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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 United States using newly collected historical property tax records from the early 1800s onward. These records come from the administration of the General Property Tax--a comprehensive tax on all types of property. We construct wealth series at the state, county, and national levels. At the state level, we use annual assessed values of wealth from state-level reports drawn from multiple sources. Because assessed values may differ from market values, we also require assessment ratios, defined as the ratio of assessed to market wealth. We obtain state-level assessment ratios from the decadal Historical Censuses of Wealth publications, in which the Census carried out detailed valuation work, complemented with information on changes in assessment practices from the state reports, to build higher-frequency series of assessment ratios. This yields long-run annual wealth series for states from 1850 (or earlier, depending on the state) to 1935. We obtain national wealth series by aggregating these state series. At the county level, we use assessed values (or market values where available) from the Historical Censuses of Wealth for each decade, and apply either state-level or county-level assessment ratios, where available, to obtain market values of wealth for each decade from 1850 to 1930. We use these data to show, first, that the United States experienced extraordinary wealth accumulation after the Civil War and until the Great Depression. Second, spatial inequality in the United States has been large and highly persistent since the mid-1800s. We also examine the determinants of long-term wealth growth and find, among other results, that counties with a higher share of enslaved property before the Civil War or with higher wealth inequality experienced lower subsequent long-run wealth growth.

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1 Introduction

Since colonial times, local governments in the United States relied on various forms of property taxation to finance their activities. But unlike in most other countries and historical periods, these taxes applied to a broad set of assets–in principle, all property–rather than only to land. After the 1840s, the basic principles became more uniform across states and the taxes more comprehensive. They came to be known as the General Property Tax.

From the 1840s to 1930, the General Property Tax was a core element of the U.S. fiscal system, providing a large share of state and local revenues. Property was assessed by local assessors who determined its value, with the tax base covering most forms of property. Multiple layers of government–districts, municipalities, counties, and states–levied their own ad valorem taxes, typically applying the same rate to most property. After the 1930s, the role of the property tax declined as new forms of taxation replaced it. The tax evolved into the modern U.S. property tax, which applies only to certain types of real estate.

The administration of the General Property Tax generated detailed but disparate records over a long period. In this paper, we make use of these valuable records, which we collected and organized, to create a new dataset on U.S. wealth over the long run at the national, state, and county levels.

In our context, "wealth" means private, marketable, and taxable assets. This excludes public assets (such as federal land) and assets of tax-exempt entities such as religious institutions and colleges. Marketable wealth refers to assets that can be bought and sold, excluding human capital, except under slavery.[1]

To better understand the advantages and challenges of our data and approach, we provide here a brief overview, with extensive detail in Sections 4 and 5. The main challenge is that assessors often did not value property at its market price, and assessment practices varied across time and place. We therefore need to adjust assessed values to obtain true market values. This requires the *assessment ratio*, defined as the ratio of assessed wealth to market wealth. With both assessed wealth and assessment ratios, we can reconstruct the market value of wealth.

At the state level, we use a large set of detailed state reports, usually annual, to construct our assessed wealth series. These reports vary in format and naming across time and states, making their collection both valuable and challenging. To obtain assessment ratios, we start with the Historical Censuses of Wealth, which provide

[1] In slave states, enslaved people were counted as the property of enslavers, and the returns to forced labor were recorded as returns to capital. To ensure consistency over time, we also construct wealth series that exclude enslaved property.

decadal, and in some cases more frequent, data. The Census carried out careful and professional work to produce these ratios, as we describe in detail in the main text, by consulting professionals and experts and sending agents into the field. We supplement this with information from the state reports that document changes in assessment practices for additional years. Combining these sources allows us to build high-frequency series of assessment ratios. Applying these ratios to the assessed wealth series yields high-frequency (annual) market wealth series. We then construct national series by aggregating the state series.

At the county level, our main data source are the Historical Censuses of Wealth, which provide decadal assessed values for most years and market values for some years. For our benchmark series, we correct county assessed values using state-level assessment ratios, but also construct alternative series for years when county-level ratios are available and show that our results are robust to different assumptions.

Our final series thus encompass: i) annual data for states from 1850 or earlier (depending on the state) to 1935; ii) decadal data for counties between 1850 and 1930; iii) national level data from the early 1800s to 1935. It is important to keep in mind that data before 1850 are scarce and less reliable, as we describe in the main text. Therefore, we provide the full dataset for all available years but restrict our analysis to the post-1850 period.

Wealth measures for this period are exceedingly rare and producing them is our main contribution. While some historical national wealth estimates exist, our data based on the General Property Tax provide a coherent, high-frequency, and long-run source. To our knowledge, no other dataset offers similarly comprehensive and long-term subnational property measures.

It is worth highlighting that, in general, whether historically or contemporaneously, estimating the market value of wealth is extremely challenging, as it often requires strong assumptions to overcome data limitations. For instance, most modern estimates for the U.S. are based on capitalized income flows using assumed rates of return. Our approach offers several rare advantages for the period we study. Most notably, direct property assessments were made so that one does not need to indirectly back out wealth. These assessments were quite comprehensive, covering nearly all property with only few exemptions, which we document, and available at high frequency. We also do not need to rely on assessments having been made perfectly: Even with imperfect valuation at assessment, we can build on the extensive information from the Census and state reports to recover market values, as explained above.

We use our new data to answer the following core questions: How did aggregate wealth evolve in this crucial period of U.S. 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 U.S. experienced exceptionally rapid growth in national wealth after the Civil War and that wealth growth at the national level 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, under which forced labor income flows were counted as "capital" or wealth.

If we construct property series excluding the value of enslaved people, we can reveal 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 U.S. 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 U.S. 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 precipitation) 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 U.S. and other countries; (ii) development and spatial inequality in the U.S.; (iii) the economic consequences of the Civil War and enslavement. Furthermore, our data allow 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 4.

Wealth estimates over the long run. There exist several historical estimates of U.S. 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 6 and Appendix III.6 and compare them to our national-level estimates. Kopczuk and Saez (2004) compute top wealth shares in the U.S. 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 U.S., 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. (2023) estimate the racial wealth gap between 1860 and 2020 to show that convergence has been slow and, if anything, the racial wealth gap has widened again since the 1980s; however, Margo (2016) shows that it has been faster than the long-run convergence in income. These recent estimates were preceded by important earlier work by Higgs (1982) for Georgia and Margo (1984) for several additional Southern states that make use of the same type of underlying data as our project.

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 1970s or later): Acciari, Alvaredo and Morelli (2024) 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 et al. (2025) 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 4. Legler, Sylla and Wallis (1988) assemble data on the revenues and expenditures of many cities by decade from 1850 to 1902. We expand their data collection for tax revenues, tax rates, and tax administration-related variables.

[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.

Economic development and spatial inequality. We also contribute to the literature on economic development and spatial inequality in the U.S. 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. We cannot do justice to all the work here, but refer to some more recent studies. Among others, Donaldson and Hornbeck (2016) examine the historical impact of railroads on U.S. economic activity (following earlier work by Fogel (1964)) as measured by 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) establishes the vital role of agriculture for the subsequent development of places in the U.S. 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 U.S. 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 (2024).

Southern wealth, enslavement, and the Civil War. Our data allow us to quantitatively illustrate some of the history of the U.S. South, the blight of enslavement, and the effects of the Civil War. 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.[5] The negative association between enslavement

[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.

[5]We note that their results suggest that grandsons of large slave holders did not do as well in terms of occupational scores in 1900 than similar grandsons of smaller-scale slave holders with similar total

and 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 (2006) 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 and Section 3 explains its main institutional features. Section 4 describes our newly collected data and Section 5 presents our data series construction, validation, and robustness checks. Section 6 analyzes the evolution of wealth accumulation and spatial inequality in the U.S. Section 7 considers the determinants of capital accumulation. Section 8 concludes.

2 A Brief History of Property Taxation in the United States

This section provides a quick overview of the history of property taxation in the United States, emphasizing its originality and singularity. The key "innovation" was that, as opposed to most other contexts where property tax existed, local governments in the U.S. developed a form of taxation on (almost) all property classes, not only land. We build here on a large an important literature presenting the history of property taxation in the U.S. For more information, we refer the reader to Jensen (1931) (in particular chapter 2), Benson et al. (1965), Fisher (1996), Wallis (2001) and Fisher (2002), with many more references provided below.

2.1 From Colonial Taxation to the General Property Tax

The property tax was an important component of the U.S. tax system from its inception (Benson et al. (1965)). In the American colonies, elements of property taxation existed in the form of "quitrent," based on the model of what existed historically in England. Early on, there was a complex system of property taxation on enumerated items, with different tax schedules on classes of property, such as land and improvement, livestock, merchants' equipment, or enslaved people (Jensen (1931, pp. 20), Fisher (1999, pp. 91)).[6]

wealth. Our results suggest that counties with a lot of enslaved properties experienced significant declines in wealth over the long run. Our results are compatible with the results of Ager, Boustan and Eriksson (2021), to the extent that these counties did not experience significant changes in occupational structure.

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

In the 1790s and 1800s, states relied in large part 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)). Moreover, the federal government briefly implemented a federal tax based on property with the 1798 and the 1813-15 direct taxes.[7] However, over the period 1800-1830, the "Era of Active State governments" (Wallis (2000)), states, despite engaging in large spending projects, progressively decreased their reliance on taxes. They instead started to rely on asset finance, i.e., massive investments in banks, canals, railroads, and other transportation improvements. Even if states decreased their reliance on the property tax during this period, the property tax remained a major source of revenues for many local jurisdictions.

From the 1830s onwards, the property tax regained its role as the most important source of state tax revenue. A deep and prolonged period of deflation 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 clauses that established the major characteristics of the general property tax discussed below.[8]

2.2 The General Property Tax 1842-1933

Era of property tax finance and local government. Our core period of study, 1842-1933, is the "Era of property tax finance and local government" (Wallis (2000)). During this period, there was a movement towards common principles and institutional features of a "general property tax," although it remained a local tax, differentiated across space. Within states, there was a greater focus on harmonizing rules and practices across jurisdictions, through constitutional principles and legislation, but also with the creation of state tax commissions or boards of equalization in charge of the harmonization of assessment practices. States adopted similar constitutional principles of uniformity and universality for the property tax, and there was progress on measurement (e.g. with the decadal *Historical Censuses of Wealth* of the U.S. Census Bureau starting in 1850, which we use extensively).

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

[7] The first was levied in response to the naval quasi-war with France and the second in response to the outbreak of the War of 1812 with Britain.

[8] Table A6 shows the dates at which these clauses first appear in the state constitutions, and the dates at which these practices were arguably first observed in some shape or form.

the same as state and national revenues combined (Wallis (2001)). Our data allow us to shed light on the importance of the property tax for the U.S. over this period. Figure 1 shows the total revenue from the property tax as a share of GDP in the U.S. 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.

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) the 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 of 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 were generalized and given increased powers for 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]

The Demise of the General Property Tax 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–such as automobile licenses, fees, motor fuel taxes, general sales, and income taxesappeared, making the property tax less necessary. 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)).

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

At the same time, the fall in property values 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.

3 Institutional Features of the General Property Tax

Our main period of analysis runs from 1850 to the late 1930s. During this time, there was no single property tax system in the United States. Instead, each state had its own property tax laws, regulations, and administrative practices. Still, common features emerged. Most notably, there was a widespread aspiration towards uniformity and universality, a development that moved closer to, and helped justify, the name of a "general property tax."

In this section, we describe the key institutional principles and features of the property tax that were shared by the large majority of states. These elements are important for understanding the structure of the available data and the challenges in constructing consistent measures of property over time and across states. Appendix II provides further detail. For more background, see Jensen (1931), Benson et al. (1965), and Fisher (2002). For a detailed account of the relevant legal provisions in each state, the U.S. Census Bureau published decennial compilations of state tax laws beginning in 1850, on which we will also provide additional details in the next section.[10]

3.1 Tax Base

Universality Principle. An important feature of many states' property taxes was the principle of universality–the idea that all classes of property, both real and personal, owned by households should be taxed. While this goal was often embedded in state constitutions, as shown in Wallis (2005) who provides evidence on when different states adopted such provisions, its practical implementation faced many challenges,

[10]For an example, see the 1912 compendium of state tax laws.

as described in Legler, Sylla and Wallis (1988), Hindman (2010), Einhorn (2006), Einhorn (2001), and Wallis (2005). A key insight from Hindman (2010, pp. 18–19) is that, much like with wealth or income taxes today, attempts to apply the tax broadly often provoked backlash. Groups that stood to be affected would push for exemptions or special treatment, which worked against the principles of uniformity and universality. For example, in Southern states, supporters of the general property tax often abandoned these principles when their own forms of wealth were at stake, instead seeking favorable treatment. Fortunately, we are able to document exemptions with concrete data below. Over our core period of study, these exemptions appear to have been quantitatively small, which suggests that our data likely capture a large share of total private property.

Types of property taxed. Among the types of property subject to the property tax, 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 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.

Appendix Figure A12 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 General Property Tax 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)).

Exemptions. Exemptions varied by states, but they were generally limited and clearly defined. Specific provisions allowed the deduction of debt and mortgages from the property tax base so that the assets they financed were not double-counted. Apart from debt and mortgages, most exemptions were related to public property (land and public buildings), religious property (e.g., churches, cemeteries, religious societies), charities, hospitals, schools, and libraries. Nevertheless, there were also specific, non-systematic private property exemptions. 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)).

We document exemptions in greater detail in Appendix II. We have access to precise information about the value and nature of exemptions from 1880 to 1937 at the national level, and at the state level for the period 1890 to 1922, thanks to the detailed and thorough analyses of the Census Bureau for its decennial Census (U.S. Census Bureau (1922), National Industrial Conference Board (1939)). Appendix Figure A26, plots the exemption ratio (the share of exempt property in total property) from 1880 to 1937. The total value of exempt property was generally small and stable over time, with the exemption ratio hovering around 6% to 7%. Appendix Figure A27 shows the exemption ratios by state over the period 1890 to 1922. There was spatial variation in exemptions. In particular, a few states west of the Mississippi River show relatively high fractions of exempt property in the late 1880s. This dispersion is mostly explained by the presence of federally owned (and therefore exempt) land in those regions prior to their full incorporation into the Union, much of which was later transferred to individuals.

3.2 Tax Rates

The General Property Tax was an ad valorem tax, i.e., taxation was 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.

Relatedly, the uniformity principle, written into many state constitutions, required that all property be subject to the same tax rate in proportion to its value, regardless of the property class or the owner's wealth. It also meant that property taxes were not aimed at progressivity. Einhorn (2006) explains that uniformity was also a way to prevent enslaved property from being taxed at a higher rate than other types of property. Yet, it is important to note the limits to the uniformity principle, as explained carefully in Legler, Sylla and Wallis (1988), Hindman (2010), Einhorn (2006), Einhorn (2001), and Wallis (2005). For our purposes, this does not matter much, since we are interested in

the value of property, rather than the effects of tax rates.

3.3 A Local and Layered Tax

Property taxes were locally administered. Local assessors–usually elected and often residents–listed and valued property and collected property taxes.[11] 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.[12]

Assessment was supposed to reflect the "market value" of wealth ("true," "full," or "just" valuation in the words of state constitutions (U.S. Census Bureau (1902, pp. 3-5))). In practice, there were deviations from this, which we explain in detail and account for in Section 4.

The property tax was also a layered tax. Property was assessed once, locally, but then taxed by all residing jurisdictions: city, county, state, and special districts.[13] Note that in the period 1850 to 1930, almost all states moved to annual assessments, so that assessed values capture high frequency variation in wealth. 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, while boards of equalization or boards of assessors ensured some harmonization of assessment across state jurisdictions. 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 to 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.9).[14] Panel A of Figure 2 shows that property tax rates in municipalities and lower levels of jurisdictions in-

[11] Assessment was done once, typically at the city level by city assessors, except for assets that were beyond the city border (railroad property is assessed at the state level by the State tax commission)

[12] 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.

[13] Special districts include school districts, road districts, fire districts, or drainage districts, which allowed for targeting of funds for special projects.

[14] 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 A26).

creased 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 2 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%.

4 Data Sources

This section describes the data sources we collected to construct private property series at the county, state, and national levels. Appendix III provides extensive further information. To better understand the description and purpose of these sources, it is important to first explain the basic principle we use to estimate the market value of wealth.

From assessed to market value. In our data, we will be able to see the assessed values of property, as recorded by assessors. The main challenge is that assessors may not always follow the requirement to assess property at its market value (see U.S. Census Bureau (1902)). Furthermore, these deviations can vary across time and space.

More formally, for a given jurisdiction i and year t, we observe the total assessed value $\tilde{W}_{it}$

$$\tilde{W}_{it} = \gamma_{it} \cdot W_{it} \tag{1}$$

To recover the true market value W_{it}, we need to also know the ratio of assessed to true value, or the "assessment ratio" $\gamma_{it} = \frac{\tilde{W}_{it}}{W_{it}}$. Fortunately, we were able to gather rich information on assessment practices and assessment ratios. Given the importance of these ratios for the robustness of our wealth measures, we describe in detail below the sources and methodologies used to estimate them.

Thus, our approach follows the methodology of the Historical Censuses of Wealth. They (and we) begin with assessed values of property and correct them with the assessment ratios to estimate wealth at market value. The main advantages of our approach over the alternative ones described in the introduction is that the assessed values are comprehensive, high-frequency and that, thanks to the assessment ratios, we will be able to correct for the differences in assessment and obtain market values.

4.1 Publications from the U.S. Census Bureau

First, we systematically collected all information published by the U.S. Census Bureau over the period 1850 to 1942. During this time period, the U.S. Census Bureau gathered rich information on property, as well as detailed information on local government finances. A list of the relevant publications can be found in U.S. Census Bureau (1948) and U.S. Census Bureau (2006).

Historical Censuses of Wealth. One of our most important source is the series of U.S Wealth Censuses conducted by the Census Bureau every decade from 1850 to 1922 (U.S. Census Bureau (1854),U.S. Census Bureau (1866), U.S. Census Bureau (1870), U.S. Census Bureau (1880), U.S. Census Bureau (1890), U.S. Census Bureau (1902), U.S. Census Bureau (1912), U.S. Census Bureau (1922)). These publications were specifically authorized by law with the goal of providing a complete census of wealth for the United States. The work of the Census Bureau consisted in collecting and aggregating data on property assessments that were made by state and local governments for the purpose of property taxation, and supplementing these with data collected by other agencies or its own estimates. Specifically, the Census made two key contributions. First, it collected information on the value of exempt property. This information is especially detailed starting with the 1880 Census of Wealth. Second, because assessments for property tax purposes did significantly differ from the true market value of property, the Census Bureau compiled information on assessment ratios.

We systematically extracted and organized the following information from the U.S. Censuses of Wealth: At the state level, all information on real and personal property, which includes assessed values and estimated true values, and all information available on exemptions. At the county level, all existing information on assessed values and estimated true values of property 1850 to 1922. The availability of county-level information varies substantially across years. For 1860, we have the estimated market values for both real and personal property; for 1870, the assessed and market values of both real and personal property, with additional details by sub-categories of property; for 1880, 1912, and 1922, the assessed values for both real and personal property, with additional details by sub-categories; and for 1890, 1900, and 1904 the assessed values for all types of property, as well as the estimated market value for real property only.[15]

[15]For the years 1850 and 1860, although the *Social Statistics Schedules* of the Census Bureau did collect information at the county level on both assessed and true valuation of property, these schedules were never systematically tabulated and published by the Census Bureau. For 1860, we were able to find the market value for real and personal property (but not the assessed values) at the county level. Margo (2000) has digitized some information on wages from these Schedules for a subset of states (see Table 2.3). Rusanov (2022) has also digitized the Social Statistics Schedules for counties from a subset of states for 1850 and 1860.

Beyond providing data on property values, the Historical Censuses of Wealth contain compendia of state tax legislation that are a uniquely detailed source of information regarding various aspects of property tax law (constitutional requirements, exemptions, tax rates, etc.) and tax practices (methods of assessments, tax administration, tax collection, etc) for each state. We extracted from these compendia information on state property tax provisions to create a comprehensive database. We use some of this information to refine our assessment ratio series as explained below and in Appendix III.2. However, there is a lot more information in the database we constructed that can be useful for future researchers.

***Financial Statistics of the States* from the U.S. Census Bureau.** Starting in 1915, the U.S. Census Bureau compiled and harmonized data from State reports (see their description below) in the series *"Financial Statistics of the States"* at an annual frequency. These publications contain detailed information on assessed values as well as assessment ratios by property type at the state level, which we extract for the period 1915-1943. These allow us to extend the information from the Historical Censuses of Wealth to the later period.

Other special studies Finally, 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 assessed values of property for all states (e.g., U.S. Census Bureau (1941), U.S. Department of Commerce (1967), U.S. Department of Commerce (1982)).[16]

4.2 State Sources

Beyond publications of the Census Bureau, our primary sources are official State reports, which were the main financial documents of states and contained detailed information about revenues and spending. Often these reports were called an Auditor's, Treasurer's, or Comptroller's report and were produced annually or every two years. We also collected data from the State Tax Commission and the Board of Equalization in charge of supervising the assessment of property. The formats and names of these reports and sources varied from state to state and year to year, which implies a substantial data collection effort.

We compiled all such state reports available on the *HathiTrust* digital library from 1790 until 1940 and complemented them with reports from the Law Library Microform Consortium (LLMC) Digital archive[17] and multiple secondary sources (for instance,

[16] Where multiple sources are available, we rely on the most recently published series.
[17] The reports are taken from Hathitrust and LLMC.

Blakey and Blakey (1927), Sydenstricker (1915), Haig (1914), Linder (1923),Connecticut. Tax Study Commission (1959)). The main advantages of HathiTrust are that first, as a research consortium, it provides combined access to the catalog of the largest American libraries, and therefore contains records for all states. Second, it also includes content digitized by Google Books and the Internet Archive initiatives, significantly increasing its coverage.[18]

We created an exhaustive catalog of all available 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. Appendix Table A8 lists the state reports sources we collected for each of the 50 states and territories. Our coverage is quite comprehensive, and starts either when a property tax is first introduced or with the state's accession to the Union.[19]

From these sources, we systematically digitized information on assessed values of real and personal property. Furthermore, we collected available information on assessment practices (which will complement our assessment ratios series) and legislative changes as related to the property tax. We also systematically collected and digitized property tax rates and tax revenues (although we do not make systematic use of these in this paper, they are useful for future researchers).

4.3 Full-Count Population Census Data for 1850, 1860, and 1870.

We further supplement our data with full-count population Census data from IPUMS for the years 1850, 1860, and 1870. The 1860 and 1870 Censuses provide data on total property ownership; the 1850 Census only recorded real property. We use these household-level data for three main purposes.[20] First, we use them to validate our constructed property measures at the state and county levels for overlapping years. Second, we derive county-level measures of inequality and wealth concentration, which

[18]HathiTrust is very complete relative to the hard copies available in the libraries we were able to check (e.g. the Library of Congress, Harvard library, UC Berkeley library, etc). We believe that our current approach based on digital historical records (mainly from HathiTrust, complemented by the LLMC Digital archives) is near-exhaustive while being unlikely to create sample bias.

[19]The fact that our coverage increases over time (see Figure 3) in the first part of the 19th century reflects the increase in reporting by state auditors of state reports, rather than missing records at libraries. In fact, we often have access to state reports even before statehood and to the first published state reports. Furthermore, several state reports contain "retrospective studies" that provide data tables on assessed property combined for several earlier years, especially in the very early part of the period. For instance, the state report for New York from 1926 provides data for the years 1805-1926, which allows us to compute property series even for years where there is seemingly no state report.

[20]The completeness of the 1870 U.S. Census has been questioned (Ransom and Sutch (2001)), as it was conducted by federal officials in areas affected by conflict. However, Hacker (2013) argues that observed population gaps reflect genuine losses from the Civil War rather than deficiencies in data collection.

are used in our analyses in Section 6. Third, we reconstruct county-level property values for 1850, since these are not available in the Historical Censuses of Wealth.

A limitation of the 1870 census is that enumerators were instructed not to record personal property values below $100, resulting in left-censoring of the data. To address this, we impute the distribution of personal property below $100 using approximately 80,000 cases where enumerators did record nonzero values under this threshold, likely reflecting deviations from official instructions. As already shown in Derenoncourt et al. (2023), this adjustment has minimal impact on our results.[21] Further details on our use of the Full-Count Census data are provided in Appendix section III.7.

4.4 Data on Assessment Ratios

As explained above, a crucial element of our data are the assessment ratios, which allow us to control for differences in assessment practices and go from assessed values to market values.

Assessment Ratios from the Historical Censuses of Wealth. Our first source of assessment ratios comes from the Historical Censuses of Wealth. The Census Bureau devoted considerable resources to the exercise of measuring assessment ratios and the market value of property. It did so with a high level of professionalism, and using the best possible contemporaneous sources of information. At the state level, these measurements exist for every decade since 1850. At the county level, we have assessment ratios for 1870 for real and personal property and for 1890, 1900, and 1904 for real property only.

Here is a brief summary of the techniques used by the Census Bureau (full details are available in Appendix section II.4). From 1850 to 1870, U.S. marshals were sent to each county and tasked with gathering assessed values of all property, as well as the market value of property (and, as a result, the assessment ratio). Their detailed estimates, gathered in the *Social Statistics Schedules* of U.S. counties, are based on a set of common practices that they were instructed to follow, guaranteeing some homogeneity in the measurement of assessment ratios across space. In 1880 and 1890, the U.S. Census Bureau sent a survey to more than 25,000 experts (bankers, real estate agents, business people, and public officials) connected to the valuation of taxable property. The survey, which was stratified by state, asked the experts about market prices for various classes of assets. Assessment ratios were obtained for each asset class by comparing market prices to the prices derived from local assessed values in the property tax.

[21] For instance, for Black individuals, the average personal property remains at $15 before and after imputation, while for white individuals, the average changes only slightly from $248 to $249.

From 1900 onwards, the U.S. Census Bureau went even further and used a combination of methods based on information on asset transactions, surveys of local experts in all cities of more than 4,000 inhabitants, comparisons with direct appraisal of certain types of assets made for the U.S. Census of Manufacturing or the U.S. Census of Agriculture, and comparisons with information collected by state tax commissions. As a consequence, the Census Bureau data from the Historical Censuses of Wealth publications is the most reliable, comprehensive, and consistent source of information about assessment ratios. It enabled the Census (and, hence, us) to capture a rich level of heterogeneity in assessment practices by state and over time, as can be seen, for example, in Figure 4.

Other data sources on assessment ratios. We leverage three additional sources on assessment ratios. First, the annual state reports, especially those by state tax commissions and boards of equalization, contain rich and systematic information on assessment practices. For instance, in various states (e.g. New York, Minnesota, Kansas, California, Maryland, Indiana, Illinois, and Wisconsin), state tax commissions accumulated considerable information about sales values of real property and other assets, in order to measure assessment ratios and their distribution across counties. In Kansas, the tax commission gathered information on 40,000 real estate sales for the years 1903 to 1907 in order to compare sale prices to assessed values, offering unique insights into the within-state spatial dispersion of assessment ratios.[22] Furthermore, state reports tend to systematically record and describe significant reforms to the way property assessments are carried out, enabling us to detect variation in assessment ratios at a higher frequency than the decadal Census estimates.

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), Snavely (1916), Blakey and Blakey (1927), National Industrial Conference Board (1923), National Industrial Conference Board (1925), Blakey (1930), Nelson and Mitchell (1931)), which contain information on the sales prices of assets and assessments ratios. Lutz (1921) and Chapter 12 in Jensen (1931), which contain summaries of studies of assessment ratios by tax commissions across multiple states, are particularly useful.

Finally, we also made use of information contained in the *Financial Statistics of the States* described above (U.S. Census Bureau (1915)), in which assessment ratios are

[22] See the Report of the Tax Commission of Kansas for 1908, p. 10. For a similar exercise in Maryland, see the Report of the Commission for the Revision of the Taxation System of the State of Maryland and City of Baltimore, 1912, pp. 73–168. While we do not use the county-level assessment ratios from these sources systematically because they do not cover all states and are usually snapshots, we made sure these values matched the ones we do use from the Historical Censuses of Wealth.

self-reported by assessors. While this information is typically not accurate in terms of levels, it is useful to infer spatial distributions, as well as to detect directional changes over time.

5 Construction of the Wealth Series

From the data sources described in Section 4, we created three series of wealth: at the state, county, and national level. We describe this construction next. Appendix Table A7 provides an overview of the national, state, and county-level data series we created and their coverage.

Definition of our wealth concept. We use the word wealth to mean private marketable and taxable wealth. It thus excludes public sector assets, such as federal land, as well as private-sector assets of non-taxable entities (such as religious organizations and colleges, i.e., what we might call non-profit organizations today). By marketable wealth, we mean assets that can be bought and sold, which excludes human capital except under slavery. In the latter system, income flows from the labor of enslaved people accrue to others, making forced labor income flows appear like returns to capital or wealth, which is inaccurate. To allow for a consistent definition of wealth over time, we also systematically produced wealth series excluding enslaved property.

5.1 State Level Series

Constructing high-frequency series of assessment ratios at the state level. For each state, we start from the annual assessed values of wealth from the State reports. These assessed values need to be converted into market values, which requires constructing annual series of assessment ratios.

From the Census Bureau sources, we have one reliable estimate of the assessment ratio for each state every decade. These estimates, displayed in Figure 4, reveal considerable variation across space and over time. Over the long run, assessment ratios decreased in most states. The average assessment ratio fell from around 83% in 1850 to 43% in 1922 (see also Appendix Figure A6 showing the evolution of the average assessment ratio over time).[23]

To expand our series of assessment ratios to a higher frequency, we used the rich information contained in the State reports and the additional sources described in Section

[23] 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, pp. 282)).

4.4. They can identify changes in assessment practices and assessment ratios within each decade.[24] Because these events vary by state, Appendix III.2 describes the construction of assessment ratios for each state separately. We provide a detailed account of all the variations in assessment practices that can be identified in all existing sources that we compiled and how we used this information to build our series of assessment ratios at an annual frequency.

Wealth series To obtain wealth series for each state, we divide annual assessed values of total property by the estimated assessment ratios. Appendix Figures A29 to A37 depict 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 5. 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 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 smooth series of the market value.

To construct the series for real and personal property separately at the state level, we apply the same technique. Namely, we use the assessed values of real and personal property and divide each by the assessment ratios series constructed.

Correction for the value of enslaved property There is evidence that enslaved property was systematically undervalued (U.S. Census Bureau (1870, pp. 8), and Piketty and Zucman (2014, Appendix, pp. 63)). Therefore, we correct these assessed values by, first, subtracting the (underestimated) value of enslaved property, and then adding back its actual market value. To measure the market value of enslaved property, we use the number of enslaved people by county from the full-count population Census (Ruggles et al. (2021*a*)), and the historical series on the price of enslaved people from Ransom and Sutch (1988), and Einhorn (2001). Our procedure is described in detail in Appendix III.3, together with a discussion of robustness to alternative price estimates.

Coverage. Figure 3 illustrates the coverage of our state property series by showing the total value of private property for each state as a share of U.S. 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 and, as explained above, less

[24] We also checked the consistency of the decadal assessment ratios from the U.S. Census Bureau with these state level sources.

reliable before 1850, so we focus our state-level analysis on the period starting in 1850. As shown in Appendix Figure A28, the share of the contemporaneous U.S. population living in states where we have wealth data reaches 50% in 1820, then progressively increases to 100% by 1865. The state-level property per capita as national GDP series can be visualized in the maps in Appendix A39.

5.2 County Level Series

Baseline Series. Our county-level property series are decadal and constructed as follows: For 1850, we only have the market value of real property (not personal property) from the full-count Census data. We impute the market value of personal property by assuming that the ratio between assessed personal and real property is constant between 1850 and 1860 at the county level (see also Appendix section III.7 for additional details). For 1860, we can directly use the market value of real, personal, and total personal wealth from the full-count Census.[25] For 1850 and 1860, we also apply the same correction for the valuation of enslaved property as the one described for the states, using the number of enslaved people at the county level.

For 1870, we directly use the market values of real, personal, and total property reported by the Historical Census of Wealth. From 1880 to 1922, the data availability varies for personal versus real property (and total property is always obtained by summing the two). For personal property, we have only assessed values from the Historical Census of Wealth for that period. For real property, we have assessed values from the same source for 1880, 1912, and 1922 but have the market values directly for 1890, 1900, and 1904. For 1930, the assessed property values for real and personal property come from the *Financial Statistics of the States*.

Thus, for years and types of property where we only have assessed values, we need assessment ratios to convert these into market values. Unfortunately, county-level assessment ratios are very difficult to find. We nevertheless gathered the most comprehensive data available on county-level assessment ratios from the Census Bureau: county level assessment ratios for all property in 1870 and county level assessment ratios for real property only for 1890, 1900 and 1904. For our benchmark series, we use market values wherever available and otherwise use the state-level assessment ratios for the decades between 1880 and 1930 to correct assessed values. Since assessment practices did differ across counties within state, this could create measurement error, an issue we explore next.

[25] We can instead use the market values from the *Social Statistics Schedules* of the Historical Census of Wealth and the values are very similar.

Sensitivity to assessment ratios at the state and county level. To explore the sensitivity of our county-level property estimates to the use of state-level assessment ratios, we undertake several exercises using the years for which we do have county-level assessment ratios. These exercises are detailed in Appendix III.4.2 and summarized here. First, we document how assessment ratios vary across counties. While there is clear dispersion in assessment ratios across counties within states, we show in Appendix Table A10 that there is surprisingly little correlation between assessment ratios and many county-level observables once we control for state fixed-effects. This is reassuring as it rules out the presence of systematic correlation between assessment ratios at the county-level and observable county characteristics, which may affect our results.

Second, we compare the ranking of counties by estimated total property per capita using county-level versus state-level assessment ratios (Appendix Figures A40 and A41). We find that the ranking of counties is strongly preserved. The correlation between the two rankings is very high, with a β coefficient estimate of .95 and an R-squared between .85 and .9.

Then, we construct four alternative time series of county-level assessment ratios based on the available information and replicate our county-level results from Sections 6 and 7 using these alternative measures in Appendix section III.4.2. In brief, the first series assumes that the ratio of state- to county-level assessment ratios is the same as in 1870 across all years, the second rescales these ratios so that the within-state standard deviation is constant across time and equal to the one in 1870; the third and fourth series perform the same exercise but using the county-level assessment ratios from 1900. Our analysis shows that our results are very similar across all four series and our baseline series.

5.3 National Level Series.

We construct national wealth series by aggregating our state-level property estimates described in Section 5.1. For the period starting in 1850, this aggregation is immediate. For the earlier period before 1850, we need to make some more adjustments, given that the data is scarcer. First, we interpolate wealth at the state level to fill in missing years. Second, to account for the fact that in some years, we only observe some but not all states, we rescale the wealth aggregate obtained for these years 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.

5.4 Validation & Robustness

We validate and probe the robustness of our series in several ways.

Comparison to data from the Census of Agriculture. 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, which is compiled in Haines, Fishback and Rhode (2014). Our data contains estimates of the market value of taxable land and improvements (as a separate category) for select states and years.[26] Figure 8A shows that these estimates and the value of farmland land and buildings from the Census of Agriculture align closely.[27]

Comparison to real estate price data. Since part of wealth is in the form of real estate, we can compare the cyclicality of our wealth measure to that of real estate prices. We used the Nominal House Price Index series from Knoll, Schularick and Steger (2017), available at the national level. Figure 8B shows a strong correlation between the two series. Our measure does replicate almost perfectly the rapid surge and bust in real estate prices over the period 1910 to 1930, and it does also capture a lot of the higher-frequency movements in prices. Thus, we are able to measure meaningful high-frequency variation in the market value of wealth, driven by asset prices, and specifically real estate prices.

Comparison to the full-count Census data. 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 A13 and A14, show that for many states, the pictures are quite consistent between these two data sources, although there are some differences across space and time. At least three factors can explain these differences. First, the IPUMS data measures the property of local residents, while our estimates measure the local property (we return to this point below). Second, our property estimates are based on assessments by tax authorities, while the IPUMS data are self-reported. Third, the IPUMS data are top-coded.

[26] 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.

[27] 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.

Benchmarking against historical episodes of local booms and busts. We were also able to check from state reports and historical sources that some of the large and sudden variations in property values (which remain unexplained by known variations in assessment practices) are due to actual local booms and busts. Appendix Figures A29 to A37 enable us to visualize multiple examples of such episodes, e.g., the Florida land boom and bust of the 1920s, the mining boom in Nevada in 1906 and 1907, the severe bust following the Panic of 1893 in Western states, particularly in Washington, or the Wyoming cattle boom in 1868-1886.

Comparison with existing national wealth estimates. While sub-national estimates of wealth for our period are largely non-existent, there are estimates of national wealth based on different data sources. Figure 7 compares our national-level wealth series to existing ones from Gallman and Rhode (2019), Goldsmith (1952), and Piketty and Zucman (2014). We describe these alternative sources in detail in Appendix III.8.

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. Our finer granularity allows us, for instance, to 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.

Cross-border ownership of assets. An important characteristic of the property tax 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 the property of local residents. Local property is an interesting measure per se since it captures local economic activity.

Nevertheless, these measures will deviate from measures of the wealth of local residents. 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 sparse and noisy information about cross-state ownership in 1880, based on work by the Census Bureau (U.S. Census Bureau (1880)). The methodology the Census Bureau used to get at these numbers is unclear, so we provide them as suggestive evidence only. Figure 6 shows 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 resident 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 local property and the wealth of local residents 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 more limited.

6 Wealth Growth and Spatial Inequality in the U.S.

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 U.S. since the early 19th century.

6.1 The Growth in U.S. Wealth 1800-1935

A rapid wealth accumulation since the early 1800s. The first important descriptive fact is that the U.S. was relatively wealth-poor at the start of the 19th century but experienced a dramatic wealth accumulation from 1800 to 1935. The red series in Figure 7 shows our baseline estimates of U.S. private wealth as a share of GDP over the period 1800-1935.

The U.S. started at relatively low wealth-to-GDP ratios of around 300% in the 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 400%.

Is the evolution of the U.S. wealth-to-GDP ratio driven by its numerator or denominator? A11 separately depicts the numerator (U.S. 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.

An important note on GDP measures is warranted. 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.[28] 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). Estimates of the growth of real product before 1840 remain somewhat "conjectural" (David (1967)), and rely on assumptions about relative labor productivity and productivity growth. Because of these uncertainties surrounding GDP measures, Figure A10 plots the wealth-to-GDP ratio using two additional sources for GDP series.

The U.S. 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 U.S. to those in France and the UK. The U.S. appeared relatively wealth-poor compared to the European countries over the 19th century and until the end of World War I.

The composition of U.S. wealth Our data allows us to explore the composition of U.S. wealth in terms of three broad categories: real property, property from enslaved people, and all other personal property. Figure 10 shows that real property–land, buildings, and improvements–was the largest category of wealth throughout the whole period. Enslaved people represented 15% of total U.S. wealth in 1860.

For some states, we also have the value of taxable land as a separate category (as used in Figure 8A). 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 U.S. compared to European countries. Policies were explicitly put in place to maintain a low price of land and allow people to buy

[28] https://www.bea.gov/resources/learning-center/what-to-know-gdp

it and settle in the U.S.[29] The figure also highlights that all real property in the U.S. represented less than 200% of GDP in the U.S. before the Civil War, while land alone represented 300% of national income in the UK (Piketty and Zucman (2014)).[30] Immigrants and settlers arriving in the U.S. were usually not bringing large amounts of physical property or capital. Throughout the period 1840 to 1940, the U.S. accumulated wealth at a fast rate in the form of non-land capital.

Regional wealth evolution We can also compute wealth series by region in the U.S. Figure 9 shows the wealth per capita in each of the four major regions–Northeast, South, Midwest, and West – normalized by the U.S. 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.

6.2 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 11 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.[31] After the Civil War and with the restructuring of the economy, the value of land decreased, and other property increased in importance.

[29] 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 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 (The Homestead Act (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)).

[30] It is important, though, to distinguish between "improved" and "unimproved" land. While the latter was abundant, the former was not. As a result, improved land was not "cheap" relative to unimproved land in the U.S. and constitutes an important portion of wealth. Yet, the price of improved land in the U.S. relative to Europe was reduced by the availability of unimproved land and the various "homestead" policies enabling individuals to purchase some of this large amount of unimproved land at low prices to make improvements on it.

[31] See Appendix Figure A15 for robustness checks and shares at the county level.

Going back to Figure 9, we can compare the evolution of private property across the four U.S. 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 12 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 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 A16. 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 U.S. 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.

Overall, our new data enables a better understanding of the structure and mechanisms of economic growth in the south pre- and post-Bellum. Our estimates confirm that the Civil War led to a decline in relative growth of Southern states. And this decline goes beyond the destruction of wealth or the freeing of enslaved individuals. As suggested by Margo (2004), there is evidence that the brutality of the gang system enabled Southern states to maintain agricultural productivity and income (but not wealth) growth pre-Bellum. The disintegration of this system after the Civil War led to a decline in agricultural productivity and land values.

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 2) 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.[32] 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 (2023)). 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.

6.3 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 U.S. Despite potential equalizing forces, such as

[32] In order to return to the Union after the Civil War, Southern states had to ratify the 13th-15th Amendments and change their state constitutions to provide for public schools for African American children which were permitted to be de jure segregated. 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).

internal migration and the deepening of the U.S. internal goods and capital markets, spatial inequality did not decline after the Civil War.

We start with Figure A39, which shows property per capita as a fraction of U.S. GDP per capita at the state level for each decade between 1850 and 1930. Figure 13 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 A19 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 "σ-convergence". Figure A17 plots the yearly standard deviation of log property per capita across states. The dispersion of property remains roughly constant. Appendix Figure A18 shows a similar pattern for the evolution of wealth dispersion across counties. Second, Figure A21 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 U.S. 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 U.S. property.[33]

Rank-rank correlations at the county and state levels. Third, Panel A of Figure 14 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 0.79 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 A20). These results indicate that spatial inequality was not only high, but that places that started poorer remained poorer.

Speed of β-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

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

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 "β-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, university Consortium for Political and Research (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 14 shows a scatter plot of county long-term, 60-year growth rates against initial property in 1870 and reports the estimated β 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 β 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, β increases to 0.024 and R^2 to 0.60. Panel B of Appendix Figure A20 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, β 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 U.S. 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.

7 The Correlates of Capital Accumulation

The previous analysis showed that the U.S. 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 14, 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 6.3, 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 15 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 γ from specification (2) in Panel B of Figure 15.[34]

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

[34]Tables A1-A2 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.

growth in property (Panel B).[35] 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 among all variables in the model. Figure A23 reports the most important variables, ranked by predictive power.

7.1 Geography, demography, and economic structure.

Geography. Figure 15 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 precipitation–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 coast 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.[36]

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.[37] Agglomeration effects also seem to matter. Counties with a higher population in 1870 were

[35] 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.

[36] 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.

[37] These results confirm the work of Soltow (1975) showing similar correlations between literacy and wealth using Census data. Soltow and Stevens (1981) also provide a detailed account of the role played by density and property tax base in the rise of the provision of common schools in the U.S., which were a key driver of the quick rise in literacy during that time. See also Higgs (1982), and Margo (1984).

wealthier and grew faster over the long run. These results are consistent with the scale 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 A1 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.[38]

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 15 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 A22 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.[39] This evidence suggests that "structural transformation" away from agriculture is a relevant pattern of development even at the local labor market level.

[38] Collins and Zimran (2023) 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).

[39] This non-monotone pattern for employment in manufacturing also explains why the linear regressions from Figure 15 do not detect a precise effect.

7.2 The blight of enslavement.

Section 6.3 highlighted that the experience of Southern economies is key to understanding the lack of spatial convergence in the U.S. 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 15 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 16A 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.

Sokoloff and Engerman (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 Sokoloff and Engerman (2000), the fraction of enslaved property is indeed positively correlated with higher initial wealth inequality (Appendix Figure A24). Nevertheless, a strong negative and significant correlation between enslavement and growth remains, even when controlling for initial inequality.[40] Appendix Table A3 shows that the estimated correlation between the fraction of

[40] 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 U.S. 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.

7.3 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 15).

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 (2003), Barro (2000), 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 16B. 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 A4). 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:

Sokoloff and Engerman (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 Λ between inequality and growth.[41]

The results in Appendix Tables A4 and A5 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.

8 Conclusion

The U.S. General Property Tax was a comprehensive tax that applied 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 in the U.S. This data allows us to document the evolution of wealth and spatial inequality over time. At the national level, U.S. 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.

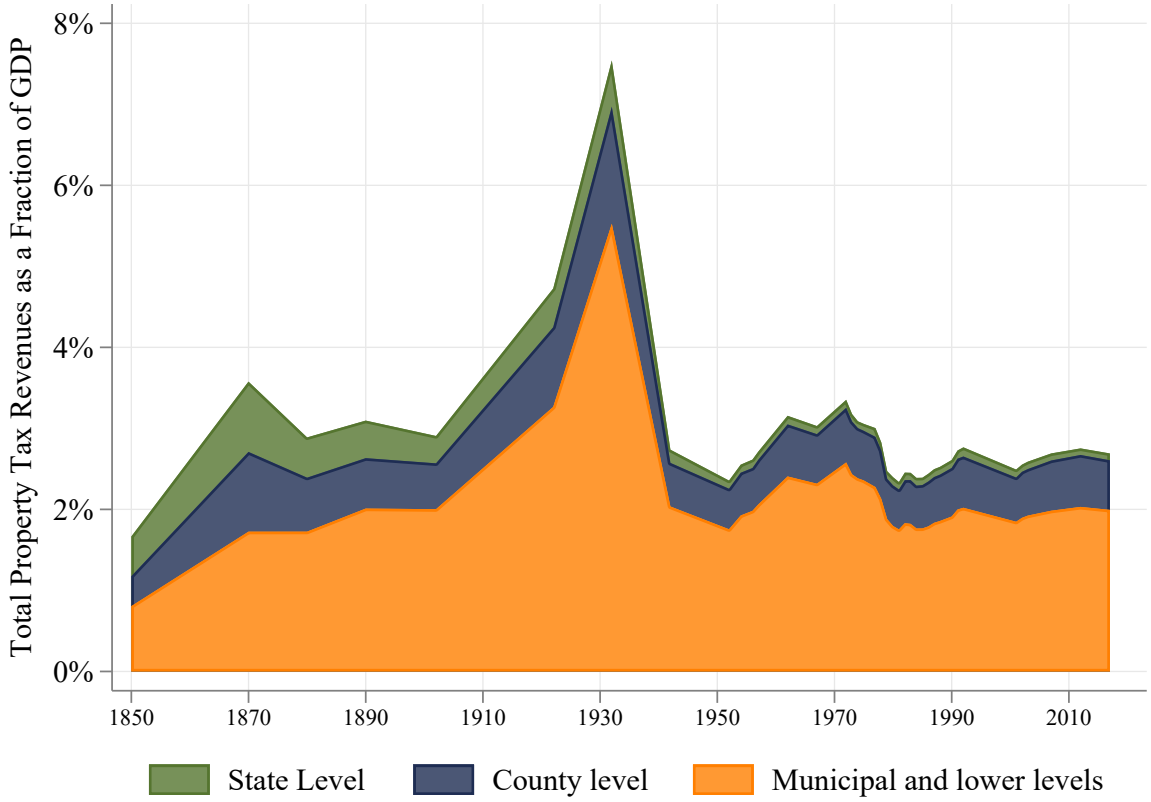
The property tax data is especially useful for the post-1850 period, when its quality and availability is much better than before, which is why we restrict our main analysis

[41] 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 Λ by computing for each sequence the change in estimated Λ 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 Λ over all x sequences.

to that period. However, there is still a lot of information for many states before 1850, as we show in our Appendix figures, which is available in the data we provided. This data can be used to construct better national and sub-national measures of economic activity before 1840, a period which American historians often refer to as a "statistical dark age" (David (1967)).

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

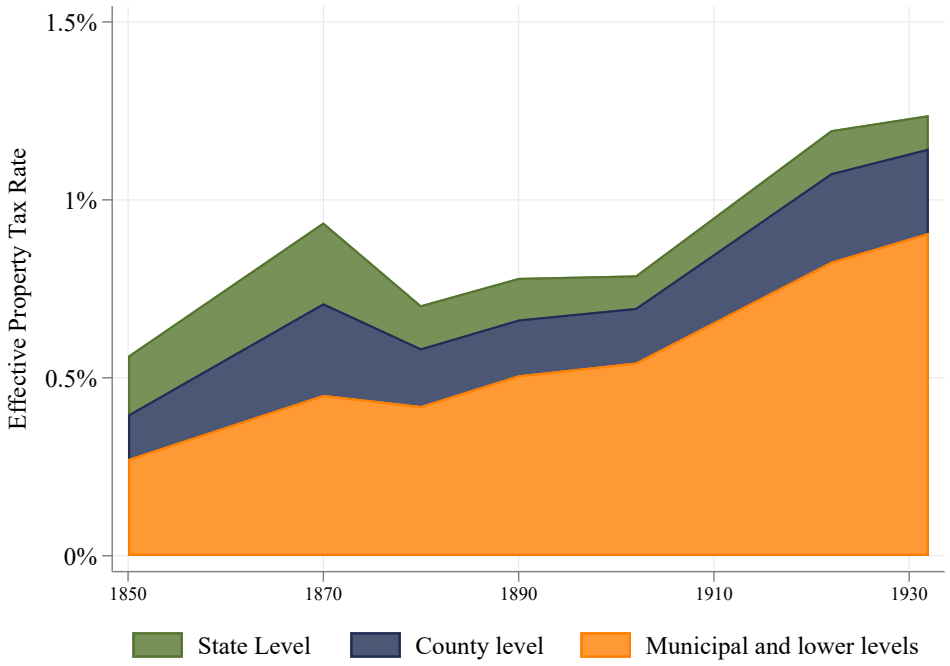
Figure 1: Total Property Tax Revenues as a Share of GDP 1850-2020



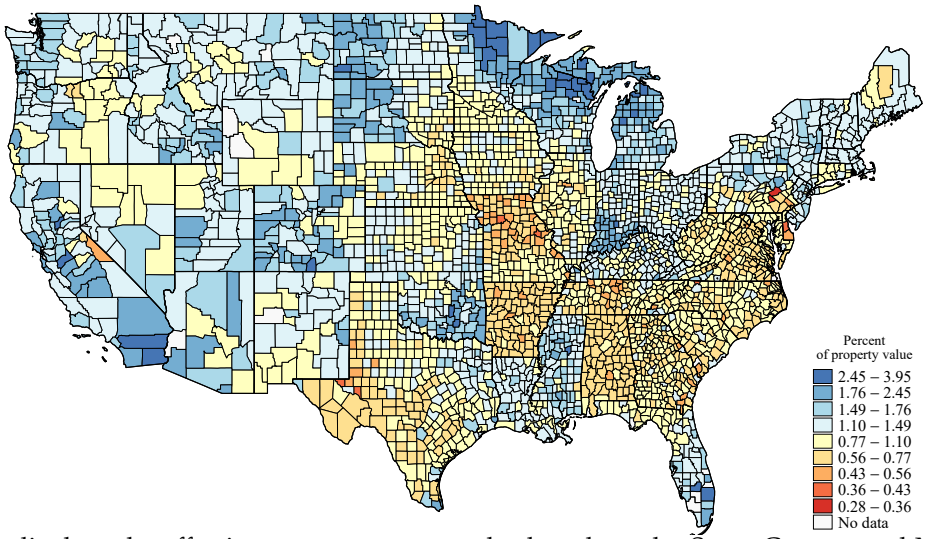
Notes: This figure shows total property tax revenues as a share of GDP for the United States. It includes all states in the Union for a given year. Property tax revenues are broken down by i) State-level, ii) County-level, and iii) Municipal-level and lower levels (which would include districts as listed in the text). For the data sources and construction, see Appendix III.9. The GDP data comes from the series by Johnston and Williamson (2020).

Figure 2: Effective Tax Rates

A. Effective Tax Rates by Level of Government

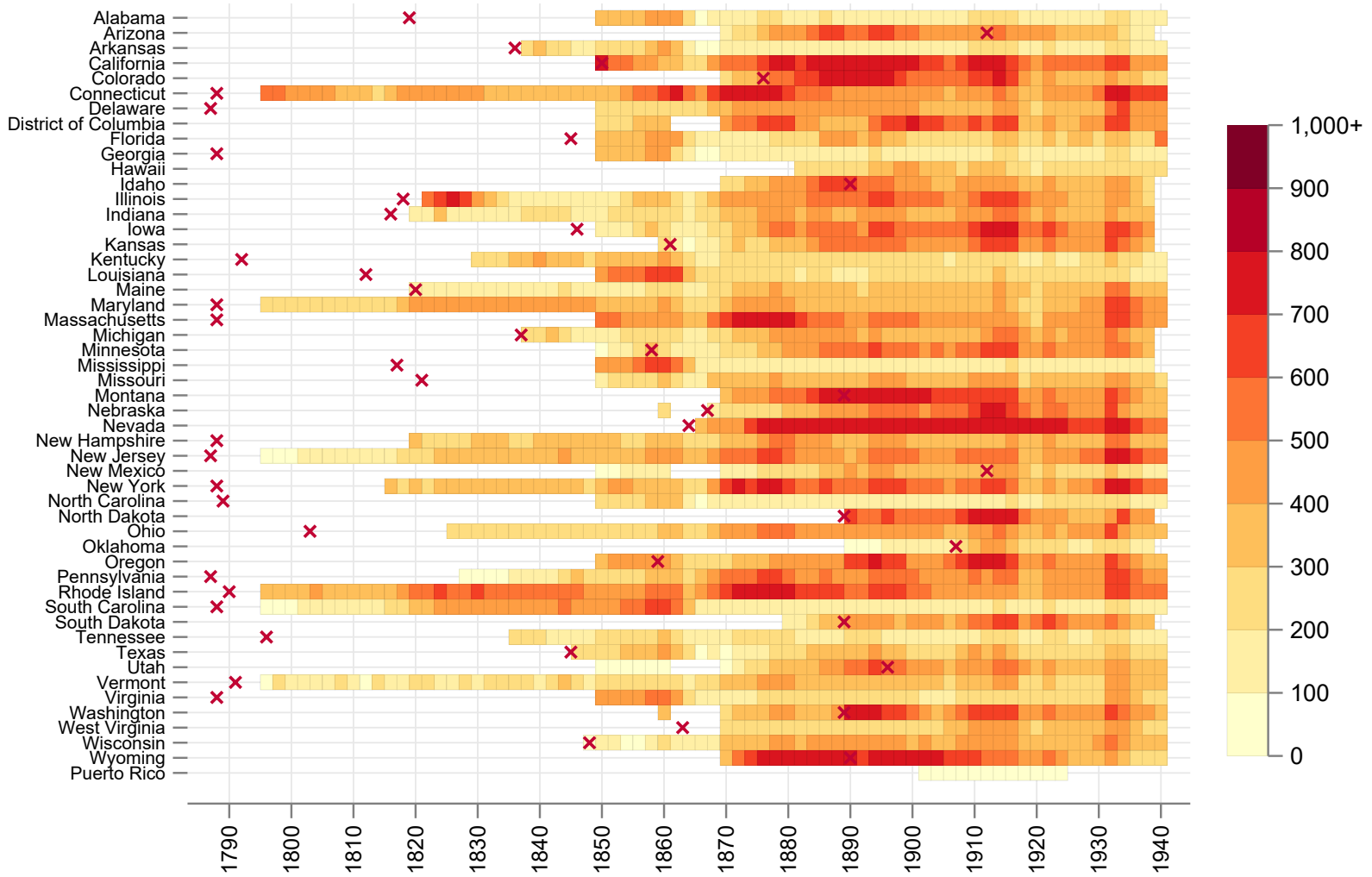


B. Total Effective Property Tax Rate - 1920



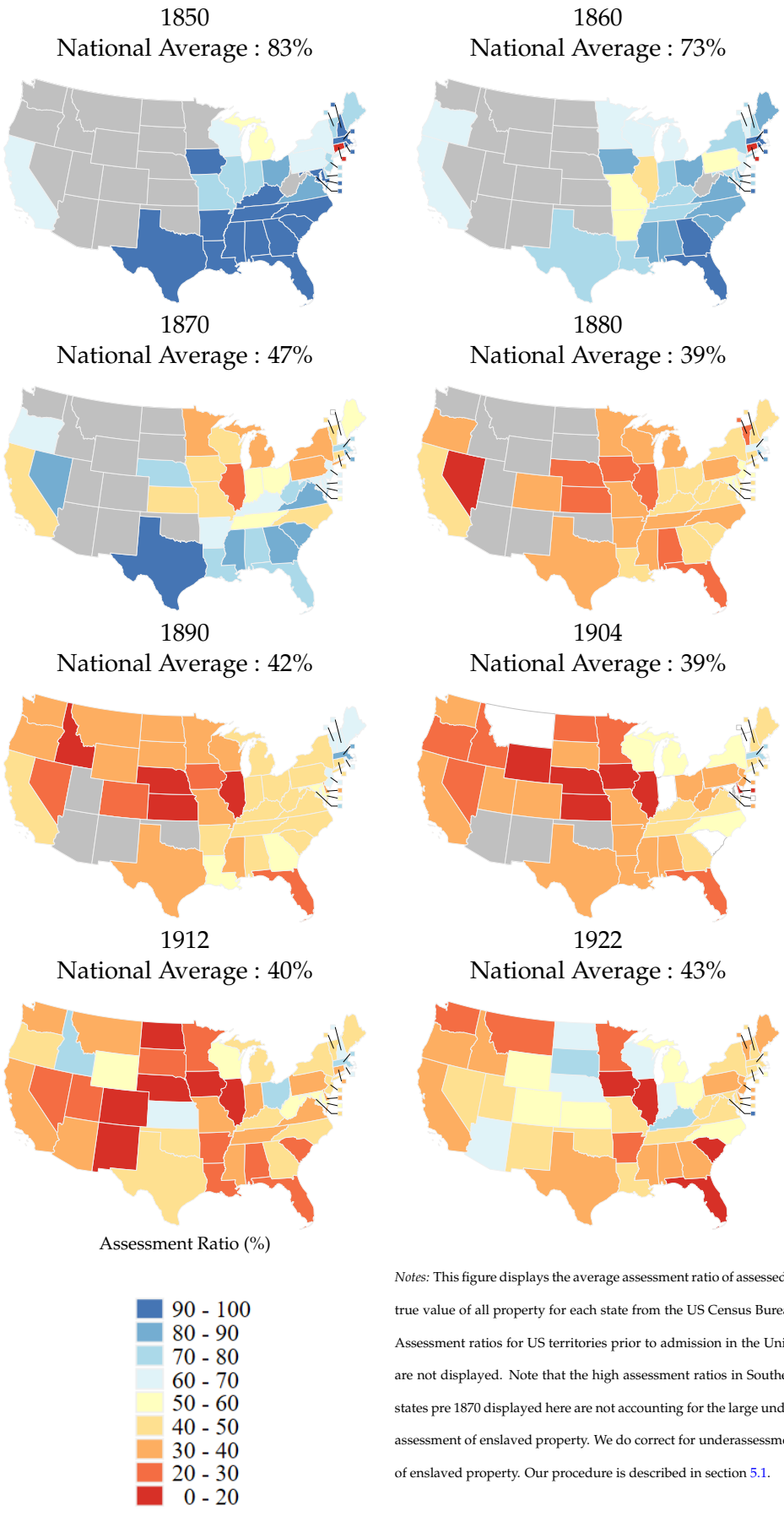
Notes: Panel A displays the effective property tax rates broken down by State, County, and Municipal and lower levels of jurisdiction. We compute effective tax rates as the ratio between the tax revenues and the total value of property. For the data sources and construction, see Appendix III.9. Panel B shows the effective property tax rate at the county level. It includes all property taxes (district, city, county and state levels).

Figure 3: Private Property by State as a Share of National GDP (%)



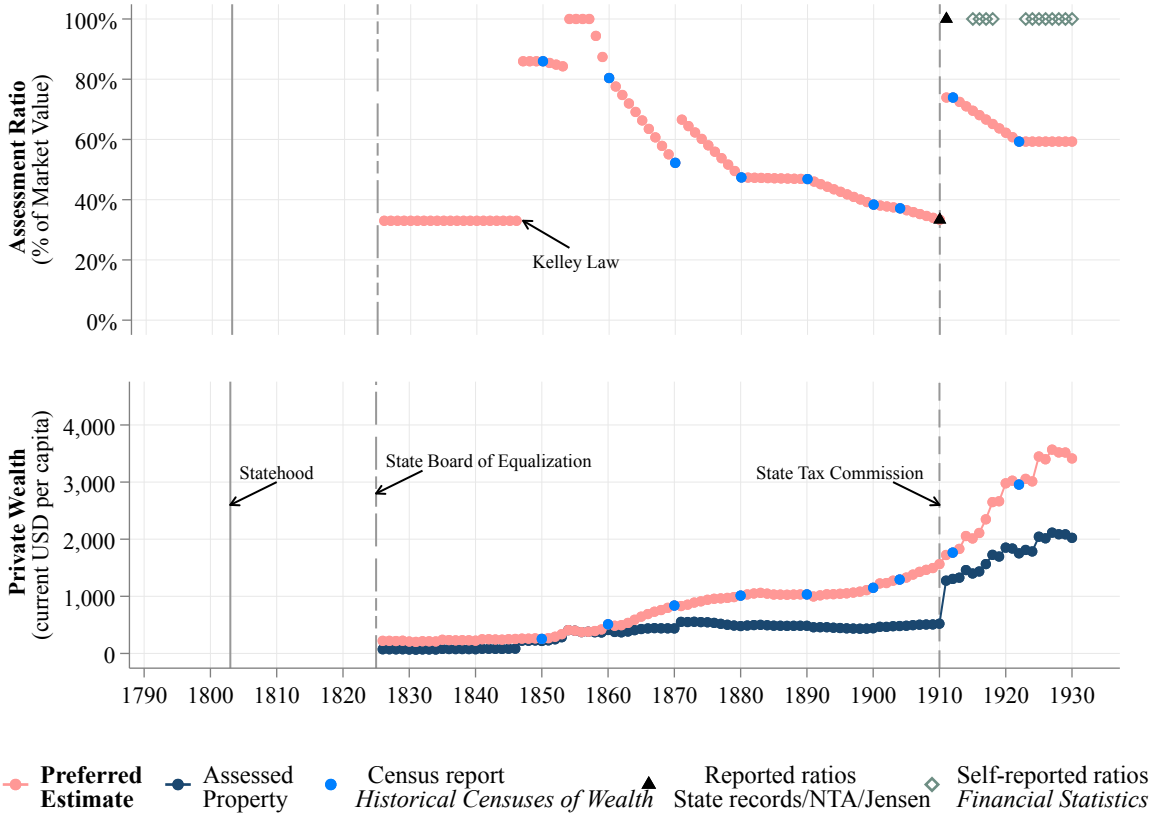
Notes: This figure shows the coverage and trends in property share for all 50 states, the District of Columbia and Puerto Rico. Property shares are measured as the ratio of private property per capita in the state over national GDP per capita. Red crosses indicate the year of the admission of the state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

Figure 4: Assessment Ratios at the State Level over Time



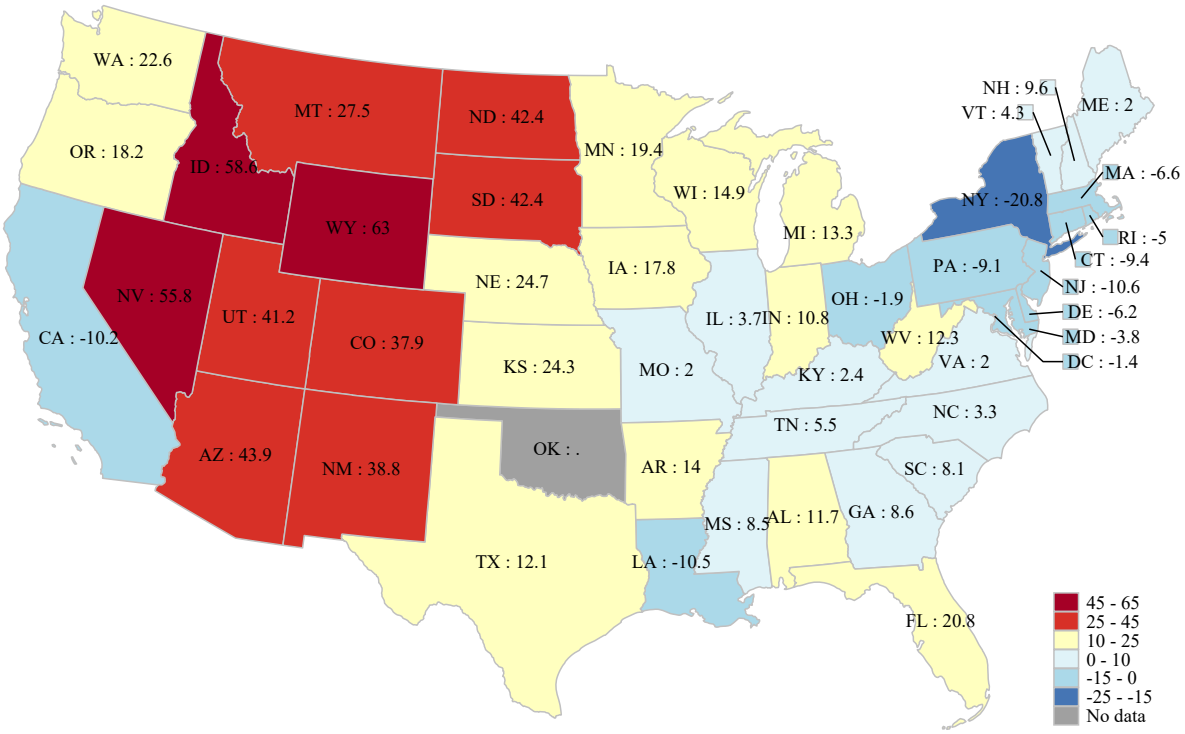
Notes: This figure displays the average assessment ratio of assessed to true value of all property for each state from the US Census Bureau. Assessment ratios for US territories prior to admission in the Union are not displayed. Note that the high assessment ratios in Southern states pre 1870 displayed here are not accounting for the large under-assessment of enslaved property. We do correct for underassessment of enslaved property. Our procedure is described in section 5.1.

Figure 5: Example: Assessment Ratio and Property Estimates in Ohio



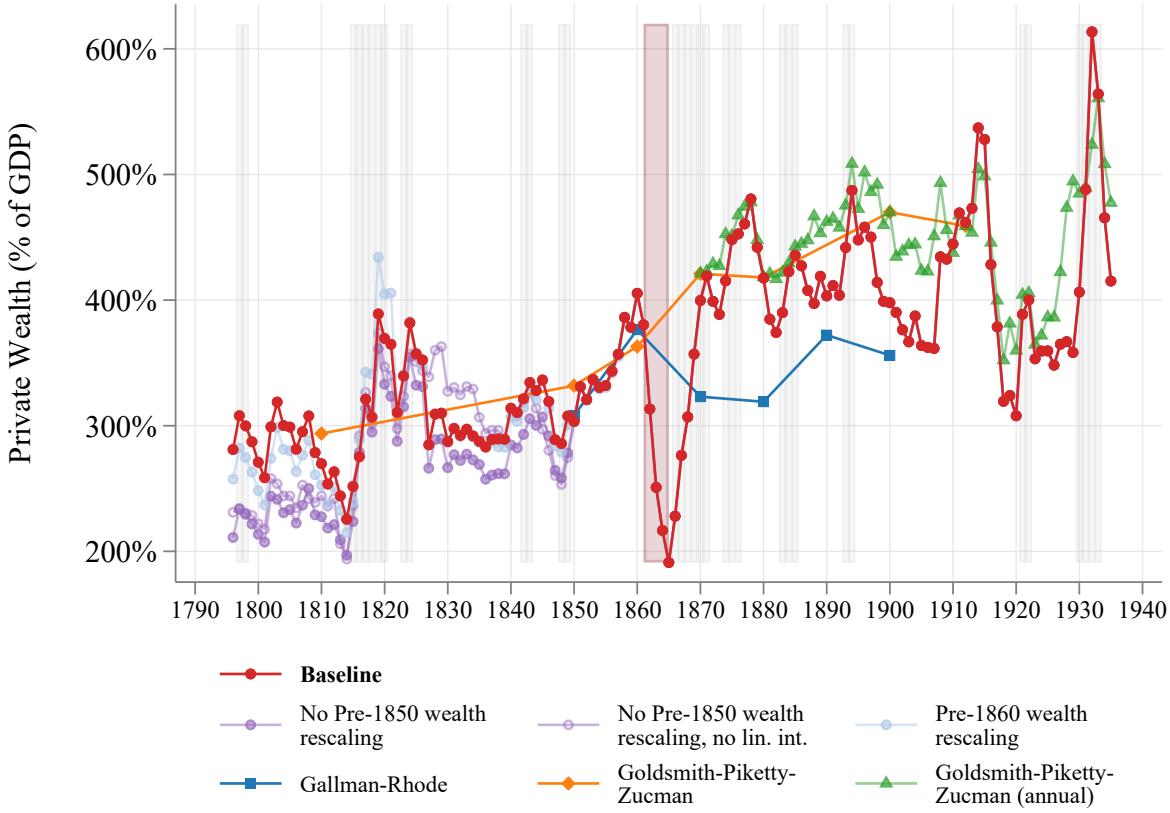
Notes: The top chart depicts the data sources for and values of assessment ratios for Ohio. The bottom chart compares the assessed property values as collected from primary sources with the market value of property obtained by rescaling assessed values using the assessment ratio. Detailed information on the development of the assessment ratio is given in Appendix III.2.3. Various episodes of sudden changes in assessment ratios are visible in the top panel, corresponding to well-documented events in state sources. For instance, the "Kelley Law" in 1847 specified for the first time that all real and personal property should be subject to taxation, amending the previous legislation, which left large classes of personal property exempt. In 1910, the creation of the Ohio Tax Commission also led to a well-documented and sharp increase in assessment ratios. Note that wealth series here are not corrected for slave prices and property before 1865, i.e. the corrections described in section 5.1 are not yet applied.

Figure 6: 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).

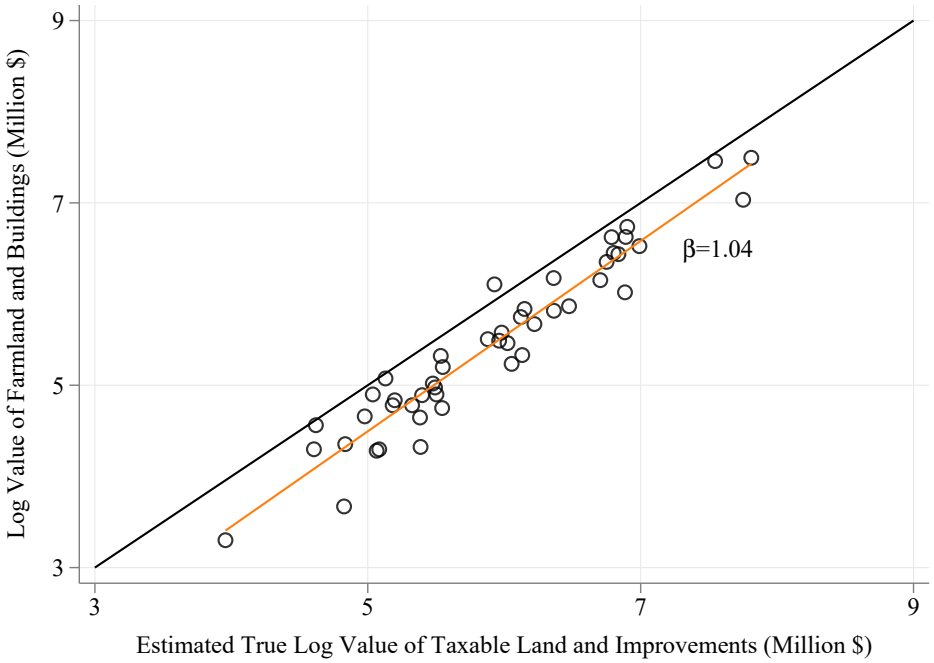
Figure 7: Comparison with Other Estimates and Sensitivity Analysis



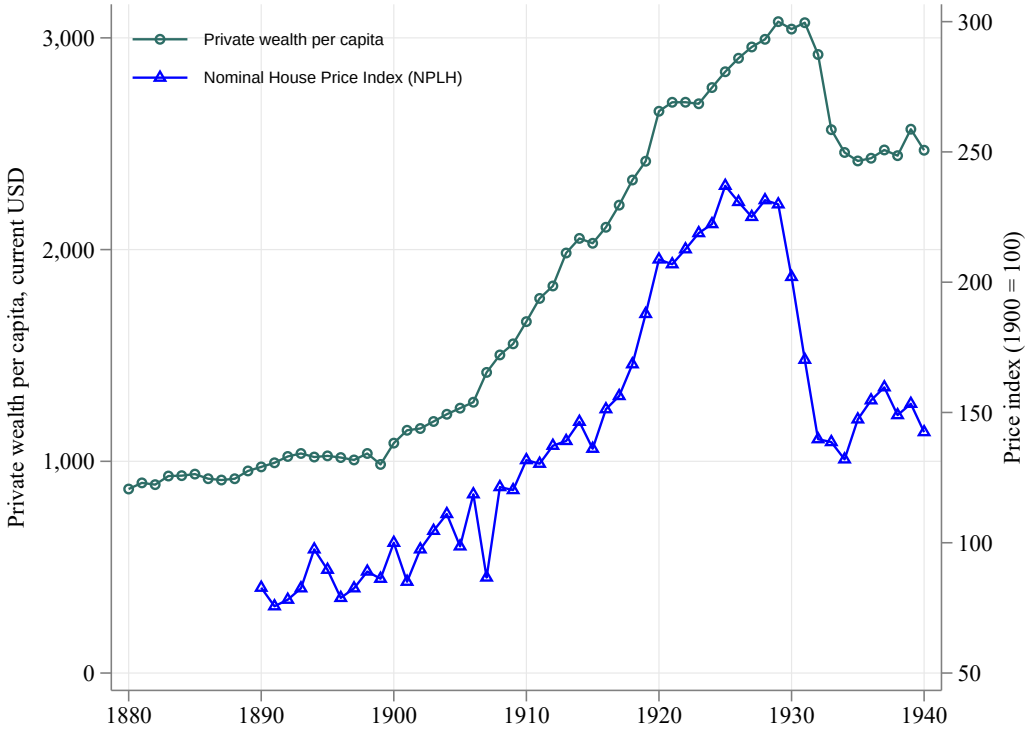
Notes: This figure compares our baseline wealth estimate with other estimates (see Appendix III.6 for a description of these alternative estimates). The main text and Appendix III.5 provide all details for the construction of our "Baseline" series and of the sensitivity series plotted on this graph. 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 8: Cross-Validation: Land, Property and Private Wealth Values

A. Comparison of the Estimated Value of Taxable Land from Property Tax Records and Values from the Census of Agriculture (1860-1910)

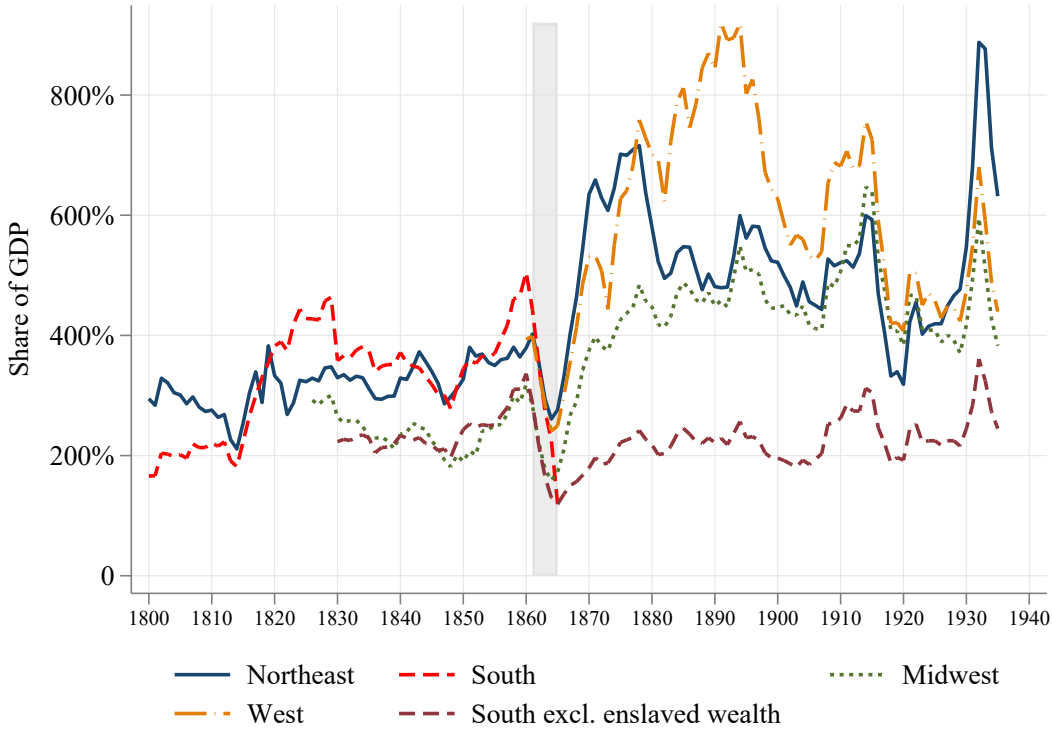


B. Private Wealth per capita and Nominal House Price Index(NPLH) in the US



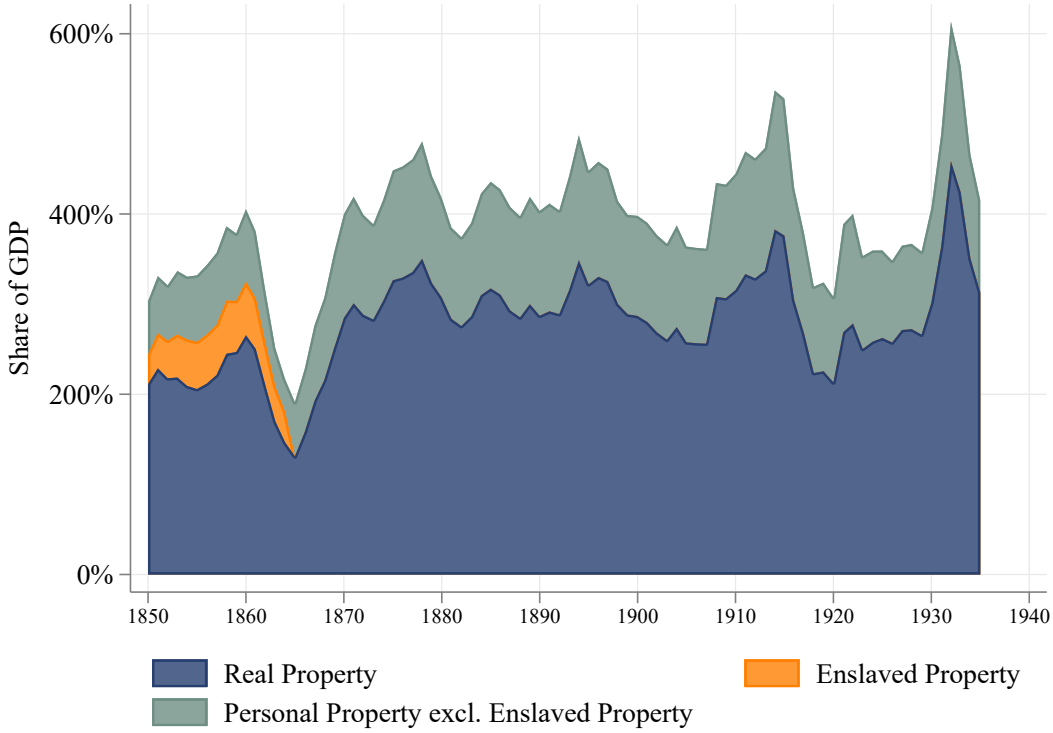
Notes: Panel A compares the estimated value of taxable land in our property tax data to the estimated value of agricultural land from the Census of Agriculture. Data from the Census of Agriculture is derived from Haines, Fishback and Rhode (2014). The value of taxable land is a sub-category of real property 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 levels not to match. However, the correlation is almost 1. Panel B instead displays the evolution of Private wealth per capita and the Nominal House Price Index in the US (year 1900 is used as the index, i.e. 1900=100). The latter series is taken from Knoll, Schularick and Steger (2017).

Figure 9: 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.

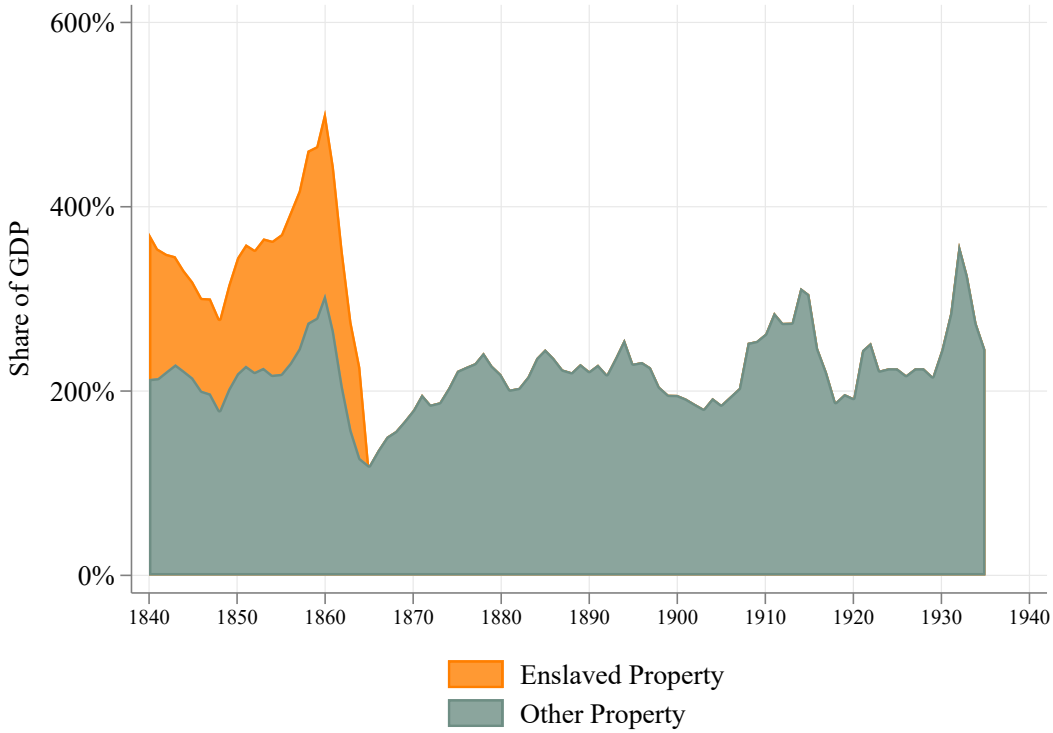
Figure 10: The Composition of US Wealth 1850-1935



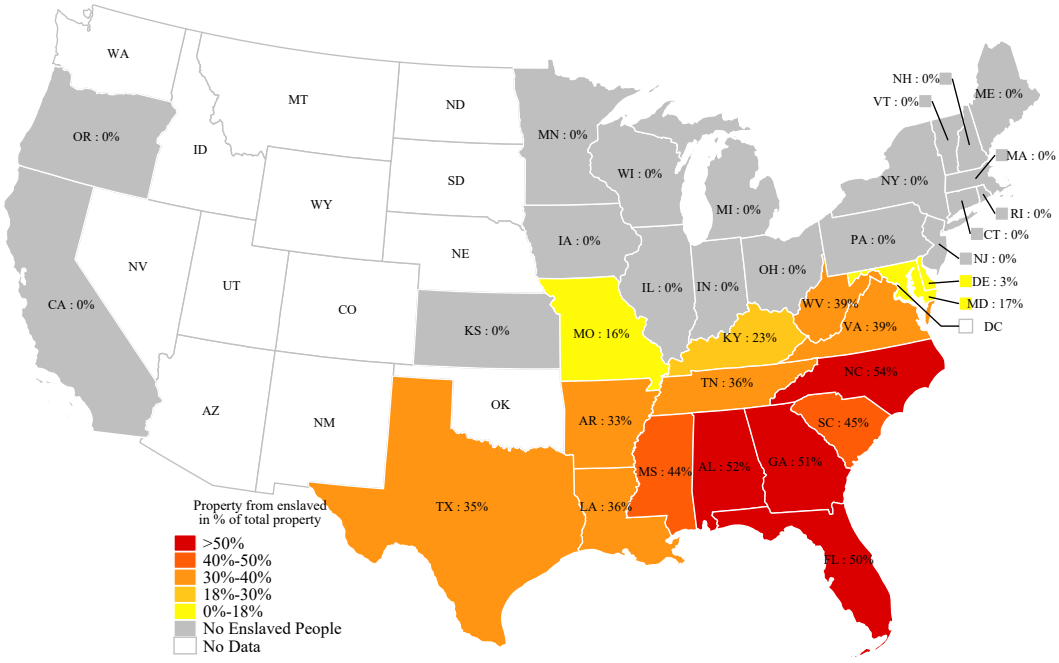
Notes: The figure shows the decomposition of wealth per capita in the US into three categories: real property; personal property excluding enslaved wealth, and the value of enslaved wealth. For the construction of enslaved wealth series see Appendix Section III.3.

Figure 11: Enslaved People in Property in Southern States 1840-1935

A. Composition of Property as share of GDP



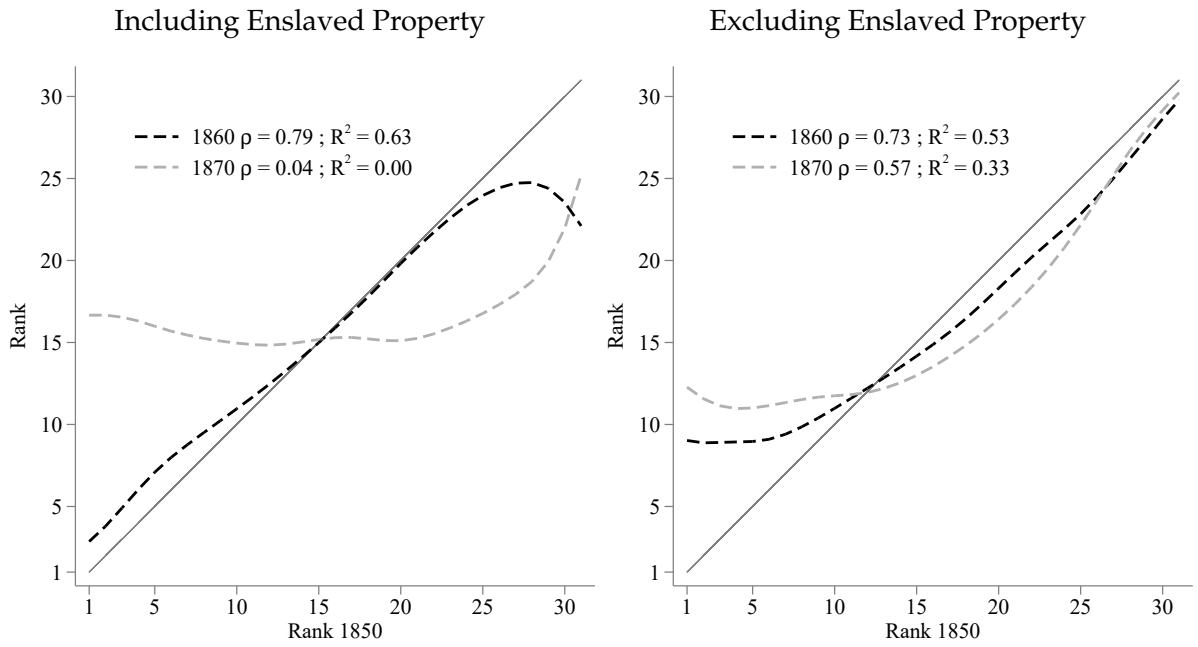
B. Share of Enslaved Property in 1860



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.3. Panel B shows the share of enslaved property in total property by state in 1860.

Figure 12: The Civil War and Enslaved Property

A - Persistence of Property Pre- and Post Civil War



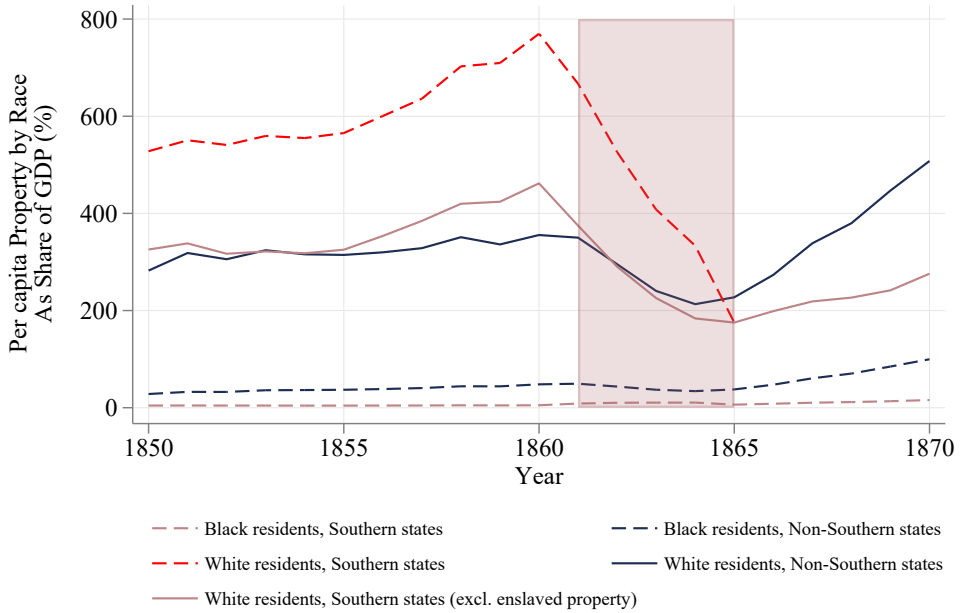
B - Decline in Property per Capita during Civil War beyond Enslaved Property by Share of Enslaved Property

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).

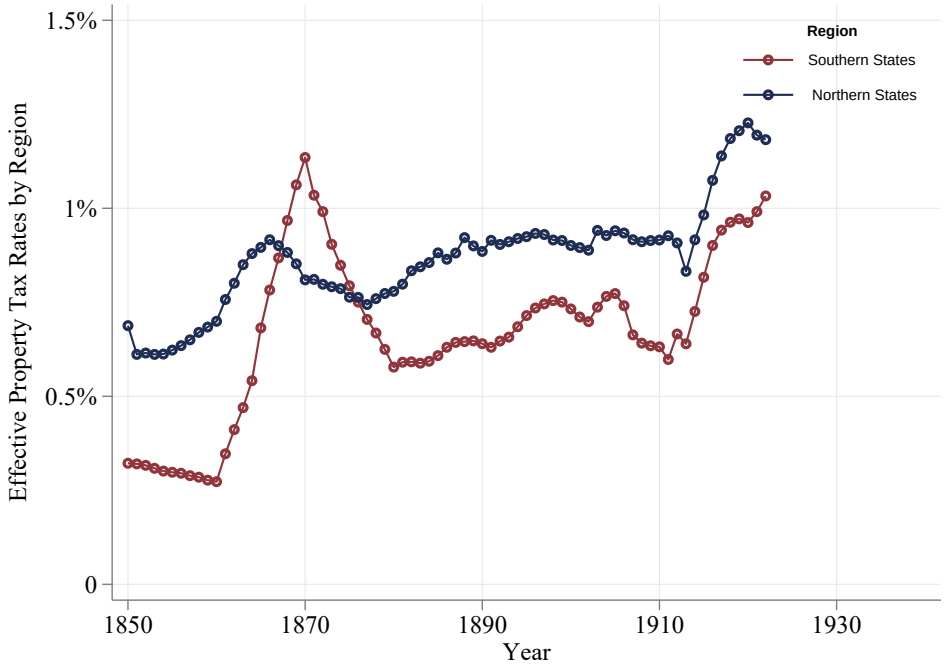
Continued on the next page

Figure 12: The Civil War and Enslaved Property (continued)

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

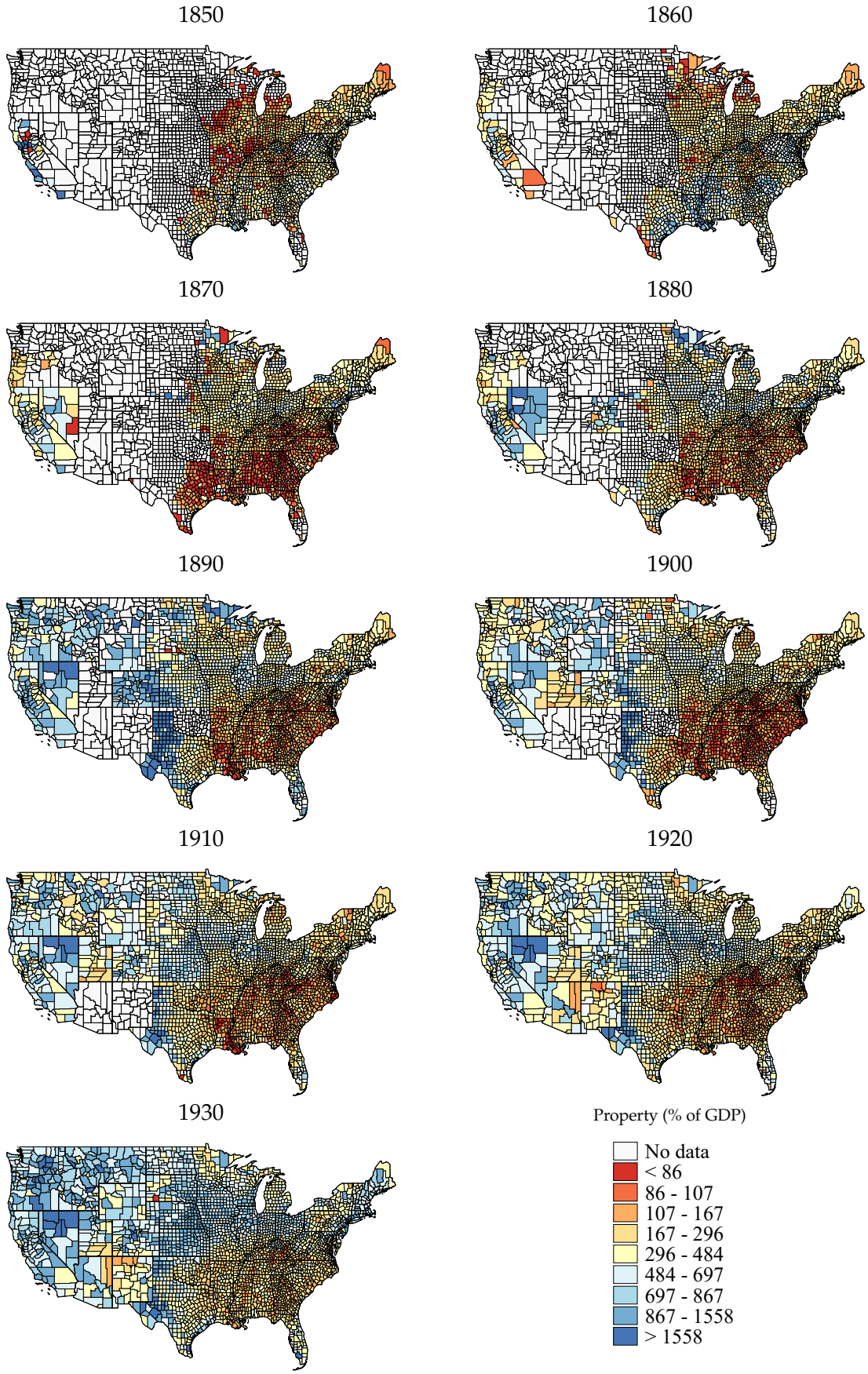


D - Effective Tax Rates by Region



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. The source that allows us to break down property by race is the individual level full count census data for 1850, 1860 and 1870. This gives us a share of total wealth held by race for each state for 1850, 1860 and 1870. These ratios are then linearly interpolated for all years in between 1850, 1860 and 1870. These ratios are then applied to our estimates of the total value of property for each year and state. Panel D displays the effective property tax rates for Southern and Northern States. For the data sources and construction, see Appendix III.9.

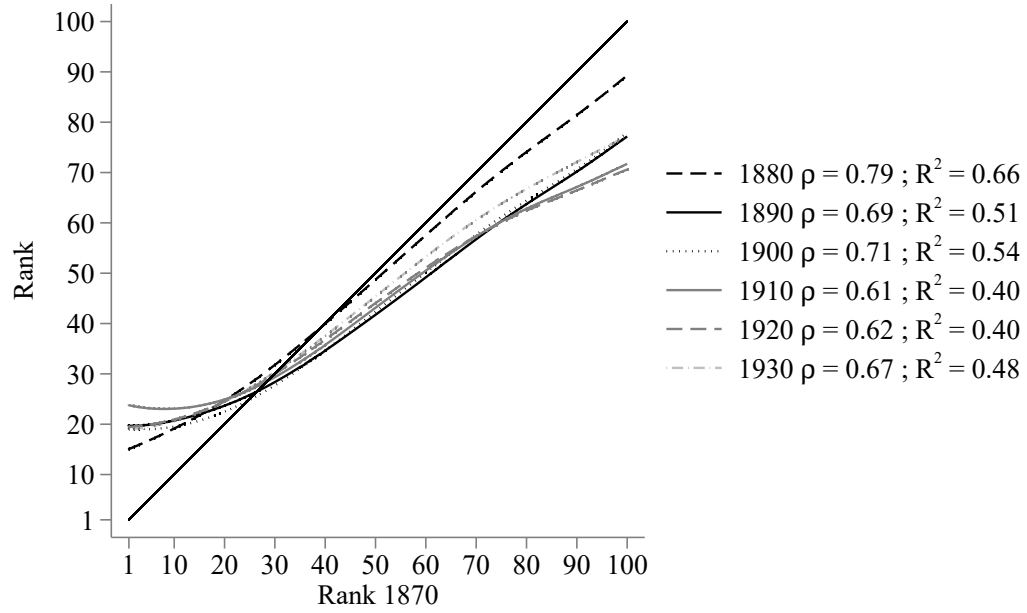
Figure 13: Property Per Capita by County As a Share of National GDP Per Capita



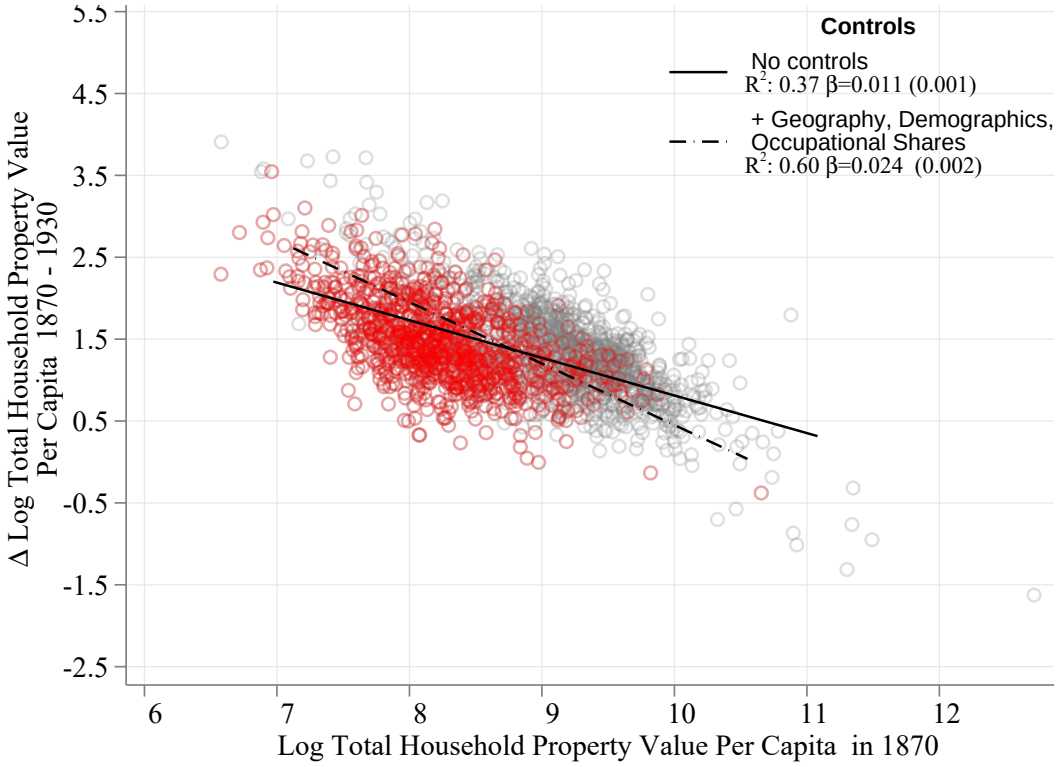
Notes: The figure shows the value of property per capita by county normalized by the national GDP per capita for each decade between 1850 and 1930. Data for counties in US territories prior to admission in the Union are not displayed.

Figure 14: County-level Persistence and Convergence

A. Rank-Rank Correlation Across Time of County-Level Property Per Capita



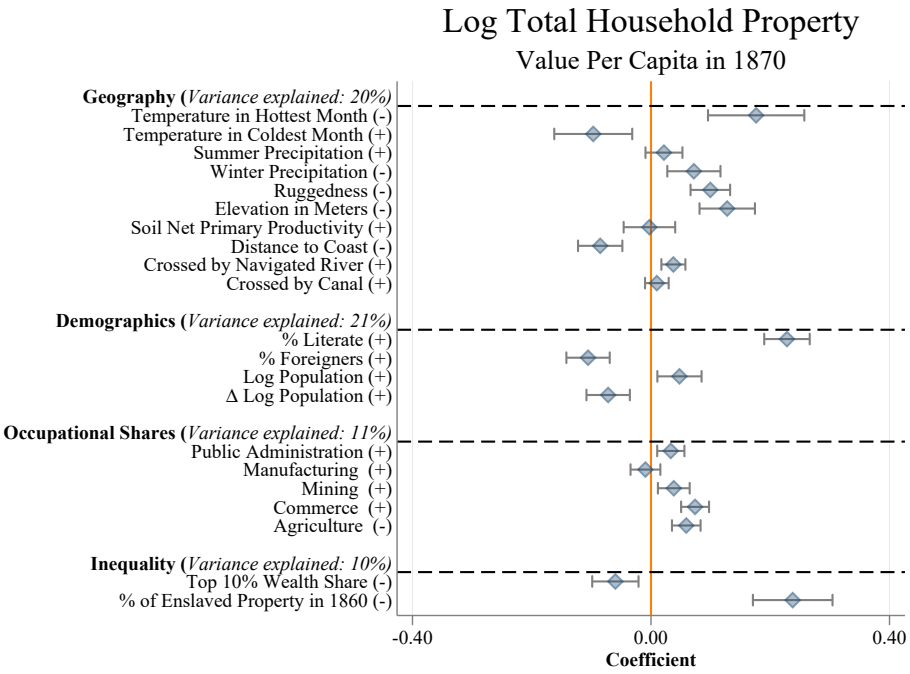
B. β-Convergence at the County Level



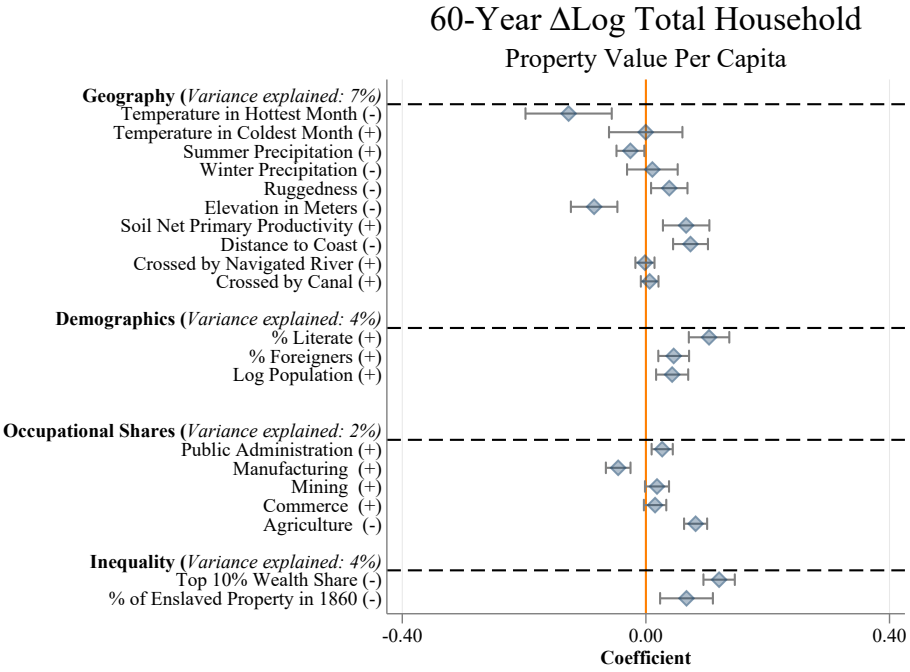
Notes: Panel A shows the rank-rank correlation of county-level property per capita for different years (ρ) and the R^2 for each year t of a simple regression of county-level property capita in year t on county-level property per capita in 1870. Panel B shows the relationship between the growth rate of 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 15: Correlates of Property at the County Level 1870-1930

A. Log Total Property per Capita in 1870



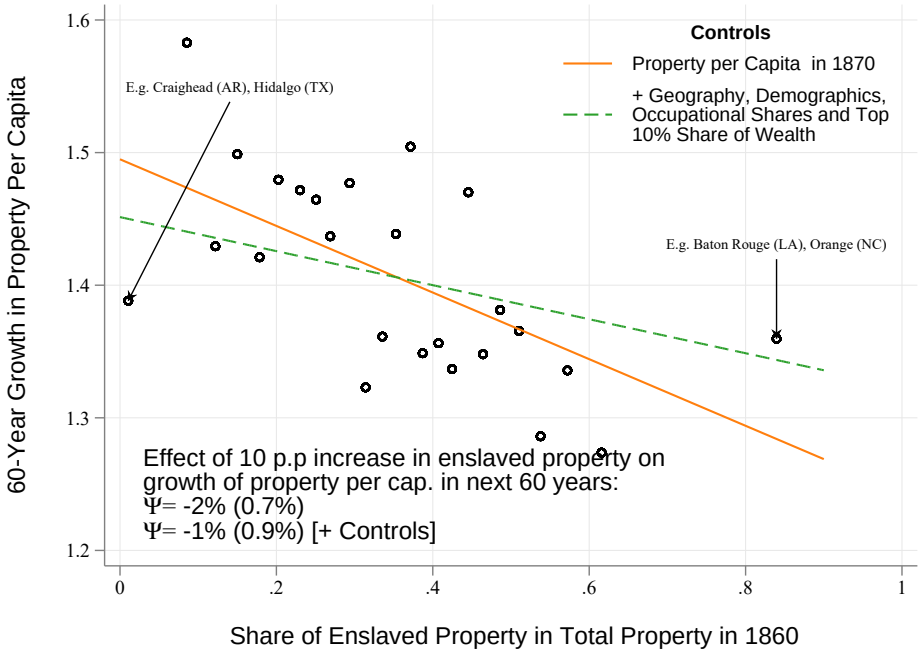
B. 60-Year Δ log Total Property per Capita



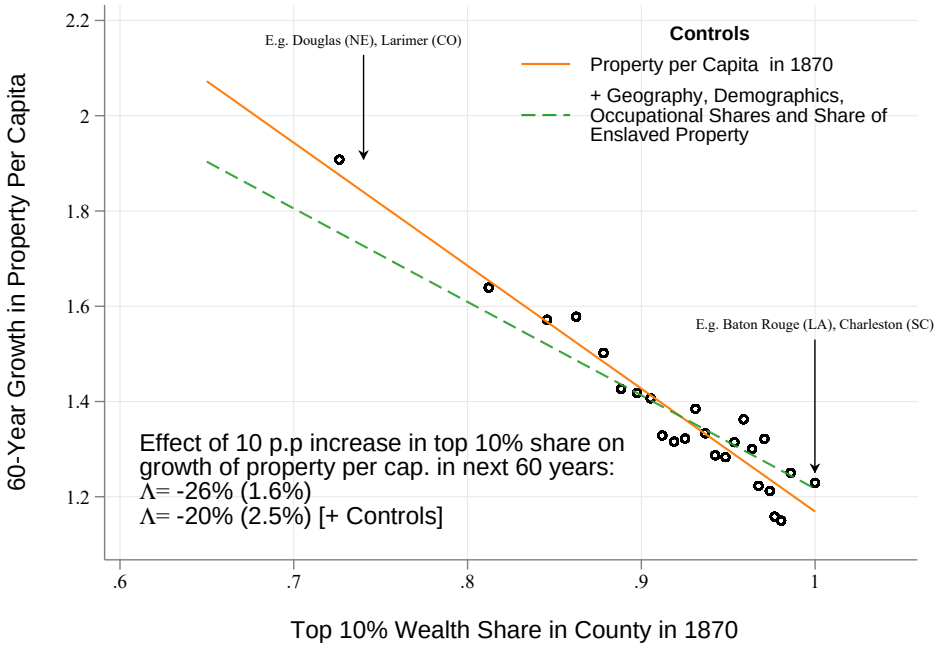
Notes: Panel A presents coefficients from the regression of log property in 1870 on inequality measures, and geographic, demographic, and economic characteristics from equation (3) . Panel B presents coefficients from the regression of the change in log property between 1870 and 1930 on the same controls, from equation (2). The controls included are described in Section 6.3 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 intervals are depicted. A minus sign next to the variable name indicates that the variable was included with a minus sign for expositional ease.

Figure 16: The Legacy of Enslavement and Inequality on Growth

A. Enslavement



B. Inequality



Notes: Panel A 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. Panel B 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%. In both panels, the correlation is residualized on controls for geography, demographics, occupational shares, and other relevant variables as described in Section 7. The controls are the same as in Figure 15. 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 (1960) data to compute the values for Barro and Sala-i Martin (1992).

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