

# Financial Inclusion, Human Capital, and Wealth Accumulation: Evidence from the Freedman's Savings Bank

Luke C.D. Stein\*    Constantine Yannelis†

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## Abstract

This paper studies how access to financial services among a previously unbanked group affects human capital, labor market, and wealth outcomes. We use novel data from the Freedman's Savings Bank—created following the American Civil War to serve free Blacks—employing an instrumental variables strategy exploiting the staggered rollout of bank branches. Families with accounts are more likely to have children in school, be literate, work, and have higher occupational income, business ownership and real estate wealth. Placebo effects are not present using planned but unbuilt branches, or for Whites, suggesting significant positive effects of financial inclusion.

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\*Department of Finance, W. P. Carey School of Business, Arizona State University, P.O. Box 873906, Tempe AZ 85287; luke.stein@asu.edu.

†Department of Finance, Booth School of Business, University of Chicago, 5807 South Woodlawn Ave, Chicago IL 60637; constantine.yannelis@chicagobooth.edu.

*“The mission of the Freedman’s Bank is to show our people the road to a share of the wealth and well being of the world.”*

—Frederick Douglass

## **I Introduction**

The ability to save allows agents to make investments when costs are lumpy and income streams vary over time. Access to financial services is a hallmark of developed societies, and research—primarily in developing countries—has found that financial inclusion promotes business and human capital investment among the poor (Karlan and Morduch, 2010; Dupas and Robinson, 2013a). Approximately one quarter of the U.S. population is unbanked or underbanked, and there exist persistent racial and ethnic gaps in access to and utilization of financial services. Gaps in education and labor market outcomes in developed countries may be at least partially explained by these differences in the utilization of financial services.<sup>1</sup> This paper uses the creation of a bank designed to cater to recently freed slaves to explore the impacts of a large scale increase in financial inclusion on a population that previously had no access to financial services.

The aim of this paper is to study how financial inclusion and the provision of financial services impacts investment in human capital and labor market outcomes. Theoretical work has long considered that capital market imperfections may distort labor market outcomes (Banerjee and Newman, 1993) and human capital investment (Anderson and Baland, 2002).<sup>2</sup> Previous studies have largely focused on experiments in developing countries or marginal changes in financial inclusion, but larger scale changes in financial inclusion may have different and possibly larger effects on investment if there are significant externalities and complementarities (Economides, 1993). We study a change in access to financial services in which a significant share of the population quickly shifted from having essentially no access to banking services to having access to a large bank.

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<sup>1</sup>Approximately forty percent of the global population is unbanked, including thirty percent of the American poor. The gap in holding a bank account between different groups has long been noted by policymakers. Federal Deposit Insurance Corporation surveys in 2015 indicate that 18.2% of African Americans are unbanked, compared to 3.1% of Whites. The Equal Credit Opportunity Act of 1974 was explicitly motivated by a desire to address racial and ethnic gaps in access to consumer financial services.

<sup>2</sup>See Karlan and Morduch (2010) for a review of the literature on access to finance, largely focusing on the unbanked in developing countries.

To explore this topic we utilize new data in a previously unexplored context—among African Americans in the nineteenth century postbellum American South. We exploit the creation of the Freedman’s Savings Bank, a financial institution set up to serve recently freed slaves following the American Civil War. To generate variation in access to financial services, we utilize the fact that, while the Freedman’s Savings Bank planned to build numerous bank branches across the South, some branch openings were delayed due to financial and political pressure, and the Bank eventually collapsed following the Panic of 1873. We find that access to financial services had large effects on human capital, wealth and labor market outcomes. Individuals in families with a bank account were more likely to attend school, had higher levels of literacy, were more likely to work, earned more and had higher levels of real estate wealth.

The Freedman’s Savings Bank was an early government-sponsored private enterprise that was created by Congress to provide financial services to formerly enslaved African Americans. Prior to the creation of the bank, very few African Americans had access to financial services, which led to concerns that Black Union Army veterans would be unable to receive and save their pay. The bank spread rapidly, and at one point had more interstate branches than any other U.S. financial institution, and approximately one in eight Blacks in the South lived in a family that held an account with the bank. The bank collapsed in 1874 due to losses on several large loans to railroads and quarries in the aftermath of the Panic of 1873. Historians have pointed to the collapse of the Freedman’s Savings Bank as a reason that utilization of financial services is lower among African Americans.<sup>3</sup>

We obtain novel data on Freedman’s Savings Bank account holders from 27 branches with surviving bank records. These 107,197 account records include names of main account holders and their family members, totaling 483,082 non-unique individuals, roughly 12% of the 1870 Black population in the American South. We match these records to a sample of the 1870 U.S. decennial census, from which we can observe information on schooling, literacy, employment, and wealth.

We first regress outcomes on whether an individual holds an account with the Freedman’s

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<sup>3</sup>For example, Osthaus (1976) argues that losses on deposit accounts that many African Americans erroneously believed were guaranteed by the federal government led many Blacks to subsequently mistrust financial institutions and doubt government guarantees.

Savings Bank. We find small but significant effects—individuals in households with accounts are approximately one percentage point more likely to attend school and be literate, while they are approximately two percentage points more likely to work and have higher incomes. There are two significant concerns with this simple approach. First, our matching strategy is inexact: names are not unique, and they were neither enumerated nor digitized perfectly. We thus measure account-holding status with error, which may attenuate our results. Second, individuals who hold accounts may be unobservably different from those who do not. For example, account holders may have higher levels of financial literacy or may live in different areas, which could also bias our results.

To overcome these concerns, we exploit the fact that some branches opened later, and some planned branches were never completed due to financial pressure and the bank's ultimate collapse. We employ a strategy similar in spirit to Huber (2018) and Giorcelli (2018), and compare outcomes in 1870 for individuals who live near branches built prior to 1870 with those who lived near branches built or planned to be built after 1870. We instrument for holding an account with distance from a pre-1870 branch and an indicator of whether an individual lives in a county with such a branch, restricting the sample to individuals living within 50 miles of a branch or planned branch. By comparing individuals living near branches built prior to 1870, and individuals living near branches that remained unbuilt as of 1870, we alleviate the concern that individuals living closer to branches may be different from those living further away.

The results using the instrumental variables strategy generate estimates that are largely similar to the ordinary least squares results, albeit larger, suggesting that attenuation bias dominates using the simple strategy. We find that individuals in families that hold Freedman's Savings Bank accounts are more likely to attend school, more likely to be literate, are more likely to work and have higher income and real estate wealth.

To assess the validity of our empirical strategy, we conduct several placebo exercises. While we find significant effects of proximity from branches on individual outcomes, we find no effect of distance from planned branches. We also do not find significant effects for Whites living near built branches relative to planned branches. We also show that our main results survive a battery of

robustness checks.

This paper joins a body of literature studying financial institutions in nineteenth century America, and we examine a previously unstudied major institution, an early government-sponsored enterprise which provided financial services to Blacks.<sup>4</sup> To our knowledge, this is the first paper to study how access to formal financial services through a bank affected individual depositor outcomes in the nineteenth century. While there exists significant work on banking in the nineteenth century (e.g., Calomiris and Pritchett, 2016; Calomiris and Carlson, 2016, 2017; Frydman et al., 2015; Frydman and Hilt, 2015; Benmelech and Moskowitz, 2010) and work on household finance in the nineteenth century (e.g., Feigenbaum et al., 2017; Koudijs and Salisbury, 2018b,a), little of this work focuses on access to financial services among the poor or attempts to study the impact of financial inclusion on historical gaps between Blacks and Whites.

This paper also joins a literature on financial inclusion and the unbanked, which has largely focused on developing countries. Previous studies have largely focused on randomized control trials in developing countries, smaller populations, or marginal changes in financial inclusion and thus largely do not consider general equilibrium effects of large scale changes in access to financial services (Ashraf et al., 2006; De Mel et al., 1999; Bruhn and Love, 2013; Dupas and Robinson, 2013a,b). In contrast, this study focuses on a large scale change in access to financial services, which affected 12% of Southern Blacks who lived in households that opened accounts.<sup>5</sup>

Much of the work in developing countries has found effects of access to savings accounts even in the absence of credit. For example, Schaner (2018) finds long run effects on income and assets from savings accounts using a randomized control trial. Study participants who received the highest interest rate on their individual account were 28 percent more likely to be entrepreneurs and had substantially more business profit and capital at end of the experiment. Dupas and Robinson (2013a) find that a simple safe place to save is enough to increase preventative health investment by at least

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<sup>4</sup>In a contemporaneous paper, Traweck and Wardlaw (2018) use detailed data on a small sample of Freedman's Savings Bank account holders. They consider account opening and depositor behavior in the weeks around a bank failure that precipitated the Panic of 1873 in order to assess predictions of the classic Diamond and Dybvig (1983) model. See Gorton (1988) and Calomiris and Gorton (1991) for a more general discussion of financial panics.

<sup>5</sup>See Karlan and Morduch (2010) for a review of the development literature.

66 percent. Dupas and Robinson (2013b) find that after six months, daily private expenditures were about 37 percent higher for market women in the treatment group. Agarwal et al. (2017) study a larger financial inclusion program in India and its effects on lending and loan outcomes.

In addition to much of the work in developing countries, Celerier and Matray (2019) focus on how financial inclusion affects wealth accumulation using branch deregulation. Their study finds large benefits from financial inclusion, with banked households accumulating higher levels of debt and durable assets.<sup>6</sup> Appel and Nickerson (2016) and Aaronson et al. (2017) focus on the practice of “red-lining” and denial of access to real estate loans to African Americans in certain areas. Brown et al. (2019) focus on residents of Native American reservations and study credit market outcomes. This paper contributes to the literature on the unbanked in two ways. First, we focus on a very large change, in which a population moves from having essentially no access to financial services to a significant share of the population utilizing banking services. Thus we may capture important general equilibrium effects, and speak to a channel that is important theoretically but difficult to study in many modern contexts. Second, while previous studies such as Celerier and Matray (2019) and Appel and Nickerson (2016) focus on wealth accumulation, ours explores human capital and entrepreneurship outcomes.

The remainder of this paper is organized as follows. Section II discusses the institutional background of the postbellum South and the Freedman’s Savings Bank, as well as the data used in the paper. Section III presents our empirical strategy. Section IV presents the main results, and Section V presents the results of various placebo and robustness tests. Section VI concludes.

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<sup>6</sup>Improved bank efficiency and heightened competition associated with deregulation in the 1970s–90s also increased income among the poor (Beck et al., 2010) and African Americans (Levine et al., 2014).

## **II Data and Institutional Background**

### **II.A Institutional Background**

#### **A Reconstruction-Era South**

Prior to the American Civil War, approximately one third of the population of the American South was comprised of African-American slaves. The economy of the South was largely agrarian and a cotton monoculture based on slave labor.<sup>7</sup> The Civil War was fought between the North and the South from 1861 to 1865, and led to the defeat and occupation of the South by the North. The war led to the abolition of slavery in the United States. The Emancipation Proclamation of 1863 freed former slaves in Confederate held areas, but slavery was not legally abolished everywhere in the United States until the passage of the thirteenth amendment in 1865.

Reconstruction is typically dated by historians between 1865 and 1877, and refers to the period following the Civil War during which the North reintegrated the South into the United States. Integrating freed slaves was a priority of the United States Government during reconstruction, and efforts were made to ensure that free Blacks were granted rights such as citizenship, the right to vote and access to education and public services.

The South was under military occupation by the Union Army, and divided into five occupation zones. The Bureau of Refugees, Freedmen, and Abandoned Lands, or Freedmen's Bureau, was set up by the United States Department of War to assist freed slaves and protect Blacks' new status. Northern Republicans moved to the South en masse, and attempted to politically organize Blacks. Within the Republican party, there was a split between the "radical Republicans" led by Charles Sumner and Thaddeus Stevens, who promoted a forceful approach to integrating Blacks and achieving equality between Blacks and Whites, and more cautious mainstream Republicans led by Presidents Lincoln and Johnson who sought to reconcile the Union with Southern Whites. Southern Democrats opposed moves promoting the integration of Blacks. Southern Whites were resentful

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<sup>7</sup>See Fogel and Engerman (1995) for a discussion of the antebellum Southern slave economy and Pritchett and Chamberlain (1993) for a discussion of the slave trade.

both of Northern occupation and the new status of freed slaves, which led to tensions. Physical destruction was widespread following the Civil War, and no attempts were made to compensate Southerners for property lost during the war (Feigenbaum et al., 2017).

The vast majority of freed slaves could not read or write. There was a near universal desire by freed slaves to acquire both property and education. Free Blacks also generally sought to enter occupations beyond agriculture, where the vast majority of Blacks worked (Foner, 2015). Schools were segregated by race, set up throughout the South by the Freedmen's Bureau, as well as by local communities. Given the fact that the vast majority of adult Blacks could not read following emancipation, many adults attended schools.<sup>8</sup>

While there were attempts to integrate Blacks during reconstruction, and the Civil Rights Act of 1875 banned discrimination on the basis of race in public places, segregation was widespread. Black civil society was sparse during reconstruction, with churches and the Freedmen's Bureau being the main black institutions in the South. Blacks did not have access to most white institutions, including banks. Many freed slaves saved through informal mechanisms via churches, or put their money into land (Osthaus, 1976). Historians generally consider Reconstruction a failure in terms of integrating freed slaves, and the period of Reconstruction was followed by the Redemption, in which Southern Whites enforced racial segregation to effectively take away many of the new rights that Blacks won during Reconstruction (Foner, 2015).

## **B Freedman's Savings Bank**

The origin of the Freedman's Savings Bank lies in African-American regiments that fought in the Union army during the Civil War. Very few Blacks had access to deposit institutions, and military authorities were concerned that black soldiers were unable to save their pay, and were unable to transfer funds to their families. Plans were drawn up by A. M. Sperry, an army paymaster and John W. Alvord, a military chaplain in Sherman's army, with the support of New York philanthropists and abolitionists. On February 13, 1865 a bill was introduced to incorporate the Freedman's Savings

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<sup>8</sup>For this reason, we do not take age restrictions when examining effects on schooling outcomes. When we do restrict to children under the age of 18, we find larger effects on schooling.



and Trust Company. The Freedman's Bank Act was passed on March 3, 1865 (Fleming, 2013). The objective of the new corporation was to receive deposits "*by or in behalf of persons heretofore held in slavery in the United States, or their descendants.*" The Freedman's Savings and Trust Company was an early United States government-sponsored enterprise, more specifically a mutual savings bank established for the benefit of African Americans (Osthaus, 1976). The bank was initially headquartered in New York, and the first branch was established in Washington, D.C.

The Freedman's Savings Bank affected education investment through at least three non-mutually exclusive channels. First, any interest unclaimed for two years after the death of a depositor was allocated to the education of black children (Fleming, 2013). During this time period most schools catering to free Blacks either charged tuition or relied on voluntary community taxation. Second, the bank allowed free Blacks to save, pool resources and create schoolhouses. Prior to the Civil War there were essentially no educational institutions for freed slaves, and indeed in many Southern states it was illegal to teach Blacks to read and write. With emancipation, groups of Blacks raised money to purchase land, build schoolhouses, and pay teachers' salaries (Foner, 2015). Third, the bank allowed depositors to have access to funds when income streams varied over time.<sup>9</sup>

The bank made loans, including loans on real estate, and employees of the bank were prohibited from borrowing. Deposits of greater than five cents (worth approximately 75 cents in 2018 dollars) were accepted, with six percent annual interest paid on deposits of more than one dollar. A basic "thrift education" was given to depositors in the bank. The bank distributed pamphlets, but, given widespread illiteracy among freed slaves, much of the efforts to improve financial literacy were done through community meetings, word of mouth and even songs which encouraged saving and thrift (Fleming, 2013).

There are at least four potential (non-mutually exclusive) mechanisms through which access to formal savings accounts might encourage investment in businesses and human capital (Dupas and Robinson, 2013a). First, investment may be lumpy, and individuals may be unable to invest in

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<sup>9</sup>Work in developing countries has found that access to savings increases schooling among children. For example, Anderson and Baland (2002) find that rotating savings and credit organizations in Kenyan slums lead to wives' saving for children's schooling, and that access to an informal savings institution increases women's bargaining power to prevent men from engaging in short-term consumption.

their business until they have enough funding for a large item such as a mule or plot of land. The second channel is that income may vary over time, and access to a deposit account may allow savers to make consistent recurring payments. This is especially true in an agricultural society such as the nineteenth century American South, where streams of income may coincide with harvests, and payment sizes may depend on agricultural output that varies with weather patterns and other factors. The third is that it may be difficult to liquidate working capital when shocks occur, and individuals may need to save in the form of liquid assets outside of their business to insure against adverse events. Finally, increasing the costs of accessing funds by requiring individuals to withdraw deposits may reduce impulsive behavior and act as a commitment device (O'Donoghue and Rabin, 1999).

While the Freedman's Savings Bank made relatively few direct loans for real estate, access to savings allowed individuals to accumulate wealth to purchase property and invest in other forms of capital. For example, the Wilmington branch recorded that one third of withdrawals were made to purchase homes, lots, horses or capital equipment. Freed slaves would begin "to deposit usually with some special object in view. He wishes to buy a mule and cart, or a house, or a piece of land, or a shop" (Osthaus, 1976). Anecdotal evidence from other branches also indicates that many Freedmen would save to purchase property or start small businesses (Osthaus, 1976). John Alvord noted that "In a single day in our Charleston Savings Bank, I took the record of seventeen Freedmen who were drawing their money to pay for farms they had been buying, generally forty or fifty acres each." The Louisville branch estimated that of \$92,500 drafts in 1867, \$35,000 were to purchase homes or land, \$42,500 were for mechanical and business improvements, and seeds and \$15,000 were for educational expenses (Osthaus, 1976).

Figure I shows the location of Freedman's Savings Bank branches. The red dots show branches that were built prior to 1870, generally in 1865 and 1866. States that allowed slavery prior to the Civil War are shown in gray, with states seceding from the Union are shown in a lighter shade of gray. The bank expanded rapidly between 1865 and 1867, with ten branches established in 1865 and a further ten in the following year. In 1867 political pressure during reconstruction led to slower expansion until 1870 (Fleming, 2013). The expansion of the bank was largely tied to the

concerns about Union army veterans that led to the establishment of the bank. Alvord travelled throughout the South to establish new branches, basing his search on black veterans needing to deposit accounts. Civilians followed former soldiers in establishing accounts at branches. In the first two years discharged soldiers' funds made up the majority of accounts, however, after this early period non-veterans quickly opened accounts and former military personnel became a relatively small share of depositors (Osthaus, 1976).<sup>10</sup>

Between 1867 and 1870, financial pressures and political opposition led to a general pause in the expansion of policies and organizations aimed at benefiting freed slaves (Foner, 2015). Expansion continued in 1870s, but ended with the failure of the bank during the aftermath of the Panic of 1873. Before the bank's collapse in the early 1870s, the bank had one of the largest interstate branch networks in the United States.

Our analysis utilizes the 1870 census, and this is only affected by the expansion of the Freedman's Savings Bank. Following the time period we study, the bank collapsed following the Panic of 1873.<sup>11</sup> The bank invested heavily in real estate and made unsecured loans to railroads, quarries, and various firms that defaulted. The renowned African-American statesman and intellectual Frederick Douglass was briefly made the head of the bank in a move to instill confidence in depositors, but the move failed to save the bank. In June of 1874, the Freedman's Savings Bank was forced to suspend operations with only 50 cents to cover obligations per depositor.

The failure of a bank catering to former slaves, and the loss of their savings, led to general public concern and sympathy for the fate of depositors. Following a congressional investigation, Congress created a program to reimburse up to 62% of savings, but many depositors were never

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<sup>10</sup>Most of the branches were in former slave holding states in the South (but not all), and in cities that also had a field office of the Freedmen's Bureau (Carrier and Walton-Raji, 2014). The bank was initially headquartered in New York, where the impetus for the bank's creation began. The New York branch, uniquely, catered to non-black European immigrants who were also largely excluded from many formal savings institutions and credit markets. Later the bank moved its headquarters to a building in Washington, D.C. that is today across from the White House and part of the United States Treasury complex. There were also a handful of branches in Northern cities such as Cleveland and Philadelphia, which were near former slave-holding states and where many former slaves settled following emancipation.

<sup>11</sup>The Panic of 1873 was a global financial crisis, with several underlying causes debated by economic historians ranging from demonetization of silver in the United States and Germany, speculative investments in railroads, and the economic consequences of the Franco-Prussian War. In the United States several major banks and railroads failed and the New York Stock Exchange closed for ten days in September.

compensated (Fleming, 2013). Due to the ambiguous effects of holding an account and the potential loss of savings following the collapse of the bank in 1874, we limit our analysis to outcomes from the 1870 census.

## **II.B Data and Sample Selection**

### **A Census Data**

Our principal outcome measures and control variables are drawn from the 1870 U.S. decennial census, the first in which many recently emancipated slaves appeared.<sup>12</sup> This census was collected in person by paid enumerators, who submitted handwritten records to the Census Office. In addition to identifying information and basic demographics, the collected data included profession, value of owned real property, school attendance, and education. A sample census record is shown in Appendix Figure A.1.

We rely on the digitized “1870 1% Sample With Black Oversample” compiled by IPUMS (Ruggles et al., 2015) and distributed through the North Atlantic Population Project (Minnesota Population Center, 2017). This sample includes all members of each randomly sampled household, over-sampling African Americans to include approximately 2% of the African-American population (and 1% of non-African Americans). Our regression analysis weights individuals using IPUMS-provided sampling weights (PERWT).

We geocode the approximate location of individuals in the census sample using their county of residence (STATEFIP and COUNTY), and county centroid latitudes/longitudes. We use these locations to measure the distance from the county of each of the built and planned Freedman’s Savings Bank branches, listed in Table I. Our main analysis sample is restricted to individuals classified as Black (RACE = 2) who live in the South (REGION  $\in$  {31, 32, 33}), and within 50 miles of a branch or planned branch. The census sample includes 34,187 such individuals, approximately two-thirds of whom live near a (pre-1870) branch, and one-third near a planned branch.

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<sup>12</sup>In 1850 and 1860, slaves were counted on separate census “slaves schedules” that recorded information including age, skin color, and fugitive status, but did not collect names.

Although some of our analysis is conducted using only census data, our main analysis will rely on matching the census with Freedman’s Savings Bank data as described in Section C. The construction of key outcome and control variables from the census data is described in Appendix Table A.1, and summary statistics for these variables in our main analysis sample are reported in Table II.

## **B Freedman’s Savings Bank Data**

To identify Freedman’s Savings Bank account holders, we rely on the surviving account registers from 27 branches.<sup>13</sup> The form and content of these registers varied over time and across branches, but they generally included basic demographic information on the main account holder, along with the names of various family members. In many cases, not all of the fields were filled out. A sample record is shown in Appendix Figure A.2.

The original account registers were microfilmed by the National Archives and Records Administration (as Publication M816, 1970). A digitized version of the individual records are available in Progeny Family Explorer format on CD-ROM (FamilySearch, 2000), from which we (imperfectly) extract a database of account holders and family members using the DBF Manager software (Astersoft, 2016). Across all available branches, this sample includes 107,197 separate account records and 483,082 individuals.<sup>14</sup>

These records suffer from imperfect enumeration, digitization, and database extraction. For each record, we use string matching methods to attempt to identify the associated branch, first name, and last name. These fields are used to match to the census data as described below.

## **C Matching Census and Freedman’s Savings Bank Data**

Our main analysis sample relies on a match between the census data described in Section A and the Freedman’s Savings Bank records described in Section B. We begin by excluding from the census

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<sup>13</sup>Records from seven additional branches have not survived; these are indicated with an asterisk in Table I.

<sup>14</sup>These individuals are not necessarily unique, since many presumably appear on the records of multiple family members who opened separate accounts.

sample 4,365 individuals who live within 50 miles of a branch for which Freedman’s Savings Bank account registers have not survived (indicated with an asterisk in Table I). This reduces the size of our census subsample from 34,187 to 29,822.

In order to associate census records with the Freedman’s Savings Bank account records, we match using names that suffer from non-uniqueness, enumerator error, and digitization errors. To help mitigate the effects of these issues, we further restrict our sample to members of households with at least one member who has a “potentially matchable name,” defined as one with first and last names (the first space-delimited word of NAMEFRST, and NAMELAST) that (a) are at least two letters long, (b) do not include question marks, and (c) form a unique combination among all Blacks in the “1870 1% Sample With Black Oversample” census sample. This restriction further reduces our census subsample from 29,822 individuals to the 27,247 who compose our main analysis sample.

This sample includes 15,666 individuals who live within 50 miles of a (pre-1870) branch, whom we match to Freedman’s Savings Bank records in order to identify account holders. From each bank account record, we identify the names of potential account holders by forming every combination of first and last names that appear among the main account holder and family members.<sup>15</sup> We then use this list of names to (imperfectly) identify account holders. For the subsample living within 50 miles of a (pre-1870) branch for which account records are available, we code individuals as having an account if any household member with a “potentially matchable name” matches the records of that nearest branch; otherwise we code them as not having an account. We code members of our sample who live more than 50 miles from a branch as not having an account.

Appendix Figure A.3 shows the fraction of Blacks with accounts in the South, and provides validation for our matching strategy. In our sample 14.4% of individuals live in families that hold an account. Our numbers closely match historical sources, as does the geography of our matched account holders. Figure A.3a shows the fraction of the Black population in each former slave state that had a branch of the Freedman’s Savings Bank. This figure is constructed by taking the number

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<sup>15</sup>We do this for three reasons. First, imperfect digitization and database extraction give only a very limited ability to distinguish which individual on an account record is the main account holder. Second, the inclusion of last names on account records is inconsistent; they are often reported only for some family members and implied for others. Finally, we expect that access to banking is likely to have effects not only on main account holders, but on their family members.

of aggregate deposits in each state reported in Osthaus (1976), and dividing by the number of Blacks in each state in the 1870 census. Figure A.3b repeats the exercise, using the matched data. The broad geographic patterns look quite similar. Larger fractions of Blacks hold accounts in the Carolinas, Virginia, Tennessee, Mississippi, and Florida relative to other states. The fact that the patterns in the linked data match aggregate patterns helps validate our matching strategy.

### III Empirical Strategy

#### III.A Comparison of Account Holders to Non-Holders

We begin our analysis by comparing account holders with non-holders. We estimate the effect of holding an account using Ordinary Least Squares estimation of the following regression specification:

$$y_i = \alpha_t + \alpha_c + \beta^{OLS} A_i + \gamma_1 \mathbf{X}_i + \varepsilon_i, \quad (1)$$

where  $y_i$  is an outcome of interest for individual  $i$  in 1870 (school attendance, literacy, labor force participation, occupational income, or value of real property). We regress these outcomes on  $A_i$ , an indicator of whether an individual has an account. We include fixed effects  $\alpha_t$  for the date which a branch opened, and additionally for  $\alpha_c$ , metropolitan area classification in which an individual is located, if any. We include controls  $\mathbf{X}_i$ , which include a variety of individual demographic characteristics. The main coefficient of interest is  $\beta^{OLS}$ , which captures the effect of holding an account on the outcome  $y_i$ .

The estimates of  $\beta^{OLS}$  in equation 1 suffer from two sources of bias. The first is measurement error. The census and Freedman’s Savings Bank records suffer from imperfect enumeration, digitization, and database extraction. The matching procedure described in Section II.B is also inexact. Thus our measure of holding an account,  $A_i$ , is measured with error, which may attenuate our estimates of  $\beta^{OLS}$  and bias them towards zero.<sup>16</sup> The second is selection stemming from the fact that individuals

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<sup>16</sup>Consistent with the existence of measurement error, we show in Appendix Table A.2 that the OLS coefficients are generally larger—though not necessarily statistically significantly so—for individuals that we cannot match to the 1880

who open accounts may be unobservably different from individuals who do not open accounts. For example, it is possible that those who open bank accounts are more organized or ambitious than individuals who do not open accounts. This could bias estimates of  $\beta^{OLS}$  upwards, and even lead to spurious effects driven by selection being detected. The fact that the two sources of bias potentially go in opposite directions means that the simple estimates of  $\beta^{OLS}$  may not be informative regarding the true effect of access to financial services. We therefore use an instrumental variables strategy to identify the effect of holding an account on outcomes.

### III.B Instrumental Variables Strategy

To identify the effect of holding an account on human capital and labor market outcomes, we exploit individuals' proximity to the nearest branch. The natural concern with such an approach is that areas in which branches are located may differ from areas without branches.<sup>17</sup> For example, branches may be more likely to be located in areas closer to cores of metropolitan areas that have other services, and individuals living in these areas may have higher levels of ability and human capital accumulation. To alleviate this concern, we compare individuals who live near branches *that were built before 1870* to those near branches *that were built or planned to be built in or after 1870*. We thus do not need to assume that Blacks living near bank branches were similar to other Blacks in the 1870s South, but rather that Blacks living near branches were similar to Blacks who lived near branches that are built or scheduled to be built after 1870. Figure II illustrates the variation that we use. The top panel shows distance from branches built prior to 1870. The bottom panel shows distance from branches built or scheduled to be built post-1870.

We include individuals living within 50 miles of a built or planned branch (who satisfy the other sample restrictions described in Section II.B), and instrument for holding an account  $A_i$  using (1) whether an individual is located in a county with a branch,  $B_i$ , and (2) the distance to the nearest branch,  $M_i^B$ .<sup>18</sup> This strategy is related to Huber (2018) and Giorcelli (2018),<sup>19</sup> and yields

Census. These are precisely the individuals for whom our measure of account status is most likely measured with error.

<sup>17</sup>As Fleming (2013) notes, "Only those in the vicinity of the larger towns were directly affected by the bank."

<sup>18</sup>In section V we vary the 50 mile restriction, and show that results are robust.

<sup>19</sup>Several studies such as Agarwal and Hauswald (2010), Mian (2006), Degryse and Ongena (2005), Huber (2018)



the first-stage equation

$$A_i = \alpha_t + \alpha_c + \zeta_1 B_i + \zeta_2 M_i^B + \gamma_2 \mathbf{X}_i + \epsilon_i. \quad (2)$$

We include controls  $\mathbf{X}_i$  for whether an individual is in a metropolitan area, city population, sex, age, number of own children under age five in household, and fixed effects for the opening date of the nearest branch, relationship with household head, the number of married couples in the household, and occupation; and weight using IPUMS sample weights.

Our Instrumental Variables approach uses individuals' likelihood of holding an account—predicted using the fitted values from estimation of equation 2—to predict outcomes of interest:

$$y_i = \alpha_t + \alpha_c + \beta^{IV} \hat{A}_i + \gamma_3 \mathbf{X}_i + \eta_i. \quad (3)$$

There are two key identifying assumptions. The first is that the proximity instruments are correlated with holding an account, in other words  $\mathbb{E}[A_i M_i^B | \mathbf{X}_i] \neq 0$  and  $\mathbb{E}[A_i B_i | \mathbf{X}_i] \neq 0$ . This assumption is testable and implies that the instruments are correlated with holding an account. Figure III provides suggestive evidence that this assumption holds, and that minimum distance from a branch is indeed correlated with account status. The figure shows the fraction of Southern Blacks with an account, by distance to the nearest branch. The fraction of individuals with an account increases with proximity to a branch, and increases sharply within 20 miles of a branch.

We test the excluded instruments' relevance more formally in Table III, which reports the results of the Ordinary Least Squares estimation of the first stage (i.e., equation 2). The estimated coefficients are of the expected sign, and both economically and statistically significant. For example, an individual living 10 miles closer to a branch is 0.4 to 0.7 percentage points more likely to have an account, and individuals in a county with a branch are 14 to 17 percentage points more likely to hold an account than those living outside a branch county. When we include both instruments, our  $F$  statistic is 88.9, which is large enough to rule out weak instrument concerns (Staiger and Stock, and Petersen and Rajan (2002) have argued that proximity influences lending relationships.

1997; Stock et al., 2002).

The second assumption is that distance from branches and whether a county has a built rather than a planned branch is uncorrelated with unobservable determinants of the outcomes studied, in other words  $\mathbb{E}[\eta_i M_i^B | \mathbf{X}_i] = 0$  and  $\mathbb{E}[\eta_i B_i | \mathbf{X}_i] = 0$ . This assumption is not directly testable, but we can provide supportive evidence that it holds. First, in Section V.A we present the results of placebo tests that show that proximity to a branch does not predict similar outcome differences among (presumably untreated) Whites as among Blacks. Furthermore, we fail to find evidence that Blacks' outcomes differ systematically with proximity to a *planned* rather than a built branch. Second, we can exploit the fact that we have multiple instruments to conduct a Sargan (1958)-Hansen (1982) overidentification test. The resulting test statistic is 1.151, with a  $p$ -value of 0.2834, and we thus fail to reject the overidentifying restrictions.

## IV Main Results

### IV.A Human Capital

We begin by considering the effect of access to finance on investments in and acquisition of human capital. In particular, we investigate two human capital-related outcomes: school attendance and literacy. In Table IV, we compare the school attendance and literacy of Freedman's Savings Bank account holders with non-holders, reporting Ordinary Least Squares estimates of equation 1 as described in Section III.A. Because the outcome variables are binary indicators, this can be interpreted as a linear probability model, where coefficients represent the marginal likelihood of school attendance or literacy associated with holding an account.

The positive coefficient estimates reported in columns 1 and 2 show that account holders are indeed statistically significantly more likely than non-holders to be enrolled in school and to be literate. Among individuals in our main analysis sample, having an account is associated with an approximately 1.7 percentage point higher likelihood of attending school, and an approximately 5 percentage point higher likelihood of being literate.

Of course, these OLS estimates suffer from potential biases as described in Section III.A, which precludes a causal interpretation. We therefore move to Instrumental Variables estimates as described in Section III.B. Rather than considering the association of school attendance and literacy with account status, we instead consider the association with the account status *predicted* by the presence of and/or proximity to a pre-1870 branch (and other control variables).

In Table Va, we report the results of this Instrumental Variable strategy, implemented using Two-Stage Least Squares estimation of equation 3. The first-stage predictions of account status are reported in Table III and discussed in Section III.B. The excluded instruments are the distance to the nearest pre-1870 branch, and an indicator for the presence of a pre-1870 branch in the county.

The estimated coefficient in column 1 indicates that opening a Freedman’s Savings Bank account resulted in a large and statistically significant increase in the likelihood of school attendance. Including additional control variables (to help explain school attendance and account status using additional geographic and demographic attributes) in column 2 leaves the estimated effect nearly unchanged: we estimate that an account increases school attendance likelihood by approximately 14 percentage points, with statistical significance at the 1% level.

We find analogous results for our other human capital outcome measure, reported in columns 3–4: opening an account is associated with an increase in the likelihood of being literate by approximately 13–19 percentage points, which is both statistically significant and economically large. In contrast with school attendance, including additional control variables moderates the magnitude of the estimated effect on literacy and reduces statistical significance from the 1% to the 5% level, although larger standard errors mean the estimated effects with and without additional controls are not statistically significantly different from each other.

Figure IV presents graphical evidence corroborating these regression results. The figures show estimates of the coefficients  $\beta_j$  (along with their 95% confidence intervals) from the following reduced form specification:

$$y_i = \alpha + \sum_{j \in \{0,10,20,30,40\}} \beta_j \mathbb{1}[j \leq M_i^B < j + 10] + \varepsilon_i, \quad (4)$$

where  $M_i^B$  is the distance to the nearest branch. The coefficient estimates show the outcome gap between individuals living within a given ten mile distance range from a branch, and a baseline group living 50–60 miles away. Those living near a branch have significantly higher school attendance and literacy, consistent with our instrumental variables estimates.<sup>20</sup>

## IV.B Labor Market and Wealth Accumulation

Our second set of results considers the effect of access to finance on individuals' participation in the labor market and their accumulation of real property. Using the limited data available in the 1870 census, we analyze three outcomes: an extensive measure of employment, an intensive measure of occupational income, and the value of accumulated real property.

We begin by comparing these outcomes across Freedman's Savings Bank account holders and non-holders, reporting in Table IV Ordinary Least Squares estimates of equation 1 as described in Section III.A. Column 3 considers a binary outcome for whether an individual works, and the coefficient therefore represents the marginal likelihood of employment associated with holding an account implied by a linear probability model. We estimate a positive association, statistically significant at the 5% level: among individuals in our main analysis sample, account holders are approximately 2.6 percentage points more likely to work.

We then consider continuous measures of income and wealth, measured in logarithms so that estimated effects can be interpreted as (approximate) marginal effects in percentage terms. In column 4, we consider the logarithm of occupational income, a measure of the salary associated with an individual's occupation.<sup>21</sup> The positive, statistically significant coefficient estimate shows that account holders hold occupations that earn approximately 2 percent more than non-holders. Finally, we consider the logarithm of the value of owned real property. Our OLS estimates, reported

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<sup>20</sup>Appendix Figure A.4 presents further graphical evidence, comparing binned estimates of mean outcomes, along with the slope of the relationship between distance and outcomes, for built and planned branches. Consistent with the results presented in this section, we see a negative relationship between outcomes and distance from built branches. The relatively flat relationships between outcomes and planned branch distance is consistent with placebo tests discussed in Section V.A.

<sup>21</sup>The 1870 census did not request information about individuals' actual incomes; Ruggles et al. (2015) impute this occupational income score (OCCSCORE) based on the median income of people with a given occupation in 1950.

in column 5, are economically small and statistically insignificant.

We now move to considering Instrumental Variables estimates as described in Section III.B, which allow causal interpretation in the face of the measurement error and endogeneity problems that may bias our OLS results. As we did with human capital, we consider the association between our labor market and wealth accumulation outcomes and the account status predicted by a branch's presence and proximity. Table Vb reports the results of Two-Stage Least Squares estimation of equation 3. The first-stage predictions of account status are reported in Table III and discussed in Section III.B. As above, the excluded instruments are the distance to the nearest pre-1870 branch, and an indicator for the presence of a pre-1870 branch in the county.

The estimated coefficients in column 1–2 indicate that opening a Freedman's Savings Bank account resulted in a statistically significant increase in the likelihood of working by 3 to 6 percentage points. The magnitude is somewhat moderated with the inclusion of additional control variables, but remains larger in magnitude than the positive association we found using OLS.<sup>22</sup>

For occupational income, we estimate effects that follow a similar pattern. IV estimates reported in columns 3–4 indicate that holding an account increased income by approximately 4 percent. This effect is economically and statistically significant, and larger than the association suggested in the simple OLS comparison. Finally, we consider wealth accumulation, reporting regression results in columns 5–6. Again, we find significant positive effects of access to finance on economic outcomes: holding an account increased the value of real property by approximately 2.5 to 2.6 percentage points. As with our human capital outcomes, Figure IV and Appendix Figure A.5 present graphical, reduced-form evidence consistent with our instrumental variables estimates: Individuals living near a branch have significantly higher employment, occupational income, and real property value.<sup>23</sup>

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<sup>22</sup>These larger IV magnitudes relative to OLS estimates are consistent with measurement error in the treatment. In the univariate case, the OLS estimator satisfies  $\text{plim } \hat{\beta} = \beta \frac{\pi(q_1 - \hat{\pi})}{\hat{\pi}(1 - \hat{\pi})}$  where  $\pi$  is the (unknown) true rate of account ownership,  $\hat{\pi}$  is the estimated account ownership rate, and  $q_1$  is the (unknown) probability that we correctly classify someone as an account holder given that they actually have an account (Aigner, 1973). If we let  $\hat{\pi} = 0.14$ , and assume  $q_1 = 0.5$  and  $\pi = 0.1$ , then the IV estimates will be approximately 3.3 times as high as the OLS estimates.

<sup>23</sup>The effects of financial inclusion on these outcomes could, of course, operate in part through the human capital channels considered in Section IV.A. While we do not formally assess joint determination, we confirm in Appendix Table A.3 that the IV results presented in Table Vb are not statistically significantly different for the subsample who remain illiterate in 1870.

## **IV.C Mechanisms: Entrepreneurship and Business Ownership**

A natural question is how access to financial services might affect income. There are several potential mechanisms through which the ability to save might impact income. For example, access to funds may enable individuals to invest in human or physical capital. Earlier in this section, we saw direct effects on human capital outcomes. While the 1870 census unfortunately does not allow us to observe investments in physical capital, we can observe actions consistent with another possible mechanism: access to savings may allow individuals to accumulate the financial capital required to engage in entrepreneurship and open a business.<sup>24</sup>

Table VI presents results where the dependent variable is an indicator for business ownership inferred from census occupation descriptions using a classification described in Appendix Table A.1. The first three columns present OLS estimates, while columns 4–6 present IV estimates as described in Section III.B. Columns 1–2 and 4–5 present results using a stricter definition of business ownership, while columns 3 and 6 utilize a slightly looser definition. We find statistically or marginally statistically significant relationships between holding a bank account and owning a business, and consistent with our previous results and the presence of measurement error, the magnitudes increase when we instrument for account ownership. Having an account increases the business ownership rate by approximately half a percentage point.

## **V Additional Results**

### **V.A Placebo Analysis**

The primary concern with the results presented in Section IV is that the results may be driven by a violation of the exclusion restriction rather than effects related to the Freedman’s Savings Bank. For example, one may be concerned that effects are driven by proximity to urban areas rather than holding an account with the bank. To assuage these concerns, we conduct several placebo tests.

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<sup>24</sup>Savings-based channels may complement the positive effects of local financial development on business formation operating through credit availability, as in Guiso et al. (2004).

First, we consider the relationship between outcome variables and proximity to a Freedman’s Savings Bank branch for a population we expect *not* to have been affected by the bank: Whites. In particular, we evaluate whether Whites’ outcomes vary systematically with (1) whether an individual is located in a county with a branch,  $B_i$ , and (2) the distance to the nearest branch,  $M_i^B$ , using OLS to estimate

$$y_i = \alpha_t + \alpha_c + \eta_1 B_i + \eta_2 M_i^B + \gamma_4 \mathbf{X}_i + \varepsilon_i. \quad (5)$$

We use the IPUMS data described in Section II.B to create an analogue to our main analysis sample containing Whites living in the South within 50 miles of a branch or planned branch. The results of estimating equation 5 on this sample are reported in Table VIIa. We fail to find evidence that branch proximity is associated with Whites’ school attendance, literacy, likelihood of working, or occupational income. Whites who live in branch counties do have higher real property (perhaps because of differences in real estate costs), but otherwise the effect of distance go in exactly the *opposite* direction than we might expect if our main IV results were driven by an exclusion restriction violation: Whites who live *further* from branches own *more* valuable real property. Taken together, these results for Whites suggest that the effect of the Freedman’s Savings Bank on Blacks’ outcomes are not driven by better economic opportunities near branches.

We now consider whether our main Instrumental Variables results may be driven by differences associated with proximity to the types of places where the bank *considered* building branches, rather than where it actually built them. To this end, we estimate an analogue to equation 5 that uses proximity to a *planned* rather than a *built* branch:

$$y_i = \alpha_t + \alpha_c + \eta_1 P_i + \eta_2 M_i^P + \gamma_4 \mathbf{X}_i + \varepsilon_i, \quad (6)$$

where  $P_i$  is an indicator for whether an individual is located in a county with a planned branch, and  $M_i^P$  is the distance to the nearest planned branch. The results of estimating equation 6 using OLS in our main analysis sample are reported in Table VIIb. We fail to find evidence that proximity to a *planned* branch is associated with literacy, likelihood of working, occupational income, or

real property. Those living in a planned branch county are somewhat more likely to attend school, but outside these counties, the effect of planned branch distance goes against that predicted by the natural exclusion restriction violation: Blacks who live *further* from planned branches are *more* likely to attend school. Taken together, these results using planned branch distance suggest that the effect of the Freedman’s Savings Bank are not driven simply by better economic opportunities near locations where branches were planned (whether or not they were actually built).

As a final test, we attempt to assess whether individual outcomes have an association with proximity to a Freedman’s Savings Bank branch (consistent with a causal relationship of access to finance) distinct from any non-causal association with proximity to a planned branch. To do so, we estimate the effects of proximity to the nearest branch *or* planned branch, allowing these effects to differ based on whether a branch or planned branch is closer, estimating

$$y_i = \alpha_t + \alpha_c + \zeta_1 BP_i + \zeta_2 NB_i + \zeta_3 M_i^{BP} + \zeta_4 NB_i \times M_i^{BP} + \gamma_4 \mathbf{X}_i + \nu_i, \quad (7)$$

where  $BP_i$  is an indicator for whether an individual is located in a county with a branch or planned branch,  $NB_i$  is an indicator for whether the individual lives nearer to a branch than a planned branch, and  $M_i^{BP}$  is the distance from the nearest branch or planned branch.

Estimates of equation 7 compare the effect of proximity to a branch (for those who live near a branch) with the effect of proximity to a planned branch (for those who live near a planned branch). If our main Instrumental Variables results are driven by factors other than access to finance, we might expect to see similar effects of proximity to branches and planned branches. The results, shown in Table VIII, suggest that this is not the case.

There are four key explanatory variables (along with our standard control variables, included in the even-numbered columns). The coefficient on  $BP_i$  measures the outcome difference between those who live in the county itself versus those who live within 50 miles but outside it. The second explanatory variable,  $NB_i$ , is an indicator for whether an individual lives within 50 miles of a branch rather than a planned branch; positive coefficient estimates here are consistent with the Freedman’s Savings Bank having a positive effect on outcomes (but could in theory be driven by systematic



differences between the locations where branches were opened versus planned).

The key explanatory variables for our test are the last two. The estimated coefficients on  $M_i^{BP}$  are mixed in sign and never statistically significant. Consistent with the results of the placebo test reported in Table VIIIb, these results suggest that outcome differences are not driven by distance from a planned branch. In contrast, our estimated coefficients on the interaction term,  $NB_i \times M_i^{BP}$ , are consistently negative, and often statistically significant (in seven of ten specifications, they are significantly negative at the 10% level). These estimates show that distance from a branch has a *more negative* association with outcomes than distance from a planned branch, consistent with causal effects of access to finance.<sup>25</sup>

## V.B Robustness Tests

Appendix Table A.4 presents various alternative estimates that help demonstrate that the main instrumental variables results discussed in Section IV are robust to the use of alternate estimation specifications and samples. Each cell reports the estimated coefficient on Has Account derived from a separate IV regression, with the outcome variable for each regression indicated in its column header.

The first row shows our baseline specification including all controls, reproducing the results from the even-numbered columns of Table V. These results weight observations using IPUMS-provided census sampling weights; the second row shows unweighted results. Perhaps unsurprisingly given that the IPUMS census sample attempts to oversample African Americans at (approximately) equal rates, the results change little in terms of magnitudes and significance.

The third and fourth rows of Appendix Table A.4 show results using only one of our two excluded instruments rather than both: either the continuous branch distance measure, or the discrete indicator for the presence of a branch in the county. The first-stage regression results were included in columns 4–5 of Table III. When using only the discrete instrument, the IV results remain statistically

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<sup>25</sup>Appendix Figures A.4 and A.5 present graphical evidence consistent with these results (and with the previous set of placebo tests). We observe a negative relationship between outcomes and distance from built branches, but a relatively flat relationship between outcomes and distance from planned branches.

significant at the 5% level or higher. The results are underpowered using the minimum distance instrument alone, and only two of the five specifications remain significant. For all columns (even for the insignificant, negative estimated coefficient on Works), 95% confidence intervals would include our baseline estimates.

Rows five through seven of Appendix Table A.4 include as a control variable the distance to the nearest large city, using either IPUMS-designated metropolitan area central/principal cities, or cities with populations of at least 25K or 10K (per IPUMS CITYPOP variable). All estimates remain positive and all but one are statistically significant, and we cannot reject equality with our baseline IV estimates.

The eighth and ninth rows of Appendix Table A.4 vary the distance restriction. In the main results, we only consider individuals within 50 miles of a branch or planned branch; we consider restriction to 40 or 60 miles instead. The results remain quite similar to the main results in terms of magnitude and statistical significance. The exception is whether an individual works, where point estimates are quite similar to the baseline specification but are no longer statistically significant.

Rows ten and eleven of Appendix Table A.4 consider subsamples likely to contain fewer Black military veterans in order to confirm that veterans are not driving our main results. As noted in Section II.A, serving veterans was an important impetus for the establishment of the Bank, though they ultimately represented a relatively small share of depositors. In row ten we exclude all households containing one or more males who would have been of military age during the U.S. Civil War (aged 23–35 in 1870).<sup>26</sup> In row eleven we exclude the three Southern states that enrolled the largest number of soldiers in the United States Colored Troops, which together represented approximately 67% of Southern USCT enrollees (Louisiana, Mississippi, and Tennessee, per Gladstone, 1996).<sup>27</sup> The results remain similar to our baseline specifications, though two of the ten are no longer statistically significant.

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<sup>26</sup>Black soldiers served in the Civil War under the United States Colored Troops regiments from May 1863 until they were disbanded at the conclusion of the war in October 1865. At their peak, Black soldiers constituted roughly one tenth of Union Army manpower. Smaller Black regiments were later formed in the United States Regular Army.

<sup>27</sup>These areas came under Union occupation relatively early in the war, hence the Union Army could recruit freed slaves. Other areas of the South—such as Virginia and the Carolinas—were not occupied until late in the war, so many Blacks there remained enslaved.

Rows 12–14 of Appendix Table A.4 explore alternative geographic restrictions. The twelfth row excludes branches built in 1870, as they may not be a suitable control if for example they may have had some effect on 1870 outcomes. The results remain quite similar to the baseline in terms of magnitude and significance. Row thirteen excludes the southern border states of Maryland, Delaware, Kentucky, and West Virginia which allowed slavery but did not secede during the American Civil War. It is conceivable that these former slaves who did not join the Confederacy are very different from those living in former Confederate states under military occupation. Appendix Table A.4 indicates that this is not the case.

An additional potential concern is that if Freedman’s Bank branches were more likely actually to be built in locations with Freedman’s Bureau field offices, our estimates may be picking up their effects rather than the Bank branches’. In fact, almost all branches were planned or built in locations that also had a Bureau office. In row fourteen, we exclude individuals living near the five branches and planned branches in cities that did not also have a field office of the Freedman’s Bureau (Baltimore, Little Rock, Andersonville, Salisbury, and Sherman, per Carrier and Walton-Raji, 2014). In both of these last two rows, the results are again quite similar and we cannot reject equality with the baseline point estimates, although the effect on whether an individual works loses statistical significance at conventional levels.

Finally, we also consider estimating effects using a specification more similar to that used in Huber (2018). In particular, we relax the sample-inclusion requirement that individuals live within 50 miles of a branch or planned branch, include linear controls for the distance from each branch. The results are presented in Appendix Table A.5. Point estimates are quite similar to those from our main specification (Table V), although the estimated effects on literacy are statistically insignificant at conventional levels. However, we cannot reject equality of these point estimates with those from our main specification.

## VI Concluding Remarks

Access to financial services has long been considered a hallmark of developed societies, and large changes in financial inclusion may have important effects. In this paper we demonstrate that in a population that had little to no access to banking services, a large increase in access to financial services had large effects on human capital and labor market outcomes. We find that the creation and expansion of the Freedman's Savings Bank led to increases in literacy, schooling, real estate wealth, work and income for account holders, who were predominantly freed slaves in the nineteenth century southern United States.

The new data in this paper may be used to explore many other questions in the future. The experience of Freedman's Savings Bank may have had other important effects on the development of African Americans in the United States. In particular, after 1870 the collapse of the bank and loss of deposits may have had adverse effects on African Americans, and potentially important intergenerational effects. Historians, notably Osthaus (1976), have long noted that the collapse of Freedman's Savings Bank—which many African American thought was fully backed by the federal government—and loss of savings led to a lack of trust in financial institutions by African Americans, and at least in part explains persistent gaps in utilization of financial services.

The FDIC National Survey of Unbanked and Underbanked Households concludes that African-American households are considerably more likely to be unbanked: 2015 survey results indicate that 18.2% of African-American households were unbanked, compared to 3.1% of White households. Almost one third of households indicate a lack of trust in banks as the primary reason that they did not have bank accounts, with this explanation more common among African Americans. In Appendix Table A.6 we show that African Americans in the present day who live in counties that once had a Freedman's Savings Bank Branch are more likely to list mistrust of financial institutions as a reason for being unbanked; this association is not present for Whites. Personal experiences have been shown to have effects on household financial decision making (Malmendier and Nagel, 2011; Kuchler and Zafar, 2019), and these experiences may have intergenerational effects. Further work should disentangle whether this historical experience can at least partly explain persistent gaps in

the utilization of financial services.

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Table I: List of Freedman's Savings Bank Branch/Planned Branch Locations

Branches (Opened Pre-1870)					Planned Branches (Including 1870)				
Location		Population	Status		Location		Population	Status	
Huntsville	AL	<15,000	Opened	1865	Little Rock	AR	<15,000	Opened	1870
Washington	DC	109,119	Opened	1865	Atlanta	GA	21,789	Opened	1870
Natchez	MS	<15,000	Opened	1865	Lexington	KY	<15,000	Opened	1870
Vicksburg	MS	<15,000	Opened	1865	Louisville	KY	100,753	Opened	1870
Memphis	TN	40,226	Opened	1865	Saint Louis <sup>†</sup>	MO	310,864	Opened	1870
Lynchburg	VA	<15,000	Opened	1865	Columbus	MS	31,274	Opened	1870
Norfolk	VA	19,229	Opened	1865	Philadelphia <sup>*†</sup>	PA	674,022	Opened	1870
Richmond	VA	51,038	Opened	1865	Nashville	TN	25,865	Opened	1870
Mobile	AL	32,034	Opened	1866	Selma	AL	<15,000	Planned	
Tallahassee	FL	<15,000	Opened	1866	Andersonville	GA	<15,000	Planned	
Savannah	GA	28,235	Opened	1866	Columbus	GA	<15,000	Planned	
Augusta	GA	15,389	Opened	1866	Albany	GA	<15,000	Planned	
New Orleans	LA	191,418	Opened	1866	New Madrid <sup>†</sup>	MO	<15,000	Planned	
Baltimore	MD	267,354	Opened	1866	Jackson	MS	<15,000	Planned	
New Bern	NC	<15,000	Opened	1866	Charlotte	NC	<15,000	Planned	
New York <sup>†</sup>	NY	942,292	Opened	1866	Salisbury	NC	<15,000	Planned	
Beaufort	SC	<15,000	Opened	1866	Cincinnati <sup>†</sup>	OH	216,239	Planned	
Charleston	SC	48,956	Opened	1866	Harrisburg <sup>†</sup>	PA	23,104	Planned	
Shreveport	LA	<15,000	Opened	1868	Galveston	TX	<15,000	Planned	
Wilmington	NC	30,841	Opened	1868	Sherman	TX	<15,000	Planned	
Raleigh <sup>*</sup>	NC	<15,000	Opened	1868	Lexington	VA	<15,000	Planned	
Montgomery <sup>*</sup>	AL	<15,000	Opened		Charlottesville	VA	<15,000	Planned	
Columbia <sup>*</sup>	TN	<15,000	Opened						
Alexandria <sup>*</sup>	VA	<15,000	Opened						
Jacksonville <sup>*</sup>	FL	<15,000	Opened						
Macon <sup>*</sup>	GA	<15,000	Opened						

\* Excluded from main analysis sample: Missing Freedman's Savings Bank account records

† Excluded from main analysis sample: Outside South

Table II: Summary Statistics

This table reports distributional summary statistics for key outcomes and control variables in our main analysis sample as described in Section II.B (i.e., Blacks, in the South, within 50 miles of a Freedman’s Savings Bank branch or planned branch, in households where at least one member has a “potentially matchable name”). Variables and their construction are described in Appendix Table A.1. For each variable we report the mean and—for non-indicator variables—the standard deviation, median ( $p_{50}$ ), first quartile ( $p_{25}$ ), and third quartile ( $p_{75}$ ).

	Mean	Std. Dev.	$p_{50}$	$p_{25}$	$p_{75}$
Has Account (%)	14.4				
Attended school (%)	3.9				
Literate (%)	15.8				
Works (%)	39.4				
Income (\$100 in 1950)	5.3	6.8	0	0	9
Real property (\$)	9.7	307.0	0	0	0
Business owner (stricter, %)	0.1				
Business owner (looser, %)	0.2				
In metro area (%)	12.2				
City population (1000)	19.6	54.5	0	0	0
Male (%)	48.7				
Age	22.3	17.7	18	8	33
Relationship to household head					
Self (head)	19.3				
Spouse	13.9				
Child	41.7				
Roomer, boarder, lodger	13.5				
Other	11.6				
Number in household					
Married couples in HH	0.9	0.5	1	1	1
Own children age <5 in HH	0.3	0.6	0	0	0
Observations	27,247				

Table III: First-Stage Estimates

This table reports OLS estimates (i.e., a linear probability model) of the likelihood that an individual in our main analysis sample as described in Section II.B (i.e., Blacks, in the South, within 50 miles of a Freedman’s Savings Bank branch or planned branch, in households where at least one member has a “potentially matchable name”) has a Freedman’s Savings Bank account. The reported predictors are the distance to the nearest pre-1870 branch and an indicator for the presence of a pre-1870 branch in the county. “Fixed effects” are for metropolitan area status, the opening date of the nearest branch, and occupation. “Demographic controls” are city population, age, sex, number of own children under age five in household, and fixed effects for relationship with household head and the number of married couples in the household. Observations are weighted using IPUMS sample weights (PERWT). Standard errors clustered by distance to the nearest branch or planned branch are reported in parentheses; significance levels are indicated by \*, \*\*, \*\*\* for 10%, 5%, and 1% respectively.

	(1) Has Account	(2) Has Account	(3) Has Account	(4) Has Account	(5) Has Account	(6) Has Account
Branch Distance	-0.000698*** (0.000132)		-0.000398*** (0.0000810)	-0.000700*** (0.000138)		-0.000405*** (0.0000797)
Branch in County		0.170*** (0.0190)	0.141*** (0.0198)		0.171*** (0.0186)	0.142*** (0.0194)
Fixed Effects	✓	✓	✓	✓	✓	✓
Demographic Ctrl.				✓	✓	✓
Observations	27,247	27,247	27,247	27,247	27,247	27,247

Table IV: Ordinary Least Squares Estimates

This table reports OLS estimates of the association between having a Freedman’s Savings Bank account and various outcomes in our main analysis sample as described in Section II.B (i.e., Blacks, in the South, within 50 miles of a Freedman’s Savings Bank branch or planned branch, in households where at least one member has a “potentially matchable name”). Observations are weighted using IPUMS sample weights (PERWT). Standard errors clustered by distance to the nearest branch or planned branch are reported in parentheses; significance levels are indicated by \*, \*\*, \*\*\* for 10%, 5%, and 1% respectively.

	(1) Attended School	(2) Literate	(3) Works	(4) Income	(5) Real Property
Has Account	0.0166*** (0.00316)	0.0504*** (0.0106)	0.0255** (0.0105)	0.0195*** (0.00513)	0.000769 (0.00140)
Observations	27,247	27,247	27,247	27,247	27,247

Table V: Instrumental Variables Estimates

This table reports IV estimates of the effect of having a Freedman’s Savings Bank account on various outcomes in our main analysis sample as described in Section II.B (i.e., Blacks, in the South, within 50 miles of Freedman’s Savings Bank branch or planned branch, in households where at least one member has a “potentially matchable name”). The excluded instruments are the distance to the nearest pre-1870 branch and an indicator for the presence of a pre-1870 branch in the county, as in columns 3 and 6 of Table III. “Fixed effects” are for metropolitan area status, the opening date of the nearest branch, and occupation. “Demographic controls” are city population, age, sex, number of own children under age five in household, and fixed effects for relationship with household head and the number of married couples in the household. Income regressions (Panel b, columns 3–4) also include an indicator variable for non-zero income. Real property regressions (Panel b, columns 5–6) also include an indicator variable for non-zero real property. Observations are weighted using IPUMS sample weights (PERWT). Standard errors clustered by distance to the nearest branch or planned branch are reported in parentheses; significance levels are indicated by \*, \*\*, \*\*\* for 10%, 5%, and 1% respectively.

(a) Human Capital Outcomes

	(1)	(2)	(3)	(4)
	Attended School	Attended School	Literate	Literate
Has Account	0.143*** (0.0156)	0.139*** (0.0152)	0.194*** (0.0662)	0.134** (0.0628)
Fixed Effects	✓	✓	✓	✓
Demographic Ctrls.		✓		✓
Observations	27,247	27,247	27,247	27,247

(b) Labor Market and Wealth Accumulation Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
	Works	Works	Income	Income	Real Property	Real Property
Has Account	0.0586*** (0.0198)	0.0285* (0.0160)	0.0400*** (0.0100)	0.0385*** (0.00917)	0.0245** (0.0100)	0.0258*** (0.00968)
Fixed Effects	✓	✓	✓	✓	✓	✓
Demographic Ctrls.		✓		✓		✓
Observations	27,247	27,247	27,247	27,247	27,247	27,247

Table VI: Mechanisms: Business Ownership

This table reports OLS and IV estimates of the effect of having a Freedman’s Savings Bank account on the likelihood that an individual in our main analysis sample as described in Section II.B (i.e., Blacks, in the South, within 50 miles of a Freedman’s Savings Bank branch or planned branch, in households where at least one member has a “potentially matchable name”) has a business. Columns 1–2 and 4–5 rely on a stricter definition of business ownership, while columns 3 and 6 use a looser definition. The first three columns present OLS estimates, while the latter three present IV estimates. The excluded instruments are the distance to the nearest pre-1870 branch and an indicator for the presence of a pre-1870 branch in the county, as in columns 3 and 6 of Table III. The reported predictors are the distance to the nearest pre-1870 branch and an indicator for the presence of a pre-1870 branch in the county. “Fixed effects” are for metropolitan area status, the opening date of the nearest branch, and occupation. “Demographic controls” are city population, age, sex, number of own children under age five in household, and fixed effects for relationship with household head and the number of married couples in the household. Observations are weighted using IPUMS sample weights (PERWT). Standard errors clustered by distance to the nearest branch or planned branch are reported in parentheses; significance levels are indicated by \*, \*\*, \*\*\* for 10%, 5%, and 1% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	OLS			IV		
	Stricter	Stricter	Looser	Stricter	Stricter	Looser
Has Account	0.00183*** (0.000651)	0.000873* (0.000460)	0.00143** (0.000643)	0.00514*** (0.000811)	0.00515*** (0.000863)	0.00634*** (0.00109)
Fixed Effects	✓	✓	✓	✓	✓	✓
Demographic Ctrls.		✓	✓		✓	✓
Observations	27,247	27,247	27,247	27,247	27,247	27,247

Table VII: Placebo Tests

In Panel (a), this table reports OLS estimates of the association between various outcomes and proximity to a Freedman’s Savings Bank branch for Whites living in the South within 50 miles of a Freedman’s Savings Bank branch or planned branch; the reported predictors are the distance to the nearest pre-1870 branch and an indicator for the presence of a pre-1870 branch in the county. Panel (b) reports OLS estimates of the association between various outcomes and proximity to a planned Freedman’s Savings Bank branch in our main analysis sample as described in Section II.B (i.e., Blacks, in the South, within 50 miles of a Freedman’s Savings Bank branch or planned branch, in households where at least one member has a “potentially matchable name”); the reported predictors are the distance to the nearest planned branch (including 1870) and an indicator for the presence of a planned branch in the county. Controls are metropolitan area status, city population, age, sex, number of own children under age five in household, and fixed effects for the opening date of the nearest branch, relationship with household head, number of married couples in the household, and occupation. Columns 4 and 5 also include indicator variables for non-zero income and real property, respectively. Observations are weighted using IPUMS sample weights (PERWT). Standard errors clustered by distance to the nearest branch or planned branch are reported in parentheses; significance levels are indicated by \*, \*\*, \*\*\* for 10%, 5%, and 1% respectively.

(a) Placebo Tests Using Whites

	(1) Attended School	(2) Literate	(3) Works	(4) Income	(5) Real Property
Branch Distance	0.0000218 (0.0000446)	0.0000789 (0.0000630)	0.00000186 (0.0000120)	0.00000245 (0.00000649)	0.000170*** (0.0000538)
Branch in County	0.00331 (0.00747)	0.00645 (0.0110)	0.00139 (0.00164)	-0.000318 (0.00119)	0.0298*** (0.00899)
Controls	✓	✓	✓	✓	✓
Observations	26,389	26,389	26,389	26,389	26,389

(b) Placebo Tests Using Proximity to Planned Branches

	(1) Attended School	(2) Literate	(3) Works	(4) Income	(5) Real Property
Planned Branch Distance	0.000115** (0.0000447)	0.0000282 (0.000108)	-0.0000239 (0.0000261)	-0.00000895 (0.0000141)	0.0000191 (0.0000222)
Planned Branch in County	0.0228*** (0.00576)	-0.0185 (0.0159)	0.00487 (0.00396)	-0.00179 (0.00215)	0.000675 (0.00182)
Controls	✓	✓	✓	✓	✓
Observations	27,247	27,247	27,247	27,247	27,247



Table VIII: Placebo Tests Using Proximity to Branches *or* Planned Branches

This table reports OLS estimates of the association between various outcomes and proximity to a Freedman’s Savings Bank branch or planned branch in our main analysis sample as described in Section II.B (i.e., Blacks, in the South, within 50 miles of a Freedman’s Savings Bank branch or planned branch, in households where at least one member has a “potentially matchable name”). The reported predictors are an indicator for the presence of a branch or planned branch in the county, an indicator for being within 50 miles of a branch, the distance to the nearest branch or planned branch, and an interaction effect. Even-numbered columns also control for metropolitan area status, city population, age, sex, number of own children under age five in household, and fixed effects for the opening date of the nearest branch, relationship with household head, number of married couples in the household, and occupation. Income regressions (Panel b, columns 3–4) also include an indicator variable for non-zero income. Real property regressions (Panel b, columns 5–6) also include an indicator variable for non-zero real property. Observations are weighted using IPUMS sample weights (PERWT). Standard errors clustered by distance to the nearest branch or planned branch are reported in parentheses; significance levels are indicated by \*, \*\*, \*\*\* for 10%, 5%, and 1% respectively.

(a) Human Capital Outcomes

	(1) Attended School	(2) Attended School	(3) Literate	(4) Literate
Branch or Planned in County	0.0422*** (0.00883)	0.0224*** (0.00737)	0.00720 (0.0637)	-0.0182 (0.0466)
Near Branch	0.00644*** (0.00145)	0.0107*** (0.00241)	0.0851*** (0.00871)	0.0413** (0.0166)
Branch or Planned Distance	0.000277 (0.000232)	-0.0000219 (0.000208)	0.000148 (0.00157)	0.000245 (0.00115)
Near Branch × Branch or Planned Distance	-0.000295** (0.000127)	-0.0000687 (0.000105)	-0.00305*** (0.000527)	-0.00166*** (0.000522)
Controls		✓		✓
Observations	27,247	27,247	27,247	27,247

(b) Labor Market and Wealth Accumulation Outcomes

	(1) Works	(2) Works	(3) Income	(4) Income	(5) Real Property	(6) Real Property
Branch or Planned in County	0.00109 (0.0368)	0.0127 (0.0116)	0.0109 (0.0300)	0.00102 (0.00966)	-0.00296 (0.00561)	-0.00178 (0.00476)
Near Branch	0.0412*** (0.00560)	-0.000491 (0.00491)	0.0478*** (0.00465)	0.0101*** (0.00232)	0.00407*** (0.000751)	0.00568*** (0.00153)
Branch or Planned Distance	-0.000721 (0.000987)	0.000118 (0.000297)	-0.000364 (0.000756)	0.0000136 (0.000247)	-0.000106 (0.000140)	-0.0000248 (0.000123)
Near Branch × Branch or Planned Distance	-0.000698 (0.000470)	-0.0000396 (0.000152)	-0.000546* (0.000307)	-0.000152* (0.0000842)	-0.000183*** (0.0000529)	-0.000170*** (0.0000578)
Controls		✓		✓		✓
Observations	27,247	27,247	27,247	27,247	27,247	27,247

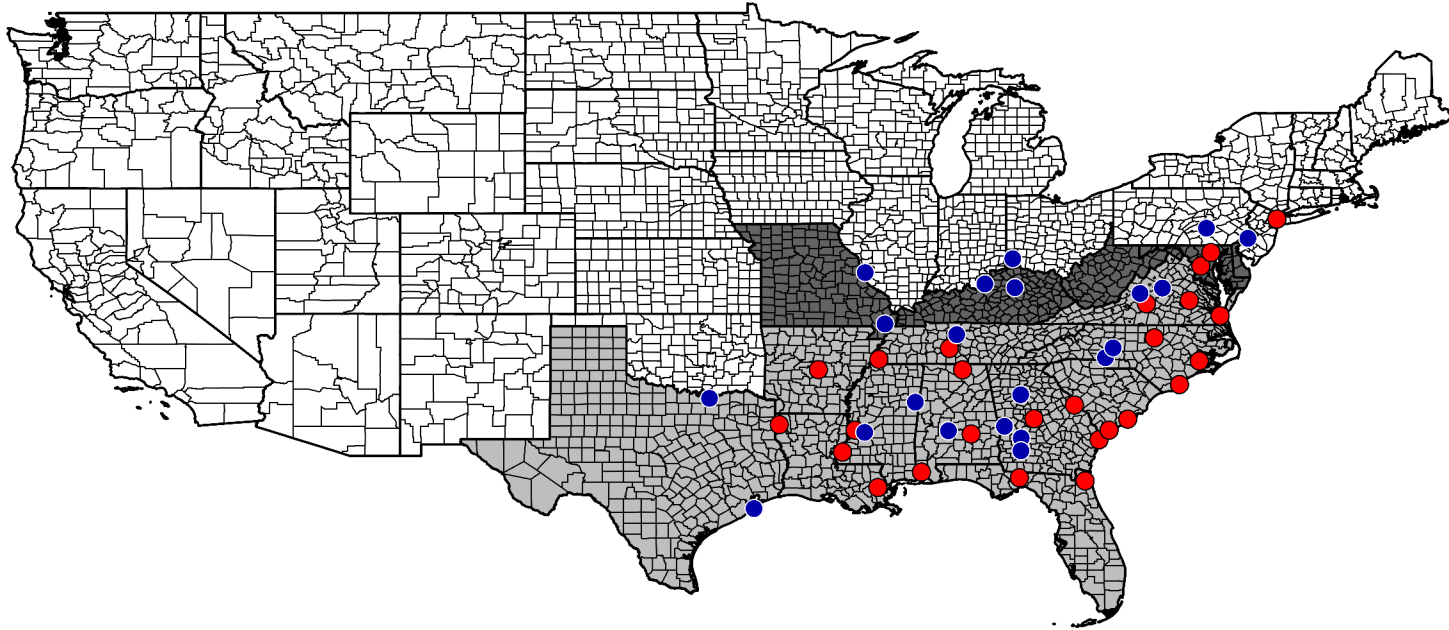
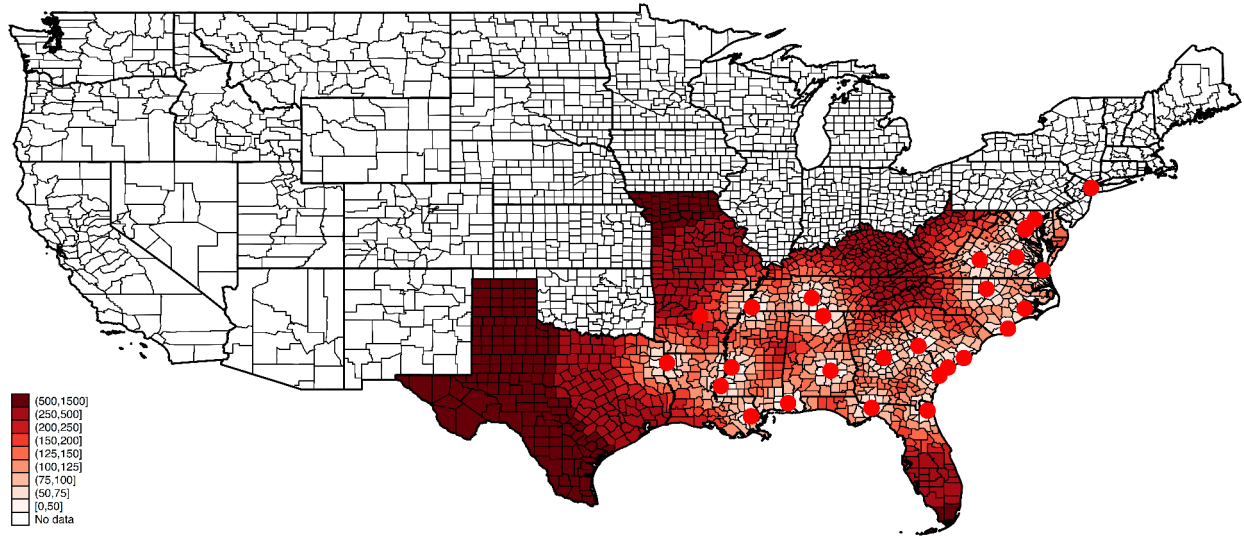
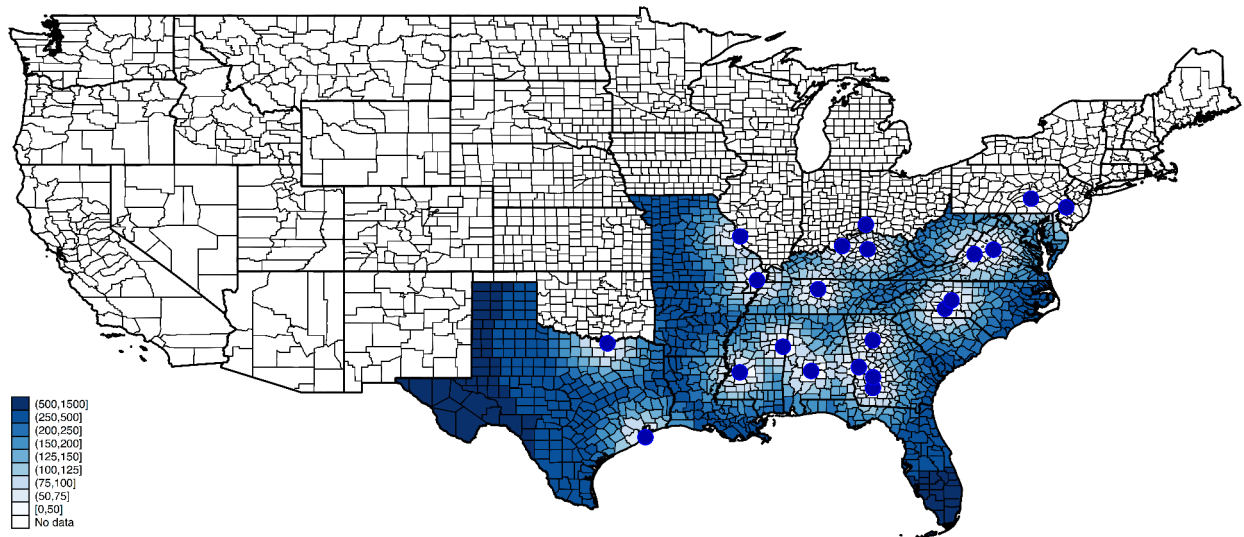


Figure I: Freedman's Savings Bank Branch locations

This map presents the location of proposed and implemented Freedman's Savings Bank branches. The red dots indicate pre-1870 branches, while the blue dots indicate planned branches (including those opened in 1870). Southern slave states that seceded during the American Civil War are shaded light gray, while border states that allowed slavery prior to 1865 but did not secede from the Union are shaded dark gray.



(a) Branches (opened pre-1870)



(b) Planned branches (including 1870)

**Figure II: Distance from Freedman’s Savings Bank Branches**

This map presents the location of proposed and implemented Freedman’s Savings Bank branches, and the minimum distance from planned and implemented branches. Distance is measured from the geographic centroid of each county. The red dots in Panel (a) indicate pre-1870 branches, while the blue dots in Panel (b) indicate planned branches (including those opened in 1870). Counties are colored using distance in miles to the nearest branch/planned branch.

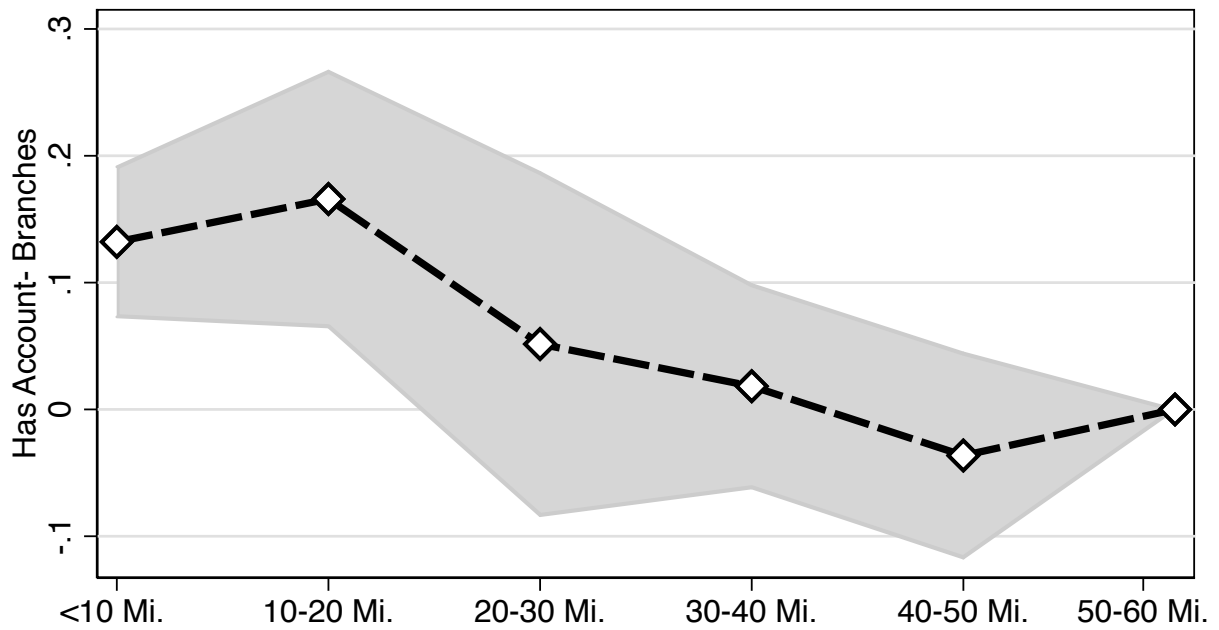
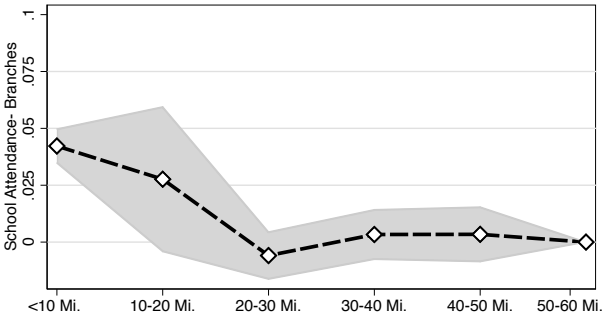
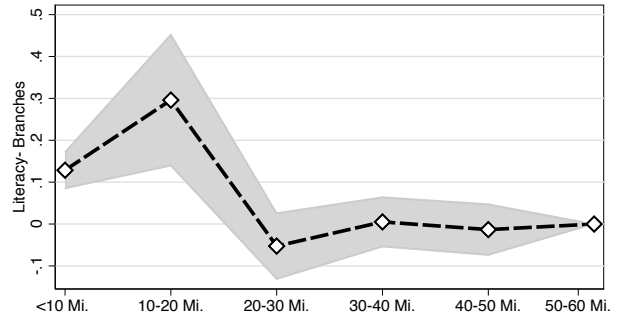


Figure III: Freedman's Savings Bank Account Status by Branch Distance

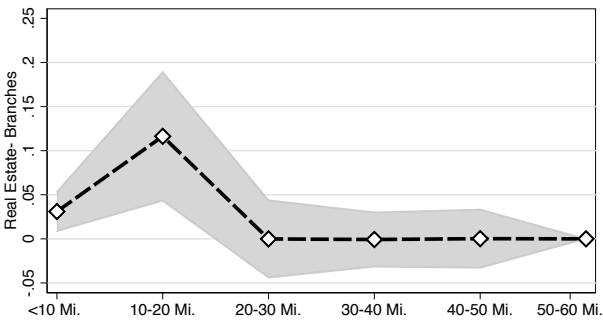
This figure shows the fraction of Blacks with a Freedman's Savings Bank account, by distance from the nearest branch. The solid line shows the fraction, while the dashed line shows a 95% confidence band around the mean.



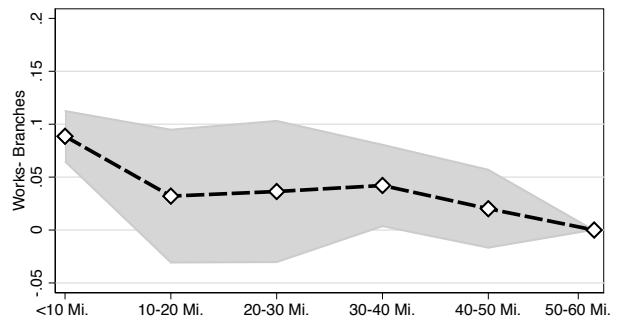
(a) School attendance



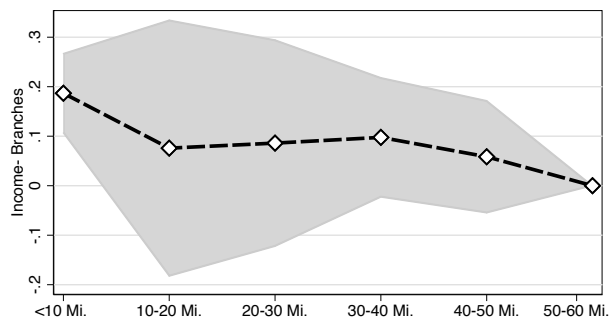
(b) Literate



(c) Real estate wealth



(d) Works



(e) Income

Figure IV: Outcomes by Branch Distance

This figure plots estimates of the coefficients  $\beta_j$  from the following specification  $y_i = \alpha + \sum_{j \in \{0,10,20,30,40\}} \beta_j \mathbb{1}[j \leq M_i^B < j + 10] + \varepsilon_i$ . The baseline (50–60 miles from a branch) is normalized to zero. Standard errors are clustered by distance to the nearest branch. The gray shaded area depicts a 95% confidence interval.

Table A.1: Main Variable Descriptions

This table describes the variables used in our analysis and explains their construction. References in SMALL CAPITAL LETTERS are to IPUMS variable names. Distances are calculated using county centroid latitude/longitudes (i.e., of county of residence and branch or planned branch county).

Variable	Description	Calculation
<b>Outcome variables</b>		
Attended School	Attended school in last year	Includes individuals who “attended school within the year.” Indicator for SCHOOL = 2.
Literate	Able to read or write	Includes individuals except those who “cannot read” and “cannot write,” or are under age 10. Indicator for LIT $\in \{2, 3, 4\}$ .
Works	In labor force	Classified by IPUMS based on “profession, occupation, or trade of each person” from census. Indicator for LABFORCE = 2.
Income	Log occupational income	Natural logarithm of IPUMS-assigned median income of people with a given occupation in 1950 (in hundreds of 1950 dollars). $\ln(1 + OCCSCORE)$ .
Real Property	Log real property value	Natural logarithm of reported value of owned real estate. $\ln(1 + REALPROP)$ .
Business Owner (Stricter)	Owns a business (stricter definition)	Includes individuals whose occupation is: Clothing Dealer, Club House, Coal Dealer, Confectionary, Cotton Fct, Drinking Saloon, Fish Dealer, Frm & Producer, Fruit Business, Fruit Shop, Furnish Rooms, Furnished Rooms (landlord), Furniture Mkr, Grocer, Grocery Merchant, Grocery Store, Keeps A Bar, Keeps Boarder, Keeps Boarding House, Keeps Eating House, Keeps A Grocery, Keeping Sch, Keeps Hous, Keeps Private Sch, Keepsh, Marketer, Meat Dealer, Merchant, Negro Trader, Restaurant Keeper, Restaurant Kpr, Restaurant, Retail Grocer, Ret Grocer, Sell in Market, Sells in Market, Boarding House, Boarding House Keeper, Boarding Master, Butcher, Beef Butcher, Bar Kpr, Barbar, Barkeeper, Billiard Saloon, Billiards Saloon Keeper, Cake Shop, Cake Vender, Candy Baker, Planter, Keeping Saw Mill, or Builder & Contractor.

(continued)

Table A.1: Main Variable Descriptions (Cont.)

Variable	Description	Calculation
Business Owner (Looser)	Owns a business (looser definition)	In addition to individuals classified as business owners under the stricter definition, also includes individuals whose occupation is Clothier, Cigar Mkr, Cigar-makwer Cigars Mkr, Frm Leaser, Fish-monger, Drugist, Drsssmaker, Dealer in Housing, Dressmkr, Dressmaking, Hair Dresser, Hair Picker, Hairdresser, Master Barber, Printing Ofc, S-ping House, Barber, or Hair Merchant.
<b>Key explanatory variables</b>		
Has Account ( $A_i$ )	Household member matches account records	Indicator for individuals who live within 50 miles of a branch and have a household member whose first and last names match an account record from the nearest branch as described in Section II.B.
Branch Distance ( $M_i^B$ )	Distance to nearest branch	Distance to nearest Freedman's Savings Bank branch (pre-1870).
Branch in County ( $B_i$ )	Lives in branch county	Indicator for individuals living in a branch county (i.e., $M_i^B = 0$ ).
Planned Branch Distance ( $M_i^P$ )	Distance to nearest planned branch	Distance to nearest planned Freedman's Savings Bank branch (including 1870).
Planned Branch in County ( $P_i$ )	Lives in planned branch county	Indicator for individuals living in a planned branch county (i.e., $M_i^P = 0$ ).
Branch or Planned Distance ( $M_i^{BP}$ )	Distance to nearest branch or planned branch	Distance to nearest built or planned Freedman's Savings Bank branch.
Branch or Planned in County ( $BP_i$ )	Lives in branch or planned branch county	Indicator for individuals living in a branch or planned branch county (i.e., $M_i^{BP} = 0$ ).
Near Branch ( $NB_i$ )	Lives within 50 miles of branch	Indicator for individuals who live within 50 miles of a branch (i.e., $M_i^B \leq 50$ ).
<b>Other control variables</b>		
Metro Area	Metropolitan area status	Classified by IPUMS as "not in metro area" (LABFORCE = 1), "in metro area, central/principal city" (LABFORCE = 2), "in metro area, outside central/principal city" (LABFORCE = 3).
City Population	City population	IPUMS-calculated population of city, if any. CITYPOP.
Male	Sex	Indicator for SEX = 1.
Age	Age at last birthday	AGE.
Relationship	Relationship to HH head	Classified by IPUMS. RELATED.
Married Couples	Married couples in HH	Total number of married couples living in household as classified by IPUMS. NCOUPLES.
Own Children <5	Own children <5 in HH	Number of individual's own children under age five living in household as classified by IPUMS. NCHLT5.

Table A.2: OLS Estimates With 1880 Census Match Interaction

This table reports OLS estimates (as in Table IV) of the association between having a Freedman’s Savings Bank account and various outcomes in our main analysis sample as described in Section II.B (i.e., Blacks, in the South, within 50 miles of a Freedman’s Savings Bank branch or planned branch, in households where at least one member has a “potentially matchable name”), allowing a differential impact for individuals who are not matched to the 1880 Census. In particular, we interact our key “Has Account” variable with an indicator variable for whether there is no individual classified Black or Mulatto with the same first and last name (the first space-delimited word of NAMEFRST, and NAMELAST) in the 100% 1880 Census sample compiled by IPUMS (Ruggles et al., 2015). Observations are weighted using IPUMS sample weights (PERWT). Standard errors clustered by distance to the nearest branch or planned branch are reported in parentheses; significance levels are indicated by \*, \*\*, \*\*\* for 10%, 5%, and 1% respectively.

	(1) Attended School	(2) Literate	(3) Works	(4) Income	(5) Real Property
Has Account	0.0231*** (0.00390)	0.0520*** (0.0101)	0.0264** (0.0112)	0.0205*** (0.00671)	0.00244 (0.00170)
No 1880 match	0.00507* (0.00293)	0.00693 (0.00471)	0.00171 (0.00629)	0.00948** (0.00430)	0.0000764 (0.00116)
Has Account×No 1880 match	-0.0150*** (0.00376)	-0.000930 (0.0141)	-0.00150 (0.0112)	0.00212 (0.00784)	-0.00446* (0.00250)
Observations	27,247	27,247	27,247	27,247	27,247



Table A.3: IV Estimates for Illiterate Subsample: Labor Market and Wealth Accumulation Outcomes

This table replicates the analysis in Panel (b) of Table V, restricted to the subsample who are not literate in 1870. That is, it reports IV estimates of the effect of having a Freedman’s Savings Bank account on various outcomes for illiterate individuals in our main analysis sample as described in Section II.B (i.e., Blacks, in the South, within 50 miles of Freedman’s Savings Bank branch or planned branch, in households where at least one member has a “potentially matchable name”). The excluded instruments are the distance to the nearest pre-1870 branch and an indicator for the presence of a pre-1870 branch in the county, as in columns 3 and 6 of Table III. “Fixed effects” are for metropolitan area status, the opening date of the nearest branch, and occupation. “Demographic controls” are city population, age, sex, number of own children under age five in household, and fixed effects for relationship with household head and the number of married couples in the household. Income regressions (columns 3–4) also include an indicator variable for non-zero income. Real property regressions (columns 5–6) also include an indicator variable for non-zero real property. Observations are weighted using IPUMS sample weights (PERWT). Standard errors clustered by distance to the nearest branch or planned branch are reported in parentheses; significance levels are indicated by \*, \*\*, \*\*\* for 10%, 5%, and 1% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Works	Works	Income	Income	Real Property	Real Property
Has Account	0.0642*** (0.0225)	0.0439** (0.0188)	0.0448*** (0.00997)	0.0442*** (0.00933)	0.0211** (0.00877)	0.0227*** (0.00878)
Fixed Effects	✓	✓	✓	✓	✓	✓
Demographic Ctrls.		✓		✓		✓
Observations	22,939	22,939	22,939	22,939	22,939	22,939

Table A.4: Alternative Robustness Specifications

This table reports a variety of alternative IV estimates of the effect of having a Freedman’s Savings Bank account on various outcomes. Each cell reports the estimated coefficient on Has Account derived from a separate regression; the outcome variable for each regression is indicated in its column header. “Baseline IV” replicates the results with fixed effects effects and demographic controls from Table V. “Unweighted” weights observations equally, rather than using IPUMS sample weights. “Alternative Excluded Instruments” instrument for Has Account using either Branch Distance or Branch in County (but not both, as in our baseline). “Control for Distance to Nearest” include as a control variable the distance to the nearest large city, using either IPUMS-designated metropolitan area central/principal cities, or cities with populations of at least 25K or 10K (per IPUMS CITYPOP variable). “Alternative Maximum Distance from Branch/Planned Branch” limits or extends the sample from 50 miles. “Alternative Samples to Minimize Veterans” exclude all households containing a male age 23–35 in 1870, or exclude states from which many Union Army Colored Troops were enrolled (Louisiana, Mississippi, and Tennessee), respectively. “Alternative Geographic Samples” exclude 1870 branches from planned branches, or exclude southern border states (Delaware, Kentucky, Maryland, and West Virginia), or exclude branches in locations without a Freedmen’s Bureau Field Office (Baltimore, Little Rock, Andersonville, Salisbury, and Sherman), respectively. All regressions include controls for metropolitan area status, city population, age, sex, number of own children under age five in household, and fixed effects for the opening date of the nearest branch, relationship with household head, number of married couples in the household, and occupation. Income regressions (column 4) also include an indicator variable for non-zero income. Real property regressions (column 5) also include an indicator variable for non-zero real property. Except in the “unweighted” regressions, observations are weighted using IPUMS sample weights (PERWT). Standard errors clustered by distance to the nearest branch or planned branch are reported in parentheses; significance levels are indicated by \*, \*\*, \*\*\* for 10%, 5%, and 1% respectively.

	(1) Attended School	(2) Literate	(3) Works	(4) Income	(5) Real Property
Baseline IV <i>n</i> = 27, 247	0.139*** (0.0152)	0.134** (0.0628)	0.0285* (0.0160)	0.0385*** (0.00917)	0.0258*** (0.00968)
Unweighted <i>n</i> = 27, 247	0.142*** (0.0163)	0.125** (0.0622)	0.0281* (0.0166)	0.0361*** (0.00900)	0.0244** (0.00956)
<i>Alternative Excluded Instruments</i>					
Branch Distance only <i>n</i> = 27, 247	0.119*** (0.0314)	0.0856 (0.119)	-0.0255 (0.0278)	0.0443*** (0.0162)	0.00695 (0.0232)
Branch in County only <i>n</i> = 27, 247	0.147*** (0.0177)	0.154** (0.0686)	0.0504** (0.0232)	0.0362*** (0.0123)	0.0335*** (0.00949)
<i>Control for Distance to Nearest</i>					
Metro. Area Central/Principal City <i>n</i> = 27, 247	0.166*** (0.0175)	0.213*** (0.0677)	0.0337* (0.0203)	0.0503*** (0.00989)	0.0273** (0.0107)
City with population ≥25K <i>n</i> = 27, 247	0.144*** (0.0208)	0.135 (0.0854)	0.0507** (0.0219)	0.0529*** (0.0139)	0.0350*** (0.0121)
City with population ≥10K <i>n</i> = 27, 247	0.145*** (0.0233)	0.179* (0.0945)	0.0544** (0.0261)	0.0507*** (0.0162)	0.0331*** (0.0126)
<i>Alternative Maximum Distance from Branch/Planned Branch</i>					
40 Miles <i>n</i> = 20, 553	0.158*** (0.0201)	0.155** (0.0767)	0.0262 (0.0228)	0.0481*** (0.0107)	0.0401*** (0.0129)
60 Miles <i>n</i> = 32, 821	0.141*** (0.0188)	0.123** (0.0584)	0.0185 (0.0142)	0.0414*** (0.00788)	0.0294** (0.0125)
<i>Alternate Samples to Minimize Veterans</i>					
Exclude HH with age 23–35 male <i>n</i> = 16, 081	0.146*** (0.0234)	0.198** (0.0777)	0.0197 (0.0218)	0.0247*** (0.00957)	0.0288** (0.0132)
Exclude LA, MS, TN <i>n</i> = 19, 098	0.109*** (0.0142)	0.0822 (0.0703)	0.0285* (0.0164)	0.0157** (0.00730)	0.0259*** (0.00892)
<i>Alternate Geographic Samples</i>					
Exclude 1870 Planned Branches <i>n</i> = 21, 030	0.220*** (0.0425)	0.245** (0.114)	0.0828*** (0.0311)	0.0417* (0.0214)	0.0413** (0.0171)
Exclude Border States <i>n</i> = 23, 913	0.113*** (0.0128)	0.180*** (0.0659)	0.000382 (0.0164)	0.0522*** (0.00834)	0.0297*** (0.00739)
Exclude branches w/o Freedmen’s Bureau FO <i>n</i> = 24, 456	0.142*** (0.0152)	0.206*** (0.0625)	0.0261 (0.0168)	0.0495*** (0.00933)	0.0209** (0.00988)

Table A.5: Instrumental Variables Estimates Controlling for Branch Distances

This table reports IV estimates of the effect of having a Freedman’s Savings Bank account on various outcomes. In contrast with the estimates presented in Table V, we extend our main analysis sample (described in Section II.B) by eliminating the 50-mile distance requirement. The specifications below also control for the linear distance from each built branch. The excluded instruments are the distance to the nearest pre-1870 branch and an indicator for the presence of a pre-1870 branch in the county, as in columns 3 and 6 of Table III. “Fixed effects” are for metropolitan area status, the opening date of the nearest branch, and occupation. “Demographic controls” are city population, age, sex, number of own children under age five in household, and fixed effects for relationship with household head and the number of married couples in the household. Income regressions (Panel b, columns 3–4) also include an indicator variable for non-zero income. Real property regressions (Panel b, columns 5–6) also include an indicator variable for non-zero real property. Observations are weighted using IPUMS sample weights (PERWT). Standard errors clustered by distance to the nearest branch or planned branch are reported in parentheses; significance levels are indicated by \*, \*\*, \*\*\* for 10%, 5%, and 1% respectively.

(a) Human Capital Outcomes

	(1)	(2)	(3)	(4)
	Attended School	Attended School	Literate	Literate
Has Account	0.0577** (0.0269)	0.0446* (0.0244)	0.102 (0.0664)	0.0518 (0.0704)
Fixed Effects	✓	✓	✓	✓
Demographic Ctrls.		✓		✓
Observations	76,229	76,229	76,229	76,229

(b) Labor Market and Wealth Accumulation Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
	Works	Works	Income	Income	Real Property	Real Property
Has Account	0.0729*** (0.0231)	0.0304* (0.0184)	0.0367*** (0.0115)	0.0470*** (0.0138)	0.0215** (0.0106)	0.0148 (0.0113)
Fixed Effects	✓	✓	✓	✓	✓	✓
Demographic Ctrls.		✓		✓		✓
Observations	76,229	76,229	76,229	76,229	76,229	76,229

Table A.6: Modern Trust in Financial Institutions and the Freedman’s Savings Bank

This table reports OLS estimates of the association between the presence of a Freedman’s Savings Bank branch in a county (ever) and the fraction of individuals stating that a lack of trust in financial institutions is the reason that their household is unbanked in the 2017 FDIC National Survey of Unbanked and Underbanked Households. The first column restricts the sample to Blacks, and the second column to Whites. Standard errors clustered by state are reported in parentheses; significance levels are indicated by \*, \*\*, \*\*\* for 10%, 5%, and 1% respectively.

	(1) Blacks	(2) Whites
Branch in County	.074* (.041)	.021 (.11)
Observations	635	1,267

Page No. 9

Inquiries numbered 7, 16, and 17 are not to be asked in respect to infants. Inquiries numbered 11, 12, 15, 16, 17, 19, and 20 are to be answered (if at all) merely by an affirmative mark, as /.

SCHEDULE 1.—Inhabitants in Rutland Township, in the County of Montgomery, State of Kansas, enumerated by me on the 13 day of August, 1870.

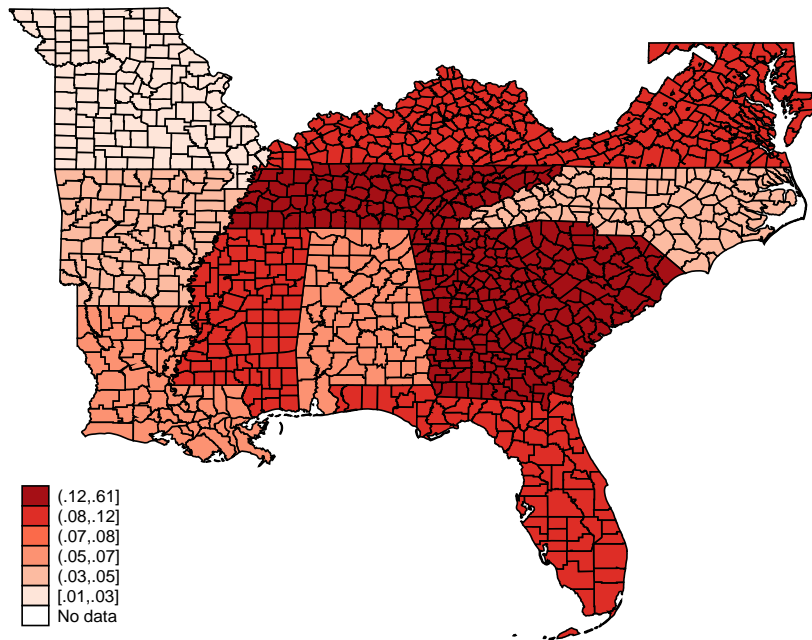
Post Office: Montgomery City 636  
John Thompson, Ass't Marshal.

1	2	3	4			7	8		10	11			14			18	19		20
			4	5	6		8	9		11	12	13	14	15	16		17	19	
		Davis C. A.	27	M	W	Keeping house			Ill										
		M. D.	10	M	W				Kansas										
		E. M.	5	M	W				Kansas										
		R. M.	3	M	W				Kansas										
84	84	Frederic R. D.	27	M	W	Farmer		250	Ohio										
		M. B.	21	M	W	Keeping house			Ill										
		B. M.	3	M	W				Ill										
		R. B.	1	M	W				Kansas										
84	85	Brindley B.	40	M	W	Farmer		400	Russia	/	/								
		Mary	11	M	W	at home			Russia	/	/								
		J. B.	4	M	W				Ill	/	/								
		Jacob	2	M	W				Ill	/	/								
85	86	James L.	43	M	W	Farmer		400	R. M.										
		Martha	39	M	W	Keeping house			R. M.										
		S. J.	17	M	W	working farm			R. M.										
		M. M.	15	M	W	at home			R. M.										
		D. B.	13	M	W	at home			R. M.										
		A. K.	11	M	W	at home			R. M.										
		A. E.	10	M	W	at home			R. M.										
		D. O.	8	M	W				R. M.										
		L.	6	M	W				R. M.										
		W. O.	4	M	W				R. M.										
		A.	2	M	W				R. M.										
		M. A.	9	M	W				R. M.										

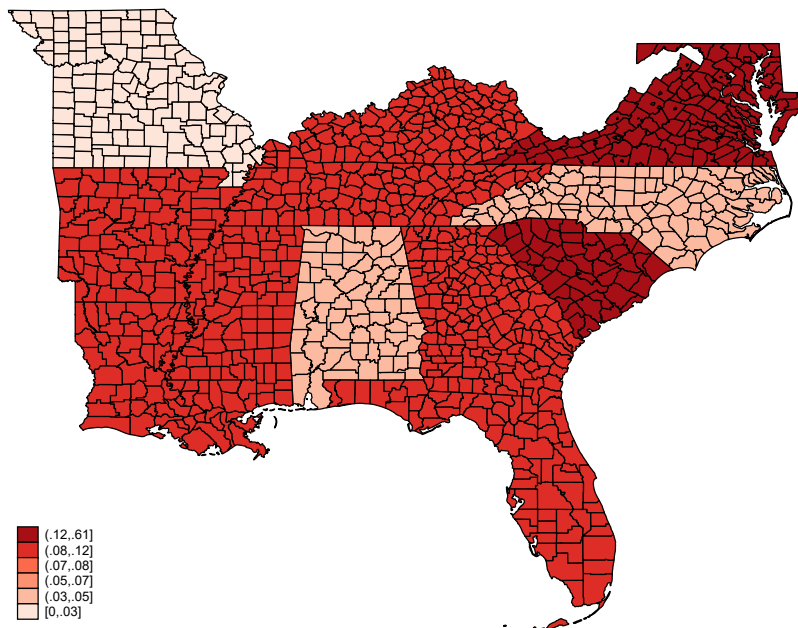
Figure A.1: Sample 1870 U.S. Decennial Census Record  
 Handwritten census records such as these underlie IPUMS' digitized sample (Ruggles et al., 2015).

**Record for Eli Jones**  
 Date and No. of Application, *Jan'y 30<sup>th</sup> 1867*  
 Name of Master, *Mrs Clark Adams*  
 Name of Mistress,  
 Plantation, *Parish of Heriville La*  
 Height and Complexion,  
 Father or Mother? Married? *not*  
 Name of Children,  
 Regiment and Company, *Army in U. S. Navy*  
 Place of Birth, *Parish of Heriville La*  
 Residence, *Comes Melpomene & Magnolia*  
 Occupation, *Dayman at Shakespeare & Foundry*  
 REMARKS,  
*Prother's name Caroline Washington, in city*  
*Sister & do Susan Jones, Mathilda Washington*  
 No 259.  
 Signature, *Eli Jones*

Figure A.2: Sample Freedman's Savings Bank Account Record  
 Handwritten account registers such as these underlie the digitized database available from FamilySearch (2000).



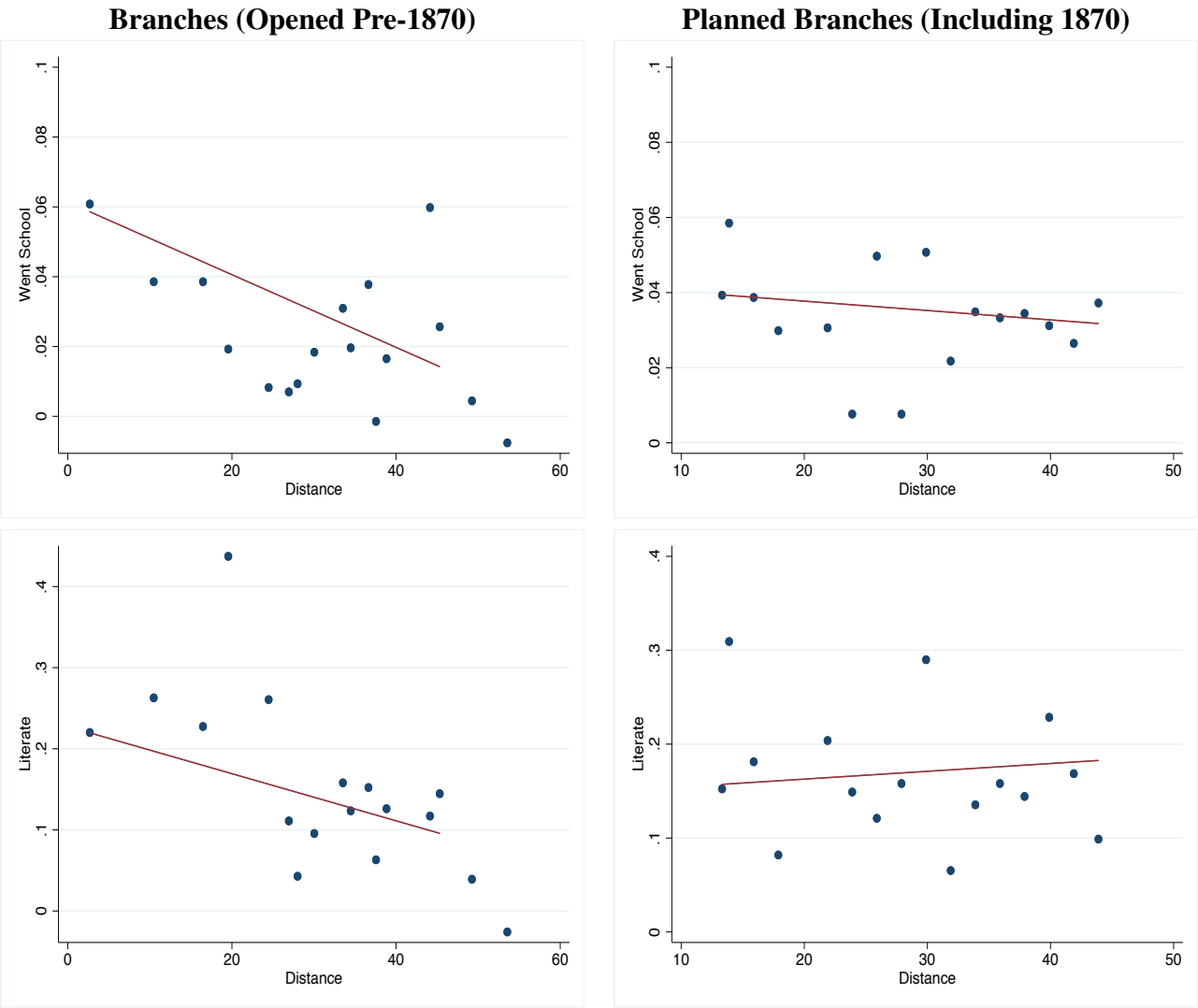
(a) Freedman's Savings Bank Deposits



(b) Freedman's Savings Bank Deposits: Linked Data

Figure A.3: Freedman's Savings Bank Deposits

These maps present the share of the Black population in each state that held an account with the Freedman's Savings Bank. Panel (a) shows the number of aggregate deposits in each state reported in Osthaus (1976) divided by the number of Blacks in each state in the 1870 census. Panel (b) instead uses the fraction of account holders calculated using Census records matched to Freedman's Savings Bank records. The maps are restricted to Southern slave states that seceded during the American Civil War and border states that allowed slavery prior to 1865 but did not secede, and only include states which had a Freedman's Savings Bank branch.



**Figure A.4: Human Capital Outcomes by Branch/Planned Branch Distance**

This figure shows binned scatter plots of mean value of various outcome variables. The left-hand column plots means by distance from a Freedman’s Savings Bank branch (opened pre-1870), while the right-hand column plots means by distance from a planned branch (including those built in 1870).



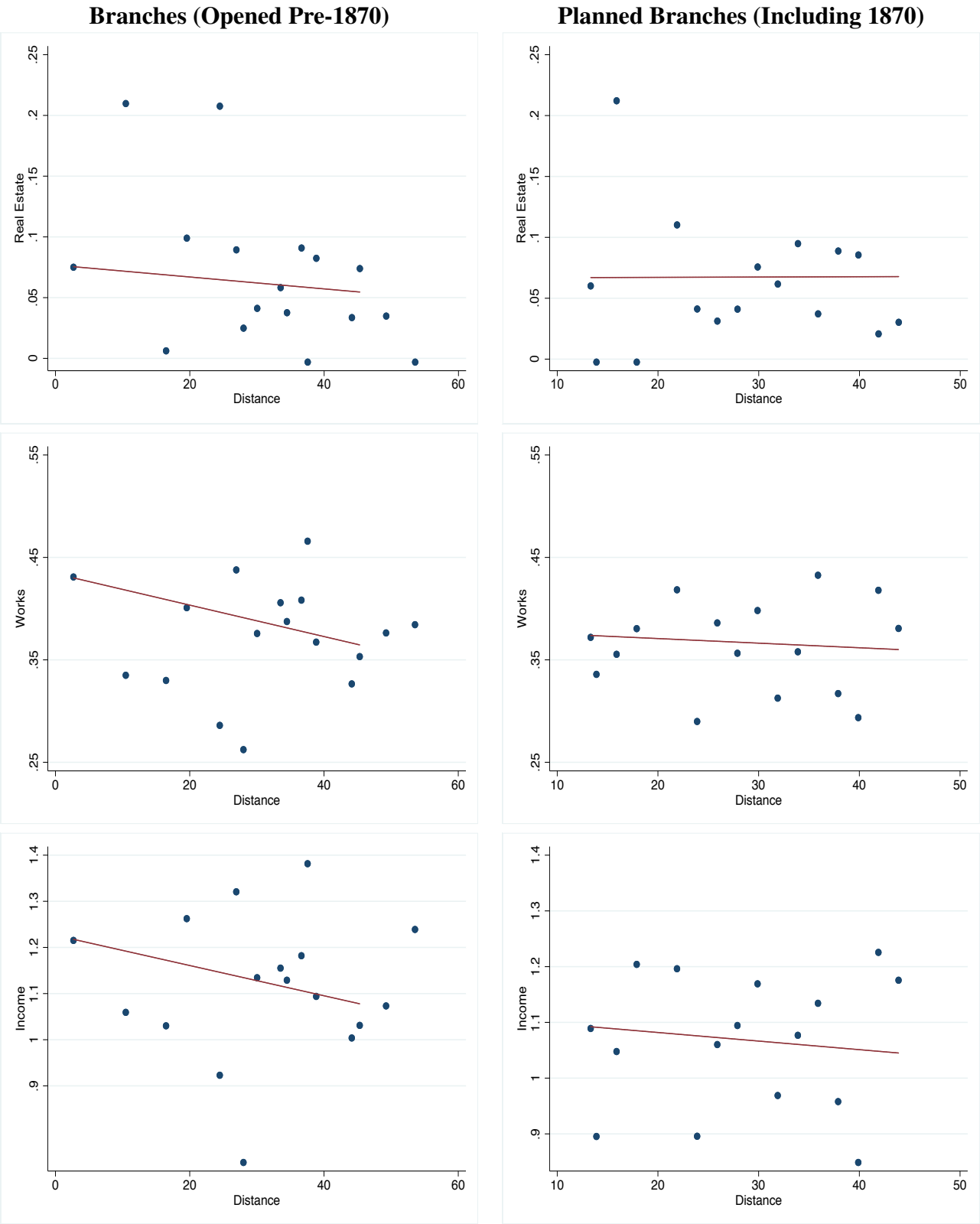


Figure A.5: Labor Market and Wealth Accumulation Outcomes by Branch/Planned Branch Distance  
 This figure shows binned scatter plots of mean value of various outcome variables. The left-hand column plots means by distance from a Freedman's Savings Bank branch (opened pre-1870), while the right-hand column plots means by distance from a planned branch (including those built in 1870).