

Save the Banks, Save the People?

Long-run Impact of Banking Access on Households

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Abstract

Central banks often provide liquidity support during financial crises to reduce bank exits and boost real economic activities. Does such interventions lead to differences in credit provision and real economic activities after the crisis? What were the effects on households and workers? This paper uses the policy differences between the Federal Reserve Bank of Atlanta and St. Louis during the Great Depression to identify the causal relationship between banking access and post-crisis socioeconomic outcomes. We combine newly digitized bank-level balance sheet data with Census microdata to show that the Federal Reserve Bank of Atlanta's liquidity support successfully reduced bank exits and increased loans and deposits in towns. The results were concentrated in towns with a lower level of bank competition. While the liquidity support did not increase the likelihood of migration for workers, those who were working in 1930 were more likely to stay in the labor market or switch to agricultural sectors in 1940 in less competitive markets. Using the Census of Agriculture and Manufactures, we find that the liquidity support increased in farm outputs and enabled small manufacturing firms to acquire more input materials and increase the value of output after the crisis.

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1 Introduction

Central banks often provide liquidity support during financial crises to reduce bank exits and boost real economic activities. Do such interventions lead to differences in credit provision and real economic activities after the crisis? What were the effects on households and workers? Despite the policy relevance, few empirical studies have analyzed the long-term welfare consequences of liquidity support and the spatial heterogeneity of such effects. The primary empirical challenge is that monetary policies are typically set at the national level and are endogenous to the conditions in the banking sector. In addition, monetary policy changes during a crisis often coincide with other fiscal or social policy provisions (such as lump sum transfers, unemployment benefits), further limiting our ability to identify the causal relationship between central bank intervention and post-crisis outcomes.

This paper leverages the policy differences between the Federal Reserve Bank of Atlanta (henceforth the “Atlanta Fed”) and the Federal Reserve Bank of St. Louis (henceforth the “St. Louis Fed”) during the panic of 1930 to identify the effects of liquidity support on bank exits and real economic activities. In contrast to other Federal Reserve banks at the time, the Atlanta Fed advocated active intervention and functioned as a lender of last resort to member banks in the district. This unique historical case offers an opportunity to address two empirical challenges. First, the intervention was not adopted nationally. Second, the Atlanta Fed district border does not fully align with state borders, dividing counties within Tennessee and Mississippi between St. Louis and Atlanta Feds, thus providing variations across the reserve districts within the same state.

Past research ([Richardson and Troost, 2009](#); [Ziebarth, 2013](#); [Jalil, 2014](#); [Janas, 2025](#)) has documented this policy experiment in detail and uses it to identify causal effects of central bank policies on bank failure and economic outcomes. This paper focuses on the role of pre-crisis banking market conditions and studies the heterogeneous effects of the Atlanta Fed’s policy across markets, especially on the long-term labor market and migration outcomes.

We digitize *Rand McNally Banker’s Directory* to construct a novel dataset consisting of all retail commercial bank balance sheet information from 1919 to 1939 in Mississippi and Tennessee. Compared to other data published by federal agencies, our data has two advantages. First, the data covers both state and national banks, providing a more comprehensive picture on the local banking market. During this period, 90 percent of banks in Mississippi and 83 percent in Tennessee were chartered by the state. Second, this data documents the exact location of each bank, as well as the timing and reason for bank entry and exits (i.e., merger versus liquidation). Because the retail banking market encompasses small geographic areas, the bank-level data provide a precise measure of the local banking market structure and individual exposure to banking services.¹

¹In contrast, federal agencies like the Office of the Comptroller of Currency (OCC) only collected information on national banks. A notable example is the study conducted by the Federal Deposit Insurance Corporation (FDIC) in 1936, see [Federal Deposit Insurance Corporation \(1992\)](#). However, the FDIC data were aggregated at county level,

We first use an event-study design to analyze the effect of the Atlanta Fed’s liquidity support on bank exits by comparing the outcomes for banks within the Atlanta district to those in the St. Louis district. Using bank-level data, we construct a concentration measure for each market and group the counties by the median of market concentration before the crisis.² On average, the more competitive markets were more urban and densely populated, while the less competitive markets tended to be rural. We estimate the model parameters separately for each group to see whether the effects of the liquidity support depend on the pre-crisis market conditions. We find that the liquidity support successfully reduced bank exits, but primarily in the less competitive markets. After the crisis, the banking market was also more active in the Atlanta district. Deposits and loans grew more for surviving banks in the Atlanta district, and the effects were stronger in the less competitive (rural) markets.

The Atlanta Fed’s policy could affect households and workers through changes in the local banking conditions and credit availability. To understand the effect of the liquidity support on individuals, we map bank-level data to the Census Microdata to measure the changes in deposits and loans in banks within a 5-mile radius of each individual during the crisis. We find that the Fed Atlanta policy increased deposits and loans, with the effects concentrated for workers in less competitive markets between 1928 and 1932. By instrumenting the changes in deposits and loans with whether an individual is located in the Atlanta Fed district, we find that while workers did not significantly change their migration decision, workers with improved local banking conditions were more likely to switch to the agricultural sector, especially in less competitive markets.

Did the liquidity support help improve real economic activities? In the last part, we compare economic outcomes between counties with similar pre-crisis market conditions in the two reserve districts using the county-level Census of Agriculture (Haines et al., 2010) and the plant-level Census of Manufactures. We follow Ziebarth (2013) but estimate the effects separately for markets above or below the median level of the concentration measure. We find that, by 1940, a smaller share of farms in the Atlanta district had mortgages. Farms in the Atlanta district also had less machinery per acre. However, while the Atlanta Fed’s policy did not increase mortgage utilization or capital investment, we find that farms in the Atlanta district became more productive. The value of output (crop, livestock, and total farm product) per acre increased in Atlanta across markets. Similarly, the Atlanta Fed’s policy increased manufacturing production for small firms. Those in the Atlanta district were able to spend more on input materials and produce more output. The effects were larger in the less competitive markets, and we find no effects for large firms. Overall, the results are consistent with Bernanke (1983), which suggests that bank failures would increase the cost of credit intermediation and reduce the demand for goods and services, especially for small firms.

This paper bridges the literature on Federal Reserve policies during the Great Depression and

which masked the local variations and cannot be used to measure market concentration.

²We define each county as a “market” and use each bank’s fraction of deposits in 1928 to calculate the Herfindahl-Hirschman index for each market.

the growing discussion on banking competition. A large body of literature has debated the role the Federal Reserve played during the crisis (Friedman and Schwartz, 1963; Temin, 1976; Wicker, 1996; Wheelock, 1991). Many have used the divergent policies between Atlanta and other reserve banks to study the effects of liquidity support on bank survival (Richardson and Troost, 2009; Carlson et al., 2011; Ziebarth, 2013; Jalil, 2014; Janas, 2025). A related strand of literature finds that banking competition is associated with higher efficiency, increased credit provision, and persistent positive effects on employment and industrialization (Carlson and Mitchener, 2009; Carlson et al., 2022; Quincy, 2024). Our paper complements the literature by highlighting that the competition structure can influence the outcomes of central bank interventions during crises.

This paper contributes to the literature on how the banking crisis was transmitted to other sectors during the 1930s. Building on the seminal paper by Bernanke (1983), past research found that bank failures had a negative effect on manufacturing output, employment, and innovation (Ziebarth, 2013; Nanda and Nicholas, 2014; Benmelech et al., 2019; Babina et al., 2023), and long-term growth (Rousseau and Wachtel, 1998). Consistent with the theoretical work, our findings demonstrate that small manufacturers relied more on commercial banks for credit. Central bank interventions aimed at reducing bank exits can have a disproportionately positive effect on small firms during a crisis.

The paper also adds to the literature on how policies during the Great Depression affected workers' migration and labor market outcomes. The literature documents the effect of New Deal spending and employment programs on individuals' health, geographic mobility, and labor market outcomes. (Jou and Morgan, 2024; Aizer et al., 2024). Our paper documents the downstream effects of monetary policy on households and workers, utilizing the quasi-experimental variation in liquidity support during the 1930s.

The rest of the paper is structured as follows. Section 2 describes the historical background on the policy differences between the Atlanta and St. Louis Fed. Section 3 introduces the data and provides a general description of the evolution of the banking sector in Mississippi and Tennessee between 1919 and 1939. Section 4 discusses the empirical strategy and section 5 presents the estimation results. Section 6 concludes.

2 Historical Background

Richardson and Troost (2009) first documents the divergent policies between the Atlanta and St. Louis Feds. Until the 1930s, the Atlanta Fed continued to follow Bagehot's rule and acted as a lender of last resort to support illiquid banks. The Atlanta Fed faced multiple banking panics before the 1930s. It consistently acted as the lender-of-last-resort during every crisis by providing liquidity support to local banks in the district (Carlson et al., 2011; White, 2017). In 1930, Caldwell and Company, which controlled the largest financial conglomerate in the south, collapsed in Nashville, triggering bank runs in the region. In response to the crisis, the Atlanta Fed "rushed funds to afflicted areas, sent personnel to expedite the lending process, and publicly

proclaimed its willingness to extend credit sufficient to alleviate the situation”(Richardson and Troost, 2006). In contrast, the St. Louis Fed adhered to the doctrine of real bills. During crises, it limited lending and requested higher collateral when extending loans to member banks. The St. Louis Fed maintained this policy until 1931, when it ceased to oppose intervention and eased restrictions on discount lending.

While most Federal Reserve districts overlap with state boundaries, Mississippi and Tennessee are divided between the Atlanta and St. Louis districts. Figure 1 plots the state boundaries for Tennessee and Mississippi, as well as the corresponding reserve districts. Because the majority of commercial banks were chartered by the state, comparisons across most reserve district boundaries that coincided with state borders may confound state banking regulations with reserve banks’ interventions. The division within Tennessee and Mississippi, however, allows for a comparison of the banking market under the same regulatory regime.

3 Data and Descriptive Evidence

We digitize the *Rand McNally Bankers Directory* for Mississippi and Tennessee from 1919 to 1939. This directory provides bank-level information on location, entry and exit, and balance sheet information, for both state and national banks.³ The sample consists of 1407 commercial banks (and bank branches) that operated in Tennessee and Mississippi between 1919 and 1939.⁴

There are two main advantages to use the *McNally Directory* data. First, the bank-level data from the *McNally Directory* includes location and exit timing for each bank, while other commonly used sources only provide county aggregates. This enables us to measure the banking market structure at the local level over time, which is crucial for analyzing how market conditions may influence bank exits under different policy regimes.

Second, the *McNally Directory* includes both national and state banks. The majority of banks in the sample were state banks. Figure 2 illustrates the total number of banks in the sample and the number of national banks reported by the Office of the Comptroller of the Currency (OCC). In 1926, only 10 percent of banks in Mississippi and 17 percent in Tennessee were national banks.⁵ Furthermore, the number of national banks remained relatively stable over the years, while state banks were the primary contributors to bank exits. National banks were also more likely to be located in densely populated urban markets, while state banks served a wider range of markets. In other words, state banks were the main providers of credit access and financial services during this period, particularly in rural areas.

³We manually checked and harmonized bank names to ensure that name changes were not counted as new entries. The sample only includes commercial banks. The *McNally Directory* also reported investment firms, such as *Candwell and Company*, clearing houses, etc. We excluded such cases from the sample.

⁴For the balance sheet sample, we exclude branch banks, which leaves 1298 banks, 881 for Tennessee and 417 for Mississippi.

⁵The national banks were larger than state banks. In 1926, the national banks accounted for 35 percent of total loans and 37 percent of total deposits in the two states.

Number of Banks First, we compare the aggregate market conditions between the Atlanta and St. Louis districts. [Figure 3](#) shows the total number of operating banks in Mississippi and Tennessee, grouped by their corresponding reserve districts. The total number of operating banks declined at a similar rate in both districts. The decrease accelerated after the 1930 crisis until 1933, after which the total number of banks in the market stabilized. As a validation, we compare our data with the widely used 1936 FDIC study.⁶ The trend is similar in both datasets, although the *McNally* dataset includes branch banks, which accounted for 8 percent of the total number of banks.

Local Access to Banks Using the location of each bank reported in the *McNally* data, we also document the changes in banking access over time. Among all the towns that *ever* reported having a bank between 1919 and 1939, we classify each town by the number of banks it has for any given year. The sample includes 616 cities and towns that had ever reported having a bank between 1919 and 1939, with 361 in the Atlanta District and 255 in the St. Louis District. [Figure 4](#) plots the share of towns by the number of banks for each year. Among the towns that had at least one bank during the sample period, nearly a third of these towns lost all banking access by 1933. Moreover, this was not offset by new entry after the crisis, and the share of towns without any banking access remained unchanged until 1939.⁷

Banking Market Structure As the number of operating banks decreased, fewer banks competed in the local market. We define a market as a county and measure the level of banking competition with two metrics. First, bank density, defined as the number of banks per million residents. This includes both unit banks and bank branches. [Figure 5\(a\)](#) plots the average county-level bank density for each state by reserve district. The bank density continued to decline throughout the sample period, though the change was most dramatic during the crisis between 1930 and 1933, after which the decline substantially slowed.

While the density measure captures all banks, it does not reflect the relative size differences across banks in each market. Therefore, we also calculate the Herfindahl-Hirschman Index (HHI), defined as the sum of squared market shares, measured by total deposits or total loans.⁸ [Figure 5\(b\)](#) plots the average county-level HHI calculated with deposits for each state by reserve district. The market concentration started to increase in 1930, consistent with the decrease in bank density. However, it differs from the density measure in two ways. First, the market concentration remained mostly stable before 1930, suggesting that the pre-crisis changes in bank density were likely driven by small banks. In addition, while the bank density change showed a similar trend across the two districts, the market concentration increased more in the Atlanta district, especially after 1934. This suggests that surviving banks in the Atlanta district grew

⁶Data available via ICPSR at <https://doi.org/10.3886/ICPSR00007.v1>

⁷The trend is even more pronounced when excluding branch banks. See [Appendix Figure 2](#).

⁸Unlike bank density, the HHI does not include branch banks, which did not report balance sheet information in the *McNally Directory*.

larger in terms of deposits after the crisis, which is not captured by the bank density measure.

Deposits and Loans Although the number of banks remained below the pre-crisis level, banking activities recovered in both districts. [Figure 6\(a\)](#) plots the aggregate deposits from the two districts over time. Deposits fell between 1930 and 1933, but the trend reversed and continued to rise in both districts between 1933 and 1939, coinciding with the economic recovery in the southeast after 1933. While both districts observed increases in deposits, the change was more pronounced in the Atlanta district. Compared to 1919, total deposits in the Atlanta District were 180 percent higher in 1939, while deposits on the St. Louis side grew by only 90 percent. For validation, we also plotted the deposit values from the FDIC data for each district, which exhibit a similar trend. The total amount of loans issued by the banks followed a similar trend, as shown in [Figure 6\(b\)](#). By 1939, the total amount of loans issued in the Atlanta District was 97 percent higher than the 1919 level, but only 58 percent higher in the St. Louis district. The change in total loans and deposits can be driven by both the decreasing number of banks in the market and the increasing size of the surviving banks.

[Figure 6\(c\)](#) and [Figure 6\(d\)](#) plot the average loans and deposits per bank across the two districts. The average amount of deposits received by a bank was similar in the two districts in 1919. While the average deposits started to increase faster after 1933 for both districts, it rose at a higher rate in the Atlanta district. The average loans issuance followed a similar pattern, which is consistent with the changes of HHI shown in [Figure 5\(b\)](#) and suggests that the surviving banks grew larger in the Atlanta district.

4 Empirical Strategy

We exploit the policy difference between the Atlanta and St. Louis districts during the 1930 crisis to study the effects of liquidity support on bank survival and subsequent market outcomes. Banks in the Atlanta district are treated during the crisis, while those in the St. Louis district are not. Because banks faced different levels of competition, the effect of liquidity support on bank exits may vary depending on the market structure. To analyze how the pre-crisis market structure affected bank survival, we group the counties in the sample into two groups based on their deposit HHI in 1928. Counties with an HHI value above the median had less competition, and counties below the median faced the most competition.

[Table 1](#) presents the average values of county demographics in 1928.⁹ The below-median counties (more competitive markets) consisted of densely populated and predominantly urban counties. On average, the below-median counties have 8 banks, and the average HHI is comparable to a market with 4 equal-sized firms. On the other hand, the above-median counties were less densely populated and more rural. These counties had only 3 banks per county, and the

⁹[Appendix Figure 1](#) displays the spatial distribution of the quartile categories.

average HHI higher than a market with 2 equal-sized firms.¹⁰ The average size of a bank in the below-median counties, measured by the paid-up capital, is 35 percent smaller than that in the above-median counties.

Bank Exits Using firm-level data, we first show that the probability of a bank exiting the market is lower in the Atlanta District after the 1930 crisis. We use an event-study design to compare firms across the Atlanta Fed district borders and estimate the following linear probability model:¹¹

$$Exit_{it} = \sum_{\substack{\tau=1919 \\ \tau \neq 1928}}^{1939} \beta_t \mathbb{1}(t = \tau) \times Atlanta_i + \beta_c Surplus-Equity Ratio_{it} + \beta_x \mathbf{X}_{c,t} \\ + Pop_{1919} \times \delta_t + \alpha_c + \gamma_{s,t} + \epsilon_{it} \quad (1)$$

where the outcome, $Exit_{it}$, equals 0 if firm i survived until year t and equals 1 if it exited the market in year t , after which the firm dropped out of the sample. $Atlanta_i$ is an indicator that equals 1 if firm i is in the Atlanta Fed district, and 0 otherwise. β_t captures how the changes in bank exits between year t and 1928 in the Atlanta district differ from those in the St. Louis district. $Surplus-Equity Ratio_{it}$ is the ratio of surplus profit to total equity for bank i at year t , which measures the bank's insolvency risk.¹² $\mathbf{X}_{c,t}$ includes log county population and share of urban population. It also includes 1-year lagged county-total bank assets and bank liabilities where bank i operated. These controls reflect the market sizes, both in terms of population and aggregate banking activities.¹³ $Pop_{1919} \times \delta_t$ is the interaction between county population in 1919 and year fixed effects, which allow for differential trends based on initial population sizes. We also include county fixed effects, α_c , and state-by-year fixed effects $\gamma_{s,t}$. The state-by-year fixed effects account for any state-level regulations, such as reserve requirements or branching policies, which may vary over time. Standard errors are clustered at the county level.

Post-crisis Banking Activity Next, we analyze whether the surviving banks evolve along different paths in the two districts. We use a similar event study to analyze the changes in individual banks' balance sheets over time:

¹⁰HHI for a market with 4 equal-sized firms is 2500, and 5000 for a market with 2 equal-size firms.

¹¹Results in this section exclude branch banks.

¹²We follow [Correia et al. \(2025\)](#) and measure insolvency risk by surplus profits over total equity. Bank equity includes initial paid-in capital, undivided profits, and the surplus fund. "Surplus profit" is the sum of undivided profits and the surplus fund.

¹³County population from census records. We linearly extrapolate values for years between census years.

$$y_{it} = \sum_{\substack{\tau=1919 \\ \tau \neq 1928}}^{1939} \beta_t \mathbb{1}(t = \tau) \times Atlanta_i + \beta_p \ln(Pop_{county,t}) + \beta_u Urban_{county,t} \\ + Pop_{1919} \times \delta_t + \alpha_{county} + \gamma_{state,t} + \epsilon_{it} \quad (2)$$

where y_{it} is the bank-level loans and deposits (in log). We control for (log) county population, share of urban population, county and state-by-year fixed effects. We also include $Pop_{1919} \times \delta_t$ to allow for different trends based on the initial population in 1919. The β_t coefficients summarize the relative changes in the trends in the outcome variables across the two districts.

Migration and Labor Market Outcomes Households and workers may be affected by the Atlanta Fed’s liquidity support through changes in local banking conditions, including shifts in access to banks and local credit availability. We examine the impact of the Atlanta Fed’s liquidity support on households and workers by first measuring the changes in overall credit availability at each individual’s location based on the Census Microdata. We identify each individual’s location from [Berkes et al. \(2022\)](#), which geocodes individuals and households in the Census Microdata. We then combine the locations of banks and individuals to identify banks within a 5-mile radius of each individual and measure the change in loans and deposits in these banks after the crisis.

We examine how the Atlanta Fed’s policy affected workers’ migration and labor market decisions using equation (3) and instrumenting the change in local credit availability with an indicator of whether an individual was located in the Atlanta Fed district:

$$Y_{i,l_i,30 \rightarrow 40} = \beta \cdot \% \Delta Deposit_{l_i,28 \rightarrow 32} + \gamma \cdot Pop_{l_i,1930} + \alpha_{county,40} + \epsilon_{county,40} \quad (3)$$

where y is the individual-level outcome measures, including an indicator of whether individual i moved between 1930 and 1940, and indicators of whether working-age individual i in 1930 changed the labor force participation status or sectors. We track individuals’ change in location and labor market outcomes using the census-to-census person-level crosswalk from [Buckles et al. \(2025\)](#) between 1930 and 1940. We estimate β to measure the effect of the change in deposits (in percentage) within a five-mile radius of i , indexed as l_i , on the migration and labor market outcomes. $Pop_{l_i,1930}$ is the population size at the individuals’ initial location in 1930. We employ the county fixed effects based on i ’s county in 1940 to control for the economic conditions of individual i ’s post-crisis location. We cluster the standard errors by the individuals’ county in 1940. We then instrument the change in deposits in i ’s location with whether i was in the Atlanta Fed district in 1930.

Agriculture and Manufacturing Outcomes Does the Atlanta Fed’s policy affect agriculture or manufacturing activities? [Bernanke \(1983\)](#) suggests that banks served as a critical intermediation between lenders and borrowers, especially for small firms. By preserving more banks, the Atlanta

Fed’s policy may change the relative cost for credits across the two markets after the crisis and thus benefit the potential borrowers after the crisis.

We combine the banking market data with the census of agriculture and manufacture to empirically test whether the Atlanta Fed’s liquidity support increased economic activities after the crisis. For the agriculture sector, we focus on mortgage and land ownership, which is the direct link between credit users (farmers) and local banks. We estimate equation (2), except the outcome variables are county-level measures of mortgage usage and land ownership from the Census of Agriculture in 1925, 1930, 1935, and 1940. Similar to the previous analysis, we group counties by above and below median HHI in 1926 and estimate the β_t separately for each group.

For manufacturing outcomes, we use a plant-level sample from the Census of Manufacture in Mississippi from 1929, 1931, 1933, and 1935 (Ziebarth, 2013). We estimated equation (2) after including industry-by-year fixed effects to account for differences across industries. While the data contained detailed information on manufacturing production, it does not report the amount of loans or the cost of interest. Instead, we focus on manufacturing inputs, output, and employment. If surviving banks indeed reduced the cost of credit, one may expect the firms in the Atlanta district to purchase more inputs and generate more output.

5 Effects of Liquidity Support on Banking and Economic Activities

5.1 Bank Exits

We first estimate β_t in equation (1) with the full sample. Figure 7(a) displays the estimated coefficients over time. Consistent with previous studies (Carlson and Mitchener, 2009; Jalil, 2014), while banks in the two districts had a similar probability of exiting prior to the 1930 crisis, the probability of exiting the market for banks in the Atlanta district is 5 percent lower than that of those in the St. Louis district at the peak of the crisis in 1930. The results are robust if we exclude exits through mergers or consolidation (see Appendix Figure 3)

To understand the potential heterogeneous effects of the Atlanta Fed’s policy on bank exits across markets, we estimated the coefficients β_t separately for markets with HHI values below and above the median. Figure 7(b) shows that the reduction in bank closures was primarily driven by banks in the above-median counties, or the less competitive markets. In these markets, relative to the probability of exiting in 1928, banks in the Atlanta district were about 14 percent less likely to exit in 1930. For the more competitive above-median HHI counties, the exit probability for banks in the Atlanta district is only 4 percent less likely to exit in 1930. In other words, the liquidity support substantially reduced bank exits in small counties with few banks, while the policy had a much smaller effects in competitive (more populous and urban) markets.

5.2 Changes in Banking Activities

We estimate equation (2) to quantify the differences in bank-level loans and deposits across the two districts. We find that surviving banks in the Atlanta district increased credit provision relative to their counterparts in the St. Louis district. Figure 8(a) shows that, in the above-median HHI markets (less competitive), compared to banks in the St. Louis district, those in the Atlanta district saw a 20 to 35 percent higher growth in loans relative to the 1928 level. Meanwhile, there is no difference between banks in the below-median (competitive) markets.

The increase in loans coincided with the increase in deposits. As shown in Figure 8(b), deposits also increased more for banks in the above-median HHI markets in the Atlanta district after the crisis. In these markets, banks in the Atlanta district reported 21 to 37 percent higher growth in deposits relative to the 1928 level than those in the St. Louis district. For banks in the more competitive markets, those in the Atlanta district also attracted more deposits, though the relative difference was smaller and insignificant in most years. Taken together, the changes in loans and deposits show that in the above-median, less competitive markets, surviving banks in the Atlanta district became more active in both issuing loans and attracting deposits. The Atlanta Fed's policy therefore affected local banking conditions both through the extensive margin (more banks) and the intensive margin (more banking activity).

5.3 Migration and Labor Market Outcomes

To understand how the Atlanta Fed's liquidity support affected workers, we first examine whether being in the Atlanta Fed district affected local banking conditions and credit availability in individuals' locations. The specification for this first-stage analysis is analogous to equation (3), but it regresses the percent change in total deposits and loans within a five-mile radius of an individual's location on an indicator of whether an individual is in the Atlanta Fed district in 1930. In columns (1) and (4) of Table 2, we find that individuals located in the Atlanta district experienced an increase in total deposits and loans in nearby banks. Being in the Atlanta district is associated with a 10 percent and a 12 percent increase in deposits and loans, respectively, between 1928 and 1932. The effects are similar across less and more competitive markets, but slightly larger for markets with less competitive markets in columns (3) and (6).

The overall finding from Table 2 is consistent with the bank-level analysis on loans and deposits except for smaller change in loans in more competitive markets found in Figure 8(b). The discrepancy may arise from the difference in the unit of analysis: Figure 8(a) captures the average bank-level change in loans, whereas Table 2 aggregates the bank-level loans within a five-mile radius. To use the most consistent measure of banking activities across bank-level and individual-level analysis, we present the estimation of equation (3) using the percentage change in total deposits as our preferred measure of individual-level exposure to local banking conditions.

The Atlanta Fed's liquidity support and a corresponding increase in local availability de-

posits, however, did not significantly change the migration likelihood of individuals, as shown in column (1) of [Table 3](#).¹⁴ Columns (2) to (4) measure whether the change in deposits in local banks changes how far individuals migrate or how individuals migrate across the Fed districts, conditional on migration. We find that an increase in local bank deposits reduces the likelihood of interstate migration.¹⁵

The change in local banking conditions had heterogeneous effects on workers, depending on the level of local banking competition. In [Table 4](#) and [Table 5](#), we separately estimate whether the change in local banking conditions affects workers' labor force participation and industry switching behaviors in more competitive (below-median HHI) and less competitive (above-median HHI) markets, respectively. The sample is restricted to workers who were of working age in 1930 and 1940. In the first panel of each table, we estimate whether the improvement in local banking conditions changed the labor force or industry transition of those who were out of the labor force in 1930. The rest of the panels measure the effect of change in deposits on agricultural, manufacturing, and all other workers in 1930. In [Table 4](#), we find that in more competitive markets, an increase in local deposits helped agricultural workers; they were less likely to be out of the labor force and more likely to work in the agricultural sector in 1940. The change in local deposits did not significantly affect the labor force and sectoral switching of non-agricultural workers. However, the third and fourth panels of [Table 5](#) highlight that, in less competitive markets, an increase in deposits was associated with an increase in transition from manufacturing or all other sectors to the agricultural sector between 1930 and 1940. Those who were not in the labor force in 1930 were more likely to take manufacturing jobs in 1940.

5.4 Farm Mortgage, Investment, and Output

By reducing bank exits, did the Atlanta Fed's policy benefit farmers after the crisis? As shown in [Figure 4](#), a third of the towns in the sample lost all local banks, which can increase the borrowing cost for farmers. Meanwhile, non-bank lending may potentially offset some of the reduction in bank loans, leaving the net effects ambiguous.

We use mortgage and capital investment (equipment and other implements) reported in the Census of Agriculture to assess the effect of the Atlanta Fed's policy on farm mortgage and land ownership.¹⁶ Columns (1) and (2) in [Table 6](#) show that, by 1940, counties in the Atlanta district had a smaller fraction of farms reporting mortgages compared to counties in St. Louis. The results hold across markets with different levels of competition, though the reduction is larger for less competitive markets. Assuming that each farm corresponds to a single household, this implies that 20% fewer farming families in the less competitive markets in Atlanta had mortgages

¹⁴[Appendix Table 1](#) shows a similar result in an "Intent-to-Treat" style analysis where we regress the migration indicator on whether one is in the Atlanta district.

¹⁵In [Appendix Table 3](#), [Appendix Table 4](#), and [Appendix Table 5](#), we find analogous results with [Table 3](#), [Table 4](#), and [Table 5](#) when using the change in loans during 1928-32 instead of the change in deposits as the exposure measure.

¹⁶1930 is the omitted category, since the census reported values as of April 1, 1930, before the banking crisis spread in the South in November 1930.

in 1940. This appears to be driven by changes in farm sizes. Columns (3) and (4) in [Table 6](#) show that the difference in the fraction of farmland that reported having a mortgage between the two districts remained largely unchanged over time.

Next, we compared the value of farm machinery across the two districts over time to see whether being in the Atlanta district increased capital investment. Columns (5) and (6) in [Table 6](#) show that, similar to farm mortgages, for counties with less competitive banking markets, those in the Atlanta district appeared to invest less in farm machinery and other implements than those in the St. Louis district after the crisis. In 1940, the value of farm machinery per acre was \$0.26 lower in the Atlanta district, or 18% of the 1930 level.

While the Atlanta Fed's policy did not increase mortgage utilization or capital investment, it could support other farming activities by providing short-term credit for seeds, fertilizers, and animal feed, etc., thus increasing agricultural output. In [Table 7](#), we compare the value of crop, livestock, and total farm product per acre between the Atlanta and St. Louis districts. Results show crop value per acre in the Atlanta district was \$4.5 higher by 1940. Livestock and total farm product values showed similar levels of increase in the Atlanta district. Compared to the output value in 1930, the increase was most dramatic in crop production, where the average difference between the two districts is equivalent to 41% of the 1930 average. The effects were of comparable scale for counties both above and below the HHI-median. Combined with the estimates from [Figure 8\(a\)](#), which show higher growth of loans in the above-median less competitive markets, the results suggest that the Atlanta Fed's policy benefited agricultural production by reducing bank exits and increasing credit provision in rural markets.

5.5 Manufacture Output

We conduct the same analysis using the Census of Manufactures to understand whether reducing bank exits led to higher production activity. [Bernanke \(1983\)](#) argues that banks act as credit intermediaries and reduce the cost of borrowing. Bank failures increased the cost of credits, especially for small firms, and reduced their demand for goods and services. Given the hypothesis that smaller firms may rely more on banks for credit, we divide the sample firms into two groups based on the size of employment.¹⁷

The top panel in [Table 8](#) presents the estimation for firms with fewer than 70 wage earners. Columns (1) and (2) show that, in 1931, in the immediate aftermath of the crisis, small firms in the Atlanta district reported 30 percent (26 log points) higher revenue than their counterparts in the St. Louis district. The increase in total revenue coincided with higher levels of material input (columns (3) and (4)). Firms in Atlanta spent 30 to 40 percent more on input materials. The effects on both revenue and materials are stronger and more persistent for firms in markets with less banking competition. Meanwhile, there were no effects on the total wages or number of employees that firms hired. This suggests that firms rely on bank credit primarily to procure

¹⁷The median number of employees is 72.

tangible inputs, but not labor. The results are consistent with previous findings from [Ziebarth \(2013\)](#).

In contrast, large firms with more than 70 employees did not perform differently across the two districts. The bottom panel in [Table 8](#) shows that the differences in revenue, material costs, employment, and labor costs remained the same after the crisis, regardless of the level of banking competition. Combined with the results from small firms, these findings support the argument in [Bernanke \(1983\)](#) that small firms are particularly reliant on banks to provide credit intermediation. Reducing access to banks for small firms would limit their ability to acquire input materials and thus reduce output. Large firms, on the other hand, may have access to alternative sources of credit and thus were not affected by bank exits.

Taken together, we see significant changes in manufacturing revenue and material spending for small firms in the above-median, less competitive markets. Results in Sections 5.1 and 5.2 show that the effect of the Atlanta Fed’s policy on reducing bank exits is concentrated in the above-median HHI (less-competitive) markets, where surviving banks also increased loan provision after the crisis. While we do not directly observe the amount of loans firms received from local banks, the results suggest that reducing bank exits during the crisis had positive effects on small manufacturing firms, potentially through both preserving local banking services and increasing post-crisis loan provision.

6 Conclusion

This paper highlights how central banks’ liquidity support during a crisis can have heterogeneous effects depending on the level of banking competition. We use policy differences between the Federal Reserve Bank of Atlanta and St. Louis during the 1930 banking crisis, combined with novel bank-level data, to quantify the effects on banking and real economic activities. We find that liquidity support successfully reduced bank exits in less-competitive markets. Surviving banks in the Fed Atlanta district became more active in attracting loans and issuing deposits, and the increase in loans and deposits were more pronounced in the less competitive markets. While the policy preserved more banks in these markets, it had mixed effects on workers and real economic activities. Fewer bank exits and an increase in loans and deposits did not change workers’ migration decisions, but increased the overall transition of workers into the agricultural sector in less competitive markets. We found no evidence that there was more credit provision for farmers, measured either by farm mortgage or value of farm machinery; however, the liquidity support led to an increase in farm outputs. Small manufacturing firms in the Atlanta district purchased more input materials and produced more outputs. Large manufacturing firms, however, did not benefit from preserving more banks in the market.

The results highlight the impact of banking competition on the outcomes of central bank intervention. While our findings are consistent with previous studies on bank exits and economic activities ([Carlson and Mitchener, 2009](#); [Jalil, 2014](#); [Ziebarth, 2013](#); [Janas, 2025](#)), we show that the

liquidity support primarily benefited less competitive markets, which were more likely to be rural and less populated areas. In addition, results from manufacturing output provide new evidence to support the theory that bank failures increase the cost of credit intermediation (Bernanke, 1983). By reducing bank exits, liquidity support disproportionately benefited small firms by lowering the cost of credit.

While the results provide new insights into how banking competition, central bank policy, and worker and economic outcomes interacted during the 1930s, there are three main limitations when trying to extend the analysis to contemporary policies. First, the financial markets were less developed, with more information asymmetry and higher transaction costs than contemporary markets. This reduces banks' ability to use market tools, rather than relying on the central bank, to resolve temporary liquidity constraints. It also limited households' and firms' ability to use alternative sources for credit, which can exacerbate the negative effects of bank failures. Second, and more importantly, regional reserve banks had different monetary policies. While this provided the foundation for our identification, the environment is also drastically different from most contemporary cases, where central banks set monetary policy at the national level. The general equilibrium outcome from modern open market operations can be different from the local effects driven by one regional reserve bank. Lastly, the estimations were based on equilibrium outcomes in the banking market. We do not directly model banks' decisions on exits or loan provision, which are strategic choices in response to other market participants' actions. Thus, the results do not address how commercial banks adjust their strategic choices in response to central bank intervention.

Tables and Figures

Figure 1: TN and MS Divided by Reserve Districts

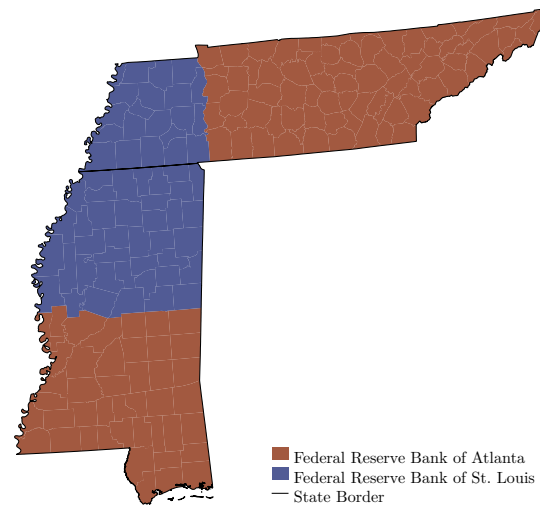
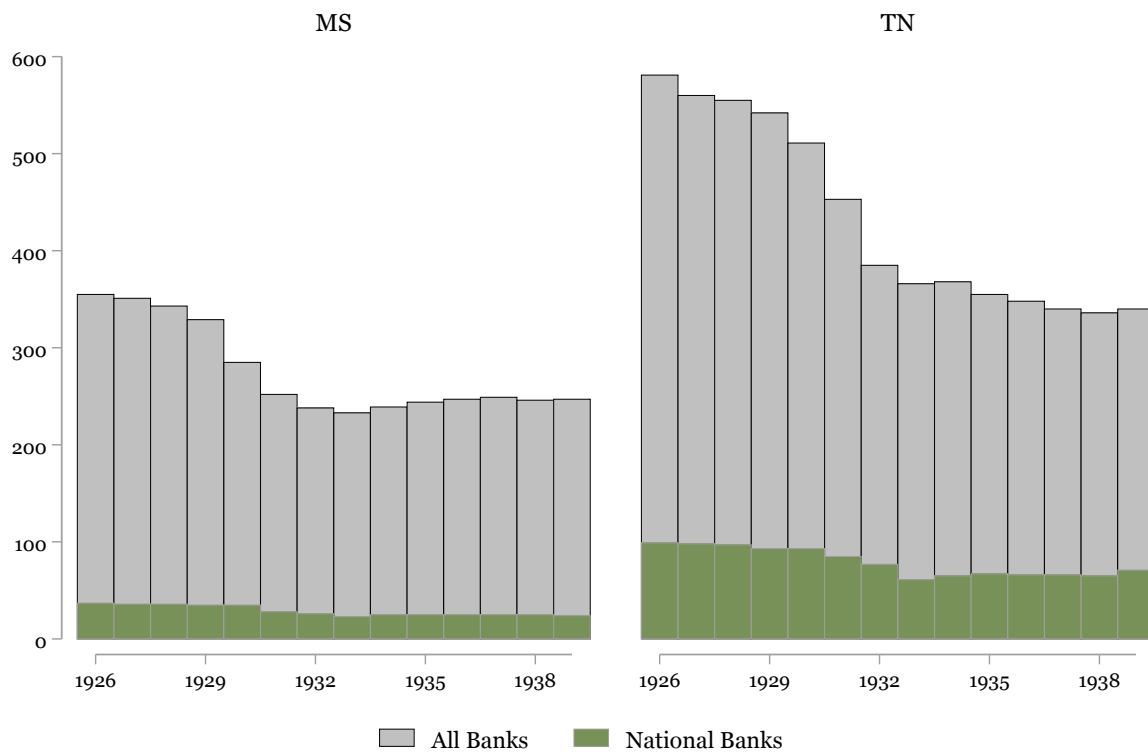


Figure 2: Majority of Banks Chartered by States



Notes: The number of national banks are collected from the *Annual Report of the Comptroller of the Currency*.

Figure 3: Total Number of Banks

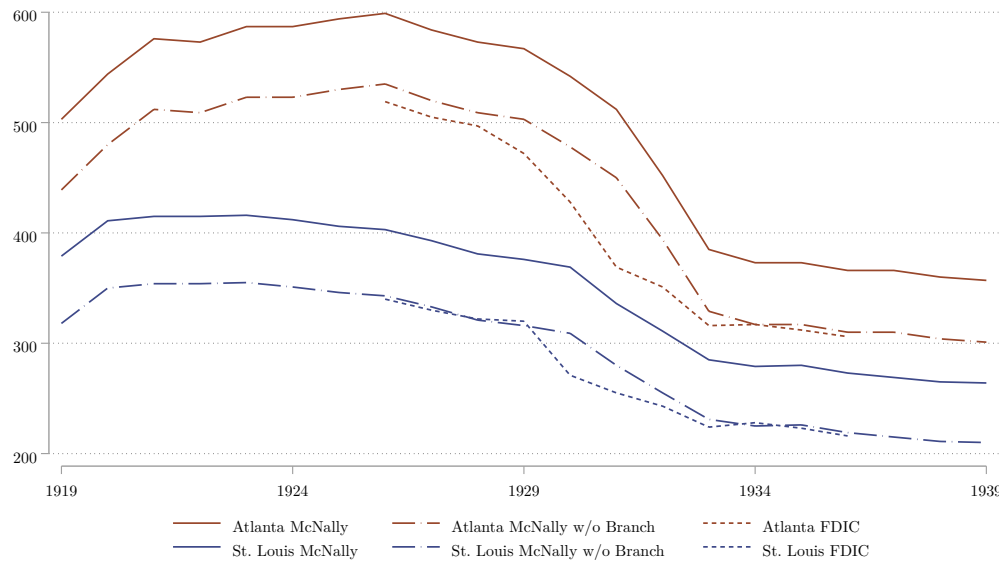


Figure 4: Towns by Number of Banks

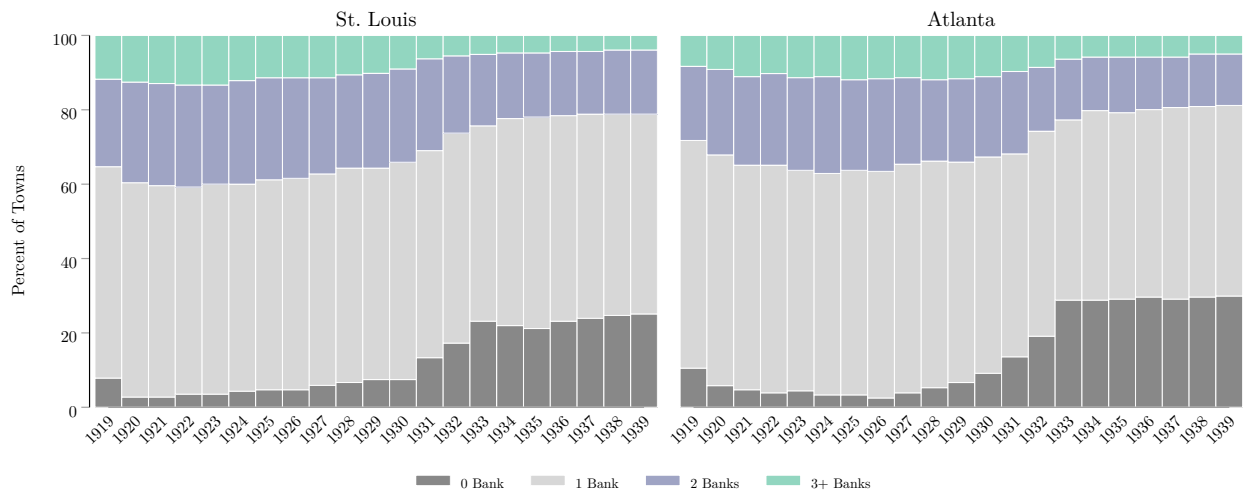
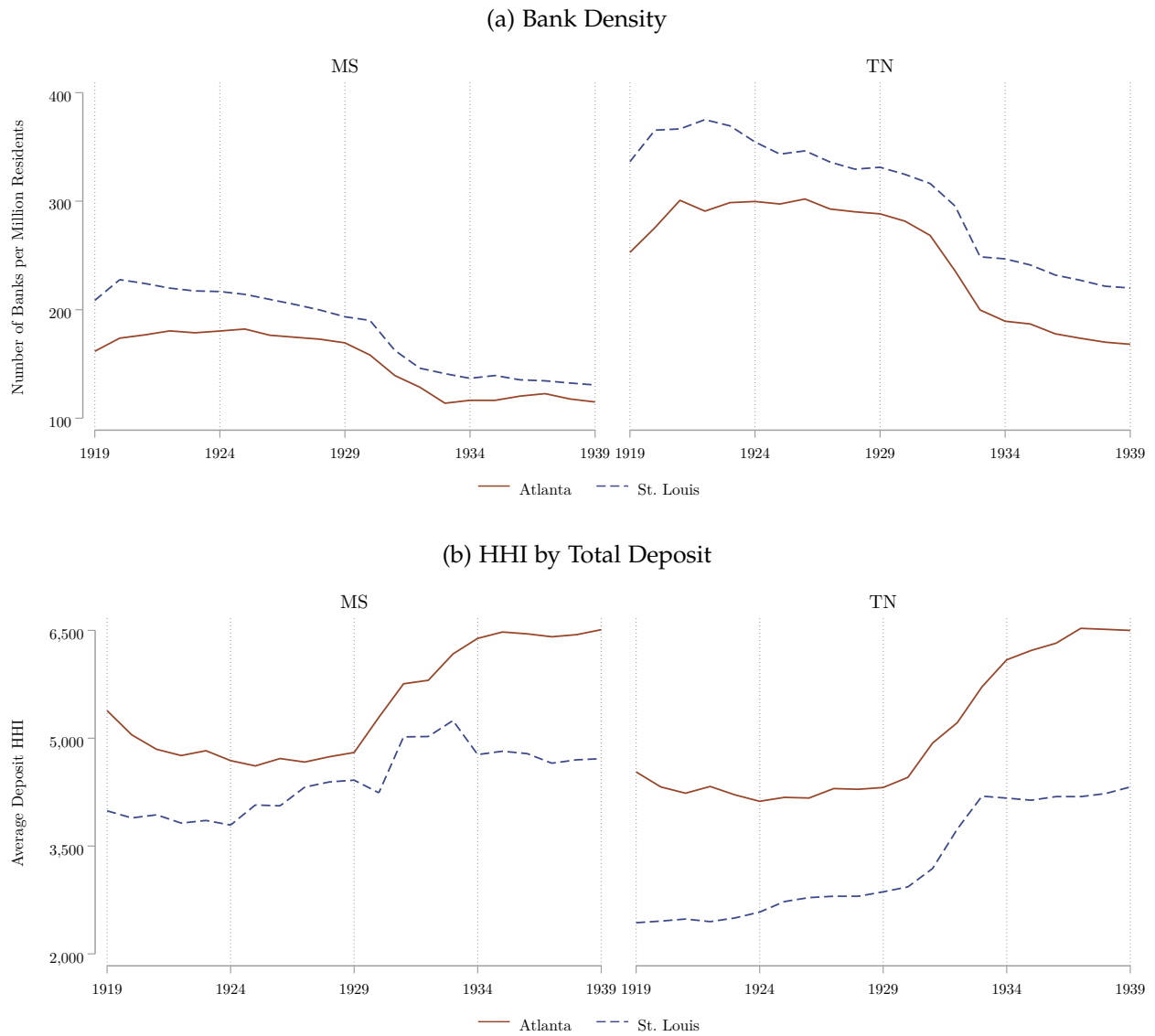
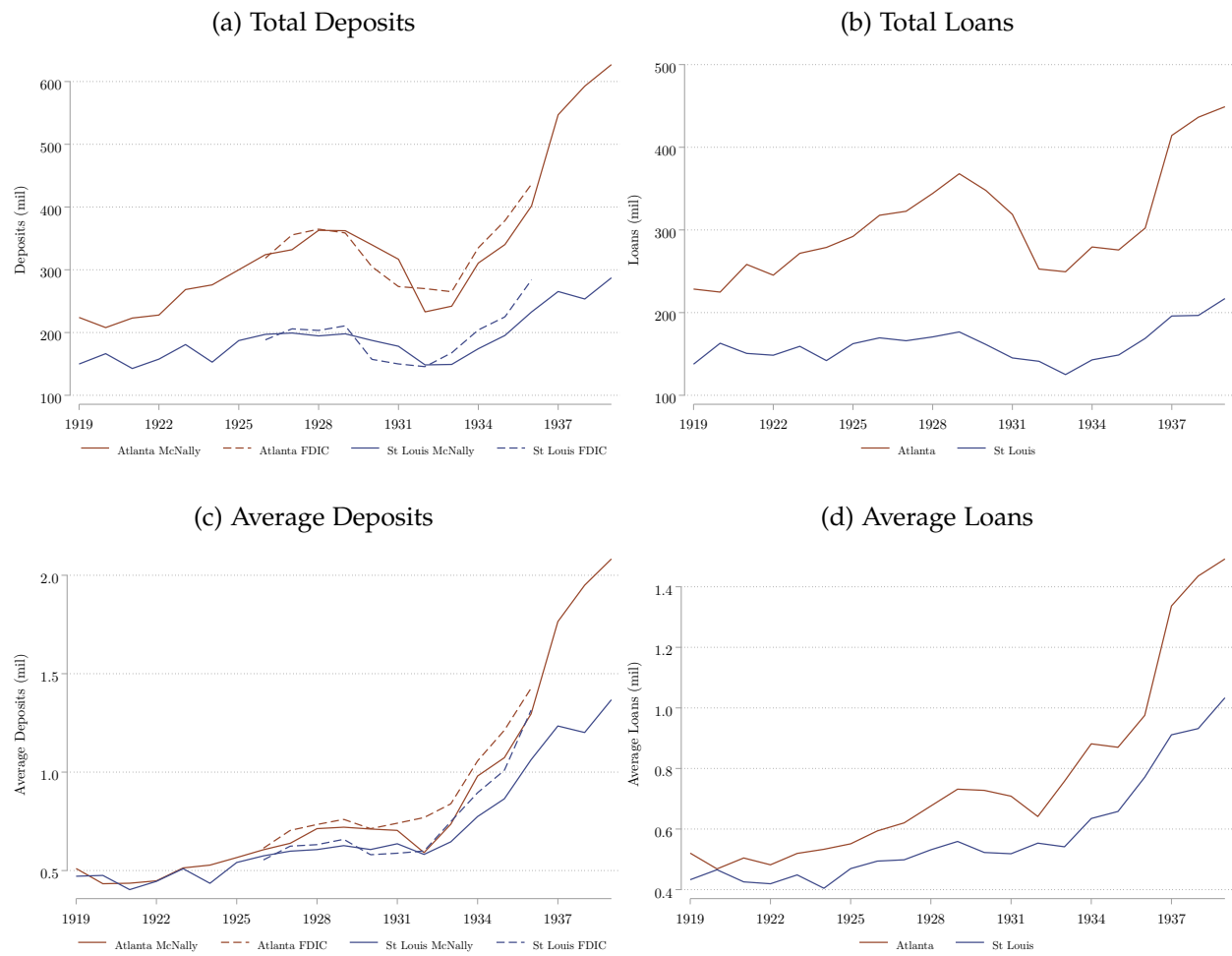


Figure 5: Banking Market Competition



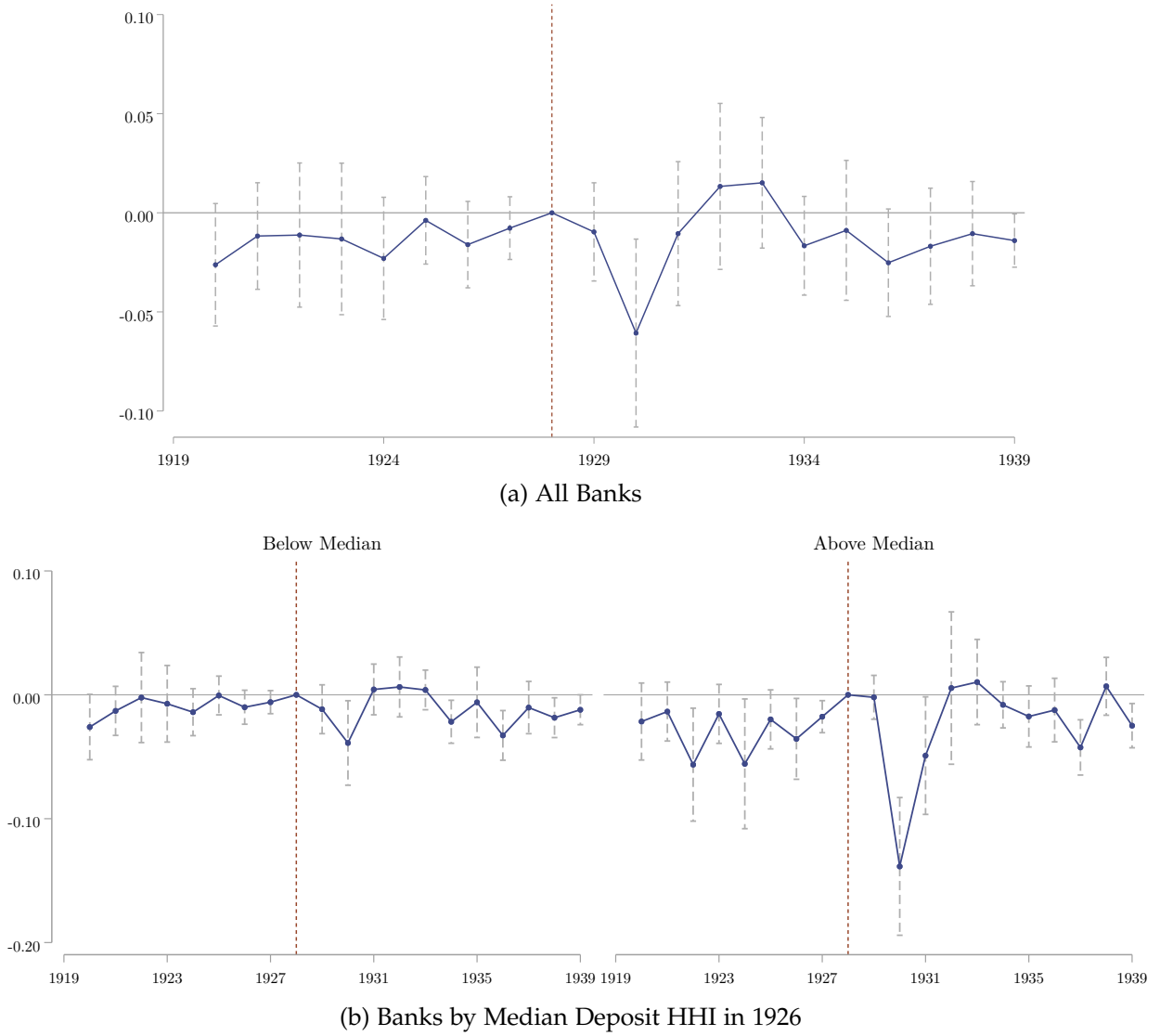
Notes: The figures plot the average county-level bank densities by state and federal reserve districts. Bank density is defined as the number of banks (including branch banks) per million residents. County population for each year is calculated as the linear extrapolation from decennial census counts.

Figure 6: Total Deposits and Loans



Notes: Deposits and loan values adjusted to 1940 dollars.

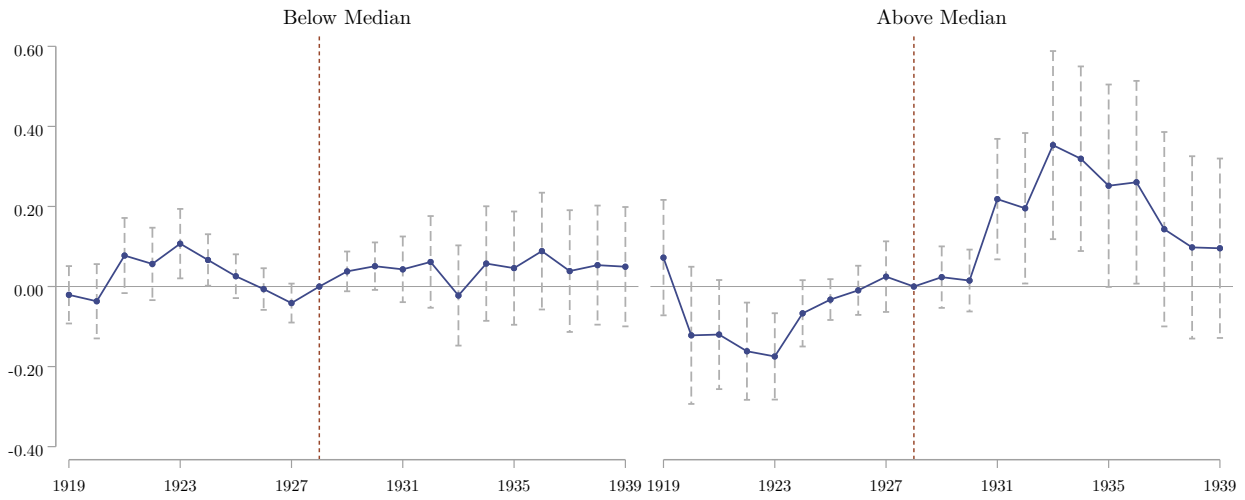
Figure 7: Exit Probability



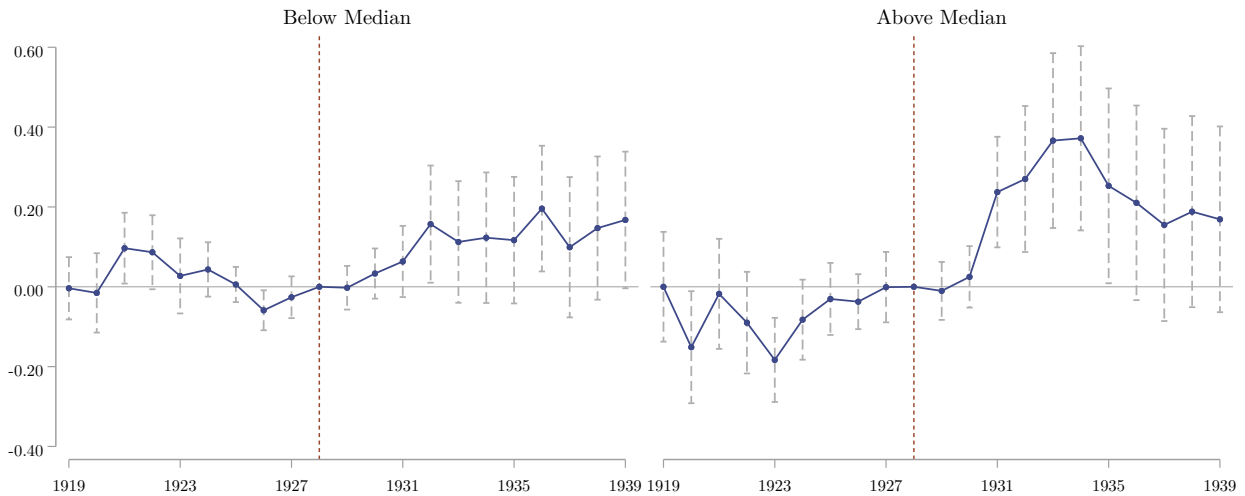
Notes: The plots display the estimated coefficients β_t in (1). Panel (a) presents the results pooling all the banks in the sample. Estimations in panel (b) divide banks by their counties' median deposit HHI in 1928. 1928 is the reference year and thus omitted. Vertical bars represents 95% confidence intervals. Standard errors are clustered at county level.

Figure 8: Changes in Banking Activities

(a) $\log(\text{Loans})$ by Median Deposit HHI in 1926



(b) $\log(\text{Deposits})$ by Median Deposit HHI in 1926



Notes: Outcome measured in (log) millions in 1940 dollars. Counties are grouped by the median deposit HHI in 1926. 1928 is the reference year and thus omitted. Vertical bars represents 90% confidence intervals. We exclude observations with outcome values in the top and bottom 1 percentile from the estimation. Standard errors are clustered at county level.

Table 1: County Characteristics by Median of HHI in 1928

	Below Median		Above Median		Difference	
	Mean	SD	Mean	SD	Coefficient	SE
Total Number of Banks	7.97	4.00	2.93	1.33	-5.03***	0.45
Population (000s)	35.01	40.22	16.36	8.48	-18.66***	4.38
Population Density (per hundred acre)	9.93	9.77	5.61	2.49	-4.31***	1.07
Share of Urban Population (percent)	17.80	20.21	6.12	13.14	-11.69***	2.57
Average Paid-up Capital (000s)	45.34	54.39	29.38	24.44	-15.97**	6.36
HHI by Total Deposit in 1928	2577.47	628.29	5908.46	2085.13	3330.98***	232.15
Observations	88		88		176	

Note: Paid-up capital in 1940 dollars. The "Coefficient" column reports the t-test coefficient comparing the means between the two groups.

*** p<0.01, ** p<0.05, * p<0.1

Table 2: Change in Deposits and Loans at individual location

	Pct. Chg. Deposits (28-32)			Pct. Chg. Loans (28-32)		
	(1) All	(2) Below Median	(3) Above Median	(4) All	(5) Below Median	(6) Above Median
Atlanta	0.1007*** (0.0174)	0.0895*** (0.0197)	0.1061*** (0.0260)	0.1166*** (0.0176)	0.1022*** (0.0200)	0.1399*** (0.0347)
Observations	1217814	980951	236459	1217814	980951	236459
Dep. var mean	-0.27	-0.23	-0.45	-0.16	-0.11	-0.34
Adj. R-squared	0.65	0.66	0.64	0.60	0.60	0.54

Notes: The analysis uses individuals matched from the 1930 to 1940 censuses based on the Census Tree Project (Buckles et al., 2025). The regressor is an indicator of whether an individual is located in the Atlanta Fed district. Column (1)-(3) use as the outcome variable the percent change in deposits (divided by 100) within five miles of an individual's location between 1928 and 1932. The outcome variable in Columns (4) to (6) is the percent change in loans (28-32) within 5-mile radius. All specifications include population size control based on individual's location in 1930 and the 1940 county fixed effects. Standard Errors are clustered by 1940 county.

Table 3: Out-migration likelihood/Migration distance between 1930 and 1940 as a function of percent change in deposit (1928-32), using the Atlanta indicator as IV

	(1) Any Outmig.	(2) Interstate Outmig.	(3) Outmig. to Atl.	(4) Mig. Dist. (miles)
Chg. Deposit 28-32	-0.5931 (0.7783)	-0.2737*** (0.0617)	0.0061 (0.0239)	-24.7219 (125.5809)
Observations	1217814	278244	278244	278244
Dep. var mean	0.23	0.50	0.25	223.33

Notes: The analysis uses individuals matched from the 1930 to 1940 censuses based on the Census Tree Project (Buckles et al., 2025). The regressor is the percent change in deposits in the bank towns within 5 miles of an individual's location between 1928 and 1932 (divided by 100), which is instrumented by an indicator of whether the county belongs to the Fed Atlanta district. Column (1) uses as the outcome variable an indicator of whether an individual migrated out of his or her 1930 county. Columns (2) and (3) use as the outcome variables indicators of whether an individual had interstate and within-state outmigration from the 1930 county. Column (4) uses an indicator of outmigration to any county in the Atlanta district, away from an individual's county in 1930. All specifications include population size control based on individual's location in 1930 and the 1940 county fixed effects. Standard Errors are clustered by 1940 county.

Table 4: Industry switching between 1930 and 1940 as a function of the percent change in deposit (28-32), using the Atlanta indicator as an instrument (Below-median HHI)

Not in the labor force in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Deposit 28-32	0.1127 (0.1731)	0.0124 (0.0500)	0.0275 (0.0414)	-0.1526 (0.1675)
Observations	272441	272441	272441	272441
Dep. var mean	0.66	0.07	0.04	0.22
Agriculture in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Deposit 28-32	-0.6454*** (0.1992)	0.0267 (0.1371)	0.7779*** (0.2768)	-0.1592 (0.2843)
Observations	91587	91587	91587	91587
Dep. var mean	0.12	0.06	0.60	0.21
Manufacturing in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Deposit 28-32	0.9621 (1.9371)	0.3234 (1.3544)	-1.9532 (3.4501)	0.6677 (2.1222)
Observations	63507	63507	63507	63507
Dep. var mean	0.12	0.41	0.06	0.42
Not in Agriculture nor Manufacturing in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Deposit 28-32	0.5116 (0.9089)	-0.2467 (0.3731)	-0.7992 (1.1785)	0.5343 (0.7219)
Observations	173948	173948	173948	173948
Dep. var mean	0.15	0.10	0.05	0.70

Notes: The analysis uses individuals matched from the 1930 to 1940 censuses based on the Census Tree Project (Buckles et al., 2025) in towns with HHI below the median. All specifications include population size control based on individual's location in 1930 and the 1940 county fixed effects. Standard Errors are clustered by 1940 county.

Table 5: Industry switching between 1930 and 1940 as a function of the percent change in deposit (28-32), using the Atlanta indicator as an instrument (Above-median HHI)

Not in the labor force in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Deposit 28-32	-0.1684 (0.1180)	0.1392*** (0.0457)	0.0469 (0.0609)	-0.0177 (0.1019)
Observations	63599	63599	63599	63599
Dep. var mean	0.68	0.06	0.05	0.21
Agriculture in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Deposit 28-32	-0.3944** (0.1984)	0.0616 (0.1837)	0.3808 (0.3018)	-0.0479 (0.2798)
Observations	29908	29908	29908	29908
Dep. var mean	0.12	0.06	0.62	0.19
Manufacturing in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Deposit 28-32	0.0149 (0.1037)	-0.2208 (0.1926)	0.4702*** (0.1802)	-0.2644 (0.1876)
Observations	11458	11458	11458	11458
Dep. var mean	0.10	0.37	0.11	0.43
Not in Agriculture nor Manufacturing in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Deposit 28-32	-0.0732 (0.0519)	0.0662 (0.0491)	0.1679*** (0.0556)	-0.1610** (0.0689)
Observations	33667	33667	33667	33667
Dep. var mean	0.15	0.09	0.07	0.69

Notes: The analysis uses individuals matched from the 1930 to 1940 censuses based on the Census Tree Project in towns with HHI above the median. All specifications include population size control based on individual's location in 1930 and the 1940 county fixed effects. Standard Errors are clustered by 1940 county.

Table 6: Farm Mortgage

	Share of Farms with Mortgage		Share of Farm Land with Mortgage		Value of Machinery (per acre)	
	(1)	(2)	(3)	(4)	(5)	(6)
	Below Median	Above Median	Below Median	Above Median	Below Median	Above Median
1920 × Atlanta	2.08 (1.29)	0.04 (2.43)			-0.08 (0.09)	-0.03 (0.08)
1925 × Atlanta	1.72 (1.16)	-2.23 (1.43)	-0.01 (0.01)	-0.02 (0.01)	0.11 (0.08)	0.13 (0.09)
1940 × Atlanta	-5.87*** (1.10)	-6.19*** (1.22)	-0.02* (0.01)	-0.01 (0.01)	-0.24 (0.15)	-0.26** (0.11)
1930 Mean	33.12	31.13	0.18	0.19	1.90	1.45
Observations	348	348	261	261	346	350
R-Squared	0.89	0.86	0.76	0.81	0.84	0.84

Notes: Estimation excludes observations above the 99th percentile. Standard errors are clustered at county level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Farm Output

	Crop Value (per acre)		Livestock Value (per acre)		Total Product Value (per acre)	
	(1)	(2)	(3)	(4)	(5)	(6)
	Below Median	Above Median	Below Median	Above Median	Below Median	Above Median
1920 × Atlanta	1.12* (0.63)	0.15 (0.56)	-0.14 (0.24)	-0.29 (0.29)	1.13* (0.62)	-0.07 (0.66)
1925 × Atlanta	1.35* (0.69)	1.28** (0.58)	-0.32* (0.18)	0.18 (0.18)	1.28* (0.74)	1.46** (0.61)
1940 × Atlanta	4.51*** (0.56)	4.04*** (0.66)	0.28* (0.16)	0.45*** (0.12)	5.04*** (0.65)	4.49*** (0.71)
1930 Mean	10.94	9.00	4.72	4.06	15.66	13.06
Observations	347	349	346	350	348	348
R-Squared	0.92	0.93	0.85	0.80	0.92	0.92

Notes: Dollar value adjusted to 1940 dollars. Estimation excludes observations above the 99th percentile. Standard errors are clustered at county level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Manufacture Output, Employment, and Wages

(a) Small Firms (less than 70 Employee)								
	log(Revenue)		log(Total Material Cost)		log(Total Wage)		log(Total Wage Earners)	
	(1) Below Median	(2) Above Median	(3) Below Median	(4) Above Median	(5) Below Median	(6) Above Median	(7) Below Median	(8) Above Median
1931 $\times$ Atlanta	0.26** (0.10)	0.26* (0.13)	0.37* (0.19)	0.25* (0.15)	0.01 (0.12)	0.12 (0.14)	-0.05 (0.13)	0.02 (0.11)
1933 $\times$ Atlanta	0.09 (0.18)	0.30* (0.17)	0.03 (0.26)	0.36** (0.17)	0.14 (0.15)	0.19 (0.13)	0.14 (0.14)	0.19 (0.16)
1935 $\times$ Atlanta	0.17 (0.21)	0.39** (0.17)	0.12 (0.27)	0.01 (0.25)	0.05 (0.16)	0.11 (0.18)	-0.12 (0.11)	0.10 (0.15)
Mean	10.64	10.49	9.49	9.37	8.65	8.53	4.61	4.54
Observations	471	429	479	426	506	498	461	425
R-Squared	0.38	0.50	0.65	0.72	0.14	0.17	0.03	0.16

(b) Large Firms (more than 70 Employees)								
	log(Revenue)		log(Total Material Cost)		log(Total Wage)		log(Total Wage Earners)	
	(1) Below Median	(2) Above Median	(3) Below Median	(4) Above Median	(5) Below Median	(6) Above Median	(7) Below Median	(8) Above Median
1931 $\times$ Atlanta	0.04 (0.18)	0.13 (0.23)	0.10 (0.15)	0.17 (0.29)	0.06 (0.08)	0.13 (0.21)	0.02 (0.12)	0.11 (0.15)
1933 $\times$ Atlanta	-0.14 (0.14)	-0.04 (0.20)	-0.32 (0.25)	-0.12 (0.29)	-0.13 (0.10)	-0.11 (0.19)	-0.12 (0.09)	-0.12 (0.12)
1935 $\times$ Atlanta	-0.32** (0.13)	0.30 (0.20)	-0.42 (0.25)	0.26 (0.19)	-0.25 (0.16)	0.03 (0.20)	-0.23 (0.15)	-0.02 (0.18)
Mean	10.64	10.49	9.49	9.37	8.65	8.53	4.61	4.54
Observations	595	473	592	473	596	472	604	472
R-Squared	0.63	0.64	0.74	0.80	0.39	0.40	0.53	0.51

Notes: The table shows the estimated β_i coefficients for (2), including industry-by-year fixed effects. Standard errors are clustered at county level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

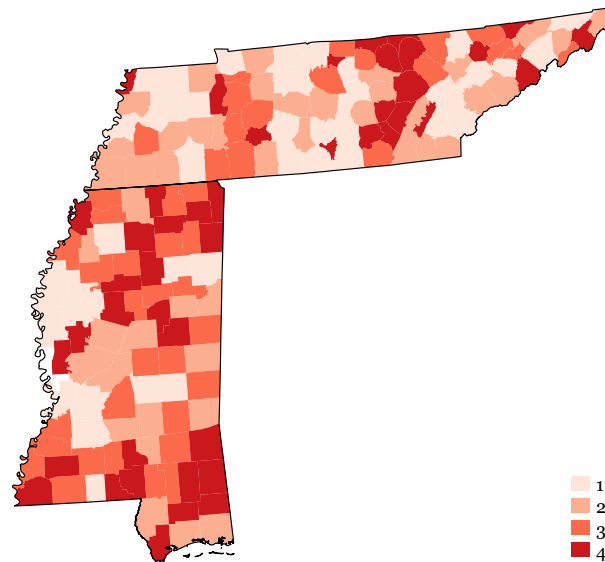
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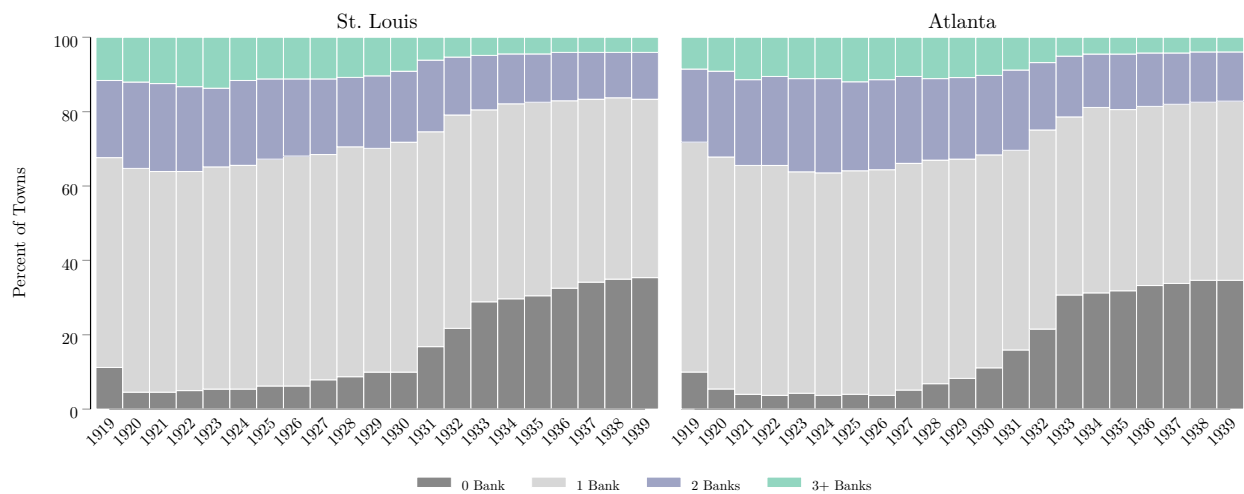
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Appendices

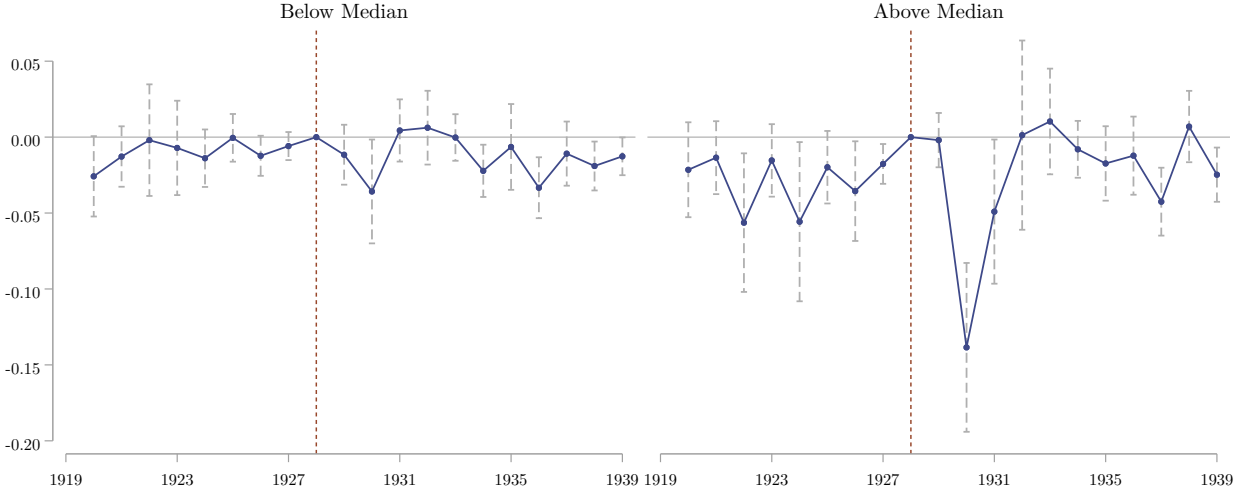
Appendix Figure 1: Spatial Distribution of HHI Quartiles



Appendix Figure 2: Towns by Number of Banks, Excluding Branches



Appendix Figure 3: Bank Exit Excluding Mergers



Notes: The plots display the estimated coefficients β_t in (1). Sample excluded bank exits due to mergers. 1928 is the reference year and thus omitted. Vertical bars represents 95% confidence intervals. Standard errors are clustered at county level.

Appendix Table 1: Out-migration likelihood/Migration distance between 1930 and 1940 as a function of an Atlanta indicator

	(1) Any Outmig.	(2) Interstate Outmig.	(3) Outmig. to Atl.	(4) Mig. Dist. (miles)
Atlanta	-0.0673 (0.0825)	-0.0283*** (0.0063)	0.0012 (0.0025)	-3.8017 (12.6296)
Observations	1245582	286616	286616	286616
Dep. var mean	0.23	0.50	0.25	221.38

Notes: The analysis uses individuals matched from the 1930 to 1940 censuses based on the Census Tree Project. The regressor is an indicator of whether an individual is located in the Atlanta Fed district. Column (1) uses as the outcome variable an indicator of whether an individual outmigrated from the 1930 county. Columns (2) and (3) use as the outcome variables indicators of whether an individual had interstate and within-state outmigration from the 1930 county. Column (4) uses an indicator of outmigration to any county in the Atlanta district, away from an individual's county in 1930. All specifications include population size control based on individual's location in 1930 and the 1940 county fixed effects. Standard Errors are clustered by 1940 county.

Appendix Table 2: Industry switching between 1930 and 1940 as a function of the Atlanta indicator

Not in the labor force in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Atlanta	-0.0042 (0.0153)	0.0053 (0.0037)	0.0058** (0.0029)	-0.0070 (0.0130)
Observations	343058	343058	343058	343058
Dep. var mean	0.67	0.07	0.05	0.22
Agriculture in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Atlanta	-0.0367*** (0.0079)	-0.0036 (0.0091)	0.0531** (0.0269)	-0.0128 (0.0240)
Observations	128699	128699	128699	128699
Dep. var mean	0.12	0.06	0.61	0.21
Manufacturing in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Atlanta	-0.0075 (0.0063)	-0.0070 (0.0189)	0.0279*** (0.0082)	-0.0135 (0.0173)
Observations	76254	76254	76254	76254
Dep. var mean	0.11	0.40	0.07	0.42
Not in Agriculture nor Manufacturing in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Atlanta	-0.0082 (0.0052)	0.0045 (0.0064)	0.0203*** (0.0068)	-0.0166 (0.0112)
Observations	209877	209877	209877	209877
Dep. var mean	0.15	0.10	0.06	0.70

Notes: The analysis uses individuals matched from the 1930 to 1940 censuses based on the Census Tree Project. The regressor is an indicator of whether an individual is located in the Atlanta Fed district. All specifications include population size control based on individual's location in 1930 and the 1940 county fixed effects. Standard Errors are clustered by 1940 county.

Appendix Table 3: Out-migration likelihood/Migration distance between 1930 and 1940 as a function of percent change in loans (1928-32), using the Atlanta indicator as IV

	(1) Any Outmig.	(2) Interstate Outmig.	(3) Outmig. to Atl.	(4) Mig. Dist. (miles)
Chg. Loans 28-32	-0.5124 (0.6902)	-0.2503*** (0.0626)	0.0056 (0.0218)	-22.6011 (114.4297)
Observations	1217814	278244	278244	278244
Dep. var mean	0.23	0.50	0.25	223.33

Notes: The analysis uses individuals matched from the 1930 to 1940 censuses based on the Census Tree Project (Buckles et al., 2025). The regressor is the percent change in deposits in the bank towns within 5 miles of an individual's location between 1928 and 1932 (divided by 100), which is instrumented by an indicator of whether the county belongs to the Fed Atlanta district. Column (1) uses as the outcome variable an indicator of whether an individual migrated out of his or her 1930 county. Columns (2) and (3) use as the outcome variables indicators of whether an individual had interstate and within-state outmigration from the 1930 county. Column (4) uses an indicator of outmigration to any county in the Atlanta district, away from an individual's county in 1930. All specifications include population size control based on individual's location in 1930 and the 1940 county fixed effects. Standard Errors are clustered by 1940 county.

Appendix Table 4: Industry switching between 1930 and 1940 as a function of the percent change in loans (28-32), using the Atlanta indicator as an instrument (Below-median HHI)

Not in the labor force in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Loans 28-32	0.0895 (0.1395)	0.0098 (0.0392)	0.0219 (0.0339)	-0.1212 (0.1356)
Observations	272441	272441	272441	272441
Dep. var mean	0.66	0.07	0.04	0.22
Agriculture in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Loans 28-32	-1.5985* (0.8661)	0.0647 (0.3392)	1.9493* (1.1082)	-0.4155 (0.7340)
Observations	91587	91587	91587	91587
Dep. var mean	0.12	0.06	0.60	0.21
Manufacturing in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Loans 28-32	-0.1005* (0.0562)	-0.0909 (0.1565)	0.2988*** (0.0972)	-0.1074 (0.1176)
Observations	63507	63507	63507	63507
Dep. var mean	0.12	0.41	0.06	0.42
Not in Agriculture nor Manufacturing in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Loans 28-32	-0.0848* (0.0475)	0.0462 (0.0656)	0.2070** (0.0972)	-0.1683 (0.1401)
Observations	173948	173948	173948	173948
Dep. var mean	0.15	0.10	0.05	0.70

Notes: The analysis uses individuals matched from the 1930 to 1940 censuses based on the Census Tree Project located in towns with above-median HHI index. All specifications include population size control based on individual's location in 1930 and the 1940 county fixed effects. Standard Errors are clustered by 1940 county.

Appendix Table 5: Industry switching between 1930 and 1940 as a function of the percent change in loans (28-32), using the Atlanta indicator as an instrument (Above-median HHI)

Not in the labor force in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Loans 28-32	-0.1293 (0.0902)	0.1069*** (0.0363)	0.0360 (0.0479)	-0.0136 (0.0786)
Observations	63599	63599	63599	63599
Dep. var mean	0.68	0.06	0.05	0.21
Agriculture in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Loans 28-32	-0.4217 (0.2700)	0.0740 (0.1765)	0.3639 (0.3944)	-0.0162 (0.2780)
Observations	29908	29908	29908	29908
Dep. var mean	0.12	0.06	0.62	0.19
Manufacturing in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Loans 28-32	-0.0152 (0.0941)	-0.2329 (0.2078)	0.4624** (0.2332)	-0.2143 (0.1717)
Observations	11458	11458	11458	11458
Dep. var mean	0.10	0.37	0.11	0.43
Not in Agriculture nor Manufacturing in 1930				
	(1) Not in lab. force	(2) Manuf.	(3) Agric.	(4) Non-manuf/Non-agric.
Chg. Loans 28-32	-0.0777 (0.0583)	0.0932 (0.0570)	0.1434** (0.0678)	-0.1590* (0.0908)
Observations	33667	33667	33667	33667
Dep. var mean	0.15	0.09	0.07	0.69

Notes: The analysis uses individuals matched from the 1930 to 1940 censuses based on the Census Tree Project located in towns with above-median HHI index. All specifications include population size control based on individual's location in 1930 and the 1940 county fixed effects. Standard Errors are clustered by 1940 county.