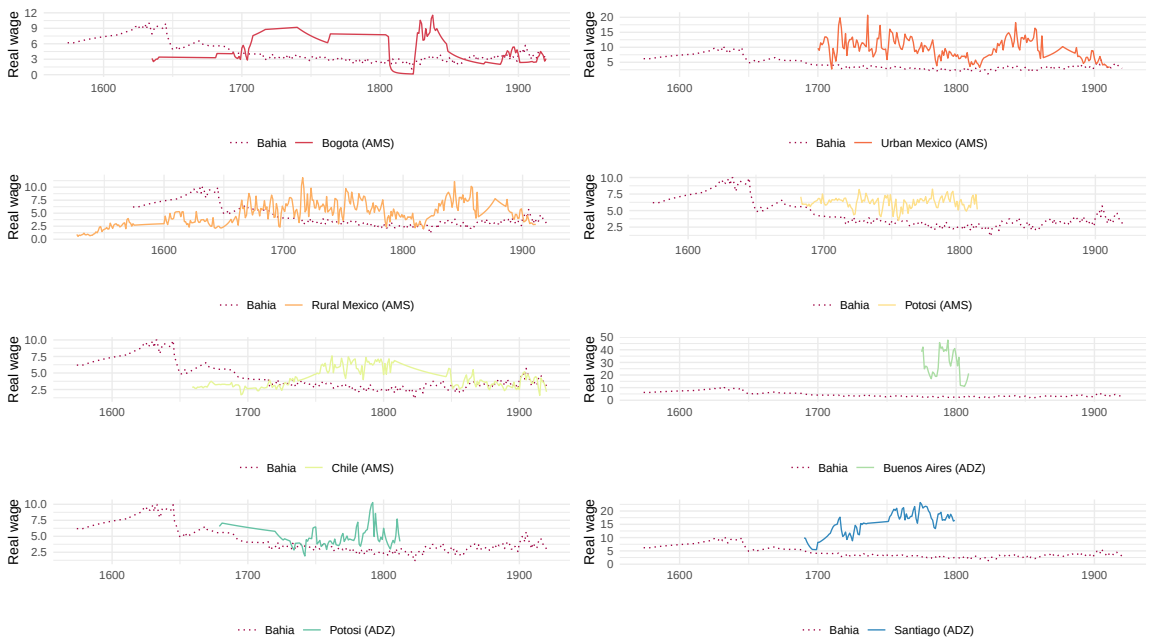

Figure G.5: Unskilled real wages for Salvador and Bogota, Urban Mexico, Rural Mexico, Potosi, Chile, Buenos Aires, and Santiago

Sources: (ADZ): Abad et al. (2012); (AMS): Allen et al. (2012) updated in Allen (2023).
Notes: Real wages are measured in annual subsistence baskets.

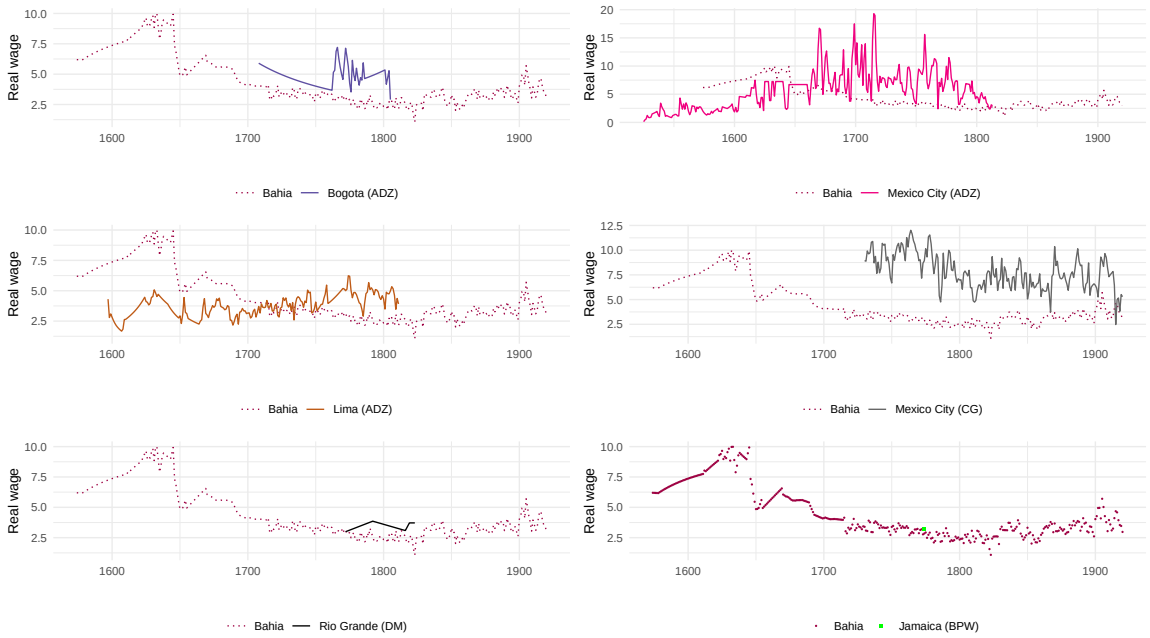

Figure G.6: Unskilled real wages for Salvador and Bogota, Mexico City, Lima, Rio Grande, and Jamaica

Sources: (ADZ): Abad et al. (2012); (BPW): Burnard et al. (2019); (CG): Challú and Gómez-Galvarriato (2015); (DM): Djenderedjian and Martirén (2020).

Notes: Real wages are measured in annual subsistence baskets.

Figure G.7: Unskilled real wages for Salvador and Accra, Lagos, Cape Coast, Japan, Beijing, and Canton

Sources: (A): Allen (2001) and Allen et al. (2011) updated in Allen (2023); (FV): Frankema and van Waijenburg (2012); (K): Kumon (2022); (R): Rönnbäck (2014).
Notes: Real wages are measured in annual subsistence baskets.

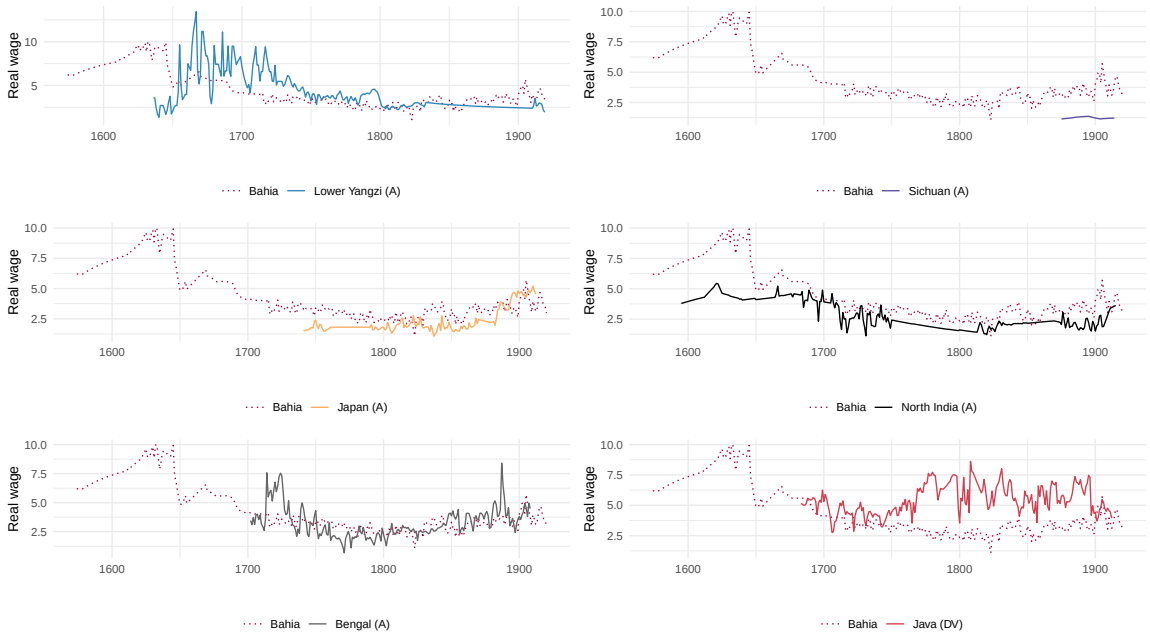

Figure G.8: Unskilled real wages for Salvador and Lower Yangzi, Sichuan, Japan, North India, Bengal, and Java

Sources: (A): Allen (2001) and Allen et al. (2011) updated in Allen (2023); (DV): de Zwart and van Zanden (2015).

Notes: Real wages are measured in annual subsistence baskets.

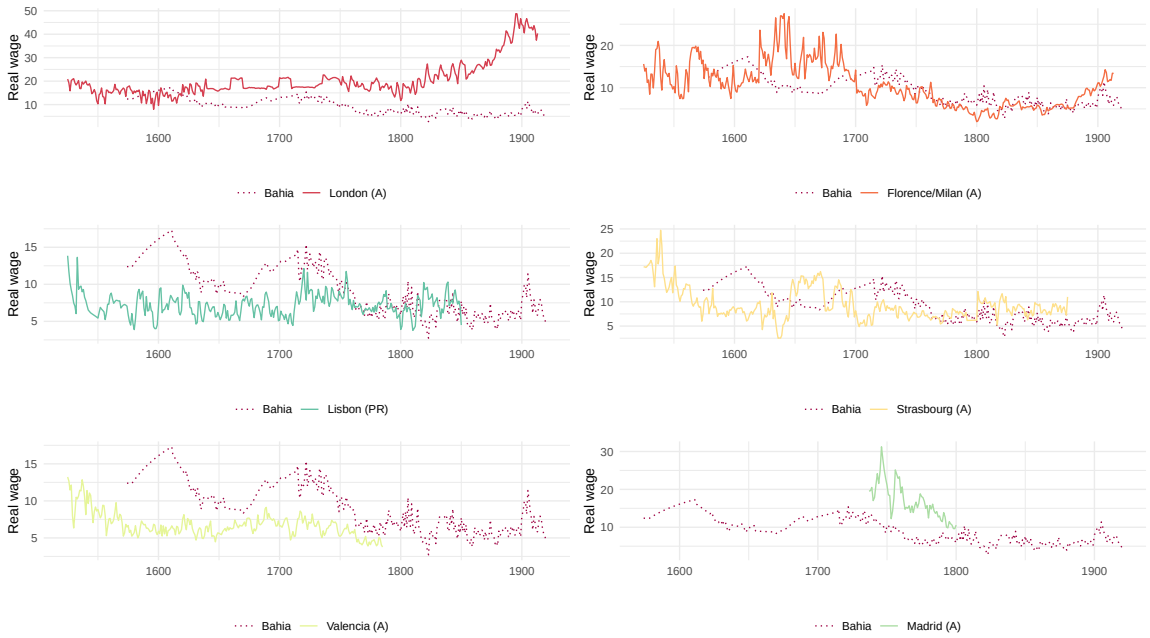

Figure G.9: Skilled real wages for Salvador and London, Florence/Milan, Lisbon, Strasbourg, Valencia, and Madrid

Sources: (A): Allen (2001) updated in Allen (2023); (PR): Palma and Reis (2019).

Notes: Real wages are measured in annual subsistence baskets.

Figure G.10: Skilled real wages for Salvador and Antwerp, Amsterdam, Vienna, Leipzig, Cape Coast, Rio Grande, and Peru

Sources: (A): Allen (2001) updated in Allen (2023); (AM): Abad and Noel (2020); (DM): Djenderedjian and Martirén (2020); (R): Rönnbäck (2014).
Notes: Real wages are measured in annual subsistence baskets.

H Placebo tests and robustness checks for the main results

In this section, we show the results for the placebo and robustness tests. Table H.1 shows placebo tests for unskilled wage and wage inequality as outcomes. Tables H.2 and H.3 estimates our main regressions changing the outcome for logs and levels. Table H.4 estimates our main regressions changing the donor pool to keep only places in the Americas and Java, Table H.5 keeps only places with around the same level of real wages, and Table H.6 takes a "leave-one-out" approach.

Table H.1: Slave trade prohibition placebo tests

	1807 placebo	1831 placebo	1850 placebo
Panel A: unskilled wage index			
SDID coefficient	1.71	7.36	2.19
s.e.	(8.92)	(7.11)	(7.49)
p-value	0.85	0.3	0.77
Panel B: wage inequality index			
SDID coefficient	5.38	-17.01	5.99
s.e.	(7.14)	(6.62)	(7.1)
p-value	0.45	0.01	0.4

Notes: Estimates of the average treatment effect of slave trade prohibition placebo shocks on unskilled wages and wage inequality in Bahia using the synthetic differences-in-differences (SDID) method. Only Bahia is treated in each prohibition period. The placebo test randomly backdates the shock date in each prohibition. The dependent variable in Panel A is the annual wage and in Panel B is the skill premium (skilled wage/unskilled wage), both transformed to an index equal to 100 in the year of each prohibition. All estimates include time and unit fixed effects. The number of units and time periods in each estimation is the same as in the main regression. Standard errors are constructed using the placebo method detailed in Arkhangelsky et al. (2021), where placebo evaluations are conducted replacing the treatment unit with each of the control units. $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$

Table H.2: Estimates of the effects of slave trade prohibition shocks with log unskilled wages as outcome

	1807 prohibition	1831 prohibition	1850 prohibition
SDID coefficient	0.206	0.472***	0.345**
s.e.	(0.132)	(0.088)	(0.165)
Time FE:	Yes	Yes	Yes
Unit FE:	Yes	Yes	Yes
N units:	23	23	23
N years:	30	22	40

Notes: Estimates of the average treatment effect of slave trade prohibition shocks on unskilled wages in Bahia using the synthetic differences-in-differences (SDID) method. Only Bahia is treated in each prohibition period. The dependent variable is the annual log wage. All estimates include time and unit fixed effects. The number of units and time periods in each estimation is shown in the table. Standard errors are constructed using the placebo method detailed in Arkhangelsky et al. (2021), where placebo evaluations are conducted replacing the treatment unit with each of the control units. $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$

Table H.3: Estimates of the effects of slave trade prohibition shocks with the skill premium level as outcome

	1807 prohibition	1831 prohibition	1850 prohibition
SDID coefficient	-0.762***	0.201*	-0.517
s.e.	(0.247)	(0.106)	(0.371)
Time FE:	Yes	Yes	Yes
Unit FE:	Yes	Yes	Yes
N units:	9	9	9
T years:	30	22	40

Notes: Estimates of the average treatment effect of slave trade prohibition shocks on wage inequality in Bahia using the synthetic differences-in-differences (SDID) method. Only Bahia is treated in each prohibition period. The dependent variable is the skill premium level (skilled wage/unskilled wage). All estimates include time and unit fixed effects. The number of units and time periods in each estimation is shown in the table. Standard errors are constructed using the placebo method detailed in Arkhangelsky et al. (2021), where placebo evaluations are conducted replacing the treatment unit with each of the control units. $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$

Table H.4: Estimates of the effects of slave trade prohibition shocks on unskilled wages – Only places in the Americas and Java in the donor pool

	1807 prohibition	1831 prohibition	1850 prohibition
SDID coefficient	41.22***	41.66***	63.349***
s.e.	(9.658)	(14.812)	(10.907)
Time FE:	Yes	Yes	Yes
Unit FE:	Yes	Yes	Yes
N units:	7	7	7
T years:	30	22	40

Notes: Estimates of the average treatment effect of slave trade prohibition shocks on unskilled wages in Bahia using the synthetic differences-in-differences (SDID) method. Only Bahia is treated in each prohibition period. The control unit and time weights are shown in the accompanying figure. The dependent variable is the annual wage transformed to an index equal to 100 in the year of each prohibition. All estimates include time and unit fixed effects. The number of units and time periods in each estimation is shown in the table. Standard errors are constructed using the placebo method detailed in Arkhangelsky et al. (2021), where placebo evaluations are conducted replacing the treatment unit with each of the control units. $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$

Table H.5: Estimates of the effects of slave trade prohibition shocks on unskilled wages – Only places with around the same level of real wages in the donor pool

	1807 prohibition	1831 prohibition	1850 prohibition
SDID coefficient	23.38***	17.686***	47.657
s.e.	(4.029)	(3.493)	(30.751)
Time FE:	Yes	Yes	Yes
Unit FE:	Yes	Yes	Yes
N units:	6	6	6
T years:	30	22	40

Notes: Estimates of the average treatment effect of slave trade prohibition shocks on unskilled wages in Bahia using the synthetic differences-in-differences (SDID) method. Only Bahia is treated in each prohibition period. The dependent variable is the annual wage transformed to an index equal to 100 in the year of each prohibition. All estimates include time and unit fixed effects. The number of units and time periods in each estimation is shown in the table. Standard errors are constructed using the placebo method detailed in Arkhangelsky et al. (2021), where placebo evaluations are conducted replacing the treatment unit with each of the control units. $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$

Table H.6: The effect of slave trade prohibition shocks on unskilled wages – Leave one out of the donor pool

	1807 prohib.	1831 prohib.	1850 prohib.
SDID coef. [1]	24.179*	39.47***	53.619**
s.e. [1]	(12.485)	(10.143)	(25.2)
SDID coef. [2]	24.056**	39.437***	53.814*
s.e. [2]	(12.045)	(10.511)	(28.178)
SDID coef. [3]	23.846**	39.555***	54.041*
s.e. [3]	(11.532)	(8.445)	(28.318)
SDID coef. [4]	23.932**	39.534***	54.483*

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Table H.6 – *Continued from previous page*

	1807 prohib.	1831 prohib.	1850 prohib.
s.e. [4]	(11.638)	(10.088)	(29.969)
SDID coef. [5]	24.275**	39.332***	55.959***
s.e. [5]	(12.135)	(9.196)	(18.833)
SDID coef. [6]	24.749**	39.451***	53.696**
s.e. [6]	(11.97)	(10.127)	(24.942)
SDID coef. [7]	24.123**	39.884***	55.513**
s.e. [7]	(12.226)	(9.192)	(26.875)
SDID coef. [8]	24.359*	39.521***	55.349**
s.e. [8]	(12.739)	(9.333)	(22.209)
SDID coef. [9]	23.899**	39.935***	55.779**
s.e. [9]	(10.549)	(10.92)	(27.2)
SDID coef. [10]	24.137*	39.381***	54.647**
s.e. [10]	(12.48)	(9.722)	(27.144)
SDID coef. [11]	24.079**	38.907***	55.316**
s.e. [11]	(10.45)	(10.244)	(27.48)
SDID coef. [12]	24.081**	40.101***	53.899**
s.e. [12]	(11.371)	(9.442)	(22.034)
SDID coef. [13]	24.062**	39.895***	53.757*
s.e. [13]	(10.085)	(9.659)	(27.493)
SDID coef. [14]	24.931***	39.498***	55.02**
s.e. [14]	(6.142)	(9.715)	(23.368)
SDID coef. [15]	24.178**	40.601***	54.081*
s.e. [15]	(10.49)	(7.679)	(28.081)
SDID coef. [16]	24.271**	39.552***	54.526*
s.e. [16]	(11.714)	(8.943)	(29.251)
SDID coef. [17]	24.056*	34.477***	54.986**
s.e. [17]	(12.305)	(6.628)	(23.655)
SDID coef. [18]	24.368**	39.012***	52.736**
s.e. [18]	(11.436)	(10.341)	(24.867)
SDID coef. [19]	24.368**	39.012***	53.711**

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Table H.6 – *Continued from previous page*

	1807 prohib.	1831 prohib.	1850 prohib.
s.e. [19]	(12.17)	(9.897)	(27.318)
SDID coef. [20]	24.058**	39.445***	53.677**
s.e. [20]	(12.035)	(10.887)	(26.819)
SDID coef. [21]	23.072**	39.776***	54.851**
s.e. [21]	(10.99)	(9.234)	(22.999)
SDID coef. [22]	24.321*	39.515***	54.569**
s.e. [22]	(13.191)	(11.122)	(27.839)
Time FE:	Yes	Yes	Yes
Unit FE:	Yes	Yes	Yes
N units:	22	22	22
N years:	30	22	40

Notes: Estimates of the average treatment effect of slave trade prohibition shocks on unskilled wages in Bahia using the synthetic differences-in-differences (SDID) method. Only Bahia is treated in each prohibition period. Each line indicated by a number in brakets leaves one unit out of the donor pool until all 22 units are left out once. The dependent variable is the annual wage transformed to an index equal to 100 in the year of each prohibition. All estimates include time and unit fixed effects. The number of units and time periods in each estimation is shown in the table. Standard errors are constructed using the placebo method detailed in Arkhangelsky et al. (2021), where placebo evaluations are conducted replacing the treatment unit with each of the control units. $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$

I Mechanisms

In this section, we show slave imports and free immigration by decade in Table I.1 and, in Table I.2, population statistics for the total, free, and enslaved populations in 1775, 1855, and 1872.

Table I.1: Slave imports and free immigration (in thousands)

Period	Slave Imports	Net Free Immigration
1800–10	206.2	10.0
1810–20	215.6	3.2
1820–30	300.0	3.2
1830–40	125.8	2.9
1840–50	314.1	3.1
1850–60	26.9	56.5
1860–70	–	59.3
1870–80	–	103.9
1880–90	–	407.1
1890–1900	–	803.6
1900–10	–	153.3
1910–20	–	561.3

Source: Leff and Klein (1974).

Table I.2: Population statistics for Salvador (various census years)

Census Year	Total Pop.	Free Pop.	% Free Pop.	% Enslaved Pop.
1775	40,922	23,735	58%	42%
1855	56,000	40,611	72.5%	27.5%
1872	108,137	95,593	88.4%	11.6%

Source: Adapted from Nascimento (2021).

J Additional figures

Figure J.1: The city of Salvador da Bahia in 1671

Source: Ogilby, John and Montanus, Arnoldus. London: John Ogilby, 29x36 cm.

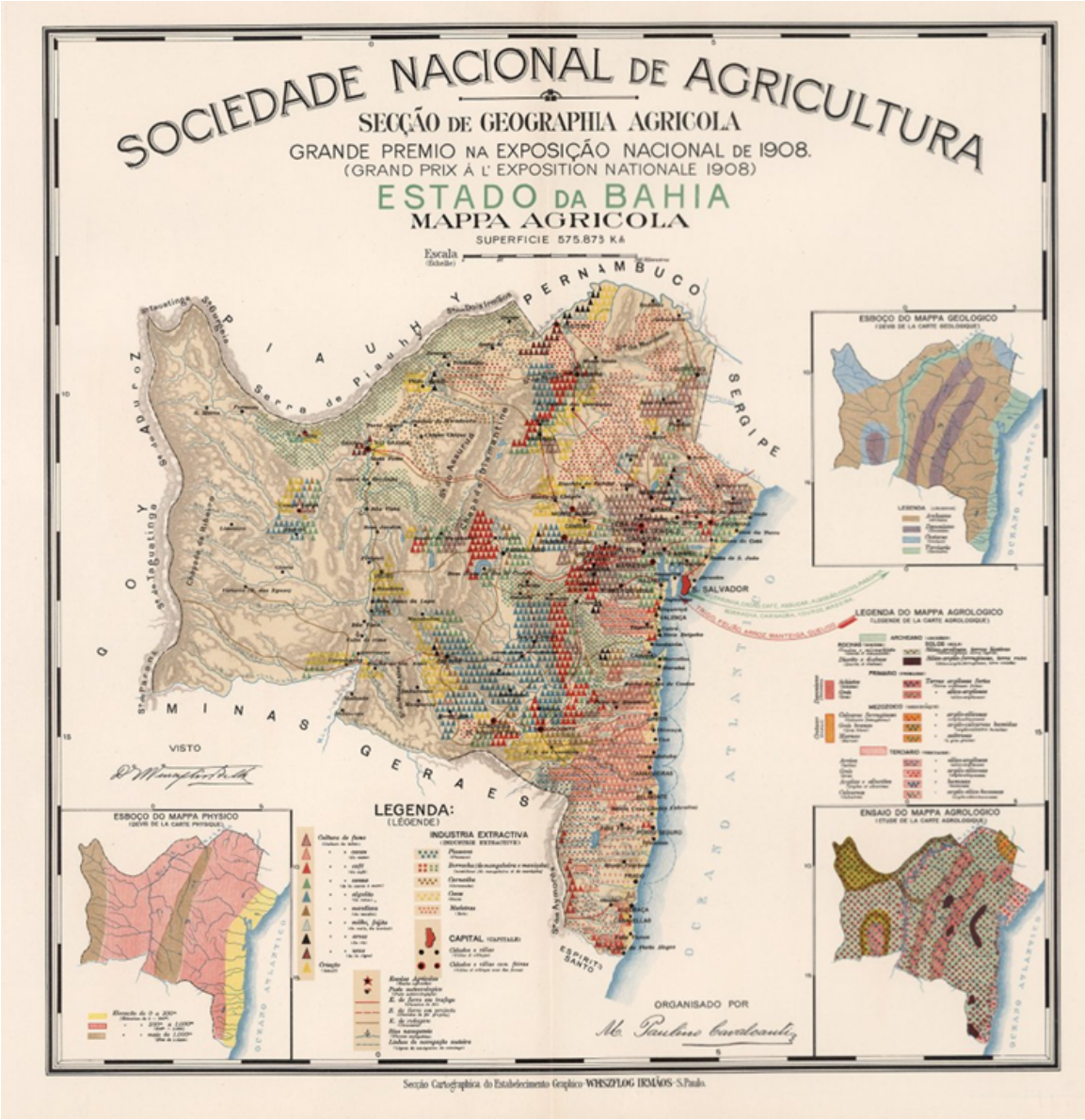

Figure J.2: Sugar plantations around Salvador in 1908

Source: Silk, D. Wenaslin and Cavalcanti, M. Paulino; Sociedade Nacional de Agricultura, Secção de Geographia Agricola

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