**Essays on Banking**

by

Virginia Traweek

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**Doctoral Committee:**

Professor Amiyatosh Purnanandam, Chair
Professor Terri Friedline
Professor Uday Rajan
Assistant Professor Emmanuel Yimfor
Professor Gwen Yu

Virginia Traweek

virtra@umich.edu

ORCID iD: 0000-0002-5042-0391

## DEDICATION

To Jim, my companion during all of this. Thank you for moving with me across country twice and for sharing this experience with me.

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There are almost certainly people whom I've left off of this list simply because I had so many come to mind to thank already, and I apologize in advance to those individuals. But, upon reflecting on my time in a PhD program, here are the people who immediately come to mind to thank:

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## ABSTRACT

Financial system access is important, especially for disadvantaged groups. I study the ways in which people interact with the financial system at a local level.

In Chapter 1, I study the Freedman's Savings and Trust Bank, a bank that catered to newly freed slaves in the aftermath of the Civil War. I study those who were most impacted by the bank's failure. I find that violence in regions near a Freedman's bank branch lowered financial participation for black depositors but not for white depositors. Positive political events, such as the ascension of PBS Pinchback to governorship of Louisiana, increased bank participation. I also find that those depositors who stayed with the bank until failure were older, more local, less educated, and more black than the average depositor, suggesting that the costs of bank failures were not evenly borne by the depositors.

In Chapter 2, I study the rural and urban divide in retail banking in the United States. Rural areas lag urban areas in economic and social measures such as income, employment, education, and health outcomes. I show that CD rates in rural areas are 17.6% higher than CD rates in urban areas. The result is robust to a variety of controls and is driven mainly by retail banking presence, as measured by log number of branches. I also test the role of trust in banks as a driver of a rural and urban CD rate divide. My results show that low-sophistication rural counties receive an 11% premium during low-trust years, suggesting that trust in banks drives CD rates. I show that my results are not driven by rural depositor impatience, and I do not find evidence that the CD divide is driven by costly external finance in rural banks.

Finally, I show that higher CD rates are passed through to consumers in the form of higher loan rates, suggesting that borrowers are in rural areas are worse off as a result of higher CD

rates paid to savers.

In Chapter 3, using a novel data set containing financial institution locations for 3 states, I study the history of branch and shadow banking in the United States over the last 100 years. Specifically, I focus on "Main Street" banking, which refers to brick and mortar retail bank branch locations, which were often located on Main Street in many cities in America and were regulated under state banking authorities and, later, the FDIC. I contrast Main Street banks with "shadow banks," which, in this context, refers to financial providers outside the purview of traditional banking regulation. These providers were generally classified as "finance companies," which were often unregulated and provided small, unsecured loans to retail consumers.

My results show that shadow banks, which are not regulated under the FDIC or traditional banking authorities, have been an important part of the development of Main Street banking for over 100 years. I show that shadow banks rose to prominence following the Great Depression before losing market share to banks in the 1960's and 70's.

Overall, my dissertation demonstrates the ways in which disadvantaged groups interact with the financial system, specifically as it relates to retail banking. Further, my research shows that shadow banks have played an important role in the evolution of consumer banking for over 100 years.

# 1.0 SOCIETAL TRUST AND FINANCIAL MARKET PARTICIPATION: EVIDENCE FROM THE FREEDMAN'S SAVINGS BANK

*This chapter coauthored with Malcolm Wardlaw of the Terry School of Business, University of Georgia.*

## 1.1 Introduction

Throughout the last two centuries, policy makers around the world have repeatedly made calls for greater access to banking and financial market participation as a tool for improving economic welfare among disenfranchised minorities. These financial intermediaries depend critically on the trust of their depositors to induce participation (Diamond, 1984) and to provide long-term stability to the institution. However, this trust creates a structure which disadvantages less informed depositors and produces feedback effects which can disproportionately harm the very populations policy makers were trying to help.

In this chapter, we examine trust in banks using detailed historical depositor records from the Freedman's Savings and Trust Company, a private savings bank chartered in 1865 with a philanthropic mission to provide savings accounts to newly freed slaves in the American South. At its height, the bank encompassed more than 30 branches before a combination of gross mismanagement and a nationwide financial crisis caused its catastrophic failure in mid-1874, wiping out a large fraction of depositor wealth. During its operation, the bank represented one of the largest attempts to improve minority welfare through financial market participation in history (Osthaus, 1976).

Using a merged collection of archival records, we show how the sociopolitical environment faced by disenfranchised minorities strongly impacts both the initial goal of greater financial participation and the potential welfare loss created by financial instability. We address this question of how social and bank-specific events impact depositor behavior by analyzing depositor activity around three different groups of events. First, we examine depositor arrival rates around important incidents of racial conflict in the south and around unexpected positive developments in political protection and representation. Second, we examine depositor behavior around the failure of the investment bank Jay Cooke & Co whose surprise failure sparked the Panic of 1873. Finally, we examine the eventual failure of the bank nine months later in 1874.

We find that the rate of new deposits falls dramatically for branches located close to, but not necessarily physically affected by, events of racial violence. In contrast, new deposits rise for branches in states affected

by positive political development. Events which undermine or improve faith in the protection of the life and safety of citizens also impact the arrival of new deposits in the regions where they occur, implying that trust in government and other public institutions has an important impact on trust in banking institutions. This suggests that the suppression of minority rights may have knock on effects in terms of economic participation in other areas, particularly, engagement with the banking system.

As the bank rapidly expanded in the early 1870s, several important developments occurred which led to the bank's collapse. In a pattern similar to the Savings & Loan crisis a century later, the bank began incurring expenses that outstripped its investment income and moved into questionable risky investments to cover the shortfall. Notably, the bank began extending a large volume of real estate loans, primarily to white landowners at its headquarters in the Washington, D.C. area. The fairly attractive promised return on deposits also attracted a growing number of white depositors who eventually made up over 10% of depositors. The opaque and questionable nature of its operations then made it particularly exposed to the loss of confidence sparked by the failure of Jay Cooke & Co and the ensuing nationwide financial panic.

Tests of depositor behavior in the immediate aftermath of the New York based Jay Cooke failure do not support an information based bank run. Instead, the fall in new deposits appears to occur simultaneously across the country, with a slightly higher decline among white depositors and in areas with greater black migration. While the bank survived the initial panic, the bank was permanently weakened by the runs experienced by many of its branches. A subsequent audit of the bank revealed deep structural problems with the bank which had been papered over by its expansion, and the bank was declared insolvent in June of 1874.

By carefully merging the newly available resolution records with the wealth of demographic information in the new account listings, we are able to uniquely examine the behavior of existing depositors and how race and demographics impact their reaction to an impending bank failure. We find that local depositors and institutions were significantly less likely to close their accounts prior to the failure, suggesting that these groups were more willing to trust the bank prior to collapse and were consequently more likely to end up transferring wealth to less trusting or more informed depositors. By contrast white depositors, with their greater familiarity with the financial system, were nearly *twice* as likely as black depositors to close their accounts before the failure.

Identification in both our violent events and in our Jay Cooke failure event tests involves the careful construction of the daily arrival of new accounts to branches of the Freedman's Bank from a set of complex historical depositor indices. We then measure the change in the daily arrival rate in the month immediately after the event relative to the month before. In each of our tests, the average arrival rate is stable for both the affected and unaffected branches in the months leading up to the event, changes sharply in the month after the event and stays persistently higher or lower for several months. The timing of the effect implies that it is

not the result of trends in economic opportunity or gradual migration, but rather a more sudden change in behavior. Therefore, what we identify is a sudden and dramatic shift in the willingness of African-Americans to open accounts when racial violence occurs in nearby areas, when positive developments in protection and representation for black citizens are announced, and when unconnected bank failures spark financial panics. The narrow timing implies that these changes are unlikely to result from evolving economic shifts, migration, or specific information about the solvency of the bank, and we classify this broad, sudden, and otherwise unexpected change in the willingness to open new accounts as a change in overall trust.

While events of racial violence occur within a few hundred miles of a Freedman's Bank branch, they almost primarily occur outside the actual population centers which represent the nearby branch's depositor pool. Combined with the sudden timing of the relative decline in deposits, the differential impact is the result of an indirect impact of this violence on the beliefs of black depositors and a change in the political climate. Similarly, while our two positive political events could have led to material impacts on depositor wealth or economic opportunity, the nearly immediate response to the events suggests a change in perceptions and beliefs about the local political environment. Jay Cooke & Company, whose failure sparked the Panic of 1873, was local to New York City, and the large differences in the overall response do not sort on proximity to New York, suggesting that information about the panic was not the primary driver.

The Freedman's Bank account closures have never been studied until now. However, the recent availability of the individual account resolution records allows us to employ a unique identification strategy. Since the account resolution records are a complete record of all closed accounts at the time of the bank's failure, we can merge this record with the available contiguous account indices to identify which of the new accounts were open at the time of failure and, because the resolution records are complete for any given branch, which accounts must have been successfully liquidated prior to closure. The unusually large amount of depositor specific demographic information is unique to our setting, and allows for both a detailed examination of depositor demographics and the use of a large number of depositor specific controls.

Collectively, our results show how the structure of a traditional bank can create unexpected feedback problems in vulnerable populations. While the total welfare impact of the bank's mismanagement and eventual failure is notoriously difficult to measure, we provide an equally important view into the mechanisms that distribute the likely welfare losses across the participants, and provide evidence that participants who are central to African-American prosperity are the likely to suffer the most harm. Further, these outcomes are not merely a function of fraud and mismanagement, but are at least partially a function of the structure of savings banks and how disenfranchised communities interact with them. Financial intermediaries that allow for on-demand redemption rely on a certain amount of "stickiness" in their depositor base to remain stable. However, our results show that this stickiness manifests primarily in minority groups who are hardened against social unrest and that these groups are most harmed during a financial crisis.

The results demonstrated here have important implications for policy makers today. Recent examples of similar efforts to enfranchise poor minorities include the Jan-Dhan Yojana in India, the Bank of Hope in Los Angeles, and the planned Dream Exchange, an equity investment platform targeting minority investors and businesses. Although savings and financial participation are important tools for improving welfare and economic integration, their application to poor minority populations comes with significant complications. By itself, financial inclusion is insufficient and can potentially undermine welfare goals. For participation to be effective in the long run, it must be paired with sociopolitical protections and a framework for helping marginalized citizens navigate the inherent risks and potential expropriation by more informed investors.

This chapter is broadly related to the growing literature on trust and financial participation explored in papers such as Guiso et al. (2008). Literature has shown that shocks to trust in financial institutions have profound effects on asset allocation (Gurun et al., 2018) and that reactions to major financial events can persist over a lifetime (Malmendier and Nagel (2009), Malmendier and Nagel (2016)). Further literature such as Brown et al. (2019) shows that prior financial experiences help shape future financial participation. Furthermore, there is a well-known under-saving puzzle that has left many American households vulnerable, particularly financially fragile minorities (Lusardi et al., 2011). Our results also contribute to the literature on bank runs such as Iyer and Puri (2012) and Iyer et al. (2016) by examining the response of newly enfranchised minority groups to the risk of mismanagement and institutional insolvency.

Two recent papers have examined the Freedman's Bank in a different context from our paper. Stein and Yannelis (2020) match the names of depositors and their relatives to the 1870 census (prior to the bank's failure) and argue that property ownership and literacy rates were causally improved by participation in the bank. In response to this paper, Celerier and Tak (2021) argue that the paper's tests are misspecified and that the data does not suggest an improvement in welfare. They argue that participation in the bank was therefore globally harmful. Our paper takes a very different approach, examining the mechanisms by which participation is achieved and how the structural forces inherent to unsupervised financial intermediaries can create this harm in the first place. As such, while the paper does not take a stand on the value of holding an account at a given point in time, we demonstrate the mechanisms which drive participation and how they can disastrously lead to a welfare transfer from vulnerable local minority populations to wealthier, better informed elites.

Finally, our paper also touches directly on the issue of societal violence, disruption, and financial behavior, a phenomena that has not been covered much in financial circles. Papers in development economics such as Bohlken and Sergenti (2010) and Berman and Couttenier (2015) study racial riots in developing countries and note an important connection between economic development and social violence. Serneels and Verpoorten (2015), for instance, find that households exposed to more intense violence in Rwanda in the late 1990s lagged similar households in consumption six years after the riots. Our paper thus contributes to the rapidly

growing literature on policies that help provide savings accounts to disenfranchised communities and the role that civil strife plays in the efficacy of those policies.

### 1.2 Historical Background and Data

The Freedman's Bank was founded in 1865, following the United States Civil War. Chartered as a private bank with a partially philanthropic mission, the goal of the Freedman's Bank was to encourage thrift and savings activity among the population of newly freed slaves. The bank offered only depository accounts and was seen as a thrift bank, which was generally regarded as the safest type of bank. While the bank eventually became involved in commercial lending activity, this lending almost exclusively involved real estate investments to white investors in the Washington D.C. area. The bank's commercial lending service was not available to its primary depositor base.

Initially, the Freedman's Bank focused on soldiers who had just received their military pensions, but the focus soon shifted to local banking. The branches stretched from New York City in the northeast to Tallahassee, New Orleans, and Shreveport. At its height in 1873, the bank had nearly 80,000 accounts and more than 30 branches, eventually operating in most major cities in the southern United States. The bank represents one of the single largest attempts to uplift disenfranchised minorities through financial participation. As proclaimed by noted abolitionist Frederick Douglass,

> "This institution conspicuously and pre-eminently represents the idea of progress, and elevation of a people who are just now emerging from the ignorance, degradation, and destitution entailed upon them by more than two centuries of slavery."

**[See Figure 2.2]**

The Freedman's Bank began to falter in late September 1873, following the rapid failure of Jay Cooke & Company. Jay Cooke & Company was a major investment bank in the United States based in New York City. Heavily invested in railway debt, which was rapidly declining in value, Jay Cooke & Company found itself unable to liquidate and unwind an enormous bond position, triggering a run by investors, which resulted in an unexpected declaration of bankruptcy almost overnight. The failure triggered a nationwide financial panic, eventually termed the Panic of 1873, which set off a number of bank runs across the country, including at the Freedman's Bank. Although the runs subsided and the Freedman's Bank remained open well into 1874, the bank was permanently weakened by the crisis.

In the years leading up to the Panic of 1873, the bank began to make progressively riskier investments in an effort to make up for its unsustainable operating expenses. This primarily took the form of real estate loans to white investors in the Washington D.C. area, far from the depositor base of most of its branches. The

panic significantly damaged the balance sheet of the bank, putting put substantial pressure on its growing pool of questionable loans. A comprehensive audit was initiated, revealing a pattern of lax oversight and poor accounting combined with a questionable and rapidly deteriorating asset portfolio. After an attempted reorganization by a federally appointed commission, the bank officially failed 9 months later in July 1874.

Notably, the bank's operations predate the creation of the Federal Reserve and the Federal Deposit Insurance Corporation (FDIC). This provides a useful laboratory for examining institutional trust since bank savings carried the risk of a catastrophic loss even for very small investments. The recent proliferation of uninsured investment vehicles targeted at underprivileged minorities in the United States and the lack of either comprehensive deposit insurance or a credible lender of last resort in many developing countries mean that these issues are still a first-order concern.

The data sources used in this chapter originate from three primary historical sources: the indices to new accounts, a selected sample of available passbook records, and the dividend payment records that contain the list of existing accounts at the time of resolution. Together, these records comprise the most complete history of the operations of the Freedman's Bank in existence. Each data source is briefly described as follows. For a full history of the Freedman's Bank and details on the data collection process, see the detailed appendix to this chapter, which both documents the data collection process and describes the data sources in detail.

### 1.2 Indices to New Accounts

The indices to new accounts, also called *ledger books*, contain a rich historical record of new account openings at the Freedman's Bank. The National Archives (United States National Archives; Black studies research sources, 2005) contains the indexes to the ledger books for 28 of the branches in the Freedman's Bank. Each page of the book contains eight entries, each of which contains entry lines for account number, account holder name, date, birthplace, where brought up, residence, age, occupation, employer, wife or husband, children, father, mother, brothers and sisters, and remarks.

These records have been transcribed by FamilySearch.org, which provided us with permission to use the records for our research (FamilySearch, 2020). Importantly, this online database represents a substantial improvement over the older CD-ROM-based archive published by FamilySearch in 2000 (FamilySearch, 2000) and contains a number of fixes and additions to the original data, along with a cleaner organization of the data that facilitates a fine-grained analysis of the order in which accounts arrive. In addition, the online records contain a database match directly to a high-quality scan of the original document, allowing for the development of more sophisticated error handling. Passbooks have one main record—that of the passbook holder—and several associated records for relatives listed on the passbook page. The records consist of a single data table containing the information for each associated individual with a link to each individual

image record and all of the descriptive data for each entry. The complete file contains 480,597 entries representing just over 100,000 account entries, around 78,000 new accounts, and 22,000 updates of existing accounts. Example pages from the indices to new accounts is provided in Figure 1.2.

**[See Figure 1.2]**

Although the transcription of these records is extremely accurate, some errors exist in both transcription and the original source for information, such as dates that must be corrected. The cleaning process is documented in detail in the appendix and is encoded in a complete program that can be applied directly to the source data. We then algorithmically classify a large number of recorded demographic data about the depositors from these transcriptions. In particular, we clean and categorize the written recordings of depositor age, complexion (which we use to determine race), occupation, and whether the depositor record represents an account held by an individual or a trustee on behalf of an organization.

Three types of location information of varying specificity also exist in the records, which we classify into groups. Records specify the current address of the depositor, which we are able to classify as being located within the boundaries of the city where the branch is located or outside the city. The records also list where the depositor was born and where the depositor was brought up. From these records, we are able to classify a depositor as being born/raised in the same state as the branch that holds the deposit.

All of these classifications can be assigned to the original FamilySearch data from deterministic classification schemes using a set of replication programs to clean and classify the data. Researchers wishing to use or extend this data for future research can request the programs from the authors after obtaining permission from FamilySearch to use the core data.

### 1.2 Passbooks

Passbooks were used by account holders to track their ongoing balances, much like modern-day checkbook ledgers. The existing passbooks were collected as part of the effort to repay account holders following the bank's failure. Only account holders who did not close their accounts prior to the eventual failure on July 2 would have submitted a passbook to the bank resolution authority. Thus, by construction, this sample of deposit and withdrawal behavior is limited to those depositors who did not completely close their accounts in response to fears of the bank's failure.

The physical passbooks photographed are available at the National Archive in Record Group 101, ARC ID 2538252 (United States National Archives and Records Administration, 2016b), in a four-box set. The passbooks appear to be a random sampling of account holders across multiple banks. Depositor passbooks contain a cover page, several pages of general bank rules, and several ledger pages for the owner to record banking transactions. When open to the ledger pages, the left side of the passbook was typically used for

deposits and the right side for withdrawals. Each deposit book contained 12 pages, with eight pages for recording of activities. Once a passbook became full of transactions (or in the event of a lost passbook), the bank would issue another passbook. These passbooks usually have "balance forward" written on the first page, and transactions continue beneath. There are a total of 536 passbooks. Example passbook information is provided in Figure 1.3.

**[See Figure 1.3]**

For each available passbook, we have manually transcribed the name of the depositor, the account number, the branch location, and the dates and amounts of all legible deposits. We also note whether the first deposit is a balance forward or an initial deposit. The complete transcription, along with high-quality scans of each page in the national archive, is now publicly available through the data collection efforts of this chapter. This digital archive subsumes the earlier 1970s era microfilm record of the passbooks, collected in Lester and Gutberlet (2005), whose uneven quality and the low resolution makes examination of the records difficult and partially incomplete.

### 1.2 Dividend Payment Records

In order to keep track of partial payouts to depositors following the failure and eventual resolution of the Freedman's Bank, bank examiners created a ledger of each extant account at the date of closure. These records are available from the St. Louis Federal Reserve online (National Archives and Records Administration, 1899). The records are grouped by city and contain account numbers and balances at the date of the bank failure on July 2, 1874. A sample of this ledger is provided in Figure 1.4. We manually transcribe all account numbers from this ledger along with the associated balance remaining in the numbered account as of the failure.

**[See Figure 1.4]**

We match these records to the indices of new account records via their account number. The indices of new account records are often incomplete due to lost archival records, but the dividend payment ledger for a given city is not. Although not all of the existing branches are preserved, the ones whose ledgers are preserved contain a complete list of all accounts that existed at the time of the closure. Thus, any record that exists in the indices to new accounts and does not have a corresponding entry in the dividend ledger must have been closed prior to the failure of the bank.

While incomplete retention of all of the branch ledgers reduces our set of available branch data to 21 cities, these cities represent a substantial cross-section of the bank as a whole, numbering nearly 40,000 accounts. These records give a representative approximation of the number of accounts that closed before

the bank failed in 1874, and the corresponding information in the indices to new accounts gives a wealth of rich detail on the demographics of these account holders. By constraining the window of account openings, we can thus design a reasonable proxy for accounts that were closed in the aftermath of the Panic of 1873.

Collectively, these records provide a wealth of data on the demographics and behavior of new depositors, the transaction behavior of existing depositors, and the run behavior of these depositors in the aftermath of the Panic of 1873. Although each of the records individually present certain limitations, the records collectively form a detailed and relatively accurate snapshot of the behavior of the depositor population of the Freedman's Bank.

### 1.3 Civil Unrest and Depositor Behavior

In this section, we examine how financial participation is impacted by shocks to trust in political and socioeconomic protections during the establishment of the bank. During this period, from 1868 to 1873, the South experienced significant social upheaval as newly freed blacks began to integrate into Southern society and acquire political representation. Resistance to these efforts and residual resentment by Southern whites led to a number of high-profile and deadly incidents of racial violence. Response to these incidents by the federal government was either uneven or non-existant and punctuated by occasional large-scale direct efforts to deal with growing violence.

These high-profile incidents of racial violence were extensively covered by regional newspapers and transmitted by word of mouth and are generally believed by historians to have had a chilling effect on black civic engagement. We hypothesize that these incidents negatively impact bank participation via indirect channels. These outbreaks of racial violence directly disrupt economic activity in the town in which they occur. However, the psychological effect of these events and the breach of public trust in the ability of local authorities to protect the African-American population are felt outside of the immediate vicinity.

To test the impact of these events on bank participation, we examine the daily arrival of new deposits before and after a major incident of racial violence in the South. For each incident of racial violence, we examine the change in daily depositor arrival from immediately before the incident to immediately after the incident and compare this difference for branches in the affected region against the remaining branches. Similarly, we identify two major distinct and unexpected events that positively impacted black trust in governmental institutions. The first was the imposition of martial law by the Grant Administration in South Carolina in 1871, and the second was the unexpected ascension of a black man, P. B. S. Pinchback, to the governorship of Louisiana in 1872. For these events, we examine the same difference in depositor arrival rates for the affected versus unaffected States.

To test this hypothesis, we construct a series of panels of daily new accounts from the existing indices to new accounts. For each incident we construct a series of daily new accounts in an event window before

and after the event. Gaps in the historical records and the staggered opening of branches throughout time mean that we occasionally have a slightly unbalanced panel, though the records are complete for the 30 days before and after the event for the treated branches. All branches were closed on Sunday, no new accounts can be opened on those days and they are omitted.

For each event window, we estimate a fixed-effects Poisson model via Pseduo-MLE. This generalized linear model takes on the following form:

$$\mu(\text{New Accounts}) = exp(\alpha_i + \beta_1 \text{post event}_{i,t} + \beta_2 \text{post event}_{i,t} \times \text{impacted}_i + \epsilon_{i,t}) \tag{1.1}$$

where each branch has a separate baseline arrival rate for each event window. Robust standard errors are clustered at the event-branch level. $i$ refers to the branch, and $t$ refers to the days relative to the event. Observations are at the branch-day level. The dependent variable *new accounts* is a measure of the number of new accounts per day. The variable *post event* is a dummy that takes the value of 1 for dates after the incident, and *impacted* is a dummy that takes the value of 1 if the branch was near the event. We report exponentiated coefficients throughout the chapter, which can be interpreted as a multiplicative change in the relative arrival rate of less than or greater than 1 compared to the pre-period baseline.

The data are natural count data and the significant variation in branch sizes and baseline daily arrival numbers make the proportional nature of a count model easier to interpret. This approach also makes comparisons more straightforward and alleviates concerns about potential over-weighting of the largest branches. For robustness, we also estimate a simple linear diff-in-diff model using the same criteria, where the number of new accounts are an additive function of the interactions and the fixed effects. The results of the linear model are reported in the Appendix.

### 1.3 Major Incidents of Racial Violence

We begin by examining how high-profile failures of regional law enforcement impacted the arrival of new depositors. Specifically, we examine nine prominently identified instances of racial violence described in Du Bois (1935) and Foner (1990). The South during Reconstruction was a particularly violent time for newly freed slaves as whites clashed with blacks over political and economic issues. Comprehensive records of violence to African Americans during reconstruction are unfortunately non-existent, but historians have attempted to catalogue the most significant individual incidents of racial violence during the period.

Using these sources as a starting point, we gather events which satisfy three basic criteria. First, they must occur during a period for which we have contiguous records for at least one branch no more than two states away from the incident. Second, the incident needs to be reported in one or more major newspapers at the time it occurs. Third, the event needs to involve a major, well-defined incident which can be identified as beginning on a particular day. We catalogue nine of these incidences for which we have a recorded date

that falls within the window of our data, and we gather contemporaneous news articles for each. As a final cross-check, these incidents are also all noted in the English Wikipedia as important conflicts of the Reconstruction Era.

We classify a branch as impacted if it is within 250 miles or within 400 miles of the incident (for robustness). The importance of a given proximity to an event is hard to quantify, though we have several criteria for choosing these values. The average width of a US state is around 250 miles and this distance places at least one operational branch within the proximity of every event in our sample. More formally, a distance of 250 miles divides the pooled sample into approximately one-third of branches as affected while a distance of 400 miles divides the sample approximately in half. The results of our tests are comparable and statistically significant across all cutoff distances in this range. However cutoffs less than 250 miles begin to restrict the number of affected cities in many events to zero or to one or two new and very small branches with little deposit activity at the time of the event.

A list of the events, along with their dates, are provided below.

Major Incidents of Racial Violence

| **Location** | **Date** | **Description** |
|---|---|---|
| Memphis, TN | May 1, 1866 | Race riot and massacre |
| New Orleans, LA | July 7, 1866 | Race riot and massacre |
| Pulaski, TN | January 7, 1868 | Early KKK Action |
| Camilla, GA | September 19, 1868 | Voter Rally confrontation/massacre |
| Opelousas, LA | September 28, 1868 | Paramilitary clash |
| Harrodsburg, KY | August 6, 1870 | Election-related violence |
| Eutaw, AL | October 25, 1870 | Election-related violence/massacre |
| Meridian, MS | March 8, 1871 | KKK trial related riot |
| Colfax, LA | April 13, 1873 | Paramilitary clash/massacre |

Each of these incidents occurred within 250 miles of a major city with an existing Freedman's Bank Branch, and all of the events occurred in the South. Notably, only two of these incidents, Memphis and New Orleans, physically occurred within one of the cities in which a branch is classified as affected. For all other incidents, the closest branch remained at least 3 or 4 days' traveling distance from a bank branch. Thus for all but two of the events, any change in depositor arrival rate represents primarily an indirect consequence of the violence through word of mouth and a change in local beliefs rather than a direct impact of the violence itself or some other local event.

Figure 1.5 shows the location and exposure variables for each event. For each separate event, we map the location of the event and all Freedman's Bank branches for which we have depositor data in a 30-day window surrounding the event date. The state in which the event occurred is highlighted, and branches within 250 miles of the event are indicated.

**[See Figure 1.5]**

Before running a formal test, we first establish that any differences are not the result of a gradual time trend in the affected branches. To do this, we estimate the model with a series of controls for an extended time series of the 120 days leading up to the event and the 120 days after the event with an indicator for each 30 day event-time period. We then calculate the predicted average daily account arrival rate for the affected and unaffected branches and graph their evolution in Figure 1.6.

**[See Figure 1.6]**

Deposit arrival rates show no clear trend in the 120 days of event-time leading up to the event, followed by a significant decline in new accounts in the 30-day period after the event which appear to slowly recover two or three months later. To the extent that this decline is statistically significant, it appears to represent a rapid decline in the willingness of the potential depositor pool to engage with the bank in the immediate aftermath of these racial conflicts. The short window in which the initial effect is measured makes it unlikely that the impact is the result of large scale migration and the recovery pattern suggests that the impact is subsides after a few months. More broadly, the lack of an obvious time trend lends credibility to the incident itself being particularly important in to the sociopolitical environment of the region and the decisions made in response to that environment.

To formally test the relative change in new deposits, we pool all observations for which we have valid daily depositor records during the 60-day window surrounding each event. Each branch-event combination is assigned a fixed effect, allowing each to have its own baseline arrival rate over the full period. The results are presented in models (1) and (2) of Table 1.1.

**[See Table 1.1]**

Model (1) reports the results for branches located within 250 miles of the event, and Model (2) reports the results for branches within 400 miles of the incident. For each model, the coefficient is less than 1 and statistically significant, representing an average decrease in the arrival rate of new accounts of around 20% for the affected branches in the 30 days after each incident. Beneath each reported set of coefficients, we calculate the marginal effect incident by incident for each of the seven individual incidents. Although the overall relative impact varies significantly across each incident, all but one show a relative decline in new deposits for the impacted branches.

The primary takeaway is that these incidents of racial violence had a chilling effect on the population of new depositors. The failure of government and law enforcement to protect minority citizens in nearby communities creates a decreased willingness to participate in the bank. This is particularly destructive to

the policy goal of greater economic integration because violence not only suppresses real economic activity in the communities where it occurs, but also creates a knock-on effect where nearby communities disengage from economic activity, amplifying the negative impact.

### 1.3 Positive Shocks to Governmental Trust

We next examine two major positive shocks to trust in governmental institutions. For this test, we use two distinct incidents that occurred during the years of operation for which we have data. The first was an emergency declaration of martial law in South Carolina on October 18, 1871, by then-President Ulysses S. Grant in reaction to increased activity by the KKK. This declaration came as the most sweeping federal action of the Enforcement Act of 1871 and allowed federal forces to arrest and imprison KKK members as instigators of domestic terrorism. The second is the unexpected ascension of P. B. S. Pinchback to the governorship of Louisiana in December 1872. Pinchback succeeded the acting Republican governor of the state following a brief scandal whereby the former governor stepped down. Pinchback became the first black governor of any state in America. Although Pinchback's short-lived term as governor was the result of a non-election transition, the psychological impact of having a black governor is considered a major historical event in the post-Reconstruction south (Foner, 1990). Importantly, both of these events were largely unexpected at the time they occurred and represented a sudden, rather than gradual, shift in the political environment.

These tests follow a similar format to our tests surrounding incidents of racial violence. A branch is considered "impacted" if it is located in the politically affected state. Figure 1.6 reports a trend graph constructed as before using the 120 days before and after the event. As before the affected and unaffected branches do not exhibit a persistent trend up to the events, and new account arrivals increase substantially immediately after the events.

We formally test the difference as before using the 30 days immediately prior to the event as a baseline. The results are presented in Models (3) and (4) of Table 1.1. Because two of these branches were new and extremely small at the time, we also separately test the primary branch in each state, excluding the minor branch altogether. Each interaction coefficient is larger than 1 and statistically significant, implying that the new accounts increased substantially for the affected branches in the 30 days after each event, with a relative increase of 40% to 60% in the arrival rate.

As before, the short event window makes it unlikely that the difference is caused by a substantial increase in natural in-migration to the county. The unexpected nature of both events also makes it unlikely that the political and depositor outcomes are driven by common economic factors. Thus, political outcomes that embolden the existing populations and enhance trust in governmental institutions appear to drive increased trust in financial institutions.

### 1.4 Responses to Financial Panic and Bank Failure

Having demonstrated how events that impact trust among racial minorities affect financial participation, we now extend these results to examine how this trust shaped the response to financial panics and the eventual collapse of the bank itself. As previously described, the Freedman's Bank weathered the initial runs of the Panic of 1873 only to fail 9 months later. Here, we ask whether similar characteristics that harden local populations to racial violence also impact their immediate response to a nationwide financial panic whose origins are not a direct reaction to information about the bank itself. We then examine the determinants of actual account closure prior to the bank's actual failure 9 months later, a failure that stemmed more directly from the evolving condition of the bank in the spring of 1874. We examine the reaction of depositors who are more resilient to racial violence and discuss the implications for policies that seek to encourage financial participation among minorities.

The Panic of 1873 is noteworthy because the start of the panic can be traced primarily to a single event on a single day. During 1873, the New York-based investment bank Jay Cooke & Company attempted to sell a large bond issue for the Northern Pacific Railway into the market. Concerns about the creditworthiness of Northern Pacific caused this bond placement to fail, and Jay Cooke & Company ended up holding 75% of the debt of Northern Pacific on its balance sheet. Consequently, doubts about Jay Cooke & Company's solvency began to mount. On the evening of the September 16, 1873, the full scale of Jay Cooke & Company's liability became known, sparking a massive run on the bank's headquarters in New York City the next day. Such was the scale of the run that the bank officially declared bankruptcy one day later on September 18, 1873. The failure sparked a sudden, massive wave of bank runs across the United States, which lasted for several weeks and eventually resulted in a severe economic depression.

Detailed financial records indicate that the Freedman's Bank had exposures of varying degrees to Jay Cooke & Company and the Northern Pacific Railway *prior to* 1873 (United States House of Representatives (1874), United States Comptroller of the Currency (1873), United States House of Representatives (1876)). However, by the time of the panic in September of 1873, these exposures had been almost completely eliminated with cross-deposits at Jay Cooke & Company of $1,094.54 and railway bond holdings of around $200 on an asset base of approximately four-and-a-half *million* dollars.

The initial wave of panic in the immediate aftermath of Jay Cooke & Company is significant for our purposes because it primarily represents a classic coordination failure-type bank run across the entire financial system rather than an information-based run on a single bank. Runs occurred on banks throughout the United States, irrespective of their exposure to Jay Cooke & Company. Although the initial wave of runs presented an imminent threat to the solvency of the Freedman's Bank, the bank was able to survive the initial panic and partially recover. The depletion of deposits significantly damaged the banks' balance sheet and eventually exposed more chronic medium- and long-term problems related to their real estate loan portfolio,

but these issues did not become fully apparent until 1874.

Because the branches of the bank were very geographically dispersed—a very unusual structure for banks in the 1800s and all but the largest banks even today—this event allows us to examine depositor reaction to an event emanating from an identifiable source in New York City. In the following subsections, we examine the reaction to the financial panic and the ultimate failure of the bank in terms of population demographics and exposure to racially motivated violence. Doing so allows us to establish how differences is trust and possible differences in experience or informativeness of populations impact the reaction to these financial panics, and what effect this may ultimately have on the policy goals laid out in the founding of the Freedman's Bank.

### 1.4 New Account Arrivals During the Panic

Reaction to the failure of Jay Cooke & Company was swift and far reaching. Although meaningful anecdotal evidence exists describing runs throughout the country and incidents of catastrophic bank failure, surprisingly little quantitative evidence exists confirming the actual behavior of depositors in the initial wave of one of the most devastating financial crises in American history. The geographic reach of the Freedman's Bank and the reasonably high quality of the new deposit records existing during this window allow us to analyze the impact in a new, rigorous, and quantitative way.

In figure 1.7, we plot the cumulative arrival of new accounts across 21 disparate branches in the 90 days before and the 90 days after the failure of Jay Cooke & Company on September 18, 1873. The sudden and largely permanent decline in what had been a fairly steady growth in new deposits immediately reverses in the span of only 1 or 2 days, in some cases leveling off to effectively nothing for the next 3 months. In spite of the extremely large decline, there exists significant heterogeneity across the branches that we will exploit to identify why some branches may have fared better than others.

**[See Figure 1.7]**

**[See Figure 1.8]**

Figure 1.8 presents an alternative plot, scaling the cumulative number of deposits at each point by the cumulative 90-day deposits on September 18, 1873. The curvature of the pre-event line therefore represents the variation in relative arrival rates prior to the failure of Jay Cooke & Company, and the slope and curvature of the post-event line represents change in the mean arrival rate and its daily variation post failure. From this figure, we see that most of the branches were adding depositors at a fairly linear rate in the 90 days leading up to the Jay Cooke failure. Post-failure, this rate is cut by anywhere from 50% to 100% in the succeeding 90 days. Importantly, however, new deposits did not completely dry up, even as long lines of

existing depositors began to form at many branches as they demanded their money back. The differences are quite stark and reinforce the fact that, while the initial wave of the banking panic was severe, the willingness of potential depositors to open new accounts did not stop altogether, and new capital continued to flow in from many areas to shore up losses by closed accounts.

To formally test the impact of the panic on new deposits, we use a similar Poisson based model to estimate the overall impact of the Jay Cooke & Company failure and the cross-sectional impact of various characteristics on the change in new deposits. Each model contains branch fixed effects $\alpha_i$ and estimates change in the daily new account arrival rate before and after the Jay Cooke & Company failure. We estimate the relative decline in depositors for specific sub-populations and we use the geographic differences across branches represented by $\theta_i$ to examine the relative change in the response.

$$\mu(\text{New Accounts}) = exp(\alpha_i + \beta_1 \text{post JC Failure}_{i,t} + \beta_2 \text{post JC Failure}_{i,t} \times \theta_i + \epsilon_{i,t}) \tag{1.2}$$

Results are presented in Table 1.2. As before, the coefficients are exponentiated, with each coefficient roughly equal to the percentage change in the arrival rate.

**[See Table 1.2]**

As shown in Column (1), new account arrivals decline by around half in the 30 days following the Jay Cooke & Company failure, and by nearly two thirds in the corresponding 30-day window. Restricting the sample to only large branches in Column (2) yields a similar result. Both are significant at the 1% level. Confirming the visual results in the graphs, there is a very large decline in new deposits immediately after the beginning of the panic on September 18.

In Column (3) we count only the new white depositors as new account arrivals. The proportional decline in new deposits is notably smaller, suggesting that the pool of willing white depositors dried up more than the pool of willing minority depositors in the immediate aftermath of the panic. In column (4) we restrict the sample to the total number of accounts from local depositors who were born and/or raised in the same state as the branch. While the decline is slightly less pronounced, it the difference is fairly marginal.

We then examine a number of cross-sectional interactions in Columns (5) through (7), testing what determines the significant heterogeneity apparent in the graphs. In Columns (5) and (6), we directly examine whether proximity to New York City, the location of Jay Cooke & Company, and the geographic start of the panic, impacted by the flow of new depositors. Rather than being more severe, the decline is actually more modest in branches in New York City than in other branches. Moreover, the relative impact of the distance to New York is negative, though statistically insignificant. This suggests that the reaction spread rapidly across the entire country, within the first 4 weeks, and that the negative impact of the panic was just as significant further away from the actual origin of the panic. In Column (7), we examine interaction with the

geographic differences in black in-migration. We find that counties with less black in-migration and a larger percentage of local depositors tend to respond less negatively to the panic and that new deposits do not fall as sharply.

We examine this question further by plotting how the percentage of new deposits made up by white and local non-white depositors evolves across the panic. We plot this percentage in Figure 1.9, aggregating new depositors into 30-day windows before and after the Jay Cooke & Company failure. This figure shows average depositors across all branches that are either white or local non-white depositors around the window surrounding the Jay Cooke & Company failure. The left axis is the percentage of depositors arriving in a given 30-day window that are born or raised in the state, and the right axis is the percentage of depositors who are white. Error bars are plus or minus two standard deviations. The figure shows that white depositors decline in the immediate aftermath of the Jay Cooke & Company failure, but then increase dramatically thereafter. Local depositors continue to open new accounts in the same proportion following the Jay Cooke & Company failure until about 60 days after the failure, when the percentage declines substantially.

**[See Figure 1.9]**

Although the differences are small, the percentage of local depositors increases slightly in the initial 30 days after the Jay Cooke & Company failure, while the percentage of white depositors declines. However, over the subsequent 60 days as the initial wave of the panic begins to subside, this trend reverses, and the share of white depositors and non-local depositors increases substantially.

The results imply that the large-scale impact on new deposit accounts is unlikely to represent a slow diffusion of information across the country. There is no additional effect based on distance to New York City, implying that even in 1873 among a population of financially unsophisticated depositors, information about financial panic travels extremely quickly and impacts the population more significantly in areas where there is likely less direct information rather than more. The impact is far from uniform, however, and our results suggest that differences in reactions are more likely attributable to demographic factors that influence socioeconomic stability and, in the case of white depositors, familiarity with the fragility of financial institutions.

### 1.4 Balance Draw-Down of Existing Depositors

Using our sample of depositors who turned in passbook records after the failure, we can also examine the net withdrawal behavior of these depositors. Unfortunately, because these depositors must have kept their accounts open until the final collapse of the bank in June 1874 in order for these records to exist, we face an inherent sample-selection problem. By construction, these depositors expressed enough confidence in the

bank not to liquidate their accounts during the crisis. However, we are still able to observe some partial balance draw-downs in the month after the Jay Cooke & Company failure.

To examine this question, we aggregate their end-of-period deposit balance in the 30 days prior to the Jay Cooke & Company failure and the 30 days after the failure. We then run a regression with the following form.

$$\log(\text{balance})_{i,t} = \alpha + \beta_1(\text{post event}_t) + \beta_2(\text{post event}_t \times \theta_i) + c_i + \epsilon_{i,t} \tag{1.3}$$

At the end of each month, we calculate the log of the existing balance for each depositor. We then run a fixed-effects regression of log balance of depositor $i$ on a post event indicator for the 30 days after the initial panic event. We then interact each of these event-time indicators with an indicator $\theta$ representing a depositor characteristic. Each depositor has an individual fixed-effect $c_i$. The results are presented in Table 1.3.

**[See Table 1.3]**

Column (1) presents the baseline result, which shows an 8% decline in account balances following the failure of Jay Cooke & Company. Columns (2), (3), and (4) present the results using dummies for accounts held by institutions, whites, and locals, respectively, interacting with a dummy for the post-crisis period. In each of these specifications, new account openings across the bank decline by about 8% or 9%. In Column (2), we note that this decrease is offset in institutional accounts, which exhibit an increase in new account openings of 8%.

Unfortunately, the incompleteness of the indices to new accounts, particularly in earlier periods, means that we are not able to find demographic information for the majority of the passbooks. This substantially reduces the sample size and reduces the power of the tests. The interaction between the post-crisis dummy and white or local, as shown in Columns (3) and (4), is not significant, indicating that there is no difference between post-crisis account balances for whites or locals compared to institutions. The point estimate for white accounts is quite negative, but there are only a handful of white depositors in the passbook records, and the difference is dominated by a decrease from one or two accounts.

Overall, we find that institutional accounts, which tend to have a greater need for transactional banking services, appear to keep relatively stable account balances at the start of the panic. This behavior means that organizations provide a certain measure of stability to the bank, but they also represent substantially broader numbers of blacks whose welfare may be indirectly affected by the financial system. This would eventually have catastrophic consequences when the bank failed 9 months later.

### 1.4 Account Closures

Finally, we examine whether the demographic characteristics that appear to make financial participation more resilient to racial unrest also makes depositors less likely to close their accounts before the bank's demise. We also examine whether depositors who opened accounts in the immediate aftermath of racial violence are more likely to stay with the bank until its failure. These questions have importance beyond the initial goal of increased financial participation because they represent a significant weakness in policy initiatives, where groups of minorities that exhibit more societal trust are paradoxically more likely to be harmed by financial fragility and have that trust eroded.

Although we do not have direct records of the closure date for any given account, the final ledger of the dividend payment records provides a comprehensive list of all accounts that were not liquidated prior to the failure of the bank. Importantly, where a set of records exists for a branch, those records are complete. Consequently, if the dividend ledger and a continuously numbered deposit index exists for a given branch, we can be nearly certain that an account which shows up in the index but not the dividend record must have been liquidated in full prior to the failure. Merging the account numbers in this ledger to the record of new accounts creates an indicator for whether the account was closed prior to the failure of the bank in July of 1874. By examining the accounts that were opened in the 9 months before the panic, we can construct a reasonable proxy for those accounts that were closed as part of the run on the bank. We can also examine similar statistics for accounts that were opened after the panic and before the eventual closure of the bank 9 months later.

We focus on records within this 9 month window prior to the bank closure for two reasons. First, since these accounts were opened less than a year prior to the Panic of 1873 and within the calendar year of 1873, the majority of the accounts were unlikely to have been closed out for other economic reasons. Second, the process of merging the deposit indices with the dividend records has an important data limitation. Accounts in the deposit indices are periodically issued new account numbers when the passbook of the depositor becomes full. While the relevant deposit indices are all contiguous from 1873 onward, they often contain large gaps in the years prior. When such a gap exists, it is impossible to distinguish between a closed account and one which has simply been issued a new number since the new passbook record may have occurred in that record gap. This potentially creates a significant sample selection problem as frequent bank users with new account numbers are then more likely to be incorrectly assigned as having closed their account.

For this test, we gather all accounts opened in the 9 months before and 9 months after September 18, 1873, and assign them a value of 1 if they were closed prior to the final failure of the bank at the beginning of July 1874. We then estimate a linear probability model of the probability of closure on the type of account (whether it was an organization or an individual) and on several individual demographic characteristics such as locality, ethnicity, job, and age. The regression model takes the following form:

$$\mathbb{1}_{\text{Closed Account=1}} = \alpha + \beta X_i + BranchFE_i + OccupationFE_i + \epsilon_i \tag{1.4}$$

All regressions contain branch fixed effects. For accounts opened before the panic, the average closure probability is around 40%, and for accounts opened after the panic this probability falls to around 25%. The results are presented in Table 1.4.

**[See Table 1.4]**

As shown in Table 1.4, Columns (1) through (3) show the linear probability of closing an account prior to the bank's failure in July of 1874. This sample includes only accounts opened in the 9 months prior to the Panic of 1873. Columns (4) through (6) show the linear probability of closing an account prior to the bank's failure conditional on the account being opened following the Jay Cooke & Company failure. Columns (1) and (4) show the probability conditional on the account belonging to an organization. For organizational accounts opened prior to the Jay Cooke & Company failure, there is an 8% lower chance of account closure compared to the rest of the sample. For accounts opened after the crisis, there is a 14% lower chance of account closure. This is particularly troubling because these accounts are on average larger than individual accounts, impact a larger number of people, and represent community interests whose need for liquid bank savings is the greatest.

Columns (2) and (5) show the probability conditional on being white and/or local to the area. In both specifications, white depositors are almost 30% more likely to close their accounts than black depositors. However, account holders who were born inside the state are between 5% and 9% less likely to close their accounts. Living in the town in which there is a bank branch is not a predictor of account closure. Columns (3) and (6) show the probability based on age of depositor. Relative to the baseline age (14–19), very young and very older depositors are least likely to close their accounts prior to the failure of the bank. For pre-panic accounts, those ages 47 and up were almost 25% less likely to close their accounts.

**[See Table 1.5]**

In Table 1.5, we show the probability of account closure conditional on job type. The first column contains only accounts opened in the 9 months before the Jay Cooke & Company failure. The second column contains only accounts opened in the 9 months between the Jay Cooke & Company failure and the collapse of the Freedman's Bank. We cluster standard errors at the branch level and include branch fixed effects.

Table 1.5 shows that the global mean for account closure in accounts opened in the 9 months before the crisis is 37%. Accounts opened after the Jay Cooke & Company failure have a substantially lower chance of closing: 25%. This behavior is not consistent across occupational category. For instance, skilled workers are

more likely than average to close their accounts, regardless of when the account was opened. Agricultural workers and the unemployed were less likely to close their accounts.

**[See Table 1.6]**

Finally, in Table 1.6, we examine the account closure probabilities for populations directly affected by the Colfax Massacre.[1] Columns (1) and (2) contain the probability of account closure conditional on the account being opened in the 90 days before or after the Colfax Massacre. Compared to the pre-crisis period, accounts in affected cities are 6% to 7% more likely to be closed before the bank failed in 1874. Data limitations prevent us from performing this test on the earlier incidents of violence because of the limited overlap between violence affected cities and the available dividend ledgers, and because gaps in the deposit record make tracing the final account numbers impossible for a large number of cities in which the incidents occurred years earlier. For those accounts in nearby cities, opened after the Colfax Massacre, these depositors were significantly less likely to close their accounts.

A limitation of our identification of closed accounts means that we cannot measure when the account was closed. The fact that the Colfax Massacre occurred only 5 months before the Panic of 1873, however, and the lack of evidence of account transfers to new cities suggests that these accounts were likely closed around the same time as other accounts. In either case, the depositors who are more hardened to the effects of racial violence also appear to be disproportionately more likely to have wealth destroyed by the eventual failure of the bank.

Columns (3) and (4) of Table 1.6 show the probability of account closure conditional on the account being opened in the 90 days before or after P.B.S. Pinchback attained governorship in Louisiana and the SC declaration of martial law. The results do not show that affected cities have differential chances of closing their accounts prior to the Jay Cooke & Company failure, indicating a differential impact of positive versus negative sociopolitical events on bank participation.

The results here indicate that depositors who are on average more resilient to the threat of racial violence may exhibit more trust in the bank as an institution. They also appear to lack the potential informational advantage exhibited by white depositors. As a consequence, these depositors are significantly less likely to prematurely close their accounts and escape the ultimate failure of the bank. This is particularly problematic to the mission and societal aims of economic integration because the bank's failure is maximally damaging to populations who appear to weather the societal violence that target them.

[1] Gaps in the records make it infeasible to fully extend this analysis to the other much earlier incidents of racial violence because tracing the account to the final passbook ledger requires an unbroken record to account for new numbered passbooks issued to existing depositors.

## 1.5 Conclusion

This chapter examines how events that shape societal trust interact with financial participation and government policy goals of greater financial and economic integration. We document for the first time the chilling effects of violence on financial participation. We examine both negative and positive shocks to black communities in the Reconstruction era South and demonstrate a strong impact on both participation and the demographic profiles of new depositors. First, we show that new account openings fall dramatically in the wake of a race riot and rise along with positive sociopolitical events. We show that depositor demographics for these accounts change to be more white and local following a negative event. Next, we show that whites and well-educated blacks are most likely to close their accounts prior to the bank's failure and that churches and civic groups, along with older and more local blacks, are less likely to close their accounts. Finally, we show that accounts opened directly following race riots were less likely to close before the bank failed.

Our results demonstrate the persistent and negative impacts of racial violence on minority participation in financial markets, both in the direct contribution to decreased utilization of the bank in the aftermath of such an event and also in the persistence of participation when negative information about the bank arises. This has a unique differential effect on the types of minority depositors who will sustain financial participation during periods of racial unrest, an effect that also has negative unintended consequences in the event of a financial failure.

### 1.6 Tables and Figures

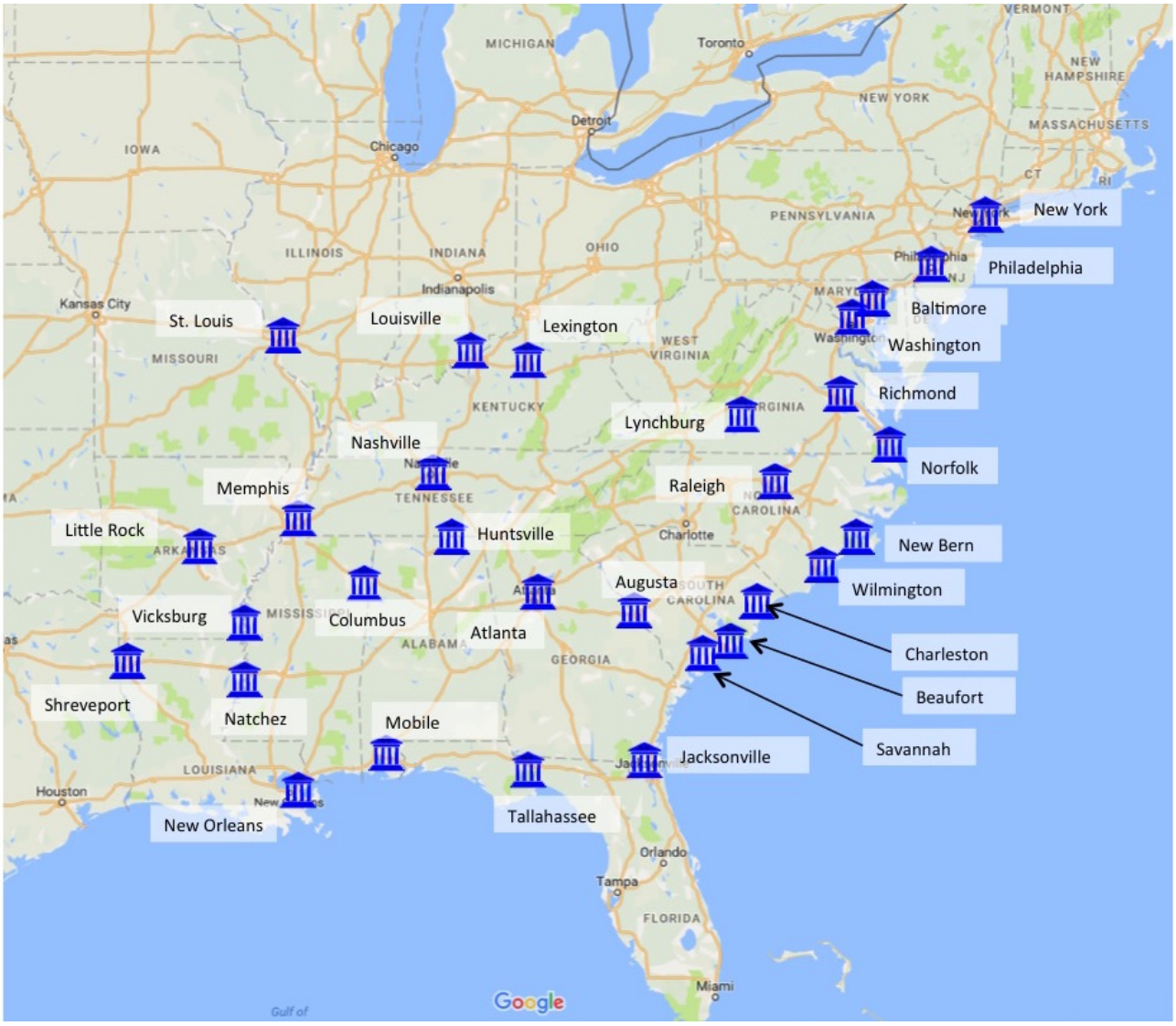


**Figure 1.1.** Maps of Freedman's Bank Branch Locations

Indices to new accounts contain four entries per page (eight when photographed as an open book). Each entry contains the account number, the depositor name, and biographical information related to each depositor such as age, residence, occupation, and skin color. The completeness of these entries varies by branch and by entry.

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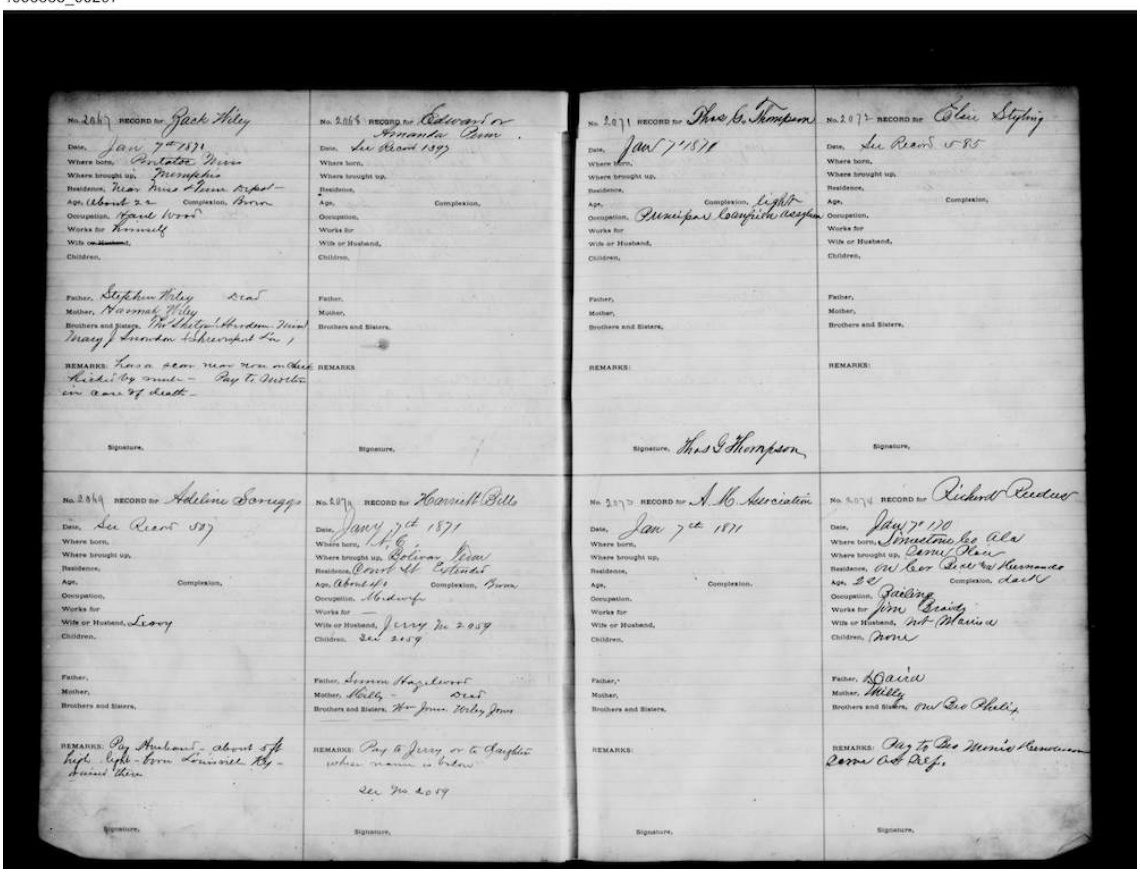


**Figure 1.2.** Indices to New Accounts

The left page contains deposit and withdrawal transactions made by the passbook holder. The right side of the page and below the transaction contains information written by staff handling the disbursement of dividends following the bank's failure. We retain only transaction data and not information related to dividend payment.

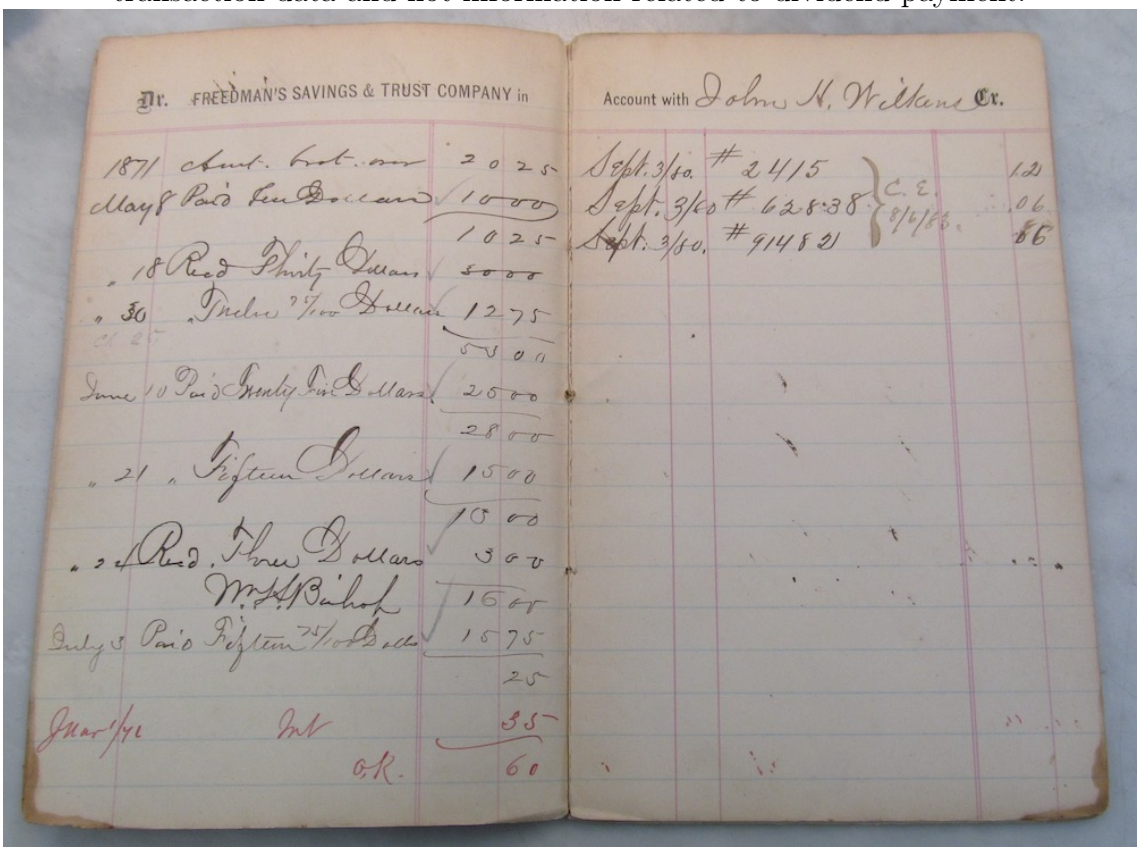



**Figure 1.3.** Passbook Contents

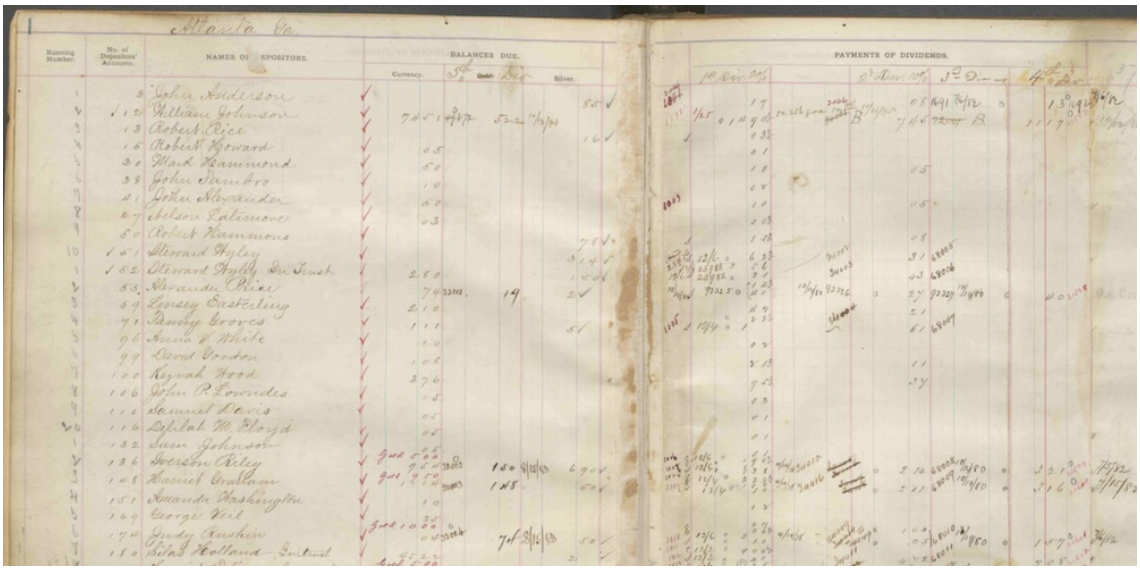
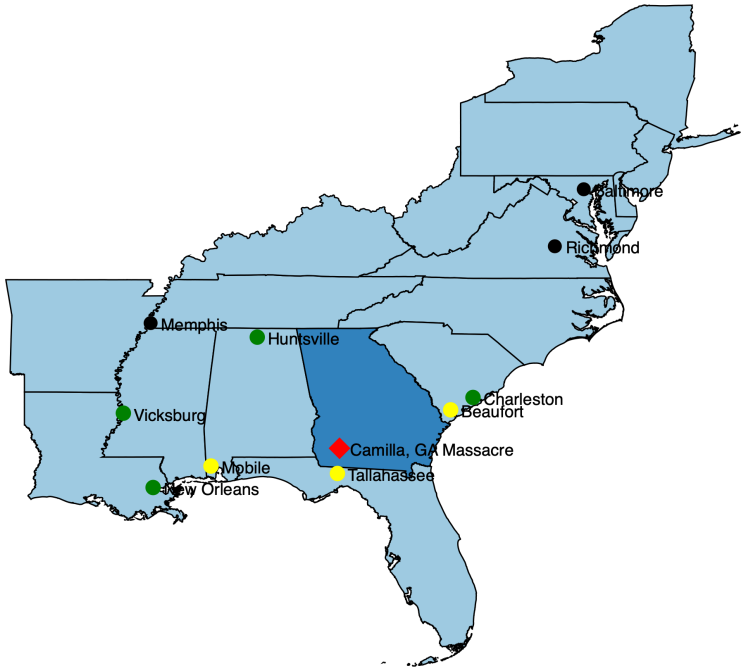
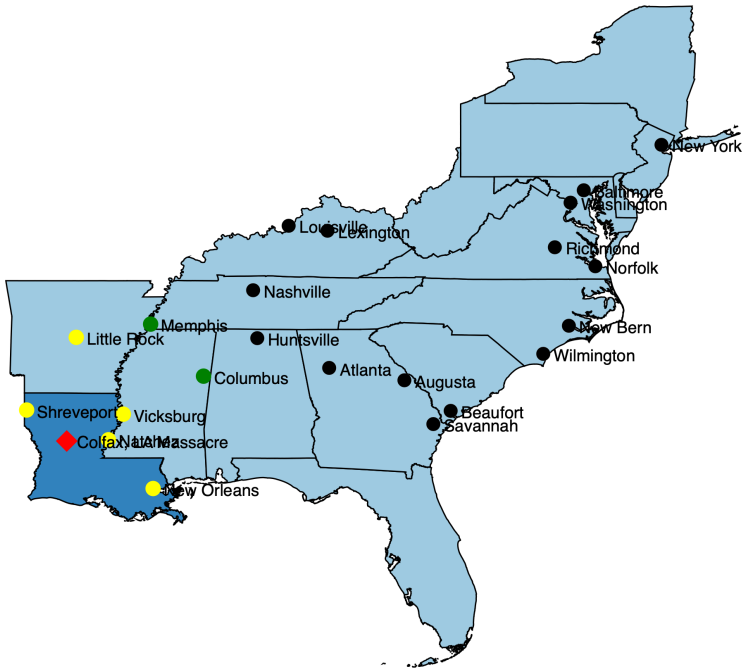



**Figure 1.4.** Dividend Repayment Ledger Page



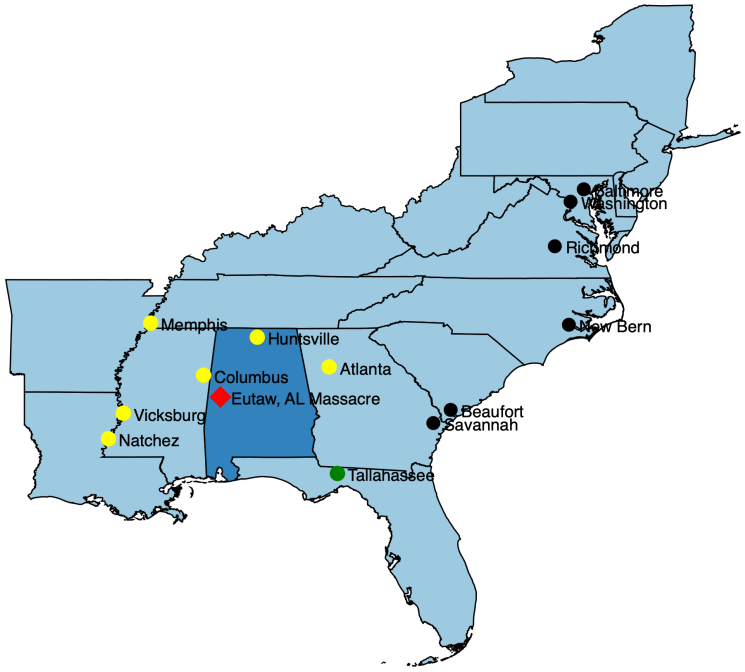

**(a)** Camilla, GA Massacre



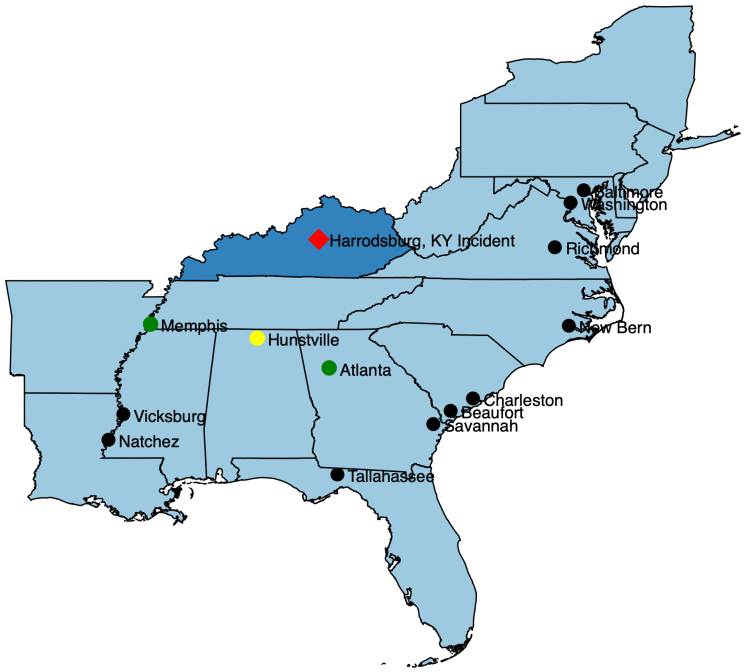

**(b)** Colfax Massacre

For each event, we show the branches in each test and the location of the event. The state in which the event occurred is shaded in dark blue. The branches within 250 miles of the event are highlighted in yellow circles. Branches within 400 miles of the event are green circles. The location of the event is a red diamond. Branches that are outside of a 400 mile radius are black circles.

**Figure 1.5.** Location of Violent Events Relative to Branches



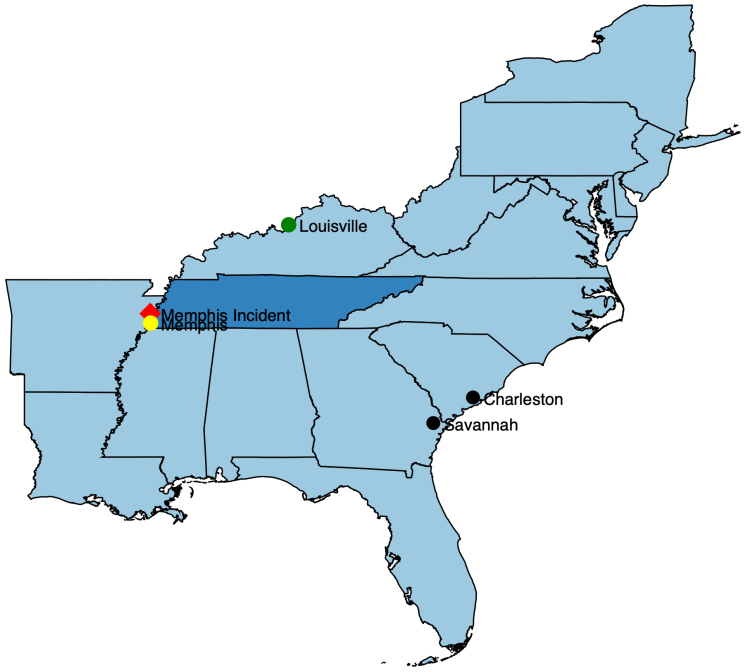

**(c)** Eutaw, AL Massacre



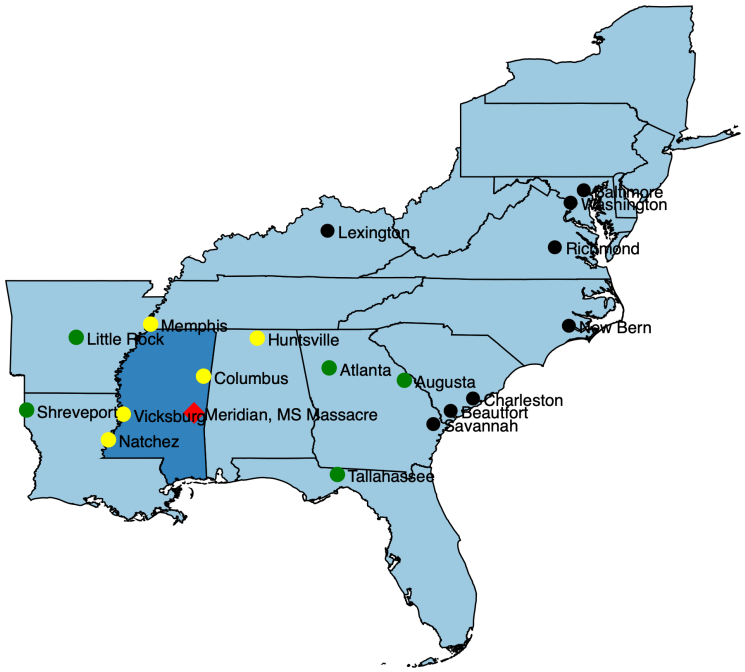

**(d)** Harrodsburg, KY Riot

For each event, we show the branches in each test and the location of the event. The state in which the event occurred is shaded in dark blue. The branches within 250 miles of the event are highlighted in yellow circles. Branches within 400 miles of the event are green circles. The location of the event is a red diamond. Branches that are outside of a 400 mile radius are black circles.

**Figure 1.5.** Location of Violent Events Relative to Branches



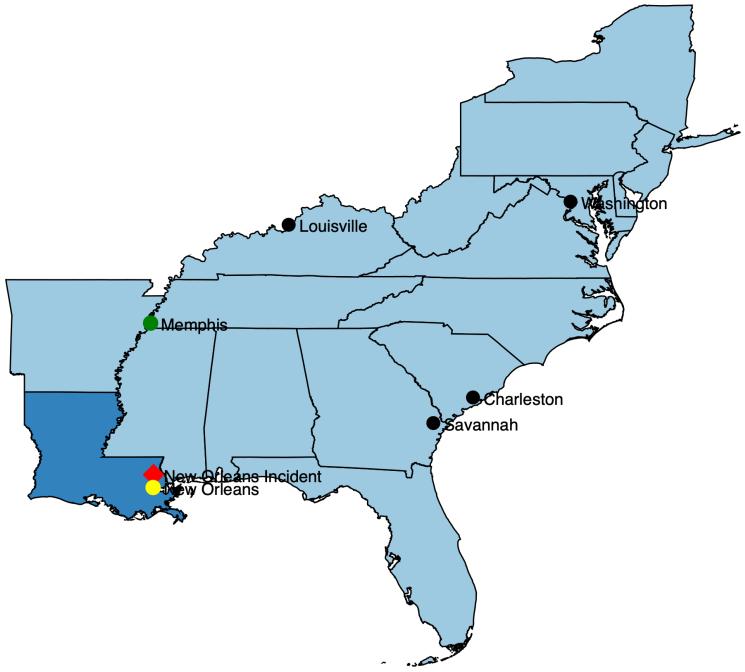

**(e)** Memphis, TN Race Riot



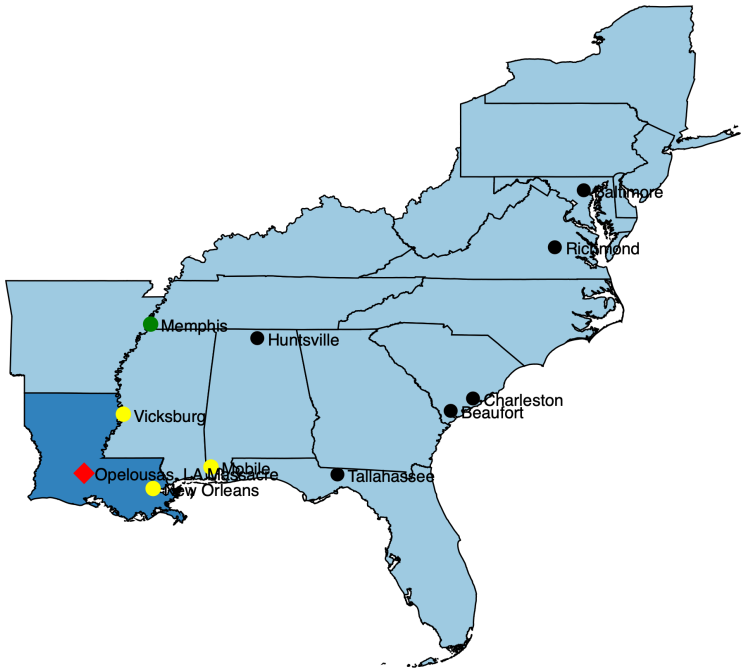

**(f)** Meridian Race Riot

For each event, we show the branches in each test and the location of the event. The state in which the event occurred is shaded in dark blue. The branches within 250 miles of the event are highlighted in yellow circles. Branches within 400 miles of the event are green circles. The location of the event is a red diamond. Branches that are outside of a 400 mile radius are black circles.

**Figure 1.5.** Location of Violent Events Relative to Branches



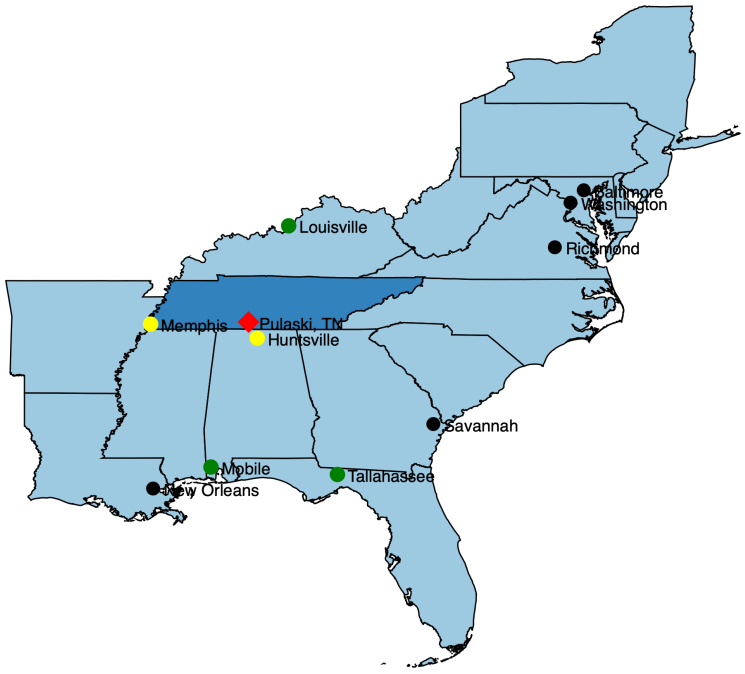

**(g)** New Orleans Massacre




**(h)** Opelousas, LA Massacre

For each event, we show the branches in each test and the location of the event. The state in which the event occurred is shaded in dark blue. The branches within 250 miles of the event are highlighted in yellow circles. Branches within 400 miles of the event are green circles. The location of the event is a red diamond. Branches that are outside of a 400 mile radius are black circles.

**Figure 1.5.** Location of Violent Events Relative to Branches




**(i)** Pulaski, TN Race Riot

For each event, we show the branches in each test and the location of the event. The state in which the event occurred is shaded in dark blue. The branches within 250 miles of the event are highlighted in yellow circles. Branches within 400 miles of the event are green circles. The location of the event is a red diamond. Branches that are outside of a 400 mile radius are black circles.

**Figure 1.5.** Location of Violent Events Relative to Branches

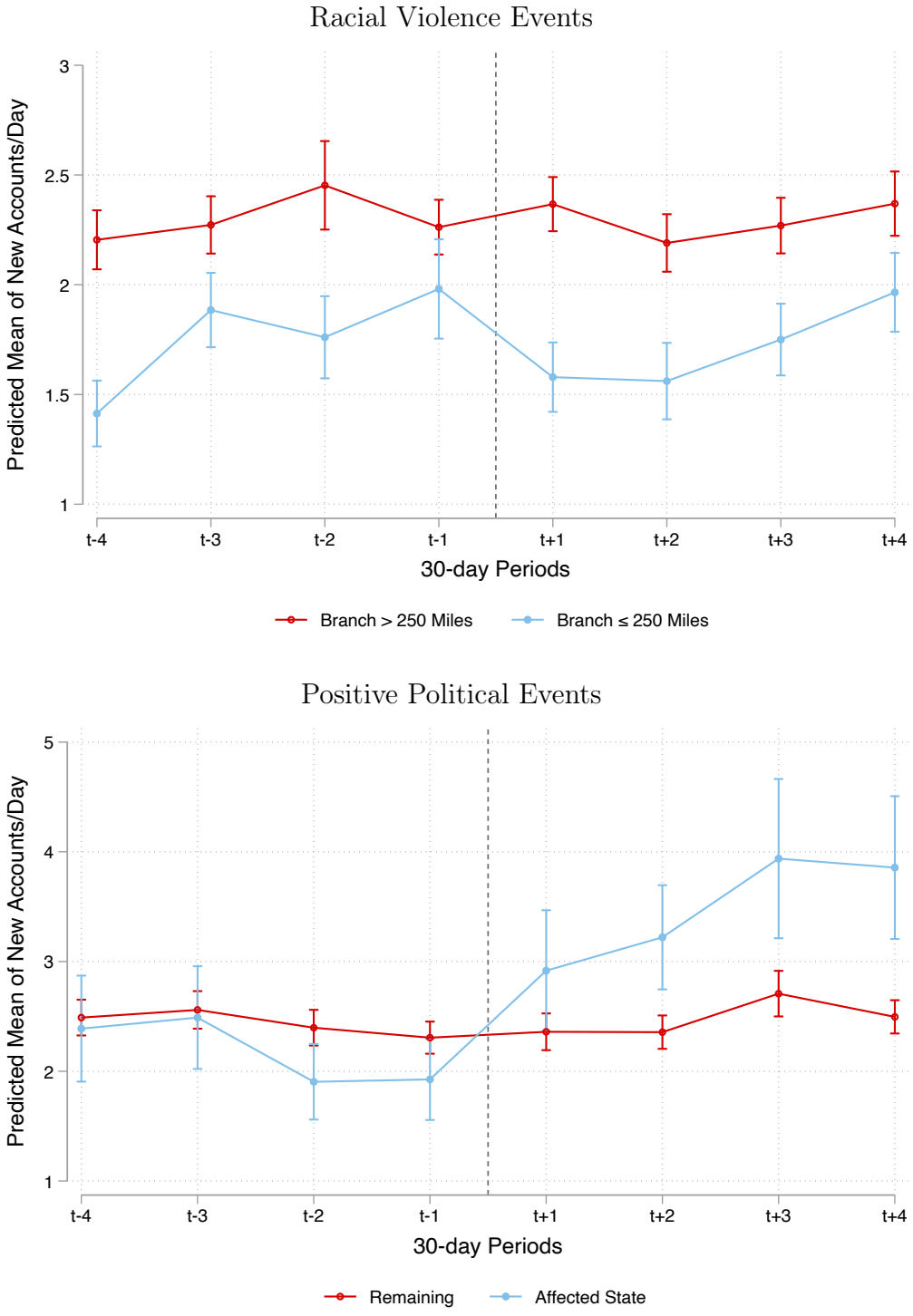



**Figure 1.6.** Parallel Trends Graph

Each line represents the cumulative number of new accounts for each of the 21 branches for which we have reliable records across the 180 day event window.

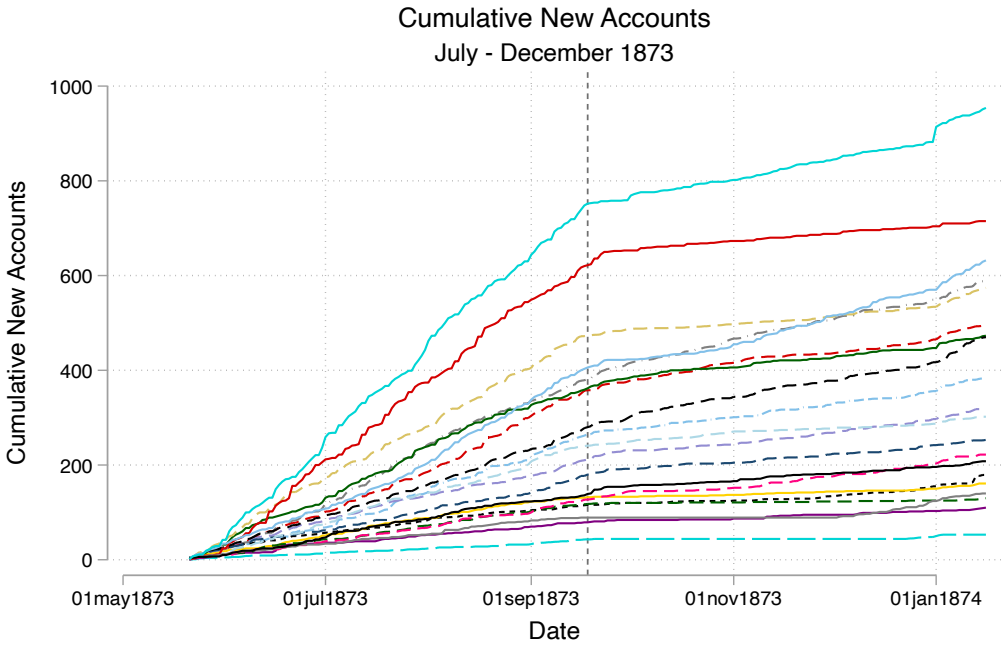



**Figure 1.7.** Cumulative New Accounts Surrounding Jay Cooke Failure

Each line represents the cumulative number of new accounts scaled by the number of accounts present on June 18, 1873. The curvature of the pre-event line represents the variation in relative arrival rates prior to the failure of Jay Cooke & Company and the slope and curvature of the post-event line represents change in the mean arrival rate and its daily variation post failure.

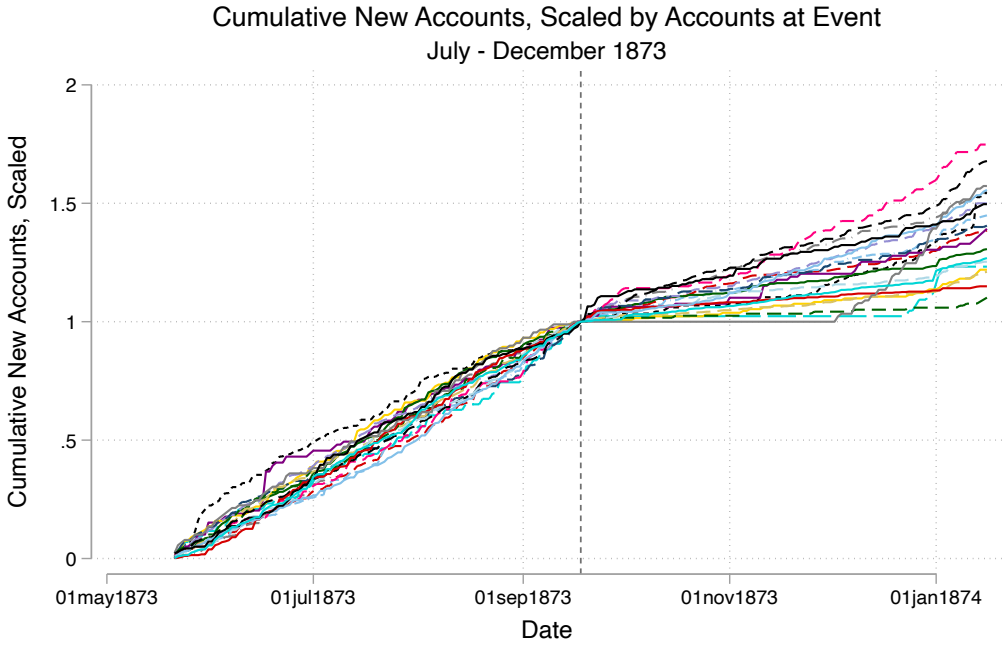



**Figure 1.8.** Cumulative New Accounts Surrounding Jay Cooke Failure - Normalized

The top figure shows the average percentage of white depositors at each branch in the months before and after the failure of Jay Cooke & Company. The bottom figure displays the average percentage of depositors who are born and/or raised in the same state as the branch. The x axis shows days before and after the Jay Cooke failure and the start of the Panic of 1873. The error bars indicate plus or minus 2 standard errors.

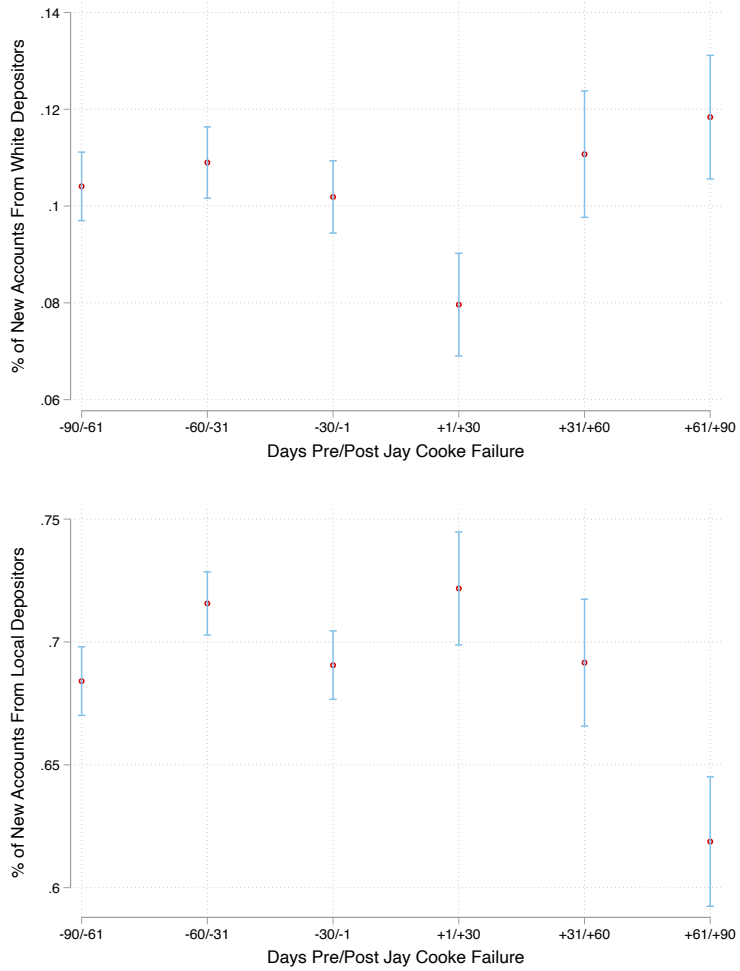



**Figure 1.9.** Depositors Characteristics Before and After the Jay Cooke Failure

**TABLE 1.1.** Account Behavior Before and After Incidents of Racial Violence and Sociopolitical Change

Columns (1) and (2) report the results of a Poisson model estimating the number of new accounts opened each day in the 30 days before and after the largest high profile incidents of racial violence during the period. Columns (3) and (4) also use a Poisson model estimating the number of new accounts opened each day in the 30 days before and after to show the impact of positive sociopolitical events on depositor behavior. *City <250mi* is a dummy that takes a value of 1 for branches within 250 miles of the event. *Affected state* is a dummy that takes the value of 1 for branches located in the same state as, and are geographically closest to, the incident. *Primary Bank* is a dummy that takes the value of 1 if the branch is the closest branch to the incident. Exponentiated coefficients are reported, such that each coefficient represents the increase or decrease (relative to 1) in new account arrival with respect to the coefficient. All models contain event-branch fixed-effects, and standard errors are clustered at the branch level.

| | (1) New accounts opened | (2) New accounts opened | | (3) New accounts opened | (4) New accounts opened |
|---|---|---|---|---|---|
| Post Event | 1.037 | 1.079** | Post Event | 1.022 | 1.023 |
| | (1.05) | (2.37) | | (0.38) | (0.39) |
| Post × City <250mi | 0.784*** | | Post × Affected State | 1.484*** | |
| | (-3.26) | | | (3.27) | |
| Post × City <400mi | | 0.770*** | Post × Primary Bank | | 1.631*** |
| | | (-4.08) | | | (4.16) |
| Observations | 5496 | 5496 | Observations | 1938 | 1836 |
| | Event Coefficients | | | Event Coefficients | |
| Memphis, TN - 5/1/66 | 0.931 | 0.246 | Martial Law in SC | 1.439 | 1.572 |
| New Orleans, LA - 7/7/66 | 0.707 | 0.765 | Pinchback Election in LA | 1.615 | 1.765 |
| Pulaski, TN - 1/7/68 | 0.680 | 0.612 | | | |
| Camilla, GA - 9/19/68 | 0.586 | 0.749 | | | |
| Opelousas, LA - 9/28/68 | 0.551 | 0.582 | | | |
| Harrodsburg, KY - 8/6/70 | 0.772 | 0.926 | | | |
| Eutaw, AL - 10/25/70 | 0.844 | 0.821 | | | |
| Meridian, MS - 3/8/71 | 0.848 | 0.813 | | | |
| Colfax, LA - 4/13/73 | 0.790 | 0.781 | | | |

Exponentiated coefficients; $t$ statistics in parentheses

**TABLE 1.2.** Daily New Accounts Before and After Jay Cooke Failure (-30,30)

This table reports the results of a negative binomial model estimating the number of new accounts opened each day in the 30 days before and after the Jay Cooke & Company failure on September 18, 1873. Model (2) restricts the sample to large branches of over $100,000 in deposits. Model (3) counts only new deposits from white depositors for each branch. Model (4) counts only new deposits from local depositors born and/or raised in the same state as the branch location. The remaining models contain the full sample from Model (1). *New York Branch* is a dummy taking on a value of 1 for the New York Branch. *Distance to NY* is the distance of the branch city to New York in 1000s of miles. *High Δ Black-White Pop Growth* is an indicator for if the difference in black population growth relative to white population growth for the county in which the branch operated is above the median. Exponentiated coefficients are reported, such that each coefficient represents the increase or decrease (relative to 1) in new account arrival with respect to the coefficient. All models contain branch fixed-effects, and standard errors are clustered at the branch level.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Post Event | 0.360*** | 0.375*** | 0.286*** | 0.367*** | 0.343*** | 0.469*** | 0.507*** |
| | (-7.50) | (-5.34) | (-3.93) | (-6.77) | (-7.65) | (-2.68) | (-4.43) |
| Post Event × New York Branch | | | | | 1.808*** | | |
| | | | | | (4.24) | | |
| Post Event × Distance to NY (1000 miles) | | | | | | 0.614 | |
| | | | | | | (-1.18) | |
| Post Event × High Δ Black-White Pop Growth | | | | | | | 0.546*** |
| | | | | | | | (-2.94) |
| Observations | 1092 | 572 | 1092 | 1092 | 1092 | 1092 | 1092 |
| Branch FE | Y | Y | Y | Y | Y | Y | Y |

Exponentiated coefficients; $t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE 1.3.** Log Average Balance Regressions for Before and After the Jay Cooke Failure

This table reports the results of a fixed-effects regression of the log balance held in accounts from the month prior to the Jay Cooke & Company failure to one month after. $\theta$ takes the value of 1 in Columns (2), (3) and (4) whenever the account is for an *Institution*, a *White* depositor, or a *Local* depositor, respectively. All specifications contain individual-level depositor fixed effects. Standard errors are clustered at the branch level.

| | (1) Baseline | (2) $\theta$=Institution | (3) $\theta$=White | (4) $\theta$=Local |
|---|---|---|---|---|
| JCF+1M | -0.0844*** | -0.0891*** | -0.0911* | -0.0932 |
| | (-4.58) | (-4.54) | (-1.77) | (-1.55) |
| JCF+1M $\times$ $\theta$ | | 0.0802** | -0.276 | 0.0112 |
| | | (2.61) | (-1.65) | (0.11) |
| Constant | 2.183*** | 2.183*** | 1.919*** | 1.992*** |
| | (236.74) | (236.51) | (78.66) | (82.61) |
| Observations | 742 | 742 | 270 | 276 |
| Individual FE | Yes | Yes | Yes | Yes |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE 1.4.** Probability of Closing Account Prior to the Bank Failure

This table presents the results of a linear probability model where the dependent variable is 1 when the account was closed before the failure of the bank and 0 if the account remained at the time of the failure. Pre-panic accounts were opened in 1873 in the 9 months before the failure of Jay Cooke & Company, and post-panic accounts were opened in the 9 months after the failure. Columns (1) and (4) test the probability that organizations such as churches closed their accounts. Columns (2) and (5) test whether being white and/or local changes the probability of account closure. Columns (3) and (6) test the impact of age on the probability of account closure. Standard errors are clustered at the branch level, and all regression contain branch fixed effects.

| | Pre-Panic Accounts | | | Post-Panic Accounts | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Institution | -0.0836*** | | | -0.141*** | | |
| | (-3.02) | | | (-3.34) | | |
| Born/Raised in State | | -0.0908*** | | | -0.0530*** | |
| | | (-4.90) | | | (-4.86) | |
| Residence In-Town | | 0.00867 | | | -0.00289 | |
| | | (0.66) | | | (-0.15) | |
| White | | 0.294*** | | | 0.297*** | |
| | | (5.32) | | | (4.95) | |
| Age (Baseline 14-19) | | | | | | |
| 0-13 | | | -0.147*** | | | -0.0761*** |
| | | | (-5.96) | | | (-3.15) |
| 20-22 | | | -0.0285 | | | 0.000810 |
| | | | (-1.21) | | | (0.04) |
| 23-25 | | | -0.0588** | | | -0.0572* |
| | | | (-2.87) | | | (-1.98) |
| 26-30 | | | -0.111*** | | | -0.0349 |
| | | | (-3.61) | | | (-1.31) |
| 31-36 | | | -0.156*** | | | -0.0472* |
| | | | (-6.37) | | | (-2.09) |
| 37-46 | | | -0.198*** | | | -0.103*** |
| | | | (-8.01) | | | (-3.75) |
| 47-100 | | | -0.248*** | | | -0.141*** |
| | | | (-10.03) | | | (-4.62) |
| Constant | 0.400*** | 0.388*** | 0.492*** | 0.264*** | 0.295*** | 0.305*** |
| | (282.17) | (13.88) | (31.91) | (139.48) | (6.75) | (26.11) |
| Observations | 7625 | 6152 | 5947 | 3794 | 3119 | 2973 |
| Adjusted $R^2$ | 0.038 | 0.079 | 0.055 | 0.072 | 0.115 | 0.076 |
| Job Category FE | N | Y | Y | N | Y | Y |
| Branch FE. | Y | Y | Y | Y | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE 1.5.** Conditional Probability of Account Closure by Job Type

This table presents the conditional probability of account closure for each job classification. Each category represents the probability of closure conditional on job type after controlling for branch fixed effects, locality, and race in models (2) and (4) from Table 1.4.

| | Pre-Panic Accounts | Post-Panic Accounts |
|---|---|---|
| unclassified | 0.358 | 0.281 |
| | (0.0181) | (0.0206) |
| agriculture | 0.268 | 0.190 |
| | (0.0124) | (0.0262) |
| construction | 0.359 | 0.279 |
| | (0.0534) | (0.0554) |
| domestic | 0.281 | 0.210 |
| | (0.0225) | (0.0274) |
| educator | 0.511 | 0.248 |
| | (0.108) | (0.0950) |
| factory | 0.447 | 0.181 |
| | (0.0158) | (0.0487) |
| religious | 0.417 | 0.0601 |
| | (0.0897) | (0.0556) |
| sales | 0.361 | 0.153 |
| | (0.0885) | (0.0565) |
| service | 0.398 | 0.248 |
| | (0.0162) | (0.0298) |
| skilled | 0.457 | 0.371 |
| | (0.0577) | (0.0674) |
| student | 0.330 | 0.267 |
| | (0.0153) | (0.0358) |
| trades | 0.423 | 0.244 |
| | (0.0198) | (0.0255) |
| transportation | 0.458 | 0.236 |
| | (0.0184) | (0.0443) |
| unemployed | 0.286 | 0.191 |
| | (0.0242) | (0.0180) |
| unskilled | 0.430 | 0.248 |
| | (0.0213) | (0.0250) |
| global mean | 0.374 | 0.248 |

Standard errors in parentheses

**TABLE 1.6.** Probability of Account Closure for Politically Impacted Groups

This table presents the results of a linear probability model where the dependent variable is 1 when the account was closed before the failure of the bank and 0 if the account remained at the time of the failure. The sample consists of all new accounts that were opened at any bank 90 days before to 90 days after the Colefax Massacre and the political events of the imposition of martial law in South Carolina and the governorship of P.B.S. Pinchback. Affected cities are those within 250mi of the Colfax Massacre and those in South Carolina or Louisiana in the 90 days before and after the event.

| | Pr(Account Closure\|Colfax Massacre) | | Pr(Account Closure\|Protections) | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Post Event Account | -0.00564 | -0.00975 | -0.0270 | -0.0238 |
| | (-0.26) | (-0.64) | (-1.40) | (-1.32) |
| Affected City | 0.0295 | | 0.0807* | |
| | (0.72) | | (2.00) | |
| Post Event Account | -0.0649** | -0.0729*** | 0.0273 | 0.0255 |
| × Affected City | (-2.57) | (-3.65) | (1.23) | (1.17) |
| Constant | 0.410*** | 0.416*** | 0.517*** | 0.524*** |
| | (13.03) | (67.85) | (16.48) | (65.43) |
| Observations | 3420 | 3420 | 7407 | 7407 |
| $R^2$ | 0.062 | 0.099 | 0.057 | 0.111 |
| Bank FE | N | Y | N | Y |
| Demographic FE | Y | Y | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

# 2.0 A TALE OF TWO CITIES: THE RURAL-URBAN DIVIDE IN BANKING

## 2.1 Introduction

Financial intermediation critically depends on the intermediary's ability to enable risk-sharing across different agents in an economy. As such, economic forces that improve risk-sharing are of first-order importance to policy makers and academic researchers. In the typical Diamond and Dybvig (1983) model, consumers split the surplus from sharing their liquidity risk via a bank. Further, government deposit guarantees can achieve optimal consumer surplus by preventing runs and ensuring that depositor liquidity needs are met.

Does the presence of deposit insurance guarantee participation and risk-sharing across all consumers? Or are there significant impediments to participation for different populations, even when deposit insurance is ubiquitous? A 2019 FDIC report entitled "How America Banks" found that "Don't trust banks" was cited by approximately one-third of unbanked households as the main reason for not having an account and was the second-most cited main reason (Federal Deposit Insurance Corporation, 2019). A lack of participation by consumers clearly impedes optimal risk-sharing. Trust in banks and financial markets in general has been an important topic during the 2008 financial crisis and in terms of improving financial participation (Sapienza and Zingales, 2012).

This trust is most important in disenfranchised communities, who are more likely to benefit from higher participation in financial markets. These rural communities have been described as politically and culturally alienated from mainstream America (Bishop (2016), Kaufman (2019)). This alienation manifests as both decreased political and financial participation. In particular, an important dimension that has not been studied is the impact of trust on rural areas in the United States. These areas are at risk for low financial participation because of a lack of trust in financial institutions in their communities.

Studying banking in rural settings is important because of the unique needs of these populations. Rural Americans constitute about 15% of the population but are disadvantaged compared to urban America. A 2018 Census report showed that median household income in rural counties was $44,000 compared to almost $50,000 in urban counties (United States Census, 2018). This income gap is also correlated with a number of other factors, such as education and health. In 2019, 34.7% of the urban population had a bachelor's degree or higher compared with only 21% of the rural population. Similarly, urban populations outstrip

their rural counterparts in access to hospitals and disease management. Since 2005, 180 rural hospitals have closed (Ellison, 2021), forcing rural residents to drive sometimes hours to receive routine and emergency medical care. At the same time, rural areas also have more problems with disease (National Rural Health Association, 2021). The Centers for Disease Control and Prevention (CDC) notes that rural Americans are more likely to die from heart disease, cancer, stroke and accident than their urban counterparts (Centers for Disease Control, 2017).

The widespread disparities in socioeconomic outcomes across rural and urban populations raise an important question about participation in financial markets: Does rural America receive the same access to deposit markets as urban America? In this paper, I study this question using the topics of deposit rates paid by banks in rural versus urban markets. I document the segmentation of rural and urban banking markets, and I test the impact of trust on rural certificate of deposit (CD) rates. In particular, I use the CD market to understand the differences between rural and urban banking.

The CD market is unique and well suited for studying the rural-urban divide because CDs in the United States are insured up to $250,000 per depositor. Therefore, CD prices are not based on credit worthiness of the depositor. Rather, in a world with deposit insurance and full information, CD prices should be the same across all banks. Second, CDs are a common product for both urban and rural retailing banking customers, with which most depositors are familiar. CD rates should follow a typical term structure, including a maturity-matched, risk-free rate. Absent some friction, these rates should be the same in urban and rural counties because the low-rate depositors could simply take their money to a bank branch in a high-rate area and receive a better rate. All CDs, even those from risky banks, should have the same rate.

To test this, I use the RateWatch data set, which contains advertised CD rates at the bank, denomination, and maturity levels for over 8,000 banks in the United States from 2001 to 2019. This data provides an ideal setting to test the impact of socioeconomic factors on bank-rate setting. Furthermore, this setting also covers a wide range of years and geographic locations, allowing me to isolate the effects of several competing explanations.

I first show that CD term structure is upward sloping with maturity, and that the maturity matched Treasury yield has a coefficient of about 27%, suggesting that banks do not pass through all of the corresponding risk-free rate to depositors, which is similar to the result in Drechsler et al. (2017). Further, my most important finding is that, despite the popular notion that rural areas are left behind, CD rates are actually 17% higher in rural areas, suggesting that depositors in rural areas actually receive a much better deal than urban depositors. The result is robust to the inclusion of state and year fixed effects. I find that the effect is across banks, rather than within bank, suggesting that banks that tend to locate in rural areas set their CD rates higher than banks in urban areas.

Then I use the variation in trust in banks, as measured by the consumer opinion analytics firm, Gallup,

to show that the effect is stronger in rural areas during low-trust years, suggesting that rural depositors were more distrustful of banks during the Great Recession. I use the variation in financial sophistication across rural areas to show that the effects are stronger in rural areas where depositors are less financially sophisticated. The result is that low-sophistication rural counties during the Great Recession experienced a 5% increase in CD rates compared with their most sophisticated urban counterparts. This triple interaction is robust to a variety of controls, including size of the bank and local income growth, indicating that the rural CD rate premium is explained by differences in financial sophistication and trust in markets.

I test a variety of alternative channels that could potentially be driving my result. First, I show that my result is not explained by differences in bank size, local competition, local income growth, bank overhead, and bank deposit size across rural and urban markets. Second, I show that my results are not driven by higher impatience of rural depositors, which would manifest itself via increased CD rates for longer maturity CD's. Rather, I show that, compared with urban depositors, rural depositors are actually more patient than their urban counterparts: the difference in CD rates is a level difference rather than a slope. Finally, I use the shale oil boom in (Gilje et al., 2016) as an exogenous shock to the supply of local capital and investigate whether it has an effect on CD rates. I find that relaxation of financial constraints does not impact CD rates in oil-boom-shocked counties.

In the last section of the paper, I test the impact of higher CD rates on borrowing rates at the same branch. Using RateWatch loan data for four common products (personal unsecured credit, 30-year mortgages, new auto loans, and business loans), and I find evidence suggesting that rural banks charge higher loan rates than urban banks. However, controlling for the CD rate eliminates the result, suggesting that rural banks pass through high CD rates in the form of higher loan rates.

My paper is tied to prior research into deposit rate setting. Papers like Hannan (1991), Ben-David et al. (2017), and Gambacorta (2008) attempt to explain deposit rates as functions of market structure and loan demand. Drechsler et al. (2017) show that bank deposit rates do not move in tandem with Fed funds rates. Although these papers further the literature on deposit rates in general, there are no papers on the rural and urban divide in CD rates.

My paper is also loosely tied to literature on discrimination in financial markets. For example, Butler et al. (2021) finds that minorities face higher rejection rates for auto loans, along with higher rates when approved. This discrimination often targets consumers with low financial sophistication. Gurun et al. (2016) shows that subprime lenders target consumers with low financial sophistication when selling higher priced mortgages. Begley and Purnanandam (2021) find that consumer complaints are higher in areas with larger minority shares. Bartlett et al. (2019) show that the cost of increased interest rates paid by minority borrowers compared with credit-risk-matched non-minority borrowers is on the order of $450 million annually. Carlin (2009) explains why such targeting of financially unsophisticated consumers persists; violations of the

law of one price occur when firms target low sophistication consumers with complex prices. Such complex prices make it difficult for consumers to understand product offerings and allow firms in competitive markets to price above marginal cost and extract rents.

In light of these papers, my results appear paradoxical because disadvantaged rural areas receive higher CD rates that urban CD investors, especially during times of financial crisis. However, I show that the cost of these high CD rates is correlated with higher borrowing rates in rural areas.

Finally, my paper is related to the literature of trust in financial markets. Sapienza and Zingales (2012) show that lack of trust is correlated with lower investments in the stock market. Similar literature in marketing shows that trust in the banking system is most impacted by integrity, with transparency, customer orientation, and competence also positively correlated with trust (van Esterik-Plasmeijer and van Raaij, 2017). Further research shows that personal experiences of a bank failure impact trust in banks in general, and that these declines in sentiment are long-lasting (van der Cruijsen et al., 2016).

My results speak to the growing divide between rural and urban America, specifically as it relates to banking segmentation. My work highlights an important aspect of financial market integration that is overlooked in traditional literature. In traditional banking models, participation in depository institutions is beneficial to all individuals. However, the gains from this surplus are likely unevenly distributed in the real world. Banking policies related to equity, especially when it comes to wealth building and access to finance, are becoming a more important topic in national discourse. If the goal of policy makers is to help make the banking system more fair and equitable, then understanding the causes of differential rate setting across banks in rural areas is an important piece of the puzzle.

### 2.2 Data

My data comes from several sources. First, I use the Ratewatch.com CD rates from the United States between 2001 and 2019. I pair this with FDIC Summary of Deposit and Call Report data from the same years. I specifically focus on CD deposits and loan rates. I also use the 2010 Census estimate for the percent of population considered rural or urban in each county. This designation is based on criteria developed by the Census and is available every 10 years, with the latest version being part of the 2020 Census and not yet publicly available. The classification includes an estimate of total population in each county that lives in a rural or urban area.

In Table 2.1, I show information about the CD data. After screening for the most common maturities, I am left with over 7 million observations at the CD, bank, branch, maturity, denomination, month and year levels. For each observation, I have information maturity match to the Treasury yield for each month in my sample. For banks that report rates multiple times a month, I average the reported CD rate for each combination of maturity and denomination.

The data represent a large and robust picture of CD rates in the United States during the past 20 years. The data also spans a large set of geographic locations, representing both very urban and very rural banks.

**[See Table 2.1]**

As shown above, my sample contains over 7 million CD rate observations for almost 9,000 banks across 17,000 branches. The data span 2,700 counties. The average bank in my sample has a deposits-to-assets ratio of 0.81, and CD capital accounts for approximately 26% of assets for banks in my sample. On average, counties in the sample are 36% rural. At the 75th percentile, almost 60% of a county's population is considered rural.

In Figure 2.1, I show the average difference between the highest 10% of CD rates and the lowest 10% of CD rates for a CD with a one-year maturity and a denomination of between $10k and $25k. The result shows a persistent difference between the two, with a larger gap as rates get closer to 0% in the latter half of the sample.

**[See Figure 2.1]**

### 2.2 CDs as Investments

CDs, or time deposits, are a common investment product for many retail depositors. In exchange for having access to the depositor's funds for a set period of time, banks promise depositors a return that is slightly higher than a savings or checking account. For instance, a 6-month CD may pay 1% interest, whereas a checking account may pay only 0.5%. However, in return, the depositor does not have access to the funds for 6 months. Depositors who cash in their CDs early face prepayment penalties that are usually a function of the CDs interest rate. Most CDs have maturities of 6, 12, 24, and 60 months, with 12 months being the most common CD maturity in my sample.

CDs are considered good investments for consumers who want to keep relatively liquid funds and earn a higher return than a savings account but with lower risk than the stocks or bonds (Gran, 2020). Finally, CDs held at FDIC insured banks are insured up to $250,000 per depositor, making CD investment virtually free of default risk for most retail investors.

According to the 2019 Survey of Consumer Finances, about 10% of respondents owned CDs. Of those who own CDs, the average number of CDs was 3, and the 50th percentile CD amount was $60,000. Seventy-five percent of people who reported owning CDs owned only one CD, and at the 95th percentile, consumers still used only 3 banks for their CD investments. Of those who owned CDs, about 63% were held by commercial banks.

The advantages of using CD rates to study rural and urban deposit markets are many. First, because CDs are purchased with the explicit intention that the money not be used for the depositor for a set amount

of time, CDs do not suffer from the same liquidity pressures as a typical checking or savings account. Second, compared to other account types like money markets or checking accounts, CDs have discrete maturities that make them ideal for testing consumer impatience and APY term structure. Third, as an insured product, CDs should not be subject to any kind of monitoring or credit concerns on the part of the consumers. Banks with risky balance sheets should offer the same rate as banks using safe investments. Finally, CDs, as shown above, are a ubiquitous product, with which most retail depositors are familiar.

### 2.2 Rural Areas

Every 10 years, the United States Census releases an estimate of population considered rural at the county level. The definition of "rural" is based on several factors related to land characteristics, population density, and distance to major urban centers. As of the 2010 Census, approximately 17% of United States residents were classified as living in rural areas.

**[See Figure 2.2]**

In Figure 2.2, I show the percent rural population of the United States by county compared with the average APY of a one-year CD with denominations between $10k and $25k. The majority of the rural population in the United States is concentrated in the Great Plains, with some areas along the Appalachian mountains also being highly rural. With the exception of northern areas like Maine, the APY and rural population maps appear to greatly overlap.

In Table 2.2, I divide United States counties into 4 quartiles, with the leftmost column being most urban and the rightmost column being most rural. As the table shows, rural areas tend to be more white than urban areas. They also tend to lag urban areas on most measures of well-being. Rural areas have lower education, have lower mean and median income, and are also older than urban areas.

**[See Table 2.2]**

Rural and urban areas do not just differ along education and income dimensions. Rather, rural areas tend to suffer from persistent health and social problems. First, rural areas have long suffered from population decline. Although these trends briefly reversed in 2016, the growth of rural areas has been modest compared to urban areas (ERS, 2019). Second, rural areas lag urban in salary and wage growth, with urban areas growing at more than three times the rate of rural areas (United States Department of Agriculture, 2019). This has resulted in so-called "rural brain drain," whereby fewer college students remain in their small towns after completing their degrees (CBS News, 2019).

Furthermore, rural areas suffer from medical problems at much higher rates than urban areas. Rural areas have a higher prevalence of obesity (34.2 percent) than urban areas (28.7%) (Centers for Disease

Control, 2018). More rural Americans suffer from chronic diseases. In 2016, almost 27% of rural Americans suffered from two or more chronic disease compared to 23% of urban Americans (Rural Health Information Hub, 2017). Even recently, COVID-19 deaths in rural areas have overtaken their urban counterparts, with rural residents more likely to suffer from severe COVID-19 (USDA ERS, 2021).

At the same time, hospital availability and access are declining. Rural areas have fewer primary care physicians per capita than urban areas (National Rural Health Association, 2021), and over 180 rural hospitals have closed since 2005 (Ellison, 2021). Even for rural residents who receive hospital care, outcomes are often worse than similar patients who live in urban settings. For instance, rural patients are more likely die from coronary artery bypass surgery than urban residents. They also had longer lengths of stay (Dao et al., 2010).

Finally, rural areas are also increasingly distrustful of government. According to a 2016 survey of rural Americans conducted by Gallup and the Institute for Advanced Studies in Culture at the University of Virginia, distrust in institutions is larger in rural areas. According to the study's authors, "Alienation rates are twice as likely to be very high in the most rural areas as in the denser cities; three-and-a-half times more likely if you have only a high school diploma than a graduate degree; and four times more likely if you are in the lowest income bracket than if you belong in the highest income bracket"' (Bishop, 2016). Recent sociological studies in rural communities reinforce this result, showing that rural distrust is widespread and directed at government programs (Ashwood, 2018).

These differences contribute to a large and persistent rural-urban divide in America and make my result—that CD rates are actually higher in rural areas—even more counter-intuitive.

### 2.2 Rural Banking in the United States

Very little research has been done related to rural household bank utilization. However, the 2019 FDIC report entitled, "How America Banks," says that almost 90% of rural households and almost 80% of urban residents made at least one visit to a bank branch in the last year. Urban households are slightly more likely to be unbanked (6.2% in rural areas versus 8.1% in urban areas). Slightly more urban households use bank credit compared to other retail credit products like credit cards (69.2% versus 64.6%) (Federal Deposit Insurance Corporation, 2019).

In 2019, internet banking in both urban and rural households was common. "Even groups with lower use of mobile banking, such as older, working-age disabled, and rural households, exhibited large increases in use of mobile banking as the primary method. For example, among rural households, 24.3 percent used mobile banking as the primary method in 2019, compared with 11.2 percent in 2017" (Federal Deposit Insurance Corporation, 2019). In both urban and rural households in 2017, over 80% of individuals owned a smartphone or had home access to internet.

This survey suggests that depositor access to banking in rural markets, although different from urban, is similar in scope. However, as shown above, rural trust in political institutions is much lower than in urban areas.

### 2.2 Bank Market Segmentation in the United States

The total size of the deposit market in the United States in 2019 was $25 trillion. Of this, approximately $2 trillion is located in banks with the majority of their deposits in rural areas. Thus, the approximately 15% of the US population that is considered rural owns approximately 8% of the total US deposits. Furthermore, the CD market is slightly more weighted to rural markets. In 2019, the total CD market was $2 trillion, of which about 11% was deposited in banks located in substantially rural areas.

In Table 2.3, I summarize the differences between banks in rural and urban markets during the years in my sample. Using Summary of Deposit data, I first measure the relative size of a bank's presence given its branch locations and its relative deposits at each branch. For instance, a bank with 25% of its deposits located in a branch with 30% rural population and 75% of its deposits located in a branch with 65% rural population would be considered 56% rural (.25(.3)+.75(.65)=.5625). I then summarize banks according to the decile of rural population into which they fall. There are 145,000 year-bank-level observations for the entire United States during my sample period for almost 11,000 unique banks between 2001 and 2019. Each decile contains 14,500 bank-year observations.

**[See Table 2.3]**

Columns 1 and 2 shows the decile and the average percent of population considered rural, based on the bank's footprint. Column 3 shows the average number of branches for banks in this decile. Columns 4 through 6 show the average deposits by branch and by bank and the average total assets. Column 7 shows the average percent deposits for banks in that decile, and Column 8 shows the ratio of CD capital compared to assets.

This table speaks to the market segmentation between rural and urban banks. The first decile contains smaller, predominantly urban banks that cater to wealthier populations. These large banks have fewer branches but a large asset base and a large amount of deposits by branch. Deciles 2 through 5 contain large banks with more branches, more assets, and a slightly higher reliance on deposits. These deciles contain banks such as Wells Fargo and JP Morgan Chase, which have a large geographic network of bank branches (averaging 4,360 branches and 3,785 branches, respectively) that are located in both urban and suburban areas but largely avoid rural counties. However, there are still a large number of banks in highly urban areas that feature smaller branch networks and thus lower the average number of banks in those deciles. As the banks become more rural (deciles 6 through 10), the number of branches drops significantly, along with the

per-branch deposits and the total deposits and assets. Furthermore, the reliance on deposit capital and CD capital as a percent of assets increases monotonically. Larger banks such as Wells Fargo and JP Morgan Chase have much lower reliance on deposit capital (an average of 66% and 33%, respectively). Smaller banks, such as the First Savannah Savings Bank of Savannah, Illinois and The Farmer's State Bank of Dwight, Kansas, have a much higher reliance on deposit capital 89% and 88%, respectively.

Table 2.3 shows that banks are segmented with respect to rural and urban markets. The reliance on deposits is strictly increasing as rural population increases. Further, large bank branching networks are inversely related to rural depositors. The result is that rural banks, which serve a proportionately more disadvantaged customer than urban banks, have smaller networks of branches and higher reliance on these customers. Further information about rural and urban banking markets, along with Census designations for rural population, can be found in the data appendix.

### 2.3 Basic Determinants of CD Rates

As mentioned above, one of the benefits of testing CD deposit rates is that CDs exhibit a term structure, much like a more traditional debt instrument. This suggests that CD pricing should follow a typical term structure. In the specification below, retail CD rates are a function of the relevant risk-free rate (the maturity matched Treasury yield) and time to maturity:

$$\text{Log CD APY}_{i,j,k,t} = \alpha + \beta_1 \text{Maturity Matched Treasury Yield}_{k,t} + \beta_2 \text{Maturity}_{i,j,k,t} + \beta_3 \text{Rural County}_i + \epsilon_{i,j,k,t} \quad (2.1)$$

In the Equation 1, $i$ refers to an individual branch, $j$ refers to the bank, $k$ refers to a particular maturity of CD, and $t$ refers to the month and year at which the CD Annual Percentage Yield (APY) is observed. The risk-free rate is maturity-matched Treasury yield for each CD, for each month and year in the sample. *Maturity* is a dummy variable for the length of time until the CD matures. I retain CDs with the most common lengths of maturity: 6 month, 12 month, 24 month, and 60 month. The coefficient on *Maturity* can be read as the relative increase in yield that a retail banking customer might expect to earn over the maturity-matched Treasury rate, based on the maturity for a given CD. *Rural County* is a county-level measure of the percent of population considered rural. Errors are clustered at the county level.

Table 2.4 below shows the basic results of this analysis using an OLS framework where the unit of observation is branch-month-year-maturity. The first column shows the basic regression with just term structure and the maturity-matched treasury rate. Coefficients on maturity are relative to the 6-month CD rate and show that CDs exhibit term structure. On average, the 12-month CD offers about 15% to 24% more yield than a 6-month CD. Similarly, the 24- and 60-month CDs offer additional yields of about 42%

and 75% percent, respectively, depending on the specification.

**[See Table 2.4]**

Column 2 shows the same result but with year fixed effects. Here the coefficient on the maturity-matched treasury drops by about half, and the R-squared increases from 0.42 to 0.75, suggesting a time-varying component to CD rates. This echoes the graph in Figure 2.1, which shows a declining rate over time. For this reason, all future specifications will include a year fixed effect.

The coefficient on the maturity-matched treasury yield also demonstrates that banks do not pass through the full treasury rate to consumers. Rather, my results are similar to Drechsler et al. (2017). Only about a quarter of the Treasury rate is passed through to consumers in CD rates.

In Columns 3 through 4, I show specifications including a control for the percent of population that is considered rural. Column 3 shows the result using only a year fixed effect. In this specification, the coefficient on *Rural County* is positive and significant, suggesting that there is a 21% increase in CD rates in rural areas. The average CD APY in my sample is 1.8%, suggesting that an equivalent rural CD would yield 2.18%.

Column 4 shows the results when controlling for year and state fixed effects. Here too, the coefficient on *Rural County* is positive and significant. State fixed effects do not dramatically change the coefficient, suggesting that, even when state-level CD rates are taken into account, CD prices are relatively unchanged. Rural areas receive a 17.6% higher CD rate compared to urban areas.

Finally, Column 5 shows the result with the addition of bank fixed effects. The coefficient on *Rural County* is not significant, suggesting that the result is not observed within-bank. Rather, the difference in CD rates in rural areas is the result of different banks operating in different markets. This is consistent with the results in Table 2.3, wherein rural and urban markets are highly segmented.

My results show that there is a relationship between CD rates and county-level rural population, which suggests that banks modify their CD rates depending on the market in which they compete. This result is not explained by other demographic variables in poor urban areas, such as race or income. Rather, my result is driven by rural areas as compared to urban areas as a whole. The result for CD rates also holds for other account types. In Table A.26 in the data appendix, I show that both interest-bearing checking accounts and money market accounts pay between 7% and 30% more in rural areas compared to urban areas. Refer to the data appendix for the full regressions.

In Table 2.5, I show the same regressions as in Table 2.4 but controlling for size of the bank, as measured by the bank's log number of branches. In Columns 1 and 2, I control only for bank size, term structure, and log maturity matched Treasury yield. In Columns 3 through 5, I add a control for *Rural County*. The coefficient on *Log Number Branches* is negative and highly significant in all but Column 5, suggesting that

larger banks set lower CD rates in general. Further, the coefficient on *Rural County* is not significant in Column 5, suggesting, as above, that the effect is between bank rather than within bank.

**[See Table 2.5]**

The coefficient on *Rural County* drops from 21.1% to 4.2% and from 17.6% to 3.1% in columns 3 and 4, respectively, suggesting that 80% of the general result is driven by smaller banks, which tend to set higher rates for deposit capital. However, this result suggests that, compared to small urban banks, small rural banks still offer CDs that feature rates that are 3% to 4% higher.

### 2.4 Consumer Sophistication and Rural Deposits

Having established that CD rates are 17.6% higher in rural areas than in urban areas, I now turn to understanding the reasons for this disparity. I begin by conjecturing that my results are driven by distrust in or lack of knowledge about the financial system on the part of rural depositors.

As noted above, multiple streams of literature have documented trust gaps between rural and urban areas. Although trust in financial systems has been studied from a macro level (Stevenson and Wolfers (2011), Sapienza and Zingales (2012)), distrust of banks in particular, especially in rural areas, is not well researched. This distrust may be related to lack of financial sophistication, which causes a lack of knowledge related to FDIC insurance coverage. It may also be a distrust in financial institutions in general.[1]

If trust does drive banking decisions, then one might expect that less trusting individuals would require larger CD returns. Therefore, one should expect to see that, overall, financial sophistication is correlated with higher CD rates but that in rural areas, this relationship reverses, and highly sophisticated rural areas are characterized by lower CD rates compared to unsophisticated rural areas.

Because trust in banks is not directly observable at the county level, I use evidence of changes in the overall level of retail trust in banks. This evidence comes from the Gallup Confidence in Institutions poll, which has been conducted annually since 1973. The poll asks the following question: "Now I am going to read you a list of institutions in American society. Please tell me how much confidence you, yourself, have in each one—a great deal, quite a lot, some or very little?"

**[See Figure 2.3]**

The institutions listed include church, the Supreme Court, Congress, organized labor, police, big business, and banks, among others. Participants may select from 6 answers: "great deal," "quite a lot," "some," "very

[1]Figure A.11 in the data appendix shows several logos for banks that appear in the sample. Each of these logos contains slogans that relate to the safety and stability of the bank, despite the fact that all of the banks are covered by FDIC deposit insurance.

little," "none," and "no opinion." I sum the percentage of respondents who answered that they trusted banks a "great deal" or "quite a lot." Figure 2.3 shows the average level of trust based on that metric. As Figure 2.3 shows, trust in banks was highest before the financial crisis in 2008. As of 2019, trust in banks has still not returned to pre-crisis levels.[2]

To test the role of trust in financial markets on CD rates, I use the following regression:

$$\begin{aligned}\text{Log CD APY}_{i,j,k,t} = \alpha + \beta_1 \text{Log Treasury Yield}_{k,t} + \beta_2 \text{Maturity}_{i,j,k,t} + \\ \beta_3 \text{Rural County}_i + \beta_4 \text{Low Trust Year}_i + \\ \beta_5 \text{Rural County}_i \text{x} \text{Low Trust Year}_i + \epsilon_{i,j,k,t} \quad (2.2)\end{aligned}$$

*Log CD APY* is the log of the CD rate for branch $i$ at bank $k$, for maturity $j$ at month and year $t$. *Log Treasury Yield* is the log of the maturity matched Treasury yield for a given maturity CD at a given month and year in the sample. *Maturity* is an indicator variable for maturity. *Rural County* is a dummy variable that takes the value of 1 if the percent of population considered rural is about the 75th percentile for all counties in the sample. *Low Trust Year* is a dummy that takes the value of 1 in years in which the Gallup survey of trust in banks is below median and 0 otherwise. Based on Gallup responses, *Low Trust Year* takes the value of 1 from 2009 to 2016. All specifications contain state and year fixed effects, and errors are clustered at the county level. For brevity, I have suppressed coefficients for *Log Treasury Yield* and *Maturity*.

**[See Table 2.6]**

The results of this test are shown in Table 2.6. In Column 1, I show the variables for *Rural County* and *Low Trust Year* without the interactions. These results show that, controlling for low-trust years and low-income does not explain the rural CD premium. The coefficient on *Low Trust Year* is highly significant and negative, showing that CD prices across all banks in my sample declined precipitously during the Great Recession, even controlling for year fixed effects. In Column 2, I include the interaction between *Low Trust Year*x*Rural County*. The interaction term is significant, with rural counties receiving an approximately 9% higher CD during low-trust years rate than non-rural counties. The coefficient on *Rural County* is still significant and of similar magnitude as in Column 1.

The results from Table 2.6 show that the coefficient on *Rural County* is significant, even controlling for low trust years. Further, during low trust years, the interaction term is positive and significant, suggesting that rural areas are demand even higher CD rates during the Great Recession.

[2]The full survey results can be found here: https://news.gallup.com/poll/1597/Confidence-Institutions.aspx

A natural question based on the above results is why rural depositors receive larger CD rates during low trust years. To further understand this dichotomy, I test the double and triple interactions between *Low Trust Year*, *Low Education*, and *Rural County*. My motivation for these tests is to understand the role that lack of education plays in CD rate setting. If education is a proxy for financial sophistication, then lack of education should drive the rural premium during low-trust years. In other words, counties with low levels of financial sophistication may demand higher CD rates as a result of increasing distrust in the financial markets.

The regression I use to test this interaction is shown below:

$$\begin{aligned}\text{Log CD APY}_{i,j,k,t} = \alpha + \beta_1 \text{Log Treasury Yield}_{k,t} + \beta_2 \text{Maturity}_{i,j,k,t} + \\ \beta_3 \text{Rural County}_i + \beta_4 \text{Low Education}_i + \beta_5 \text{Low Trust Year}_i + \\ \beta_6 \text{Rural County}_i \text{x} \text{Low Education}_i + \\ \beta_7 \text{Rural County}_i \text{x} \text{Low Trust Year}_i + \\ \beta_7 \text{Low Education}_i \text{x} \text{Low Trust Year}_i + \\ \beta_8 \text{Rural County}_i \text{x} \text{Low Trust Year}_i \text{x} \text{Low Education}_i + \epsilon_{i,j,k,t} \quad (2.3)\end{aligned}$$

*Low Education* is a dummy variable that takes the value of 1 for counties with above 25th percentile high school non-completion rates, according to the American Community Survey, and 0 otherwise. This variable can be thought of as measuring financial sophistication. Recall from Table 2.2 that approximately 20% of adults have a bachelor's degree or higher. In rural counties, this number drops to 15%. Furthermore, rural counties have slightly higher high school dropout rates. Seventeen percent of the rural population did not finish high school versus 15% in urban areas.

**[See Table 2.7]**

In Column 1, I interact *Low Education* and *Rural County* and *Low Trust* and *Rural County*. The coefficient on *Rural County* is significant and similar to those in Table 2.6. The interaction term on *Low Trust* and *Rural County* is also similar to that in Table 2.6. The coefficient on *Low Education* is positive and significant, demonstrating that low-education counties receive 4.5% higher CD rates than high education counties. The interaction on *Low Education* and *Rural County* is negative and significant, suggesting that, in general, rural counties with low education receive lower CD rates than urban counties with higher education.

The result on the triple interaction in Column 2 is highly significant and 11.7%, suggesting that rural counties with less education have higher CD rates during low-trust years. My results not only show that rural areas have a much higher mean CD rate compared to urban areas, they also exhibit higher CD rates in areas with low education during times of declining trust in financial markets.

For my results to be explained by causes other than rural trust, these factors must perturb only low education rural counties at the exact same time as the financial crisis. In Table 2.8, I check for alternative explanations that might come closest to explaining my results. My results could be driven by factors such as bank size, differences in economies of scale in rural and urban banks, competition, or the size of a bank's deposit network. I control for common measures for these variables using three different specifications based on bank size.

First, the most likely explanation for my results is that income in low education rural counties was lower during the Great Recession than in the rest of the United States. If this is the case, then lower incomes should correlate with higher CD rates if banks are capital constrained, which would drive up rates in low education rural areas. I test this using *Income Change*, which I define as the log annual difference in median household income by county. (Note that log median income is not available for every county prior to 2009 because 2009 is the first year that 5-year American Community Survey data is available. Thus, my sample size is smaller in this table.) This variable measures the relative impact of the Great Recession on household demand for CDs. If my results were driven by differential economic burden associated with the Great Recession, then the coefficient on *Income Change* would be significant, but the coefficient on the triple interaction would not be significant. However, although *Income Change* predicts a negative impact on CD rates in all specifications, the coefficient on the triple interaction is still positive and significant.

**[See Table 2.8]**

Second, I control for the *Deposits to Assets* ratio. It could be that low-education rural areas feature banks that are more heavily reliant on deposit capital. During the crisis, these banks were capital constrained and thus were required to raise CD rates. If this story were true, then we would expect to see the coefficient on *Deposits to Assets* be positive and significant, while the coefficient on the triple interaction is not significant. As in Table 2.8, all of the coefficients on *Deposits to Assets* are negative and significant, suggesting that, in general, banks with higher reliance on deposit capital actually offer lower rates. This is especially true with smaller banks. However, the inclusion of *Deposits to Assets* does not change the coefficient on the triple interaction, suggesting that my result cannot be explained by *Deposits to Assets*.

Similarly, local competition, as measured via *HHI*, and the bank's overhead as a percent of assets do not change CD rates in low-education rural counties during the Great Recession. Finally, bank size, as measured by *Log Deposits* and *Squared Deposits*, does not change the coefficient on the triple interaction.

Taken together, my results show that, during low-trust years, banks in highly rural, low-education areas pay approximately 9% more than banks outside of these areas during high-trust times, even after controlling for local economic conditions, bank size, local competition, and bank reliance on deposits.

For robustness, I use log median income as the measure of financial sophistication and rerun the above tests. Information on this test can be found in the data appendix.

### 2.5 Consumer Impatience

Another potential explanation for this result is that rural depositors have a higher discount rate, which forces banks to pay more in deposits than their urban counterparts. In this theory, lower assets in rural areas lead to a higher discount rate on the part of rural depositors. Similar situations have been described in Bernheim et al. (2015), Schilbach et al. (2016), and Bernheim et al. (2015). This drives up the rate of return required by rural depositors, who require additional compensation for losing access to liquidity services when investing in a CD.

If this theory is correct, then rural depositors should demand more of a premium as the maturity of the CD increases because the higher maturity CDs require additional patience on the part of the rural consumer. To test this, I first graph the term premium for the full sample versus rural CDs of the sample denomination. As shown in Figure 2.4, the rural CD premium is a level rather than a slope.

**[See Figure 2.4]**

I formally test this in Table 2.9. In this table, I interact rural with the maturity dummy. Coefficients on both maturity and maturity interacted with rural are relative to the 6-month CD. At the top of Column 1, the coefficients on *Maturity* follow the same upward sloping term structure as in Table 2.4. However, the coefficients on the interaction term are negative and downward sloping, indicating that compared to urban CD investors.

**[See Table 2.9]**

Coefficients for the interaction between rural counties and CD maturity are monotonically decreasing as maturity increases. Rather than demonstrating that rural depositors lack patience, my results show that rural depositors are actually more patient than their urban counterparts. This suggests that the difference in term structures between urban and rural communities is both a level and a slope suggesting that rural areas are, on average, offering higher CD rates, and that this difference is slowly increasing as one moves further out on the term structure.

### 2.5 Supply Shock to Local Capital

A final potential explanation for higher CD rates at rural banks is that local capital for rural banks is scarce relative to the bank's needs, which results in higher CD rates at rural banks. In Figure 2.5, I show the average capital structure of banks by type. By far the largest source of capital for all banks in the sample is deposits. Large banks rely less on deposits, and, in general, smaller banks rely more on deposits. For all small banks (rural and urban), about 5% of the liabilities are compared with other sources of capital,

including federal funds, trading liabilities, subordinated notes, and other borrowed money. Large banks, by contrast, hold about three times as much of non-deposit capital on their books compared with small banks.

**[See Figure 2.5]**

If CD rates are driven by expensive local capital, then one would expect that the exogenous influx of deposit capital would lower CD rates. Oil and gas production revenue, which is typically paid to farmers and ranchers, who own the land and its associated mineral rights, has been well documented in the financial literature as an exogenous shock to local capital. In particular, Gilje (2019) and Gilje et al. (2016) use the oil fracking boom starting in 2003 to test banks' internal capital markets and to test county-level economic outcomes after shale booms. I use the same empirical design as Gilje (2019) and Gilje et al. (2016) to test the impact of the shale boom on CD rates.

I restrict my sample to the seven states mentioned in Gilje (2019): Texas, Louisiana, Oklahoma, Arkansas, West Virginia, North Dakota, and Pennsylvania. I also restrict the sample to the same years used in their analysis: 2001 to 2010. I drop 2004 because it is the boom year. My main differences in differences specification is as follows:

$$\begin{aligned}\text{Log CD APY}_{i,j,k,t} = \alpha + \beta_1 \text{Maturity Matched Treasury}_{k,t} + \\ \beta_2 * \text{Maturity}_{i,j,k,t} + \beta_3 \text{Exposed}_i + \\ \beta_4 \text{Post-Boom}_t + \beta_5 \text{Exposed}_i \text{Post-Boom}_t + \epsilon_{i,t} \quad (2.4)\end{aligned}$$

*Exposed* is a dummy that takes the value of 1 if the branch in question is located within the county in which a boom happened. Here the control group consists of all counties in the above-listed states that are not exposed to the oil boom, and the treatment group is all counties listed as exposed. *Post-Boom* is a dummy that takes the value of 1 for years after 2004, when the boom happened. The other variables follow the same format as in the above tables. My results are below in Table 2.10.

**[See Table 2.10]**

In Column 1, I show the baseline specification for the same sample period as is used in Gilje (2019). The results are similar to Table 2.4. *Rural County* is considered to the be top 75th percentile of counties in the seven-state sample. Here, rural counties have a CD rate that is 7.5% higher than urban counties. In Column 2, I show the impact of the oil boom on exposed counties. The coefficient on the triple interaction is not significant. In fact, the only significant variables are those on the term structure and the rural dummy.

If scarce local capital drives my result, then banks located in rural areas serving low-education populations and experiencing an oil boom would have had an influx of deposits, leading to lower CD rates. However, my results do not indicate a change in CD rates as the result of an exogenous influx of capital.

### 2.6 Rural Loan Rates

Having established that CD rates are higher in rural areas and that low-education rural counties had higher CD rates during the Great Recession, I now test the connection between higher CD rates and loan rates. To test this, I use four different common loan types: a 30-year fixed rate, $175k mortgage, a 60-month new car loan, a $50k business loan, and a personal unsecured line of credit. These common types of loans comprise almost 650,000 observations in the loan data sample.

To test the impact of CD rates on loan rates, I use the following specification:

$$\text{Log Loan Rate}_{i,t} = \alpha + \beta_1 \text{Type of Loan}_{i,t} + \beta_2 \text{Log CD Rate}_{i,t} + \beta_3 \text{Rural County}_i + \beta_4 \text{Low Education}_i + \epsilon_{i,t} \quad (2.5)$$

Log Loan Rate$_{i,t}$ is the log of the interest rate on the loan ($i$) at time $t$. The main variable of interest is *Rural County*. I also control for the *Log CD Rate* at the branch at which the loan rate is quoted.

The results are shown in Table 2.11. Coefficients in *Auto*, *30 Yr Mortgage*, and *Business* are relative to the rate for a personal unsecured loan and are thus negative because personal unsecured loans carry a higher log APY. Column 1 contains year fixed effects only. Column 2 contains year and state fixed effects, and Column 3 contains year, state, and bank fixed effects. In all 3 columns, the coefficient on *Rural County* is significant. However, controlling for *Log CD APY* reduces the coefficient by 20%, suggesting that the log CD rate is correlated with the log loan rate. The error terms for all specifications are clustered at the county level.

**[See Table 2.11]**

In Table 2.12, I test the triple interaction between *Rural County*, *Low Education*, and *Low Trust Years*. Coefficients for loan type are suppressed. In Column 1, I test the triple interaction. In Column 2, I control for the log to the CD rate. My results show that log CD rate predicts a higher loan rate. However, there is no difference in CD rates in low-education rural counties in low trust years.

**[See Table 2.12]**

My results in Table 2.11 suggest that high local CD rates are tied to high loan rates; banks pass through the cost of higher CD rates to local loan customers. My results in Table 2.12 show that this is not a function of trust in low-education rural counties. Rather, the effect is explained by the log CD rate offered by the bank.

## 2.7 Conclusion

Despite rural areas being disproportionately disadvantaged compared to urban areas, the literature has overlooked rural finance. My paper is the first to examine rural and urban differences in banking markets, specifically as they relate to the CD market. Contrary to what one might expect given rural America's economic disadvantages, I document that CD rates are actually 17.6% higher in rural areas and that the result exists between banks and not within banks.

I show that lack of financial sophistication, as proxied by education, predicts higher CD rates in rural banks during low-trust years, suggesting a trust-based explanation for the rural CD rate premium. I test several competing explanations. I find that local income growth, bank size, competition, and bank overhead do not explain the difference in CD rates in low financial sophistication rural areas during the Great Recession. As a competing explanation, I also test whether rural depositor patience differs compared to urban depositors, and I find that rural depositors exhibit a higher level of patience compared to urban depositors. I also test whether rural banks are subject to costly external finance, which drives up CD rates in low-education counties. However, I do not find evidence for this channel impacting CD rates in rural counties.

Lastly, I test the welfare implications of higher CD rates on rural borrowers. My results show that banks with higher CD rates increase loan rates by 3.7% and that, even controlling for the log CD rate, rural areas advertise loan rates approximately 1.7% higher than urban areas. The result is that rural CD rates are passed through to rural borrowers in the form of higher loan rates.

My results are important to discussions about fairness in access to finance. Rural areas, which are left behind by traditional financial research, represent approximately 15% of the United States population and only about 8% of deposit capital. My results suggest that low financial sophistication consumers in rural markets drive higher CD rates during low trust years. Future research into financial sophistication and trust in markets should take into account this urban and rural divide when crafting policy designed to enfranchise depositors, especially during times of economic crisis.

### 2.8 Tables and Figures

This figure shows the difference in average CDs for the top 10% and the bottom 10% of CD rates in the sample for CDs with a denomination of between $10k and $25k and a maturity of one year.

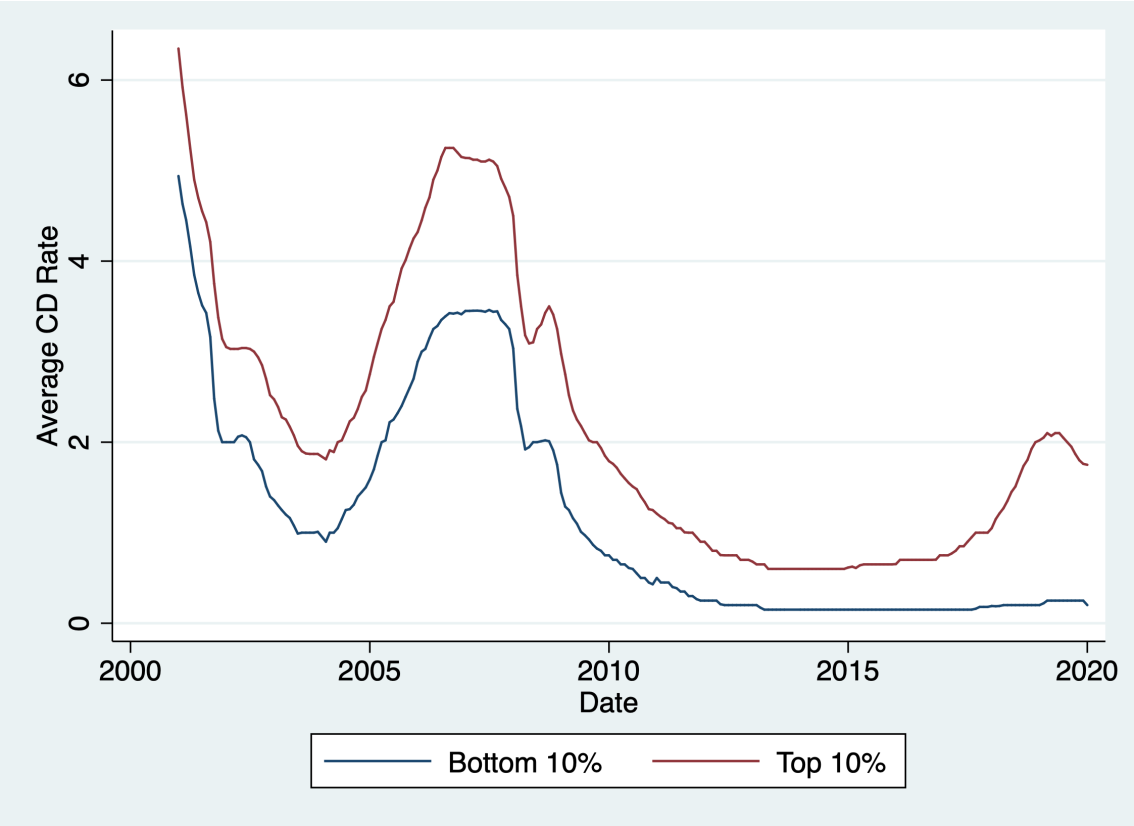



**Figure 2.1.** Graph of CD rates for Top and Bottom 10% of Rates

This figure shows the average CD APY for a $10k to $25k one-year CD for the United States in 2011 versus the percent rural population. Darker areas represent counties with higher CD APY and higher percentage rural population, respectively.

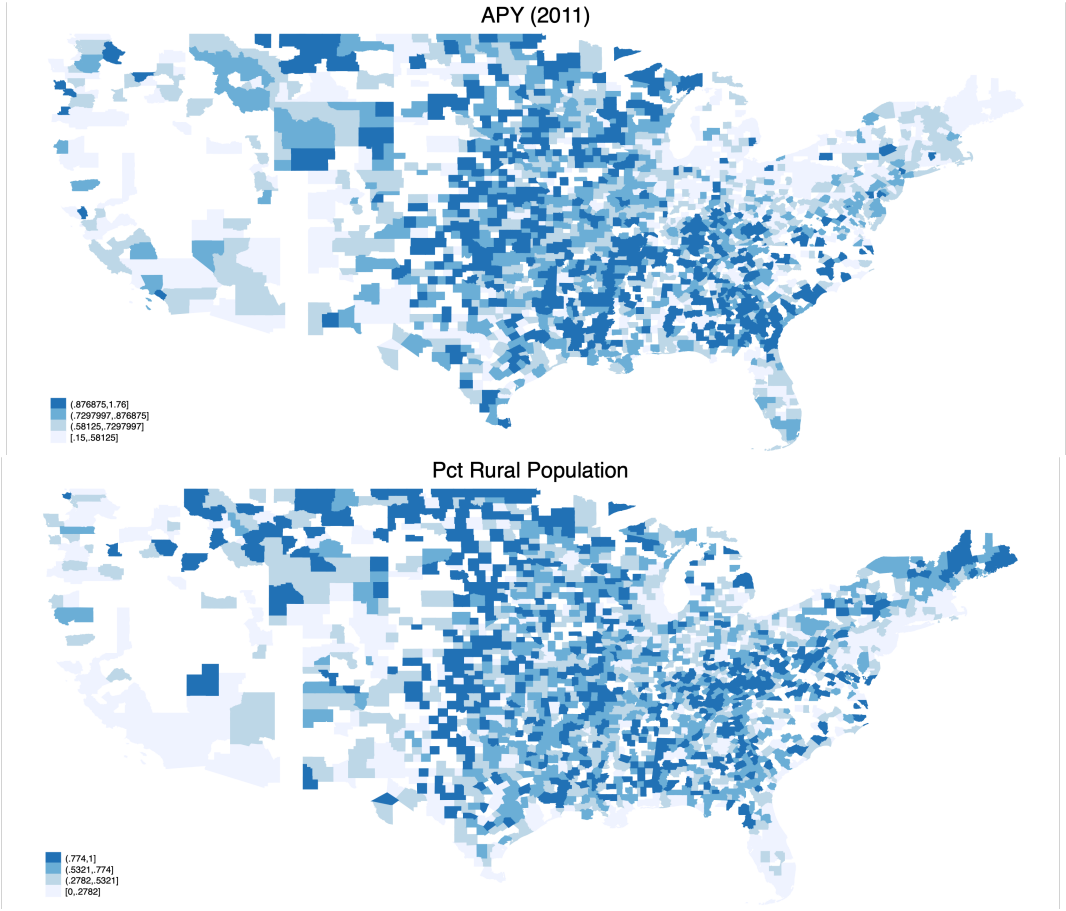



**Figure 2.2.** Rural Population and CD Rate Maps

This figure shows the average consumer trust in banks, as measured by the annual Gallup Trust in Institutions survey.

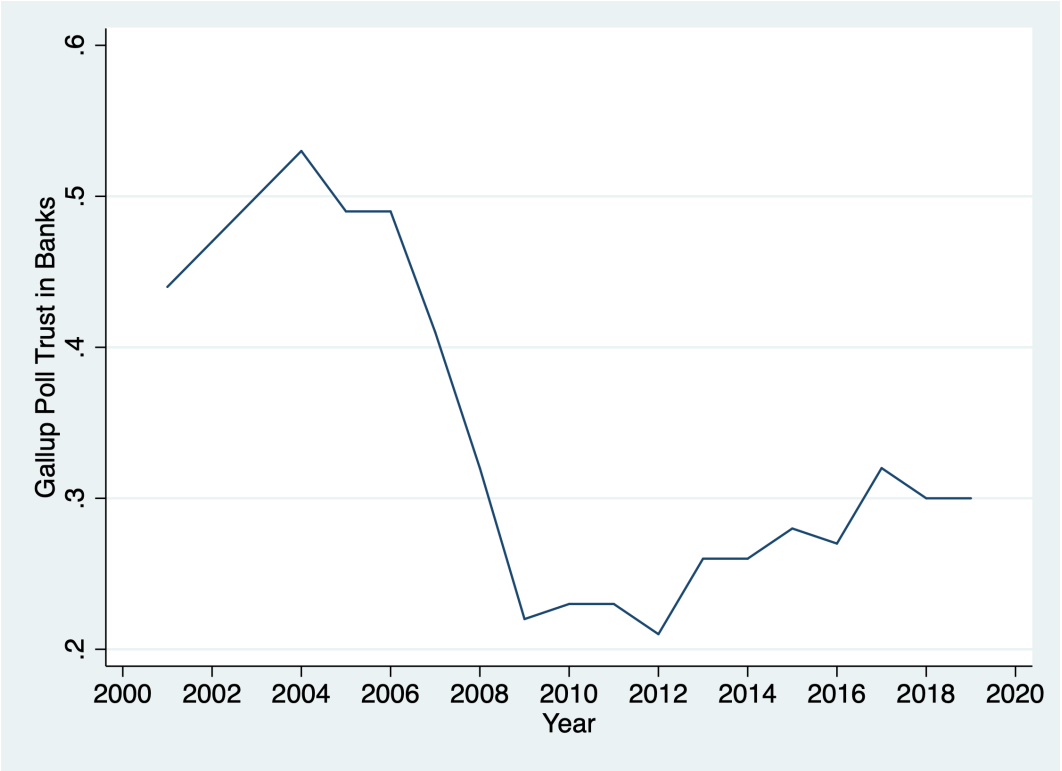



**Figure 2.3.** Gallup Poll Average Consumer Trust

This figure shows the term structure of CD rates in rural counties compared to the whole sample.

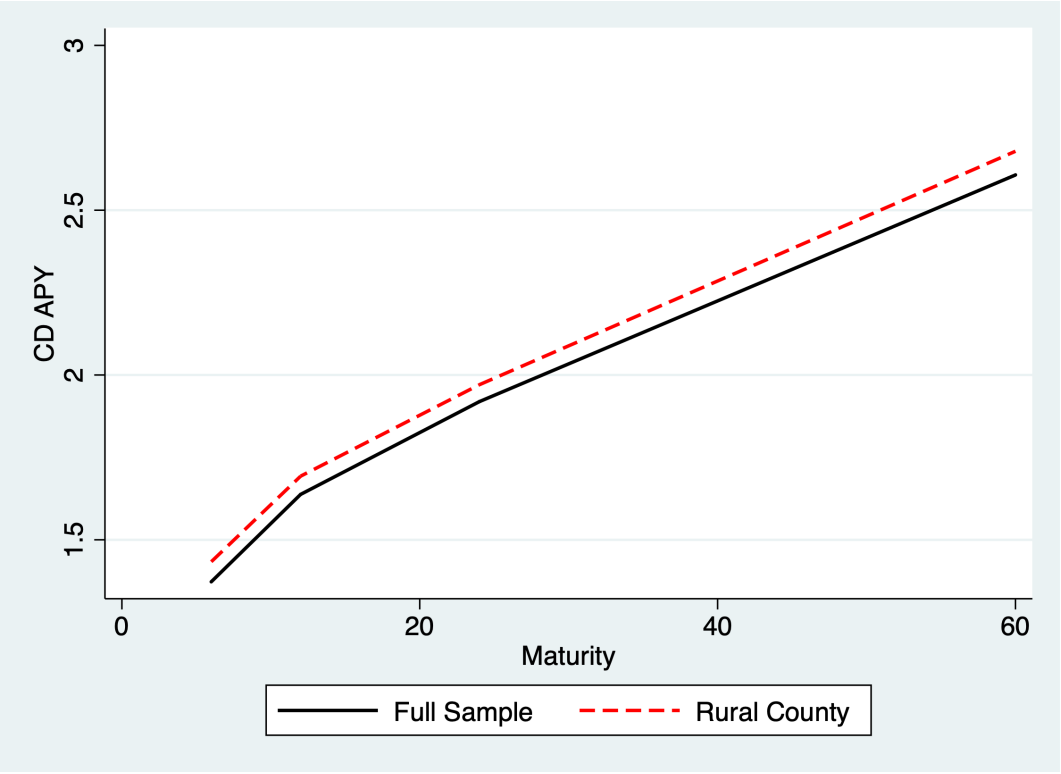



**Figure 2.4.** CD Term Structure in Rural and Urban Counties

This figure shows the average liability structure for banks based on their location and lending structure. The first bar shows urban banks, as defined by banks located in areas with less than 40% rural population, with more than 100 branches. The second bar shows urban banks with fewer than 100 branches. The rightmost bar shows rural banks.

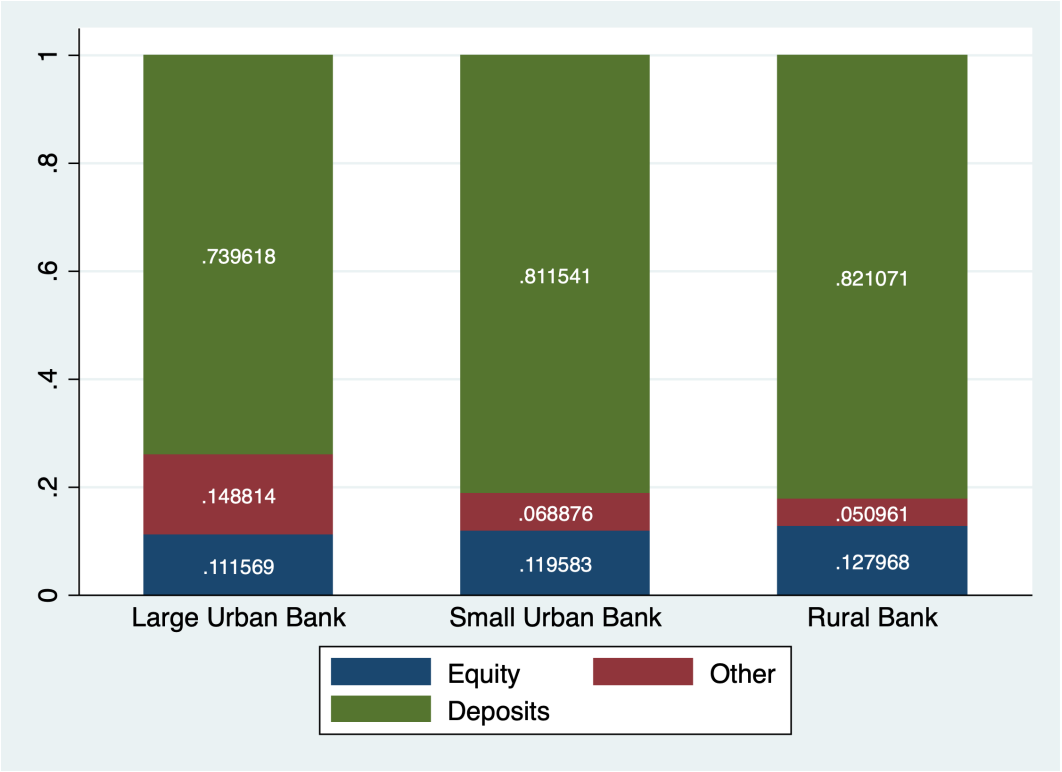



**Figure 2.5.** Average Liability Structure for Rural and Urban Banks

**TABLE 2.1.** CD and Bank Summary Statistics

This table contains summary information. I retain information for only those CDs that have maturity of 6, 12, 24, and 60 months. I also only retain banks that can be matched by bank identification number. The Gallup poll is conducted annually.

| Variable | Number of Observations |
|---|---|
| Total CD Observations | 7,722,031 |
| Banks | 8,808 |
| Branches | 17,001 |
| Counties | 2,776 |

| CDs: | Mean | 25th | Median | 75th |
|---|---|---|---|---|
| CD APY | 1.71 | 0.05 | 1.35 | 2.58 |
| CD Maturity (in months) | 23.04 | 6 | 12 | 24 |

| Banks: | Mean | 25th | Median | 75th |
|---|---|---|---|---|
| Total Assets ($mn) | 2,194 | 78 | 160 | 363 |
| Deposits/Assets (%) | 84 | 81 | 85 | 88 |
| CD Capital/Assets (%) | 34 | 24 | 34 | 44 |
| Non-Interest Expense/Assets (%) | 1.9 | 0.9 | 1.7 | 2.5 |

| Counties: | Mean | 25th | Median | 75th |
|---|---|---|---|---|
| Rural Population (%) | 54 | 29 | 54 | 78 |
| Less than High School Education (%) | 15 | 10 | 13 | 18 |
| Bachelor's Education (%) | 21 | 15 | 19 | 25 |

| Gallup Poll: | Mean | 25th | Median | 75th |
|---|---|---|---|---|
| Trust in Banks | 0.34 | 0.25 | 0.30 | 0.47 |

**TABLE 2.2.** Rural and Urban Demographic Characteristics

This table shows average demographic characteristics for counties in the sample in 2011. I divide the sample into quartiles based on the percent of rural population, with Quartile 1 being the least rural, and Quartile 4 being the most rural. Reported numbers are averages of county-level Census summary statistics.

| | Quartile 1 (most urban) | Quartile 2 | Quartile 3 | Quartile 4 (most rural) |
|---|---|---|---|---|
| Percent Rural Population | 15 | 45 | 71 | 99 |
| Number Counties | 807 | 805 | 804 | 805 |
| Percent White | 78 | 85 | 85 | 87 |
| Percent <High School Education | 14 | 15 | 17 | 18 |
| Percent Bachelor's Education | 27 | 19 | 15 | 16 |
| Percent Age 25 to 55 | 40 | 39 | 39 | 38 |
| Percent Ages 55+ | 24 | 28 | 29 | 33 |
| Mean Income | $65,872 | $57,380 | $53,406 | $52,993 |
| Median Income | $50,526 | $44,775 | $41,789 | $41,372 |

**TABLE 2.3.** Bank Characteristics by Rural/Urban Population

This table contains summary statistics for rural and urban banks. Decile Rural is based on the weighted average of the percent rural population in each county in which the bank is located, with 1 being least rural, and 10 being most rural. The number of branches is the average number of branches for banks in this decile. Average deposits by branch are averaged for each decile. Total assets are listed in thousands and averaged by decile. Average percent deposits to assets are computed for each bank and then averaged across all deciles. Percent CD Capital is the percent of CD capital to total assets.

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|
| Decile | Pct Rural | Number | Avg Deps (thou) | | Avg Total | Avg Deps | Pct CD |
| Rural | Deps | Branches | by Branch | by Bank | Assets (thou) | to Assets | Capital |
| 1 | <1 | 6.8 | 593,699 | 1,659,006 | 3,204,832 | 76 | 34 |
| 2 | 4 | 24.5 | 351,325 | 3,547,841 | 6,001,853 | 78 | 32 |
| 3 | 11 | 36.7 | 80,208 | 3,353,890 | 5,238,322 | 81 | 32 |
| 4 | 22 | 17.5 | 60,931 | 857,930 | 1,151,045 | 82 | 32 |
| 5 | 33 | 10.0 | 51,025 | 441,669 | 568,752 | 83 | 34 |
| 6 | 43 | 7.8 | 59,668 | 326,568 | 417,770 | 83 | 35 |
| 7 | 52 | 6.0 | 37,625 | 209,466 | 256,002 | 83 | 35 |
| 8 | 61 | 4.4 | 39,343 | 147,478 | 178,928 | 84 | 37 |
| 9 | 72 | 4.0 | 35,462 | 127,836 | 154,196 | 84 | 38 |
| 10 | 94 | 2.5 | 31,428 | 72,502 | 87,766 | 84 | 39 |

**TABLE 2.4.** Rural County Impact on CD Rates

This table shows the OLS regression results for a basic term structure model and various county-level demographic measures. *Rural County* is a dummy that takes the value of 1 when the percent rural population in the county is above the 75th percentile and 0 otherwise. Errors are clustered at the county level.

| | (1) Log CD APY | (2) Log CD APY | (3) Log CD APY | (4) Log CD APY | (5) Log CD APY |
|---|---|---|---|---|---|
| Log Maturity Matched Treasury Yield | 0.574*** | 0.275*** | 0.276*** | 0.276*** | 0.278*** |
| | (149.08) | (97.18) | (97.10) | (96.66) | (97.50) |
| 12 Months | 0.157*** | 0.245*** | 0.245*** | 0.245*** | 0.243*** |
| | (75.96) | (118.54) | (118.40) | (118.54) | (118.59) |
| 24 Months | 0.210*** | 0.442*** | 0.443*** | 0.445*** | 0.447*** |
| | (59.46) | (124.97) | (124.97) | (125.64) | (128.88) |
| 60 Months | 0.324*** | 0.752*** | 0.755*** | 0.766*** | 0.790*** |
| | (57.31) | (124.15) | (123.74) | (124.07) | (130.04) |
| Rural County | | | 0.211*** | 0.176*** | 0.00231 |
| | | | (18.62) | (17.76) | (0.42) |
| Observations | 7,285,383 | 7,285,383 | 7,285,383 | 7,285,383 | 7,285,382 |
| $R^2$ | 0.425 | 0.748 | 0.754 | 0.766 | 0.857 |
| Year FE | N | Y | Y | Y | Y |
| State FE | N | N | N | Y | Y |
| Bank FE | N | N | N | N | Y |

$t$ statistics in parentheses

$^{*}$ $p < .1$, $^{**}$ $p < .05$, $^{***}$ $p < .01$

**TABLE 2.5.** Rural County and Bank Size Impact on CD Rates

This table shows the OLS regression results for a basic term structure model, various county-level demographic measures, and the size of the bank, as measured by log number of branches. *Rural County* is a dummy that takes the value of 1 when the percent rural population in the county is above the 75th percentile and 0 otherwise. Errors are clustered at the county level.

| | (1) Log CD APY | (2) Log CD APY | (3) Log CD APY | (4) Log CD APY | (5) Log CD APY |
|---|---|---|---|---|---|
| Log Maturity Matched Treasury Yield | 0.584*** | 0.277*** | 0.278*** | 0.277*** | 0.278*** |
| | (150.97) | (96.27) | (96.21) | (95.91) | (96.92) |
| 12 Months | 0.154*** | 0.244*** | 0.244*** | 0.244*** | 0.243*** |
| | (73.66) | (118.08) | (118.04) | (118.60) | (118.01) |
| 24 Months | 0.211*** | 0.446*** | 0.446*** | 0.447*** | 0.448*** |
| | (58.78) | (128.35) | (128.35) | (128.57) | (128.66) |
| 60 Months | 0.352*** | 0.782*** | 0.783*** | 0.787*** | 0.791*** |
| | (57.21) | (128.80) | (128.77) | (130.65) | (130.16) |
| Log Bank Branches | -0.137*** | -0.117*** | -0.115*** | -0.111*** | -0.0114 |
| | (-60.31) | (-78.02) | (-72.41) | (-70.09) | (-1.24) |
| Rural County | | | 0.0418*** | 0.0311*** | 0.00168 |
| | | | (4.67) | (4.02) | (0.30) |
| Observations | 7,238,127 | 7,238,127 | 7,238,127 | 7,238,127 | 7,238,126 |
| $R^2$ | 0.511 | 0.809 | 0.809 | 0.813 | 0.857 |
| Year FE | N | Y | Y | Y | Y |
| State FE | N | N | N | Y | Y |
| Bank FE | N | N | N | N | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE 2.6.** Low-Trust Year Impact on CD Rates

This table tests the impact of low trust years on log CD rates. *Rural County* is a dummy variable that takes the value of 1 if the county have above 75th percentile rural population and 0 otherwise. *Low Trust Year* is a dummy defined as 1 when the Gallup Trust in Institutions Poll is below mean and 0 otherwise. *Low Education* a dummy variable that takes the value of 1 when the percent of adults without a high school diploma is above the 25th percentile. Errors are clustered at the county level.

| | (1)<br>Log CD APY | (2)<br>Log CD APY |
|---|---|---|
| Rural County | 0.176*** | 0.132*** |
| | (17.76) | (15.29) |
| Low Trust Year | -1.989*** | |
| | (-195.72) | |
| Low Trust Year | | -2.011*** |
| | | (-187.25) |
| Low Trust Year × Rural County | | 0.0904*** |
| | | (10.44) |
| Observations | 7,285,383 | 7,285,383 |
| $R^2$ | 0.766 | 0.767 |
| Year FE | Y | Y |
| State FE | Y | Y |
| Maturity Matched Treasury Control | Y | Y |
| CD Maturity Control | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE 2.7.** Low-Trust, Low-Sophistication, and Rural Impact on CD Rates

This table tests the impact of rural education on log CD rates during low trust years. *Rural County* is a dummy variable that takes the value of 1 if the county have above 75th percentile rural population and 0 otherwise. *Low Trust Year* is a dummy defined as 1 when the Gallup Trust in Institutions Poll is below mean and 0 otherwise. *Low Education* a dummy variable that takes the value of 1 when the percent of adults without a high school diploma is above the 25th percentile. All specifications contain year and state fixed effects, and errors are clustered at the county level.

| | (1)<br>Log CD APY | (2)<br>Log CD APY |
|---|---|---|
| Rural County | 0.162*** | 0.210*** |
| | (7.72) | (9.37) |
| Low Trust Year | -2.009*** | -2.008*** |
| | (-181.57) | (-147.05) |
| Low Trust Year × Rural County | 0.0899*** | -0.00595 |
| | (10.40) | (-0.27) |
| Low Education=1 | 0.0269* | 0.0269** |
| | (1.93) | (2.01) |
| Low Education × Rural County | -0.0405* | -0.0989*** |
| | (-1.73) | (-4.10) |
| Low Trust Year × Low Education=1 | | -0.000421 |
| | | (-0.03) |
| Low Trust Year=1 × Low Education=1 × Rural County | | 0.117*** |
| | | (4.68) |
| Observations | 7,284,124 | 7,284,124 |
| $R^2$ | 0.767 | 0.767 |
| Year FE | Y | Y |
| State FE | Y | Y |
| Maturity Matched Treasury Control | Y | Y |
| CD Maturity Control | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE 2.8.** Triple Interaction Control Table

This table tests controls that might explain the impact of rural education on log CD rates during low trust years. *Triple Interaction Term* is the interaction between *Low Trust Year*, *Low Education*, and *Rural County*. *Rural County* is a dummy variable that takes the value of 1 if the county have above 75th percentile rural population and 0 otherwise. *Low Trust Year* is a dummy defined as 1 when the Gallup Trust in Institutions Poll is below mean and 0 otherwise. *Low Education* a dummy variable that takes the value of 1 when the percent of adults without a high school diploma is above the 25th percentile. Column 1 contains the full sample. Column 2 contains banks with less than 1,000 branches. Column 3 contains banks with less than 7 branches, which is the median number of branches in the sample.

| | (1)<br>Full Sample | (2)<br>No Big Banks | (3)<br><7 Branches |
|---|---|---|---|
| Triple Interaction Term | 0.0972*** | 0.0923*** | 0.0810** |
| | (3.25) | (3.01) | (2.31) |
| Income Change | -0.141*** | -0.104** | -0.0493 |
| | (-2.93) | (-2.13) | (-0.84) |
| Deposits to Assets | -0.605*** | -0.379*** | -0.324*** |
| | (-11.37) | (-6.95) | (-4.71) |
| % Overhead | -3.247*** | -3.068*** | -2.620*** |
| | (-9.02) | (-8.17) | (-5.01) |
| HHI | 0.0559 | 0.0247 | -0.00243 |
| | (1.50) | (0.61) | (-0.05) |
| Log Deposits | 0.239*** | 0.155*** | -0.0875* |
| | (15.65) | (5.40) | (-1.91) |
| Squared Deposits | -0.0120*** | -0.00861*** | 0.00366** |
| | (-23.98) | (-8.15) | (2.00) |
| Observations | 4,651,751 | 3,990,786 | 2,209,671 |
| $R^2$ | 0.772 | 0.755 | 0.746 |
| Year FE | Y | Y | Y |
| State FE | Y | Y | Y |
| Maturity Matched Treasury Control | Y | Y | Y |
| CD Maturity Control | Y | Y | Y |
| Rural Control | Y | Y | Y |
| Education Control | Y | Y | Y |
| Trust Control | Y | Y | Y |
| Rural x Education Control | Y | Y | Y |
| Rural x Trust Control | Y | Y | Y |
| Trust x Education Control | Y | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE 2.9.** Consumer Patience and CD Rates

This table tests the impact of CD maturity on log CD APY in rural areas. *Rural County* is a dummy variable that takes the value of 1 if the county have above 75th percentile rural population and 0 otherwise. Maturities are listed relative to the 6 month maturity. Errors are clustered at the county level, and the regression contains state and year fixed effects.

| | (1)<br>Log CD APY |
|---|---|
| Log Maturity Matched Treasury Yield | 0.277*** |
| | (95.86) |
| 12 Months | 0.254*** |
| | (101.13) |
| 24 Months | 0.465*** |
| | (106.39) |
| 60 Months | 0.790*** |
| | (102.84) |
| Rural County=1 | 0.228*** |
| | (18.43) |
| 12 Months × Rural County=1 | -0.0361*** |
| | (-9.03) |
| 24 Months × Rural County=1 | -0.0842*** |
| | (-12.79) |
| 60 Months × Rural County=1 | -0.106*** |
| | (-9.21) |
| Observations | 7,285,383 |
| $R^2$ | 0.767 |
| Year FE | Y |
| State FE | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE 2.10.** Costly External Finance and CD Rates

This table tests the impact of access to external finance on CD APY. *Rural County* is a dummy variable that takes the value of 1 if the county have above 75th percentile rural population and 0 otherwise. *Oil Boom County* is a dummy if the CD rate is offered in a county which experienced a shale oil boom. *Post-Boom* is a dummy that receives the value of 1 for years after 2004, when the oil boom occurred. All columns contain year and state fixed effects. Errors are clustered at the county level.

| | (1)<br>Log CD APY | (2)<br>Log CD APY |
|---|---|---|
| Log Maturity Matched Treasury Yield | 0.335*** | 0.335*** |
| | (60.11) | (60.00) |
| 12 Months | 0.0959*** | 0.0959*** |
| | (41.50) | (41.53) |
| 24 Months | 0.168*** | 0.168*** |
| | (49.10) | (48.93) |
| 60 Months | 0.291*** | 0.291*** |
| | (55.23) | (55.46) |
| Rural County=1 | 0.0788*** | 0.0607*** |
| | (8.56) | (5.64) |
| Oil Boom County | | -0.0266 |
| | | (-1.34) |
| Post-Boom=1 × Oil Boom County | | 0.00604 |
| | | (0.38) |
| Post-Boom=1 × Rural County=1 | | 0.0203 |
| | | (1.56) |
| Rural County=1 × Oil Boom County | | 0.0276 |
| | | (1.17) |
| Post-Boom=1 × Rural County=1 × Oil Boom County | | 0.00428 |
| | | (0.16) |
| Observations | 770,030 | 770,030 |
| $R^2$ | 0.758 | 0.758 |
| Year FE | Y | Y |
| State FE | Y | Y |
| Maturity Matched Treasury Control | Y | Y |
| CD Maturity Control | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE 2.11.** Impact of High CD Rates on Log Loan Rates

This table shows the OLS regression results for a basic term structure model and various county-level demographic measures. Column 1 reports only the term structure model, with a maturity matched treasury yield as the risk-free rate. Column 2 reports the same specification but with year fixed effects. Columns 3 and 4 control for percent rural population at the county level. Errors are clustered at the county level.

| | (1) Log Loan APY | (2) Log Loan APY | (3) Log Loan APY |
|---|---|---|---|
| Auto | -0.672*** | -0.672*** | -0.672*** |
| | (-111.18) | (-111.19) | (-111.20) |
| 30 Yr Mortgage | -0.815*** | -0.814*** | -0.814*** |
| | (-140.55) | (-140.99) | (-140.93) |
| Business | -0.657*** | -0.658*** | -0.658*** |
| | (-79.56) | (-80.71) | (-80.65) |
| Rural County | 0.0211*** | 0.0170*** | 0.0164*** |
| | (3.69) | (2.97) | (2.81) |
| Log CD APY | | 0.0365*** | 0.0365*** |
| | | (7.96) | (7.98) |
| Low Education | | | 0.00391 |
| | | | (0.68) |
| Observations | 649,169 | 649,159 | 649,159 |
| $R^2$ | 0.746 | 0.747 | 0.747 |
| Year FE | Y | Y | Y |
| State FE | Y | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE 2.12.** Impact of Trust and Education on Log Loan Rates

This table shows the OLS regression results for a basic term structure model and various county-level demographic measures. Column 1 reports only the term structure model, with a maturity matched treasury yield as the risk-free rate. Column 2 reports the same specification but with year fixed effects. Columns 3 and 4 control for percent rural population at the county level. Errors are clustered at the county level.

| | (1)<br>Log Loan APY | (2)<br>Log Loan APY |
|---|---|---|
| Rural County | 0.0183* | 0.0145 |
| | (1.71) | (1.35) |
| Low Trust Year | -0.516*** | -0.421*** |
| | (-59.28) | (-28.57) |
| Low Trust Year × Rural County | 0.00380 | 0.00250 |
| | (0.27) | (0.18) |
| Low Education | 0.00917* | 0.00900 |
| | (1.66) | (1.62) |
| Low Education × Rural County | -0.00513 | -0.00408 |
| | (-0.44) | (-0.35) |
| Low Trust Year × Low Education | -0.0151** | -0.0142** |
| | (-2.06) | (-1.98) |
| Low Trust Year × Low Education × Rural County | 0.0153 | 0.0133 |
| | (0.97) | (0.85) |
| Log CD APY | | 0.0363*** |
| | | (7.89) |
| Observations | 649,169 | 649,159 |
| $R^2$ | 0.746 | 0.747 |
| Year FE | Y | Y |
| State FE | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

# 3.0 EIGHTY YEARS OF BANKING: THE EVOLUTION OF MAIN STREET AND SHADOW BANKING IN AMERICA

*This chapter coauthored with Taylor Begley of the Olin Business School, Washington University in St. Louis and Amiyatosh Purnanandam of the Ross School of Business, University of Michigan,*

## 3.1 Introduction

Why do banks and payday lenders simultaneously exist? What friction drives the two financial institutions to provide services to different markets? In a frictionless world, there should be no difference between banks, which we define as "Main Street" banking and "shadow banks"; consumers should be indifferent between any type of financial institution since all institutions should have equal access to capital and provide the same services to consumers. We do not observe such an arrangement in the real world, suggesting that there are important frictions that drive the presence of both traditional banks and shadow banks. Further, the substitution across banks and shadow banks cannot be perfect due to these frictions.

In this chapter, "Main Street" banking refers to financial institutions that are regulated and operate as traditional banks. This definition includes banks, thrifts, savings and loan, and credit unions. These institutions were typically located on Main Street in American towns and provided services like checking and savings accounts, mortgages, and auto loans. In contrast, "shadow banking" refers to those financial institutions outside the realm of traditional Main Street banking. These companies are regulated outside of FDIC and banking statutes and often provide unsecured lines of credit such a payday advances or small loans.

The presence of both formal banks and shadow banks suggests that there are long-standing frictions that drive the growth of both industries. In the finance literature, much work has been done on the subject of payday lenders and shadow finance. Payday lenders, whose presence outside the highly regulated banking industry makes them "shadow" financing companies, provide households with a high-interest alternative to mainstream, bank-based finance. As such, the research has tended to focus on understanding the role of shadow lending in consumer welfare. For instance Morse (2011) finds that payday lending can decrease foreclosures as a result of natural disaster income shocks, whereas Melzer (2011) find that payday lenders inhibit consumer ability to make mortgage, rent and other payments. In contrast, Buchak et al. (2018) finds

that payday lenders make little difference in the credit scores of local consumers.

However, it is not clear how substitution across banks and shadow banks contributes to economic growth, especially in low-income communities. Understanding the evolution of branch banking and shadow bank in tandem, especially across a varied landscape of regulatory regimes, can help inform modern policy discussions related to consumer protection and economic welfare.

Until now, this type of study was not possible due to data limitations. First, the FDIC Summary of Deposits started in 1994, well after banks and shadow banks had established their presence in local markets. Therefore, it was not possible to observe the growth and evolution of traditional banking networks. Second, there is no comprehensive data on shadow banking, especially as it relates to local lenders, before the 2000's. Our paper uses a novel data set to answer the question of how shadow banks emerged in the United States and what frictions drove the competitive landscape of modern Main Street and shadow banks.

Our data is the first to show banks and shadow banks between 1920 and 1980. We focus on 3 states in the Midwest region of the United States. We first document that early 1900's banking in the United States involved the presence of both Main Street banks and finance companies, which were the payday lenders of the day. We show that the ratio of banks to shadow banks changes dramatically during our sample.

The rise in shadow banking is due to both a decrease in the number of banks following the Great Depression and to an increase in the number of finance companies during that same time. In the latter part of the sample, the increase in the fraction of banks is due to a reversal of this trend - the number of banks increases, and the number of shadow banks decreases.

Our paper is related to two strands in the literature. First, our paper is related to payday lending and shadow banking. In the modern era, Buchak et al. (2018) show that regulatory arbitrage accounts for roughly 60% of shadow bank grown from 2007 to 2015, with technology accounting for 30%. There are a few papers that deal specifically with historical data as it relates to shadow banking. Rockoff (2018) shows that lightly-regulated shadow banks were important catalysts in financial panics dating back to 1819. Frydman et al. (2015) details the impact of financial contraction on a non-bank financial intermediaries, showing that almost 20% of the decline in corporate investment in the aftermath of the Panic of 1907 was the result of shadow bank failures. In contrast, our paper shows that, after the Great Depression, shadow banks were quicker to recover than Main Street banks, filling the void created by the large-scale bank failures.

Second, our paper relates to economic development, especially in terms of banking and bank branching regulation. Dehejia and Lleras-Muney (2007) study changes in state-level regulations on branching from 1900 to 1940 and conclude that branching deregulation improves financial development. Finally, Pozner and Strahan (1997) summarize the rise of interstate banking deregulation and find that states with more small firms, more small banks that are performing poorly compared to large banks, and states where banks cannot sell insurance are more likely to deregulate sooner. In contrast to these papers, our paper focuses on the

impact of shadow banks at the local level. Our unique data set provides us the opportunity to view the growth and substitution across banks and shadow banks for both rural and urban areas and across multiple states with differing financing regulations.

### 3.2 City Directory History

Banking historians have long struggled with understanding the history and evolution of early 20th century banking in the United States. This early period in banking predates the creation of the FDIC in 1934 and is also characterized by wide variation in state banking laws, which severely limited bank growth and geographic footprint. Further, banking deregulation, which occurred at different times in different states beginning in the 1970s and continuing until the early 1990s, is not well-understood in terms of its impact on the banking system and on shadow banks.

Until now, the only extant documents related to banking history were compilations of national banks collected by the Comptroller of the Currency. These reports have two important drawbacks - namely that they only include national banks and that they omit state banks, credit unions, and finance companies. Further, the Comptroller reports do not include the location or number of bank branches, which are important to understanding access to credit.

However, another source of data exists that has been overlooked by researchers: city and county directories. These directories were printed by telephone and telegraph companies starting in the mid-1800s, but with regularity starting around 1920. Many of these directories have survived and are either digitized or are available in print form from state historical libraries.

We hand-collect this data from three states - Ohio, Michigan, and Indiana. This data set contains information on the branch networks of banks, credit unions (also called "building and loan associations"), savings and loans, trusts, and finance companies (which are the predecessor to modern-day shadow banks) from 1920 to 2000.

Our data consists of bank, credit union, trust, savings and loan, and finance company entries in the yellow pages sections of historical city directories (also called "phone books"). City directories were printed telephone and address directories that contained information about a particular city or county and its inhabitants. Phone books were published by local or regional printing companies, in cooperation with telephone companies and local municipal records offices.

These directories were printed each year and distributed to local citizens and businesses and were the primary mechanism via which consumers would find contact information for local merchants or local households. Each book covers a specific geographic region - usually a specific city or metropolitan area. Many phone books also contain information about "rural routes," which include smaller municipalities outside the main municipal coverage area of the phone book. Other phone books cover the entire county or multiple

cities/suburbs within the county. The fact that the majority of large cities are covered in our sample and that the overwhelming majority of directories include rural routes and adjacent suburbs means that our sample is comprehensive for the geographic areas and years in which we have coverage.

By the 1920s, a handful of major companies such as Polk's, and Robinson's printed the majority of phone books for large cities, and, as such, the format of phone books quickly became standardized. Indeed, in all but the smallest cities, phone books followed roughly the same format from the early 1900s to the 2000s, when phone book printing was largely replaced by the internet. A typical phone book contains multiple sections: the white pages (which include listings for phone numbers and addresses of individuals), the yellow pages (which include listings for businesses by category), reverse address look-up sections, and occasionally other sections such as important phone numbers and local maps.

These directories have long been of interest to historians and genealogists who use the white pages to find the address for deceased individuals and land use historians. As as result, city directories have been collected by genealogy libraries and state historical libraries to help facilitate these searches. Many state historical libraries offer their collections free of charge to the public on an open access basis. Other state historical libraries require advance notice in order to find books from their restricted shelving system.

A phone book's inclusion in these libraries appears to be first related to population of the city and second to chance. Some states are much more dedicated to record-keeping and have a more comprehensive library of directories. For instance, the Library of Michigan's collection features several directories that include the name of the original owner of the phone book and indicate that the book was given to the library follow that person's death. For the most part, directories for all major cities are easily accessible, whereas cities and counties that are not covered are usually not included in the library due to size of the city.

### 3.3 Data Collection Process

We hand collect our data at three state libraries; the Library of Michigan, the Indiana State Library, and the Ohio History Connection library. Most of these libraries have detailed finding guides online that list the cities/counties and years in which directories are available. We augment this research via internet searches for phone book images. The largest repository of phone books in digital format is Ancestry.com. We supplemented the collection of Detroit-area phone book data with a visit to the Royal Oak Public Library, which contains a more extensive collection of Detroit-area directories than the Library of Michigan.

The section of interest to us is the "yellow pages" (which are, as the name would suggest, often printed on yellow paper). This section lists all businesses in a specific town or county by service provided, with special advertising sections available for purchase. The vast majority of directories contain specific sections that listed businesses in rough categories such as "plumbing," "churches," or "banks."

Since there were no uniform listing requirements for businesses, we photograph specific entries across

all books so as to maintain continuity. These entries include the following: bank, collections, credit/credit unions/credit bureaus, finance companies, loans (and any subcategories listed after loans), savings/savings and loan, and trust/trust companies. These headings are fairly common across all books, although there are fewer headings as one looks further back in time. For instance, most directories from before 1930 feature entries only under the headings "banks" and "loan companies." Further, as we get closer to modern times, headings often include additional information that is of interest to us. For instance, in many cities, there are multiple categories of loans listed. It is not uncommon for a phone book to have "loans - auto," "loans - home/mortgage," and "loans - farm." We preserve this in our data.

In addition to information about bank business lines, there is also redundancy in terms of listings. For instance, in 1965, the Adrian Federal Savings & Loan Association of Lenawee, Michigan appears in 3 separate categories in the phone book: Loans - Mortgage, Savings Accounts, and Savings and Loan Associations. This redundancy means that all financial institutions in a particular town appear at least once in our sampled categories but often appear multiple times under different categories.

The categories that we photograph allow us a comprehensive view of household access to finance in the early 1900s. Whereas typical financial research focuses predominantly on national banks, our sample includes all financial institutions in a particular geographic area. We are able to observe state and national banks, trusts, savings and loans, credit unions (also called "building and loan funds" in many states), and finance companies (which are the early 1900s equivalent of payday lenders). The result is a complete picture of financial services offered across 60 years.

Figure 3.1 shows the cover page and one of the inner pages in our phone books. The cover page contains information related to the city/county and year that the book covered. It also includes smaller cities which are covered in the directory in addition to the larger municipality.

Figure 3.2 shows a typical entry in the yellow pages. The type of business is listed in bold: Banks and Trust Companies. The bank and trust companies are listed below. The bold font for each bank indicates that both have advertisements in the yellow pages (although they do not appear on the same page as their listing). To the top and on the bottom are listings for other businesses. The top, left, and bottom margins of the page show advertisements for other businesses in the local area.

**[See Figure 3.1]**

**[See Figure 3.2]**

We photograph phone books approximately every 5 years for every town or county in which a directory is available from approximately 1920 to 2000. We chose this range for a multiple reasons. First, 1920 is the approximate year in which phone book coverage appears to become widespread. The early 1900s and late 1800s do not have sufficient coverage to make a panel.

Once we photograph or save digital copies of the relevant city directory pages, we hand enter the relevant entries into a spreadsheet. Each line of our spreadsheet contains the county name, the state, the image number, the bank name, the address of the listed branches, zip code and the categories under which the bank was listed. Especially during the early part of the sample, address and zip code are not always available. For banks where these were not listed, we leave those entries blank. As stated earlier, in early years, banks tended to only be listed under one or two categories. As local population increased, the number of headings increased and thus, banks tended to have more descriptive categories (such as "loans - auto," "loans-home," and "savings accounts.").

Upon completion of the hand entry of addresses and branch locations, we geocode every entry in our sample using the Google Maps API. To do so, we first create a create a string with street address (if available), city, county, state and zip code (if available) for each item in the hand entered data set.

We send this string to Google Maps and collect the response, which includes geolocation data. The response varies depending on the level of detail returned from Google. Most responses are complete and contain the city, state, county, and zip code for the bank location in question. For entries containing a valid county and zip code, we record the results in our spreadsheet and move on to the next entry.

However, not all responses can be precisely located, especially older bank branches where the address is no longer valid. In these instances, we select a zip code that is in the city center. We then hand inspect records and manually enter county and zip code for entries that are clearly incorrect. For entries in which Google Maps returned multiple guesses, we select the address that is most likely to be correct and delete the other responses. The resultant data set contains both the historic data related to the original city directory entries and descriptive categories and the Google Maps geolocation data, with flags for banks that were hand corrected.

We also link branches and banks across time. To do this, we follow a format similar to the modern call report format in that each parent bank has a unique identifier, and each branch bank has a unique identifier. We match branches based on address and name, and we match parent banks based on name and city or county. The result is a comprehensive panel of financial institution availability that is robust to gaps in the source data and allows us to examine financial access through time.

Our data is comprised of 2 files: an inventory file that contains information about each phone book for the 3 states in our sample and a data file that contains information about each financial entity. The inventory file contains the following data: unique id for each phone book, type of directory (city is by far the most common), the city and county of coverage, the state, the year, the publisher, the starting image or folder number from our collection of images, a dummy for whether the book contains rural routes, notes, and any other areas that the book covers.

Our main data file contains the transcribed raw information for each financial institution. This file

contains the unique id for the phone book, which links each entry to the inventory dataset, the name of the institution, the image number from which the information was derived, the address as listed in the phone book, the zip code as listed in the phone book or as filled in by us, multiple columns for the categories under which this institution appeared, Google maps API responses regarding address, city, county, zip, and state, and a dummy for whether or not we have hand-corrected the entry. We also create a branch id number and bank id number so that we can trace the entries across time. For instance, the American State Bank in Ingham, Michigan appears at the same address in 1945, 1954, and 1955. In instances such as this where the name and address of a financial institution is the same or substantially similar, we assign each branch its own unique identifier.

Occasionally a bank branch will appear in two phone books for different cities. This usually occurs when cities have overlapping geographic coverage areas. We preserve these duplicates in the original data set so as to understand the geographic overlap of banking markets but eliminate extra entries in our analysis.

Finally, we drop institutions that are listed in directories for our 3 states of interest but that were located outside of that particular state. For instance, many Wayne County phone books list bank branches in Windsor, Ontario. We drop all of these.

The result is over 1,500 city directories covering, on average, 75% of the population of our 3 states. There are over 55,000 entries for financial institutions, and these entries are associated with 100,000 business category labels (such as "bank" or "savings and loan."). This data is summarized in Table 3.1, below. We count the number of entries we have in each category. Since financial institutions may appear in multiple categories, the rows will not sum to the total number of institutions.

**[See Table 3.1]**

Table 3.1 shows that we have over 25,000 bank branches in our sample, almost 19,000 savings and loans, almost 16,000 trusts, almost 16,000 finance companies, and almost 9,000 credit unions.

Finally, in addition to classifying institutions as banks or shadow banks, we can also classify the types of loans made by each institution. We do so by a regular expression search for loan categories in the yellow pages. Table 3.2 shows the results of such an analysis. We categorize "mortgage-auto" as yellow page entries containing the words "Mortgage," "FHA," "Real Estate," "Improvements," "Building," or "Remodel." We consider "unspecified" to include the words, "Loans," "All Kinds," and "All Purpose." We consider collateral loans to be yellow page entries including the words "Collateral" or "Chattel." Finally, the consider "non-collateral" loans to include the words "Salary," "Personal," "Furniture," "Goods," "Consumer," "Signature," or "Small."

**[See Table 3.2]**

As shown in Table 3.2, finance companies tended to advertise for collateral and non-collateral loans, with less emphasis on auto and mortgage lending. Banks tended to focus on mortgage and auto lending but less on collateral and unspecified loans. Future iterations of this paper will have this table broken out by decade and state.

### 3.4 Finance Company Overview

Interest in finance companies began as early as the late 1800's in the United States. In 1935, the Russell Sage Foundation summarized the state of the small loan industry in Robinson (1935), including a history of the industry. This document traces the emergence of small loans as a response to rising incomes during the Industrial Revolution. "As standards of living among wage-earning classes increased, the margin between their income and the minimum necessities of life widened. This larger margin, by providing means of repayment, created a credit capacity which did not exist before." Robinson (1935) This lead to innovation in lending such as salary loans, chattel loans, and pawning. Financial companies began specializing in making small, often unsecured loans to consumers. The practice was not unique to the United States, and occurred in Britain and France during the same time. According to the Russell Sage history, "...the first record of a professional lender on household goods... was a notice inserted in the Boston Globe for October 24, 1873" (Robinson, 1935).

Following World War 2, the market for consumer credit shifted. "Some older forms of credit, such as pawning and open-book retail credit, declined in popularity. These were replaced by a range of new unsecured installment and revolving loans that became increasingly popular in the postwar period; they ranged from student loans, to payday loans (a reinvention of the salary loan), credit cards, overdraft protection, and bank lines of credit" (Ryan et al., 2011).

Robinson (1935) differentiates chattel loans, which were loans made on personal property such as furniture and clothing, from salary loans, which were made using the borrower's next paycheck as collateral. "Whereas the first chattel lenders were business men who advanced small sums in connection with other undertakings, salary lenders seem usually to have been former employes (sic) who in many instances began lending to their fellow-employes (sic) and acquired their business capital almost entirely through profits from insignificant original investments." (Robinson, 1935)

At the same time, "Most types of secured installment loans—including mortgage loans, auto loans, and margin loans on securities—predated World War II and remained popular throughout the postwar period..." (Ryan et al., 2011)

In our sample, banks are the most common form of financial institution. However, finance companies comprise a large portion of our sample, accounting for approximately 16,000 observations, each of which is unique to year and location.

The names of finance companies generally include some version of the word "finance" or indicate that that the company was engaged in loan-making. For instance, "A B C Finance Co," "Credit Finance Services Inc," "Eddie's Loan Office," and "Indiana Financial Inc" all appear in our sample. Other entries are clearly from companies that provided consumer credit for purchases or medical expenses. "General Electric Credit Corp," "Aetna Finance Co," "Medical Acceptance Co," and "Appliance Buyers Credit Corp" all appear in our sample.

Further, several banks, savings and loans, and rural cooperatives advertised under the heading of "finance companies." "Northwestern Mutual Life Insurance Co of Milwaukee, Wis, (City Loan Dept)," "Pacific Mutual Life Insurance Co (Mtge (sic) Loan Dept)," "Peoples Mutual Saving and Loan Association," "Richmond National Farm Loan Association," "Adams County National Farm Loan Association," and "American Loan and Sav (sic) Association" are also in our sample as finance companies.

**[See Figure 3.3]**

In Figure 3.3, we show the difference in a typical advertisement for banks versus finance companies. Panel (a) shows an advertisement for a savings bank catering to farmers and mechanics. The advertisement lists deposit services, home loans, and commercial real estate loans. It also mentions that the bank has been in business since 1874 and is FDIC insured. Panel (b) shows an advertisement for a finance company. In contrast to Panel (a), this loan company advertised based on offering signature, personal, salary, and auto loans. It also advertises closing loans over the phone and borrower confidentiality. Panel (c) shows an advertisement for a state bank. This bank advertised based on its friendly service and emphasis on filling local needs. This bank also offered insurance and safety deposit boxes.

### 3.5 Regulatory Setting

Historical state banking statutes are available via many compiled sources, most prominent of which is Burns' Annotated Statutes. What follows below is a summary of major banking laws for the 3 states in our sample from 1920 to 2000. We begin by summarizing the basic financial laws in Michigan, Indiana, and Ohio in the early portion of the sample. Future versions of this paper will contain an overview of laws for the entire sample period.

### 3.5 Indiana

The 1921 Burns' Annotated Indiana Statutes Supplement contains Indiana statutes related to banking. These regulations are spread across 3 chapters. Chapter 15 contains regulations related to banks. Chapter 27 covers building and loan associations, and Chapter 37 covers loan, trust, and deposit companies (Burns, 1921).

Chapter 15 covers savings banks, private banks, and bank examiners. The regulations require cash reserves of 12.5% of deposits for any bank receiving deposits and general reserves of 20% of deposits. Shareholders of the bank have limited liability in the event of bank failure. Chapter 15 describes limits to the investments a bank may make (i.e. US Treasury notes, real estate, etc) (Burns, 1921).

Chapter 27 consists of 2 pages and regulates building and loan associations (the predecessor of credit unions). It also covers rural loan and savings associations. The regulations in Chapter 27 specify a minimum guarantee amount required for rural loan associations based on the population of the local area. Building and loan associations do not have such a requirement (Burns, 1921).

As noted above, Chapter 37 covers the scope of business and oversight requirements for loan and trust companies (Burns, 1921).

There is no mention of finance company regulation in the Indiana regulations in 1921.

### 3.5 Michigan

Part 3 of the Michigan Compiled Laws of 1915: Annotated Supplement 1922 (Chapter 127) contains regulation related to banking in Michigan in 1915. These regulations stipulated a 12% reserve requirement and contain a listing of the investments the bank may make with the remainder of the funds. The regulations also limit bank liability to any one individual or organization to 10% of assets (Cahill, 1922). There is no mention of finance company regulation in the Michigan statutes in 1915.

### 3.5 Ohio

Of the 3 states in our sample, Ohio had the most stringent banking regulations in 1920. The General Code of the State of Ohio Revised to 1921 contained Chapter 3 regulations related to the superintendent of banks and also to bank capital and operating requirements (Throckmorton Archibald H., 1922).

The minimum capital requirement for new banks was $25,000 or $50,000 (depending on local population) or $100,000 (if conducting trust business). The regulations provided for annual examination of the bank to be produced by the board of directors and sent to the state for review. Directors were personally liable for damage to the bank, but liability of shareholders was limited to their investment amount. The regulations limited the type of mortgage loans a bank could make and how much a bank may borrow. Finally, the regulations limited how and when dividends could be paid (Throckmorton Archibald H., 1922).

Ohio is notable in that its 1921 regulations contained provisions for chattel loans, which are covered in Chapter 25. These regulations covered pawnbrokers and chattel loan providers. Specifically, chattel loan companies were required to obtain a license with the state in order to provide salary or personal property loans. The regulations capped interest charged to 3% per month and limited the fees charged to originate and service the loan. There were also provisions for a receipt to be given to the borrower, much like a

modern-day disclosure statement (Throckmorton Archibald H., 1922). These regulations were the result of the Lloyd Act, which was passed in 1911 and limited the terms of loans for small loan businesses (Robinson, 1935).

None of the states in our sample feature deposit insurance or branching restrictions in the early 1920s.

### 3.6 Evolution of Main Street and Shadow Banking

We begin by characterizing the history of the number of finance companies in our sample by year. We categorized companies as finance companies based on 2 criteria: are they listed under "finance companies" in the yellow pages, and, if so, are they not banks, credit unions, savings and loans, or trusts?

As mentioned above, banks occasionally advertised as finance companies due to loan offerings that aligned with those of finance companies. We have removed these from this discussion of finance companies and their evolution.

In Table 3.3, we show basic information. The number of banks per 100,000 population begins at almost 20 in our sample, declines in the middle of the sample to a low of 6.71, and then increases again to 12.70 by 1980. Shadow banks exhibit the exact opposite reaction. Shadow banks begin the sample at 5.92 per 100,000 population and increase to 10.60 in the middle of the sample before again declining to 4.28 near the end. These results suggest a substitution effect between banks and shadow banks.

**[See Table 3.3]**

In Table 3.4, we show the number of banks and shadow banks by 5 year period in our sample. The third column shows the percentage of observations that are from banks compared to the whole sample.

**[See Table 3.4]**

Our results show that the number of bank branches grew rapidly between 1920 and 1930 before collapsing in the aftermath of the Great Depression. The number of bank branches did not recover its 1930 high of over 1,500 until 1960, some 30 years later. After that, the number of bank branches grew rapidly.

Shadow banks also grew rapidly between 1920 and 1930. However, in relative terms, the number of these institutions did not decline at the same rate as banks during the Great Depression. From a high of 551 shadow banks in 1930, shadow banks declined to 466 in 1935 but increased to over 500 in 1940 and then over 800 in 1955. By the end of the sample, the number of shadow banks again declined.

As a percentage of all financial institutions, banks began and ended the sample at over 80% of the market. However, the middle of the sample (from about 1935 to 1960) featured a large decline in the prominence of banks relative to shadow banks.

We show this pictorially in Figure 3.4, which shows that the fraction of observations in our sample that are bank branches decreases from over 90% in 1920 to a low of 64% in 1920, before increasing to 85% in 1980.

**[See Figure 3.4]**

This increase in shadow banking during the middle of our sample is robust across subdivisions in the sample. In Figure 3.5 we divide the sample by state and by rural/urban counties. Both figures show the same characteristic "U" shape, demonstrating that all states in the sample experienced the same decrease in main street banking relative to shadow banks during the middle of the sample. The results are also similar in rural and urban areas, which even rural counties experiencing a loss of main street banks during the period between 1930 and 1960.

**[See Figure 3.5]**

Finally, we investigate whether the effect was driven by consolidation in the industry. Since we have only completed this analysis for Michigan, we include those statistics in Table 3.5. In order to calculate the number of unique banks and bank branches, we hand-categorize each entry across time and location. Each unique bank receives its own identifier, and each unique branch for that bank receives its own identifier. We do the same for finance companies and calculate the number of unique entries for the sample for each 5 year period. As in many of the tables above, we sum across year and then take the maximum value for the 5 year period.

**[See Table 3.5]**

The results in Table 3.5 show that both the number of unique banks and unique shadow banks decreased during the Great Depression. The number of unique bank branches increased following the Great Depression as well. However, shadow banks increase following the Great Depression but again decrease starting in 1965.

Further, the number of branches per bank increases following the Great Depression, to a high of 3.1 in 1980, whereas shadow banks display a much smaller branching network, with a higher of 2.2 branches per unique shadow bank.

Taken together, our results show that shadow banking and Main Street banking have long been substitutes in the United States. We are the first to document the substitution across banks and shadow banks in the 20th century.

### 3.7 Conclusion

Shadow banking, especially as it relates to retail consumer finance, is an important topic for policy makers and finance researchers. While much work has been done on the current issues related to shadow banking, very little research has been completed on the historical development of these institutions. Our work is the first to utilize a novel data set of finance and bank branch locations in 3 states in the Midwest United States. We first summarize the history of bank and shadow-bank branching for these 3 states. Our results are the first to document the growth in number of bank and shadow bank branches, along with their implications for economic growth. Then we show a persistent substitution across bank and shadow bank branches, suggesting that finance companies met an important need for local consumers. Finally, we discuss avenues for future research.

**TABLE 3.1.** Financial Institution Branches by State

This table summarizes the number of entries whose categories meet our criteria for "bank," "credit union," "finance company," "savings and loan," and "trust" for the entire sample period (1920 to 1980). Note that we have not included row totals since some institutions may fall into more than one category.

| State | bank | credit union | finance company | savings and loan | trust |
|---|---|---|---|---|---|
| **Indiana** | 5,600 | 1,913 | 5,331 | 3,528 | 4,048 |
| **Michigan** | 10,208 | 2,374 | 3,819 | 4,557 | 5,286 |
| **Ohio** | 10,022 | 4,441 | 6,815 | 10,658 | 6,428 |
| **Total** | 25,830 | 8,728 | 15,969 | 18,743 | 15,762 |

**TABLE 3.2.** Loan Categories by Type of Institution

This table summarizes the number of descriptors in the "loan" category of the yellow pages by type of institution. For each type of loan offering, we do a regular expression search in the loan category title for particular words. "mortgage-auto" consists of the following words: "Mortgage," "FHA", "Real Estate," "Improvements," "Building," "Remodel," "Auto," and "Car." "unspecified" includes the words: "Loans," "All Kinds," and "All Purpose." "collateral" includes the following words: "Collateral," "Chattel." "non-collateral" includes "Salary," "Personal," "Furniture," "Goods," "Consumer," "Signature," and "Small Loan." Note that not all entries contain information related to loan category. Entries will not sum to the total number of banks and shadow banks.

| **Type of Loan** | **Bank** | **Shadow Banks** |
|---|---|---|
| mortgage-auto | 8,404 | 919 |
| unspecified | 2,361 | 1,379 |
| collateral | 1,300 | 1,987 |
| non-collateral | 3,158 | 2,277 |

**TABLE 3.3.** Per Capita Financial Institutions

This table summarizes the number of financial institutions by type and by decade per 100,000 people. We first sum the number of institutions by year and then take the maximum number of institutions in each decade for each county. Finally, we aggregate over all counties.

| Decade | Banks | Credit Unions | Finance Companies | Savings and Loans | Trusts |
|---|---|---|---|---|---|
| 1920 | 19.88 | 1.76 | 5.92 | 8.77 | 4.53 |
| 1930 | 13.02 | 4.17 | 8.33 | 10.53 | 6.27 |
| 1940 | 6.71 | 3.74 | 8.48 | 7.55 | 4.41 |
| 1950 | 7.90 | 4.23 | 10.60 | 7.49 | 5.61 |
| 1960 | 9.78 | 4.95 | 9.48 | 8.35 | 7.43 |
| 1970 | 13.48 | 5.08 | 7.23 | 8.84 | 11.03 |
| 1980 | 12.70 | 4.34 | 4.28 | 8.97 | 10.36 |

**TABLE 3.4.** Banks and Non-Banks by Year

This table summarizes the number of banks and shadow banks in the sample by 5 year increments from 1920 to 1980 for Michigan, Indiana, and Ohio. For each county in the sample, we sum the total banks and shadow banks by year and then select the maximum value for each 5 year period. The first and second columns show the number of bank and shadow bank branches, as described above. The third column shows percentage of shadow bank branches compared to the total observations in each 5 year period. For example 75/(553+75) = 0.119, as shown in the top line.

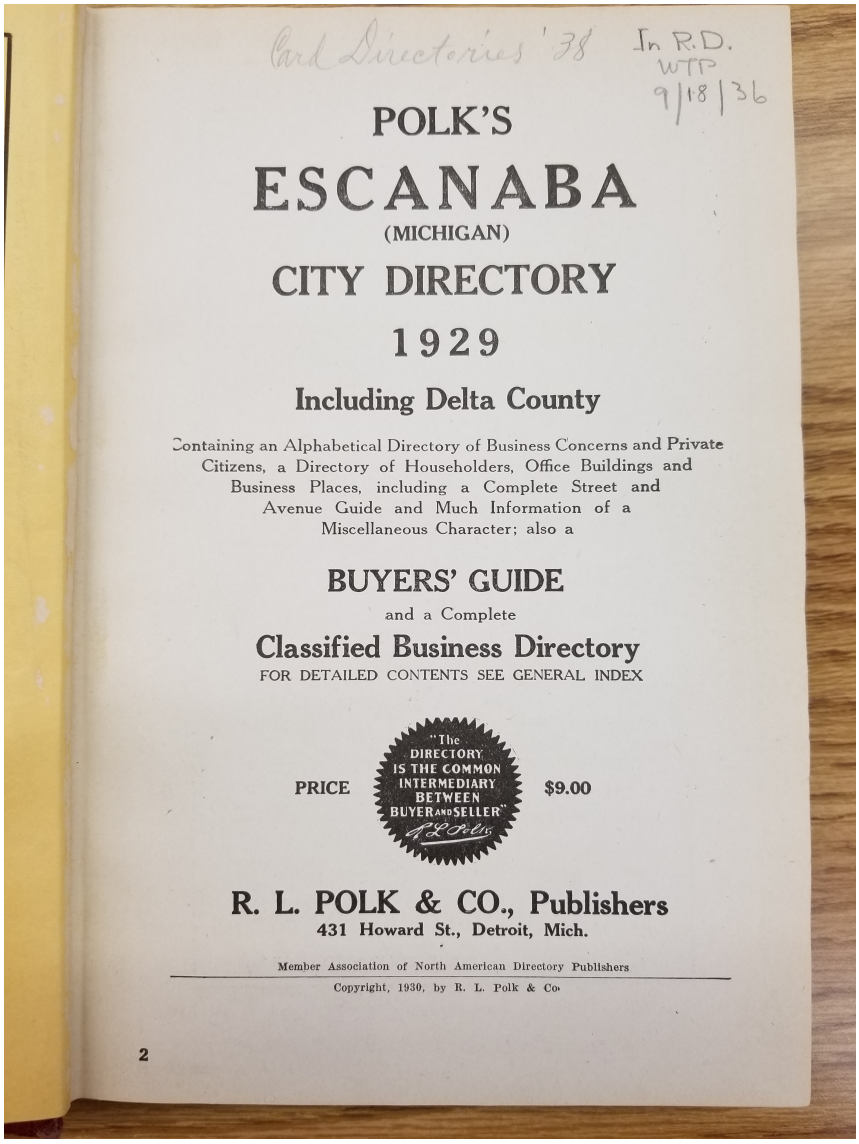
| Decade | Banks | Shadow Banks | Pct Shadow Banks |
|---|---|---|---|
| 1920 | 553 | 75 | 12 |
| 1925 | 948 | 169 | 15 |
| 1930 | 1,573 | 551 | 26 |
| 1935 | 1,033 | 466 | 31 |
| 1940 | 920 | 526 | 36 |
| 1945 | 753 | 368 | 33 |
| 1950 | 626 | 399 | 39 |
| 1955 | 1,374 | 818 | 37 |
| 1960 | 1,643 | 814 | 33 |
| 1965 | 2,264 | 992 | 30 |
| 1970 | 2,343 | 717 | 23 |
| 1975 | 3,772 | 949 | 20 |
| 1980 | 4,950 | 813 | 14 |

**TABLE 3.5.** Banks and Non-Banks by Year

This table shows consolidation estimates for banks and shadow banks in Michigan. We hand-categorize entries based on the name of the branch, and we track these entries over time and across counties. In order to calculate unique branches, we sum the number of banks and shadow banks per year, per county. We then take the maximum value for each 5 year period. To calculate the unique banks and shadow banks, we sum the unique banks and shadow banks by year and take the maximum for each 5 year period. The left half of the table shows the estimated number of unique banks, unique bank branches, and the estimated number of branches per bank in our sample by 5 year period. The right side shows the estimates for the number of unique shadow banks, the number of unique shadow bank branches, and the number of branches per shadow bank for each 5 year period in the sample.

| 5 Year Period | Unique Banks | Unique Branches | Branches per Bank | Unique Shadow Banks | Unique Shadow Branches | Branches per per Shadow Bank |
|---|---|---|---|---|---|---|
| 1920 | 10 | 163 | 1.5 | 79 | 80 | 1.0 |
| 1925 | 161 | 476 | 3.0 | 117 | 119 | 1.0 |
| 1930 | 226 | 669 | 3.0 | 329 | 377 | 1.2 |
| 1935 | 200 | 350 | 1.8 | 162 | 214 | 1.3 |
| 1940 | 171 | 354 | 2.1 | 193 | 271 | 1.4 |
| 1945 | 172 | 333 | 1.9 | 121 | 194 | 1.6 |
| 1950 | 169 | 343 | 2.0 | 130 | 235 | 1.8 |
| 1955 | 227 | 531 | 2.3 | 203 | 353 | 1.7 |
| 1960 | 319 | 734 | 2.3 | 219 | 416 | 1.9 |
| 1965 | 360 | 881 | 2.5 | 253 | 431 | 1.7 |
| 1970 | 463 | 1,259 | 2.7 | 182 | 392 | 2.2 |
| 1975 | 464 | 1,298 | 2.8 | 124 | 269 | 2.2 |
| 1980 | 495 | 1,515 | 3.1 | 84 | 186 | 2.2 |

A typical phone book begins with a cover page much like this one. The cover page contains information regarding the type of directory, the publisher, the location of the phone book and surrounding cities included in the book. The year and publisher information is also included.



Card Directories '38 In R.D. WTP 9/18/36

POLK'S

ESCANABA

(MICHIGAN)

CITY DIRECTORY

1929

Including Delta County

Containing an Alphabetical Directory of Business Concerns and Private Citizens, a Directory of Householders, Office Buildings and Business Places, including a Complete Street and Avenue Guide and Much Information of a Miscellaneous Character; also a

BUYERS' GUIDE

and a Complete

Classified Business Directory

FOR DETAILED CONTENTS SEE GENERAL INDEX

PRICE "The DIRECTORY IS THE COMMON INTERMEDIARY BETWEEN BUYER AND SELLER" R.L. Polk & Co. $9.00

R. L. POLK & CO., Publishers

431 Howard St., Detroit, Mich.

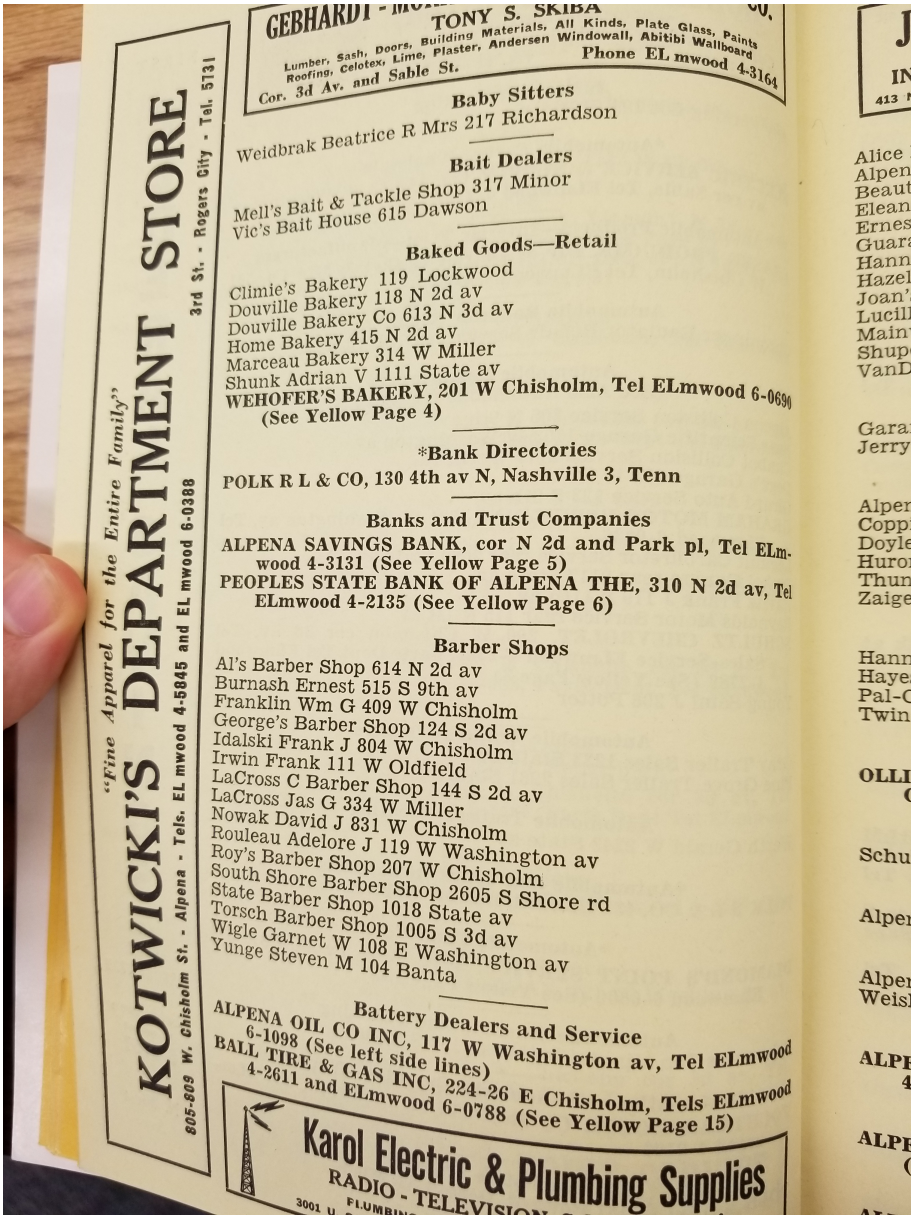
Member Association of North American Directory Publishers



2

**Figure 3.1.** Sample Phone Book Cover Page

Each phone book is divided into multiple sections, with the Yellow Pages being our section of interest. We photograph each page containing entries that fall under the following categories: banks, collections, credit unions, credit bureaus, finance companies, loans, savings and loans, and trusts.



GEBHARDT - MO... CO.
TONY S. SKIBA
Lumber, Sash, Doors, Building Materials, All Kinds, Plate Glass, Paints
Roofing, Celotex, Lime, Plaster, Andersen Windowall, Abitibi Wallboard
Cor. 3d Av. and Sable St. Phone EL mwood 4-3164

**Baby Sitters**

Weidbrak Beatrice R Mrs 217 Richardson

**Bait Dealers**

Mell's Bait & Tackle Shop 317 Minor
Vic's Bait House 615 Dawson

**Baked Goods—Retail**

Climie's Bakery 119 Lockwood
Douville Bakery 118 N 2d av
Douville Bakery Co 613 N 3d av
Home Bakery 415 N 2d av
Marceau Bakery 314 W Miller
Shunk Adrian V 1111 State av
**WEHOFER'S BAKERY, 201 W Chisholm, Tel ELmwood 6-0690**
**(See Yellow Page 4)**

***Bank Directories**

**POLK R L & CO, 130 4th av N, Nashville 3, Tenn**

**Banks and Trust Companies**

**ALPENA SAVINGS BANK, cor N 2d and Park pl, Tel ELmwood 4-3131 (See Yellow Page 5)**
**PEOPLES STATE BANK OF ALPENA THE, 310 N 2d av, Tel ELmwood 4-2135 (See Yellow Page 6)**

**Barber Shops**

Al's Barber Shop 614 N 2d av
Burnash Ernest 515 S 9th av
Franklin Wm G 409 W Chisholm
George's Barber Shop 124 S 2d av
Idalski Frank J 804 W Chisholm
Irwin Frank 111 W Oldfield
LaCross C Barber Shop 144 S 2d av
LaCross Jas G 334 W Miller
Nowak David J 831 W Chisholm
Rouleau Adelore J 119 W Washington av
Roy's Barber Shop 207 W Chisholm
South Shore Barber Shop 2605 S Shore rd
State Barber Shop 1018 State av
Torsch Barber Shop 1005 S 3d av
Wigle Garnet W 108 E Washington av
Yunge Steven M 104 Banta

**Battery Dealers and Service**

**ALPENA OIL CO INC, 117 W Washington av, Tel ELmwood 6-1098 (See left side lines)**
**BALL TIRE & GAS INC, 224-26 E Chisholm, Tels ELmwood 4-2611 and ELmwood 6-0788 (See Yellow Page 15)**

*"Fine Apparel for the Entire Family"*
KOTWICKI'S DEPARTMENT STORE
805-809 W. Chisholm St. - Alpena - Tels. EL mwood 4-5845 and EL mwood 6-0388
3rd St. - Rogers City - Tel. 5731

Karol Electric & Plumbing Supplies
RADIO - TELEVISION
3001 U... PLUMBING...

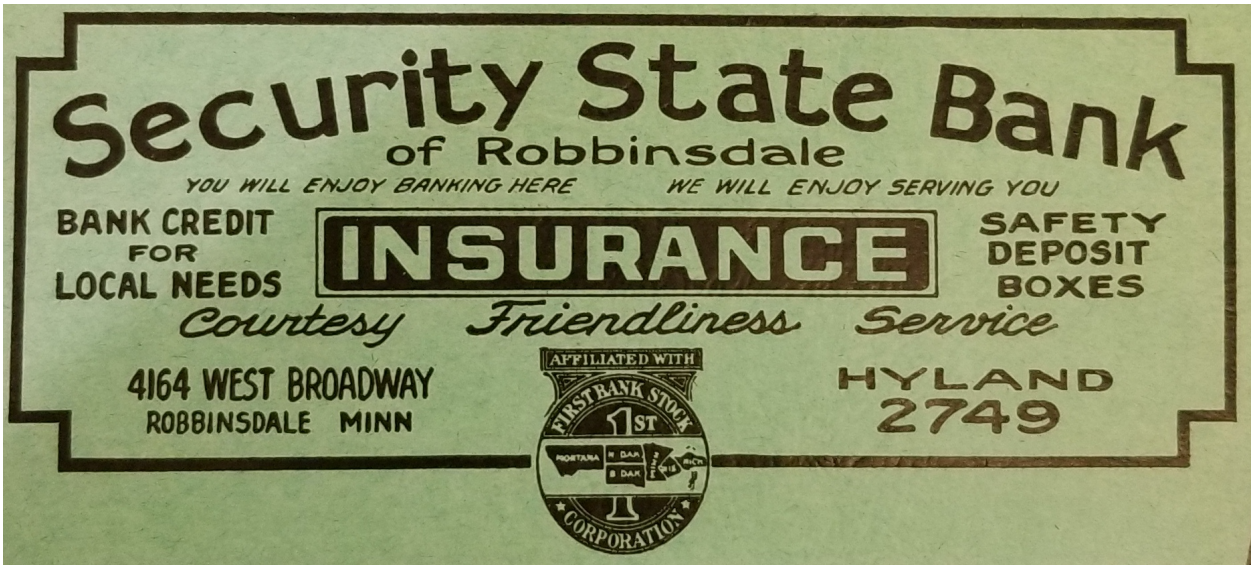
**Figure 3.2.** Sample Phone Book Data


**(a)** Example advertisement for a savings and loan association.

**Figure 3.3.** City Directory Example Advertisement


**(b)** Example advertisement for a finance company.

**Figure 3.3.** City Directory Example Advertisement




**(c)** Example advertisement for a bank.

**Figure 3.3.** City Directory Example Advertisement

In this figure we show the percentage of branches in our sample belonging to banks (versus non-banks) by year.

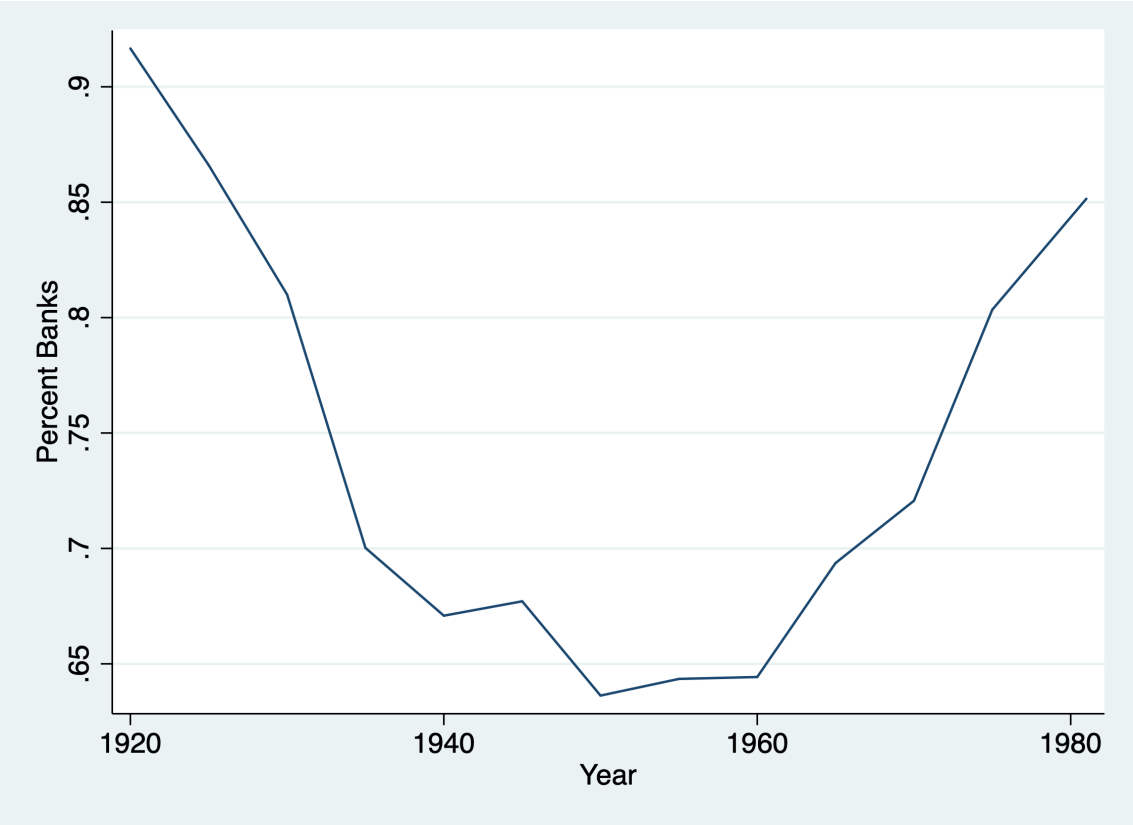



**Figure 3.4.** Percent Banks and Non-Banks by Year

In this figure we show the percentage of branches in our sample belonging to banks (versus non-banks) by year and by state. The second figure shows the percent of banks by rural population.

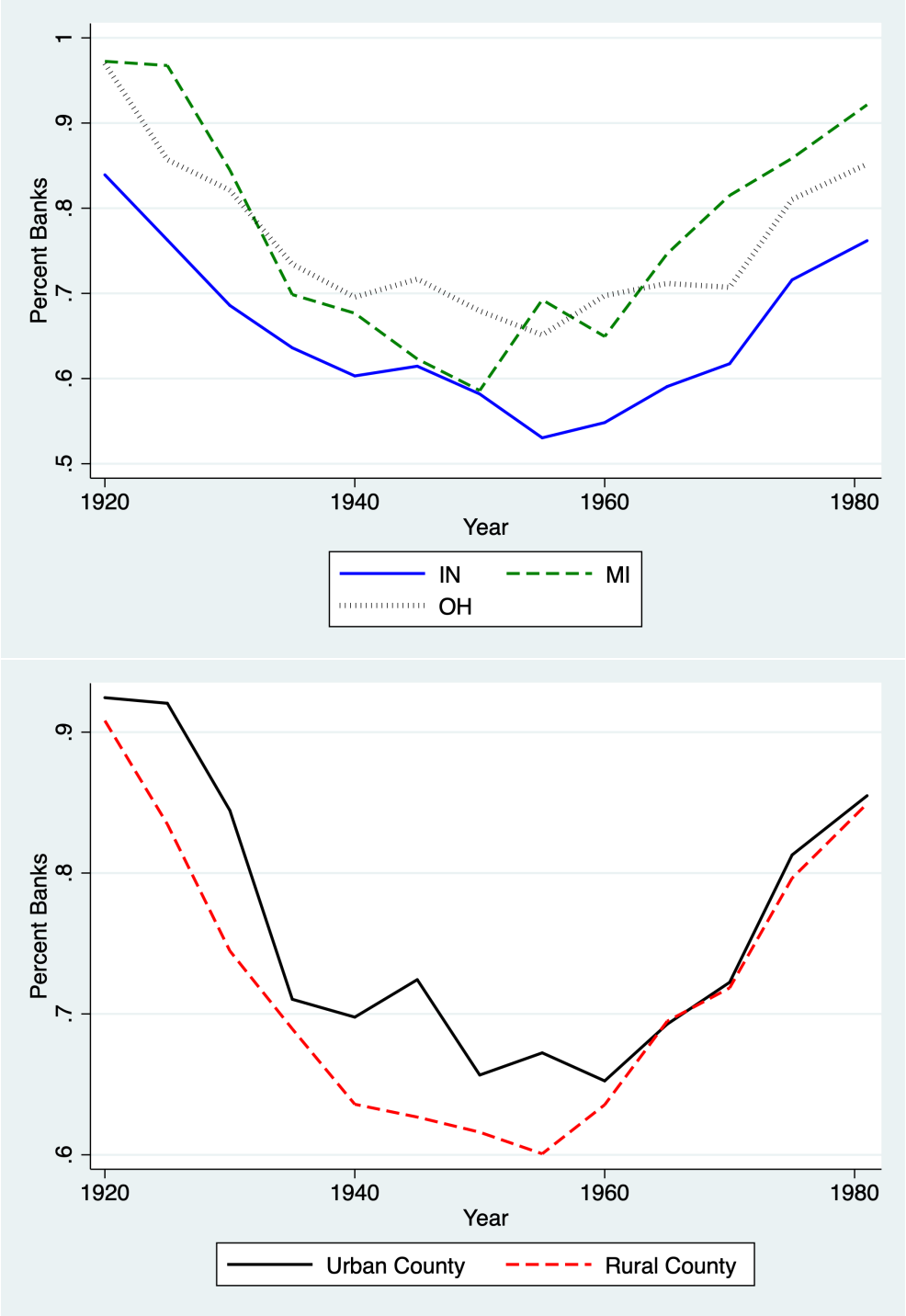



**Figure 3.5.** Percent Banks and Non-Banks by Year, State, and Rural Population

**Data Appendix to Chapter 1: Societal Trust and Financial Market Participation**

The Freedman's Savings and Trust Bank was a large, privately owned, multi-branch black bank founded in the aftermath of the Civil War with a mission to service savings accounts to newly freed slaves. During the height of its operations, the bank had branches stretching from New York to Louisiana. The bank failed in 1874, causing a significant blow to African American trust in financial and government institutions. Following the failure, Congress appointed a special committee to handle the resolution of the bank and to distribute the remaining funds to depositors. In the process, they collected, created, and archived a large number of historical records pertaining to the depositors of the bank. These records provide a rich dataset for researchers interested in black banking in the United States. In this appendix, we summarize our collection methods and data processing procedures, and we characterize the scope of the resulting data for the benefit of future research. We also summarize some high level findings from the data.

The Freedman's Savings and Trust Bank was founded in the United States in the mid-1860s as a savings vehicle for newly freed slaves. It eventually grew to more than 30 branches located both in large cities such as New York and Baltimore and smaller towns such as Beaufort, South Carolina, and Natchez, Mississippi. Although deposits grew quickly, bank management began making increasingly risky loans beginning around 1870. During the Panic of 1873, the Freedman's Bank encountered multiple runs, and by July of 1874, despite numerous efforts at reform, the bank failed.

Historians have long regarded the failure of the Freedman's Savings and Trust Bank as a major breech of trust on the part of the white community. The bank, which at the time of its failure had over 30 branches throughout the eastern United States, from New York to Shreveport, and which catered almost exclusively to newly freed slaves, was a major setback for efforts to increase financial participation amongst blacks (Baradaran, 2019).

In the aftermath of the failure, Congress appointed a special committee to oversee the dismantling of the bank and the return of funds to depositors. As part of that process, the committee collected depositor passbooks and bank records. The committee also produced detailed records of the return of deposits to account holders following bank liquidation. These records have survived and offer a rich, but messy, dataset for academics interested in understanding the bank's operations and subsequent failure. These records come from a variety of sources and, together, provide a robust picture of Freedman's Bank depositors.

We organize, digitize, and, where possible, merge data from these sources to create a comprehensive picture of depositor and bank branch characteristics. The result is the most exhaustive data set detailing

the available information on the Freedman's Savings and Trust assembled to date.

The first part of the paper discusses the major historical milestones associated with the bank's creation and subsequent failure. The second part discusses our data sources and collection methodologies. The third part summarizes the data characteristics.

### G. Bank History

In early 1865, following the end of the Civil War, wealthy Washington D.C. businessmen collaborated to create what was originally considered philanthropy: a savings and trust bank for newly freed slaves. Using a loosely designed charter, the The Freedman's Savings and Trust Company came into being on March 3, 1865. It "was an attempt by Reconstruction America to mold ex-slaves into middle-class citizens" (Osthaus (1976)). The 50-member board of trustees was composed almost entirely of wealthy white businessmen who saw an opportunity to help improve the standings of an entirely new portion of society.[1] Thus, the bank was established as a mutual savings bank for the benefit of black people. Ostensibly, there was no profit motive, and the assets were owned in proportion to each depositor's account size.

In the early 1870s, savings and trust banks were considered unlikely to fail. "Up to the 1860's these banks had established an enviable record for safety, especially in comparison to American commercial banks, and most believed they had succeeded in benefiting the laboring population financially and morally" (Osthaus, 1976). Thus, there was little regulation of bank operations or activities, and there was no deposit insurance.

From its philanthropic beginnings, the bank grew quickly, establishing branches in over 30 cities throughout the United States. Figure A.1 shows the extent of the branches during the height of operations. The geographic footprint of the bank extends from New York to Jacksonville, Florida, and west to Little Rock and Shreveport. Table A.1 summarizes the branch locations and the years in which they opened.

**[See Figure A.1]**

**[See Table A.1]**

Initially, the Freedman's Bank targeted black Civil War soldiers who had been recently discharged from the army and were receiving a military pension. Then, as army pension payments became less common, the bank began pursing local deposits. The Freedman's Bank was solely a depository institution and made no loans to its account holders. Bank assets initially consisted of marketable securities, and the bank slowly began making real estate loans to white non-depositors near the headquarters in Washington D.C. To entice

[1] Contrary to popular belief, the Freedman's Bank was not part of the Freedman's Bureau, which was a organization chartered by Congress in 1865. The Freedman's Bureau was responsible for dispensing payments following the close of the Civil War and thus partnered with the Freedman's Bank during the first few years of the bank's existence. However, there was no formal relationship.

new depositors, the bank relied on notions of thrift and saving as being the ticket to achieving the same lifestyle enjoyed by white citizens. The bank accepted deposits as low as 3 cents, and it partnered with black churches and social institutions to gain the trust of local black populations.

The early years of the Freedman's Bank were largely successful due to the optimism that blacks had for joining the American way of life. Especially in the South during the early Reconstruction era, newly freed slaves were excited about their future and viewed the closing of the Civil War as an opportunity to improve their social and economic standing. "African Americans' testimonies suggest that they understood that land ownership would secure their self-sufficiency and bolster their freedom" (Williams, 2012).

Freedmen were dedicated to establishing themselves in their new society. "Many of them modeled their homes, families, and communities on the mainstream white society and established male heads of households so they could claim the sociopolitical capital that infused the privileges of citizenship" (Williams, 2012). Such enthusiasm, although initially dampened by a reluctance to trust institutions run by white businessmen, was evidenced by the large percentage of black deposits that flowed into the Freedman's Bank during its years of operation.

Furthermore, access to banking was important for growing black-owned businesses, which sprang up in southern cities as restrictions on blacks' economic activity disappeared. "Especially in growing inland cities like Atlanta and Montgomery, where newcomers did not have to contend with a preexisting black elite, a new business class arose, composed of enterprising freedmen who served a black clientele" (Foner, 1990). At the height of operations, the Freedman's Bank held over $4 million in assets or approximately 89 million in 2018 dollars.

This period of relative euphoria was cut short, and several problems coincided to cause the bank to eventually fail. First, from the beginning, the Freedman's Bank was plagued by poor record-keeping, which made it difficult to judge branch profitability.

Second, there were not enough bank branches to adequately serve the needs of black customers throughout the country, but opening additional branches was costly and created additional oversight issues. "The trustees and officers probably realized all along that they would have to open branch offices throughout the South, thus increasing enormously the problems of management" (Osthaus, 1976). Additional operational problems included communication to the remote branches, which, for items beyond simple telegrams, took days or longer. This caused difficulty when discussing bank policies or conducting ongoing business.

Finally, the trustees of the Freedman's Bank eventually grew frustrated with their low returns on government savings bonds and shifted to riskier loans. Ironically, the only loans made by the Freedman's Bank, a bank dedicated to serving black freedmen, were almost exclusively loans made to white-owned enterprises for real estate investment in the Washington D.C. area.

Although the bank suffered many small panics during its early years, none were substantial. The first

sign of real panic occurred in early 1873 when the Comptroller's Report United States Comptroller of the Currency (1873) stated that the bank had made several bad loans but that it was basically solvent. There was a small run in Nashville and possibly runs at other branches (Memphis Daily Appeal, 1973). However, those all subsided, and business resumed until the run during the Panic of 1873, which heralded the beginning of the bank's demise.

The Panic of 1873 began in mid-September 1873 when Jay Cooke & Company, a prominent bank in Philadelphia, failed. Jay Cooke & Company had been instrumental in the financing of the Civil War and had subsequently become involved in a bond offering for the construction of the Northern Pacific Railway. However, it over-estimated market demand for the bonds and was forced to liquidate its portfolio when it could not sell enough to meet operational requirements. This contributed to the Panic of 1873, which was a nationwide banking panic that turned into a lasting depression and was not exceeded until the Great Depression began in 1929. During the panic, the New York Stock Exchanged closed for the first time in history and remained closed for 10 days.

Jay Cooke's brother, Henry Cooke, was a prominent board member for the Freedman's Bank, and, although it is impossible to know if account holders were aware of the relationship, there was little relationship between the bank and the Jay Cooke failure. Indeed, at the time of the failure, the Freedman's Bank held less than $200 of Northern Pacific Railway bonds and just over $1,000 in deposits at Jay Cooke & Company (United States House of Representatives (1874), United States Comptroller of the Currency (1873), United States House of Representatives (1876)).

However, it is clear that the reaction by Freedman's Bank account holders to the panic was swift. There were runs in multiple cities, including the New York and Washington branches. The telegraph was a well-established technology in the 1870s; thus, news traveled quickly from city to city. Over the next several days, runs started at the other branch locations. Augusta, Savannah, Montgomery, Atlanta, Memphis, and Nashville are all noted as having experienced runs. Other branches, such as Charleston, did not experience the same degree of panic (Osthaus, 1976).

The Freedman's Bank, which was already stretched thin due to its poor investments, could not meet some of the depositor demands and was forced to borrow from other banks. Bank trustees were also forced to institute a 60-day rule for withdrawing money or closing accounts. Indeed, some of these 60-day notices are recorded in depositor books, which appear in our records. According to the United States House of Representatives (1874) report, the bank lost over $1 million in deposits following the crash.

While the bank's trustees worked on reforming the bank, they also chose Frederick Douglass, the noted black abolitionist, as the new bank president on March 14, 1874. Douglass had little banking experience but worked to improve the bank's reputation and financial standing.

The bank also attempted to improve its social standing in the community. It appealed to local black

leaders to increase deposit holdings amongst their followers. It ran newspaper ads touting the bank's strength and reminding black citizens that savings were the key to prosperity.

However, this was not enough to allay fears that the bank might become insolvent. The Comptroller's Report was released in April 1874, a month late, and the report's findings further decreased trust in the bank's ability to continue operating. Several runs occurred again at branches throughout the country in late April and early May. In late June, the bank's trustees voted to close the bank, and the bank was officially closed on July 2, 1874. Out of over 61,000 accounts at the time of the bank's closure, passbooks were returned for just under 30,000 accounts (United States House of Representatives (1874), United States House of Representatives (1883)).

### G. Historical Data

Following the Freedman's Bank failure, Congress organized a payment program for account holders who had lost money in the failure. In order to receive a refund of the remaining portion of their assets, account holders were required to send their passbook to the comptroller, who would reconcile the passbook with the bank's indices of new accounts and issue a refund check. Refunds amounted to 62% of total deposits and were issued over several years as passbooks were collected and bank assets liquidated.

Records are derived from this payment program and consist of a variety of sources. Freedman's Bank passbook records exist primarily in microfilm (Comptroller of the Treasury, 1914) and original passbooks available at the National Archives (United States National Archives and Records Administration, 2016b). The bulk of the information used to conduct these analyses originates from three collections: the indexes to the ledger books for 29 of the branches in the Freedman's Bank, (United States National Archives; Black studies research sources, 2005), the passbooks themselves, (United States National Archives and Records Administration, 2016b), and the complete list of accounts in existence at the date of closure for 21 branches along with their dividend payouts (United States National Archives and Records Administration, 2016a).

Indices to new accounts have been preserved on microfilm and have been made available online by FamilySearch at FamilySearch.org (FamilySearch, 2020). These records were created upon the opening of new accounts or the reissueance of a passbook. In total, there are over 89,000 account records and over 480,000 associated records. The National Archives and Records Administration (1899) records are in PDF format and contain information for almost 40,000 accounts and span 21 cities.

We summarize the data collection processes for each data source below.

### G. Indices to New Accounts

The indices to new accounts, also called *ledger books*, contain a rich historical record of new account openings at the Freedman's Bank. The FamilySearch database (FamilySearch, 2020) contains the indexes to the ledger

books for 29 of the branches in the Freedman's Bank. Each page of the book contains eight entries, each of which contains blanks for account number, account holder name, date, birthplace, where brought up, residence, age, occupation, employer, wife or husband, children, father, mother, brothers and sisters, and remarks.

These records have been transcribed by FamilySearch.org, which provided us with permission to use the records for our research. Accounts have one main record - that of the passbook holder - and several associated records for relatives listed on the passbook page. Figure A.2 shows the raw account information, which was later transcribed by FamilySearch.org. Although some branches are not available in the records and gaps in coverage exist, the records provide a substantial history of the Freedman's Bank. The subsequently transcribed file contains each individual record and all of the descriptive data for each entry, which includes demographic information, as well as next of kin. This file has 480,597 entries, which includes both underlying account information and associate records for friends and family of account holders.

The transcription of the data provides a wealth of textual information about the depositors, but the transcription process contains a number of errors, which we fix through a replaceable sequence of edits that can be applied via fully programmatic computer code. In addition to fixing these errors, we also perform a substantial amount of algorithmic categorization of free-form textual records that facilitate large-scale analysis. Researchers who are are granted access to the raw data from FamilySearch can make use of this provided code to generate the cleaned and fully parsed data.

**[See Figure A.2]**

Our particular application called only for the passbook holder records, so we drop all records that are not for the account holder and examine the date of entry into the logbook. New passbooks were generally entered sequentially into the logbooks by bank clerks. Most, but not all, records are dated, requiring some account dates to be interpolated from their entry order. This required interpolation of passbook dates, which is complicated by several things. First, there are gaps in the signatory records due to lost pages during the period following the bank's failure. Second, not all records are for new accounts. Many times, entries refer to prior passbooks. This is consistent with the passbook records that often contain new passbooks and reference prior balances. In this situation, we do not count the reference as a new account. Third, the month of January tends to have a large increase in new records. The effect is persistent across years and suggests a seasonal activity like agricultural purchases or bank housekeeping.

To interpolate account records, we first drop records that are known to be unreliable. This includes the entire city of Beaufort where accounting practices are difficult to decipher. Then we modify account numbers that contain non-integer values. Several of the accounts have fractional or letter suffixes appended to the account number, such as "0.5" or "A," which appear to be addenda for existing accounts. There are

also four records from Washington D.C. in which the account number is missing. We fix these manually. We use a regular expression to check for entries with indications of having existed prior to the entry. This includes entries like "transfer," or "old," or "lost." Note that we do not have records for every branch of the Freedman's Bank, nor do we have complete records for many of the branches. For our tests, this is not an issue. We fix obvious date entry errors including faulty years or months, and entries with missing dates where the solution is obvious.

Then we generate formal dates using the information from the FamilySearch page. We check for missing dates in sequential records. We apply several basic rules for interpolation. First, if there is an entry sandwiched between two records with the same date, then the record gets assigned that date. We interpolate when the records are separated by more than one day. A handful of records contain Sunday dates, which appear to be an error in the entry. We modify those to occur on Saturday.

This interpolation process creates observations at the beginning or end of the record that are not capable of being interpolated. We drop those.

### G. Passbooks

Passbooks were used by account holders to track their ongoing balances, much like a modern-day checkbook registers. The existing passbooks were collected as part of the effort to repay account holders following the bank's failure. Only account holders who did not run on the bank had a balance at the time the bank failed. Thus, by construction, passbooks only contain non-run behavior.

The physical passbooks are available both in microfilm format (Lester and Gutberlet, 2005) and at the National Archive in a four-box set (United States National Archives and Records Administration, 2016b). The microfilm versions are often blurry and difficult to read. We obtained photographs in person at the National Archives. The result is a rich and thorough listing of every available transaction that exists in the records that is superior to other sources of passbook transaction data. Our hand-entered records comprise the entire extant transaction record for the Freedman's Bank.

The passbooks appear to be a random sampling of account holders across multiple banks, and the National Archives collection is in good condition. To keep track of the passbook location, we created a unique identifier for each book. The passbooks are also logged by the four distinct boxes housed at the archives. Photos were taken chronologically through each passbook; thus, the file number of each picture can be used as the identifier. Together, this creates a box number/photo number identifier that is unique for each passbook.

**[See Figure A.3]**

**[See Figure A.4]**

Depositor passbooks contain a cover page, several pages of general bank rules, and several ledger pages for the owner to record banking transactions. When open to the ledger pages, the left side of the passbook was typically used for deposits and the right side for withdrawals. Each deposit book contained 12 pages, with eight pages for recording of activities. Figures A.3 and A.4 show the passbook cover page and sample entries.

Once a passbook became full of transactions (or in the event of a lost passbook), the bank would issue another passbook. These passbooks usually have "balance forward" written on the first page, and transactions continue beneath that. There are a total of 536 passbooks.

We photographed the relevant pages of each book, including the front page, which contains the depositor account number, depositor, name, and the branch. We also photographed relevant pages within the passbook, omitting pages containing no entries. Thus, for each available passbook, we have recorded the name of the depositor, the account number, the branch location, and the dates and amounts of all legible deposits. We also note whether the first deposit is a balance forward or an initial deposit. Nine of these books have 60-day notices to withdraw or close the accounts written in the margins.

Note that if a passbook has a balance forward, then the deposits and withdrawals will not demonstrate the entire history of the account. Thus, for some cities, the sum of the withdrawals exceeds the sum of the deposits due to the balance-forward portion of the deposit books.

Finally, where possible, we match passbooks to the corresponding numbered account in the indices to new accounts. This match provides information on the date of account opening (which is often given in the passbook as the first transaction). It also provides some information about race (which is usually listed by skin color), age, occupation, birthplace, and family members, as available in the indices to new accounts.

### G. Dividend Payment Records

In order to keep track of dividend payments following the failure, bank examiners created a ledger of each extant account at the date of closure. The dividend record represents a ledger that was created by the Comptroller of Currency upon the resolution of the bank to keep track of partial payouts to depositors with accounts at the time of the failure. These records were maintained in a set of large, bound, handwritten ledgers. They contain a complete list of all numbered accounts for each available branch, the account holder's name, the remaining balance at the time of the failure, and a record of successive dividends paid to the account holder over the next 10 years.

These records are available from the St. Louis Federal Reserve online (National Archives and Records Administration, 1899).[2] The records are grouped by city, with accounts in each city ordered by number. The list includes the account balance and the dates of payments. These account records contain the final

[2]https://fraser.stlouisfed.org/archival/5563#540628

balances for all non-running account holders. By definition, these individuals held open accounts until the closure of the bank. There are 21 cities for which dividend records still exist, and an overview of the records can be found in Table A.16.

From the dividend payment records, we record account balances at the time of the bank's closure. Figure A.5 shows the raw data source. The first column is a running total of the number of accounts in the book. The second column is the depositor account number. The third column is the account holder's name. The next three columns contain balance details, and the remaining columns (on the right side of the page) contain dividend payment details.

**[See Figure A.5]**

Because these records are a full accounting of all deposit accounts in existence at the time of the failure, and the handwritten ledgers are of very high quality, the account numbers can be cross-linked to their original entries in the indices to new accounts via account number. The account numbers recorded in this ledger, while comprehensive, represent the final account number assigned if the account number was updated through the issuance of a new passbook. Consequently, care must be taken to trace certain account numbers through the new indices of new accounts back to their original account opening where a replacement passbook was issued in order to obtain demographic information. This fact also requires that, when examining whether an account was prematurely closed by virtue of not having a corresponding entry in the final dividend ledger, researchers should probably restrict the effective date to one in which there are no gaps between the initial deposit and July 1874. If substantial gaps exist in the dividend ledger in dates between the opening of a new account and the closure of the bank, then it is possible that a new account number may have been assigned to the account in this gap. Name matching can help this process, but the commonality of many names and differences in exact spelling make this somewhat error prone.

### G. Additional Information

There are a large number of other sources from which we draw various information related to demise of the Freedman's Bank. These include the following:

- 43rd Congress, 2nd Session, House of Representatives, Mis. Doc. No. 16, December 15, 1874, also titled, "Report of the Commissioners of the Freedman's Savings and Trust Company" (United States House of Representatives, 1874)
- Appendix of the Congressional Record, Speech of the Honorable F.G. Bromberg of Alabama in the House of Representatives, May 14, 1874 (United States Congress, 1874)

- 46th Congress, 2nd Session, Senate Report No. 440, April 2, 1880, titled, "Report of the Select Committee to Investigate the Freedman's Savings and Trust Company" (also called the "Bruce Report") (United States House of Representatives, 1880)
- 44th Congress, 1st Session, House of Representatives Report No. 502, January 5, 1876, titled "Freedman's Bank" (also called the "Douglas Report") (United States House of Representatives, 1876)

### G. Data Characteristics

Understanding depositor characteristics and behavior is the first step in understanding the impact that the bank's failure had on minority blacks in the 1870s and beyond. In this section, we summarize the findings from our various data sources.

### G. Indices to New Accounts

The indices to new account log books, which are available from FamilySearch, contain a vast amount of data. Data collected by FamilySearch include account number, account holder name, date, birthplace, where brought up, residence, age, occupation, employer, wife or husband, children, father, mother, brothers and sisters, and remarks. In summary, this dataset contains account opening information for every account for which records are still in existence.

Table A.2 contains the cities, dates and account numbers for which the indices to new accounts exist. Some cities, such as Raleigh, do not contain any entries. Other cities, such as Savannah, contain a close-to-complete record.

**[See Table A.2]**

Table A.3 shows total observations for primary account holders by city. The first column provides all observations, which total almost 78,000. The largest cities in the sample are Washington, D.C., Richmond, and Savannah. The smallest cities (due to limitations in the available data rather than branches being small) are Lynchburg, Philadelphia, and St. Louis.

**[See Table A.3]**

The second and third columns in Table A.3 provides the number of records for natural persons primary account holders and for organizations. As one might expect, natural persons vastly outnumber organizations. In some cities, such as Columbus and Lynchburg, there are only a handful of organizations. Other cities, such as Richmond and Baltimore, feature a large number of civic and social groups.

Table A.4 shows the relative number of primary account observations compared to total population of the county as of the 1870 Census. As above, some branches are too small to be comparable to general population due to the lack of observations. These branches include Columbus, Lynchburg, Raleigh, Natchez Shreveport, and St. Louis.

Atlanta lies on the the border of two counties: DeKalb and Fulton Counties. We report DeKalb County in the table.

**[See Table A.4]**

In other branches, such as Atlanta, there are more observations than black people. Washington, D.C., appears to have the same issue, but there are likely a large number of people who come from Alexandria, Virginia, that are not counted in the population of Washington, D.C. Similarly, Augusta and Savannah are well-saturated cities with the total number of accounts at or greater than the local black population.

As stated above, the indices to new accounts contain a large amount of demographic information: account number, account holder name, date, birthplace, where brought up, residence, age, occupation, employer, wife or husband, children, father, mother, brothers and sisters, and remarks. Furthermore, because each record in the original indices corresponds to an account and each account contains multiple family members, the result is a large database of information. We describe such information in detail below.

FamilySearch categorizes the data on the basis of relationship to account holder. The relationship to account holder entries varies widely. The most common record is simply "self," and these records correspond to the actual account holder. Each "self" record has several associated records, which include family members and other relatives. For example, the following are all entries in the "relationship to account holder" column: "Sarah's Children," "Sarah's Husband," "Second Committee & Treasurer," "Vice Chair Lady," "W. A.',' "Chief of Board of Trustees," "Child of Elizabeth," "Chr. Lud.," "Civility," "Clarisa's Husband," "Clerk of Order," "Commanderess," and "Commissioner of Elections."

We did not attempt to catalog all types of relationships. Rather, we tabulated the frequency of the most common entries, as shown in Table A.5. The most common entry in the indices to new accounts is for the account holder. For every one account holder record, there are on average four other records for family members. (The addition of family members in the indices to new accounts was likely used as a means of identifying individuals in the era before government-issued identification.)

**[See Table A.5]**

Of the non-self records, the most common were brother, sister, children, mother, and father. Together, those records constitute over 50% of the records. Other common entries include "master," "aunt," "secretary," "grandmother," and "mistress."

Records for "self" reference accounts for natural persons as opposed to organizations such as churches or civic groups. Much like the non-self records, accounts for individuals contain a large array of non-standard information. We summarize demographic and personal information for these accounts below.

First, primary account holder age entries vary widely. For instance, each of the following descriptions were used for individual accounts: "12y 2 days before X mas," "12y 21 May," "12y 25th Nov/72," "12y 29th Dec 71," "12y 2d Dec/70," "12y 4th April 71," "12y 5th Apl," "12y 6 Aug'72," "12y 7th Apr '69," and "12y 8th Aug."

By far, the most common format is "[age]y." Other common entries include "[age]w," and "[age]d," which represent infants and small children. Approximately 51,000 account entries can be classified using these age designations. We sum these descriptors by decade and report them in Table A.6. Using this data, the most common age of account holders is 20 to 29. The second- and third-most common age groups are 10 to 19 and 20 to 29, respectively. About 5% of accounts appear to be opened by parents on behalf of their children, and about 8% of accounts appear to be for depositors aged 50 or older.

**[See Table A.6]**

The records contain detailed information regarding the height, build, and complexion of the primary account holders. There are over 50,000 entries that contain at least some information. Many records record the height of the account holders. Although we do not catalog them, the records might be of interest to public health researchers.

We also conduct a regular expression search for account holder complexion (as shown in Table A.7) classifying entries based on the words used to describe the account holder. The most common complexion recorded is "brown," followed by "black." "White" account holders constitute 7,250 entries and are therefore approximately 13% of accounts where complexion was recorded. This is likely a substantial over-count of the percentage of white depositors, as in many indices "white" is transcribed because it is unusual, where long stretches of records make no mention of complexion. Approximately 9% of all accounts (including those were no complexion of recorded) make any mention the depositor being white.

**[See Table A.7]**

The New York branch had the highest percentage of white account holders. However, a large number of account holders in our New York sample appear to be foreign-born citizens who were new to the United States. The New York branch contains records for 2,390 white accounts out of 3,868 primary account holder records where we were able to record complexion, which makes New York a predominantly white bank. Little Rock and New Orleans have over 20% white accounts, but the remainder of the branches have less than 15% white accounts. The majority of branches have fewer than 10% of accounts belonging to white depositors.

**[See Table A.8]**

There are over 46,000 entries containing an occupation. Occupations are not listed in standardized format, and thus cover a wide range of careers. Some examples include speculator, waiter, steam boat operator, student of divinity, weather observer, school boy, and carpenter. Many list the actual establishments of employment such as "vinegar bitters 32 & 34 commerce st." Because many entries contain similar levels of specificity, it is impossible to fully categorize 46,000 such entries.

However, we attempt to calculate the relative frequency of common occupations by searching for specific words in the occupation field. We match words based on the following:

- *unskilled* includes the following words: canal, sailor, sailing, watchman, boot black, boy, labour, laborer, soldier, huckster, seaman, mill, janitor, jobbing, servant, hand, driver, drayman (a deliveryman), anything (which appears to indicate that the individual did not have ongoing employment), and messenger
- *agriculture* includes the following words: cotton, farm or farmer, stable, plant, garden
- *trades* includes the following words: fireman, fisher or fishing, policeman, nurse, nursing, tailor, mechanic, machinist, butcher, print, carpenter, blacksmith, shoe, barber, apprentice, cooper, host(ler), builds, paint, musician, baker, cutter, oyster, gardener, garden, confect(ioner), maker, and wright
- *service* includes the following words: cook, bar, waiter, porter, steward, restaurant, grocer, bake, service
- *domestic* includes the following words: seamstress, washer, iron, nurse, maid, sew, domestic, butler, iron, nurse, house, porter, dress, and laundry or laundress
- *student* includes the following words: student, university, apprentice, pupil, sch
- *factory* includes the following words: tobacco, factory (and variations of those words)
- *skilled* includes the following words: dentist, accountant, architect, administrator, lawyer, attorney, book (as in bookkeeper), merchant, engineer, physician, and clerk
- *construction* includes the following words: plasterer, mason, trim, roofer, brick, wood, hod carrier (a masonry assistant)
- *transportation* includes the following words: cart, hackman, coach, wagon, stevedore, teamster, steam, boat, and pilot
- *educator* includes the following words: teacher, superintendent
- *religious* includes the following words: rev (as in reverend), church, preach, minister, clergy

- *unemployed* includes the words: at home
- *sales* includes the words: sells and sales

This list is clearly not exhaustive, and entries that contained overlapping text (for instance, "apprentice of masonry") may be ambiguous. Where there is a conflict, we default to the more highly skilled label such that an apprentice of masonry would be classified as "construction." The variables are given priority in the following order: unemployed, factory, religious, skilled, unskilled, trades, sales, domestic, agriculture, transportation, construction, educator, student, service. Thus, a masonry apprentice would be categorized as a construction worker and not as a student. Of the 46,318 jobs that we classified using this process, 36,836 were classified without overlap, 9,089 fall into two categories (like "student" and "skilled"), 384 fall into three categories, and nine fall into four categories.

Based on the above classifications, about 29% of account holders worked as unskilled laborers. Another 24% worked in the service, and another 16% worked in agriculture. Domestic labor comprised 10% of entries, and skilled labor constituted 237 entries, or about 1% of categorizable entries.

**[See Table A.9]**

We further classify jobs by approximate level of education required for each industry. We classify into Low, Medium, and High education according to the below industry classifications:

- Low: unemployed, unskilled, student, service, transportation, factory, agriculture, domestic
- Medium: trades, construction, religious
- High: skilled, educator

### G. Depositor Passbooks

Depositor passbooks were used to track individual account transactions. Our sample, which is a random sampling of passbooks collected following the failure of the bank, contains 536 passbooks spanning 31 cities (Table A.10). There are a total of 2,178 deposits and 2,298 withdrawals. Many branches only have a handful of deposits or withdrawals. However, a few branches cover one hundred such transactions. These include Little Rock, Louisville, Nashville, Norfolk, Philadelphia, Shreveport, St. Louis, and Washington, D.C. The smallest cities in the sample include Lynchburg, which includes one book with four transactions; Natchez, which contains only one transaction; and Richmond, which contains one book but no transactions.

Note that the Lynchburg sample consists of a single passbook containing a "balance forward," which means that it is a continuation of an older book. This passbook contains four withdrawals and no deposits. Many other passbooks in this sample are "balance forward" passbooks and, as such, often contain more

withdrawals than deposits. Thus, deposits and withdrawals need not balance in this table. Also, interest payments, which are included in many of the passbooks, are not included because many were added retroactively following the failure of the bank.

**[See Table A.10]**

The majority of the passbooks in the sample are from accounts opened after 1871. We record a fairly consistent number of new passbooks for accounts opened in each month from early 1871 onward, with between 5 and 15 passbooks, spiking in 1873. In Figure A.6, we show the total number of new passbooks by month for all new accounts. The number of passbooks fell substantially after the Panic of 1873 in September of that year but recovered substantially in 1874 prior to the final collapse of the bank with about a dozen accounts opened each month after the Panic.

**[See Figure A.6]**

As shown in Table A.11, the average deposit for our entire sample is $34.78, and the average withdrawal is $24.09. Median deposits and withdrawals are much smaller, suggesting that the average is skewed by large transactions.

Average and median deposits and withdrawals also vary widely by city. For instance, Columbia (which only has two passbooks and two deposits) has an average deposit of $121.22. Similarly, New Bern has an average deposit of $308.59, but this average is skewed by one deposit of $1,550. On the other hand, many cities have much smaller balances. For instance, Mobile has an average deposit of $8.64 and an average withdrawal of $6.44. Huntsville has an average withdrawal of $3.10.

**[See Table A.11]**

The number of transactions per passbook tended to be low. At the 25th percentile, there were only 3 transactions per book. At the 50th percentile, there were only 6 transactions. The 75th percentile had only 13 transactions, and at the 99th percentile, there were about 61 transactions per passbook. The average number of transactions per passbook is 9.61.

The passbooks provide rich information about depositor identity and behavior during the 1870s. From the front page of the passbook, we have information on depositor sex. Male depositors comprise about 54% of account holders in the passbook sample, and female depositors comprise 34%. We classify churches and civic societies as institutions. Black-owned institutional accounts were primarily religious, social, or charitable, including organizations such as St. Matthew's Lodge, Young Juvenile Samaritans, the Bethel Church Building Fund, the Ladies Beneficent Society, and the Daughters of Jerusalem. These accounts comprise 5% of the sample. Only four passbooks had a couple's name listed, and the remainder we classify as unknown, either because the passbook lacked a legible name or because the name was not sex-specific.

**[See Table A.12]**

Segmenting into transactions by institution type, as in Table A.13, it is clear that transactions made by natural persons (i.e., individuals rather than chartered organizations) comprise the bulk of the sample. Over 4,000 transactions were made by individuals. We have 454 transactions made by institutions. On average, institutions deposit about twice as much as natural persons ($63.23 versus $32.37). Similarly, institutions tend to withdraw a greater amount of money ($37.62 versus $22.20). Both institutions and natural persons have more withdrawals than deposits, and for both type of depositors, deposits are greater than withdrawals.

**[See Table A.13]**

The frequency of depositor passbook data varies throughout the sample, as shown in Figure A.7. The total number of transactions per account appears large prior to 1868, when the sample is only a few accounts. By January of 1870, our number of accounts becomes larger than 25, and the average number of transactions per account becomes more constant, varying from about 0.5 to 1 transactions per month. Following the Panic of 1873, the number of transactions per account increases slightly in January of 1874 before declining to almost 0.

The same pattern occurs with the total dollar value of transactions, adjusted for the number of accounts. Starting in about 1870, the dollar value becomes much more constant, and it declines following the Panic of 1873.

**[See Figure A.7]**

There are a few spikes that are due to large, isolated transactions. For instance, in December 1872, the largest four transactions totaled almost $10,000, and three of them belonged to the same account, that of John C. Underwood of Washington, D.C. In the following month, January 1873, three of the largest transactions also belonged to Underwood and totaled $4,400. The other large transaction belonged to Eliza J. Anderson, also of Washington, D.C. By February of 1873, transactions return to a more normal level, and the largest four transactions total only $994.

In Figure A.8, the top two charts show number and total amount of deposits adjusted for cumulative accounts. The bottom two charts show number and total amount of withdrawals adjusted for cumulative account. The graphs show that deposits decline dramatically during the 2 months after the crisis. The total dollar amount of deposits also declines. Withdraws per account is relatively constant until right before the bank's failure. The dollar amount of withdraws is relatively steady in the pre-crisis period between 1870 and 1873 but declines following the Jay Cooke failure.

**[See Figure A.8]**

The number of withdrawals did not change until just prior to the bank's failure (save one small cessation during the 60 days after the panic). Because these accounts are, by definition, held by depositors who did not respond to the Panic of 1873 or the emerging bad news about the bank in 1874 by closing their accounts, this indicates that even those who did not formally run on the bank increased their withdrawals following the financial panic.

We calculate the average balance for accounts that contain only positive balances. A handful of passbooks in our sample contain substantial negative balances, which appear to be isolated instances of specific cashiers providing loans to friends or family members. Because these depositors clearly operated differently compared to traditional depositors, we drop those accounts. Further, there fewer accounts opened after the crash in each city, which causes a significant skew in the average balances in different cities. Some cities do not have enough passbooks to compare before-crash and after-crash accounts. We calculate average balance as the average of the balance on every day that the account is open during the time period we study.

**[See Table A.14]**

Table A.14 shows the difference in account balances for two different types of accounts: those opened before the Panic of 1873 and those opened after the panic but before the Freedman's Bank failed. The first three columns provide the number of available passbooks and average balances before and after the Jay Cooke failure, which caused the Panic of 1873. We restrict the before-crash window to 9 months and 2 weeks, which matches the amount of time that the bank was open following the crash. Reaction to the panic was not uniform across cities. For instance, New Bern actually increased its balance to $537.62 following the panic. Other cities, such as Jacksonville, Memphis, Nashville, and Washington, D.C., decreased their balances in the wake of the panic. Several cities had only one observation, making it difficult to determine the effect on depositors. For instance, Atlanta and Richmond have only one passbook each, and neither individual made transactions in the window of time before and after the crash.

We have many fewer passbooks for accounts that were opened following the crash. In Atlanta, although the average balance is much higher than for the account opened prior to the crash, there is only one observation. Similarly, New York appears to have a much larger balance for accounts opened after the crash. However, there is only one observation. In Lexington and Washington, D.C., where we have more observations, the results are mixed. Lexington experienced an increase in its balances. Washington experienced a decline.

**[See Table A.15]**

In Table A.15, we show average balances before and after the crash by sex/institution for accounts that were opened prior to the crash. Male account holders comprise the majority of the sample, and demonstrate

a slight decrease in balance, from $65.44 to $61.36. Female account holders, the next largest portion of the sample, slightly increase their balances from $42.21 to $48.88. There is only one observation for couples, and the balance almost doubles. There are 20 observations for institutions, and the balance declines from $58.68 to $47.01. The largest decline in balances occurs in the 13 passbooks for which we cannot ascertain sex. The average balance declines from over $100 to $24.62. Overall, the decline in average balance after the crash is about $1.

### G. Dividend Payment Records

Dividend payment data contain information for the following 21 cities: Alexandria, Augusta, Atlanta, Jacksonville, Lexington, Lynchburg, Charleston, Beaufort, Baltimore, Macon, New York, Natchez, Nashville, New Bern, Norfolk, Richmond, Savannah, St. Louis, Shreveport, Tallahassee, and Vicksburg. There are over 39,000 dividend repayment records.

Table A.16 describes the records from the dividend repayments. The smallest city in the sample is Lexington, Kentucky. It has 128 observations and has an average balance of $10.78. The largest city in the sample is Charleston, South Carolina. It has 5,075 observations, with an average balance of $6.96. On average, the wealthiest city on the list is Beaufort, South Carolina, with an average balance of $13.26, and the poorest city is Augusta, Georgia, with an average balance of $1.24.

**[See Table A.16]**

The records demonstrate substantial account balance differences among various cities in the sample. For instance, the spread between the 25th and 75th percentile is quite large in Baltimore, where the 25th percentile had an account balance of only about $2.44 and the 75th percentile had a balance of over $60.00. In other cities, such as Jacksonville, the smaller accounts were about $0.35, and the larger accounts were around $8.70.

We also link the dividend records to the indices to new accounts. Such a match allows us to view accounts that persisted until the bank's demise. The resulting record contains an account number, branch location, and all demographic data related to those depositors. Because we do not have all of the records from the indices to new accounts, we carefully match accounts from dates that are known to be valid with dividend records. For this reason, while all accounts found within the indices to new accounts can be reasonably validated as either present in the final ledger or prematurely closed, incomplete records in the indices to new accounts make it impossible to match every account in the dividend record back to its account information. Effectively, while a continuous block of new accounts can be understood to be fully described by their presence or absences in the dividend ledger, a given block of accounts in the dividend record cannot be fully described by their presences or absence in the indices to new accounts. In the most extreme cases, certain

branches, such as Norfolk, have a complete dividend record, but the indices to new accounts for the branch have been lost completely.

Because we are interested in depositor behavior surrounding the Panic of 1873 and the eventual failure of the bank in 1874, we restrict our linking sample to accounts opened in or after January 1873. This further allows us to restrict the analysis to periods for which we have contiguous records from beginning to end. As previously described, this allows us to verify any accounts that were reassigned a new account number as the result of a new passbook issuance. Table A.17 restricts the sample to accounts opened after January 1, 1873, and examines the number of total records during that time compared to the number of records in the dividend repayment record. We do so to limit the number of accounts that may turn over for reasons unrelated to the bank. Furthermore, because only 18 months passed between January 1873 and June 1874, when the bank failed, we have a succinct sample within which to examine the number of depositors who did not return their passbooks for dividend repayment. The city with the largest number of new accounts during this time period is Richmond. Baltimore, New York, and Savannah also had large numbers of accounts opened in the 18 months before the bank's failure. Several cities, such as Raleigh, do not appear due to the lack of records.

**[See Table A.17]**

Cities with the highest number of accounts remaining following the bank's failure include Augusta, Baltimore, and Norfolk. On average, about 65% of accounts opened after January 1, 1873, appear in the dividend repayment records, suggesting a large number of depositors who lost their savings when the bank failed.

In Table A.18, we summarize dividend payment by occupation for accounts opened after January 1, 1873. There are 4,734 accounts that are either missing account information or cannot be classified based on the information provided. Of those we are able to classify, "unskilled,", "trades," and "service" appear the most often. As a percent of observations, agricultural, domestic, and unskilled workers appear most often in the dividend records. Job categories least likely to appear in the dividend records include skilled workers and educators.

**[See Table A.18]**

In Table A.19, similar to the original sample in Table A.7, the largest complexion descriptions are "brown," "black," "dark," and "white." There are 8,667 entries that contain some information about race for accounts opened after January 1873. These descriptions sometimes overlap, and therefore the column will not sum to the total.

**[See Table A.19]**

Table A.19 shows that the demographic least like to appear in the dividend repayment records is "white," with only 38% of white accounts being linked to the end of the Freedman's Bank. Complexions that are most likely to remain in the bank are "colored," "dark," and "mixed."

## Geographic Information

The indices to new accounts contain a wealth of geographic information about the primary account holder in three separate fields: "Residence," "Birthplace," and "Where brought up." "Residence" contains information about the current residence of the depositor. This field tends to be split into three main types of descriptive entries. The first type is a specific address, given by a number and a street or an intersection, usually without specifying an accompanying city or state unless that city is different from the city in which the branch is located. The second type is a named town that is different from the city in which the branch is located. An examination of maps from the late 1800s often reveals these towns as nearby settlements located 20 to 40 miles from the city. The third type is a general description of a location, giving an inexact location relative to the location of some landmark.

For accounts opened after January 1, 1873, we define a depositor as being an "in-town" depositor if the address or location listed falls within 15 miles from the city center, roughly a day's walk from the bank. Addresses that include the name of a landlord (which are usually the names of local plantation owners or boarding houses) are classified as also being "in town." Approximately 86% of depositors in the matched dividend sample are classified as "in-town."

In Table A.20, we classify depositors based on whether they live in town or out of town. The majority of depositors live within a 15-mile radius of their local branches. In some cities, such as Atlanta, New York, and Richmond, over 90% of depositors are considered in town. Cities with the lowest percentage of in-town depositors include Beaufort and Lexington.

**[See Table A.20]**

"Birthplace" contains information about the birthplace of the depositor. Most commonly, this field will specify the city/county and state where the depositor was born. For a small number of depositors who were born outside the United States, it will specify the country of birth. For a number of records where presumably the exact location was unknown, only the state is recorded. For other records, a general description of an area is given, occasionally specifying a local geographic area such as "On St. Johns river" or "Up country" or specifying a named residence. Records are also occasionally populated with explanations such as "Don't know." The "Where brought up" field contains a similar description, though it is occasionally less specific and will occasionally make a more free-form statement about the time spent in a given location.

For the "birthplace" and "where brought up" information, we attempt to encode the county and state information of each depositor. Unfortunately, the location of the county is often unreliable as it is either missing or the description is ambiguous. The general description given in the records is usually sufficient to determine whether the depositor was born and/or raised in the same state as the bank. Where this information is available in either field we encode the depositor as either born or brought up in the same state.

The results from this exercise are summarized in Tables A.21 and A.22, which show geographic classifications for "birthplace" and "where brought up," respectively. We utilize the entire sample and categorize records by branch location.

Table A.21 shows the number of linkages for individuals who where born inside the state where the bank is located and those who were born outside the state. There is a wide range of geographic origin in this table. For instance, 75% of depositors at the Baltimore branch were born in Maryland. Over 96% of depositors in Richmond were born in Virginia. On average, about 67% of depositors were born inside the state in which the bank was located.

**[See Table A.21]**

Similarly, Table A.22 shows the number of observations by location where the depositor was raised. On average, 79% of depositors were brought up in the state in which the bank was located. This ranges from 49% in Shreveport to 97% in New Bern.

**[See Table A.22]**

## G. Figures and Tables

**TABLE A.1.** Freedman's Bank Branch Locations

This table includes branch locations and year of opening, as compiled from Osthaus (1976) and other sources.

| City | State | County | Year Founded |
|---|---|---|---|
| Alexandria | Virginia | Alexandria | NAV |
| Atlanta | Georgia | Dekalb | 1870 |
| Augusta | Georgia | Richmond | 1866 |
| Baltimore | Maryland | Baltimore | 1866 |
| Beaufort | South Carolina | Beaufort | 1865 |
| Charleston | South Carolina | Charleston | 1866 |
| Chattanooga | Tennessee | Hamilton | 1869 |
| Columbia | Tennessee | Maury | 1871 |
| Columbus | Mississippi | Lowndes | NAV |
| Huntsville | Alabama | Madison | 1865 |
| Jacksonville | Florida | Duval | 1866 |
| Lexington | Kentucky | Fayette | 1870 |
| Little Rock | Arkansas | Pulaski | 1870 |
| Louisville | Kentucky | Jefferson | 1865 |
| Lynchburg | Virginia | Campbell | 1871 |
| Macon | Georgia | Bibb | 1868 |
| Memphis | Tennessee | Shelby | 1865 |
| Mobile | Alabama | Mobile | 1866 |
| Nashville | Tennessee | Davidson | 1865 |
| Natchez | Mississippi | Adams | 1870 |
| New Bern | North Carolina | Craven | 1866 |
| New Orleans | Louisiana | Orleans | 1866 |
| New York | New York | New York | 1866 |
| Norfolk | Virginia | Norfolk | 1865 |
| Philadelphia | Pennsylvania | Philadelphia | 1870 |
| Raleigh | North Carolina | Wake | 1868 |
| Richmond | Virginia | Richmond | 1865 |
| Savannah | Georgia | Chatham | 1860 |
| Shreveport | Louisiana | Caddo | 1870 |
| St. Louis | Missouri | St. Louis | 1868 |
| Tallahassee | Florida | Leon | 1866 |
| Vicksburg | Mississippi | Warren | 1865 |
| Washington | Virginia | Arlington | 1865 |
| Wilmington | North Carolina | New Hanover | 1865 |

**TABLE A.2.** Completeness to the indices to new accounts vary by branch

| City | Dates | Account Numbers |
|---|---|---|
| Atlanta, GA<br>Roll 6 | January 15, 1870 - July 2, 1874 | 1-4417 |
| Augusta, GA<br>Roll 7 | November 23, 1870 - June 29, 1874 | 2167-6701 |
| Baltimore, MD<br>Roll 13 | May 3, 1866 - May 3, 1866<br>November, 15 1866 - September 29, 1868<br>November 24, 1868 - June 23, 1874 | 1-4<br>220-1484<br>157324-676823 |
| Beaufort, SC<br>Roll 20 | June 20, 1868 - January 29, 1872<br>January 14, 1873 - July 1, 1874 | 20-4707<br>5063-5988<br>157324-676823 |
| Charleston, SC<br>Roll 21 | December 19, 1865 - October 17, 1866<br>September 7, 1868 - December 2, 1869 | 1-319<br>215-3824 |
| Charleston, SC<br>Roll 22 | December 4, 1869 - February 25, 1871 | 3833-6626<br>215-3824 |
| Charleston, SC<br>Roll 23 | February 25, 1871 - July 2, 1872 | 6627-11103 |
| Columbus, MS<br>Roll 14 | August 18, 1870 - June 16, 1874 | 21-927 |
| Huntsville, AL<br>Roll 1 | December 16, 1865 - August 27, 1874 | 1-1698 |
| Lexington, KY<br>Roll 11 | November 21, 1870 - April 11, 1874 | 217-1976 |
| Little Rock, AR<br>Roll 3 | February 27, 1871 - July 15, 1874 | 153-1359 |
| Louisville, KY<br>Roll 11 | September 15, 1865 - January 28, 1868<br>May 1, 1872 - June 26, 1874 | 11-1928<br>512201 - 7333 |
| Lynchburg, VA<br>Roll 26 | July 8, 1871 - August 22, 1871 | 153-215 |
| Memphis, TN<br>Roll 24 | December 28, 1865 - December 16, 1870<br>December 19, 1870 - July 26,1874 | 1-1995<br>2000-6298 |
| Mobile, AL<br>Roll 2 | June 18, 1867 - May 10, 1869 | 777-2323 |
| Nashville, TN<br>Roll 25 | December 23, 1871 - June 15, 1874 | 4174-6189 |
| Natchez, MS<br>Roll 14 | March 29, 1870 - June 18, 1874 | 1-707 |
| New Bern, NC<br>Roll 18 | October 30, 1869 - July 25, 1874 | 1327-4157 |
| New Orleans, LA<br>Roll 12 | June 18, 1866 - March 11, 1869<br>January 17, 1872 - June 29, 1874 | 5-1018<br>4365-8570 |
| New York, NY<br>Roll 17 | October 25, 1870 - June 29, 1874 | 1422-6942 |
| Norfolk, VA<br>Roll 26 | December 4, 1871 - June 26, 1874 | 3950 - 5415 |
| Philadelphia, PA<br>Roll 19 | January 6, 1870 - June 26, 1874 | 1-3004 |

Continued on next page

**TABLE A.2 – continued from previous page**

| City | Dates | Account Numbers |
|---|---|---|
| Raleigh, NC<br>Roll 18 | No entries | No entries |
| Savannah, GA<br>Roll 8 | January 10, 1866 - August 5, 1868<br>November 16, 1868 - December 17,1870 | 1-1137<br>1298-4947 |
| Savannah, GA<br>Roll 9 | December 17, 1870 - October 22, 1872 | 4948 - 9868 |
| Savannah, GA<br>Roll 10 | October 22, 1872 - September 1, 1874 | 9869-14558 |
| Shreveport, LA<br>Roll 12 | February 11, 1871 - June 29, 1874 | 149-1320 |
| St. Louis, MO<br>Roll 16 | April 6, 1869 - October 8, 1869 | 223-366 |
| Tallahassee, FL<br>Roll 5 | August 25, 1866 - January 15, 1872 | 1-887 |
| Vicksburg, MS<br>Roll 15 | July 16, 1868 - June 29, 1874 | 1157-8662 |
| Washington, DC<br>Roll 4 | August 28, 1865 - April 10, 1868<br>January 25, 1870 - April 29, 1871<br>May 23, 1871 - December 30, 1871 | 5-1553<br>3500-7197<br>7406 - 9316 |
| Washington, DC<br>Roll 5 | May 28, 1872 - June 17, 1874<br>December 31, 1872 - August 23, 1873<br>August 25, 1873 - July 1, 1874 | 3-456<br>14631-16303<br>20001-21397 |
| Wilmington, NC<br>Roll 18 | September 3, 1869 - October 30, 1869<br>December 12, 1872 - August 26, 1873 | 1208-1343<br>154-7266 |

**TABLE A.3.** Observations in Indices to New Accounts by City

The first column contains the number of total observations for primary account holders. The second column contains the number of observations for account holders where "self" is listed as the relationship to account holder. The third column contains the number of new accounts belonging to organizations.

| City | Total Observations | Number of Obs. Primary Acct Holder | Pct. of Obs. Organizations |
|---|---|---|---|
| Atlanta | 3,407 | 3,331 | 76 |
| Augusta | 2,824 | 2,731 | 93 |
| Baltimore | 6,312 | 5,818 | 494 |
| Beaufort | 2,312 | 2,273 | 39 |
| Charleston | 5,885 | 5,573 | 312 |
| Columbus | 791 | 782 | 9 |
| Huntsville | 1,533 | 1,509 | 24 |
| Lexington | 1,266 | 1,219 | 47 |
| Little Rock | 972 | 929 | 43 |
| Louisville | 3,238 | 3,132 | 106 |
| Lynchburg | 64 | 60 | 4 |
| Memphis | 4,794 | 4,625 | 169 |
| Mobile | 1,238 | 1,161 | 77 |
| Nashville | 1,728 | 1,680 | 48 |
| Natchez | 620 | 589 | 31 |
| New Bern | 1,787 | 1,715 | 72 |
| New Orleans | 3,144 | 3,034 | 110 |
| New York | 3,975 | 3,868 | 107 |
| Norfolk | 1,245 | 1,176 | 69 |
| Philadelphia | 120 | 0 | 120 |
| Richmond | 6,641 | 6,121 | 520 |
| Savannah | 6,875 | 6,579 | 296 |
| Shreveport | 1,099 | 1,071 | 28 |
| St. Louis | 126 | 115 | 11 |
| Tallahassee | 1,413 | 1,381 | 32 |
| Vicksburg | 5,002 | 4,909 | 93 |
| Washington, D.C. | 8,506 | 8,131 | 375 |
| Wilmington | 824 | 801 | 23 |
| **Total Observations** | 77,741 | 74,313 | 3,428 |

**TABLE A.4.** Market Saturation by City

This table contains total observations for primary account holders by branch as compared to 1870 population counts. Population numbers are for the county in that the branch is located.

| City | Nunmber of Observations | Total Population | White Population | Black Population |
|---|---|---|---|---|
| Atlanta[a] | 4,485 | 43,460 | 25,516 | 17,944 |
| Augusta | 4,598 | 15,388 | 8,957 | 6,431 |
| Baltimore | 6,363 | 330,739 | 282,818 | 47,921 |
| Beaufort | 2,867 | 34,359 | 5,309 | 29,050 |
| Charleston | 9,495 | 88,807 | 28,204 | 60,603 |
| Columbus | 798 | 30,502 | 7,480 | 23,022 |
| Huntsville | 1,622 | 4,907 | 2,532 | 2,375 |
| Lexington | 1,341 | 26,655 | 14,142 | 12,513 |
| Little Rock | 1,206 | 12,375 | 7,101 | 5,274 |
| Louisville | 3,580 | 118,952 | 99,806 | 19,146 |
| Lynchburg | 64 | 28,384 | 14,041 | 14,434 |
| Memphis | 5,914 | 76,377 | 39,737 | 36,640 |
| Mobile | 1,524 | 32,034 | 18,115 | 13,919 |
| Nashville | 1,846 | 62.880 | 37,468 | 25,412 |
| Natchez | 636 | 19,084 | 4,797 | 14,287 |
| New Bern | 2,828 | 20,516 | 8,400 | 12,116 |
| New Orleans | 3,328 | 191,379 | 140,923 | 50,456 |
| New York | 5,371 | 942,271 | 929,199 | 13,072 |
| Norfolk | 1,492 | 46,700 | 24,380 | 22,320 |
| Philadelphia | 120 | 674,001 | 651,854 | 22,147 |
| Richmond | 7,426 | 6,503 | 3,475 | 3,028 |
| Savannah | 13,539 | 28,234 | 15,166 | 13,068 |
| Shreveport | 1,125 | 21,712 | 5,913 | 15,799 |
| St. Louis | 128 | 351,147 | 324,760 | 26,387 |
| Tallahassee | 1,579 | 4,813 | 1,118 | 3,695 |
| Vicksburg | 5,671 | 26,769 | 7,907 | 18,862 |
| Wilmington | 1,957 | 27,898 | 11,779 | 16,119 |
| **Total Observations** | 90,903 | | | |

[a]Atlanta straddles DeKalb and Fulton counties. Population figures above are the sum for both counties.

**TABLE A.5.** Most Common Relationships in the Indices to New Accounts

This table contains the top relationships listed in the indices to new accounts. There are over 88,000 listings for "self" that indicates either a new account or a new passbook. Approximately one fifth of this data is for actual account holders. The remaining four fifths is comprised of relatives of account holders. The most common are brother, sister, children, and mother. These secondary entries were recorded for the purposes of verification of identity in the era before government-issued identification. Note that total observations includes all relationships that have entries in our database, not just top entries.

| **Relationship** | **Number of Observations** | **Frequency** |
|---|---|---|
| Self | 88,382 | 20.97 |
| Brother | 69,238 | 16.43 |
| Sister | 67,505 | 16.01 |
| Children | 55,910 | 13.26 |
| Mother | 44,231 | 10.49 |
| Father | 41,636 | 9.88 |
| Wife | 19,370 | 4.60 |
| Husband | 9,395 | 2.23 |
| Organization | 3,666 | 0.87 |
| Uncle | 2,182 | 0.52 |
| Master | 2,061 | 0.49 |
| Trustee | 1,948 | 0.46 |
| Aunt | 1,842 | 0.44 |
| Treasurer | 1,477 | 0.35 |
| Banking Committee | 1,390 | 0.33 |
| Secretary | 945 | 0.22 |
| Grandmother | 884 | 0.21 |
| Mistress | 791 | 0.19 |
| Other | 8,685 | 2.06 |
| **Total Observations** | 421,538 | 100 |

**TABLE A.6.** Approximate Age of Selected New Account Holders

This table contains the age of selected account holders. Because the sample contains several thousand non-standard age entries, we count only those entries in the format "[age]y," "[age]m," "[age]w," or "[age]d." We sum the observations by decade. The data shows that the account holders tended to be young, with over 50% of account holders under the age of 30.

| **Age** | **Number of Observations** | **Frequency** |
|---|---|---|
| 0 to 9 | 2,368 | 4.64 |
| 10 to 19 | 10,545 | 20.65 |
| 20 to 29 | 18,570 | 36.36 |
| 30 to 39 | 9,228 | 18.07 |
| 40 to 49 | 5,416 | 10.61 |
| 50 to 59 | 3,090 | 6.05 |
| 60 to 69 | 1,423 | 2.79 |
| 70 to 79 | 333 | 0.65 |
| 80 to 89 | 82 | 0.16 |
| 90 and up | 814 | 0.03 |
| **Total Observations** | 51,069 | 100 |

**TABLE A.7.** Complexion Description Frequency

We search for specific words used to describe depositor complexion and tabulate each word in order of frequency of occurrence. Note that there is overlap in descriptions (for instance "light brown") and that the column will not sum.

| **Color** | **Number of Observations** |
|---|---|
| brown | 18,559 |
| black | 14,535 |
| dark | 12,390 |
| white | 7,250 |
| light | 6,755 |
| yellow | 1,757 |
| mixed | 795 |
| colored | 630 |
| **Total Observations** | 54,375 |

**TABLE A.8.** White Account Holders by City

This table contains the number and percentage of total accounts belonging to white depositors. Pct. of Total Accts. refers to the percentage of total accounts in that bank with complexion designation that are listed as *white* or *olive*. Note that these records are only for the branches for whom surviving records remain and for new account entries that contain information on account holder complexion.

| **Branch** | **Number of White Accounts** | **Percent of Total Accounts** |
|---|---|---|
| New York | 2,390 | 61.79 |
| Little Rock | 327 | 35.20 |
| New Orleans | 656 | 21.62 |
| New Bern | 228 | 13.30 |
| Norfolk | 138 | 11.74 |
| Beaufort | 249 | 10.96 |
| Vicksburg | 518 | 10.55 |
| Natchez | 58 | 9.85 |
| Lexington | 105 | 8.61 |
| Baltimore | 479 | 8.23 |
| Charleston | 435 | 7.81 |
| Memphis | 331 | 7.16 |
| Wilmington | 54 | 6.74 |
| Atlanta | 211 | 6.33 |
| Columbus | 43 | 5.50 |
| Savannah | 335 | 5.09 |
| Huntsville | 69 | 4.57 |
| Tallahassee | 61 | 4.42 |
| Richmond | 230 | 3.76 |
| Nashville | 60 | 3.57 |
| St. Louis | 4 | 3.48 |
| Shreveport | 31 | 2.90 |
| Louisville | 74 | 2.36 |
| Augusta | 59 | 2.16 |
| Washington, D.C. | 104 | 1.28 |
| Mobile | 1 | $< 1.00$ |
| Lynchburg | 0 | 0.00 |
| **Total White Observations** | 7,250 | 100 |

**TABLE A.9.** Selected Occupations

We search for specific words in the textual descriptions of the occupations held by account holders. *unskilled* contains the words "laborer," "servant," "hand," "driv"(er), "drayman," and "anything." *agriculture* includes the words "farmer," and "stable." *trades* includes the words "carpenter," "blacksmith," "shoe," and "barber." *service* includes the words "cook," "porter," and "steward." *domestic* includes the words "seamstress," "washer," "iron," "nurse," and "maid." *student* includes the words "student," "university," and "apprentice." *factory* includes words like "tobacco" and "tredegar." *skilled* includes the words "dentist," "accountant," "architect," "attorney," "lawyer," "attorney," and "book" (as in bookkeeper.) *construction* includes the words "plasterer," "mason," "roofer," "trim," and "bricklayer." *transportation* includes the words "cart," "hackman," and "coach." *educator* includes the words "teacher," and "superintendent." *religious* includes "rev" (as in reverend) and "church." *unemployed* includes "at home." *sales* includes "sells" or "sales." Total observations includes all observations for which we can categorize job type. There are 46,318 total observations that include an occupation and fall under these categories.

| **Job** | **Number of Observations** | **Frequency** |
|---|---|---|
| unskilled | 9,420 | 20.34 |
| agriculture | 7,783 | 16.80 |
| trades | 6,863 | 14.82 |
| service | 6,376 | 13.77 |
| domestic | 5,613 | 12.12 |
| student | 3,049 | 6.58 |
| factory | 1,696 | 3.66 |
| skilled | 1,564 | 3.38 |
| construction | 1,211 | 2.61 |
| transportation | 1,075 | 2.32 |
| educator | 634 | 1.37 |
| religious | 563 | 1.22 |
| unemployed | 280 | 0.60 |
| sales | 191 | 0.41 |
| **Total Classified Observations** | 46,318 | 100 |

**TABLE A.10.** Number of Passbooks and Transaction Types by City

The first column contains the number of passbooks per city. The second column contains the number of deposits per city, and the third column contains the number of withdraws per city. Note that some passbooks are "balance forward" passbooks and thus could contain more withdrawals than deposits. For instance, Lynchburg has four withdrawals and no deposits. This is because the one passbook in the sample for Lynchburg was created to replace an old passbook (that is not in the sample), and the passbook (that is in the sample) contains four withdrawals. Interest payments are not included in this table.

| City | Number | Number of Deposits | Number of Withdraws |
|---|---|---|---|
| Atlanta | 3 | 8 | 7 |
| Augusta | 3 | 18 | 4 |
| Baltimore | 17 | 72 | 63 |
| Beaufort | 4 | 7 | 16 |
| Charleston | 17 | 50 | 35 |
| Columbia | 2 | 2 | 12 |
| Huntsville | 3 | 2 | 3 |
| Jacksonville | 4 | 11 | 4 |
| Lexington | 41 | 133 | 93 |
| Little Rock | 36 | 203 | 251 |
| Louisville | 44 | 150 | 158 |
| Lynchburg | 1 | 0 | 4 |
| Macon | 3 | 21 | 12 |
| Memphis | 16 | 117 | 72 |
| Mobile | 8 | 18 | 8 |
| Nashville | 20 | 191 | 397 |
| Natchez | 1 | 1 | 0 |
| New Bern | 4 | 10 | 18 |
| New Orleans | 5 | 10 | 2 |
| New York | 4 | 34 | 3 |
| Norfolk | 89 | 303 | 266 |
| Philadelphia | 33 | 136 | 63 |
| Raleigh | 12 | 35 | 31 |
| Richmond | 1 | 0 | 0 |
| Savannah | 23 | 77 | 89 |
| Shreveport | 19 | 118 | 113 |
| St. Louis | 30 | 123 | 124 |
| Tallahassee | 10 | 22 | 15 |
| Vicksburg | 28 | 74 | 148 |
| Washington, D.C . | 46 | 209 | 278 |
| Wilmington | 8 | 23 | 9 |
| Illegible City | 1 | - | - |
| **Total** | 536 | 2,178 | 2,298 |

**TABLE A.11.** Average Transaction Size by City

The first two columns contain the average and the median deposit size, and the third and fourth columns contain the average and the median withdrawal size. Note that some cities such as Augusta have larger withdrawals and deposits because some passbooks were "balance forward" passbooks that only include recent transactions and not the entire account history. Some cities do not contain non-balance forward transactions and are thus blank.

| | Deposits | | Withdraws | |
|---|---|---|---|---|
| **City** | **Average** | **Median** | **Average** | **Median** |
| Atlanta | 5.36 | 3.00 | 3.00 | 2.00 |
| Augusta | 14.21 | 3.74 | 18.05 | 10.00 |
| Baltimore | 13.38 | 5.00 | 10.31 | 5.00 |
| Beaufort | 87.29 | 7.00 | 28.13 | 20.00 |
| Charleston | 22.31 | 7.50 | 28.35 | 5.00 |
| Columbia | 121.22 | 121.22 | 25.48 | 14.50 |
| Huntsville | 15.50 | 15.50 | 3.10 | 3.00 |
| Jacksonville | 26.17 | 20.00 | 17.00 | 12.00 |
| Lexington | 23.99 | 7.00 | 14.33 | 6.00 |
| Little Rock | 24.20 | 10.00 | 20.09 | 7.00 |
| Louisville | 19.30 | 5.98 | 15.92 | 10.00 |
| Lynchburg | - | - | 4.75 | 5.00 |
| Macon | 4.51 | 2.00 | 5.08 | 5.00 |
| Memphis | 20.53 | 8.00 | 24.44 | 10.00 |
| Mobile | 8.64 | 1.55 | 6.44 | 2.73 |
| Nashville | 44.68 | 8.00 | 26.69 | 21.00 |
| Natchez | 6.00 | 6.00 | - | - |
| New Bern | 308.59 | 208.08 | 77.12 | 59.52 |
| New Orleans | 19.87 | 6.75 | 31.00 | 31.00 |
| New York | 88.25 | 8.25 | 38.33 | 10.00 |
| Norfolk | 18.01 | 6.00 | 14.40 | 5.00 |
| Philadelphia | 8.09 | 2.00 | 13.59 | 5.00 |
| Raleigh | 21.29 | 4.00 | 12.27 | 5.00 |
| Richmond | - | - | - | - |
| Savannah | 12.96 | 7.08 | 7.08 | 4.25 |
| Shreveport | 38.40 | 5.00 | 29.24 | 10.00 |
| St. Louis | 17.66 | 3.00 | 8.98 | 5.50 |
| Tallahassee | 5.30 | 1.00 | 6.80 | 1.00 |
| Vicksburg | 39.75 | 8.75 | 13.86 | 7.48 |
| Washington, D.C. | 120.51 | 20.00 | 61.89 | 12.00 |
| Wilmington | 20.68 | 3.40 | 40.89 | 10.00 |
| **Total** | 34.78 | 7.00 | 24.09 | 9.00 |

**TABLE A.12.** Passbook Sample Gender

In our sample of available passbooks, we categorize passbooks as belonging to males, females, institutions, couples, or being unknown. We classify male/female based on common gendered names. Male account holders constitute the majority of the sample, with female account holders holding 34% of the passbooks. Institutions and couples are a smaller percentage of the sample. Twenty-seven passbooks either did not contain a name or the name was illegible. Note than many of these passbooks either did not contain transactions or the transactions were not legible. Many contained only a "balance forward" entry, which we do not retain in the deposit and withdraw summary statistics for account transactions. Thus, although we have 536 passbooks in our sample, not all of those passbooks contain transactions data.

| | **Number** | **Percentage of Sample** |
|---|---|---|
| Male | 293 | 55 |
| Female | 184 | 34 |
| Institution | 28 | 5 |
| Couple | 4 | 1 |
| Unknown | 27 | 5 |
| **Total** | 536 | 100 |

**TABLE A.13.** Passbook Sample Relative Transaction Size

This table contains average deposits and withdraws by institution or non-institution passbook designation. Institutions tended to have larger transactions than natural persons.

| Type | Number of Transactions | Average Amount |
|---|---|---|
| **Institutions** | | |
| Deposits | 170 | 63.23 |
| Withdrawals | 281 | 37.62 |
| Balance Forwards | 3 | 215.79 |
| Total | 454 | 48.39 |
| **Natural Persons** | | |
| Deposits | 2,008 | 32.37 |
| Withdrawals | 2,017 | 22.20 |
| Balance Forwards | 49 | 86.54 |
| Total | 4,074 | 27.99 |
| Total Sample | 4,528 | 30.03 |

**TABLE A.14.** Average Balance by City Before and After the Panic of 1873

This table shows average balances before and after the crash for accounts that were opened prior to the crash. Nine months and 2 weeks elapsed between the crash and the closure of the bank, so we utilize the same window for the pre-crisis average balance. The first three columns are for accounts opened prior to the crash. No. Books refers to the number of passbooks in our sample. Before Panic refers to the balance during the period prior to the Jay Cooke failure. After Panic refers to the nine months between the Jay Cooke failure and the closure of the bank. The remainder of the columns provide an average deposit for accounts opened after the Jay Cooke failure. Average balance is calculated as the average of the balance across all days in the sample for each account during the relevant time period.

| | Before Crash Accounts | | | After Crash Accounts | |
|---|---|---|---|---|---|
| City | No. Books | Before Panic | Panic | No. Books | After Panic |
| Atlanta | 1 | 7.85 | 7.85 | 1 | 374.08 |
| Augusta | 3 | 63.08 | 73.25 | 0 | - |
| Baltimore | 13 | 32.12 | 27.41 | 1 | 14.64 |
| Beaufort | 2 | 83.44 | 83.44 | 2 | 8.96 |
| Charleston | 13 | 16.14 | 16.05 | 1 | 5.00 |
| Columbia | 0 | - | - | 2 | 137.61 |
| Jacksonville | 2 | 111.38 | 87.50 | 2 | 23.97 |
| Lexington | 13 | 19.77 | 20.52 | 24 | 92.34 |
| Little Rock | 25 | 3.47 | 3.81 | 3 | 33.67 |
| Louisville | 31 | 17.23 | 13.15 | 8 | 12.90 |
| Lynchburg | 0 | - | - | 1 | 41.63 |
| Macon | 2 | 20.46 | 15.30 | 0 | - |
| Memphis | 14 | 54.14 | 48.24 | 1 | 20.94 |
| Mobile | 8 | 21.20 | 15.21 | 0 | - |
| Nashville | 13 | 36.46 | 23.29 | 0 | - |
| Natchez | 0 | - | - | 1 | 6.00 |
| New Bern | 3 | 511.89 | 537.64 | 0 | - |
| New Orleans | 3 | 56.63 | 47.92 | 1 | 40.00 |
| New York | 3 | 183.77 | 383.57 | 1 | 1,584.51 |
| Norfolk | 67 | 31.99 | 24.83 | 13 | 31.53 |
| Philadelphia | 23 | 12.43 | 10.87 | 1 | 2.05 |
| Raleigh | 8 | 60.52 | 48.94 | 3 | 13.97 |
| Richmond | 1 | 9.83 | 9.83 | 0 | - |
| Savannah | 18 | 26.65 | 22.16 | 3 | 7.05 |
| Shreveport | 14 | 126.08 | 109.86 | 2 | 65.37 |
| St. Louis | 19 | 66.35 | 53.00 | 7 | 15.25 |
| Tallahassee | 6 | 4.83 | 4.27 | 4 | 17.14 |
| Vicksburg | 19 | 55.06 | 52.54 | 6 | 134.17 |
| Washington, D.C. | 24 | 390.06 | 297.49 | 12 | 205.34 |
| Wilmington | 5 | 20.69 | 19.31 | 1 | 1.00 |

**TABLE A.15.** Average Balance by Gender Before and After the Panic of 1873

This table shows average balances before and after the crash by gender/institution for accounts that were opened prior to the crash.

| **Gender/Institution** | **Number of Observations** | **Prior to Panic** | **After Panic** |
|---|---|---|---|
| Male | 183 | 65.44 | 61.36 |
| Female | 136 | 42.21 | 48.88 |
| Couple | 1 | 187.10 | 320.82 |
| Institution | 20 | 58.68 | 47.01 |
| Unknown | 13 | 106.11 | 24.62 |
| **Total** | 353 | 56.65 | 55.11 |

**TABLE A.16.** Dividend Repayment Records

This table includes details of the dividend repayment via the St. Louis Fed. The second columns shows the number of records for each city. Columns 3-5 give the relative size of the account at the date of bank closure in July of 1874 by percentile.

| City | Number of Observations | 25th Percentile | 50th Percentile | 75th Percentile |
|---|---|---|---|---|
| Alexandria | 271 | 2.25 | 11.03 | 35.00 |
| Atlanta | 1,376 | 0.25 | 1.75 | 13.10 |
| Augusta | 3,324 | 0.2 | 1.24 | 11.66 |
| Baltimore | 3,760 | 2.44 | 12.35 | 60.03 |
| Beaufort | 994 | 2.67 | 13.26 | 63.80 |
| Charleston | 5,142 | 1.03 | 6.96 | 32.43 |
| Jacksonville | 1,615 | 0.45 | 1.75 | 10.41 |
| Lexington | 715 | 0.45 | 3.05 | 30.20 |
| Lynchburg | 432 | 1.52 | 10.48 | 42.79 |
| Macon | 1,601 | 0.36 | 1.37 | 10.68 |
| Nashville | 1,859 | 0.58 | 3.00 | 22.06 |
| Natchez | 215 | 1.00 | 7.21 | 46.12 |
| New Bern | 1,033 | 0.55 | 3.16 | 25.00 |
| New York | 3,190 | 0.75 | 4.61 | 53.54 |
| Norfolk | 2,422 | 0.85 | 6.11 | 39.70 |
| Richmond | 3,681 | 0.40 | 3.00 | 31.00 |
| Savannah | 3,951 | 0.44 | 2.91 | 21.32 |
| Shreveport | 704 | 0.64 | 5.00 | 22.22 |
| St. Louis | 1,134 | 0.95 | 4.13 | 30.26 |
| Tallahassee | 785 | 0.36 | 1.97 | 14.03 |
| Vicksburg | 2,422 | 0.50 | 2.36 | 17.54 |
| **Total** | 40,626 | 0.60 | 4.18 | 28.35 |

**TABLE A.17.** Indices to New Accounts and Dividend Repayments by City

This table restricts the sample to only accounts opened after January 1, 1873. The first column gives the total number of accounts opened in 1873 or 1874. The second column gives the number of accounts appearing in the dividend records. The third column gives the percentage of accounts opened after January 1, 1873, that appear in the dividend records.

| Type | Number of New Accounts | Number of Dividend Records | Percent of Accounts Remaining |
|---|---|---|---|
| Atlanta | 1,070 | 598 | 56 |
| Augusta | 993 | 796 | 80 |
| Baltimore | 1,314 | 1,064 | 81 |
| Beaufort | 439 | 242 | 55 |
| Lexington | 339 | 193 | 57 |
| Nashville | 638 | 401 | 63 |
| Natchez | 262 | 112 | 43 |
| New Bern | 495 | 324 | 66 |
| New York | 1,105 | 613 | 56 |
| Norfolk | 598 | 455 | 76 |
| Richmond | 1,625 | 1,083 | 67 |
| Savannah | 1,572 | 936 | 60 |
| Shreveport | 374 | 257 | 69 |
| Vicksburg | 595 | 349 | 59 |
| **Total** | 11,419 | 7,423 | 65 |

**TABLE A.18.** Indices to New Accounts and Dividend Repayments by Occupation

This table contains accounts opened after January 1, 1873. The first column describes the total number of new accounts that contain a job description that we were able to classify. The second column describes the number of those accounts that appear in the dividend repayment books. The third column is the percent of accounts that were opened after January 1, 1873, have a classifiable job description, and appear in the dividend record. We categorize raw occupations based on written descriptions of the account holder's occupation, as described in Table A.9.

| **Trade** | **Number of Observations** | **Number in Dividend Record** | **Percentage in Dividend Record** |
|---|---|---|---|
| unskilled | 1,230 | 780 | 63 |
| trades | 1,207 | 721 | 60 |
| service | 1,055 | 711 | 67 |
| agriculture | 819 | 630 | 77 |
| domestic | 792 | 603 | 76 |
| factory | 456 | 297 | 65 |
| student | 368 | 225 | 61 |
| skilled | 168 | 56 | 33 |
| construction | 161 | 113 | 70 |
| transportation | 137 | 88 | 64 |
| educator | 96 | 55 | 57 |
| unemployed | 87 | 72 | 83 |
| religious | 67 | 49 | 73 |
| sales | 39 | 25 | 64 |
| missing/unclassified | 4,734 | 2,998 | 63 |
| **Total Sample** | 11,419 | 7,423 | 65 |

**TABLE A.19.** Indices to New Accounts and Dividend Repayments by Race

This table summarizes the number of records with different racial descriptions opened after January 1, 1873, per the complexion column in the indices to new accounts. The first column is the number of accounts meeting that description. The second column is the number of accounts meeting that criteria that appear in the dividend records. The third column contains the percentage of said accounts. Note that the column will not sum to the total sample due to multiple complexion descriptions on some entries.

| **Race** | **Number of Observations** | **Number in Dividend Record** | **Percentage in Dividend Record** |
|---|---|---|---|
| black | 2,418 | 1,751 | 72 |
| brown | 2,307 | 1,548 | 67 |
| dark | 2,079 | 1,446 | 70 |
| white | 1,487 | 598 | 38 |
| light | 893 | 591 | 66 |
| colored | 223 | 147 | 66 |
| yellow | 184 | 135 | 73 |
| mixed | 53 | 43 | 81 |
| other (likely black) | 16 | 8 | 8 |
| **Total Sample** | 8,667 | 5,602 | 65 |

**TABLE A.20.** Residence by Bank Location

We categorize account holders by location of residence. Depositors are considered to live "in town" if their residences are listed by a street address that names the branch city or do not explicitly record the city. Residences without a formal address, listed explicitly as within the vicinity of the city, are also considered "in town." Alternatively, depositors with addresses that include cities, counties, and townships that are not contiguous with and more than 15 miles from the branch city are considered "out of town."

| | Resides in Town | | Resides Outside Town |
|---|---|---|---|
| **State** | **Number** | **Percentage** | **Number** |
| Atlanta | 661 | 91 | 68 |
| Augusta | 683 | 78 | 192 |
| Baltimore | 1,005 | 89 | 119 |
| Beaufort | 272 | 80 | 72 |
| Lexington | 237 | 88 | 34 |
| Nashville | 485 | 89 | 60 |
| Natchez | 105 | 74 | 36 |
| New Bern | 264 | 74 | 95 |
| New York | 1,004 | 95 | 50 |
| Norfolk | 402 | 77 | 122 |
| Richmond | 1,297 | 93 | 97 |
| Savannah | 1,128 | 87 | 164 |
| Shreveport | 178 | 73 | 65 |
| Vicksburg | 410 | 74 | 141 |
| **Total Sample** | 8,133 | 86 | 1,315 |

**TABLE A.21.** Indices to New Accounts and Dividend Payment by Bank Location and Birth State

This table summarizes the number of records linked via the indices to new accounts and dividend repayment that originate from the same state in which the bank was located. The first two columns contain the number of observations and percentage of observations for individuals born inside the state where the band is located. The right column contains the number of observations for individuals born outside the state where the bank is located.

| | Born Inside State | | Born Outside State |
|---|---|---|---|
| **State** | **Number** | **Percentage** | **Number** |
| Atlanta | 609 | 76 | 195 |
| Augusta | 539 | 60 | 358 |
| Baltimore | 675 | 75 | 222 |
| Beaufort | 303 | 88 | 42 |
| Lexington | 243 | 88 | 32 |
| Nashville | 363 | 63 | 217 |
| Natchez | 74 | 53 | 66 |
| New Bern | 369 | 95 | 19 |
| New York | 338 | 32 | 716 |
| Norfolk | 320 | 73 | 116 |
| Richmond | 1,183 | 96 | 52 |
| Savannah | 829 | 60 | 549 |
| Shreveport | 85 | 28 | 222 |
| Vicksburg | 227 | 47 | 255 |
| **Total Sample** | 6,157 | 67 | 3,061 |

**TABLE A.22.** Indices to New Accounts and Dividend Payments by Bank Location and Brought Up Inside State

This table summarizes the number of records linked via the indices to new accounts and dividend repayment that originate from the same state in which the bank was located. The first two columns contain the number of observations and percentage of observations for individuals brought up inside the state where the band is located. The right column contains the number of observations for individuals brought up outside the state where the bank is located. Note that the numbers in this table will not match the ones in Table A.21 since the "where brought up" and "birthplace" entries are not equally populated.

| | **Brought Up Inside State** | | **Brought Up Outside State** |
|---|---|---|---|
| **State** | **Number** | **Percentage** | **Number** |
| Atlanta | 659 | 84 | 127 |
| Augusta | 338 | 69 | 153 |
| Baltimore | 382 | 82 | 86 |
| Beaufort | 295 | 90 | 33 |
| Lexington | 252 | 92 | 23 |
| Nashville | 391 | 73 | 146 |
| Natchez | 89 | 70 | 39 |
| New Bern | 340 | 97 | 12 |
| New York | 276 | 84 | 54 |
| Norfolk | 285 | 76 | 88 |
| Richmond | 901 | 96 | 35 |
| Savannah | 471 | 69 | 215 |
| Shreveport | 129 | 49 | 135 |
| Vicksburg | 301 | 63 | 178 |
| **Total Sample** | 5,109 | 79 | 1,324 |

Freedman's Bank locations spanned the entire Eastern coast. They extended as far north as New York, as far south as Tallahassee and New Orleans, and as far west as Shreveport.

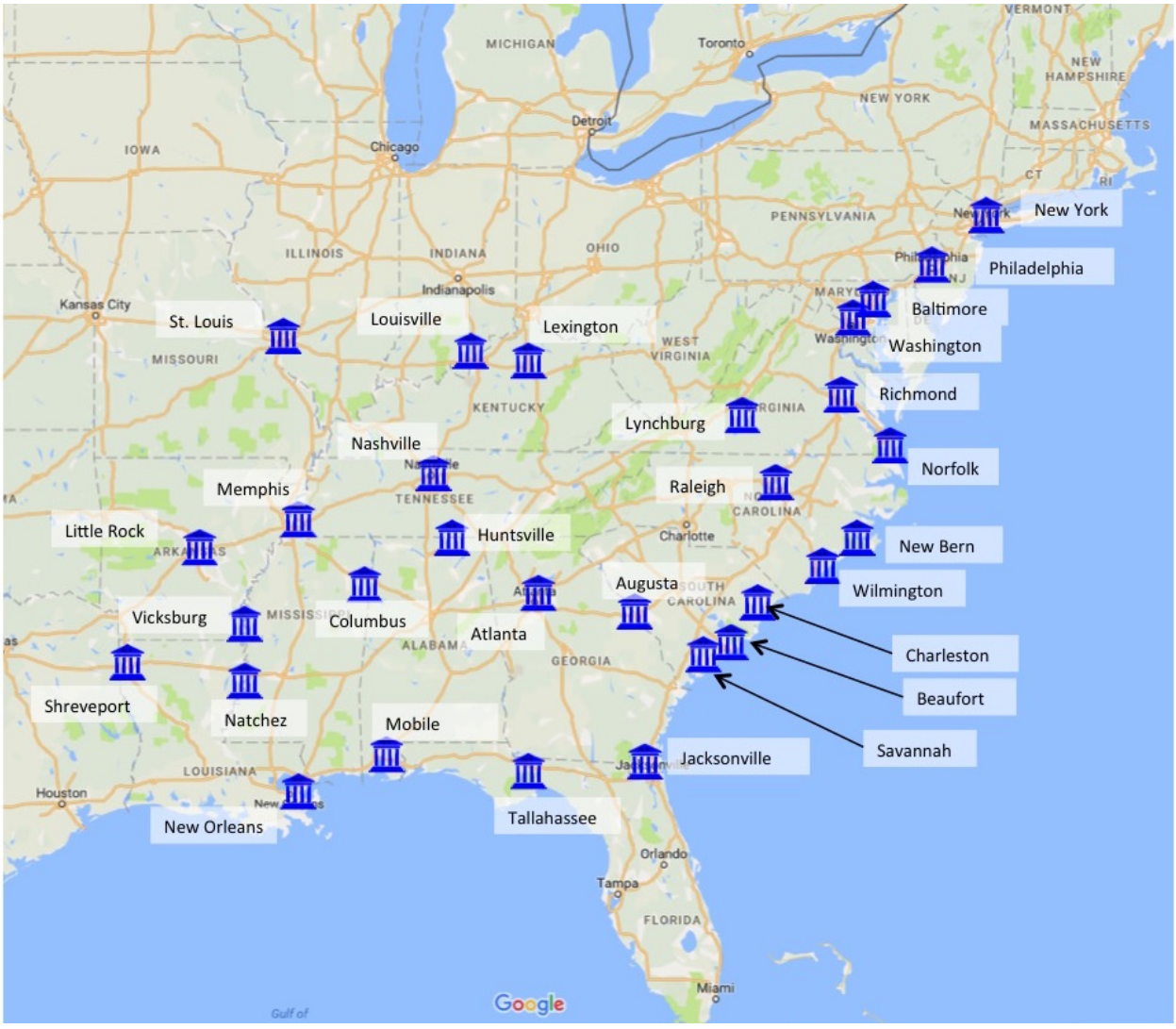



**Figure A.1.** Map of Branch Locations

Indices to new accounts contain four entries per page (eight when photographed as an open book). Each entry contains the account number, the depositor name, and biographical information related to each depositor such as age, residence, occupation, and skin color. The completeness of these entries varies by branch and by entry.

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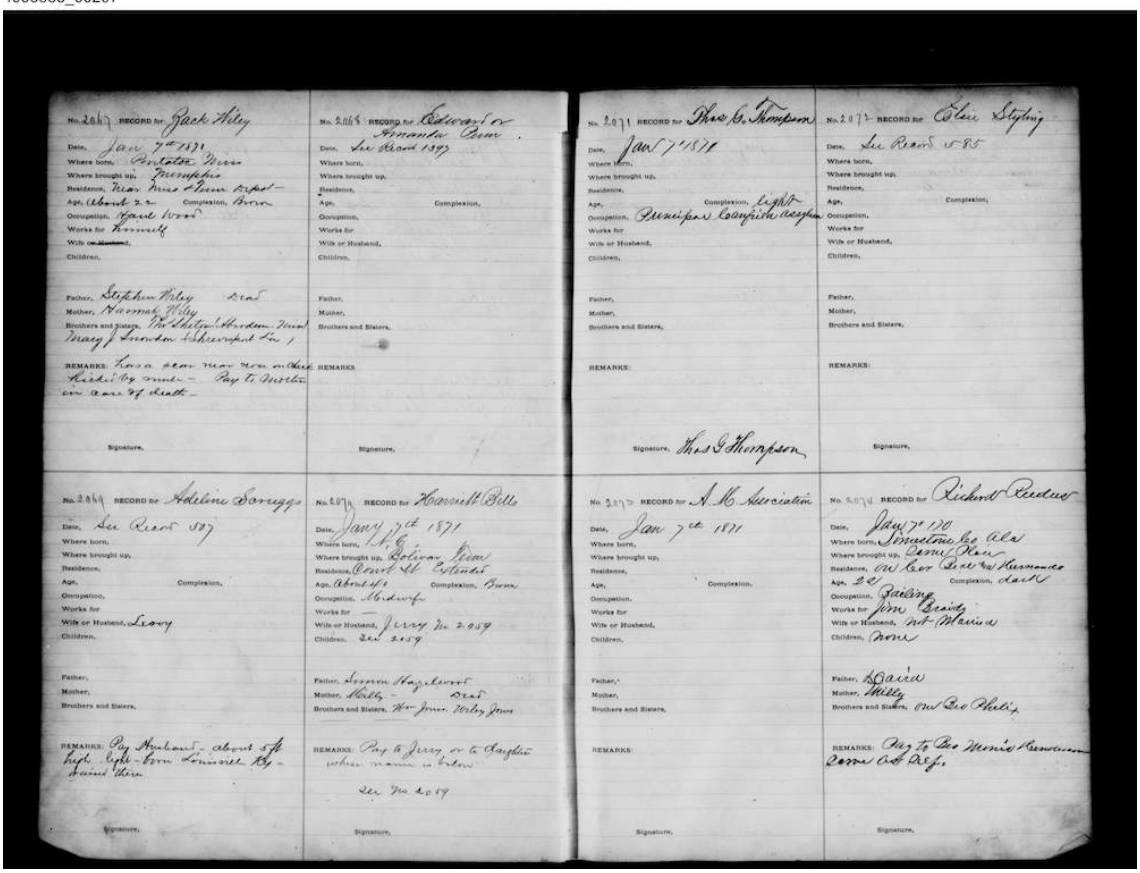

**Figure A.2.** Indices to New Accounts

This passbook cover was photographed at National Archive. The typical passbook is 12 pages. The front page contains the bank branch location, the depositor name and the account number. The first inside pages contain bank rules and hours of operation. The remainder of the passbook contains blank pages in which to write transactions.

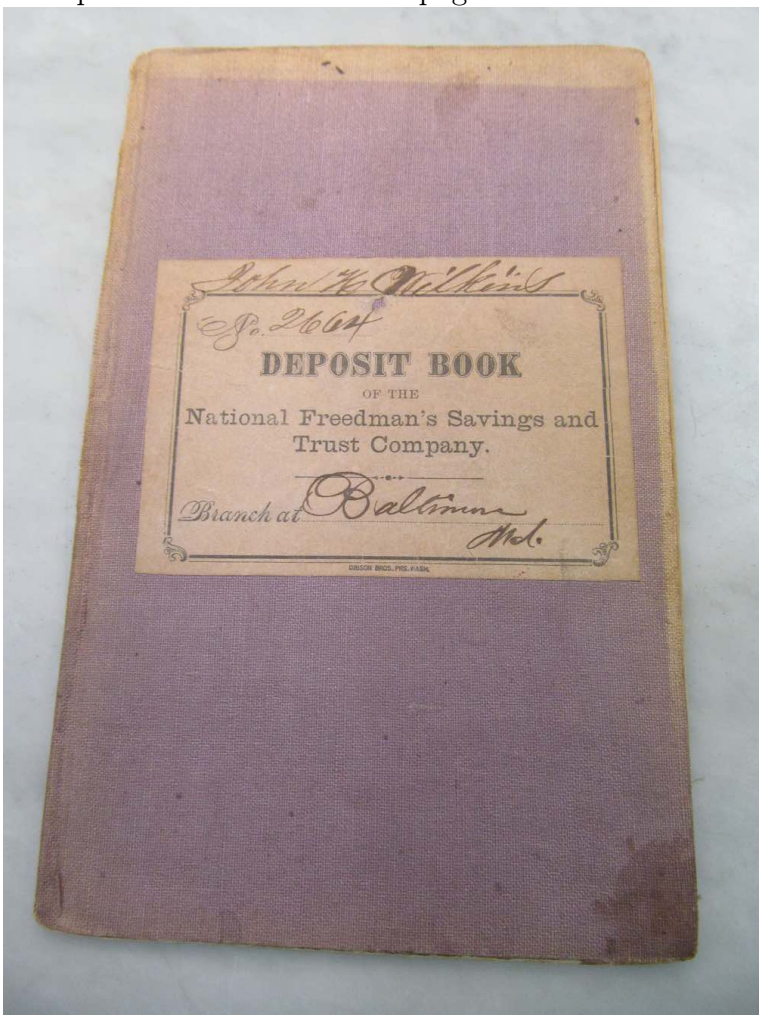


**Figure A.3.** Passbook Cover Page

This page contains multiple transactions, which are shown on the left side of the page. The right side of the page contains information written by staff handling the disbursement of dividends following the bank's failure. We retain only transaction data and not information related to repayment.

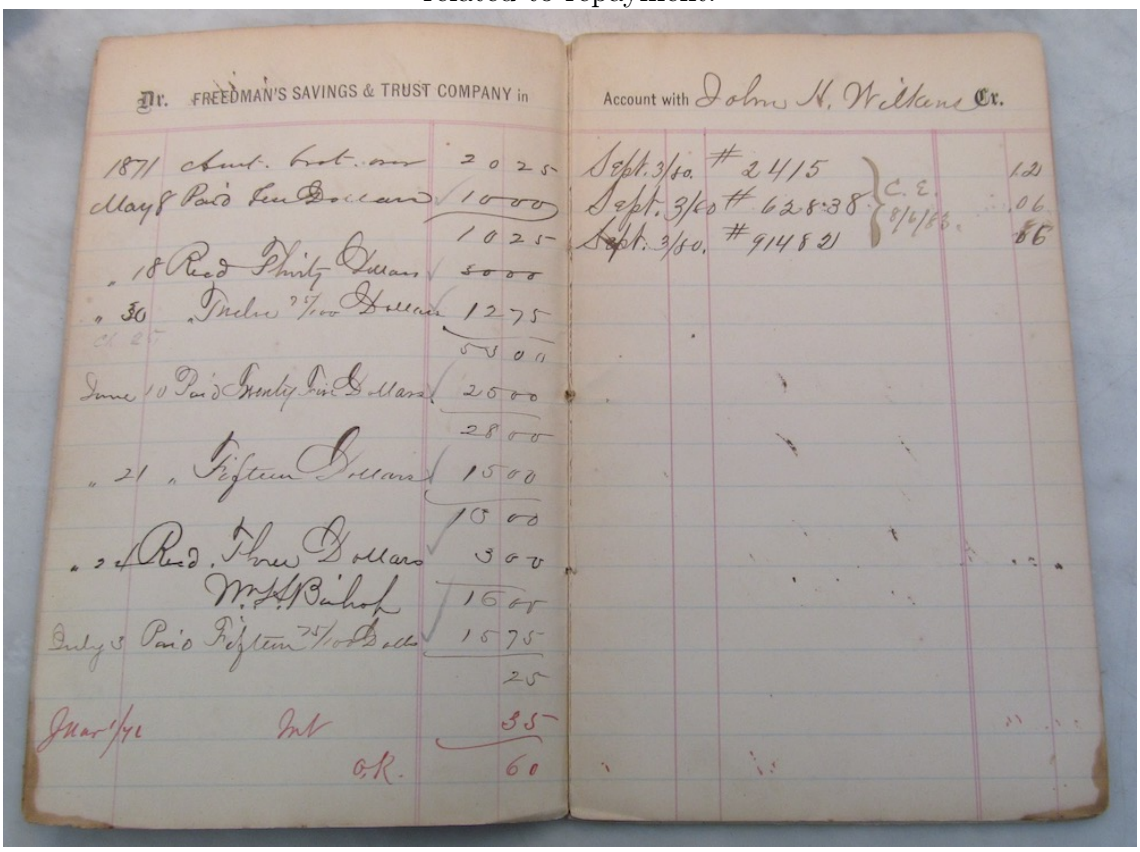


**Figure A.4.** Passbook Contents

The dividend repayment ledgers are kept at the St. Louis Fed Archive and are available online. There is a book for each city, and each book contains pages as shown below. The first column contains the running number of the account entered. The second column contains the actual account number. The third column contains the depositor name. The next three columns contain deposit amounts in currency, gold, and silver. The right side of the page contains dividend repayments and dates. The far right side of the page sometimes contains notes. We retain only the account number and the currency amount.

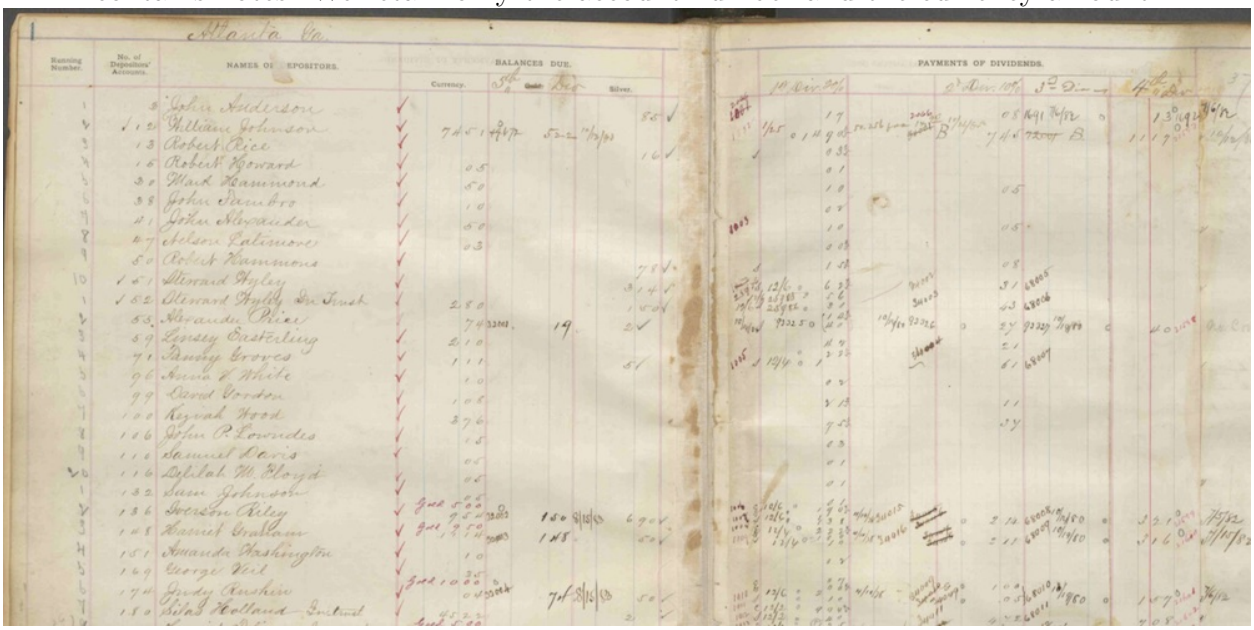


**Figure A.5.** Dividend Repayment Ledger Page

The graph was created by summing total new passbooks each month. This does not include books that have a "balance forward" designation and thus are not truly new accounts. The red line corresponds to the Jay Cooke & Company failure, which caused the Panic of 1873.

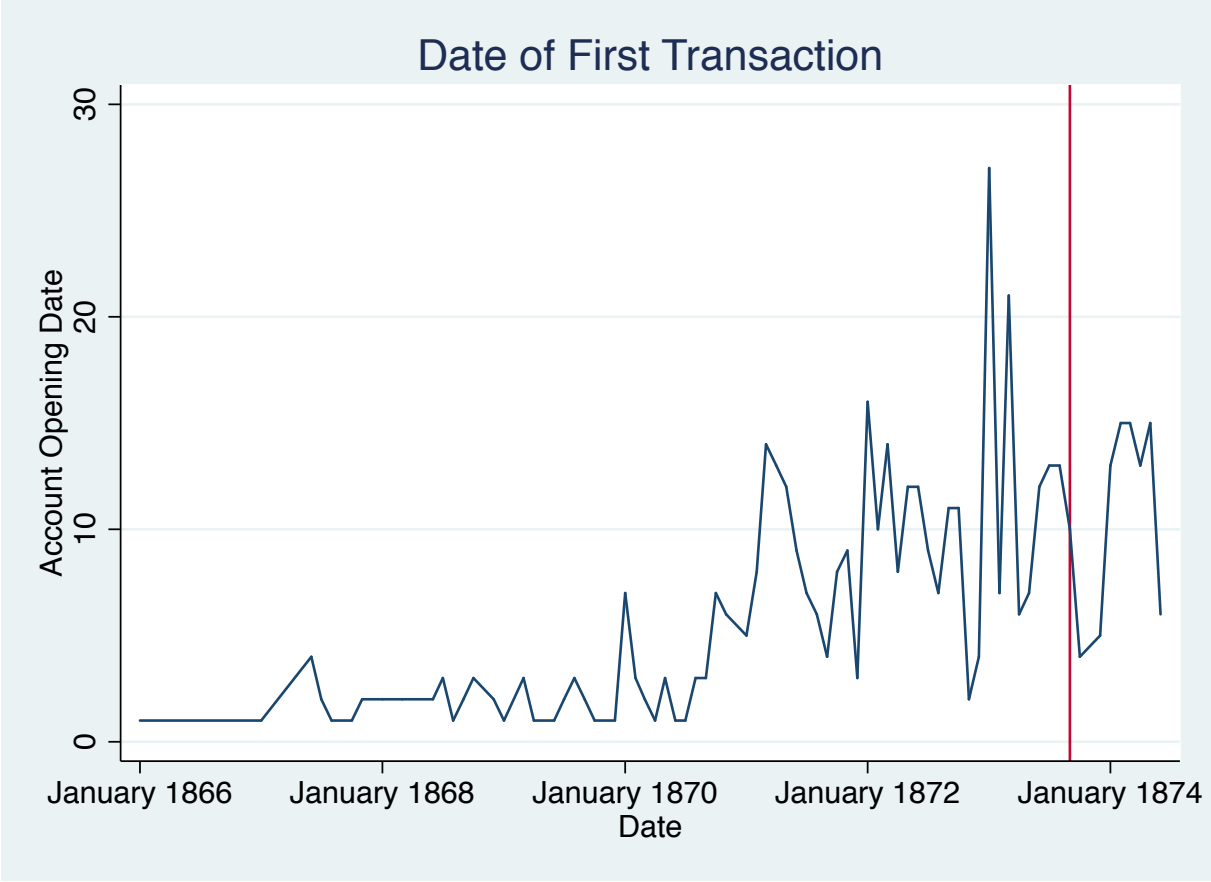


**Figure A.6.** New Passbooks by Month

The top chart was created by summing the total number of deposits and withdrawals by month and dividing by the number of passbooks in the sample during that month. The bottom chart was created by summing the dollar value of deposits and withdrawals by month divided by the number of passbooks in the sample in that month (where both deposits and withdrawals are positive). The red line in each chart represents the Jay Cook & Company failure, which caused the Panic of 1873. In both charts, there is a decline in transactions immediately following the panic, which is likely the result of the moratorium on withdrawals that was instituted at many of the branches following the panic. The bottom chart contains a spike in dollar value of transactions early in 1873. This is the result of two accounts making abnormally large transactions during that time period.

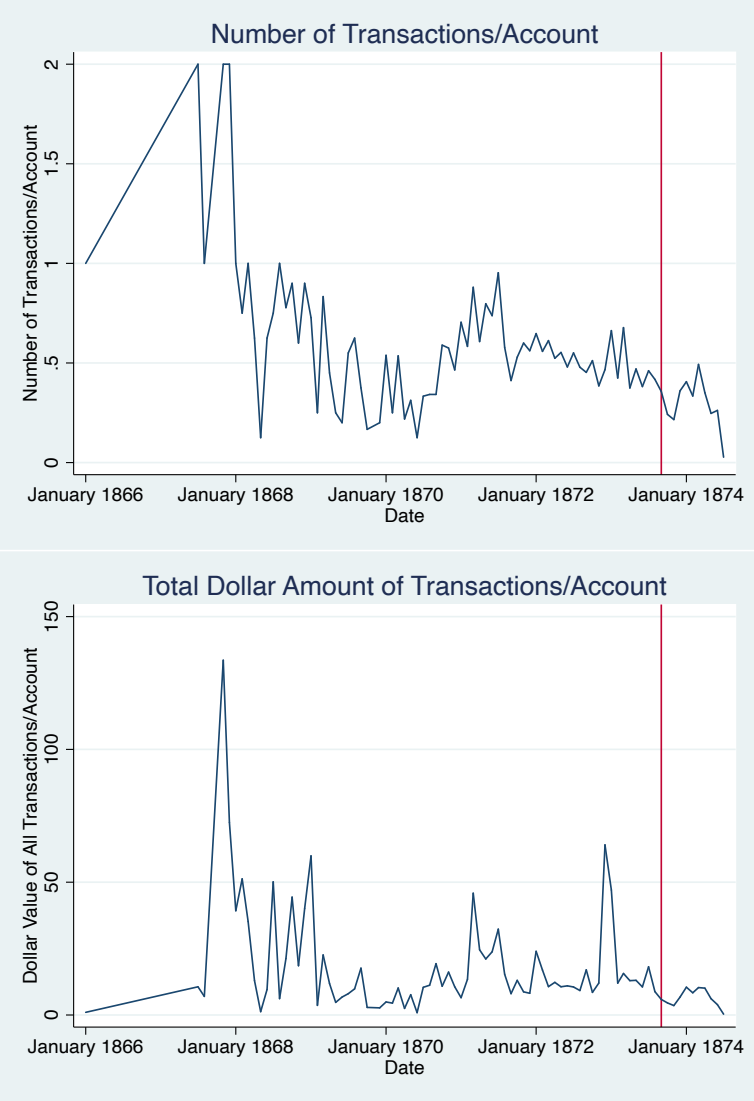


**Figure A.7.** Total Passbook Transactions by Month per Passbooks in Sample

These charts were created by summing number and dollar amounts of deposits and withdrawals by month, divided by the number of passbooks in the sample. The red lines indicate the Jay Cooke & Co failure, which caused the Panic of 1873. The top two tables contain information regarding deposits, and the bottom two tables contain information regarding withdrawals. Deposits decline in the immediate aftermath of the crash but rise again a few months later. Withdrawals continue following the lapse of the 60-day moratorium on new deposits put in place by some bank branches following the run on the bank. Both dollar value charts contain a spike in late 1873, which is the result of abnormally large transactions that occurred in two accounts during that time period. They appear unrelated to fundamental economic activity.

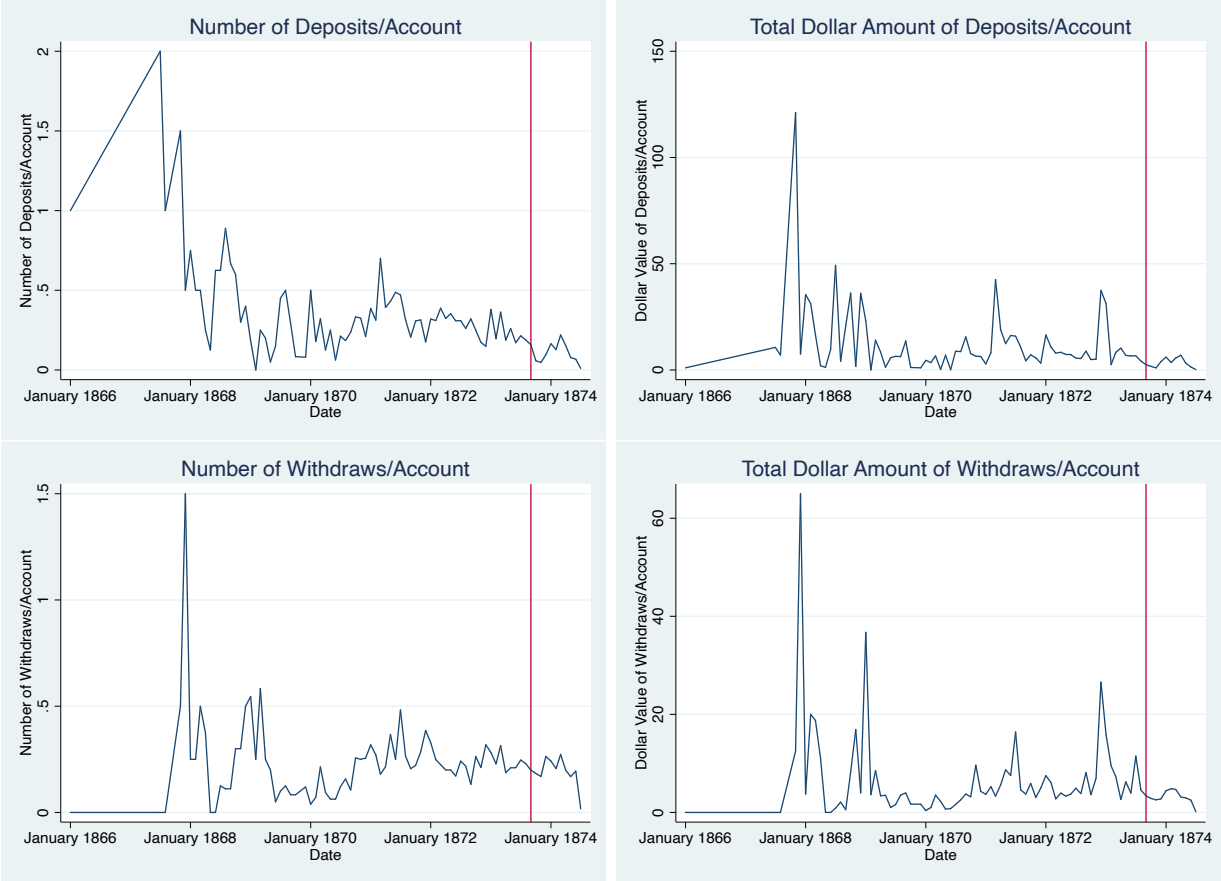


**Figure A.8.** Passbook Deposits and Withdraws by Month per Passbooks in Sample

**Data Appendix to Chapter 2: A Tale of Two Cities**

Here I summarize the data on CD and deposit rates in the United States from 2001 to 2020. I also include multiple robustness checks for results from the main paper.

## G. Data

Since the 1950s, the Census has collected data on urban and rural living in the United States. According to the Census website, "The Census Bureau delineates urban areas after each decennial census by applying specified criteria to decennial census and other data. 'Rural' encompasses all population, housing, and territory not included within an urban area."

Further delineation of what constitutes a rural or urban area can be found in Federal Register document number 75 FR 52173. The criteria for determination of rural or urban status is based on a number of factors, including things such as population, population density, location of major shopping center, and distance to wetlands or water, among others.

This data is delineated in three variables: rural, inside urbanized clusters, and urban clusters. Inside urbanized clusters and urban clusters are mutually independent, and together they constitute the "urban" population. I sum those two variables and create a percentage of total population that is considered rural by the Census.

For most of the analysis, I use the 2010 Census estimates, which occur in the middle of my sample. There are about 3,200 counties in the United States for which this measure is available.

As one might expect, rural population is heavily correlated with other demographic variables. In Table A.23, I have highlighted the correlation between rural population and other commonly used demographic measures: percent white, less than high school education, bachelor's education, and log median income.

**[See Table A.23]**

The table shows that rural population is negatively correlated with bachelor's education and log median income, and positively correlated with race and low education. Low education is correlated with low income and race. Furthermore, a bachelor's education is highly correlated with income. The average percentage rural population in US counties is 54%, with a standard deviation of 32%.

In Figures A.9 and A.10, I show maps of the United States with the share of population achieving less than a high school diploma, the share of the population having a bachelor's degree or higher, the average percent of population that is white, and the log median income.

**[See Figure A.9]**

**[See Figure A.10]**

These maps show that educational achievement is loosely tied to geography, with the southern half of the United States being less educated than the northern half. Furthermore, the counties with the largest percentage of white population tend to be located in the northern half of the United States. Median income, however, is highest in areas with larger cities and does not follow the same north and south pattern.

### G. Bank Logos

In the main paper, I show that a shock to trust during the financial crisis increases CD rates in low-sophistication rural counties. Figure A.11 shows that many rural banks actually advertise based on both trust and financial stability. The Farmer's & Merchants Bank features a logo that suggests that it is the strongest bank in California. The Normangee State Bank advertises "rock solid" banking in its logo. The Highlands Community Bank advertises its services as "banking you can trust." Finally, many small banks include a variation of "Member FDIC" under their logo, as did the First National Bank of Moose Lake. Although these logos are anecdotal, they suggest that trust in the financial system is not universal in rural areas.

**[See Figure A.11]**

### G. Robustness Tests

In this section, I conduct various robustness tests based on the results in the main paper.

### G. Small Bank Effects

In Column 5 of Table 2.4, I show that the rural CD premium does not exist within bank but is instead between banks. Because many rural banks consist of only a few banks, a natural concern is that the bank fixed effects in Column 5 will cancel out within-bank variation, falsely driving a null result in the sample.

To check this, I first I show the number of branches across all banks in the United States by the decile of rural deposits at each bank. As in the main paper, I calculate the weighted average deposits of a bank's deposits based on the percent of depositors for each branch that are located in a rural area. I then classify banks based on their decile of rural deposits. I show the results in Table A.24, where the first decile is the most urban and the 10th decile is the most rural.

**[See Table A.24]**

As the table shows, rural banks have the smallest footprint of all banks in my sample. Although at the 50th percentile, most banks in urban settings have at least four branches, highly rural banks only have two.

In Table A.25 below, I show the result of a specification that includes only banks with two or more branches reporting CD rates in the sample. Column 1 has been reproduced from Table 2.4 for convenience. Column 2 contains the same specification as in Column 1 but without state fixed effects. For these tests, I drop state fixed effects because many rural states do not exhibit much variation in the percent rural population, which may cause state fixed effects to drop those counties. Column 3 shows only banks with branches in two or more counties. Column 4 contains banks with branches in 14 or more counties. All specifications contain state, year, and bank fixed effects, and all errors are clustered at the county level.

**[See Table A.25]**

In Column 1, the result is as mentioned in the main paper; once controlling for bank fixed effects, banks offer higher CD rates in more rural counties. In Column 2, I show that excluding state fixed effects does not change the result in Column 1. In Column 3, I show that branches with two or more counties reporting do not alter CD rates if one of the branches in located in a more rural area. In Column 4, the coefficient on *Rural County* is significant, suggesting that, for large banks with branches in multiple counties, there is a small rural CD rate premium. Because there are very few banks in rural areas with 13 or more branches, I conclude that, especially for smaller banks, there is no evidence that CD rates are higher in rural areas compared to urban areas.

### G. Other Retail Deposit Rates

In Table A.26, I test the impact of rural population on deposit rates for two other common products: interest-bearing checking accounts, and money market accounts. These accounts are also popular amongst retail bankers, with the caveat that, contrary to CD products, these accounts do not feature defined maturities. Therefore, customers trade a lower rate for instant access to their funds.

I have over 870,000 observations for money market accounts, with an average rate of 1.25% and a standard deviation of 0.86%. For interest-bearing checking accounts, I have almost 830,000 observations with an average rate of 0.57% and a standard deviation of 0.56%.

I use the following specification:

$$\text{Log APY}_{i,j,t} = \alpha + \beta_1 \text{Treasury rate}_{k,t} + \beta_2 \% \text{ Rural Population}_i + \epsilon_{i,j,k,t} \tag{3.1}$$

In the above, $i$ refers to an individual branch, $j$ refers to the bank, and $t$ refers to month and year. The risk-free rate is the 6-month Treasury yield for each month and year. Note that, because these accounts do not have defined maturities, there is no control for the maturity as in the main result. Finally, *Rural County*

is a county-level measure of the percent of population considered rural. Errors are clustered at the county level.

**[See Table A.26]**

The results are shown in Table A.26. In Columns 1 and 3, I show the rate regression without controlling for rural population. The coefficients are both positive and highly significant. Further, both coefficients are approximately 27% to 29%, which is similar to the 27% coefficient on the *Log Maturity Matched Treasury Yield* in Table 2.4. In Columns 2 and 4, the coefficients on *Log Maturity Matched Treasury Yield* are unchanged from Columns 1 and 3. However, the coefficient on *Rural County* is positive and significant. For checking accounts, the APY is 29.9% higher in rural counties compared to urban counties. For money market accounts, the APY for rural counties is 7.73% higher than in urban counties. All specifications contain state and bank fixed effects and are clustered at the county level.

These results show that CD rates are not the only account type that exhibits a rural premium. Rather, the rural and urban divide in banking is evident in many common consumer depository account types.

## G. Alternate Measures of Financial Sophistication

In Tables 2.6 and 2.7, I show that CD rates in rural areas are largely explained by declines in trust following the financial crisis and that low-education rural counties comprise the bulk of the result. In this section, I conduct the same regressions by using log median income as a proxy for financial sophistication. The selection of income is based on Alesina and La Ferrara (2000), who shows that income is related to trust in people and community, and Calvet et al. (2009), who find that financial sophistication is higher correlated with household wealth.

Table A.27 contains the results of the triple interaction using log median income as a proxy for financial sophistication. As in the main table, the coefficient on *Rural County* is positive and significant. The coefficient on the triple interaction is positive and significant, demonstrating that low-income rural counties received 20% higher CD rates during the Great Recession than high income urban counties. As in Table 2.6, all errors are clustered at the county level, and all specifications contain year and state fixed effects. I suppress coefficients for maturity and log maturity matched Treasury rate.

**[See Table A.27]**

My results show a persistent relationship between low financial sophistication, as measured by either log median income or low high school completion rates, and rural CD rates.

In Table A.28, I test the triple interaction term against multiple controls including bank size, local income growth, bank overhead, competition, and deposit size. As in Table 2.8, Column 1 contains the full

sample. Column 2 contains only banks with less than 1,000 branches. Column 3 contains only banks with less than 7 branches.

**[See Table A.28]**

In all specifications, the triple interaction is positive and significant, suggesting that, even when controlling for major alternative explanations, rural areas with low income received higher CD rates during the Great Recession.

### G. Continuous Definition of Rural

In this section, I use a continuous measure of the rural variable as a robustness test. Recall from Table A.23 that the average county has 57% of the population living in areas considered rural, and the standard deviation is 32%.

In Table A.29, Columns 1 and 2 are reproduced for convenience. In Columns 3 through 5, I show that the rural and urban divide is not a function of defining rural as a discrete variable. Rather, the result is also driven by a continuous definition of rural.

**[See Table A.29]**

In Table A.30, I reproduce my main result using this alternative definition of rural population. My results show that the addition of a continuous definition of rural does not change the significance or magnitude of the coefficients on my main trust result. Rather, using the standard deviation of 0.32, $0.32 \times 0.319 = .10$, which is the coefficient on *% Rural Population* in Column 1, is similar to the coefficient on *Rural County* in Table 2.6.

Furthermore, the coefficient on the interaction term in Column 2 is also significant and positive, as in Table 2.6, suggesting that low-trust years result in higher CD rates in rural counties.

**[See Table A.30]**

In Table A.31, I show the interaction of *Low Trust Year*, *Low Education*, and *% Rural Population*, as in Table 2.7 in the main paper. Column 1 contains interactions between *% Rural Population* and *Low Education* and *% Rural Population* and *Low Trust Years*. Column 2 contains the triple interaction. The main difference between Table A.31 and Table 2.7 is the coefficient on *% Rural Population* and *Low Trust Years*. In the main table, it is significant and positive. In this table, it is not significant; when using a continuous variable, the bulk of the effect is seen in the triple interaction term rather than the double interaction. My results in Table A.31 show that low sophistication rural counties during low trust years receive higher CD rates than their more sophisticated and more urban counterparts.

**[See Table A.31]**

In Table A.32, I use log median income as a proxy for financial sophistication rather than education. Again, the results are similar to Table A.27, which show that low-income rural counties also experience an increase in CD rates during low trust years.

**[See Table A.32]**

In Table A.33, I replicate Table 2.8 using a continuous definition of *% Rural Population*. As in Table 2.8, the coefficients on the triple interaction are all positive and highly significant, suggesting that my results are robust to a variety of specifications.

**[See Table A.33]**

Finally, in Table A.34, I replicate the results from Table A.28 using a continuous definition of rural. As shown in the above tables, the coefficients on *% Rural Population* are still significant and of the same magnitude as the coefficients in Table A.28.

**[See Table A.34]**

## G. Figures and Tables

The first map shows the percent of population holding less than a high school diploma and the percent of population holding a bachelor's degree or higher in 2010 at the county level. In the first map, darker areas indicate counties with higher levels of low educational attainment. In the second map, darker areas indicate counties with higher levels of education.

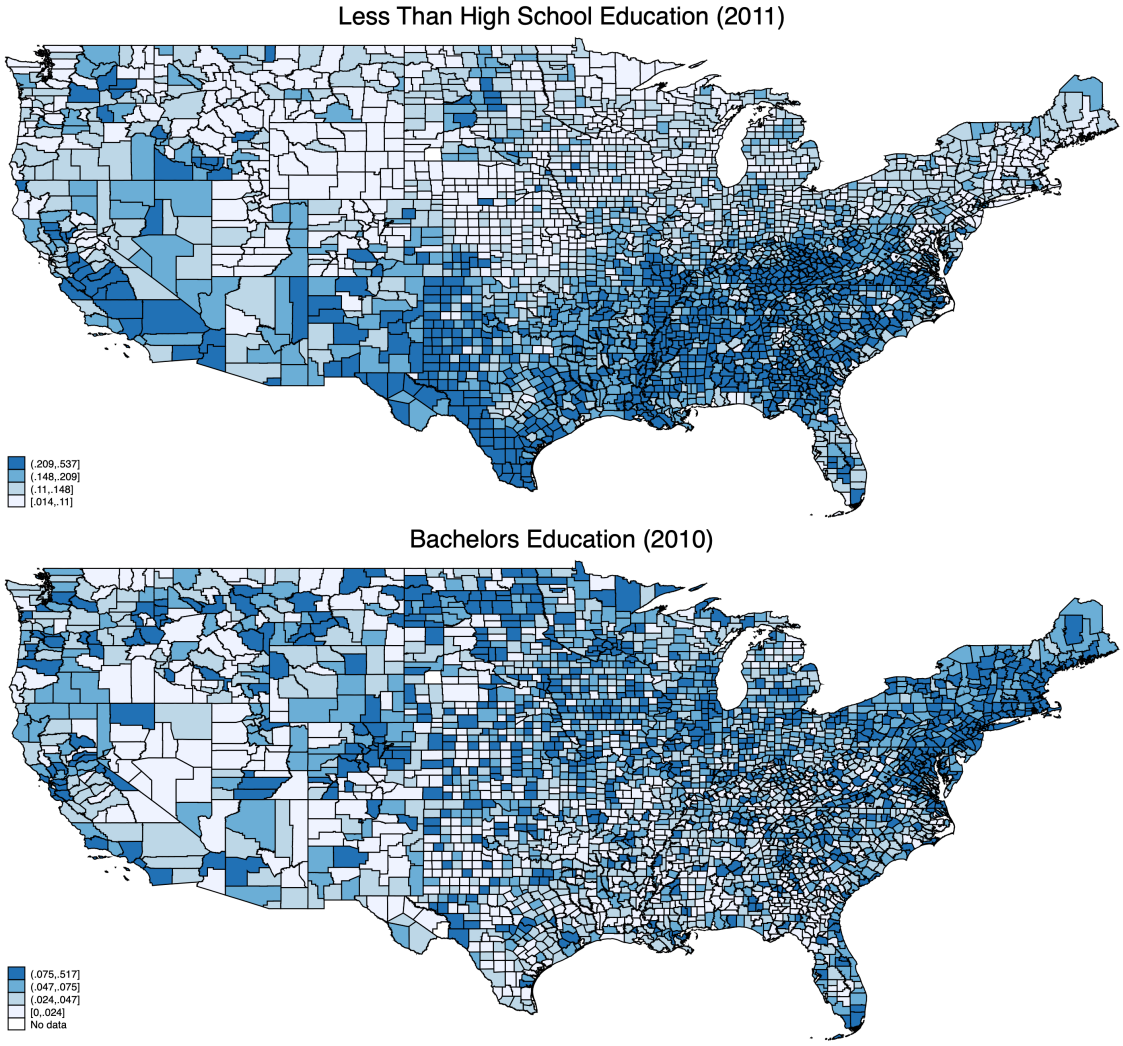


**Figure A.9.** Educational Attainment Maps

The first map shows the percent of population that is white in 2010 at the county level. The second map shows the median income at the county level in 2010. In both maps, darker areas indicate counties with more white population and higher median income, respectively.

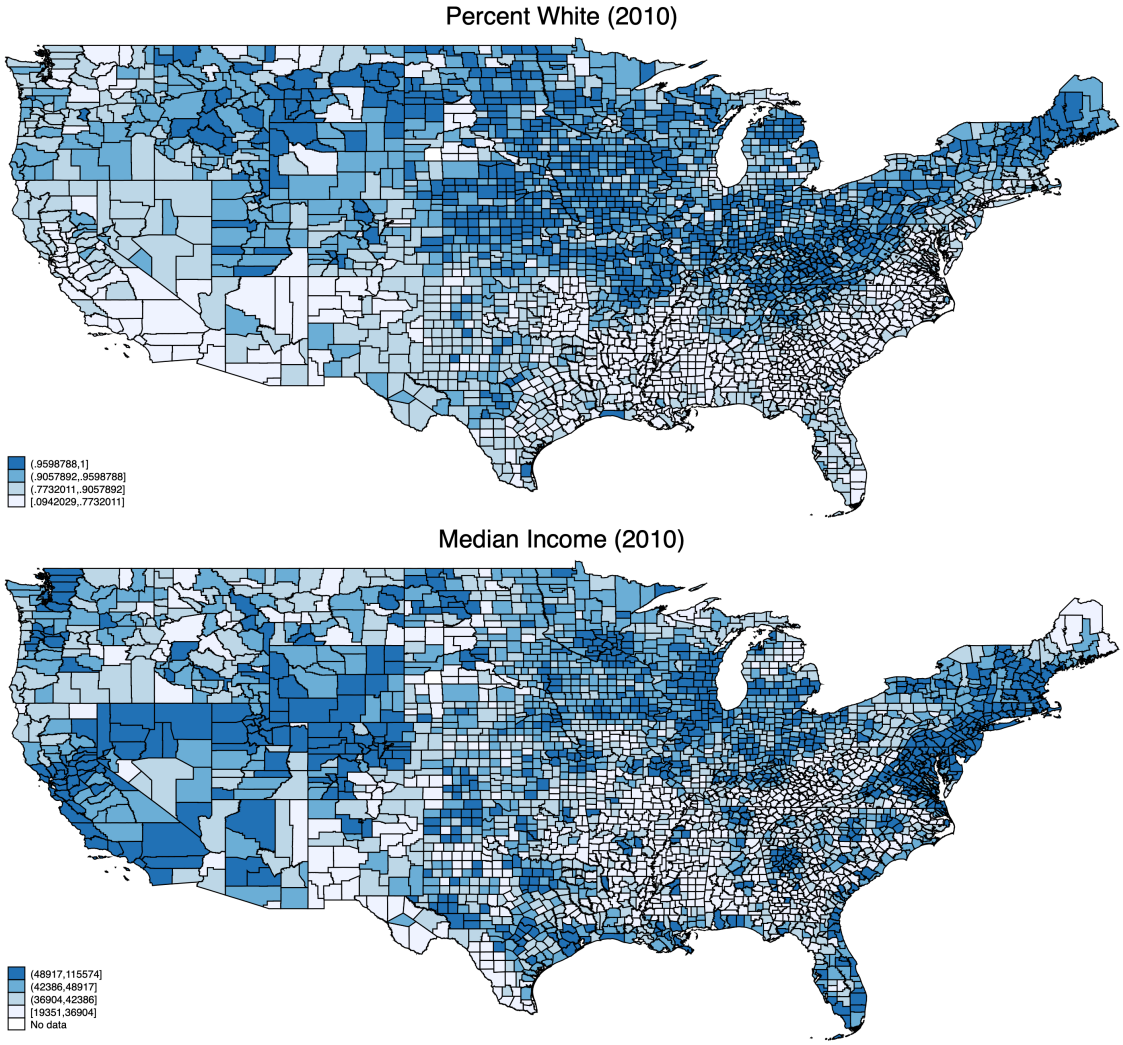


**Figure A.10.** Race and Median Income Maps

This figure shows logos of four rural banks in the sample.


**Figure A.11.** Rural Bank Logos

**TABLE A.23.** Correlation Matrix

The top of this table shows the correlation between percent white population, median income, percent of population with less than high school education, percent of population with a bachelor's education or more, and percent rural population at the county-level using 2011 data.

| | **Pct White** | **Log Median Income** | **<HS Education** | **Bachelor's Education** | **Pct Rural Pop.** |
|---|---|---|---|---|---|
| Pct White | 1.0000 | | | | |
| Log Median Income | 0.1753 | 1.0000 | | | |
| <HS Education | -0.3358 | -0.6929 | 1.0000 | | |
| Bachelor's Education | 0.0100 | 0.5755 | -0.5834 | 1.0000 | |
| Pct Rural Pop. | 0.1991 | -0.2183 | 0.1011 | -0.4886 | 1.0000 |
| | | | | | |
| **Mean** | 0.8470 | 10.7064 | 0.1736 | 0.1900 | 0.5752 |
| **Standard Deviation** | 0.1523 | 0.07885 | 0.2409 | 0.0859 | 0.3204 |

**TABLE A.24.** Number of Branches

This table shows the number of branches by rural decile. Decile Rural is based on the weighted average of the percent rural population in each county in which the bank is located, with 1 being least rural and 10 being most rural.

| Decile Rural | 25th | 50th | 75th | Max |
|---|---|---|---|---|
| 1 | 1 | 2 | 5 | 1,054 |
| 2 | 2 | 4 | 8 | 6,100 |
| 3 | 2 | 4 | 9 | 6,466 |
| 4 | 2 | 4 | 9 | 2,248 |
| 5 | 2 | 4 | 8 | 737 |
| 6 | 2 | 4 | 7 | 360 |
| 7 | 2 | 3 | 6 | 226 |
| 8 | 2 | 3 | 5 | 114 |
| 9 | 2 | 3 | 5 | 79 |
| 10 | 1 | 2 | 3 | 24 |

**TABLE A.25.** Number of Branches and Log CD Rates

This table tests bank fixed effects on banks that have branches in more than one county. Column 1 contains all observations, regardless of branch locations and is reproduced from Table 2.4. Column 2 contains banks with branch CD rate observations in more than one county. Column 3 contains banks with branches in 14 or more counties. All regressions contain state, year, and bank fixed effects. All errors are clustered at the county level.

| | (1) Full Sample | (2) Full Sample | (3) 2+ Counties | (4) 14+ Counties |
|---|---|---|---|---|
| Log Maturity Matched Treasury Yield | 0.278*** | 0.278*** | 0.376*** | 0.432*** |
| | (97.50) | (97.57) | (85.03) | (70.01) |
| 12 Months | 0.243*** | 0.243*** | 0.219*** | 0.245*** |
| | (118.59) | (118.65) | (67.83) | (45.94) |
| 24 Months | 0.447*** | 0.447*** | 0.434*** | 0.535*** |
| | (128.88) | (128.94) | (74.30) | (59.42) |
| 60 Months | 0.790*** | 0.790*** | 0.752*** | 0.904*** |
| | (130.04) | (130.27) | (75.36) | (59.17) |
| Rural County | 0.00231 | 0.00235 | 0.00595 | 0.0131* |
| | (0.42) | (0.43) | (1.06) | (1.78) |
| Observations | 7,285,382 | 7,285,382 | 3,058,819 | 1,528,857 |
| $R^2$ | 0.857 | 0.857 | 0.876 | 0.887 |
| Year FE | Y | Y | Y | Y |
| State FE | Y | N | N | N |
| Bank FE | Y | Y | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE A.26.** Rural Population Impact on Checking and Money Market Accounts

This table tests log APY for checking and money market accounts using the log 6-month Treasury yield and controlling for rural population. Columns 1 and 3 contain the base specification. Columns 2 and 4 control for the percent of population considered rural in the county in which the branch is located. All regressions contain state and year fixed effects. All errors are clustered at the county level.

| | (1) Checking APY | (2) Checking APY | (3) MM APY | (4) MM APY |
|---|---|---|---|---|
| Log Risk Free Rate | 0.273*** | 0.274*** | 0.299*** | 0.299*** |
| | (84.71) | (84.99) | (125.68) | (125.81) |
| Rural County | | 0.299*** | | 0.0773*** |
| | | (17.36) | | (6.89) |
| Observations | 823,931 | 823,931 | 871,409 | 871,409 |
| $R^2$ | 0.410 | 0.424 | 0.454 | 0.456 |
| Year FE | Y | Y | Y | Y |
| State FE | Y | Y | Y | Y |
| Bank FE | N | N | N | N |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE A.27.** Low-Trust Years and Rural Low-Income Interaction

This table tests the impact of bank size, as measured by log number of bank branches, on log CD rates. *Rural County* is a dummy that takes the value of 1 if the percent of population considered rural in the county in which the CD rate is offered is above the 75th percentile and 0 otherwise. *Low Trust Year* is a dummy that takes the value of 1 when the Gallup poll measure of trust in banks is below median for the years 2001 to 2019 and 0 otherwise. *Low Income* is a dummy that takes the value of 1 when median county income is below the 75th percentile and 0 otherwise. All specifications contain year and state fixed effects, and errors are clustered at the county level.

| | (1)<br>Log CD APY | (2)<br>Log CD APY |
|---|---|---|
| Rural County | 0.171*** | 0.244*** |
| | (6.10) | (8.08) |
| Low Trust Year | -2.013*** | -2.004*** |
| | (-184.47) | (-137.85) |
| Low Trust Year × Rural County | 0.0915*** | -0.0855*** |
| | (10.40) | (-2.67) |
| Low Income | -0.00696 | -0.00165 |
| | (-0.53) | (-0.13) |
| Low Income × Rural County | -0.0420 | -0.126*** |
| | (-1.43) | (-4.04) |
| Low Trust Year=1 × Low Income=1 | | -0.0127 |
| | | (-0.85) |
| Triple Interaction Term | | 0.197*** |
| | | (5.57) |
| Observations | 7,285,383 | 7,285,383 |
| $R^2$ | 0.767 | 0.767 |
| Year FE | Y | Y |
| State FE | Y | Y |
| Maturity Matched Treasury Control | Y | Y |
| CD Maturity Control | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE A.28.** Low-Trust Years and Rural Low-Income Interaction with Controls

This table tests the impact of bank size, as measured by log number of bank branches, on log CD rates. *Triple Interaction Term* is the interaction between *Low Trust Year*, *Low Education*, and *Rural County*. *Rural County* is a dummy that takes the value of 1 if the percent of population considered rural in the county in which the CD rate is offered is above the 75th percentile. *Low Trust Year* is a dummy that takes the value of 1 when the Gallup poll measure of trust in banks is below median. *Low Income* is a dummy that takes the value of 1 when median county income is below the 75th percentile. All specifications contain year and state fixed effects. Errors are clustered at the county level. Column 1 contains the full sample. Columns 2 and 3 contain banks with less than 1,000 and less than branches, respectively.

| | (1)<br>Full Sample | (2)<br>No Big Banks | (3)<br><7 Branches |
|---|---|---|---|
| Triple Interaction Term | 0.133*** | 0.131*** | 0.104** |
| | (3.46) | (3.32) | (2.43) |
| Income Change | -0.147*** | -0.106** | -0.0527 |
| | (-3.03) | (-2.16) | (-0.90) |
| Deposits to Assets | -0.610*** | -0.383*** | -0.324*** |
| | (-11.49) | (-7.01) | (-4.73) |
| % Overhead | -3.255*** | -3.076*** | -2.616*** |
| | (-9.05) | (-8.21) | (-5.02) |
| HHI | 0.0684* | 0.0384 | 0.00161 |
| | (1.84) | (0.96) | (0.03) |
| Log Deposits | 0.238*** | 0.151*** | -0.0892** |
| | (15.56) | (5.33) | (-1.96) |
| Squared Deposits | -0.0120*** | -0.00846*** | 0.00374** |
| | (-23.92) | (-8.12) | (2.06) |
| Observations | 4,651,751 | 3,990,786 | 2,209,671 |
| $R^2$ | 0.772 | 0.755 | 0.746 |
| Year FE | Y | Y | Y |
| State FE | Y | Y | Y |
| Maturity Matched Treasury Control | Y | Y | Y |
| CD Maturity Control | Y | Y | Y |
| Rural Control | Y | Y | Y |
| Income Control | Y | Y | Y |
| Trust Control | Y | Y | Y |
| Rural x Income Control | Y | Y | Y |
| Rural x Trust Control | Y | Y | Y |
| Trust x Income Control | Y | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE A.29.** Rural Population (Continuous Variable) and Log CD Rates

This table tests the basic relationship between log CD APY, term structure, and rural population. *% Rural Population* is the percent of population that is considered rural in the county in which the CD is offered. The *Log Maturity Matched Treasury Yield* is the log of a Treasury of the same maturity as the CD at that particular month and year in the sample. Coefficients on maturity are relative to the 6-month CD. Errors are clustered at the county level.

| | (1) Log CD APY | (2) Log CD APY | (3) Log CD APY | (4) Log CD APY | (5) Log CD APY |
|---|---|---|---|---|---|
| Log Maturity Matched Treasury Yield | 0.574*** | 0.275*** | 0.276*** | 0.276*** | 0.278*** |
| | (149.08) | (97.18) | (97.12) | (96.56) | (97.57) |
| 12 Months | 0.157*** | 0.245*** | 0.245*** | 0.245*** | 0.243*** |
| | (75.96) | (118.54) | (118.27) | (118.39) | (118.57) |
| 24 Months | 0.210*** | 0.442*** | 0.442*** | 0.444*** | 0.447*** |
| | (59.46) | (124.97) | (124.32) | (125.89) | (128.85) |
| 60 Months | 0.324*** | 0.752*** | 0.757*** | 0.767*** | 0.790*** |
| | (57.31) | (124.15) | (123.46) | (125.12) | (130.03) |
| % Rural Population | | | 0.353*** | 0.319*** | -0.000960 |
| | | | (18.35) | (21.25) | (-0.10) |
| Observations | 7,285,383 | 7,285,383 | 7,284,124 | 7,284,124 | 7,284,123 |
| $R^2$ | 0.425 | 0.748 | 0.757 | 0.768 | 0.857 |
| Year FE | N | Y | Y | Y | Y |
| State FE | N | N | N | Y | Y |
| Bank FE | N | N | N | N | Y |

$t$ statistics in parentheses

$^{*}$ $p < .1$, $^{**}$ $p < .05$, $^{***}$ $p < .01$

**TABLE A.30.** Rural Population (Continuous Variable), Low-Trust Years, and Log CD Rates

This table tests the impact of low trust years and rural population, as measured using a continuous variable, on log CD APY. *% Rural Population* is the percent of population that is considered rural in the county in which the CD is offered. *Low Trust Year* is a dummy that takes the value of 1 when the Gallup poll measure of trust in banks is below median for the years 2001 to 2019 and 0 otherwise. *Low Income* is a dummy that takes the value of 1 when median county income is below the 75th percentile and 0 otherwise. All specifications contain year and state fixed effects, and errors are clustered at the county level. Coefficients for maturity matched Treasury yield and CD maturity have been suppressed.

| | (1)<br>Log CD APY | (2)<br>Log CD APY |
|---|---|---|
| % Rural Pop | 0.319*** | 0.242*** |
| | (21.25) | (18.40) |
| Low Trust Year | -1.988*** | |
| | (-194.79) | |
| Low Trust Year | | -2.046*** |
| | | (-159.37) |
| Low Trust Year × % Rural Pop | | 0.159*** |
| | | (10.93) |
| Observations | 7,284,124 | 7,284,124 |
| $R^2$ | 0.768 | 0.769 |
| Year FE | Y | Y |
| State FE | Y | Y |
| Maturity Matched Treasury Control | Y | Y |
| CD Maturity Control | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE A.31.** Rural Population (Continuous Variable), Low-Trust Years, Low-Sophistication Counties, and Log CD Rates

This table tests the impact of financial sophistication in rural areas on CD rates during low-trust years. *Triple Interaction Term* is the interaction between *Low Trust Year*, *Low Education*, and *Rural County*. *% Rural Population* is the percent of population that is considered rural in the county in which the CD is offered. *Low Trust Year* is a dummy that takes the value of 1 when the Gallup poll measure of trust in banks is below median for the years 2001 to 2019 and 0 otherwise. *Low Income* is a dummy that takes the value of 1 when median county income is below the 75th percentile and 0 otherwise. All specifications contain year and state fixed effects, and errors are clustered at the county level.

| | (1)<br>Log CD APY | (2)<br>Log CD APY |
|---|---|---|
| % Rural Population | 0.257*** | 0.339*** |
| | (8.93) | (11.11) |
| Low Trust Year | -2.046*** | -2.009*** |
| | (-155.32) | (-121.25) |
| Low Trust Year × % Rural Population | 0.159*** | -0.00489 |
| | (10.96) | (-0.17) |
| Low Education | 0.0112 | 0.0336* |
| | (0.61) | (1.84) |
| Low Education × % Rural Population | -0.0203 | -0.122*** |
| | (-0.61) | (-3.57) |
| Low Trust Year × Low Education | | -0.0468** |
| | | (-2.44) |
| Triple Interaction Term | | 0.206*** |
| | | (5.61) |
| Observations | 7,284,124 | 7,284,124 |
| $R^2$ | 0.769 | 0.769 |
| Year FE | Y | Y |
| State FE | Y | Y |
| Maturity Matched Treasury Control | Y | Y |
| CD Maturity Control | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE A.32.** Rural Population (Continuous Variable), Low-Trust Years, Low-Income Counties, and Log CD Rates

This table tests the impact of financial sophistication, as measured by income, in rural areas on CD rates during low trust years. *Triple Interaction Term* is the interaction between *Low Trust Year*, *Low Education*, and *% Rural Population*. *% Rural Population* is the percent of population that is considered rural in the county in which the CD is offered. *Low Trust Year* is a dummy that takes the value of 1 when the Gallup poll measure of trust in banks is below median for the years. *Low Income* is a dummy that takes the value of 1 when median county income is below the 75th percentile. *Triple Interaction Term* is the interaction between *Low Trust Year*, *Low Income*, and *Rural County*. All specifications contain year and state fixed effects, and errors are clustered at the county level.

| | (1)<br>Log CD APY | (2)<br>Log CD APY |
|---|---|---|
| % Rural Population | 0.243*** | 0.355*** |
| | (6.91) | (9.62) |
| Low Trust Year | -2.050*** | -1.990*** |
| | (-158.29) | (-115.74) |
| Low Trust Year × % Rural Population | 0.158*** | -0.110*** |
| | (10.73) | (-2.73) |
| Low Income | -0.0451*** | -0.00721 |
| | (-2.61) | (-0.41) |
| Low Income × % Rural Population | 0.0163 | -0.123*** |
| | (0.42) | (-3.05) |
| Low Trust Year=1 × Low Income=1 | | -0.0853*** |
| | | (-4.19) |
| Triple Interaction Term | | 0.325*** |
| | | (6.85) |
| Observations | 7,284,124 | 7,284,124 |
| $R^2$ | 0.769 | 0.769 |
| Year FE | Y | Y |
| State FE | Y | Y |
| Maturity Matched Treasury Control | Y | Y |
| CD Maturity Control | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE A.33.** Rural Population (Continuous Variable), Low-Trust Years, Low-Sophistication Counties, and Log CD Rates with Controls

This table tests the impact of various controls on CD rates. *Triple Interaction Term* is the interaction between *Low Trust Year*, *Low Education*, and *% Rural Population*. *% Rural Population* is the percent of population that is considered rural. *Low Trust Year* is a dummy that takes the value of 1 when the Gallup poll measure of trust in banks is below median. *Low Income* is a dummy that takes the value of 1 when median county income is below the 75th percentile. All specifications contain year and state fixed effects. Errors are clustered at the county level. Column 1 contains the full sample. Columns 2 and 3 contain banks with less than 1,000 and less than 7 branches, respectively.

| | (1) Full Sample | (2) No Big Banks | (3) <7 Branches |
|---|---|---|---|
| Triple Interaction Term | 0.153*** | 0.124*** | 0.104** |
| | (3.78) | (3.02) | (2.24) |
| Income Change | -0.142*** | -0.108** | -0.0568 |
| | (-2.94) | (-2.21) | (-0.97) |
| Deposits to Assets | -0.611*** | -0.381*** | -0.326*** |
| | (-11.46) | (-6.97) | (-4.73) |
| % Overhead | -3.230*** | -3.065*** | -2.596*** |
| | (-9.04) | (-8.20) | (-5.02) |
| HHI | 0.0511 | 0.0302 | -0.00600 |
| | (1.33) | (0.72) | (-0.12) |
| Log Deposits | 0.241*** | 0.154*** | -0.0858* |
| | (15.80) | (5.41) | (-1.88) |
| Squared Deposits | -0.0121*** | -0.00857*** | 0.00364** |
| | (-24.12) | (-8.17) | (2.00) |
| Observations | 4,651,751 | 3,990,786 | 2,209,671 |
| $R^2$ | 0.772 | 0.755 | 0.746 |
| Year FE | Y | Y | Y |
| State FE | Y | Y | Y |
| Maturity Matched Treasury Control | Y | Y | Y |
| CD Maturity Control | Y | Y | Y |
| Rural Control | Y | Y | Y |
| Education Control | Y | Y | Y |
| Trust Control | Y | Y | Y |
| Rural x Education Control | Y | Y | Y |
| Rural x Trust Control | Y | Y | Y |
| Trust x Education Control | Y | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**TABLE A.34.** Rural Population (Continuous Variable), Low-Trust Years, Low-Income Counties, and Log CD Rates with Controls

This table tests the impact of controls on CD rates. *Triple Interaction Term* is the interaction between *Low Trust Year*, *Low Income*, and *% Rural Population*. *% Rural Population* is the percent of population that is considered rural. *Low Trust Year* is a dummy that takes the value of 1 when the Gallup poll measure of trust in banks is below median. *Low Income* is a dummy that takes the value of 1 when median county income is below the 75th percentile. All specifications contain year and state fixed effects. Errors are clustered at the county level. Column 1 contains the full sample. Columns 2 and 3 contain banks with less than 1,000 and less than 7 branches, respectively.

| | (1)<br>Full Sample | (2)<br>No Big Banks | (3)<br><7 Branches |
|---|---|---|---|
| Triple Interaction Term | 0.181*** | 0.173*** | 0.151*** |
| | (3.86) | (3.52) | (2.72) |
| Income Change | -0.144*** | -0.106** | -0.0534 |
| | (-2.98) | (-2.16) | (-0.92) |
| Deposits to Assets | -0.616*** | -0.382*** | -0.326*** |
| | (-11.60) | (-6.99) | (-4.73) |
| % Overhead | -3.227*** | -3.061*** | -2.595*** |
| | (-9.09) | (-8.24) | (-5.04) |
| HHI | 0.0564 | 0.0348 | -0.00625 |
| | (1.49) | (0.84) | (-0.12) |
| Log Deposits | 0.241*** | 0.152*** | -0.0873* |
| | (15.75) | (5.40) | (-1.93) |
| Squared Deposits | -0.0120*** | -0.00847*** | 0.00370** |
| | (-24.08) | (-8.20) | (2.04) |
| Observations | 4,651,751 | 3,990,786 | 2,209,671 |
| $R^2$ | 0.772 | 0.755 | 0.746 |
| Year FE | Y | Y | Y |
| State FE | Y | Y | Y |
| Maturity Matched Treasury Control | Y | Y | Y |
| CD Maturity Control | Y | Y | Y |
| Rural Control | Y | Y | Y |
| Income Control | Y | Y | Y |
| Trust Control | Y | Y | Y |
| Rural x Income Control | Y | Y | Y |
| Rural x Trust Control | Y | Y | Y |
| Trust x Income Control | Y | Y | Y |

$t$ statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

**Bibliography**


Alesina, A. and E. La Ferrara (2000, March). The Determinants of Trust. Working Paper 7621, National Bureau of Economic Research. Series: Working Paper Series.

Ashwood, L. (2018). *For-Profit Democracy: Why the Government Is Losing the Trust of Rural America.* Yale University Press.

Baradaran, M. (2019, March). *The Color of Money: Black Banks and the Racial Wealth Gap* (Reprint edition ed.). Cambridge: Belknap Press: An Imprint of Harvard University Press.

Bartlett, R., A. Morse, R. Stanton, and N. Wallace (2019, June). Consumer-Lending Discrimination in the FinTech Era. Technical Report w25943, National Bureau of Economic Research.

Begley, T. A. and A. Purnanandam (2021). Color and Credit: Race, Regulation, and the Quality of Financial Services. *Journal of Financial Economics*, 43.

Ben-David, I., A. Palvia, and C. Spatt (2017, October). Banks' Internal Capital Markets and Deposit Rates. *Journal of Financial and Quantitative Analysis 52*(5), 1797–1826. Publisher: Cambridge University Press.

Berman, N. and M. Couttenier (2015, March). External Shocks, Internal Shots: The Geography of Civil Conflicts. *The Review of Economics and Statistics 97*(4), 758–776.

Bernheim, B. D., D. Ray, and Yeltekin (2015). Poverty and Self-Control. *Econometrica 83*(5), 1877–1911. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.3982/ECTA11374.

Bishop, B. (2016, October). Politics & elections: Alienation rates higher in rural areas than in cities. *The Daily Yonder*.

Bohlken, A. T. and E. J. Sergenti (2010, September). Economic growth and ethnic violence: An empirical investigation of Hind-Muslim riots in India. *Journal of Peace Research 47*(5), 589–600.

Brown, J. R., J. A. Cookson, and R. Z. Heimer (2019, December). Growing up without finance. *Journal of Financial Economics 134*(3), 591–616.

Buchak, G., G. Matvos, T. Piskorski, and A. Seru (2018, December). Fintech, regulatory arbitrage, and the rise of shadow banks. *Journal of Financial Economics 130*(3), 453–483.

Burns, Harrison; Gifford, S. G. (1921). *Burns' Annotated Indiana Statutes Supplement of 1921 containing the General Statutes Enacted at the Legislative Sessions of 1915, 1917, 1919, 1920, 1921, together with Notes of the Decisions of the Highest Courts*, Volume 1. Bobbs-Merrill.

Butler, A. W., E. J. Mayer, and J. Weston (2021, March). Racial Discrimination in the Auto Loan Market. SSRN Scholarly Paper ID 3301009, Social Science Research Network, Rochester, NY.

Cahill, J. C. (1922). *Michigan Compiled Laws of 1915: Annotated Supplement.* Callaghan.

Calvet, L. E., J. Y. Campbell, and P. Sodini (2009, May). Measuring the Financial Sophistication of Households. *American Economic Review 99*(2), 393–398.

Carlin, B. I. (2009, March). Strategic price complexity in retail financial markets. *Journal of Financial Economics 91*(3), 278–287.

CBS News (2019). Rural america's "brain drain": How student debt is emptying small towns. www.cbsnews.com/news/rural-americas-brain-drain-how-student-debt-is-emptying-small-towns/.

Celerier, C. and P. Tak (2021, April). The Impact of Financial Inclusion on Minorities: Evidence from the Freedman's Savings Bank. SSRN Scholarly Paper ID 3825143, Social Science Research Network, Rochester, NY.

Centers for Disease Control (2017, March). About rural health.

Centers for Disease Control (2018, April). More obesity in u.s. rural counties than in urban counties.

Comptroller of the Treasury (1870–1914). *Records of the Division of Insolvent National Banks, The Freedman's Savings and Trust Company, Entry 66: Letters Received by the Commissioners of the Freedman's Savings and Trust Company and by the Comptroller of the Currency as Ex Officio Commissioners.* Microfilmed from Record Group 101: Records of the Comptroller of the Treasury.

Dao, T. K., D. Chu, J. Springer, E. Hiatt, and Q. Nguyen (2010). Depression and geographic status as predictors for coronary artery bypass surgery outcomes. *The Journal of Rural Health: Official Journal of the American Rural Health Association and the National Rural Health Care Association 26*(1), 36–43.

Dehejia, R. and A. Lleras-Muney (2007, May). Financial development and pathways of growth: State branching and deposit insurance laws in the united states, 1900-1940. *The Journal of Law and Economics 50*(2), 239–272. Publisher: The University of Chicago Press.

Diamond, D. W. (1984, July). Financial Intermediation and Delegated Monitoring. *The Review of Economic Studies 51*(3), 393–414.

Diamond, D. W. and P. H. Dybvig (1983, June). Bank Runs, Deposit Insurance, and Liquidity. *Journal of Political Economy 91*(3), 401–419.

Drechsler, I., A. Savov, and P. Schnabl (2017, November). The Deposits Channel of Monetary Policy*. *The Quarterly Journal of Economics 132*(4), 1819–1876.

Du Bois, W. (1935). *Black Reconstruction in America, 1860-1880* (Updated edition ed.). New York: Free Press; 12.2.1997 edition.

Ellison, A. (2021). Why rural hospital closures hit a record high in 2020. *Becker's Hospital Review*.

ERS, U. (2019). Rural population trends.

FamilySearch (2000). CD-ROM, The Church of Jesus Christ of Latter-Day Saints . Family History Resource File: Freedman's Bank records.

FamilySearch (2020). *United States, Freedman's Bank Records, 1865-1874, Database with images.* Family history resource file. Salt Lake City, UT: Church of Jesus Christ of Latter-Day Saints. Citing NARA microfilm publication M816. Washington, D.C.: National Archives and Records Administration, 1970.

Federal Deposit Insurance Corporation (2019). How america banks: Household use of banking and financial services.

Foner, E. (1990, January). *A Short History of Reconstruction, Updated Edition* (Updated edition ed.). New York: Harper Perennial Modern Classics.

Frydman, C., E. Hilt, and L. Y. Zhou (2015, August). Economic effects of runs on early shadow banks: Trust companies and the impact of the panic of 1907. *Journal of Political Economy 123*(4), 902–940. Publisher: The University of Chicago Press.

Gambacorta, L. (2008). How do banks set interest rates? *European Economic Review 52*(5), 792–819.

Gilje, E. P. (2019). Does local access to finance matter? evidence from u.s. oil and natural gas shale booms. *Management Science 65*(1), 1–18.

Gilje, E. P., E. Loutskina, and P. E. Strahan (2016). Exporting liquidity: Branch banking and financial integration. *The Journal of Finance 71*(3), 1159–1184.

Gran, B. (2020, February). Putting Your Money Into A CD? 9 Questions To Ask First. Section: Banking.

Guiso, L., P. Sapienza, and L. Zingales (2008). Trusting the stock market. *The Journal of Finance 63*(6), 2557–2600.

Gurun, U. G., G. Matvos, and A. Seru (2016). Advertising Expensive Mortgages. *The Journal of Finance 71*(5), 2371–2416. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/jofi.12423.

Gurun, U. G., N. Stoffman, and S. E. Yonker (2018, April). Trust Busting: The Effect of Fraud on Investor Behavior. *The Review of Financial Studies 31*(4), 1341–1376.

Hannan, Timothy H, . B. A. N. (1991). The rigidity of prices: Evidence from the banking industry. *Journal of Reprints for Antitrust Law and Economics 27*, 245–254.

Iyer, R. and M. Puri (2012, June). Understanding Bank Runs: The Importance of Depositor-Bank Relationships and Networks. *The American Economic Review; Nashville 102*(4), 1414–1445.

Iyer, R., M. Puri, and N. Ryan (2016, December). A Tale of Two Runs: Depositor Responses to Bank Solvency Risk. *The Journal of Finance 71*(6), 2687–2726.

Kaufman, C. N. (2019, May). Rural political participation in the United States: alienation or action? *Rural Society 28*(2), 127–143. Publisher: Routledge _eprint: https://doi.org/10.1080/10371656.2019.1645429.

Lester, R. and J. C. Gutberlet (2005). *The Freedman's Savings and Trust Company: letters received by the commissioners, 1870-1914*. Bethesda, MD: UPA collection from LexisNexis. OCLC: 57186303.

Lusardi, A., D. J. Schneider, and P. Tufano (2011, May). Financially Fragile Households: Evidence and Implications. Technical Report w17072, National Bureau of Economic Research.

Malmendier, U. and S. Nagel (2009, March). Depression Babies: Do Macroeconomic Experiences Affect Risk-Taking? Technical Report w14813, National Bureau of Economic Research.

Malmendier, U. and S. Nagel (2016, February). Learning from inflation experiences. *The Quarterly Journal of Economics 131*(1), 53–87.

Melzer, B. T. (2011, 02). The Real Costs of Credit Access: Evidence from the Payday Lending Market*. *The Quarterly Journal of Economics 126*(1), 517–555.

Memphis Daily Appeal (1973). Exciting pressure on the freedman's savings bank, at nashville - $12,000 deposits withdrawn. *Memphis Daily Appeal*.

Morse, A. (2011, October). Payday lenders: Heroes or villains? *Journal of Financial Economics 102*(1), 28–44.

National Archives and Records Administration (1879-1899). *Records of the Office of the Comptroller of the Currency* . Record Group 101, https://fraser.stlouisfed.org/archival/556.

National Rural Health Association (2021). About rural health care. https://www.ruralhealthweb.org/about-nrha/about-rural-health-care.

Osthaus, C. R. (1976, March). *Freedmen, Philanthropy, and Fraud: A History of the Freedman's Savings Bank* (First edition ed.). Urbana: University of Illinois Press.

Pozner, R. S. and P. E. Strahan (1997, December). The political economy of deregulation: Evidence from the relaxation of bank branching regulations in the united states. *Federal Reserve Bank of New York* (3), Research Paper No. 9720.

Robinson, Louis; Nugent, R. (1935). *Regulation of the Small Loan Business*. Russell Sage Foundation.

Rockoff, H. (2018). It is always the shadow banks: The regulatory status of the banks that failed and ignited america's greatest financial panics. In H. Rockoff and I. Suto (Eds.), *Coping with Financial Crises: Some Lessons from Economic History*, Studies in Economic History, pp. 77–106. Singapore: Springer.

Rural Health Information Hub (2017). Chronic disease in rural america overview. www.ruralhealthinfo.org/topics/chronic-diseaseurban-comparison.

Ryan, A., G. Trumbull, and P. Tufano (2011). A Brief Postwar History of U.S. Consumer Finance. *Business History Review 85*(3), 461–498. Publisher: Cambridge University Press.

Sapienza, P. and L. Zingales (2012). A Trust Crisis. *International Review of Finance 12*(2), 123–131.

Schilbach, F., H. Schofield, and S. Mullainathan (2016, May). The Psychological Lives of the Poor. *American Economic Review 106*(5), 435–440.

Serneels, P. and M. Verpoorten (2015, June). The Impact of Armed Conflict on Economic Performance: Evidence from Rwanda. *Journal of Conflict Resolution 59*(4), 555–592.

Stein, L. C. D. and C. Yannelis (2020, 02). Financial Inclusion, Human Capital, and Wealth Accumulation: Evidence from the Freedman's Savings Bank. *The Review of Financial Studies*. hhaa013.

Stevenson, B. and J. Wolfers (2011, May). Trust in Public Institutions over the Business Cycle. *American Economic Review 101*(3), 281–287.

Throckmorton Archibald H., E. e. a. (1922). *General Code of the State of Ohio Revised to 1921 Containing All Laws of a General Nature in Force January 1, 1921, with Annotations from Decisions of All Ohio Courts and the Federal Courts*. Baldwin Law Pub. Co.

United States Census (2018). Differences in income growth across u.s. counties. www.census.gov/library/stories/2018/12/differences-in-income-growth-across-united-states-counties.html.

United States Comptroller of the Currency (1873). *Report of the Comptroller of the Currency* . 44th Congress, 3rd Session, Senate Misc. Doc. No. 88.

United States Congress (1874, May). *Appendix of the Congressional Record, Speech of the Honorable F.G. Bromberg of Alabama in the House of Representatives* . May 14, 1874.

United States Department of Agriculture (2019). Rural education. www.ers.usda.gov/topics/rural-economy-population/employment-education/rural-education/.

United States House of Representatives (1874, December). *Report of the Commissioners of the Freedman's Savings and Trust Company* . 43rd Congress, 2nd Session, Mis. Doc. No. 16, December 15, 1874.

United States House of Representatives (1876, January). *Freedman's Bank* . 44th Congress, 1st Session, House of Representatives Report No. 502, January 5, 1876.

United States House of Representatives (1880, March). *Report of the Select Committee to Investigate the Freedman's Savings and Trust Company* . 46th Congress, 2nd Session, Senate Report No. 440, April 2, 1880.

United States House of Representatives (1883, December). *Report of the Commissioners of the Freedman's Savings and Trust Company* . 48th Congress.

United States National Archives and Records Administration (2016a). *Records of the office of the Comptroller of the Currency.*

United States National Archives and Records Administration (2016b, August). *Records of the Office of the Comptroller of the Currency; The Freedman's Savings and Trust Company* . Record Group 101; ARC ID 2538252; College Park, MD.

United States National Archives; Black studies research sources (2005). *The Freedman's Savings and Trust Company: letters received by the commissioners, 1870-1914* . Bethesda, MD. pt. 1. Correspondence, loans, and bank books.

USDA ERS (2021). Rural residents appear to be more vulnerable to serious infection or death from coronavirus covid-19. www.ers.usda.gov/amber-waves/2021/february/rural-residents-appear-to-be-more-vulnerable-to-serious-infection-or-death-from-coronavirus-covid-19/.

van der Cruijsen, C., J. de Haan, and D.-J. Jansen (2016, June). Trust and Financial Crisis Experiences. *Social Indicators Research 127*(2), 577–600.

van Esterik-Plasmeijer, P. W. and W. F. van Raaij (2017, January). Banking system trust, bank trust, and bank loyalty. *International Journal of Bank Marketing 35*(1), 97–111. Publisher: Emerald Publishing Limited.

Williams, K. E. (2012). *They Left Great Marks on Me: African American Testimonies of Racial Violence from Emancipation to World War I.* New York: NYU Press.