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# WEALTH AND PROPERTY TAXATION IN THE UNITED STATES

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## ABSTRACT

We study the history and geography of wealth accumulation in the US, using newly collected historical property tax records since the early 1800s. The US General Property Tax was a comprehensive tax on all types of property (real, personal, and financial), making it one of the first "wealth taxes." Drawing on many historical records, we construct long-run, consistent, high-frequency wealth series at the county, state, and national levels. We first document the long-term evolution of household wealth in the US since the early 1800s. The US experienced extraordinary wealth accumulation after the Civil war and until the Great Depression. Second, we reveal that spatial inequality in the US has been large and highly persistent since the mid-1800s, driven mainly by Southern states, whose long-run divergence from the rest of the US predated the Civil War. Before the Civil war, enslaved people were assessed as personal property of the enslavers, representing almost one-half of total taxable property in Southern states. In addition to the moral and ethical issues involved, this system wrongly counted forced labor income as capital. The regional distribution of wealth and the effects of the Civil war appear very different if enslaved people are not included in the property measure. Third, we investigate the determinants of long-term wealth growth and capital accumulation. Among others, we find that counties with a higher share of enslaved property before the Civil War or higher levels of wealth inequality experienced lower subsequent long-run growth in property.

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# 1 Introduction

At the turn of the 19th century, a comprehensive and sophisticated wealth taxation system emerged in the United States. At the time, it was unique and different from tax systems in European countries. While property taxes have existed since Antiquity, as documented for Egypt (McGregor (1956)), Greece (Seligman (1890) and Walker (1984)), and Rome (Walker (1984)), they were typically based on land.[1] The Danegeld was the first system of land taxation in Europe after the fall of the Roman empire. Initially meant to pay off Viking invaders, it eventually became a nationwide tax. England's Land Tax was a major financing tool for its government in the 18th and 19th centuries, which the British colonies in North America also adopted. The key US innovation was applying a tax to all types of property, not just land. The US General Property Tax (GPT) was a comprehensive tax on all property, including personal and financial wealth, in addition to real estate and real assets. This feature essentially made it one of the first "wealth" taxes.

For 90 years, the GPT remained a central tenet of the US political and economic system, representing a substantial share of all state and local governments' revenues. The GPT was characterized by its very local nature, with multiple jurisdictions potentially competing for the same tax base and relatively uniform and high effective tax rates on all property. As a result, compared to European countries, the US relied heavily on the local taxation of wealth to fund its government expenditures, investments, and public goods. Only after the 1930s did the importance of the property tax decline, and newer forms of taxation and sources of revenues replaced it. Over time, the property tax base shrank to eventually become the current US property tax, which is no longer "general" and falls only on (a fraction of) real estate wealth.

The administration of such a comprehensive tax left detailed and valuable paper trails over a long period. We collected, digitized, and organized many different historical sources, reports, and records of counties and states. We thus provide a new historical dataset on US property and wealth over the long run and at a granular geographical level. Specifically, we constructed wealth series at the national, state, and county levels over a long period: 1800-1935 at the national level, 1850 or earlier (depending on the state) to 1935 at the state level, and 1850 to 1930 at the county level. While historical national wealth estimates exist, as reviewed below, our data based on the GTP offers a coherent, higher-frequency, and long-run source. Furthermore, to our knowledge, there are no existing comprehensive and long-run subnational property measures.

We use this new data to answer the following core questions: How did aggregate

[1] One exception is the Swiss wealth tax during the Helvetic period (1798-1803). However, this was rapidly abandoned and only progressively re-introduced by cantons between 1840 and 1970 (Krenek and Schratzenstaller (2018); Aebi and Eckert (2020))

wealth evolve in this crucial period of US development? Second, how was property distributed across space, and how did spatial inequality change over time? Third, what factors shaped local capital accumulation and growth?

We start by showing that the US experienced exceptionally rapid growth in national wealth after the Civil War and that wealth growth was much faster than income growth.

Thanks to the high frequency of our data, we can also study the changes in wealth around major events, such as the Civil War, and highlight the role of enslavement in shaping long-run wealth accumulation in the South. Wealth per capita in the Northeast, Midwest, and Southern regions was relatively similar before the Civil War. However, while other regions took off and grew rapidly after the war, the South appeared to stagnate at lower wealth levels. We show that the evolution of regional wealth and the effects of the Civil War critically hinge on enslavement. Before the abolition of enslavement, enslaved people were considered the personal property of the enslavers and assessed as such for tax purposes. This treatment is morally abhorrent and means forced labor income flows were counted as "capital" or wealth. We, therefore, also construct property series excluding the value of enslaved people from the property measure.

This analysis reveals how wealth-poor Southern states and counties were pre-Civil War. For instance, Georgia, Florida, and Alabama, had more than 50% of their property in enslaved people, and their property per capita declined by more than 25% between 1860 and 1870, above and beyond excluding enslaved people from the wealth measure. The wealth of white residents in Southern states appeared much higher than in Non-Southern states before Emancipation only and entirely because of enslavement; after the Civil War, it grew at a much slower rate than in other states. Within Southern states, counties with the highest shares of enslaved property experienced much slower long-run growth over 60 years between 1870 and 1930, even conditional on a wide array of controls for geographic, demographic, economic, and inequality characteristics.

We then study spatial inequality after the Civil War. Despite powerful equalizing forces such as internal migration and the deeper integration of the US national market, the level of spatial inequality was high and persistent until 1930 and beyond. More specifically, we show that there was no "sigma-convergence" (a decline in dispersion) in wealth across counties or states, that the share of national wealth held by the top 10% wealthiest counties increased, and that there was remarkable persistence in the wealth ranking of counties and states over time. Furthermore, the US exhibited much slower spatial convergence in wealth per capita over time ("beta-convergence") than would appear from historical income data. Southern states primarily drove the slow convergence.

The persistence of spatial inequality and the relatively slow convergence make it even more important to understand why some places were richer than others after the Civil War and why some grew more rapidly. In other words, we want to identify the correlates of initial wealth levels and which factors drive capital accumulation, conditional on initial wealth. We study the determinants of long-term wealth growth and capital accumulation at the county level– the most granular level for which we have comprehensive data over a long period.

We find that geographical characteristics, such as climate (temperatures and precipitations) and topography, matter substantially for initial wealth and, to a lesser extent, for subsequent growth. Soil productivity and proximity to the coast are significantly positively associated with long-run growth. A key predictor of both initial wealth and subsequent growth is the literacy rate – a measure of local human capital. There seem to be positive agglomeration effects since counties with a higher population in 1870 are wealthier and continue to grow faster. At the same time, migration appears to operate as a convergence force since places with higher recent population growth experience lower wealth growth over the subsequent decade.

We can also show that the structural transformation of the local economy throughout its development looks similar to that documented at the country level by earlier research. More specifically, places with a higher property per capita have lower shares of the population in agriculture and a higher share in commerce (e.g., retail and finance). Manufacturing follows an inverted U-shape, first increasing and then decreasing as counties become richer.

Finally, inequality in wealth, as captured by the share of wealth held by the top 10% wealthiest people in a county, exhibits a robust negative correlation with growth in property over the next 60 years, even if we control for a range of geographic, demographic, and economic factors. This latter finding at the very local level – thus holding institutional and cultural factors fixed – is particularly interesting in light of the extensive literature on the link between inequality and growth, which typically builds on cross-country evidence. One key mediating factor appears to be human capital: places with higher inequality had lower increases in literacy rates.

Our paper contributes to three strands of the literature studying (i) wealth estimates over the long run in the US and other countries; (ii) development and spatial inequality in the US; (iii) the economic consequences of the Civil War and enslavement. Furthermore, our data allows us to provide new quantitative facts to illustrate the history of the property tax. We review the history of the property tax and the literature studying it in Sections 2 and 3.

**Wealth estimates over the long run.** There exist several historical estimates of US national wealth based on different sources of data (Piketty and Zucman, 2014; Goldsmith, 1952; Gallman, 1986; Gallman and Rhode, 2019). We describe these alternative sources in Section 4 and Appendix III.6 and compare them to our national-level estimates. Kopczuk and Saez (2004) compute top wealth shares in the US since 1916 using estate tax returns and the estate multiplier method. For a more recent period, Saez and Zucman (2016) construct wealth distributions for the US, relying on a combination of tax data, national accounts balance sheets data, and the capitalization method. For surveys of this strand of the literature, see Kopczuk (2015) and Roine and Waldenström (2015). Kuhn, Schularick and Steins (2020) construct new long-run data on income and wealth between 1949 and 2016 using the Survey of Consumer Finances. Derenoncourt et al. (2022) estimate the racial wealth gap between 1860 and 2020 to show that convergence has been very slow and, if anything, the racial wealth gap has widened again since the 1980s.

Our measures of national wealth based on property tax data offer one of the most comprehensive and consistent (i.e., based on the same source over time) series over the long run. Relative to the literature using the estate multiplier (Kopczuk and Saez, 2004) or the capitalization method (Piketty and Zucman, 2014), our approach requires fewer assumptions because property is directly estimated. Importantly, no systematic wealth estimates at the sub-national level over the long run exist. We can provide measures at the city, county, and state levels.[2]

A body of work has constructed wealth estimates for other countries for more recent periods (typically starting in the 70s or later): Acciari, Alvaredo and Morelli (2021) for Italy; Piketty and Yang (2022) for Hong-Kong; Charalampidis (2018) for Greece; Alvaredo, Assouad and Piketty (2019) for the Middle-East; and Piketty, Yang and Zucman (2019) for China. Longer-run estimates include Katic and Leigh (2016) for Australia 1915-2012; Novokmet, Piketty and Zucman (2018) for Russia 1905-2016; Toussaint, de Vicq and Moatsos (2022) for the Netherlands 1854-2019; Albers, Bartels and Schularick (2022) for Germany 1895-2018; and Blanco, Bauluz and Martínez-Toledano (2021) for Spain 1900-2017.

Studying the history of public finances, Sylla, Legler and Wallis (1993) build a dataset on revenues and spending of state and local governments from 1790 to 1915, later harmonized by Hindman (2010) to include Southern States from Holt (1977), which we use to impute the property tax revenue for some of the early years before 1850, as described in Section 3. Legler, Sylla and Wallis (1988) assemble data on the revenues and expenditures of many cities by decade from 1850 and 1902. We expand their data

[2]Earlier historical wealth estimates are typically found for short periods or a few states at a time (Garmon Jr, 2014; Jones, 1970; Soltow, 1984) as described in Appendix III.6.

collection for tax revenues, tax rates, and tax administration-related variables.

**Economic development and spatial inequality.** We also contribute to the literature on economic development and spatial inequality in the US by providing a new, fine-grained, consistent measure of economic activity: property. Our measures can be useful complements to existing measures of economic activity such as income (derived indirectly from occupational scores and available at low frequency).[3] Wealth and income are far from perfectly correlated across time and space, as can be seen in Appendix Figure A1.[4]

We can also highlight some key correlates of property and capital accumulation at the city, county, and state levels, adding to the literature that has studied the determinants of economic activity as measured by different indicators. Among others, Donaldson and Hornbeck (2016) examine the historical impact of railroads on US economic activity, precisely agricultural output; Hornbeck (2012*a*) studies the effects of the American Dust Bowl on agricultural land values and revenues; Arthi (2018) considers its effects on human capital. Hornbeck (2012*b*) also emphasizes the role of the environment's influence on agricultural output and development. Fiszbein (2022) establish the vital role of agriculture for the subsequent development of places in the US. Consistent with the study of Atack, Haines and Margo (2011), we find that land values sharply rose between 1850 and 1860, as the land was converted into farmland rapidly. Kim and Margo (2004) analyze the historical patterns of economic activity in the US at the city and regional level since colonial times.

We also study domestic and international migration, which is one channel through which wealth accumulation changes across space. Historical migration and its impacts on local economic outcomes are explored in Abramitzky, Boustan and Eriksson (2012), Abramitzky, Boustan and Eriksson (2014), Collins and Wanamaker (2014), Sequeira, Nunn and Qian (2020), and Zimran (2022).

**Southern wealth, enslavement, and the Civil war.** Our data allows us to quantitatively illustrate some of the history of the US South, the blight of enslavement, and the effects of the Civil. Ager, Boustan and Eriksson (2021) find that white Southerner households who owned more enslaved people in 1860 lost substantially more wealth during the Civil war; we find a similar result at the county level, including a negative effect on long-run growth. The negative association between enslavement and

[3]Occupational scores are typically derived from the cross-over between occupations and income in the 1950 Census.

[4]The correlation between income and wealth at the state-year level is around 0.72, and a regression of wealth on income yields an $R^2$ of 0.53.

subsequent economic performance is also highlighted in Wright (2022), Hornbeck and Naidu (2014), and Engerman and Margo (2011). We can measure the property loss after the Civil War directly, complementing work by (Hutchinson and Margo, 2004) and Feigenbaum, Lee and Mezzanotti (2022), as well as work studying the wage gap between the North and the South before and after the Civil War (Margo, 2004; Goldin and Margo, 1992).

The rest of the paper is organized as follows. Section 2 provides a brief historical and institutional overview of the General Property Tax in the United States. Section 3 describes our newly collected data. Section 4 analyzes the evolution of wealth accumulation and spatial inequality in the US. Section 5 considers the determinants of capital accumulation. Section 6 concludes.

# 2 A Brief History

This section provides a brief overview of the history and system of property taxation in the United States, building on a large literature. We contribute newly constructed data to concretely illustrate the importance and features of the property tax.

## 2.1 From Colonial Taxation to the General Property Tax

The General Property Tax was a major component of the US tax system from its inception. Property taxes were already recorded in Antiquity and the 10th century (under the name of *danegeld*), primarily as taxes on land (Benson et al., 1965). The key US "innovation" was applying a tax on all property classes, not only land.[5] In the American colonies, this translated into a complex system of property taxation on enumerated items with different tax schedules on classes of property such as land and improvement, livestock, merchant's equipment, or enslaved people (Jensen (1931) p.20, Fisher (1999) p. 91).[6] The General Property Tax was progressively established when these disparate taxes on enumerated items of property were merged into a uniform tax on (almost) all property classes.

## 2.2 The Principles of the General Property Tax

The main principles and characteristics of the General Property Tax were common to all states.

[5] Fisher (1996) p206.

[6] The colonial tax system also included poll taxes and a faculty tax on specific occupations Benson et al. (1965); Fisher (1999)

First, the **universality** principle, often embedded in state constitutions, required that all property classes be subject to the property tax. Exemptions were limited and clearly defined (see Section 2.6).

Second, property taxation is **ad valorem**, i.e., taxation is based on value. This fundamental concept allowed for the same tax *schedule* to apply to different classes of property instead of having tax schedules depend on the kind of property. It made the valuation of property a critical feature of the tax administration.

Third, the **uniformity** principle, written into many state constitutions, required that all property be subject to the same tax rate in proportion to its value. This clause ensured the application of a unique property tax rate, regardless of the property class or its owner's wealth. It also meant that property taxes were not aimed at progressivity.

Fourth, property taxes were **local**. Local assessors – usually elected and often residents-listed and valued property and collected property taxes. This local characteristic of the property tax created a close link between the sources of revenues and government spending. The property tax thus provided valuable benefits to local taxpayers in exchange for their tax payments, making it politically and economically sustainable in the face of mobility of factors and people.[7]

We now provide a brief history of how different levels of government (local, state, and national) financed themselves between the early 1800s to the 1930s to illustrate the crucial importance of the property tax in state and local governments' budgets.

## 2.3 The early 1800s

In the 1790s and 1800s, states relied heavily on property tax financing, and revenues from the property tax comprised more than 60% of all state revenues (Sylla and Wallis, 1998, pp. 281-282). Over 1800-1830, states progressively decreased their reliance on taxes and instead started to rely on asset finance, i.e., massive investments in banks, canals, railroads, and other transportation improvements.

From the 1830s onwards, the property tax regained its role as the most important source of state tax revenue. A deep and prolonged economic depression began in 1839, and by 1842, eight states and the territory of Florida were in default because of their large state investments in canals and banks. Many states adopted as the result of this episode constitutional provisions limiting or altogether preventing the use of public funds to invest in private corporations and restricting public debt. Furthermore, many new or revised state constitutions included uniformity and universality

[7]Some property taxes were directly targeted at financing specific activities, such as taxes on school and road districts. In addition, some states created specific state property taxes for each spending category, such as the state tax for the road or school funds.

clauses that established the major characteristics of the general property tax discussed above.[8]

## 2.4 The Property Tax 1842-1933

Our core study period, 1842-1933, is the "Era of property tax finance and local government" (Wallis, 2000). As property tax financing increased, state government activity slowed considerably. The activity shifted to local governments, who took over investments in water, sanitation, transportation, public works, and schools. By 1902, local revenues were roughly the same as state and national revenues combined (Wallis (2001)).

We use our newly constructed data to shed light on the importance of the property tax for the US over this period. Figure 1 shows the total revenue from the property tax as a share of GDP in the US at different levels of government: state, county, municipal and lower levels. In 1850, total property tax revenues were somewhat below 2% of GDP. They more than doubled to 5% of GDP in the 1920s.

## 2.5 The Demise of the General Property Tax after the 1930s

**Criticisms and Reforms At the Turn of the 20th Century.** Criticisms of the property tax – often spearheaded by economists– became pronounced at the turn of the century. They focused on three issues: i) its local administration in light of property that became increasingly intangible and mobile (e.g., stocks, bonds, and other financial assets); ii) the quality of assessments, as the economy grew more complex than before, and ownership and control or wealth became more challenging to establish and assets harder to value; iii) inequities in assessment and the increase in wage earnings meant that property value became a less suitable measure of ability to pay (Benson et al., 1965; Fisher, 2002).

As criticisms over the unfairness of the tax system grew, several reforms took place. Tax commissions set up by states were in charge of centralizing and regulating assessment. States also pushed for the professionalization of the assessment functions by training assessors and using rigorous, scientific valuation methods. Second, a classification movement occurred, replacing the uniformity clause and allowing for lower tax rates on intangible property.[9]

[8] Table A1 shows the dates at which these clauses first appear in the State constitution and the dates at which these practices were first observed (many as early as 1793 as in Maryland). There is, thus, historical evidence that the aspirations towards uniformity and universality predated formal inclusion in the constitutions.

[9] For an exposition of the need for classification, see Bullock (1908). See, for instance, Foote (1910) for

**The Demise of the GPT After the Great Depression.** The 1930s marked the era of income tax financing and the more active federal government (Wallis, 2000, pp. 72-73). Historians still debate the reasons for the demise of the General Property Tax (Hindman, 2010), but three interrelated changes likely drove it.

First, after the Great Depression, the federal government's role expanded. Large programs such as the New Deal and Social Security, welfare services, agricultural price supports, military spending, and public works implied an increase in the share of revenues collected by the federal government, which were then administered by states through a system of intergovernmental grants.

Second, new sources of financing for states appeared, making the property tax less necessary, such as automobile licenses, fees, motor fuel taxes, general sales, and income taxes. Total property tax revenue as a share of total government revenue fell from 38.8% to 25.2% between 1927 and 1938, then to 8.1% in 1946 (Benson et al. (1965)).

At the same time, the fall in property value and rise in property tax delinquencies during the Great Depression meant that states started providing more extensive exemptions to property tax (Fisher (1997)). Finally, after WWII, homestead exemptions given to owner-occupied residences and limits on property tax rates put a nail in the coffin of the General Property Tax (Fisher, 2002; Jensen, 1936).

Figure 1 illustrates the decline in the importance of the Property tax after the 1930s: as a share of GDP, property tax revenues plummeted from 5% at the eve of the Great Depression to around 2.5–3% in the 1950s and beyond. The figure also shows that while property tax revenues at the state level became minimal, the property tax has remained significant for public finances at the county and municipal levels since the 1950s.

## 2.6 Institutional Features of the General Property Tax

We now describe some key institutional features of the property tax that are important to understand the available data and how it can be used to get consistent property measures across time and space. Appendix II provides more details.

**Types of property.** The General Property Tax was conceived as a tax on the value of all property – real and personal– owned by households. Real property consisted of land, buildings, and improvements. Personal property was less clearly defined and essentially included most other forms of property, such as tangible property – furniture, livestock, merchandise, and valuables – and intangible property – such as

a description of the experience in Ohio.

money and bank deposits, mortgages, debts and credits, stocks, and bonds. Before the abolition of enslavement, enslaved people were considered to be the personal property of the enslavers. We come back to this issue below.

Figure 2 shows a breakdown of private property in Connecticut – a state for which we have detailed information on property composition– between 1865 and 1885. The figure highlights how extensive the property tax base used to be and provides some information on its composition. The bulk of assets consisted of dwellings, houses, and land, followed by mills and stores, mechanical and manufacturing investments, money, stocks, livestock, and various household goods.

The GPT applied to corporate assets too. Different states adopted different methods of taxing corporate assets –some states taxed property owned by corporations, and others taxed individuals who owned shares of stock and bonds issued by corporations. However, no state taxed *both* corporate assets and household-owned shares, implying that there was no within-state double taxation. Issues of double taxation could nevertheless arise across states: if a corporation was held by shareholders from state $a$, but had its physical capital in state $b$ and state $a$ taxed stocks and bonds of corporations on the household side, while state $b$ taxed corporate assets directly on the corporate side and there were no provisions for double taxation. In practice, this situation was likely not that common, and several states (Utah, Massachusetts, Montana, Vermont) had explicit provisions for out-of-state corporations (Jensen (1931) pp. 121-124).

**Double-counting and exemptions.** Specific provisions allowed the deduction of debt and mortgages from the property tax base so that the assets they financed were not double-counted. There were some exemptions from the property tax, which varied by state. Most exemptions were related to public property (land and public buildings), religious property (e.g., churches, cemeteries, religious societies), charities, hospitals, schools, and libraries, not to private wealth. Nevertheless, there may be specific, non-systematic private property exemptions that we cannot account for. Some examples include Treasury bonds, abatements for individuals (e.g., one $25 watch in Vermont), or specific sectors (e.g., ten bee stands and beet sugar factories in Indiana (U.S. Census Bureau, 1902).

**A layered tax.** The property tax was a layered tax. Property was assessed once, locally, and then taxed by all residing jurisdictions: city, county, state, and special districts.[10]

[10]Special districts include school districts, road districts, fire districts, or drainage districts, which allowed for targeting of funds for special projects. There was no equivalent federal property tax. Congress temporarily imposed a progressive property tax in 1798 and 1812, modeled on the *Impot progressif* from the French revolution, but this was unpopular discontinued. Fisher (1997)

The broad parameters of the property tax were defined at the state level in the State constitutions and by the State legislator in specific laws (e.g., revenue laws). State tax commissions supervised the assessment and collection of property taxes. There were also local legislative bodies at the city or county level whose role was to adjust differences in individual assessments by local assessors, and hear appeals. The property tax was levied on a specific day of the year based on the value of the property that day.

Thanks to our data, we can compute effective property tax rates at different levels of jurisdiction (for details of the construction, see Appendix III.8).[11] Panel A of Figure 3 shows that property tax rates in municipalities and lower levels of jurisdictions increased from 0.3% in 1850 to 1% in 1930 while county and state tax rates remained relatively stable at around 0.3% combined. As a result, total effective property tax rates were around 0.6% in 1850 and 1.35% in 1930. There was, however, substantial geographical variation in these tax rates. Panel B of Figure 3 shows that property tax rates ranged from around 0.5% in low-tax areas to more than 3% in higher-tax ones in 1920. In that year, the average effective tax rate was 1.4%; the average city tax rate was 1%; the average county tax rate 0.24%; and the average state tax rate 0.16%.

# 3 Data Sources and Construction

This section describes the data sources we collected and used to construct private property series at the city, county, state, and national levels. Appendix III provides extensive further information. We then discuss some important conceptual issues when measuring property and wealth.

## 3.1 Data Sources on the property tax and assessed property values

We now discuss our data sources at the state, county, city, and national levels. We had to digitize all the records on tax rates, assessed wealth, and assessment ratios at the city, county, and state levels to input them into a usable database. We further had to make the data consistent over time and space using the assessment ratios described below. At the state level, we also digitized the complete primary sources, which contain abundant additional data, and created an exhaustive catalog of resources for each state. Because these primary sources change names over time and are available in different collections and libraries, such a catalog can be helpful for future research.

[11] These effective tax rates are computed as the ratio between property tax revenues and our estimates of the value of property at each level of jurisdiction. This allows us to provide consistent effective tax rates for a long period of time. However, for the more restricted period for which we have data for statutory tax rates, the effective tax rates align very well with statutory tax rates adjusted by the assessment ratio (see Figure A3).

### 3.1.1 State-level data

**Assessed property.** We collected data from various sources on the valuation (assessment) of private property. Our primary sources are official State reports, which were the chief financial documents of states and contained detailed information about sources of spending and revenues raised, particularly regarding property taxation. The format and name of these reports varied from state to state. However, they were usually called an Auditor', Treasurer's, or Comptroller's report and were produced annually or every two years. We compiled a list of all state reports available on the *HathiTrust* digital library from 1790 until 1940. We also collected data from the State Tax Commission and the Board of Equalization in charge of supervising the assessment of property subject to taxation. Starting in 1915, the U.S. Census compiled and harmonized data from State reports in the series *"Financial Statistics of the States"* (U.S. Census Bureau, 1915). Where available, we also relied on special studies by the U.S. Census Bureau or U.S. Department of Commerce providing a time series of property taxes and valuation for all states (U.S. Census Bureau, 1941; U.S. Department of Commerce, 1967, 1982).[12] Table A10 lists the sources used to construct state-level wealth series from state reports for each of the 52 states and territories.

Figure 4 illustrates the coverage of our state property series by showing the total value of private property for each state as a share of US GDP. We observe the property value for most states since their admission to the Union and, for some, since the early 1800s. The data is naturally much sparser before 1850, so we focus our state-level analysis on the period starting in 1850. As shown in Figure 5, the share of the contemporaneous US population living in states where we have wealth data reaches 50% in 1820, then progressively increases to 100% by 1865.

**Wealth from enslaved people.** Before the abolition of enslavement, enslaved people were assessed as property in property tax records. The organization of Southern economies meant that some people could be considered the property of others. This is morally abject. In addition, in such a system, the income flows from the labor of enslaved people accrued to others. This made forced labor income flows appear like wealth and property, which is inaccurate. We, therefore, also provide wealth series excluding enslaved people from the property variable, in addition to the series of wealth, as defined at that time, which included enslaved people.

There is evidence that tax assessors underestimated the price of enslaved people. Therefore, we use the number of enslaved people by county from the Census, and the historical series on the price of enslaved people from Ransom and Sutch (1988)

[12] Where multiple sources are available, we rely on the most recently published series.

and Einhorn (2001). Our procedure is described in detail in Appendix III.2, together with a discussion of alternative price estimates.

**Property tax revenues.** We also collect data on property tax revenues, as described in Appendix III.8. Among others, we use these data to compute effective tax rates.

### 3.1.2 County-level data

We collected data on county-level wealth from statistics compiled every decade from property tax lists by the Census in their *Wealth, Debt and Taxation* publications between 1870-1930 (U.S. Census Bureau, 1880, 1890, 1902, 1912, 1922). These statistics provided information on total, real, and personal property value and the property tax rates for all counties. We supplement these statistics with real and personal property value data from IPUMS full count data (Ruggles et al., 2021*a*) , based on questions asked directly to individuals in 1850 and 1860. The Census only asked about real property values in 1850. We describe how we use the Census individual-level data to impute wealth in Appendix III.1.

### 3.1.3 National wealth

We construct national wealth by aggregating our state-level wealth estimates described in Section 3.1.1. For the period starting in 1850, this aggregation is immediate. Before 1850, the data is scarcer. We, therefore, interpolate wealth in-between years where we have data points for each state. Furthermore, to account for the fact that in some years, we only observe some but not all states, we rescale the wealth aggregate for these years before 1850 by the share of national wealth held by these states in 1850. Appendix III.5 describes these procedures in detail and presents multiple sensitivity checks (see Appendix Figure A8). Alternative assumptions do not substantially change our wealth series at the national level, except for the very early period 1800-1820, where data is much scarcer, and the estimates are, hence, more sensitive to omitting particular states or to the weighting. We also compare our estimates to existing ones in Figure 12.

## 3.2 General Issues: From Reported Statistics to Measures of Private Property and Wealth

We now discuss some important measurement issues when using property tax data for inferring private wealth. Wealth is always difficult to measure, even in modern-day data. The historical setting we study poses some of the same challenges researchers

may face in contemporary settings but also offers some key advantages. First, because few countries today tax wealth directly, wealth often has to be inferred from self-reported survey data or imputed from capital income. The existence of the general property tax and the records that were created because of it provide us with high-quality direct measures of wealth. Second, many assets are hard to value, e.g., private businesses, real estate in areas with few market transactions, etc. During the General Property Tax era, substantial and serious efforts were put into carefully valuing property, as described in Section 2 and further discussed below.

#### 3.2.1 From assessed value to market value.

First and foremost, we need to account that the assessed value of a property reported by tax assessors may systematically differ from its actual market value. Ultimately, the information on the value of property comes from state and city assessors charged with enumerating and valuing property for the purpose of property taxation. Assessors might deviate from the requirement of assessing at "market value" ("true," "full," or "just" valuation in the words of state constitutions) (U.S. Census Bureau (1902) pp. 3-5). Typically, the assessed values of property were significantly lower than the actual market value.

In other words, we observe for jurisdiction $i$ in year $t$ the property tax revenues $R_{it}$, the nominal tax rate on assessed value of property $\tau_{it}$, and the total assessed value of property measured by assessors $\tilde{W}_{it}$.

$$\begin{aligned} R_{it} &= \tau_{it} \cdot \tilde{W}_{it} \\ &= \tau_{it} \cdot \gamma_{it} \cdot W_{it} \end{aligned} \tag{1}$$

To reconstruct private property, we need the true market value $W_{it}$, which requires knowing the ratio of assessed to true value, or the so-called "assessment ratio" $\gamma_{it} = \frac{\tilde{W}_{it}}{W_{it}}$. Legally, $\gamma = 1$ in most states, but in practice, $\gamma < 1$

**Data on assessment ratios.** To measure assessment ratios, we compiled rich information on assessment practices from several main sources. At the state level, we use State reports and the Census analysis from the *"Wealth, Debt, and Taxation"* series, conducted decennially from 1870 to 1920. Substantial efforts were devoted by State tax commissions and the Census to compare assessed to true valuations and document these gaps. Second, wherever available, we also collected information from contemporaneous studies by economists, historians, and tax scholars (for instance, Ely (1888); Adams, Thomas S., George E. Benton, Brough, Charles Hillman Schmeckebier and Frederick (1900); Jensen (1931); Lutz (1921); Blakey and Blakey. (1927); Board (1923,

1925)) that documented the ratio of assessment to market values of property. Third, we supplement this with information on assessment ratios from the series *"Financial Statistics of the States"* (U.S. Census Bureau, 1915). In the latter publication, the assessment ratios are self-reported by assessors, so we only use them to detect directional changes but not to infer levels of assessment ratios.

We assign each county the assessment ratio of the state.[13] City-level assessment ratios were provided annually in the *Financial Statistics of Cities*. Because they are based on self-reported estimates by assessors and city officials and were not subject to a critical investigation by the Census, we rescale them so that the population-weighted average city assessment ratio corresponds to the average state-level ratio.[14]

**Constructing market values.** Appendix III.3 describes the construction of assessment ratios for each state and depicts the time series of assessment ratios, assessed wealth, and the market value of wealth. These state-by-state time series illustrate why information on assessment ratios is so critical. Take the example of Ohio, reproduced in Figure 7. In 1910, assessed wealth exhibited a sharp and sudden jump. Such discontinuities may cast doubt on the benefits of assessed property tax data for economic analysis. However, our detailed data collection shows that, in 1910, Ohio experienced a clear increase in the assessment ratio because of the creation of the Ohio Tax Commission, which was responsible for equalization. When we apply this change in the assessment ratio to the assessed wealth series according to formula (1), we obtain a perfectly smooth series of the market value of private wealth.

**Evolution of assessment ratios.** Figure 6 depicts the evolution of assessment ratios across states over time. Over the long run, assessment ratios decreased in most states. The average assessment ratio fell from around 82% in 1850 to 43% in 1922 (see also Appendix Figure A6 showing the evolution of the average assessment ratio over time). Although there is no conclusive explanation for why this decline occurred, one possibility is that personal property became a larger share of private wealth and was more likely to be undervalued (Jensen (1931), p. 282).

[13] For 1870, the *"Wealth, Debt, and Taxation"* publications directly provide county-level assessment ratios, which we can use to cross-check the validity of the state-level estimates. Appendix Figure A7 shows that our use of the state-level assessment ratio is well-justified. The average population-weighted county assessment ratio is very close to the state-level assessment ratio for all states.

[14] The Census considered these self-reported ratios "only approximately correct" (U.S. Census Bureau (1919) p. 101). It appears indeed that self-assessed ratios are overestimates of the actual assessment ratios. Nevertheless, they offer some useful additional information regarding heterogeneity in practice across local assessors, which we use.

### 3.2.2 Cross-border ownership of assets.

An important dimension of the GPT is that assets were assessed and taxed at their location rather than in their owner's location. In some cases, these locations could differ. Individuals could, for instance, own assets (a house, some livestock, etc.) in a different county than the one where they had their primary residence. Strictly speaking, our county and state-level measures are measures of local property rather than local wealth. Local property is an interesting measure per se since it captures local economic activity.

Nevertheless, these measures will deviate from measures of local wealth. Our estimates of local private property will tend to underestimate true household wealth in jurisdictions where residents own substantial amounts of property in other jurisdictions and overestimate true local household wealth in jurisdictions where non-residents own significant property. Our data only provides limited consistent information relative to cross-border patterns of asset ownership. However, we do have some suggestive and noisy information about cross-state ownership in 1880, based on work by the Census (U.S. Census Bureau, 1880). These are depicted in Figure 8. The methodology the Census used to get at these numbers is unclear, so we should use them as suggestive evidence. We can see that most states have a net cross-state position between -10% and +20% (with New York being by far the state whose residents hold the most wealth in other states). This data also shows us for which states we may need to be particularly careful when considering local property as a measure of wealth, namely Western states excluding the West Coast, such as Wyoming, Idaho, Nevada, or Arizona. In these states, residents of other states hold a significant share of local assets. However, for most states in the Northeast, the Midwest, the South, and on the West Coast, the local property is highly correlated with local wealth.

A final important note is that the distinction between property and wealth vanishes as we move to higher levels of geographical aggregation. Thus, at the national level, our aggregated measure of national property truly measures private domestic wealth, except for net foreign assets, which at the time were very limited in the US.

### 3.2.3 Cross-validation

We validate the quality of our data on assessed property and assessment ratios using three other sources.

First, we can use external information on the market value of specific property types. The Census of Agriculture conducted a thorough and independent assessment of the market value of farmland for certain states and years. Haines (2014) compiles this

information. Our data contains estimates of the market value of taxable land and improvements (as a separate category) for select states and years.[15] Figure 9 compares these estimates and the value of farmland land and buildings from the Census of Agriculture. Farmland and improvements are a subset of all taxable land and improvements, which explains the small, non-zero intercept in the log-log relationship depicted. Reassuringly, the best linear fit line lies very close and is parallel to the 45-degree line, with an estimated slope of essentially 1. This cross-validation suggests that our assessment ratios offer a reliable estimate of the difference between property values reported in the tax data and their true market values.

Second, we compare our property estimates to the wealth measures from the IPUMS Full Count data at the county level (for 1870) and the state level (for 1850, 1860, and 1870). These comparisons, shown in Appendix Figures A11 and A12, show that for many states, the pictures are quite consistent between these two data sources, although there are differences across space and time. At least three factors can explain these differences. First, the IPUMS data measures local wealth, while our estimates measure local property. Second, our property estimates are based on assessments by tax authorities, while the IPUMS data is self-reported. Third, the IPUMS data is censored from below and top-coded.

Third, in Section 4, we compare our national-level estimates to existing ones for overlapping years.

# 4 Wealth Growth and Spatial Inequality in the US

Based on the comprehensive property tax data collected and described in the previous section, we can provide new evidence on the evolution of wealth and spatial inequality in the US since the early 19th century.

## 4.1 The Growth in US Wealth 1800-1935

**A rapid wealth accumulation since the early 1800s.** The first important descriptive fact is that the US was relatively wealth-poor at the start of the 19th century but experienced a dramatic wealth accumulation from 1800 to 1935. Panel A of Figure 10 shows our estimates of US private wealth as a share of GDP over the period 1800-1935.[16] The US started at relatively low wealth-to-GDP ratios of around 300% in the

[15] Notably, we compiled data on thirteen states (Alabama, Arkansas, Florida, Georgia, Indiana, Kansas, Kentucky, Minnesota, North and South Carolina, Tennessee, Texas, and Wisconsin) between 1860 and 1910.

[16] The GDP series come from Johnston and Williamson (2020) for the period pre-1929 and from the Bureau of Economic Analysis for the post-1929 period https://www.bea.gov/resources/

early 19th century. Between 1850 and 1860, the wealth-to-GDP ratio increased to 400% before plummeting to 200% during the Civil war. After the Civil war, a growth spur increased the wealth-to-GDP ratio to almost 500%. World War I led to a steep decline in wealth-to-GDP ratios to 300%. The wealth-to-GDP ratio then rose to almost 600% on the Eve of the Great Depression before crashing back to around 300%.

Is the evolution of the US wealth-to-GDP ratio driven by its numerator or denominator? Panel B of Figure 10 separately depicts the numerator (US wealth per capita, expressed in 2012 prices) and the denominator (GDP per capita in 2012 prices) and shows that wealth per capita drives the ratio. Wealth per capita started from a low level and grew slowly until the Civil war but took off drastically starting in 1870 and grew much more rapidly than income per capita until the crash induced by the first World War.

The US experience in wealth accumulation seems quite unique compared to other countries where wealth data exists. Cross-country comparisons are difficult, given the uncertainty around measures of historical GDP, price deflators, and exchange rates. However, we can compare wealth-to-GDP ratios, indicating wealth accumulation relative to the country's income. Figure A9 depicts the wealth-to-GDP ratios in the US to those in France and the UK. The US appeared relatively wealth-poor compared to the European countries over the 19th century and until the end of WWI.

**The composition of US wealth** Our data allows us to explore the composition of US wealth in terms of three broad categories: real property, property from enslaved people (which we discuss at length below), and all other personal property.[17] Figure 11 shows that real property – land, buildings, and improvements – was the largest category of wealth throughout the whole period. Enslaved people represented 15% of total US wealth in 1860.

For some states, we also have the value of taxable land as a separate category (as used in Figure 9). For these states, we can see that the importance of land in real property declines over time. Early in the 19th century, the primary source of wealth was land, which was abundant and cheap in the US compared to European countries. Policies were explicitly put in place to maintain a low price of land and allow people to buy it and settle in the US.[18] The figure also highlights that all real property in the US represented less than 200% of GDP in the US before the Civil war, while land

`learning-center/what-to-know-gdp`. The estimates for the pre-1929 period build on McCusker (2000) (for 1793), Weiss (1992) (for 1799, 1809, 1819, and 1929), and Gallman (1966) (for 1839, 1849, and 1859). Because there are uncertainties surrounding GDP measures, Figure A10 plots the wealth-to-GDP ratio using two additional sources for GDP series.

[17] For the construction of enslaved property, see Appendix Section III.2.

[18] These include the "Act to Graduate and Reduce the Price of the Public Lands to Actual Settlers and Cultivators" (1854), which "reduced the purchase or preemption price of lands opened for settlement

alone represented 300% of national income in the UK (Piketty and Zucman, 2014). Immigrants and settlers arriving in the US were usually not bringing large amounts of physical property or capital. Throughout the period 1840 to 1940, the US accumulated wealth at a fast rate in the form of non-land capital.

**Comparison with existing national wealth estimates.** Figure 12 compares our wealth series to existing ones from Gallman and Rhode (2019), Goldsmith (1952), and Piketty and Zucman (2014), based on different data sources. We describe these alternative sources in detail in Appendix III.7.

In brief, the "Goldsmith-Piketty-Zucman" series (Piketty and Zucman, 2014) is based on a combination of Census IPUMS data, national accounts, and balance sheet data and builds on Goldsmith (1952) (as well Jones (1977), Hoenack (1964), and ultimately U.S. Census Bureau (1870)). The "Gallman-Rhode" series (Gallman and Rhode, 2019) uses capital stock estimates from national accounts and land values from the Census to compute national wealth. These series are significantly sparser and of lower frequency (typically decadal) than ours from 1800 to 1870. This finer granularity allows us to, for instance, measure the big dip in wealth-to-GDP during the Civil war, which decadal data misses.

Our series is quite well-aligned with these existing estimates for the overlapping years. For 1885-1890 and 1893-1910, our series are somewhat below the Goldsmith-Piketty-Zucman series. On the contrary, we find higher wealth in 1880 (and, to a lesser extent, in 1890 and 1900) than Gallman-Rhode.

**Regional wealth evolution** We can also compute wealth series by region in the US. Panel A of Figure 13 shows the wealth per capita in each of the four major regions – Northeast, South, Midwest, and West – normalized by the US GDP per capita. This measure captures a given region's wealth relative to the average national GDP per capita. The South, Midwest, and Northeast were similarly wealthy until the Civil war, although the Northeast experienced the most considerable fluctuations over time. After the Civil war, the South diverged from the other three regions and remained poorer in wealth until 1940. The West quickly became the region with the highest per capita wealth and remained so until WWI.

that remained unsold for long periods" (Chused, 1984, p. 53); the Bounty Act of 1847 (Lebergott, 1985, p. 194); and the Homestead Act of 1862 (1862) which "lowered the price of surveyed tracts of 160 acres or less to zero, contingent on a $10 entry fee, and five years of continuous residence on the property. " (Allen, 1991, p. 8).

## 4.2 The Civil War and Southern Wealth

An abundant literature, referenced in the introduction, studies Southern economies and the legacy of enslavement. We can shed more light on Southern states thanks to the wealth data, particularly around the Civil War. Figure 14 presents some key statistics about the South.

Panel A shows the composition of property in Southern states. Enslaved people accounted for over 40% of the total property. Panel B shows the variation across states in the value of enslaved people as a share of the total property in 1860. In states such as Georgia, Alabama, and Florida, enslaved people represented more than 50% of the total property.[19] After the Civil War and with the restructuring of the economy, the value of land decreased, and other property increased in importance.

Going back to Figure 13, we can compare the evolution of private property across the four US regions, excluding wealth from enslaved people (the line "South, excl. wealth from enslaved"). The South now appears poorer than the other regions and not accumulating wealth at the rate witnessed in the other regions even before the Civil war. While other regions' wealth-to-income ratios grew post-Civil war, the South' stagnated. This pattern is also apparent at the state and county levels, as we show next.

Figure 15 shows the evolution of state-level property around the Civil war. Panel A depicts the rank of states in 1860 and 1870 (on the vertical axis) against their rank in 1850 (on the horizontal axis). The left figure shows this relationship for all property, including property from enslaved people; the right figure excludes property from the enslaved. The difference between the two figures is striking. If we do not count enslaved people as part of personal property, there was a strong persistence in the rank of states even after the Civil war. The rank-rank correlation is 0.73 between 1850 and 1860 and 0.57 between 1850 and 1870. Including enslaved people in the measure of property reduces the rank-rank correlation to 0.04.

Panel B depicts the decline in property per capita during the Civil War for Southern States against the share of property from enslaved people in 1860. The numbers represent the additional decline in property value, above and beyond that generated by the freeing of enslaved people, i.e., $1 - \frac{W_{i,1870}}{(1-S_{i,1860})W_{i,1860}}$, where $i$ is the state, $W_{i,t}$ the total property in the state in year $t$, and $S_{i,1860}$ the share of enslaved property in total property in 1860. A zero value means that a state had the same property in 1870 as in 1860, excluding property from enslaved. For instance, in Texas, where enslaved people represented 35% of total property, property values declined by the full amount of the share of enslaved property and an additional 51%. In Mississippi, where property

[19] See Appendix Figure A13 for robustness checks and shares at the county level.

from enslaved people was 44% in 1860, property in 1870 was another 53% lower than wealth in 1860 excluding enslaved property. Although the relation depicted is noisy, it is increasing. States with the highest share of enslaved, such as Alabama or Mississippi, witnessed some of the most significant shortfalls in per capita property between 1860 and 1870. We show the results for all states, including non-Southern ones, in Appendix Figure A14. For comparison, property per capita in Philadelphia more than doubled over this decade.

Panel C displays the evolution of property per capita for white and Black residents in Southern and Non-Southern states, normalized by the average GDP per capita in the US. Black residents had significantly higher property per capita in Non-Southern states than Southern states. However, even in Non-Southern states, their property was drastically lower than that of white residents. For white residents, we provide two series: one excluding enslaved property and one including it. Including enslaved property, white residents in Southern states appeared more than twice as rich as those Non-Southern states and saw their property per capita plummet by 75% during the Civil War. If enslaved property is excluded, white residents had similar levels of property per capita in Southern and non-Southern states before the Civil War. There is a clear divergence after the Civil war, with white residents in Southern states experiencing much slower growth in their property per capita.

We can also shed some light on the public finances of the Civil War and the Reconstruction Era. Panel D shows the effective property tax rates (constructed as explained above for Panel A of Figure 3) in Southern and Northern states. Effective tax rates in Northern states were twice as high as in Southern states before the Civil War, reflecting significantly lower investments in public goods and infrastructure in the South. However, the Civil War and the Reconstruction Era drastically changed the picture of public finances in the South (Foner, 1988). Confronted with a decline in the property tax base and with significant needs to invest in public goods like public schools, newly elected Republican legislators in the South pushed for significantly higher property tax rates during Reconstruction.[20] Our data allows us to grasp the historical nature of this public finance shock: in Southern states, effective rates almost tripled in about five years, reaching a peak of 1.2% in 1870. This sudden increase in property taxes was met by a major backlash, triggering political violence, especially against black politicians (Logan, 2019). As Democrats regained control of the South, ending the Reconstruction Era's political experiment and enabling the institution of the Jim Crow regime, tax rates quickly reverted to around 0.6%, a much lower level than in Northern states.

[20]On the history of public education and the racial gaps in education in the South, see also Goldin (1999), Margo (1990), and Tyack and Lowe (1986).

## 4.3 The persistence of spatial inequality 1870-1930

The third set of facts revealed in the new data pertains to the remarkably high level of persistence of spatial inequality in the US. Despite potential equalizing forces, such as internal migration and the deepening of the US internal goods and capital markets, spatial inequality did not decline after the Civil war.

We start with Figure 16, which shows property per capita as a fraction of US GDP per capita at the state level for each decade between 1850 and 1930. Figure 17 shows the equivalent statistics at the county level. The figures highlight that spatial inequality seems to be high and persistent. For instance, Southern counties and states remained persistently poorer than those in the Northeast, Midwest, or West. Furthermore, Figure 18 shows that the persistence has remained remarkably strong even until today. We compare the spatial distribution of property per capita in the 1920s (Panel A), at the fine-grained county level, to that of household income today from the Opportunity Atlas Data (Panel B). Panel C shows that the rank-rank correlation between these two variables is 0.6.

To document spatial persistence formally, we perform four additional analyses.

**Dispersion of wealth across space.** First, we consider the change over time in the dispersion of wealth across space, the so-called "$\sigma$-convergence". Figure 19 plots the yearly standard deviation of log property per capita across states. The dispersion of property remains roughly constant. Appendix Figure A16 shows a similar pattern for the evolution of wealth dispersion across counties. Second, Figure A17 focuses on a different metric: the share of total national wealth held by the top 10% of richest counties. It shows that property was highly spatially concentrated in the US and that this concentration increased significantly from 1860 to 1930. By the end of the period, the top 10% of richest counties accounted for about 70% of total US property.[21]

**Rank-rank correlations at the county and state levels.** Third, Panel A of Figure 20 depicts the rank-rank correlations of property per capita at the county level between 1870 and subsequent decades (1880 to 1930). The rank-rank correlation is 0.78 over ten years and remains high (0.67) even over the entire 60-year period. We see high rank-rank persistence at the state level, too (Panel A of Figure A15). These results indicate that spatial inequality was not only high, but that places that started poorer remained poorer.

[21] Young, Higgins and Levy (2008) show that, if anything, there has been sigma divergence in income across US counties since the 1970s, a result echoed by Gaubert et al. (2021) who also show that states have been diverging since the 1990s.

**Speed of $\beta$-convergence.** Finally, we study the speed of convergence between poor and rich counties and states over time. We present the analysis at the county level here, whereas the state-level analysis is in the Appendix. We regress the change in private property per capita in county $i$ between 1870 and 1930 on the initial property per capita (in 1870), a constant, and a detailed set of controls measured in 1870. We infer the speed of so-called "$\beta$-convergence" from Barro et al. (1991), i.e., the correlation between initial levels and growth, from the relation:

$$\log\left(\frac{W_{i,1930}}{W_{i,1870}}\right) = \alpha - (1 - \exp(-\beta \cdot 60)) \cdot \log(W_{i,1870}) + \mathbb{X}'_{i,1870}\gamma + u_i \tag{2}$$

where $\mathbb{X}_{i,1970}$ is a vector of county-level controls measured in 1870, based on three groups of variables: i) *Geography* variables taken from Allen and Donaldson (2020), Bazzi, Fiszbein and Gebresilasse (2020), Atack (2015), Atack (2017), National Oceanic and Atmospheric Administration (2021) capture the geographical characteristics of a county such as the climate, soil properties, topography, and distance to waterways; ii) *Demographics* variables from Ruggles et al. (2021*b*) and Haines et al. (2010) include total population, population growth, the literacy rate, the share of foreigners, gender composition, and the share of white residents; iii) *Occupational shares* in public administration, manufacturing, mining, commerce (which comprises retail, finance, business, and transportation), and agriculture from Ruggles et al. (2021*b*). Appendix III.10 provides more details on the sources and construction of these three groups of variables.

Panel B of Figure 20 shows a scatter plot of county long-term, 60-year growth rates against initial property in 1870 and reports the estimated $\beta$ from a regression without controls and including the complete set of controls. Without any controls, the speed of convergence is $\beta = 0.011$. Southern counties, represented in red on the scatter plot, stagnate at lower wealth levels and growth rates: the $\beta$ excluding Southern counties is 0.028. Thus, regional factors have strong explanatory power, and convergence is relatively fast except for Southern counties, which start and remain poorer. Furthermore, by adding controls, $\beta$ increases to 0.025 and $R^2$ to 0.61. Panel B of Appendix Figure A15 replicates this same analysis at the state level and yields an even smaller $\beta = 0.007$ over 1870-1930.

The literature usually studies convergence in terms of income per capita. Table 1 shows our estimates of convergence (column "Property") at the county and state levels as compared to the estimates using income data from IPUMS, as well as to the estimates from Barro et al. (1991) at the state level. We restrict to the period 1880-1920 for comparison with these alternative sources. Without controls, $\beta$ estimates are 2-2.5 times higher using income data; with controls, they are 1.5 times higher. Thus, income

data conveys a picture of higher convergence than wealth data. The estimates from Barro et al. (1991) are somewhat lower than those from the IPUMS data but still show faster convergence unless controls are included.

Our results indicate that despite the shock of the Civil War, the US experienced limited spatial convergence from 1870 to 1930. This slow convergence was largely driven by the Southern states and led to persistent inequality in terms of property per capita across places that still reflects in the spatial inequality of income today.

# 5 The Correlates of Capital Accumulation

The previous analysis showed that the US experienced relatively limited spatial convergence after the Civil War and until 1930. Using our rich and granular data, we now explore the reasons for such slow spatial convergence. We want to study the characteristics of poorer and richer places after the Civil War and why some places grew faster than others, given their initial conditions. We perform this analysis at the county level– the most granular level for which we have comprehensive data over a long period.

Linking back to our previous convergence analysis in Figure 20, there is slow convergence conditional on initial property $W_{i,1870}$, but convergence is faster when controlling for additional characteristics. Therefore, we ask two questions:

1. Which characteristics are correlated with property levels in 1870 (i.e., with initial conditions)? To answer this question, we run a regression of the following form:

$$\log W_{i,1870} = \mathbb{X}'_{i,1870}\gamma_0 + u_i \tag{3}$$

   We include in $\mathbb{X}$ the same set of (standardized) variables related to *Geography*, *Demographics*, and *Occupational Shares* as described in Section 4.3, as well as two measures of inequality (the share of enslaved property in 1860 and the share of wealth held by the top 10% wealth holders). Panel A of Figure 21 shows the estimated coefficients.

2. Which characteristics in $\mathbb{X}$ correlate with the growth in property per capita from 1870 to 1930, conditional on initial property in 1870? To this effect, we plot the estimated coefficients $\gamma$ from specification (2) in Panel B of Figure 21.[22]

[22] Tables A2-A3 show more detailed regression results at the county level, including for wealth growth over ten years and adding state fixed effects. These estimates reveal similar patterns regarding the role of geography, demography, and occupational structure.

In addition to the regression results, we also compute the contribution of each group of variables to the total variance in property per capita in 1870 (Panel A) and 60-year growth in property (Panel B).[23] The share of variance explained by each group of variables is reported next to the header. We confirm these simple linear model results using a more sophisticated prediction model– a random forest model that allows for more flexible interactions between all variables in the model. Figure A19 reports the most important variables, ranked by predictive power.

## 5.1 Geography, demography, and economic structure.

**Geography.** Figure 21 shows that characteristics related to *Geography* are strongly correlated with initial wealth in 1870 but less so with subsequent growth (controlling for initial wealth). Geographical characteristics explain 21% of initial property per capita and 9% of subsequent conditional growth. Climate – temperatures and precipitations– is an important predictor of initial wealth. For instance, one standard deviation higher temperature in July – characteristic of Southern counties– is associated with a 25% lower initial wealth. More abundant winter precipitations –indicating harsher winter conditions– are associated with significantly lower initial wealth as well as slightly lower growth. As captured by elevation and ruggedness, topography is negatively related to wealth in 1870 but not significantly correlated with growth in wealth over the long run. Better soil productivity and a lower distance to the coat are significantly positively correlated with long-run growth.

Overall, these results suggest that counties significantly differ in terms of environmental advantages or disadvantages. These differences affected wealth levels in 1870 but are less predictive of the subsequent local growth path.[24]

**Demography.** *Demographic* variables strongly correlate with initial property stock in 1870 and subsequent long-run growth. Together they explain 20% of the variance in property in 1870 and 4% of the variance in conditional growth. Among them, the literacy rate – a proxy for education levels and the local stock of human capital– exhibits the highest correlation and explains 10% of the variance in initial property. Agglomeration effects also seem to matter. Counties with a higher population in 1870 were wealthier and grew faster over the long run. These results are consistent with the scale

[23] More precisely, we add each variable sequentially in the linear regressions described in the text. For each new variable entering the model, we compute its partial adjusted $R^2$. Because the order in which the variables are added can affect the $R^2$, we randomly draw sequences in which the variables are introduced, and, for each variable, we average the partial adjusted $R^2$ over all draws.

[24] These findings align with the results in Hornbeck (2012*b*), who finds that, for a subset of counties in the Plains for 1920-2002, environmental characteristics had a constant relative influence on agricultural land values.

effects in innovation and growth documented in Jones (1995, 2002, 2022). Conditional on population size, a higher share of foreigners is also significantly positively associated with higher long-run growth.

At the same time, migration seems to operate as a force that reduces spatial inequality. Indeed, counties that experienced a higher ten-year population growth and had a higher share of foreigners (a proxy for migration) had lower property in 1870. Appendix Table A2 shows that systematically, over the whole period, lagged higher population growth is associated with lower wealth growth over each next decade. This is suggestive that migration flows foster some convergence: richer places see inflows of migrants moving in (Allen and Donaldson (2020)), but on average, these newcomers have lower wealth and dilute the wealth per capita over the next decade.[25]

**Economic structure.** Another important potential determinant of long-term accumulation highlighted in the "structural transformation" literature is the structure of the local economy (Herrendorf, Rogerson and Valentinyi, 2014), which we capture using *occupational shares*. For each occupation $j$, we rank all counties by the share of their population employed in occupation $j$ and create an indicator variable equal to one if the county belongs to the top decile. Occupational shares explain 12% of the variance in initial property per capita and 3% of the variance in long-run growth.

Figure 21 shows that counties with a higher level of specialization in public administration, mining, and commerce were significantly richer in 1870. More agricultural counties, on the contrary, were significantly poorer and also tended to accumulate property at a significantly slower rate between 1870 and 1930.

Furthermore, we can shed some light on the economic transformation at the local level over the course of development and compare it to the one at the country level (explored, among others, by Herrendorf, Rogerson and Valentinyi (2014)). Appendix Figure A18 reveals that the structure of occupations at the county level follows the same evolution as the one found at the aggregate country level. The fraction of people employed in agriculture declines steadily, and the fraction in services increases as a county's property per capita increases. The fraction employed in manufacturing follows a characteristic hump shape, first increasing and then decreasing as counties grow richer.[26] This evidence suggests that "structural transformation" away from agriculture is a relevant pattern of development even at the local labor market level.

[25] Collins and Zimran (Forthcoming) show that between 1850 and 1940, the assimilation of European immigrants was U-shaped, with earlier cohorts assimilating more quickly. The comparative performance of immigrants and natives is explored in Ferrie (1996) and Ferrie (1997).

[26] This non-monotone pattern for employment in manufacturing also explains why the linear regressions from Figure 21 do not detect a precise effect.

## 5.2 The blight of enslavement.

Section 4.3 highlighted that the experience of Southern economies is key to understanding the lack of spatial convergence in the US after the Civil War. This prompts us to explore the role of enslavement and the unequal distribution of wealth.

Nunn (2007) and Mitchener and McLean (2003) have documented a significant negative correlation between the share of enslaved and economic outcomes today. We first highlight how the reliance on enslavement at the county level, captured by the fraction of enslaved property in total property, correlates with wealth accumulation in the decades following the abolition of enslavement. We then explore the mechanisms through which this occurred using a mediation analysis.

Results in Figure 21 show that counties in which enslaved people represented a larger share of total property in 1860 were significantly poorer in 1870 (panel A) and, importantly, also accumulated property at a significantly lower rate in the sixty subsequent years, even conditional on the full set of other observables in $\mathbb{X}$ (Panel B). The magnitude of the correlation is large: a 10 percentage point (p.p.) increase in the share of enslaved property in total property, conditional on initial property level in 1870, reduces the growth rate of property in the next 60 years by 5 percent.

We next focus exclusively on Southern counties to check whether this negative correlation is driven by non-Southern counties, for which the fraction of enslaved wealth was zero and which grew fast after 1870. Figure 22 shows that there is still a strong negative association between the fraction of enslaved property in total property and long-run development after the Civil War in Southern counties only. Although the magnitude is smaller than when we include non-Southern counties, these results suggest that the "intensity" of reliance on enslaved property also mattered for long-run growth. In addition, this association is robust to introducing our extensive set of county-level geographic, demographic, and occupational characteristics.

Engermann and Sokoloff (2000) formulated the argument that, after its abolition, enslavement remained detrimental for long-run development because it increased initial economic inequality. To test this hypothesis, we follow Nunn (2007) and check whether the association between enslavement and subsequent growth remains significant when introducing direct controls for the level of initial inequality after the Civil War. Consistent with the argument in Engermann and Sokoloff (2000), the fraction of enslaved property is indeed positively correlated with higher initial wealth inequality (Appendix Figure A20). Nevertheless, a strong negative and significant correlation between enslavement and growth remains, even when controlling for initial inequality.[27] Appendix Table A4 shows that the estimated correlation between the fraction of

[27] Nunn (2007) uses data on land inequality in 1860 and also finds no support for the hypothesis in

enslaved wealth in 1860 and future growth is not strongly affected by the introduction of controls for county-level inequality: at most, inequality mediates one-sixth of the effect of slavery. The impact of enslavement on the slow convergence of the US South was not only through high levels of wealth inequality after the Civil War. Instead, systemic policies and the Jim Crow regime played critical roles.

## 5.3 The shadow of inequality

Despite inequality not being the main reason for the lasting consequences of enslavement for capital accumulation in the South, there nevertheless is a significant negative correlation between initial inequality levels, measured by the top 10% wealth share in 1870, and local long-run capital accumulation, even conditional on the full array of controls, including enslaved shares (panel B of Figure 21).

A vast literature on the link between growth and inequality mainly relies on cross-country correlations (see, among others, Perotti (1996), Alesina and Rodrik (1994), Acemoglu et al. (2007), Banerjee and Duflo (2000), Barro (2000), and Baselgia and Foellmi (2022) for a recent survey). Our key advantage is that we can measure the relationship between inequality and long-term growth across places at a granular level within the same country and state. This granularity allows us to keep fixed many characteristics, such as institutional or cultural factors.

We explore the relationship between local (county-level) inequality and long-term growth in Figure 23. The figure plots the long-term growth of counties in 25 equally-sized bins by top 10% wealth shares, with and without conditioning on the full array of local controls in $\mathbb{X}$ (i.e., geography, demographic, occupational shares, and enslaved property share. For full results see also Table A5). Highly unequal counties, with top 10% shares close to 100% in 1870, such as Baton Rouge, LA or Charleston, SC, had almost 70 percent lower growth of property per capita over the next 60 years than counties such as Douglas, NE or Larimer, CO, where the initial top 10% wealth share was about 75%. This strong relationship remains highly significant, even after adding controls: a 10 p.p. increase in a county's top 10% wealth share is associated with 20 percent lower property growth over the subsequent 60 years.

To understand the potential mechanisms underlying this strong negative correlation, we perform a mediation analysis by running specifications of the following form:

Engermann and Sokoloff (2000) that the legacy of slavery on future development was mediated by initial inequality.

$$\log\left(\frac{W_{i,1930}}{W_{i,1870}}\right) = \alpha - (1 - \exp(-\beta \cdot 60)) \cdot \log(W_{i,1870}) + \mathbb{X}'_{i,1870}\gamma + \Lambda \text{Top Wealth Share}_{i,1870} + \mathbb{Z}'_{i,1870-1930}\gamma_z + u_i$$

where the vector $\mathbb{Z}$ includes changes in the composition of the population, in its level of education, or in the occupational structure of the local economy between 1870 and 1930. We are interested in how the addition of these mediators affects the estimated correlation $\Lambda$ between inequality and growth.[28]

The results in Appendix Tables A5 and A6 indicate that the most important mediator is the pace of human capital accumulation as captured by the change in the literacy rate of the local population. Lower growth of literacy rates in areas with higher inequality alone account for 20% of the association between higher inequality and lower long-run growth. Earlier work (e.g., Ramcharan (2006) or Acemoglu et al. (2007)) had already suggested a negative correlation between inequality in land ownership in 1860 and school enrollment or education expenditures. Our results confirm that a lower rate of human capital accumulation is a strong mediator of the inequality-growth link.

# 6 Conclusion

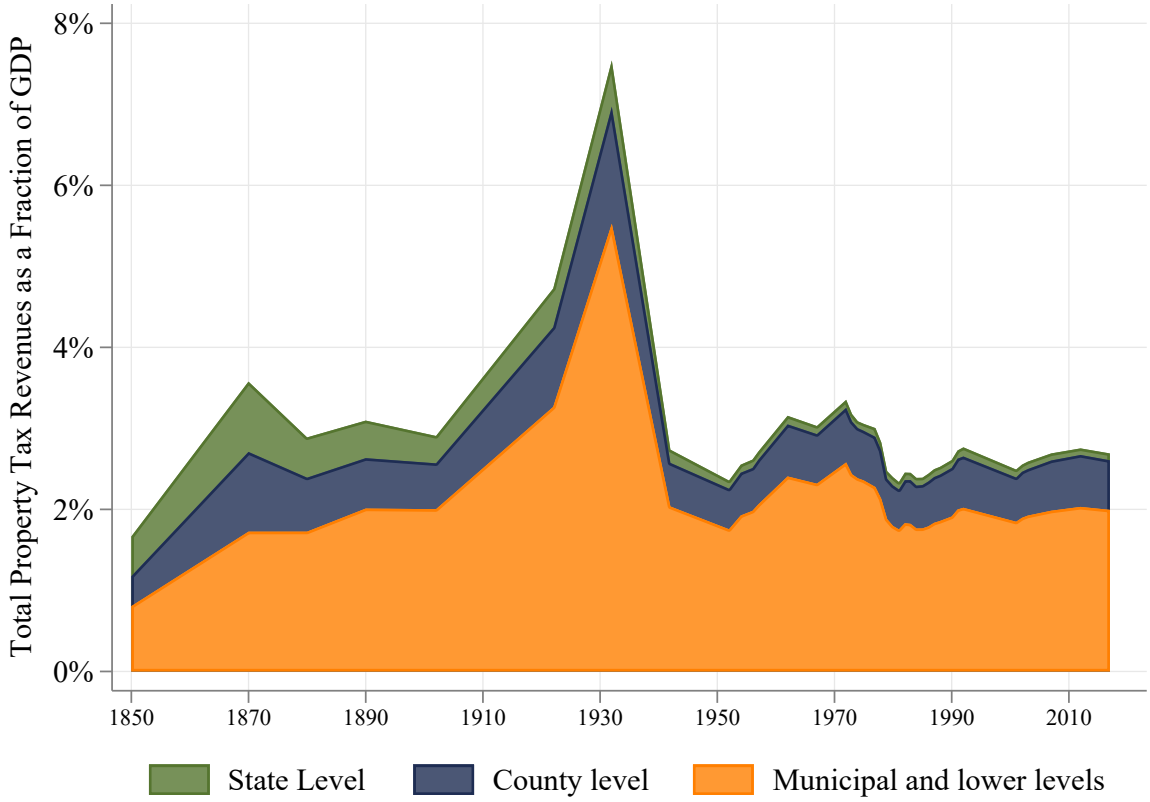
The US General Property Tax was one of the first wealth taxes. It was a comprehensive tax that applied mostly uniformly to many kinds of property, such as real estate, personal property, and financial wealth. Thanks to the paper trails left by the administration of this tax, we can construct new fine-grained and high-frequency wealth series of household property in the US. This data allows us to document the evolution of wealth and spatial inequality over time. At the national level, US wealth grew extraordinarily rapidly after the Civil war. At the same time, spatial inequality was large and highly persistent. Southern economies, which relied heavily on exploiting enslaved people, remained stagnant and poor even over the long run. We document a strong link between inequality and growth, even at a granular geographic level: Places that were more unequal in 1870 had significantly lower subsequent 60-year growth, among others, because they accumulated human capital at a slower rate.

Future work can leverage the exhaustive wealth and property data to compare and

[28] The algorithm is as follows. Pick one of the mediating variables, $Z_j$. We select the mediator variables from the vector $\mathbb{Z} = \{Z_1, Z_2, ...Z_n\}$ in a random sequence and repeat this sequencing $x$ times. For each random sequence, we add the mediating variables sequentially to the regression, in the order of the sequence. We measure the importance of the mediating effect of $Z_j$ on $\Lambda$ by computing for each sequence the change in estimated $\Lambda$ between the specification just before $Z_j$ is introduced and the one in which $Z_j$ is introduced, and we average this change in estimated $\Lambda$ over all $x$ sequences.

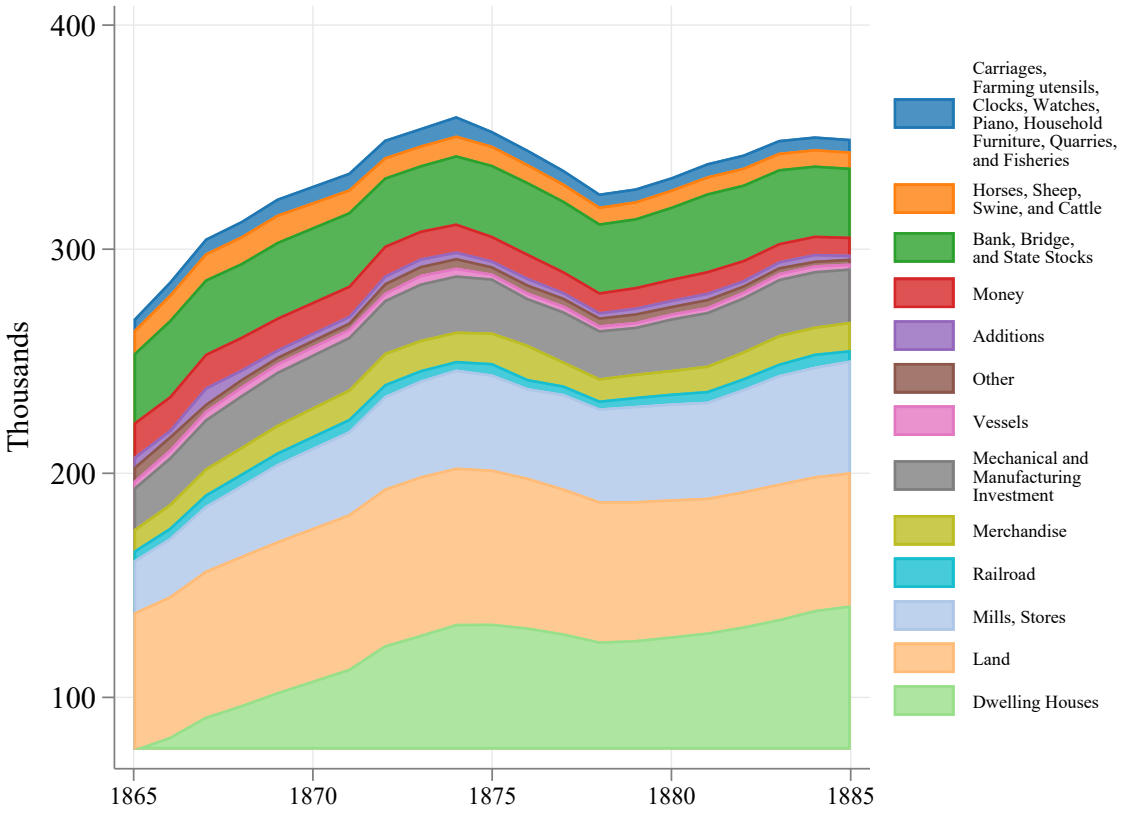
contrast with the results from earlier work on the determinants of economic activity using income data. Along these lines, we showed that the speed of convergence in wealth is very different from that of income. It would also be interesting to consider the effects of local wealth on other economic outcomes, such as innovation or education. Finally, it may be interesting to perform a finer analysis of different types of wealth, leveraging the additional information in the data trail left by the administration of the General Property Tax.

Figure 1: Total Property Tax Revenues as a Share of GDP 1850-2020




*Notes:* This figure shows total property tax revenues as a share of GDP for the United States. It includes all states in the Union for a given year. Property tax revenues are broken down by i) State-level, ii) County-level, and iii) Municipal-level and lower levels (which would include districts as listed in the text). For the data sources and construction, see Appendix III.8. The GDP data comes from the series by Johnston and Williamson (2020).

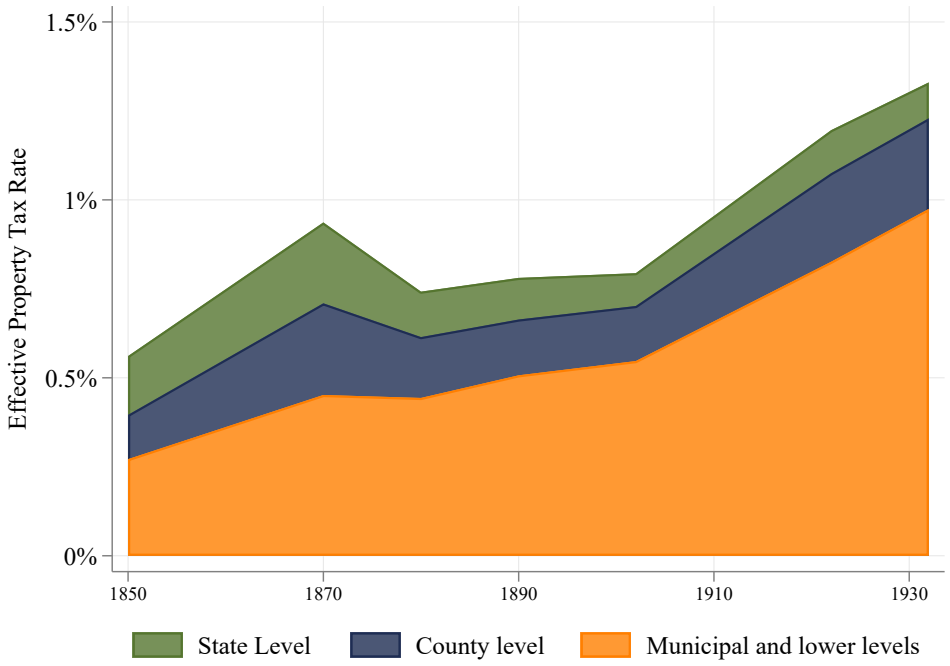
Figure 2: Composition of Private Property in Connecticut



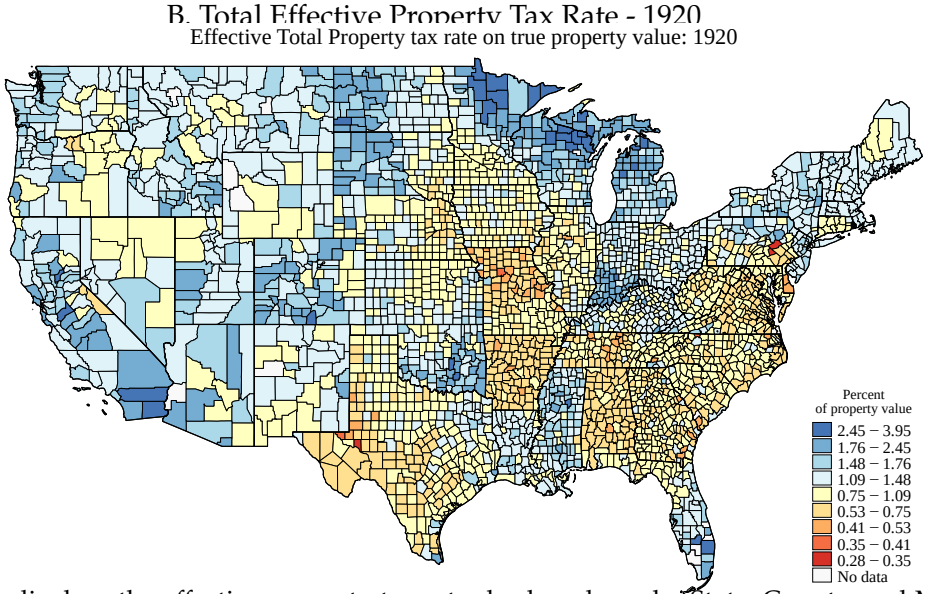

*Notes:* This figure shows the decomposition of private property subject to the general property tax in Connecticut. The data comes from the *Grand List of Connecticut* as presented by Ely (1888) (pp. 503-506).

Figure 3: Effective Tax Rates

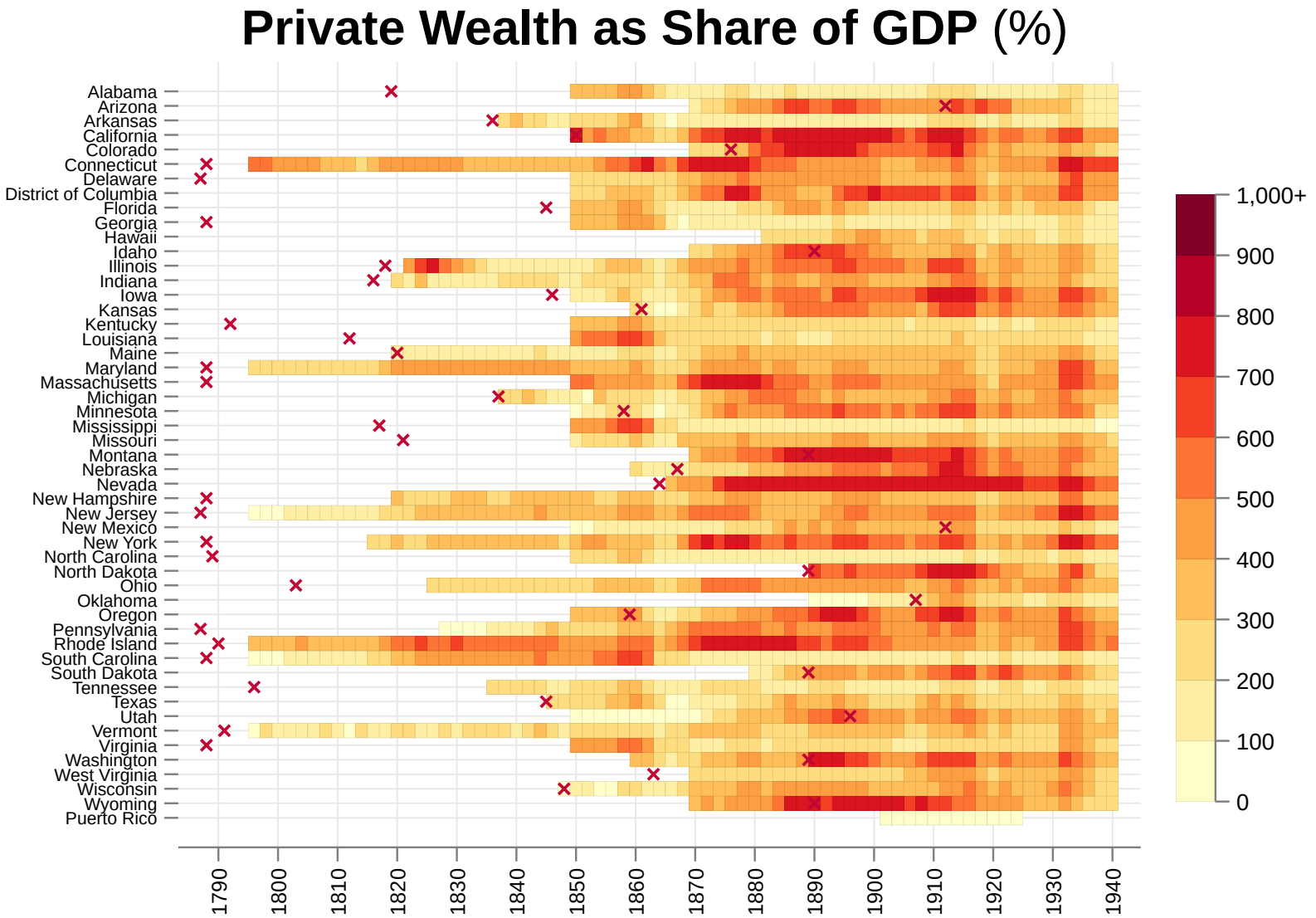
A. Effective Tax Rates by Level of Government




B. Total Effective Property Tax Rate - 1920



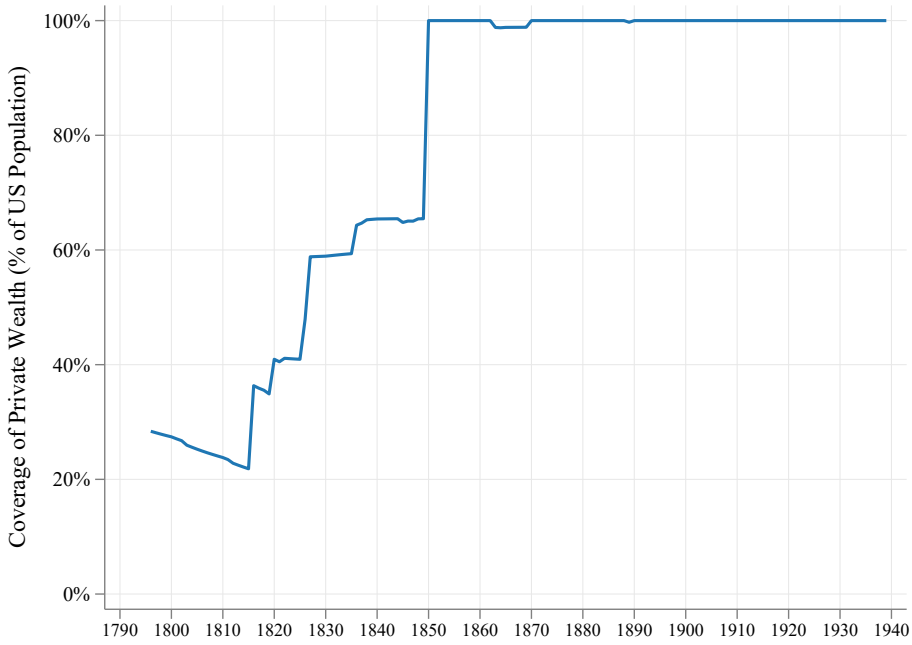

*Notes:* Panel A displays the effective property tax rates broken down by State, County, and Municipal and lower levels of jurisdiction. We compute effective tax rates as the ratio between the tax revenues and the total value of property. For the data sources and construction, see Appendix III.8. Panel B shows the effective property tax rate at the county level. It includes all property taxes (district, city, county and state levels).




Red cross indicates year of admission to the Union. Includes linear interpolation.

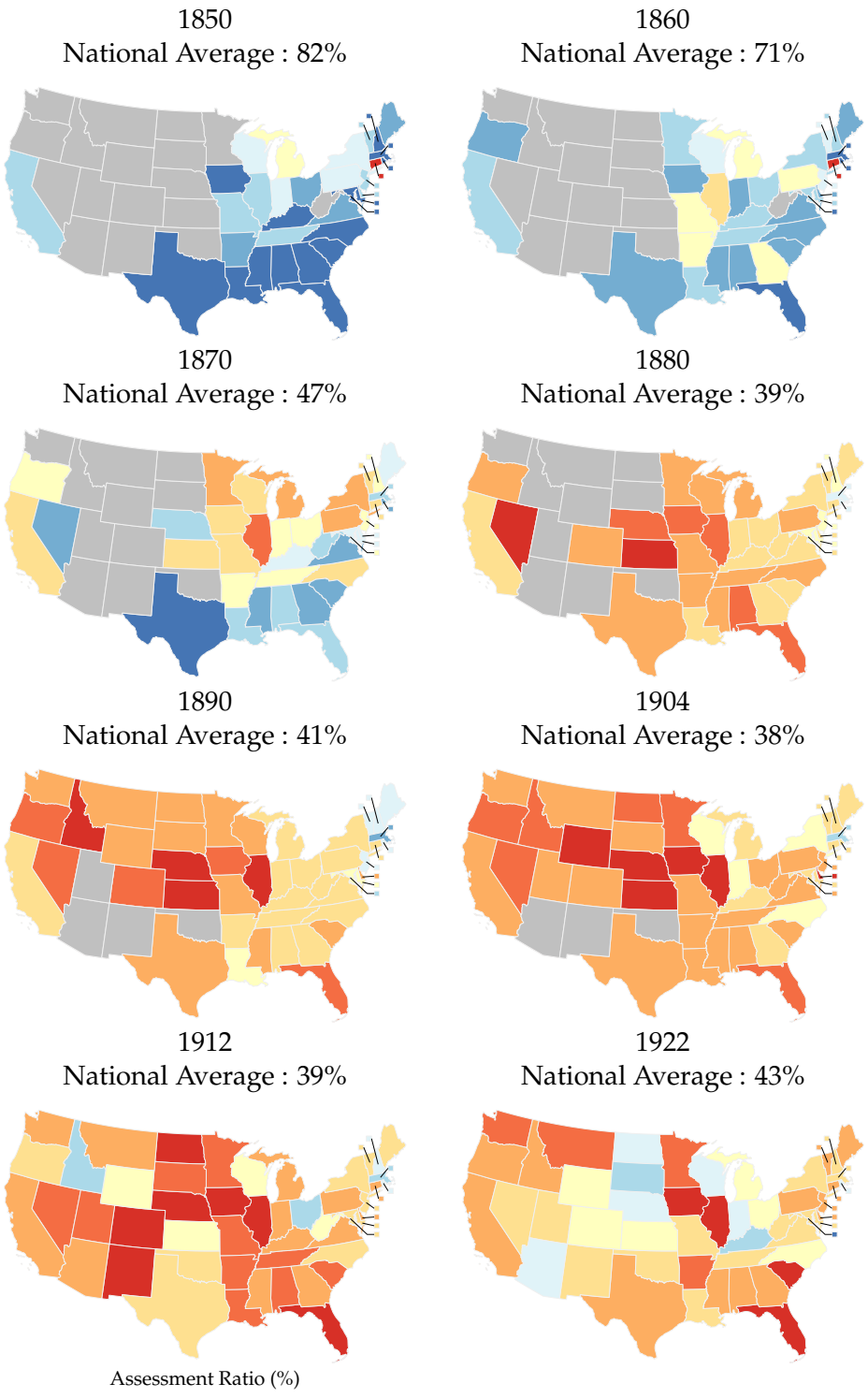
*Notes:* This figure shows the coverage and trends in property share for all 50 states, the District of Columbia and Puerto Rico. Property shares are measured as the ratio of private property per capita in the state over national GDP per capita. Red crosses indicate the year of the admission of the state to the Union. Property values are linearly interpolated for missing years. For coverage without interpolation, see Panel C of Figure A4.

Figure 5: Share of the Population Covered in the Property Data



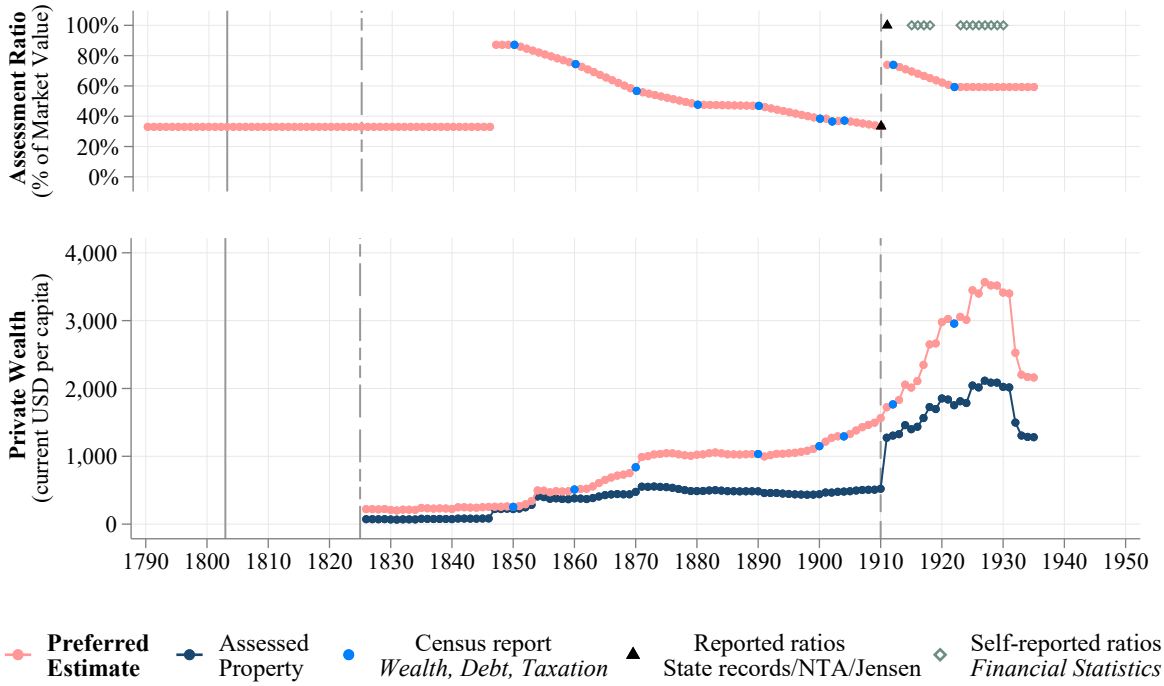

*Notes:* This figure shows the fraction of the national population for which data on private property is available in any given year.

Figure 6: Assessment Ratios at the State Level over Time



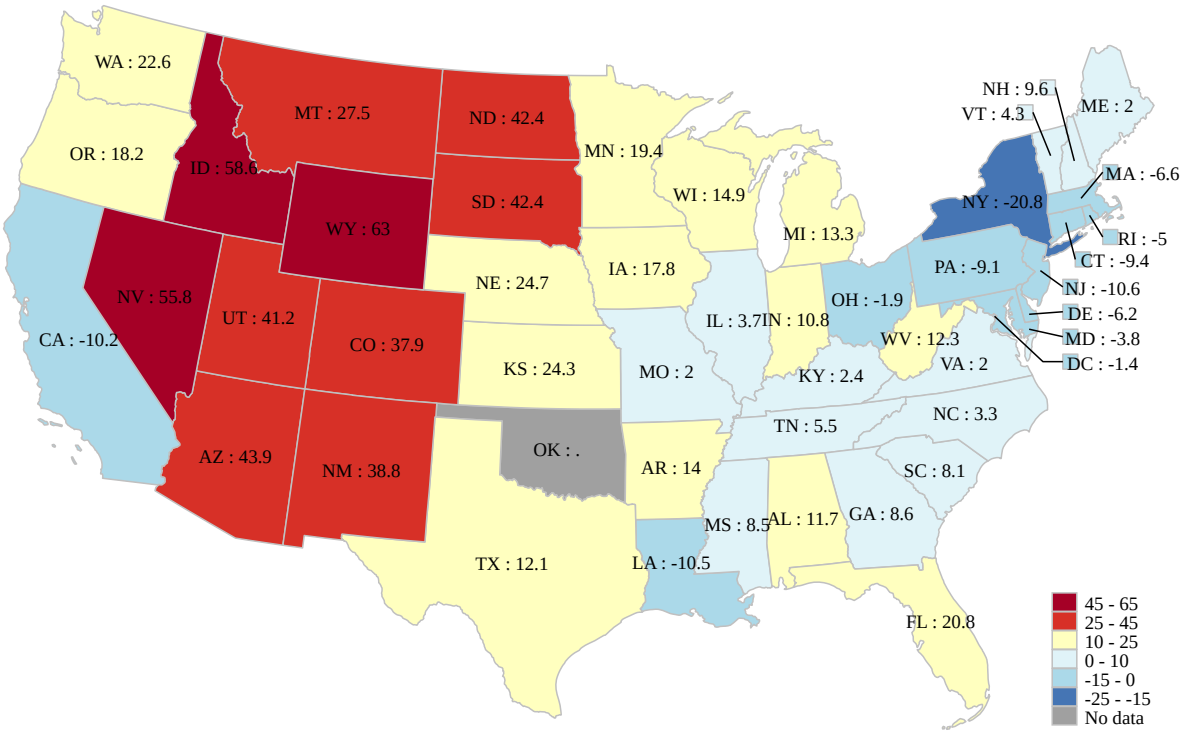

*Notes:* This figure displays the average assessment ratio of assessed to true value of all property for each state. Assessment ratios for US territories prior to admission in the Union are not displayed.

Figure 7: Example: Assessment Ratio and Property Estimates in Ohio



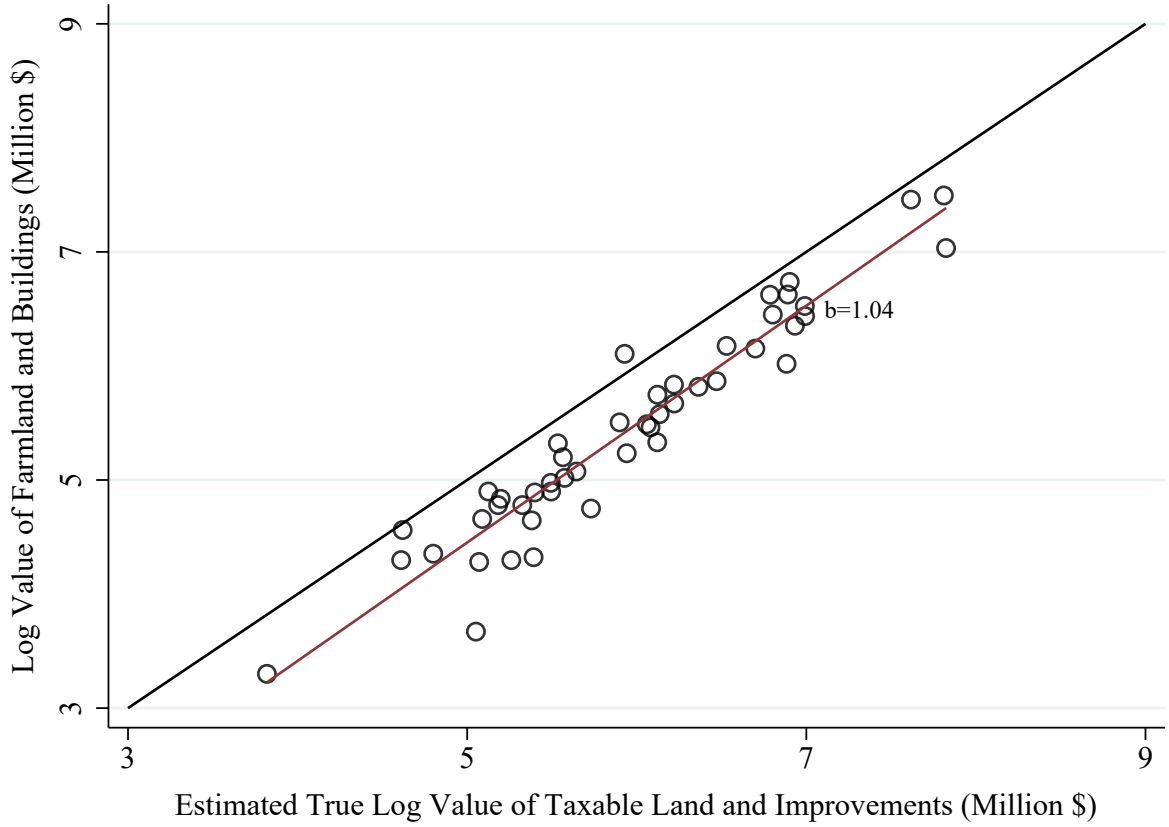

*Notes:* The top chart depicts the data sources for and values of assessment ratios for Ohio. The bottom chart compares the assessed property values as collected from primary sources with the market value of property obtained by rescaling assessed values using the assessment ratio.

Figure 8: Net Cross-State Asset Positions in 1880



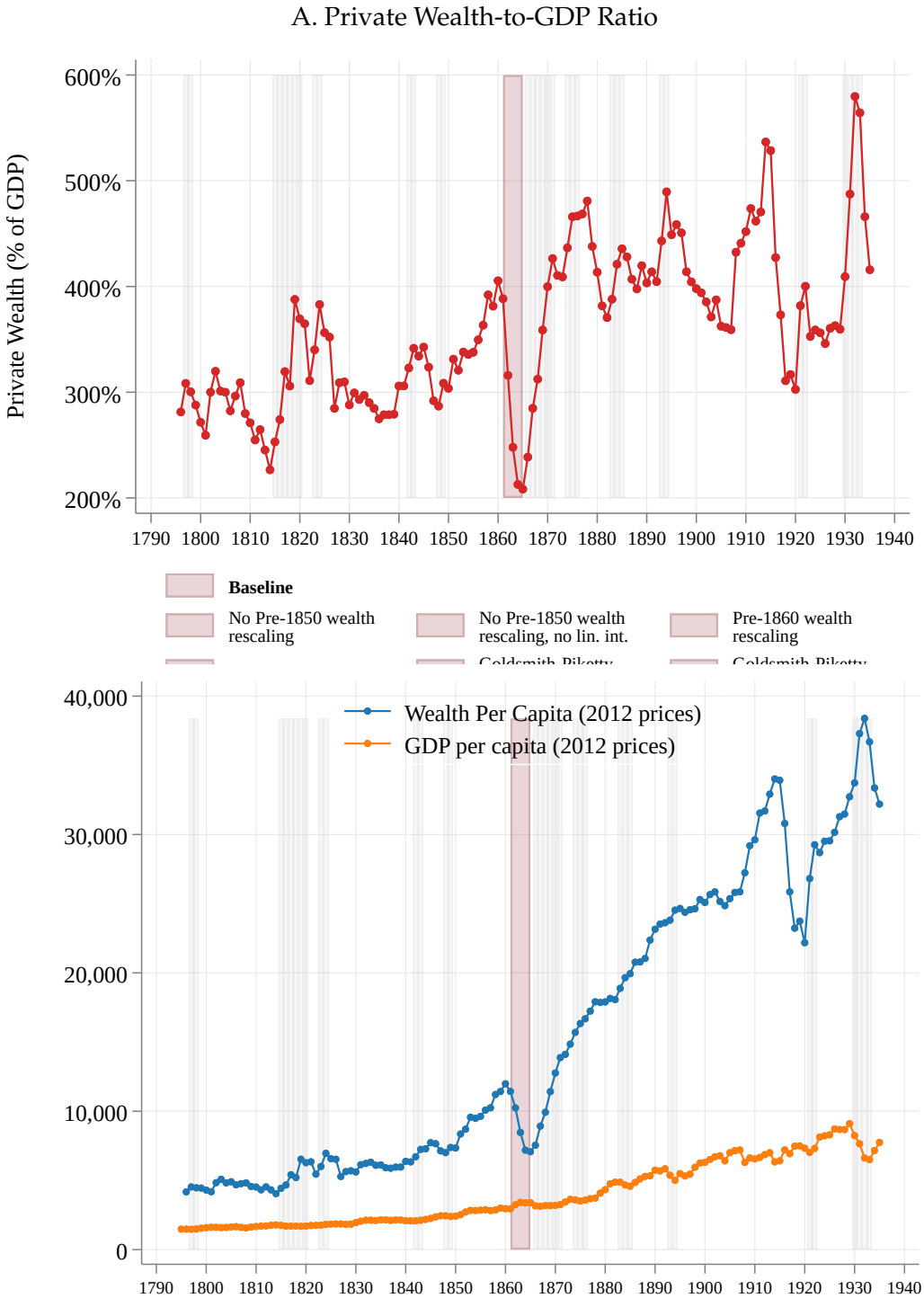

*Notes:* The Figure shows the net cross-state position of each state for year 1880, in percentage of their total private property. A positive value means that non-residents own part of the property of the state; a negative value means that residents of that state own property in other states. The data comes from U.S. Census Bureau (1880).

Figure 9: Cross-Validation: Comparison of the Estimated Value of Taxable Land from Property Tax Records and Values from the Census of Agriculture (1860-1910)



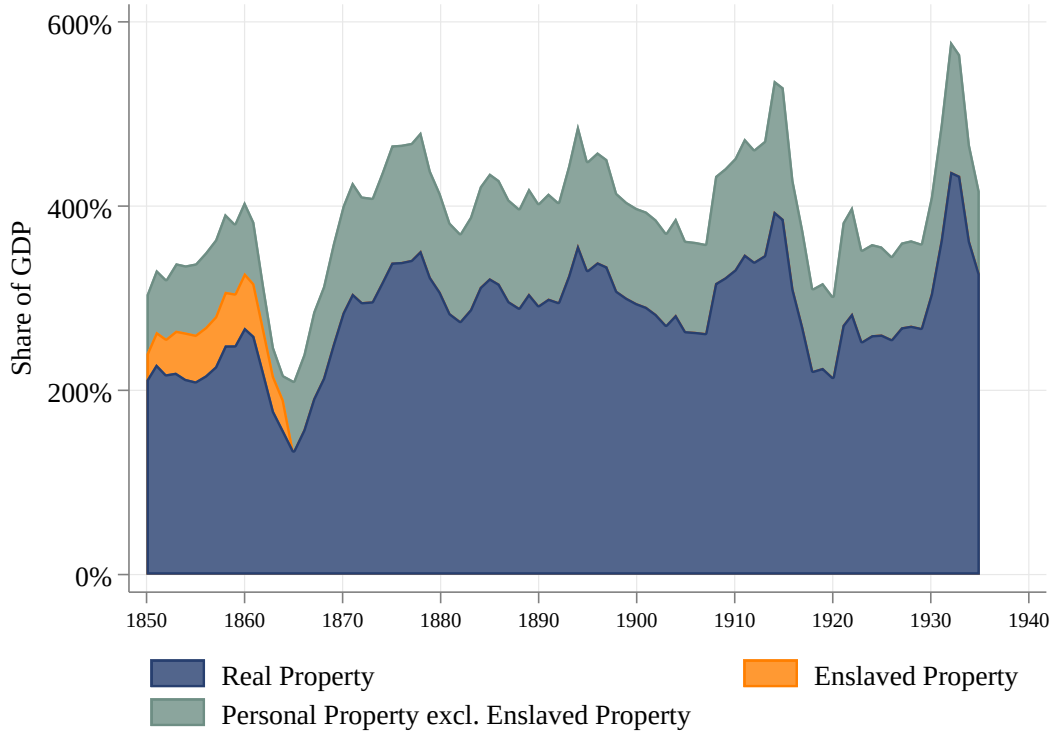

*Notes:* This figure compares the estimated value of taxable land in our property tax data to the estimated value of agricultural land from the Census of Agriculture. Data from the Census of Agriculture is derived from Haines (2014). The value of taxable land is a sub-category of real property and is reported separately for 13 states from 1860 to 1910: Alabama, Arkansas, Florida, Georgia, Indiana, Kansas, Kentucky, Minnesota, North and South Carolina, Tennessee, Texas, and Wisconsin. Note that the agricultural land is a subset of all taxable land; therefore we expect that levels not to match. However, the correlation is almost 1.

Figure 10: US National Wealth Series 1795-1935



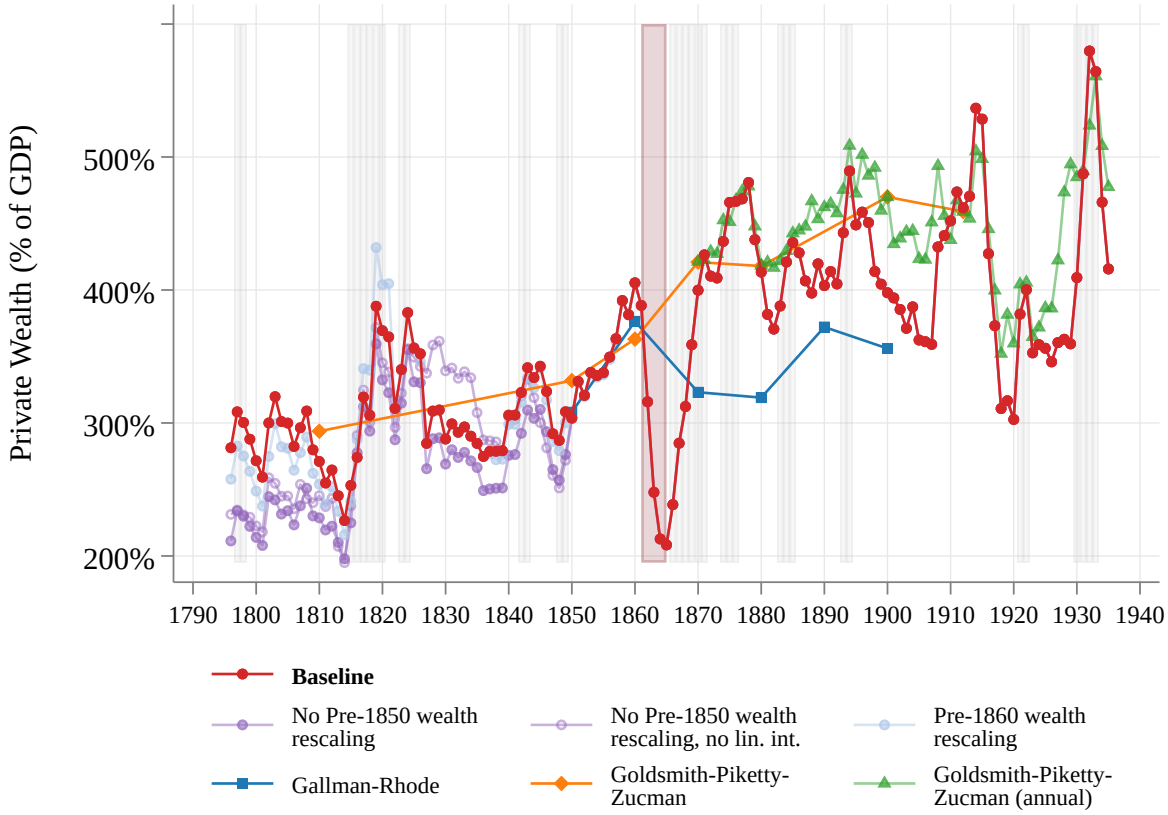

*Notes:* Panel A displays total US wealth as a fraction of GDP, using our benchmark assumptions. Panel B displays both Wealth per capita (the numerator) and GDP per capita (the denominator) over the same period. Grey areas indicate recessions; the red shaded area indicates the Civil War.

Figure 11: The Composition of US Wealth 1850-1935



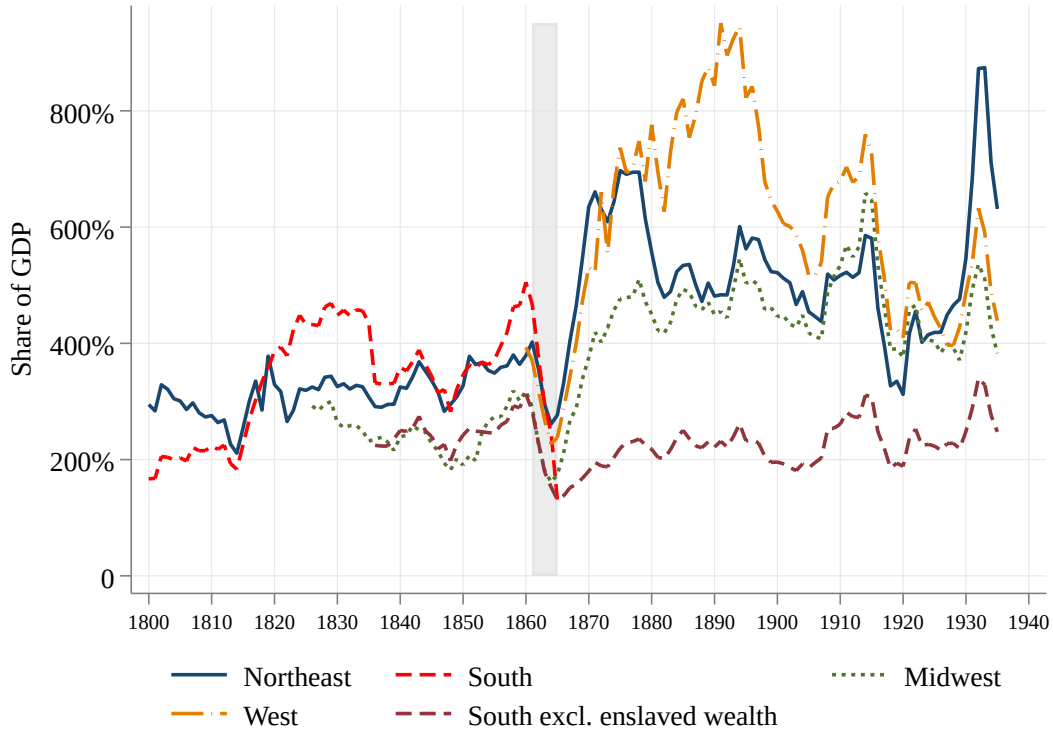

*Notes:* The figure shows the decomposition of wealth per capita in the US into three categories: real property; personal property excluding enslaved wealth, and the value of enslaved wealth. For the construction of enslaved wealth series see Appendix Section III.2.

Figure 12: Comparison with Other Estimates and Sensitivity Analysis




*Notes:* This figure compares our baseline wealth estimate with other estimates (see Appendix III.6 for a description of these alternative estimates). The main text and Appendix III.5 provide all details for the construction of our "Baseline" series and of the sensitivity series plotted on this graph. The series "No Pre-1850 wealth rescaling." does not reweigh states before 1850; the series "No Pre-1850 wealth rescaling, no lin. int." in addition does not use linear interpolation for years in which state-level wealth is missing; the line "Pre-1860 wealth rescaling" uses 1860 as the benchmark year to re-weigh states. Grey areas indicate recessions; the red shaded area indicates the Civil War.

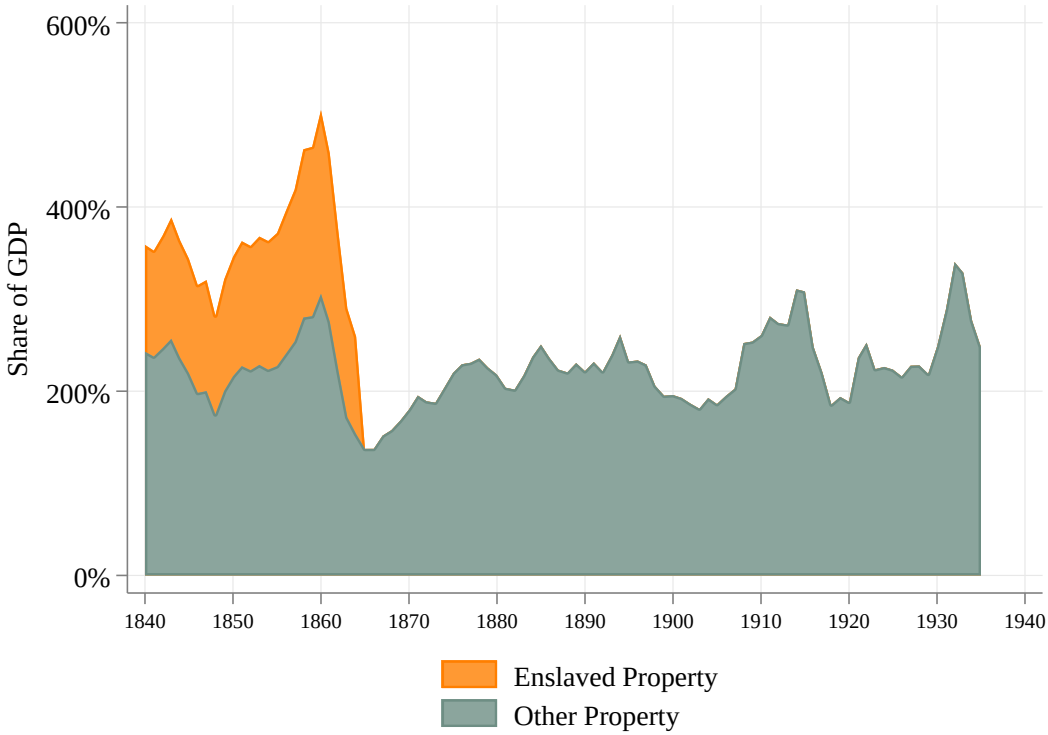
Figure 13: Property per Capita by Region, as a Share of National GDP per Capita



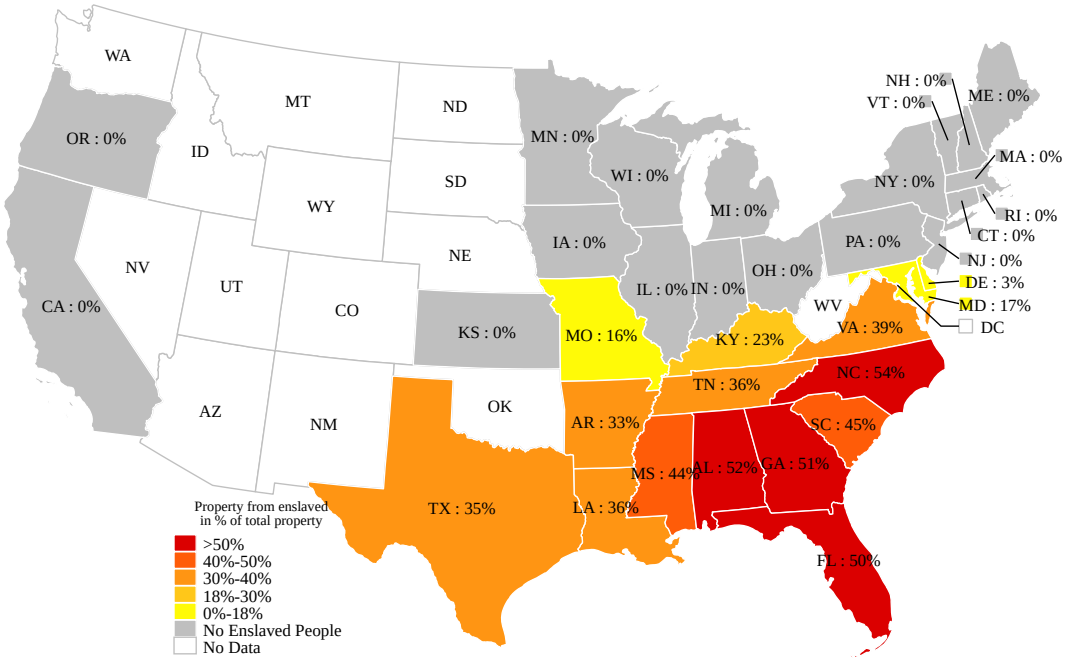

*Notes:* The figure shows the average ratio of property per capita in four US regions over the national (US) GDP per capita.

Figure 14: Enslaved People in Property in Southern States 1840-1935

A. Composition of Property as share of GDP



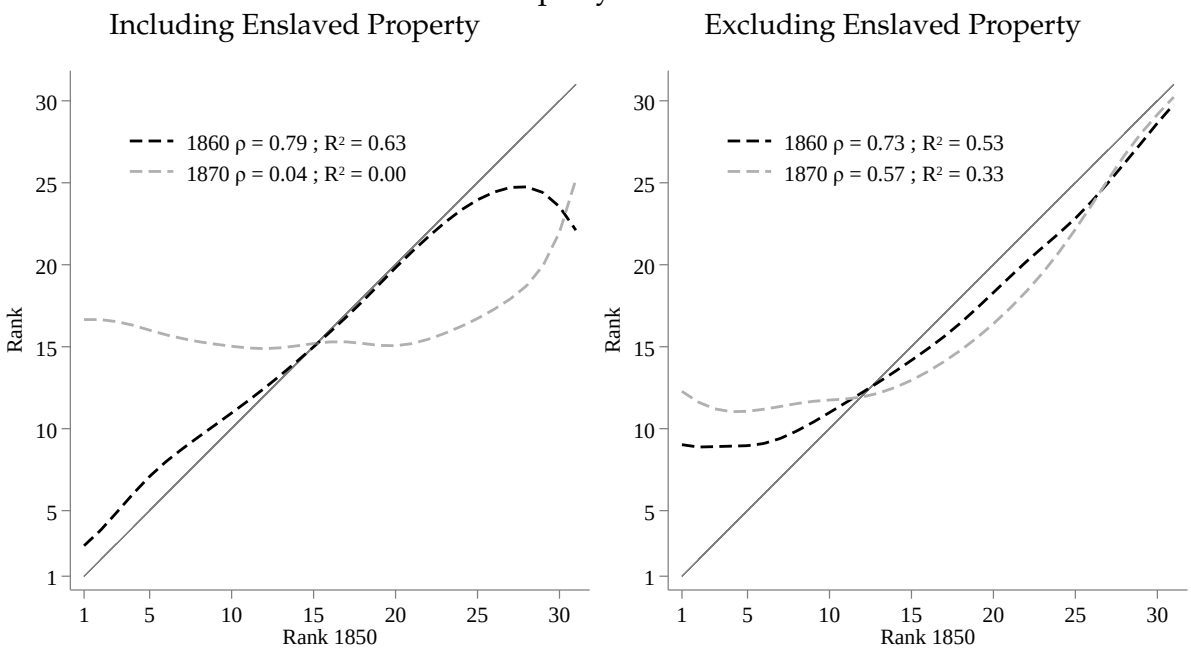

B. Share of Enslaved Property in 1860



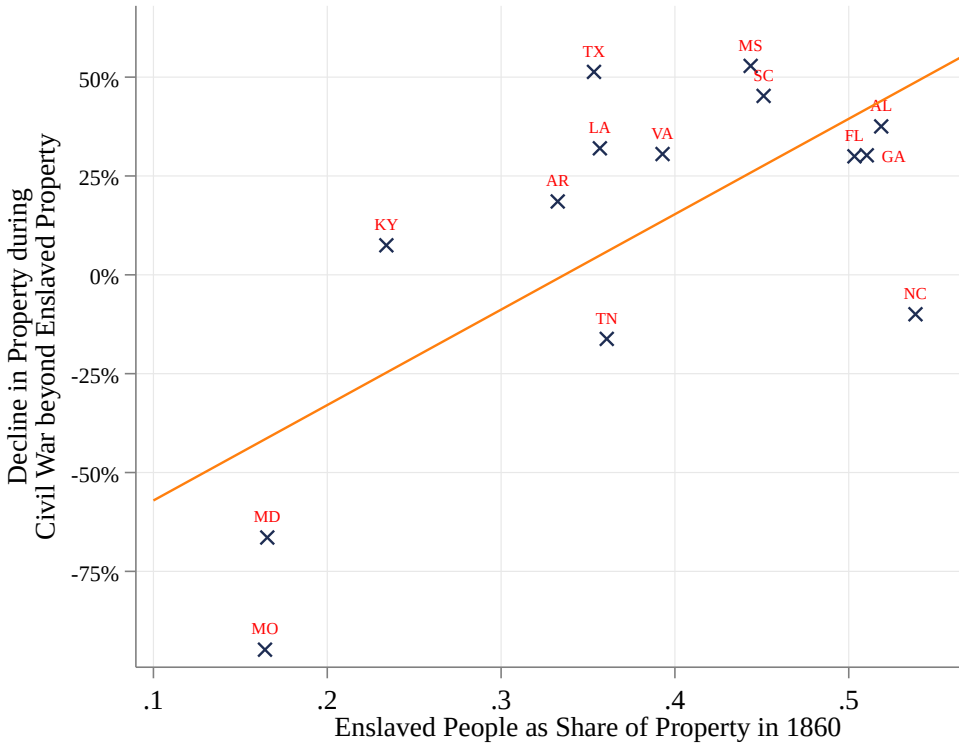

*Notes:* Panel A shows the decomposition of property per capita for Southern states into two categories: enslaved property and all other property. For the construction of this series see Appendix Section III.2. Panel B shows the share of enslaved property in total property by state in 1860.

Figure 15: The Civil War and Enslaved Property

A - Persistence of Property Pre- and Post Civil War




B - Decline in Property per Capita during Civil War beyond Enslaved Property by Share of Enslaved Property

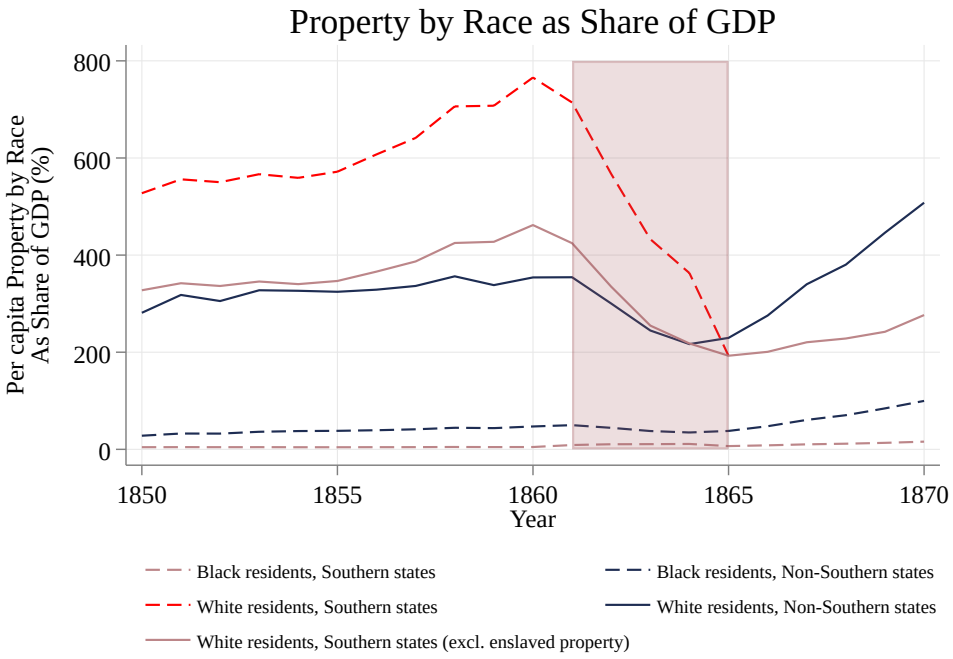



*Notes:* Panel A displays the persistence of state per capita property rank between 1850, 1860, and 1870. The left plot includes enslaved property; the right plot excludes it. Panel B displays the percent decline in per capita property beyond the disappearance of the enslaved property between 1860 and 1870. A value of 0 means the property per capita in 1870 is equal to the property per capita in 1860 excluding enslaved property, i.e., $1 - \frac{W_i,1870}{(1-S_{i,1860})W_i,1860}$, where $i$ is the state, $W_{i,t}$ the total property in the state in year $t$, and $S_{i,1860}$ the share of enslaved property in total property in 1860 (enslaved people are always included in population counts).

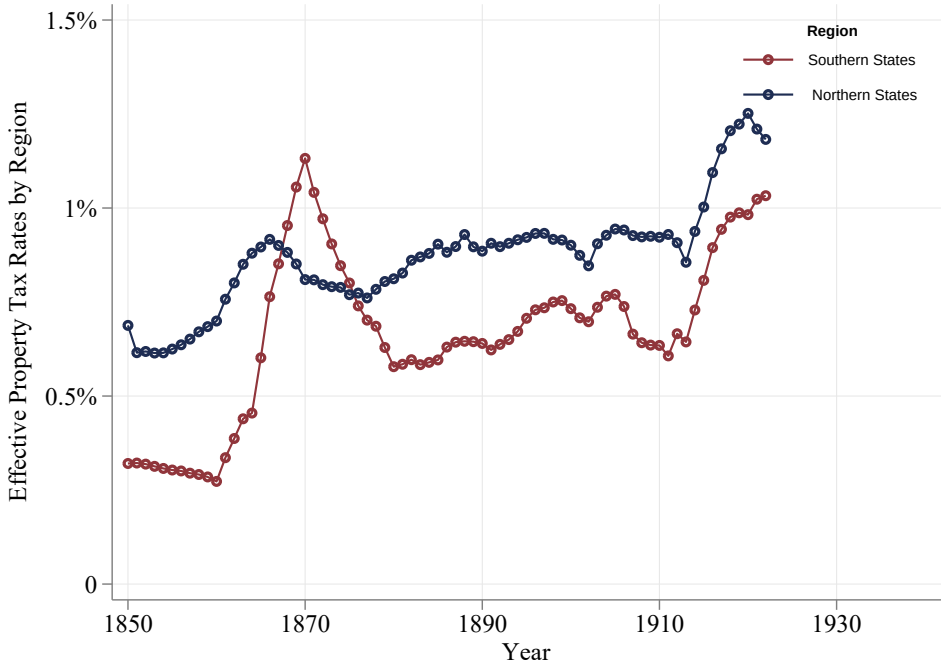
*Continued on the next page*

Figure 15: The Civil War and Enslaved Property (continued)

C - Evolution of Property by Race, in Southern and non-Southern States

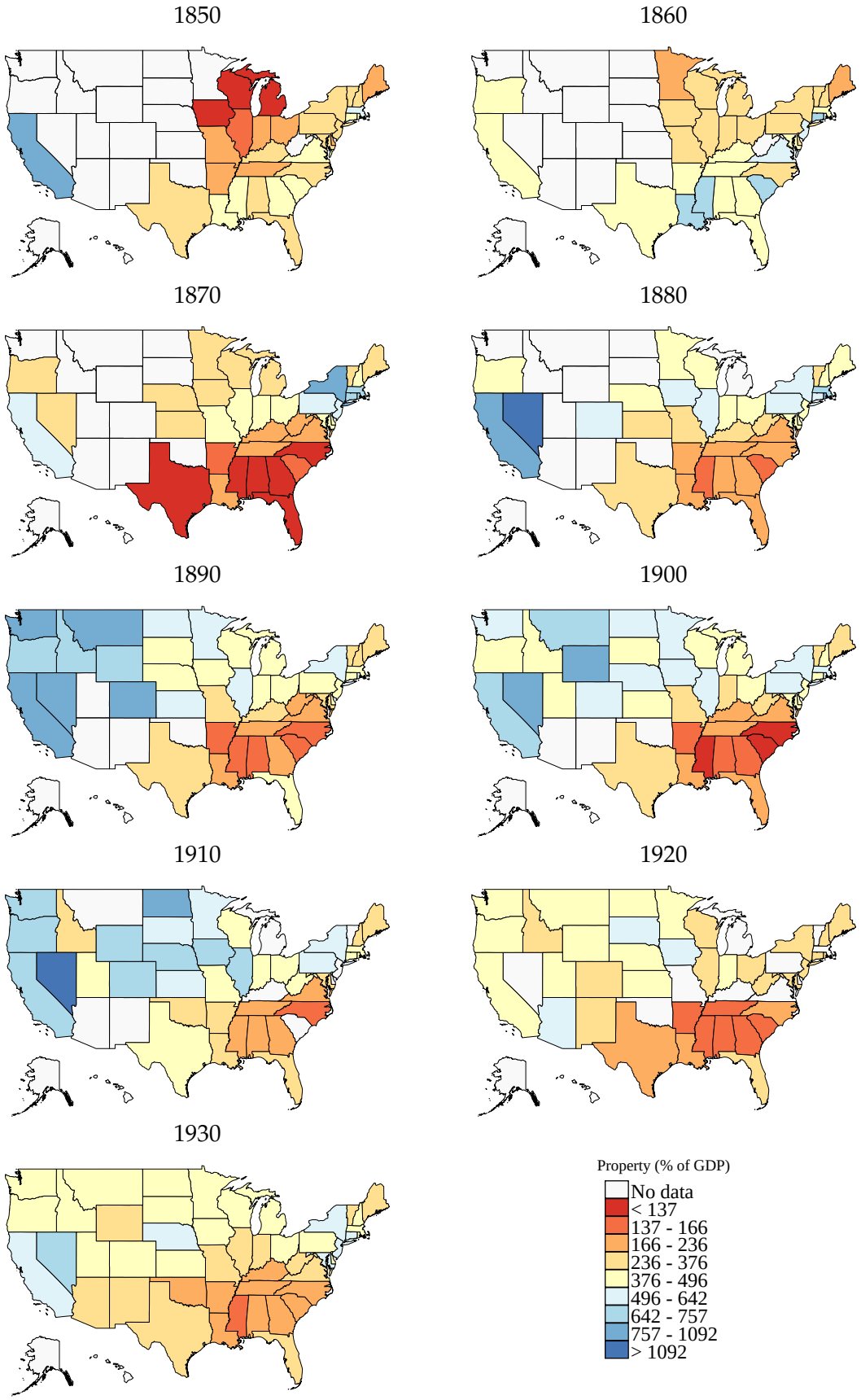



D - Effective Tax Rates by Region



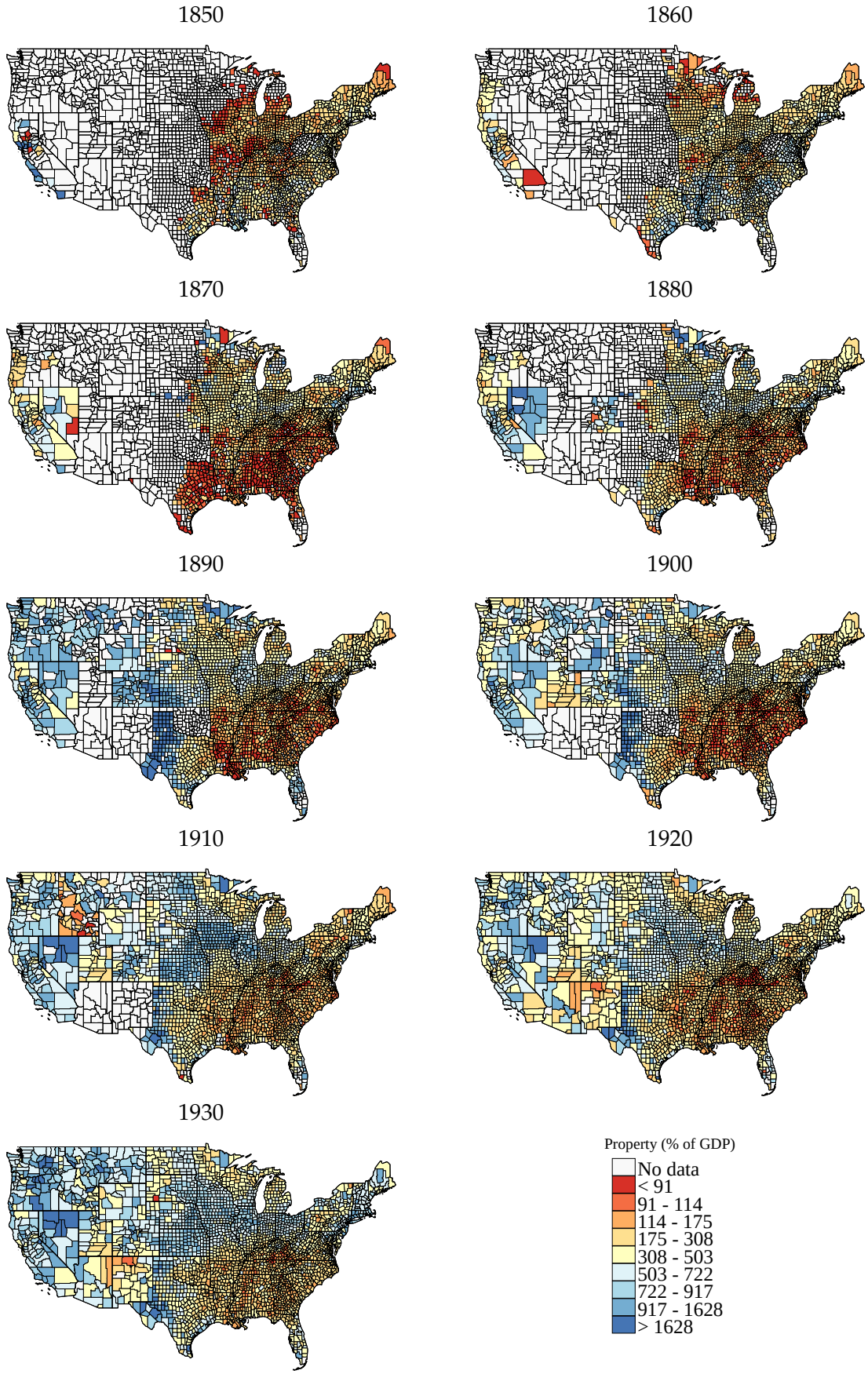

*Notes:* Panel C displays the evolution of the average value of property per capita for Black and white residents in Southern and Non-Southern states, as a share of US GDP. Panel D displays the effective property tax rates for Southern and Northern States. For the data sources and construction, see Appendix III.8.

Figure 16: Property Per Capita by State As a Share of National GDP Per Capita




*Notes:* This figure shows the value of property per capita by state normalized by the national GDP per capita for each decade between 1850 and 1930. Data for states in US territories prior to admission in the Union are not displayed.

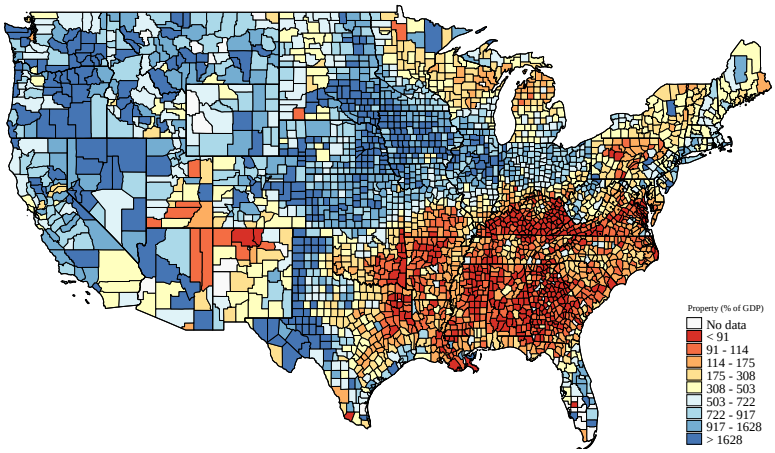
Figure 17: Property Per Capita by County As a Share of National GDP Per Capita




*Notes:* The figure shows the value of property per capita by county normalized by the national GDP per capita for each decade between 1850 and 1930. Data for counties in US territories prior to admission in the Union are not displayed.

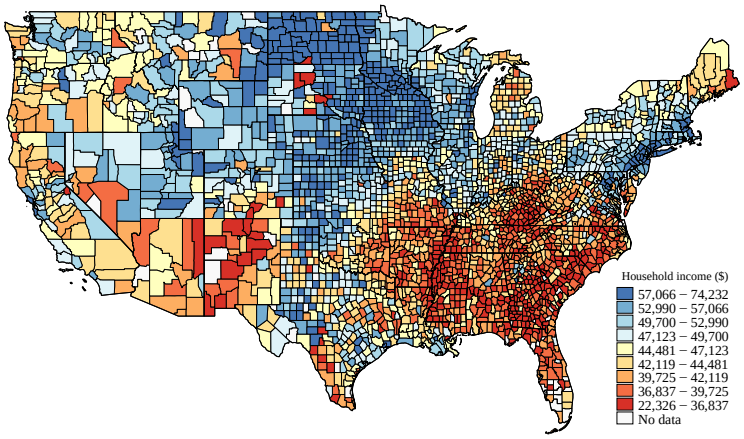
Figure 18: County Level Property in 1920 and Income in 2014 (Opportunity Atlas Data)

A. Property per Capita in 1920

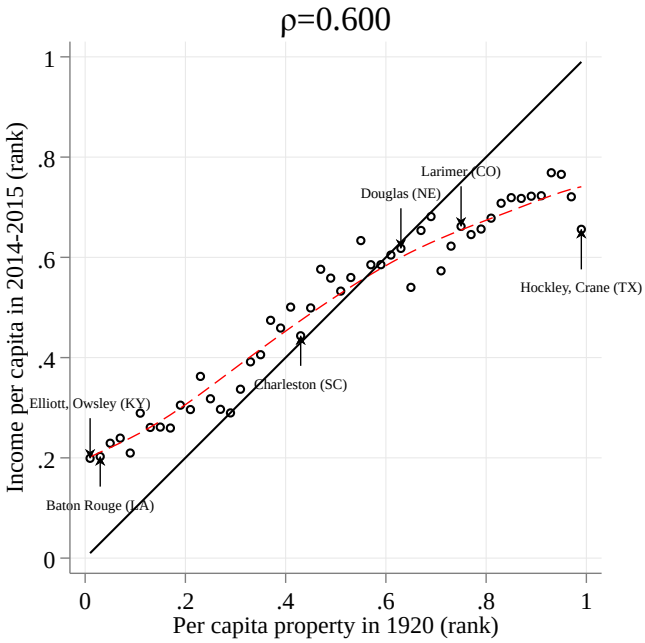



Today's Household income

Opportunity Atlas data

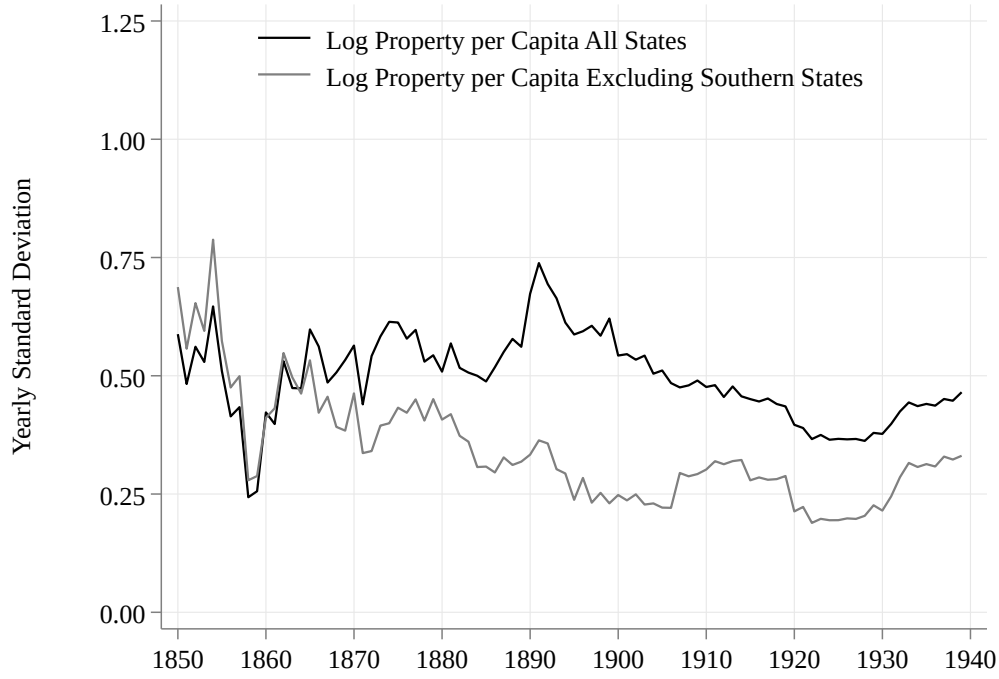



C. Persistence of Property and Income

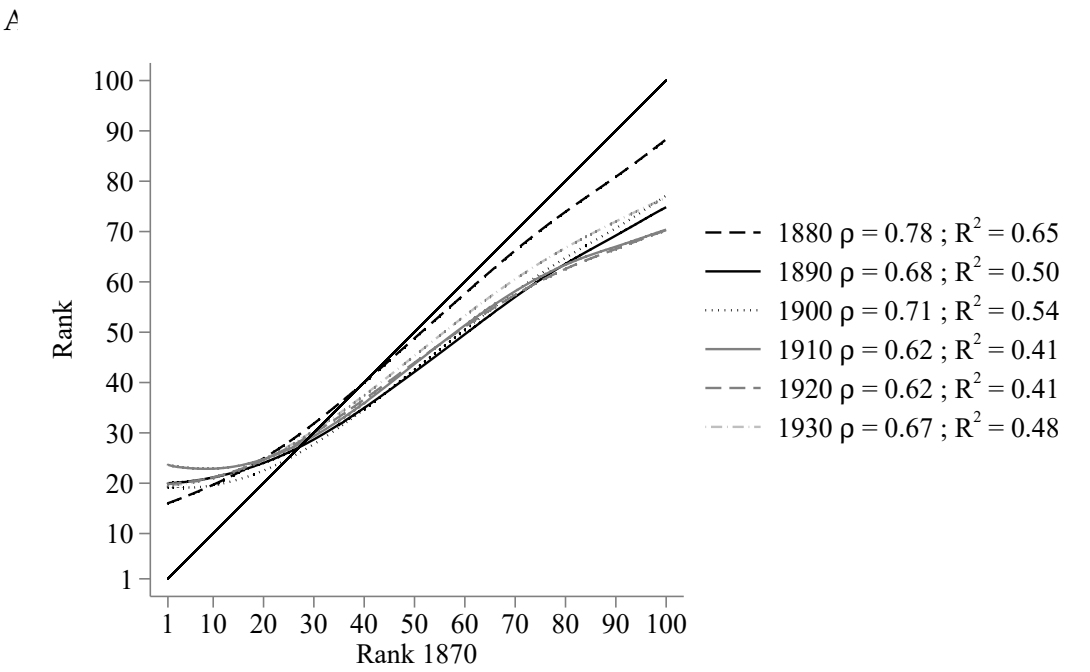



*Notes:* Panel A shows county property per capita as a share of national GDP per capita in 1920; Panel B depicts average annual household income in 2014 and 2015 for children whose mothers grew up in the United States, with data from the Opportunity Atlas. Panel C shows the rank-rank correlation between property per capita in 1920 and Income in 2014/15.

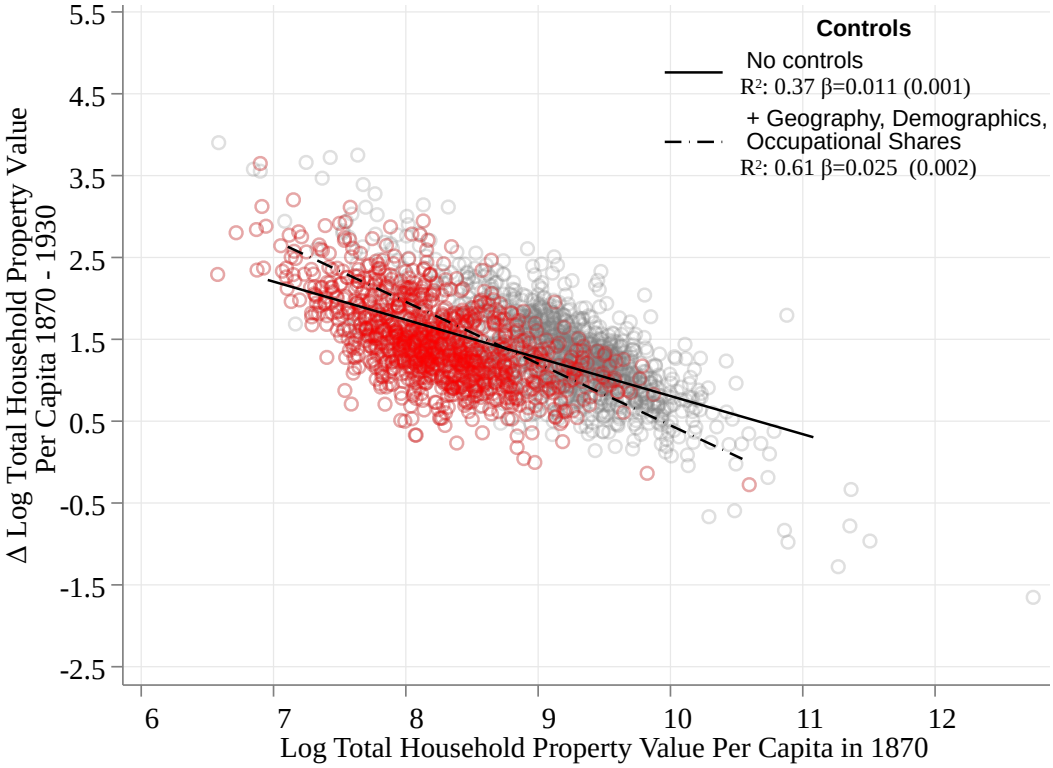
Figure 19: Dispersion in Property per Capita across States over Time




*Notes:* The figure plots the yearly standard deviation of property per capita across states for all states (solid black line) and excluding Southern states (grey line).




B. $\beta$-Convergence at the County Level

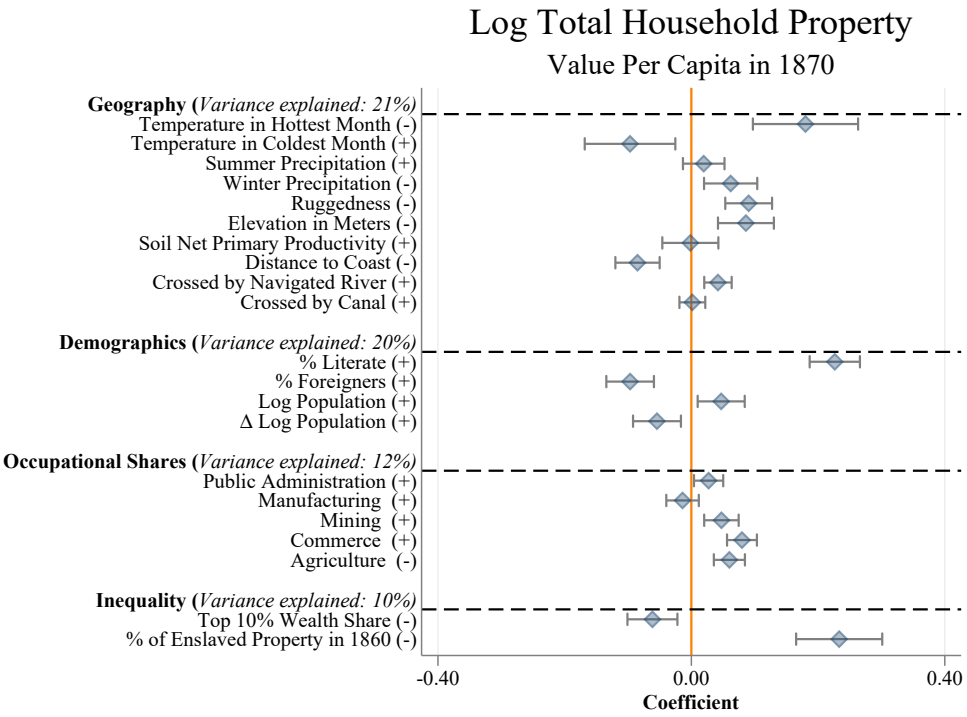



County We

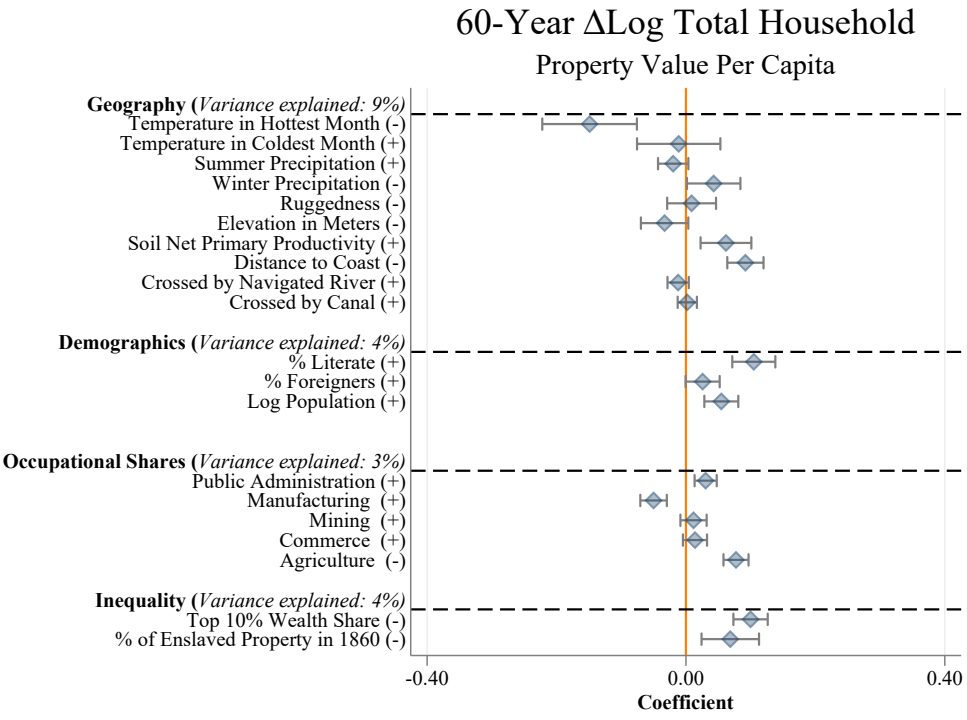
*Notes:* Panel A shows the rank-rank correlation of county-level property per capita for different years ($\rho$) and the $R^2$ for each year $t$ of a simple regression of county-level property capita in year $t$ on county-level property per capita in 1870. Panel B shows the relationship between the growth rate of county-level property per capita between 1870 and 1930 and initial property per capita in 1870, without controls (solid line) or adding controls for geography, demographics, and occupational structure (dashed line). Southern counties are represented in red.

Figure 21: Correlates of Property at the County Level 1870-1930

A. Log Total Property per Capita in 1870

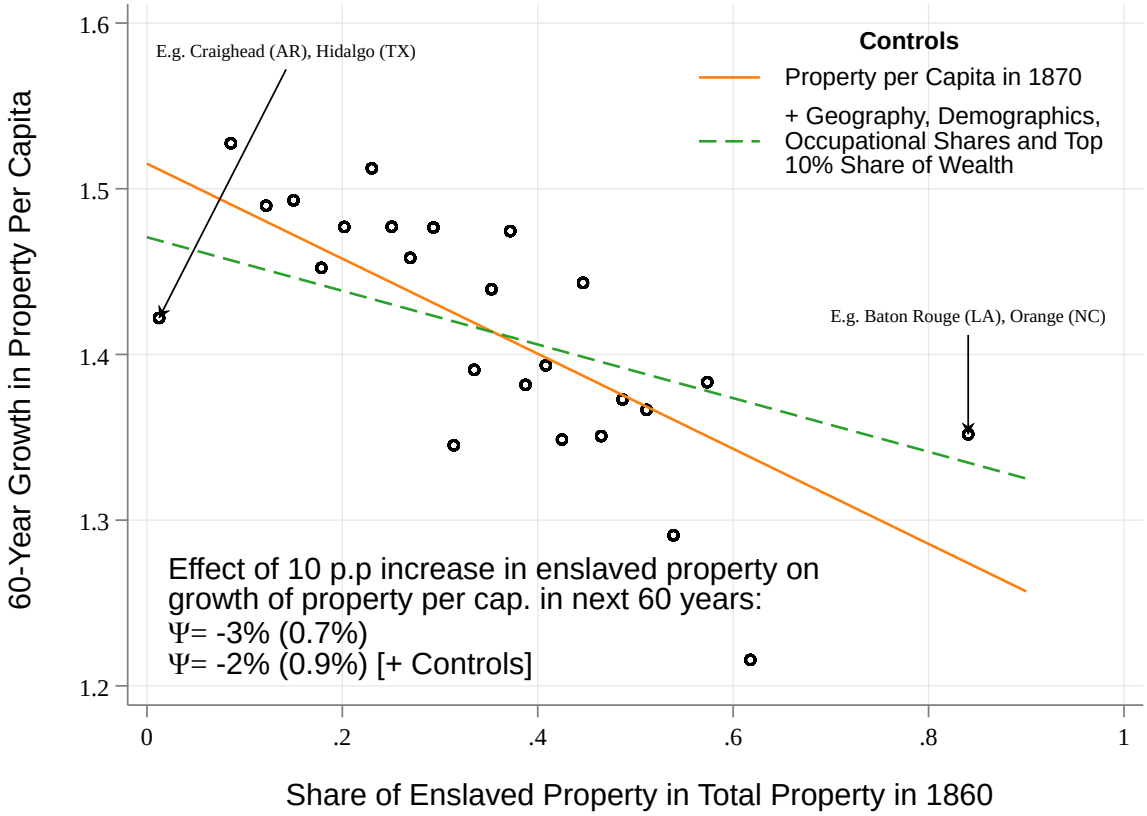



B. 60-Year Δ log Total Property per Capita



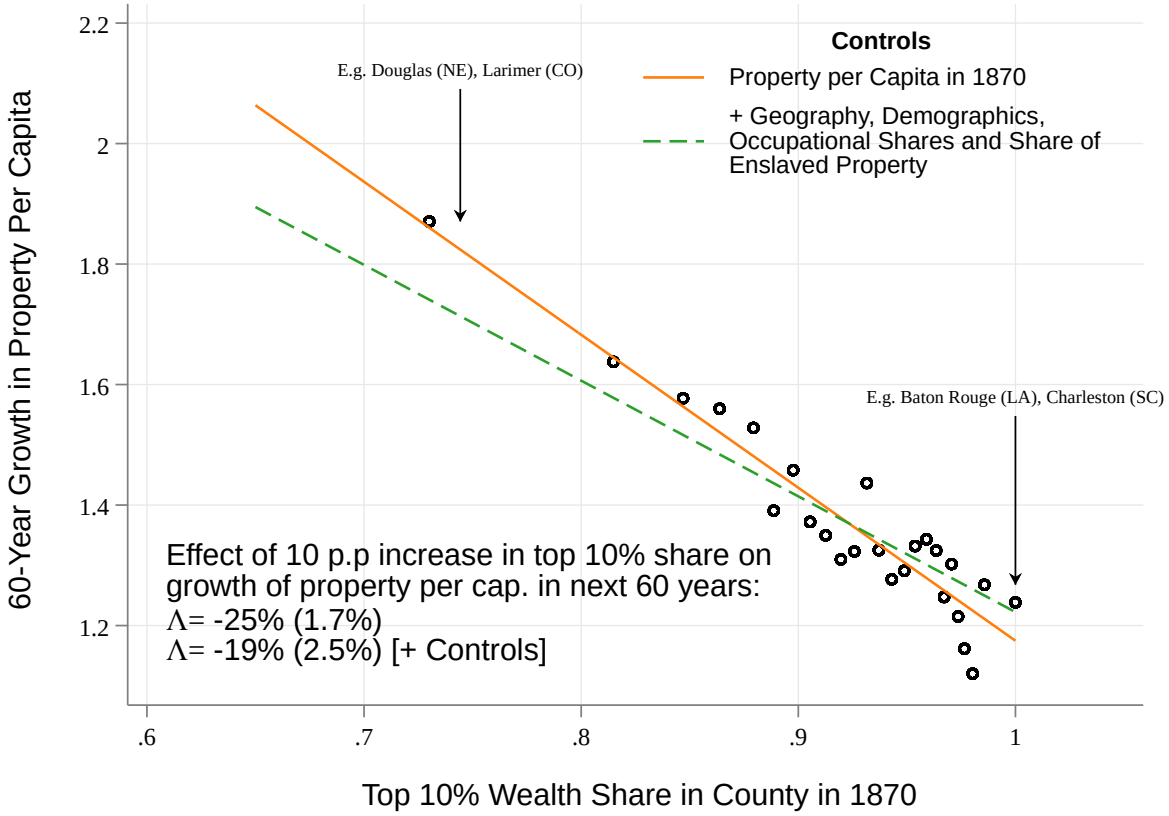

*Notes:* Panel A presents coefficients from the regression of log property in 1870 on inequality measures, and geographic, demographic, and economic characteristics from equation (3) . Panel B presents coefficients from the regression of the change in log property between 1870 and 1930 on the same controls, from equation (2). The controls included are described in Section 4.3 and Appendix III.10 and are standardized. Commerce includes retail, finance, transportation and business. We also include but do not show year fixed effects, % of white, and % of male individuals. 90% confidence interval are depicted. A minus sign next to the variable name indicates that the variable was included with a minus sign for expositional ease.

Figure 22: The Legacy of Enslavement on Growth: County-Level Correlations




*Notes:* The figure displays a binscatter of the county-level relation between the 60-year growth in property per capita between 1870 and 1930 and the share of property from enslaved people in total property in 1860. Counties are grouped into 25 equally-sized bins by their share of property from enslaved people. The correlation is residualized on controls for geography, demographics, occupational shares controls, and the share of wealth held by the top 10% as described in Section 5. The controls are the same as in Figure 21. See Appendix III.10 for the sources and construction of these variables.

Figure 23: Inequality and Growth: County-Level Correlations




*Notes:* The figure displays a binscatter of the county-level relation between the 60-year growth in property per capita between 1870 and 1930 and the share of wealth held by the top 10% of wealth holders in a county in 1870. Counties are grouped into 25 equally-sized bins by their share of wealth held by the top 10%. The correlation is residualized on controls for geography, demographics, occupational shares controls, and the share of enslaved people in total property as described in Section 5. The controls are the same as in Figure 21. See Appendix III.10 for the sources and construction of these variables.

Table 1: Convergence at the county and state level

(a) County convergence 1880-1920

| Without controls | | | With controls for regions | | |
|---|---|---|---|---|---|
| Income (IPUMS) | Property | Barro & Sala-i-Martin | Income (IPUMS) | Property | Barro & Sala-i-Martin |
| .026 | .010 | - | .036 | .020 | - |

(b) State convergence 1880-1920

| Without controls | | | With controls for regions | | |
|---|---|---|---|---|---|
| Income (IPUMS) | Property | Barro & Sala-i-Martin | Income (IPUMS) | Property | Barro & Sala-i-Martin |
| .021 | .011 | .016 | .034 | .021 | .019 |

Notes: Panel A and B display the estimated rate of convergence at the county and state level respectively. Computations are made using Barro and Sala-i Martin (1992) methodology. In Panel B, we use Easterlin (1957) data to compute the values for Barro and Sala-i Martin (1992).

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