Branching Out: Capital Mobility and Long-Run Growth*

Sarah Quincy† and Chenzi Xu‡

June 2025

Abstract

We show that one of the largest but largely overlooked waves of bank branching expansion in U.S. history enabled internal capital markets that improved capital mobility and reshaped long-run local development. In the aftermath of the Great Depression, half of U.S. states meaningfully relaxed geographic restrictions on within-state branching for the first time. These regimes remained largely unchanged until the 1970s-1980s deregulations—by which point over 70% of banking offices operated in branch networks. We provide causal evidence that these reforms raised financial development and predict elevated manufacturing production for decades, especially in less developed places. We trace this impact through two mechanisms enabled by branch banking's institutional structure. Using newly digitized data, we develop a measure of locations' "Deposit Market Access" (DMA), which captures total funding available to borrowers based on banks' footprint and deposit base. Branching reforms led to persistent DMA increases, particularly in smaller and initially underbanked counties, and DMA growth strongly predicts subsequent manufacturing growth. Using branch-level balance sheets, we provide direct evidence that internal capital markets actively reallocated funds from deposit-rich to credit-scarce locations. Our findings show that banking's institutional structure promoted within-state convergence by channeling capital to support long-run economic growth.

*We thank Claire Célérier (discussant), Matt Jaremski (discussant), Jonathan Rose (discussant), and participants at AEAs, Caltech, Chapman, Federal Reserve Financial History Workshop, NBER DAE Spring Meeting, Harvard, Michigan, UC Berkeley, Mountain West Economic History Conference, Northwestern, NYU Stern, SEA, UC Davis, and YPFS for their feedback.

†Vanderbilt University & NBER; sarah.quincy@vanderbilt.edu

‡University of California, Berkeley & NBER & CEPR; chenzixu@berkeley.edu

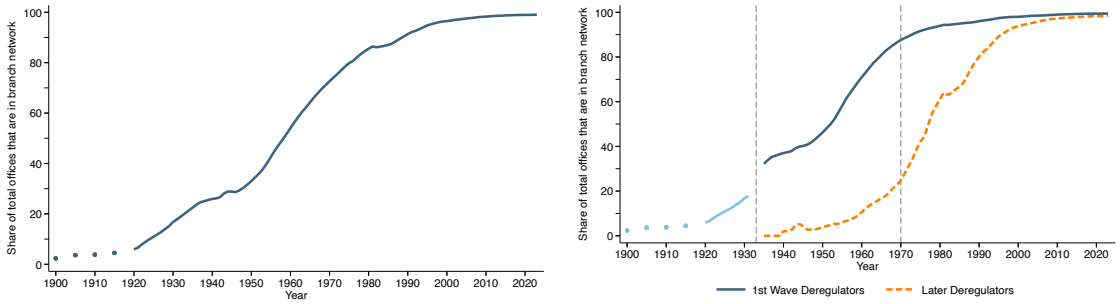
1 Introduction

Uneven access to capital across geographic areas can hinder economic development by constraining local investment and reinforcing regional disparities. Financial institutions can reduce this form of capital misallocation by directing capital to underdeveloped areas that potentially have high returns to investment. Yet in practice, geographic frictions and informational barriers often limit their reach. These frictions raise a key empirical question: which types of institutional arrangements reduce spatial disparities? This question is particularly salient in the context of the "last mile problem" in financial access: extending financial infrastructure to the most remote or underserved locations is often the most costly part of financial system expansion with uncertain long-run economic returns. We make progress on this question by studying a formative but largely overlooked episode in U.S. banking history—the first wave of state-level bank branching reforms in the 1930s—which reshaped the distribution of capital across cities within these states.

This wave of branching reforms, introduced in response to the banking crisis of the early 1930s, created the first large-scale variation in U.S. bank branching market structure. These reforms were controversial. Advocates saw branching as a way to channel capital from financial centers to underserved areas, while critics feared it would drain resources from small towns and concentrate financial resources. Ultimately, only some states passed laws allowing banks to operate branches across geographic borders while others maintained restrictive unit banking regimes. The variation in banking structure these reforms induced were immediate, substantial, and persistent: Figure 1 shows that by 1940, states that had adopted branching laws saw their share of banking offices in branch networks rise from near zero in 1920 to over 40%, while unit banking states remained largely unchanged. These differences in branching intensity lasted until the more recent wave of deregulations that begin in the 1970s.

This historical setting offers several advantages for studying the long-run effects of financial institution design. The nature of the reforms provide plausibly exogenous variation in banking market structure, while the decades that followed were marked by regulatory and macroeconomic stability, few financial crises, limited non-bank competition, and minimal innovation in banking technology. These conditions allow us to isolate the effects of branching from broader financial market innovations. To quantify local access to capital, we introduce a new measure of "Deposit Market Access" (henceforth, "DMA"), which captures the total funding available in a location based on the footprint and size of banks operating there. Comparing DMA across states from 1920 to the present shows stark and enduring disparities that trace back to the initial 1930s divergence. Because most firms and households relied on local banks rather than national capital markets for credit throughout this period, these differences in local banking structure potentially had real and lasting consequences for economic development.

Figure 1: Banking Offices in Branch Networks



(a) Nationwide branch share

(b) Branch share by states

Notes: This figure shows the share of total banking offices operating as part of branch networks from 1900–2020, based on FDIC data for commercial banks. Branch networks are defined as banks operating multiple offices across different locations within a state. Panel (a) displays the nationwide trend. Panel (b) separates states by their branching laws as of 1939: "1st Wave Deregulators" allowed branching by 1939, while "Later Deregulators" maintained unit banking restrictions. The vertical dashed line in panel (b) marks 1933, when first-wave reforms were largely complete. Sources: State session laws, Federal Reserve System (1931), FDIC Summary of Deposits, and authors' calculations.

We begin our empirical analysis by leveraging cross-state differences in the content of branching laws to examine their long-run effects on financial development and economic outcomes. This state-level analysis suggests branching reforms altered the structure of banking markets and capital mobility within state boundaries. First, we show that the state-level share of branching institutions was highly persistent, with correlation coefficients over 80% until 1990. Second, using local projections, we trace the dynamic effects of branching adoption on financial development and financial integration. States that adopted branching laws during the 1930s experienced a sustained expansion in their banking infrastructure: they added more banking offices, but not by adding more banks. We also find evidence of financial market integration within branching states: interest rates and manufacturing production patterns converged across geographic areas within these states, thereby improving capital allocation. In contrast, unit banking states maintained greater dispersion in financial conditions across localities, consistent with persistent geographic segmentation.

Building on these state-level patterns, we strengthen our identification strategy with a county-border-pair design that compares outcomes in adjacent counties located across state lines that differed in their states' adoption of branching reforms. This empirical strategy holds constant unobserved regional shocks, economic structure, and geographic conditions to isolate the effects of differential access to branch networks. Using this local comparison, we find that counties in states with access to branching experienced significantly higher deposit growth and increased manufacturing value-added, with these effects persisting for decades. In addition, we find substantial cross-sectional heterogeneity: these effects are driven by the areas within states that were initially less developed, and which faced limited access to capital prior to the reforms.

We next examine the mechanisms linking branching reform to persistent gains in financial and economic development.We first develop our measure of Deposit Market Access (DMA), which captures the total funding potentially available to borrowers in a given location based on the size and geographic footprint of all banks operating there. This measure provides a direct link between banking infrastructure, in particular the presence of bank branch networks, and local capital availability. Using newly digitized records of bank market structure, we compute DMA at the county level for two key cross-sections—1929 and 1937—which correspond to before and immediately after the deregulations. We find that states adopting branching experienced significantly larger increases in DMA between 1929 and 1937 than unit banking states. We also use the detailed features of the state branching laws that we systematically categorize —including population thresholds, geographic restrictions, and competition rules—to construct a measure of county-level eligibility for branching, and we find that these eligibility criteria strongly predict subsequent changes in DMA.

The effects of branching on DMA exhibit substantial heterogeneity consistent with greater financial integration in underserved areas. In both branching and non-branching states, smaller counties had larger increases in DMA, with consistently greater gains in states that permitted branching. These patterns align with our baseline finding that branching was particularly beneficial to less developed areas. Moreover, county-level increases in DMA predict subsequent manufacturing growth, pointing to reduced spatial barriers to capital allocation as a key channel through which branching influenced long-run economic development.

In the final part of our paper, we provide direct evidence of the mechanisms linking branching to improved capital allocation by analyzing newly digitized balance sheet data from individual bank branches. We first document systematic differences in the composition of assets held by branch banks and unit banks. Unit banks invested significantly more of their portfolios in securities—bonds and equities traded in national markets—which are less likely to be subject to geographic information frictions. In contrast, branch banks allocated a significantly larger share of their assets to loans, which tend to require detailed local information and ongoing monitoring. This divergence shows that there is a fundamental difference in banking strategies: branch banks specialized in information-intensive local lending, while unit banks relied more heavily on information-insensitive securities available through national markets.

Building on this bank-level evidence, we then examine how internal capital markets within branch networks facilitated this lending specialization. The balance sheet data document flows of funds across offices within multi-branch banking networks, allowing us to observe how internal capital markets operated in practice. While branch banks and unit banks appear similar in their overall dependence on interbank capital markets for funding, we find significant differences in how individual branches within bank networks mobilized capital. In particular, internal capital markets

actively reallocated resources across space: certain branch offices primarily raised deposits that they channeled to other offices, while others focused on lending far more than their local deposit base would support. This specialization followed a clear geographic pattern with smaller branch offices maintaining loan-to-deposit ratios substantially higher than similarly sized standalone banks, consistent with parent banks channeling funds toward locations with greater investment needs. In contrast, unit banks, which relied solely on local deposits or interbank markets, faced tighter funding constraints and lent less in comparable settings. This reallocation was systematic and substantial: branch networks regularly moved deposits from surplus to deficit locations, enabling lending in areas where local deposit bases alone would have been insufficient to support economic activity. These findings provide the most direct evidence that the institutional structure of branching, rather than simply increased competition or banking services, was the key driver of improved capital allocation.

Related literature:

We relate first to the literature on the finance-growth nexus. Financial development has long been considered a key determinant of economic growth. Early theoretical work emphasized how financial intermediaries can accelerate capital accumulation and technological innovation by mobilizing savings, allocating capital efficiently, and facilitating risk management (Gerschenkron, 1962; Goldsmith, 1969; King and Levine, 1993). Empirical studies initially provided strong support for this finance-growth nexus, showing robust correlations between financial depth and economic development across countries and over time (King and Levine, 1993; Levine, 1997).

However, recent evidence has cast doubt on the stability and universality of this relationship. Time series evidence shows that the finance-growth correlation has weakened substantially in recent decades (Demetriades and Hussein, 1996; Rousseau and Wachtel, 2011), while cross-sectional analyses suggest that very high levels of financial development may actually harm growth (Loayza and Ranciere, 2006; Arcand et al., 2015). These findings have motivated researchers to move beyond measures of financial depth (e.g., Rajan and Zingales, 1998) to examine how the quality and structure of financial intermediation affects economic outcomes. Following earlier theoretical work (e.g., Bencivenga and Smith, 1991; Greenwood and Jovanovic, 1990), our paper contributes to this literature by demonstrating that improvements in capital mobility—not just increases in financial depth—can generate persistent economic gains when institutional barriers to capital mobility are reduced.

We also relate to the literature on bank branching deregulation, which has primarily focused on the interstate and intrastate deregulations of the 1970s and 1980s. State-level studies show that branching legalization increased income growth, bank lending, and industrial concentration while reducing the volatility of state-level economic activity (Jayaratne and Strahan, 1996a; Cetorelli and Strahan, 2006; Kroszner et al., 2007; Morgan et al., 2004). Subsequent research has documented

how these reforms improved risk diversification, increased cross-location liquidity transfers, and facilitated capital reallocation at the firm level (Gilje et al., 2016; Goetz et al., 2016; Bai et al., 2018). At the household level, access to bank branches raises entrepeneurship, financial inclusion, and wealth accumulation, with spillover effects on labor market outcomes (Black and Strahan, 2002; Célerier and Matray, 2019; Fonseca and Matray, 2022). International evidence from branch expansions in Italy and India similarly shows that improved banking access reduces regional disparities and poverty (Guiso et al., 2004; Burgess and Pande, 2005). Geographic frictions remain a first-order US policy concern for both fintech and banking infrastructure (Aguirregabiria et al., 2025; Erel and Liebersohn, 2022).

Our paper complements this literature by being the first to focus on the wave of US branch expansion in the 1930s. Pre-Depression American financial markets were fragmented, as highly variable state bank regulations facilitated local boom-bust cycles (White, 1983; Carlson et al., 2022; Mitchener, 2007; Dehejia and Lleras-Muney, 2007; Wheelock et al., 2008; Anderson et al., 2019; Aldunate et al., 2021; Calomiris and Haber, 2014). In contrast, we document a period of swift financial deregulation which created capital mobility, complementing other improvements in US market integration and economic development (Rousseau and Sylla, 2005; Hornbeck and Rotemberg, 2019; Xu and Yang, 2024; d'Amico and Alekseev, 2024). This wave of reform accelerated banking market development and reduced capital frictions, suggesting that states' legal responses during the 1930s complemented other forces propelling the recovery from the Great Depression, such as the money supply (Friedman and Schwartz, 1963), exchange rate depreciation (Romer, 1992; Hausman et al., 2019), and New Deal programs (Fishback, 2017; Cole and Ohanian, 2004).

Geographic frictions play a crucial role in financial markets, as proximity reduces information asymmetries and monitoring costs in lending relationships (Petersen and Rajan, 2002; Berger et al., 2005). The literature on internal capital markets within firms shows that organizations can overcome external market frictions through internal fund transfers (Stein, 1997), though these benefits may be offset by agency problems and inefficient cross-subsidization (Scharfstein and Stein, 2000; Rajan et al., 2000). Our paper documents how internal capital markets within branch networks can operate, using detailed historical balance sheet data to show systematic reallocation from deposit-rich to credit-scarce locations.

Finally, our paper contributes to a growing literature documenting how temporary historical shocks can create persistent differences in economic outcomes. Early empirical work on urban agglomeration shows that historical accidents can determine long-run city locations and sizes, with effects persisting even after the original advantages disappear (Davis and Weinstein, 2002; Redding et al., 2011; Bleakley and Lin, 2012). Similar path dependence has been documented across many other contexts, including the effects of historical institutions on contemporary development (Nunn,

2008; Dell, 2010) and how temporary disruptions to financial markets impact trade patterns and labor markets (Xu, 2022; Quincy, 2024). Our paper adds to this literature by showing how temporary changes in the structure of banking market institutions can create lasting regional development advantages.

2 Historical Context

2.1 Branch bank regulation before the 1930s

The United States arrived late to bank branching. After the Civil War, state and national bank regulators largely prohibited banks from opening multiple offices, in contrast to other advanced economies that saw rapid consolidation of their banking sectors in the 19th century (Chapman and Westerfield, 1942).[1] Between the 1860s and 1920s, regulators repeatedly lowered charter capital requirements to permit ever-smaller banks to enter the market, which made small, independent banks the dominant arbiters of credit access in most of the nation (Chapman, 1934).

The potential benefit of having larger, more diversified bank branch networks were seriously discussed for the first time following the widespread bank failures after World War I. As agricultural prices plunged, rural areas lost both income and credit access (Jaremski and Wheelock, 2020; Rajan and Ramcharan, 2016). Small towns' diminishing access to credit became a rallying cry for academic economists and bankers in favor of branch legalization.[2] Ultimately, unit bankers won the day, as Congress passed the McFadden Act in 1927, which effectively capped bank branch expansion.

2.2 The Glass-Steagall Act of 1933

After 1929, banking instability intensified, renewing debates about how best to provide widespread, safe access to credit. Congress focused on two main issues: a loss of public confidence in bank solvency and high rates of bank failure, especially among smaller banks. The House of Representatives passed bills legalizing deposit insurance, reasoning that federal guarantees would stop bank run-based failures and permit banks to begin lending again (Burns, 1965). The Senate, in contrast, favored legalizing cross-city bank branching, in order to allow large banks to restore banking services in rural areas (Chapman, 1934). Although none of these bills made it through the other chamber before the height of the banking crisis in early 1933, these attempts at legislative reform became the basis for the Banking Act of 1933, more commonly called the Glass-Steagall Act.

[1] The dual charter banking system did not offer prospective banks significant variation in bank branching permissions, unlike in the case of minimum charter capital, as branching was largely *de facto* prohibited by state and national regulators in the National Banking Era even in the absence of outright abolition (Chapman, 1934; White, 1983).

[2] See, for instance, Southworth (1926) or Collins (1926) in the 1920s or Cartinhour (1931) and Southworth et al. (1941) in the 1930s for academic opinions. Chapman (1934) describes debates at the American Bankers Association during the 1920s and 1930s over whether to endorse branching.

The Glass-Steagall Act was an omnibus of new financial regulation intended to create long-run stability after the banking holiday in March 1933. Tightening bank liability requirements and separating investment and commercial banking were seemingly self-evident solutions to several drivers of the crisis (73rd Congress, 1933a,b).[3] Legislators then debated how to address the most pressing challenge facing communities across the country—the widespread loss of banking services—with deposit insurance and bank branching emerging as the two primary solutions that might restore access without undermining banking market health and stability.

The pro-branching camp, led by Virginia Democrat Carter Glass, argued that cross-city branching would allow large, well-run urban banks to serve towns too small to sustain their own (safe) banks. Proponents pointed to the Depression as evidence that small banks were most vulnerable to failure, leaving rural areas without adequate banking services. One senator reluctantly embraced bank branching because the "stockholder reserve [was] relatively dry" and depositors were convinced unit banks were unsafe in towns where local investors had been wiped out by previous bank failures (72nd Congress, 1933)[4] He argued that allowing big-city centered branch networks to expand was the only feasible way to restore banking services after a decade and a half of bank failures.

However, this view failed to sway many congressmen, who believed that branching would concentrate funds in the hands of the wealthy urban elites (73rd Congress, 1933a; 72nd Congress, 1933; 73rd Congress, 1933b). These critics feared that urban banks would establish branches in small towns primarily to collect deposits, which would then be funneled back to finance business ventures in major cities rather than supporting local farmers and merchants. They pointed to the Canadian banking system, where nationwide branch networks were accused of systematically extracting rural savings to fund urban development, leaving agricultural regions chronically under-served (72nd Congress, 1933). Senator Fletcher of South Dakota captured this sentiment, relaying that his constituents felt that branching "means an irretrievable step toward putting the key banking resources of your community more at the big financial centers" (72nd Congress, 1933). Anti-branching legislators also worried about the concentration of economic power, fearing that a handful of large banks with extensive branch networks could dictate credit terms across vast geographic areas and potentially manipulate local economies for their own benefit.

Deposit insurance emerged as the more appealing solution for legislators who attributed the crisis to large banks, with Alabama Representative Henry Steagall leading this camp. Supporters argued

[3]Later investigations on the separation of commercial and investment banking found the provision to be more controversial (Kroszner and Rajan, 1997; White, 1986; Benston, 1989; Ramirez, 1999).

[4]The phrase refers to the depletion of local investment capital in small towns. The local investors who would normally provide equity capital to establish new banks had lost substantial portions of their wealth after successive waves of bank failures. Indeed, many failed banks could not recover the extended liability claims (double liability was common during this era) from their capital investors. Consequently, these potential investors were unwilling or unable to invest in establishing replacement banks.

that protecting depositors from losses caused by banker misconduct was a matter of fairness, while opponents highlighted the moral hazard that such protection would create (Flood, 1991). For these legislators, deposit insurance was a pragmatic solution that would protect depositors and stimulate bank entry while limiting the political and geographical concentration of financial power in large, multi-branch institutions.

This fundamental disagreement over banking structure—encompassing debates about capital flows, the concentration of financial power, and the relative merits of deposit insurance versus branching reform—lay at the heart of the legislative battles that ultimately produced the patchwork of state banking laws that persisted for decades. Months of debate failed to resolve this impasse, but Congress faced a firm deadline at the end of the legislative session in June 1933. Carter Glass, unable to sway the populist wing of his Democratic majority to support branching, was forced to broker a compromise.[5]

The resulting compromise established deposit insurance nationwide while delegating the most contentious issue—bank branching—to the states. This decision had lasting consequences: from 1933 until the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994, state law governed branching permissions for all banks operating in their boundaries, regardless of charter type. See Figure B.3 for the relevant excerpt of the Glass-Steagall Act.

2.3 State branch regulation in the 1930s

After Glass-Steagall delegated branch banking restrictions to the states in June 1933, similar debates over the merits of branch banking played out in state legislatures across the country. As Cartinhour (1934) reports, almost every state legislature considered updates to their branch banking laws between 1933 and 1934, regardless of party affiliation.[6] State legislators faced the same fundamental challenge as their federal counterparts: how to restore banking services without alienating constituents who harbored deep skepticism toward large-scale finance.

The economic crisis of the early 1930s, however, had shifted the political landscape. Both small businesses and large corporations, frustrated by their limited access to capital, began forming new rural-urban coalitions in support of branching reform. Large businesses had long favored branch banks for their ability to make larger loans, but rural areas represented a newer constituency. By the 1930s, many rural communities found that their desire to resume access to banking services outweighed their previous support for unit banks' hyperlocal focus (Rajan and Ramcharan, 2016; Calomiris, 2000).

[5] Two of the fiercest anti-branching advocates were Louisiana Democratic Senator Huey Long and Alabama Democratic Representative Henry B. Steagall, so neither region nor party are sufficient enough to characterize support for this policy.

[6] For instance, a coalition of Oregon Democrats joined the Republican majority to legalize statewide bank branching in 1933 over the objections of other Republicans.

Figure 2 maps the state-level laws governing geographic restrictions in bank branching from prior to the Great Depression (1929) to the end of this wave of branching deregulation (1939). In 1929, the vast majority of states maintained restrictive unit banking regimes, with only a handful of western and southern states permitting any form of cross-city branching. This geographic pattern largely reflects historical settlement patterns and regional banking traditions, with the West being more receptive to branching than those states with long-established unit banking models in the East and Midwest.

By 1939, the regulatory map had been fundamentally redrawn as half of US states introduced cross-city branching. The number of states not allowing any form of bank branching fell from 29 to 13 while the number permitting statewide branching rose from 9 to 19 (Counsel of the Board of Governors, 1930, 1939). Notably, this transformation was not simply a matter of western states leading eastern ones: states across all regions adopted branching reforms, overcoming deeply entrenched regional banking preferences.

This 1930s wave was exceptionally rapid and far-reaching: no other period between 1910 and 1990 experienced comparable regulatory change. We show the path of these changes in Figure 2c. After this burst of branching laws, the distribution of branching regulations remained remarkably consistent for nearly four decades, as regulators pivoted from geographic expansion to focus on bank safety and other supervisory concerns. The established geographic restrictions were mostly untouched in these decades, as evidenced by the effectively flat cross-city branching line from roughly 1935 to 1970, demonstrating the persistence of these Depression-era regulatory choices.

The second wave of deregulation, which is visible in Figure 2c as the increasing number of states allowing cross-city branching beginning in the 1970s, gradually eliminated the remaining unit banking restrictions. This second wave eventually culminated in nationwide banking through the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994. During this latter period, banking networks grew significantly in size as the regulatory approach focused on interstate competition rather than just branching within states.

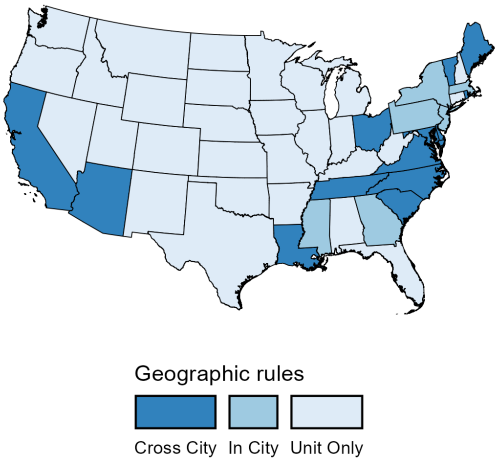
2.3.1 Characteristics of 1930s regulations

The branching reforms of the 1930s were fundamentally different in character from the second deregulatory wave at the end of the century. Unlike the interstate banking reforms of the 1980s and the Riegle-Neal Act of 1994 were broad, largely unconditional deregulations that removed geographic restrictions with minimal replacement conditions, the 1930s reforms were quite complex and conditional. Rather than simple deregulation, states in the 1930s constructed elaborate regulatory frameworks that permitted branching only under carefully specified circumstances.

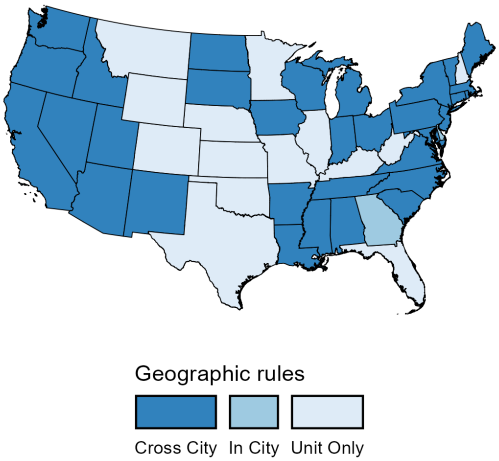
This distinction is crucial for understanding both the political economy of banking reform and

Figure 2: Geographic bank branching restrictions by state

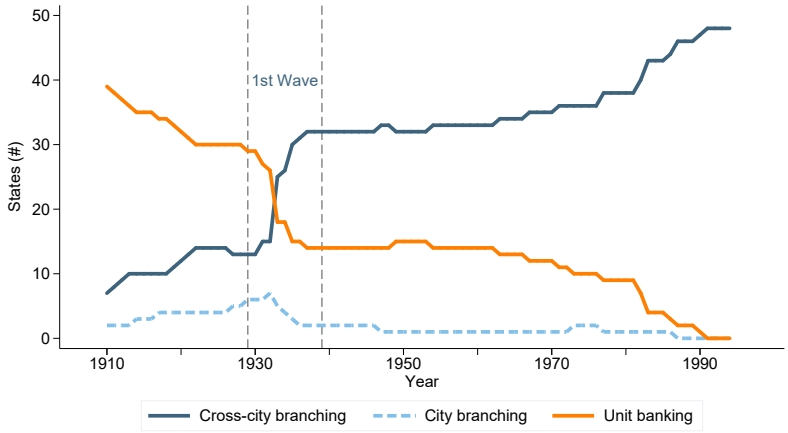
(a) 1929



(b) 1939



(c) Time series of branching regimes



Notes: Prior to 1927, national banks could not branch. Starting in 1927, these laws apply to all banks in a state. "Unit" banking refers to states either implicitly (though a lack of law granting permission) or explicitly prohibiting bank branching. "In city" refers to branching being allowed within city borders. "Cross-city" refers to all potential geographic configurations larger than a city-only network. Sources: State session laws.

its economic effects. The second wave of deregulations of the 1980s and 1990s were primarily driven by competitive pressures from technological innovation and regulatory arbitrage (Robertson, 1968; Kroszner and Strahan, 2014). These reforms typically involved omnibus legislation that removed geographic barriers wholesale, often with sunset clauses and broad preemption of state restrictions. This wave of deregulation culminated in the Riegle-Neal Act, which established interstate branching nationwide with minimal prudential and concentration limits.

In contrast, the 1930s reforms emerged from crisis conditions and aimed to target branching

without altering other characteristics of banking markets. Legislators balanced the geographic expansion of branching with clauses to address market concentration, rural credit access, and the displacement of local financial institutions. The result was a patchwork of conditional permissions that allowed branching to proceed, but only under the primary goal of restoring banking services.

Figure 3 shows that states introduced branching while simultaneously imposing new types of restrictions. The solid blue line shows the steady increase in states allowing branching in some form, but the other lines demonstrate how this permission came with significant constraints. For example, branching often only became legal in towns without existing banking services, which we term "competition-based restrictions" and plot in dotted red line.[7] Other regulations included city populations or bank capital minima to prevent large banks from displacing rural institutions while still expanding banking to under-served areas, shown in the dashed yellow and dashed red lines respectively.[8] Appendix Figure A.1 maps the distribution of these additional laws.

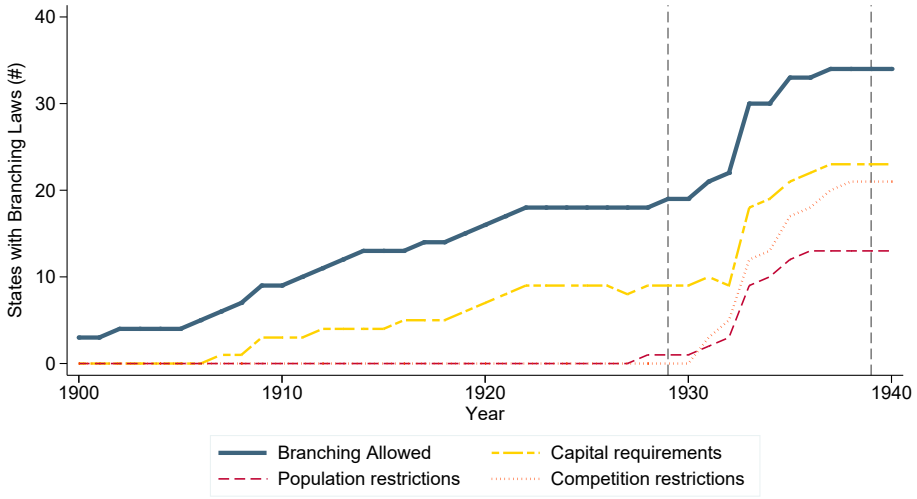


Figure 3: Conditions required for bank branching

Notes: States with laws permitting state-wide or across-city branching are indexed as "Branching Allowed." Population requirements could be at city or county level. Capital requirements were minima applied at either the intensive (per-branch) or extensive (prior to first branch) margins. Competition restrictions include all rules based on the number of incumbent banking offices present in a geographic area or limits on the total number of offices in a network. See Section 3.1 for details on dataset construction. Sources: State session laws and authors' calculations.

[7] These laws typically facilitated *de novo* branching. For instance, Idaho's 1935 banking act allowed branches only if they merged with an existing bank, received approval from local bankers, or served previously unbanked towns (Counsel of the Board of Governors, 1936).

[8] The Glass Steagall Act raised paid-in capital thresholds for national and state member banks and many state legislatures followed suit. Figure A.8d plots the number of states raising versus lowering charter capital requirements for each year from 1930 to 1940 relative to their 1929 levels.

3 Data

We integrate several newly created datasets with existing records on financial development and economic activity. We use three main types of data: (1) state-level laws governing bank branch regulations; (2) banking sector outcomes including bank branch-level balance sheets; and (3) real economic outcomes.

3.1 Bank branch regulations over time

We present a comprehensive regulatory database of bank branching laws from 1910 to 1970, which spans the National Banking Era through the modern wave of bank deregulation. This collection documents the intricate and often interlocking conditions governing bank branching established by each state legislature on the journey from total prohibition to unrestricted *de novo* branching. Our long-term approach captures branch expansions occurring before total liberalization, which were sizeable. Just six states had fewer than half of their banking offices in branches the year before their final deregulation date, the stage captured in prior studies, summarized in Kroszner and Strahan (2014). However, we note that earlier branch legalization came with a host of potential restrictions. Figure B.2 illustrates this complexity with Mississippi's legislation, which imposed both bank and branch-specific minimum capital requirements, geographic radius limitations, and maximum branch counts, among other provisions. Our repository categorizes each state's branching regulations along four dimensions:

1. Geographic: Limitations on where banks could establish branches (e.g., within-city, cross-city, statewide)
2. Competition: Restrictions based on existing banking presence and local market conditions
3. Population: Thresholds based on community size that determined branching eligibility
4. Capital: Requirements including both minimum bank capital necessary to operate any branches and additional capital required for each new branch location

The database also includes related regulatory frameworks from this period, including minimum capital requirements and non-bank chain taxation. Further detail can be found in Appendix B.

3.2 Banking data

We link the legal database to banking sector outcomes by combining several complementary data sources.

Bank Market Structure. We use two main sources to capture the extent of unit and branch banking. We capture pre-1935 annual state-level banking market structure using data digitized by

Flood (1991) from Federal Reserve publications. After 1935, we use FDIC's BankFind database to observe both the number of banks and the number of banking offices.

Local Financial Development. We capture financial development with county-level deposits (e.g., Fonseca and Matray, 2022) from 1920 to the present. In the pre-1933 period, we use the FDIC Banking Changes dataset from ICPSR, which records deposits at bank headquarters. For the post-1940s period, we use the City and County Databooks, which correctly measure deposits by banking office location. We extend this series forward using the FDIC Summary of Deposits dataset after 1992. We also harmonize four cross-sections on county banking market structure: 1929 (via the Rand McNally Banking Directory), 1937 (via Federal Reserve call reports, 1970 (FDIC operating banking offices), and 1994 (FDIC summary of deposits).

Bank Branch-Level Balance Sheets. We hand-collect a unique dataset of establishment-level balance sheets for all Federal Reserve member banks in 1937. These data separately record detailed assets and liabilities for each banking office, including their deposits raised and use of both internal and external capital markets. Branch data were recorded separately from bank data, requiring us to generate a new database of branch network membership to match bank charters to their member branch offices. We provide more detail on these data in Appendix C.

3.3 Economic outcomes

We construct a panel spanning from 1920 to the 1990s of county-level economic activity that captures both establishment counts and output measures across multiple sectors. Our primary source is the collection of decennial census data, supplemented with county data books, which provide manufacturing, retail, and agricultural statistics. We complement this panel with additional interwar manufacturing data (Janas, 2024; Fishback and Kantor, 2018). We construct per-capita measures by scaling outcomes using linearly interpolated population data between census years.

4 Results

4.1 State banking markets

During the 1930s, the US financial system shifted from predominantly unit banking to one where cross-city branching became the norm for many states. First, we show that the 1930s branching laws is not correlated with observable differences in states' banking markets (in levels or growth rates) before the Great Depression (Figure A.4).[9]

We first document the relationship between branching reforms and branching. Figure A.2 maps

[9] Quincy and Xu (2024) discusses the political economy of these reforms and argues that they were not correlated with either realized nor expected economic outcomes, supporting the causal interpretation of our findings.

the intensity of branching in 1940, immediately after the reform era, with 1970, immediately prior to the second wave of deregulations and shows the high degree of correlation over thirty years. We extend this correlation of branching density across states over time in Figure A.3, which shows that even in the year 2020—after the second wave of deregulation, full interstate banking legalization in Riegle-Neal, multiple financial crises, and technological transformation—the correlation with 1940 branching patterns remains at 0.48 and statistically significant. The geographic footprint of banking established in the 1930s has proven remarkably durable.

Having shown this preliminary evidence, we next formally test this relationship between branching reforms and long-run state banking market structure. Our state-level analysis combines state branching regulations from our database with banking statistics from FDIC and Flood (1991) spanning from the 1920s to the 2010s. We estimate the correlation between 1939 branch regulations and banking market outcomes using the following specification:

$$Ln\ BANK_{s,t} - Ln\ BANK_{s,1935} = \beta_0 + \gamma_r BRANCH\ CONDITIONS_{s,1939} + \beta_c + \epsilon_{st} \quad (1)$$

where $BANK_{s,t}$ measures the number of banks or banking establishments in state s in year t. The indicator variable $BRANCH\ CONDITIONS_{c,1939}$ captures branching permissions as of 1939, and β_c is a census region fixed effect.

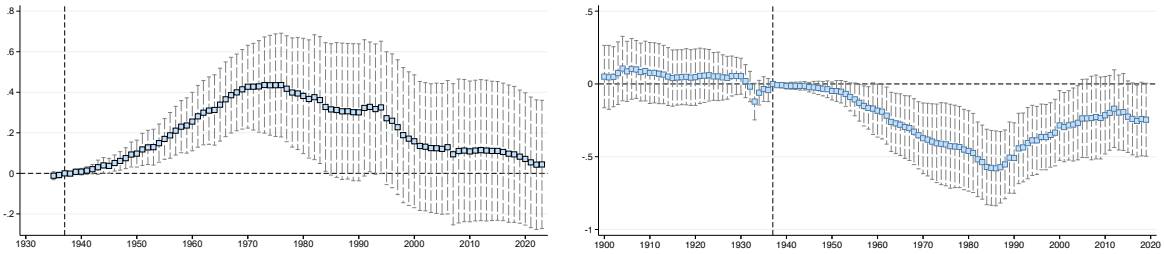
Figure 4 presents the results from these rolling regressions. Panel (a) shows that states permitting branching by 1939 experienced significantly stronger growth in banking offices relative to their 1935 levels, with the gap peaking at approximately 40 percentage points in the late 1970s before narrowing with the onset of modern branching deregulation.[10]

However, this expansion in banking establishments did not stem from an increase in the number of banks. Panel (b) shows the opposite pattern: states that permitted branching had significantly fewer banks overall compared to unit banking states. While the number of banks evolved similarly across state types through the 1920s, branching-permissive states experienced a sharp relative decline after the reforms. Branching accelerated office growth while simultaneously reducing the total number of banking institutions. Financial development occurred through increased banking office proliferation rather than bank multiplication, which is consistent with the *de novo* orientation of 1930s branching laws.

These structural changes in banking markets had implications for capital allocation. We next examine whether the expansion of branch networks also improved capital market integration within states. Using detailed data from OCC Annual Reports spanning the 1920s through 1939, we hand-collect and calculate the average cost of capital for both reserve cities (the primary financial centers)

[10]We do not observe total banking office before 1935, nor do we observe the number of branches in unit banking states until they deregulate.

Figure 4: State Branch Permission and Long-Run Banking Development



(a) Banking Offices

(b) Banks

Notes: Each point results from estimating Equation 1 on the log change in the outcome in year t relative to 1935 on 1939 branch legality, controlling for census region fixed effects. Bars represent 95% confidence intervals from robust standard errors. Sources: State session laws, FDIC, Flood (1991), and authors' calculations.

and the remainder of each state.[11]

We estimate local projections relative to the year each state allowed branching and find that deregulating states experienced significant interest rate convergence relative to non-branching states after reform. Figure A.10 shows that branching states exhibit no differential pre-trends for nearly a decade prior to reform, but interest rate spreads begin converging in the years immediately after deregulation. This convergence indicates that capital markets became more integrated in branching states, providing preliminary state-level evidence of improved capital mobility. Thoufh our post-reform window is limited by data availability ending in 1939, the stark contrast between the stable pre-trends and rapid post-reform convergence suggests that branching facilitated the flow of capital from financial centers to the periphery.

Several additional pieces of evidence suggest that branch expansion, not other trends in bank concentration (e.g., Fohlin and Jaremski, 2020) drive these results. First, we see no evidence of differential banking growth before the 1930s in Figure 4b. Second, we split our branching categories by the geographic expansion permitted in Figure A.6 and show that the looser the geographic restrictions on branching were, the more developed the financial sector became. As in our baseline analysis, these results are driven by branches rather than unit bank expansion. Third, we demonstrate that these trends began in the 1930s by narrowing our definition of treatment to those states introducing branching in the 1930s (Figure A.9).

[11]The OCC reports total interest revenues for the banking sector in each geographic area, and total stock of loans. We calculate the average cost of capital by dividing interest revenues with loans. This dataset allows us to measure the interest rate differential between financial centers and their peripheries as a proxy of capital mobility *within* states.

4.2 Empirical strategy

To provide causal evidence of branching's local economic impacts, we use the variation in the adoption of branching laws by roughly half of U.S. states during the 1930s. These reforms created sharp and persistent discontinuities in banking regulation at state borders. Our empirical strategy uses a county border-pair design, comparing adjacent counties that share a state border but were subject to different regulatory regimes—one permitting branching after the 1930s reforms and one maintaining unit banking restrictions. To ensure a clean comparison, we exclude states that allowed cross-city branching before the 1930s and focus on borders where branching became legal on one side but remained prohibited through 1939 on the other.[12] We estimate the following regression specification:

$$y_{cpt} = \beta_t \mathbb{I}(\text{1st Wave})_c + \alpha_c + \gamma_{pt} + \varepsilon_{cpt} \tag{2}$$

Our dependent variable y_{cpt} represents outcome variables for county c in border-pair p at time t, including financial development measures (deposits) and real economic outcomes (manufacturing value-added). The treatment variable $\mathbb{I}(\text{1st Wave})_c$ is an indicator that county c is located in a state that introduced cross-city branching during the 1930s. We include county fixed effects α_c to remove time-invariant county-level differences and border-pair by time fixed effects γ_{pt} to remove shared time-varying border-pair shocks that might affect counties on both sides of a state border. These fixed effects restrict identifying variation to within well-defined geographic areas, creating control and treated counties that are likely similar in both observable and unobservable dimensions.

This county-border identification strategy follows the approach used in the minimum wage literature that uses policy variation across state borders (e.g. Dube et al. (2010)). The key identifying assumption is parallel trends: absent treatment, counties on either side of the border would have evolved similarly. We validate this assumption by demonstrating that 1920s variables are balanced across treatment and control groups both at the state level (Figure A.4) and when regressing 1920s county outcomes on border-pair fixed effects (Figure A.5).

A potential concern with this strategy is cross-border banking, where customers might access services across county or state lines. However, historical evidence suggests banking markets were highly localized during this period—loan applications required bankers to assess borrowers' local reputations and neighborhood "character" (Figure A.13), and regulators defined deposit markets at the neighborhood or city level (Delano, 1945). Even today, customers rarely travel far for banking services (e.g. Brevoort and Hannan, 2006). We further address this concern by showing our results are robust to potential spillovers in Section 4.3. Following standard practice, we two-way cluster standard errors at the border-pair and decade levels.

[12] See Figure A.7 for a map of the included counties.

4.3 Impact on financial development

We now show that otherwise very similar locations experienced markedly different post-Depression financial trajectories based on whether their state permitted branching during the 1930s. We compare counties' deposits as a benchmark of local financial development. Figure 5 plots β_t coefficients and 95% confidence intervals from estimating Equation 2 of county deposits as a measure of local financial development.

Counties in branching states experienced significantly higher deposit growth than neighboring unit banking counties, but only after 1932, when branch permissions began.[13] The gap in deposits peaked just before the onset of interstate branching and remained statistically significant through the 1990s.[14]

Crucially, these financial development gains were concentrated in previously underbanked areas. When we separate our sample at the 1929 median deposit level, we find that the branch legalization only spurred persistent deposit growth in counties that were below median in pre-Depression financial development (Figure 5b).[15] These effects phased in immediately after branching began and remained stateble through the 1990s. In contrast, counties with above-median 1929 deposits show no persistent deposit gains (Figure 5c). This heterogeneity suggests that branching laws introduced financial development precisely where it had been most scarce, rather than simply amplifying existing financial centers.

Table A.3 summarizes these effects using a triple-difference approach: while initially less-developed counties generally experienced catch-up growth, those in branching states grew at nearly twice the rate of their unit banking counterparts This pattern of convergence suggests branch legalization, rather than pre-existing trends, was the driver of financial development.

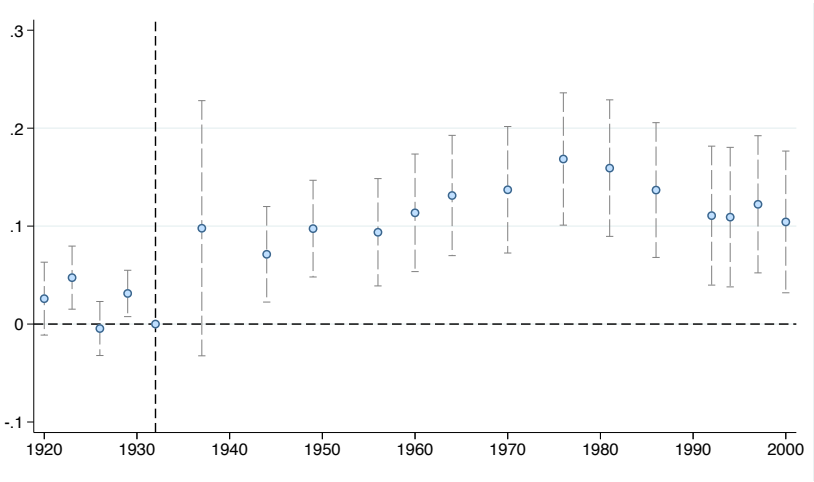
These results are robust to concerns about spatial spillovers. First, we estimate the same regression using counties one step away from the border, which are farther away from each other and therefore less subject to potential diversion of resources across the state border. Figure A.11b shows that results are unchanged. Second, we perform a placebo exercise in which w randomize the treatment in border-pair counties that did not have a discontinuity in their laws and simulate one thousand datasets where we re-estimate the treatment effects. We plot the distribution of coefficients in Figure A.12b, which shows the dominance of null results. Additionally, we find that these results are robust to adding controls for county-level World War II spending or saving, as

[13] We find evidence that legalizing bank branching increased households' use of bank accounts and bank deposits during the 1930s, see Table A.2.

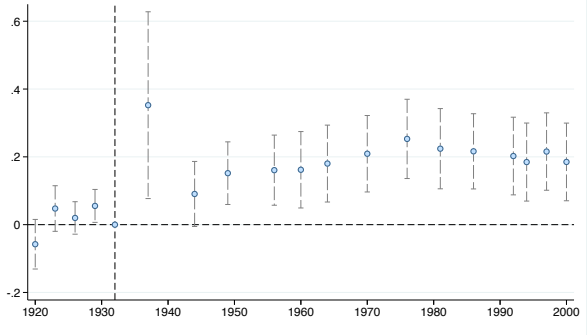
[14] The 1937 observation is from the call reports of Federal Reserve member banks. After 1940, measures are for all FDIC insured banking offices in each county.

[15] The 1937 observation reflects only Federal Reserve member banks due to data limitations, which may affect the below-median coefficient since membership required higher capital levels that smaller community banks often lacked. This is not true of branch networks, who were often required by state law to have higher capital levels (eg Figure B.2). Together these two concerns will exaggerate differences in (Federal Reserve member) deposits.

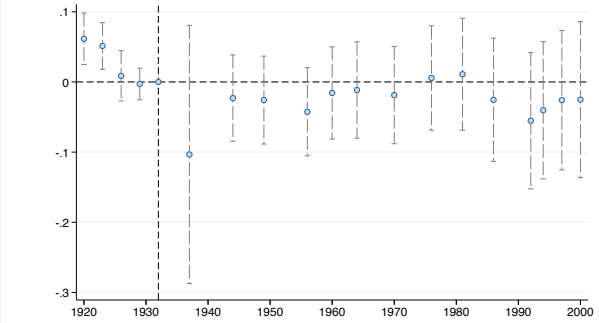
Figure 5: Branch deregulation's effects on log deposits



(a) Log deposits



(b) Below 1929 median



(c) Above 1929 median

Notes: Only counties in a border pair with a discontinuity in branching included. Each point is the β coefficient for 1930s cross-city branching legalization interacted with that year with 95 percent confidence intervals, defined using standard errors two-way clustered at the border pair and decade level. We use 1937 as the reference year because it represents the year by which treatment started. Deposits are for all commercial banking offices in that county in that year, except 1937, which is for only Federal Reserve member banks. We also control for border pair-year dyad and county fixed effects. Medians calculated within county border pair sample in 1929. Sources: State session laws, FDIC, Federal Reserve call reports, ICPSR, and authors' calculations.

well as all other forms of 1930s state banking legislation.[16] Overall, we find that in the wake of the nation's most severe financial contraction, passing branching laws translated to a faster banking recovery which lasted for decades, especially in places with smaller banking sectors beforehand.

4.4 Impact on economic development

Having established that this wave of branching increased financial development, particularly in initially underbanked areas, we turn next to examining whether these financial gains translated

[16]Specifically, we interact county- or state-level variables with time fixed effects to control for their potentially confounding time-varying effects in separate regressions. This also conclusion also holds for the results in the next subsection.

into real economic growth. If branching eased capital mobility – as rising deposits and falling interest rate differentials suggest – then we expect productive economic activity to expand as well.

We focus on manufacturing value-added per capita, which captures the difference between establishments' input costs and total output scaled by population. Manufacturing is particularly relevant because it is capital-intensive and likely sensitive to financial constraints during this era (Benmelech et al., 2019).

Manufacturing activity accelerated in newly-branched places, and again, the effects are long-lasting. Figure 6a shows that access to bank branching had small effects during the 1930s but then grew afterwards, suggesting that bank branching accelerated economic development *after* deposits began to increase. This wave of bank branching rules did not diminish in impact as the more recent bout of branch (de)regulation began, but lingered. As above, branch legalization's benefits phased in immediately after the 1930s and stayed consistent, further validating the identification strategy. In this case, however, the effect of branching does not peak until *after* interstate branching began. We also find that these results are robust to spillover concerns (Figure A.11c) and do not appear when we simulate other county border comparisons (Figure A.12c).

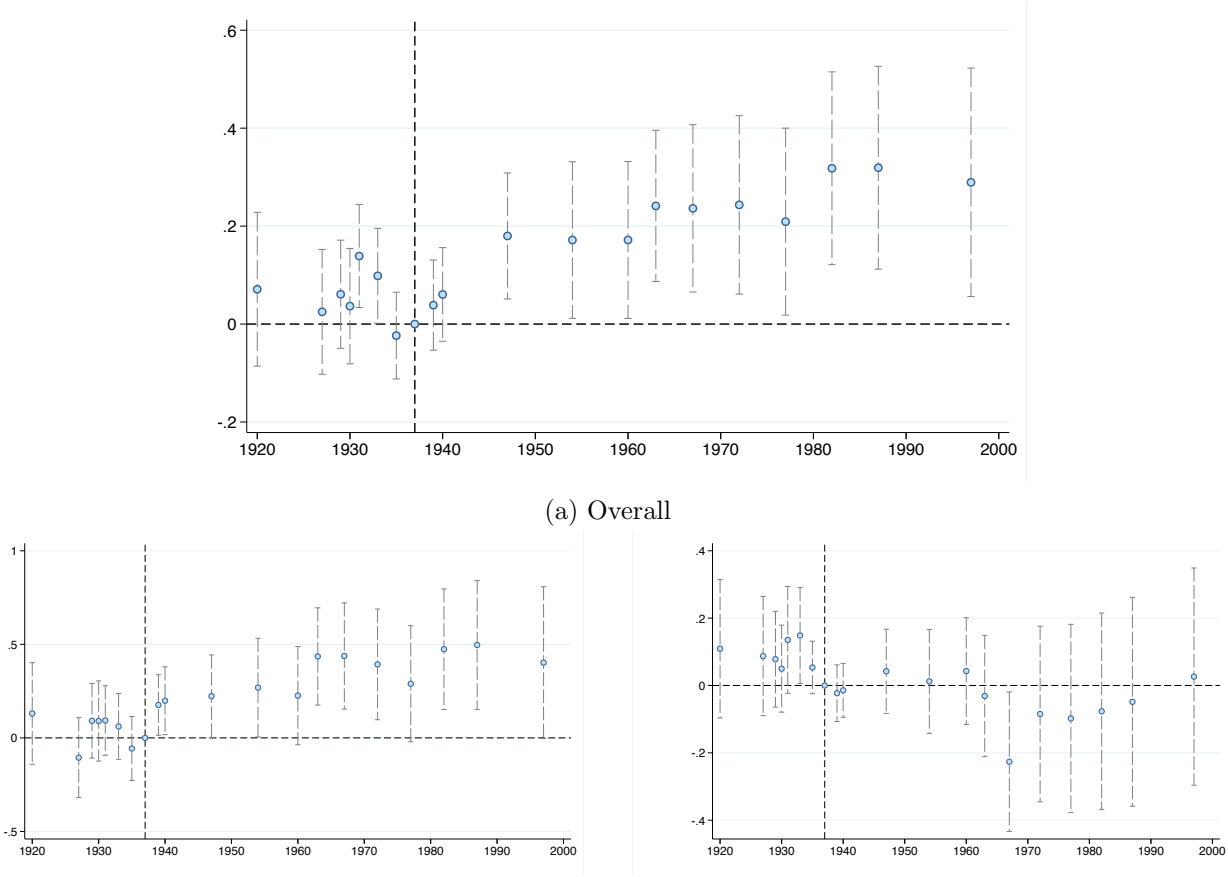
When stratifying the estimation sample by 1929 medians in the outcome variable, it is also the case that low value-added places experienced the biggest effects from bank branch legalization. We find no impact of bank branching among above-median county pairs, shown in Figure 6c. Gains to lower value-added per capita places, in contrast, grew through the 1990s. The branching benefits specific to less manufacturing-oriented locations are quite sizable in a triple-difference version of Equation 2 (Table A.3). Overall, our results indicate that financial development translated into long-lived manufacturing productivity gains, especially in places without a strong manufacturing presence before the Great Depression.

5 Mechanisms

The expansion of bank branching generated persistent differences in financial and economic development that lasted through the 1970s, consistent with macroeconomic evidence that financial development is especially important for long-run growth in settings with limited initial financial infrastructure (e.g., Levine, 2005). This section provides empirical evidence on the mechanisms linking branching deregulation to accelerated deposit growth and real economic activity.

We highlight two primary channels through which branching reduced local financial constraints. First, branching laws expanded households' access to their banks' deposit bases, allowing local institutions to draw on funds from other parts of the state and offer deposit services backed by a broader pool of capital. Second, we show that branch networks helped relax lending constraints that unit banks could not overcome. In particular, branch offices were able to reallocate funds from

Figure 6: Branch deregulation's effects on log manufacturing value-added per capita



(a) Overall

(b) Below 1929 median

(c) Above 1929 median

Notes: Only counties in a border pair with a discontinuity in branching included. Each point is the β coefficient for 1930s branching interacted with that year with 95 percent confidence intervals, defined using standard errors two-way clustered at the border pair and decade level. We use 1937 as the reference year because it represents the year by which treatment started. Population linearly interpreted between censuses. We also control for border pair-year dyad and county fixed effects. Sources: State session laws, FDIC, Federal Reserve call reports, Janas (2024), ICPSR, and authors' calculations.

deposit-rich to deposit-poor areas and thereby extend credit in places where capital had previously been scarce.

5.1 Deposit market access

5.1.1 Motivation and conceptual foundations

To understand how branching affected capital availability at the local level, we introduce a new measure of Deposit Market Access (DMA) that quantifies the pool of deposit funding effectively available to a given location. DMA measures the the potential access to credit in a location based not only on its own deposits, but also on the local banks' access to external funding. Crucially, we assume that there are no contractual frictions between branches of the same bank in investing

deposits while these frictions do exist between banks.

This concept builds on the market access approach widely used in trade and economic geography (e.g. Donaldson and Hornbeck (2016); Xu and Yang (2024)), in which access to a resource depends on its size and the frictions involved in reaching it. In our context, the resource is deposit funding, and the friction is shaped by the institutional structure of the banking system.

In branch banking networks, offices are assumed to provide credit and monitor loans to the same extent as the head office. As a result, all deposits in the network are effectively "local" from the borrower's perspective.[17] In contrast, unit banks must rely on interbank markets to obtain external funding. These transactions face standard contracting frictions—-arising from asymmetric information, collateral constraints, and enforcement risks—-which are exacerbated by geographic distance. Consequently, access to nonlocal deposits is more limited and more costly for unit banks.

5.1.2 Construction of DMA

We define Deposit Market Access (DMA) for each county i as the sum of population in other counties j, weighted by the frictional cost of accessing them. We use population as a more exogenous baseline measure of potential deposits than past deposits.[18] Access frictions vary depending on whether counties are part of the same branch banking network, whether the location is unbanked, and the geographic distance between them. Let N_j denote the total population of county j, and τ_{ij} the effective distance or trade cost between counties i and j. The parameter $\theta > 0$ captures the trade elasticity, determining how quickly access decays with distance. We let $\mathbb{I}_{\text{same network}_{ij}}$ be an indicator for whether counties i and j belong to the same branch network, and use $\mathbb{I}_{\text{banked}_i}$ to indicate whether county i has at least one bank. For counties without any banks, we define $k(i)$ as the nearest banked county to i.

The measure of DMA is then given by:

$$\text{DMA}_i = \begin{cases} \displaystyle\sum_{j \neq i} \left(\mathbb{I}_{\text{same network}_{ij}} \cdot N_j + (1 - \mathbb{I}_{\text{same network}_{ij}}) \cdot \frac{N_j}{\tau_{ij}^{\theta}} \right), & \text{if } \mathbb{I}_{\text{banked}_i} = 1 \\ \dfrac{1}{\tau_{ik(i)}^{\theta}} \cdot \text{DMA}_{k(i)}, & \text{if } \mathbb{I}_{\text{banked}_i} = 0 \end{cases} \tag{3}$$

This formulation captures three key features of the deposit access environment. For banked counties, DMA includes all deposits within the same branch network at full value, reflecting the lack of contractual frictions between bank branches in a network. For unbanked counties, DMA is

[17] For evidence that branch networks did this by the 1930s, see Quincy (2024).

[18] In the cross-section, however the correlation between DMA calculated using population versus deposits in 1937 is over 90%.

inherited from the nearest banked location, with an additional discount applied based on the cost of reaching that location. Finally, the trade cost parameter θ governs the strength of this friction: higher values of θ imply that deposit access declines more steeply with distance, reflecting tighter local segmentation of capital markets.

By incorporating both the geographic footprint of banks and the institutional frictions that shape access to external capital, DMA provides a transparent, theoretically grounded measure of financial capacity at the local level. We next use this measure to evaluate how branching reforms reshaped the geography of capital and to test whether increased DMA predicts subsequent local economic development.

5.1.3 Branching eligiblity and DMA growth

Before examining the overall patterns of DMA changes, we first validate that our measure captures meaningful variation driven by actual institutional changes. We test whether county-level branching eligibility, determined by the population and competition clauses embedded in state branching laws, predicts both branch establishment and subsequent DMA growth.

Table A.4 shows that applying the legal eligibility criteria from our codification of branching laws successfully predicts where branches were actually established, with entry concentrated in less-populated counties that met the statutory requirements.[19] In addition, Table A.5 shows that increases in county-level branch eligibility also directly predicts deposit market access growth, even when controlling for 1930 indicators of county development. This relationship is consistent with our prior evidence that the specific institutional changes from branching, rather than pre-existing economic trends or other confounding factors, created financial capacity.

5.1.4 DMA changes from branching reforms

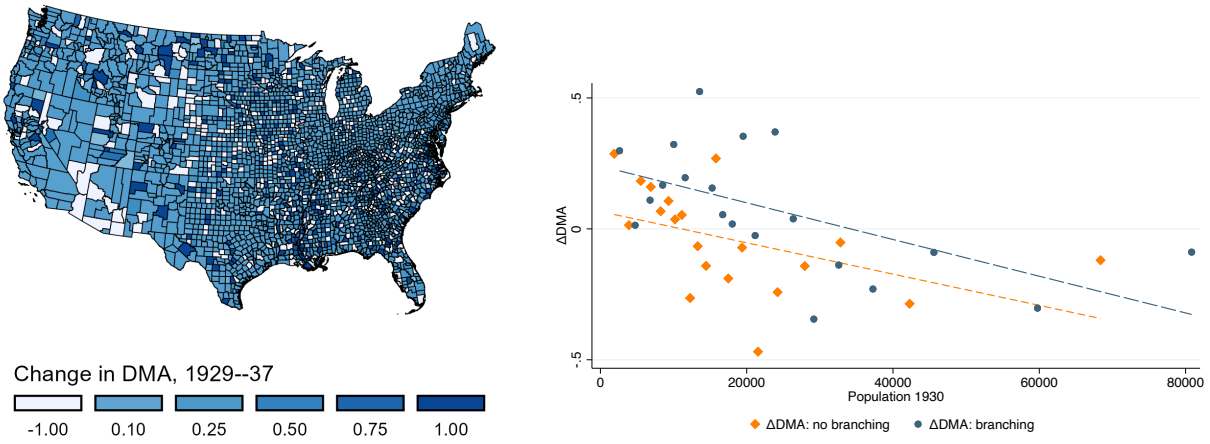
Having validated that branching eligibility induced changes in DMA, we now turn to examining the overall patterns of these changes. Figure 7a showcases the substantial geographic variation in DMA changes both across and within states. The largest changes in DMA are concentrated in the western United States, parts of the South, and selected northeastern areas, all of which were regions in which more states adopted branching laws during the 1930s. In addition, the changes are also not systematically concentrated in state capitals, consistent with broader overall financial access, especially in the periphery.

Figure 7b shows the relationship between DMA growth and county population size. First, the statistically significant downward sloping pattern indicates that the largest gains in deposit

[19] Note that branch entry was highest in less-populated counties deemed eligible for bank branching by the population and competition clauses in state branching laws.

market access occurred in smaller counties, which were precisely the locations most likely to have been constrained by thin local deposit markets. Second, it shows the important heterogeneity between branching (dark blue) and non-branching (orange) states. Counties in branching states experienced higher DMA growth at every point in the population distribution, indicating that the smaller counties in these states systematically benefited even more, consistent with our prior evidence from the county-border pairs of more deposits.

Figure 7: Changes in deposit market access, 1929–1937



(a) ΔDMA map

(b) Δ DMA by county size

Notes: Panel (a) shows the percentage change in Deposit Market Access (DMA) between 1929 and 1937 across U.S. counties. DMA is calculated using Equation (3) with $\theta = 1$ and population as the baseline measure of deposit potential. Darker blue indicates larger increases in DMA. Panel (b) presents binscatter plots of the relationship between DMA growth (1929–1937) and 1930 county population, separately for counties in branching states (dark blue) and non-branching states (orange). Branching states are those that introduced legalized cross-city branching during the 1930s. Lines show fitted values from linear regressions. Both panels exclude counties with missing population or banking data. Sources: State session laws, U.S. Census, FDIC, and authors' calculations.

Together, these patterns provide consistent evidence that branching laws systematically expanded financial capacity in previously underbanked areas by reducing frictions in accessing deposits from across banking networks. The concentration of DMA gains in smaller counties within branching states suggests that the geographic reallocation of capital from deposit-rich urban centers to capital-constrained rural areas may have been a central channel through which these reforms promoted broader economic development.

5.1.5 DMA and economic development

Our DMA analysis ddemonstrates that branching systematically expanded financial capacity in smaller counties, but a crucial question remains: did these improvements in deposit access translate into real economic development? Theory suggests that reducing financial frictions should boost productive investment, but the magnitude and persistence of these effects remain open empirical

questions.

To answer this question, we estimate a dynamic difference-in-differences specification that compares counties before and after reform to their changes in DMA. Unlike our border-pair analysis, this approach uses *all* county-level variation within states without branching in 1929. The regression specification is:

$$y_{ct} = \sum_{s \neq 1932} \beta_s \cdot \Delta\text{DMA}_c \times \mathbf{I}[t = s] + \alpha_c + \gamma_{st} + \eta \cdot X_{c,1930} \times \mathbf{I}_t + \varepsilon_{ct} \tag{4}$$

where y_{ct} is the log of manufacturing value-added per capita in county c at time t, and ΔDMA_c measures the change in deposit market access between 1929 and 1937 for county c. This specification uses variation in the intensity of DMA changes across counties, allowing us to test whether locations that experienced larger improvements in deposit access also saw greater subsequent economic development. We include county fixed effects α_c to control for time-invariant differences, state-by-year fixed effects γ_{st} to account for state-specific shocks, including broader changes to the economy's structure that may have arisen with the branching laws, and 1930 county characteristics $X_{c,1930}$ interacted with year fixed effects to control for differential trends based on initial conditions. In our baseline regression, we control for population in 1930. Standard errors are clustered at the state level.

The results from this event study specification, plotted in Figure 8, provide evidence that improved deposit market access during the 1930s translated into sustained real economic development. First, there are no significant pre-trends before 1937, supporting the parallel trends assumption underlying our identification strategy. Second, beginning immediately after most states had passed branching laws, counties that experienced larger DMA improvements by 1939 saw significantly higher manufacturing value-added per capita growth. Third, these effects grew over time and reaching approximately 15 percentage points by the 1980s for a one-unit increase in ΔDMA.

Figure 8: Dynamic Effects of Deposit Market Access on Manufacturing

Notes: This figure shows results from the dynamic difference-in-differences specification in Equation 4, where the dependent variable is log real manufacturing value-added per capita. The x-axis shows years, and the y-axis shows the estimated coefficients βs and 95% confidence intervals on the interaction between ΔDMA and year indicators, with 1932 normalized to zero. ΔDMA measures the change in Deposit Market Access between 1929 and 1937. The specification includes county fixed effects, state-by-year fixed effects, and 1930 county characteristics interacted with year fixed effects. The sample excludes early branching states that permitted cross-city branching before 1930. Standard errors are clustered at the state level.

5.1.6 Evidence of improved capital allocation

The sustained economic effects documented above raise the question of how exactly improved deposit access translated into higher manufacturing productivity. Data limitations preclude directly tracing capital flows to firm-level investment decisions, so instead we analyze how the geographic concentration of manufacturing changed within states that adopted branching laws.

Table A.6 shows that states introducing cross-city bank branching experienced reduced concentration in their manufacturing sectors during the 1930s, with production spreading to previously less-productive counties. Changes in geoographic dispersion were accompanied by increased output and value-added per establishment, particularly in areas without significant pre-1930s production. This combination suggests that branching enabled capital to reach underserved but productive locations rather than simply redistributing existing activity.

To understand the banking mechanisms behind these improvements in resource allocation, we now turn to direct evidence from bank and *branch-level* balance sheets, which show how branch networks moved capital across locations and translated these flows into local lending.

5.2 Branch networks and local lending

Bank branching facilitates deposit market access through multiple channels, including the potential use of internal capital markets to shift funds geographically. In this section, we analyze a unique dataset of bank and branch-level balance sheets to assess similarities and differences in the funding and lending behavior of branch networks and unit banks.

5.2.1 Bank-level differences in asset allocation

We begin our analysis by comparing the behavior of unit banks and branching banks in 1937 by regressing observable characteristics of bank balance sheets on an indicator of whether a bank has branches. Figure 9 shows that branch networks and unit banks are markedly similar in size per establishment and sources of funding. Differences are economically small and statistically insignificant in all of these observable characteristics.

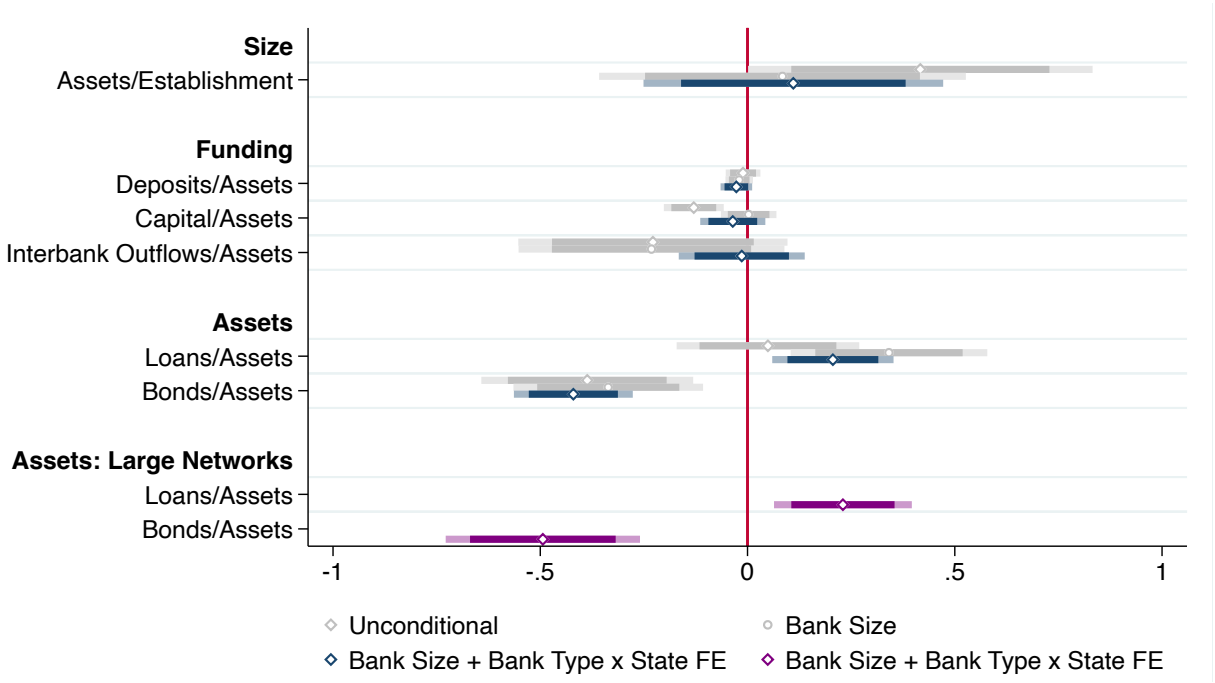
In contrast, holding fixed bank size, charter type, and state of operations, branch and unit banks differ significantly in the allocation of their assets, indicating that they have fundamentally different investment strategies. In particular, branch networks specialized in extending loans directly, with loan-to-asset ratios 0.25 standard deviations higher than unit banks. In contrast, unit banks held a larger share of their investments in nationally-traded securities (bonds and equities).

This divergence reflects the different informational and geographic constraints facing these two types of institutions. Lending requires substantial local information about borrowers' creditworthiness, prospects, and collateral values, all of which is costly to acquire and verify across geographic distances. Branch networks, with their local offices, have significant advantages in gathering this soft information and maintain ongoing relationships that reduce information asymmetries. Moreover, the physical presence of branch offices facilitates loan monitoring and collection, while the backing of a larger network provides the capital necessary to fund worthwhile local projects.

Unit banks are by definition constrained to operate within a single location and therefore face limitations in expanding their lending beyond their immediate geographic footprint. Though they may have detailed knowledge of their local market, they cannot easily extend credit to promising opportunities in other areas due to information and monitoring constraints. Lacking the geographic diversification of branch networks, unit banks instead channel their deposits toward nationally-traded securities that do not require local information gathering or monitor, and which provide geographic diversification that unit banks cannot achieve through direct lending.

These patterns remain robust when comparing unit banks to large branch networks, which are precisely the institutions most likely to have extensive lending opportunities across multiple locations. Large networks hold a half standard deviation lower share of their assets in national securities and a quarter standard deviation larger share in locally generated loans.

Figure 9: Unit and branching banks in 1937



Notes: Each point is a regression of a standardized balance sheet ratio on a branch bank indicator, and bars represent 95 and 99% confidence intervals. "Unconditional" does not include any bank controls. "Bank size" is a fixed effect for the quartile of bank size. "Bank type" refers to the bank's charter (national vs state), and "State" is the location of the bank's operations. "Assets/Establishment" is a measure of bank size normalized by the number of branches. "Large Networks" refer to banks with above-median number of branches. Sources: Federal reserve call reports: 1937 Federal Reserve Board (1937)

5.2.2 Branch-level capital flows and lending specialization

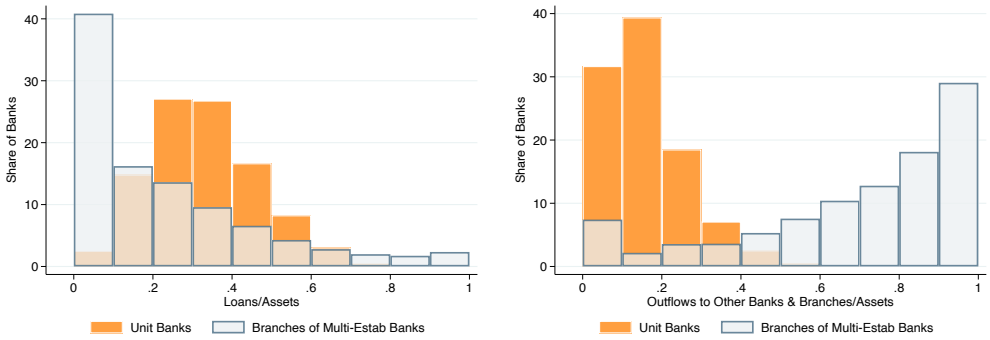
The bank-level analysis reveals that branch networks specialize more heavily in lending, but it cannot show how this specialization occurs within networks. Our branch-level data allow us to examine the internal capital flows that enable this lending focus and to test whether branch networks tend to reallocate funds from deposit-rich to lending-focused locations.

Disaggregating to the banking office level allows us to illuminate the mechanisms behind branch networks' lending specialization. First, we show in Figure 10a that branch offices exhibit a highly right-skewed distribution of loan-to-asset ratios, with many offices holding few loans while others concentrate lending activity. This pattern suggests that branch networks use internal transfers to specialize different offices for deposit-taking versus lending functions, a form of geographic specialization unavailable to unit banks.

Our office-level data provide a unique window into these internal capital flows. Unlike unit banks, which must rely on external interbank markets for fund transfers, branch networks can move capital internally between offices without contractual frictions. The data capture these internal transfers,

which net to zero at the bank level but reveal substantial reallocation across individual offices. Figure 10b shows that the skewed distribution of lending across branches is mirrored by a similarly skewed distribution of funding. Certain branches transmit relatively few deposits to the rest of the network but other branches are large senders of capital. This bimodal distribution across roles indicates that branch networks systematically separated offices into "funding" sources and "lending" centers, with some branches primarily collecting deposits and others focusing on loan origination.

Figure 10: Contrasting branch and unit office asset shares, 1937



(a) Loans/Assets (b) Bank Transfers/Assets

Notes: Branches' asset shares calculated using branch balance sheets while unit bank balance sheets are using bank-level balance sheets. All Federal Reserve member bank offices in 1937 included. For branches, bank transfers includes both bank transfers and intra-bank transfers while unit banks only use bank transfers. Sources: Federal Reserve Board (1937) and authors' calculations.

5.3 The direction of internal capital flows

The prior section shows that branch networks systematically reallocated funds across offices, and our empirical evidence from Sections 4.3 and 4.4 show that the real effects are systematically larger in smaller areas. These results are consistent with a capital mobility mechanism, but could reflect other institutional patterns. We now leverage our branch-level balance sheet data to provide direct evidence that the reallocation of capital was toward smaller, less-developed areas, which then issued more loans.

We test this hypothesis by examining how capital flows varied with branch office size within networks compared to similar unit banks. Using office-level balance sheet data, we estimate:

$$\mathrm{Y}_{ebs} = \sum \beta_{tercile} \mathbb{I}(e \in tercile) + \alpha_s + \Gamma' X_b + \varepsilon_{ebs} \tag{5}$$

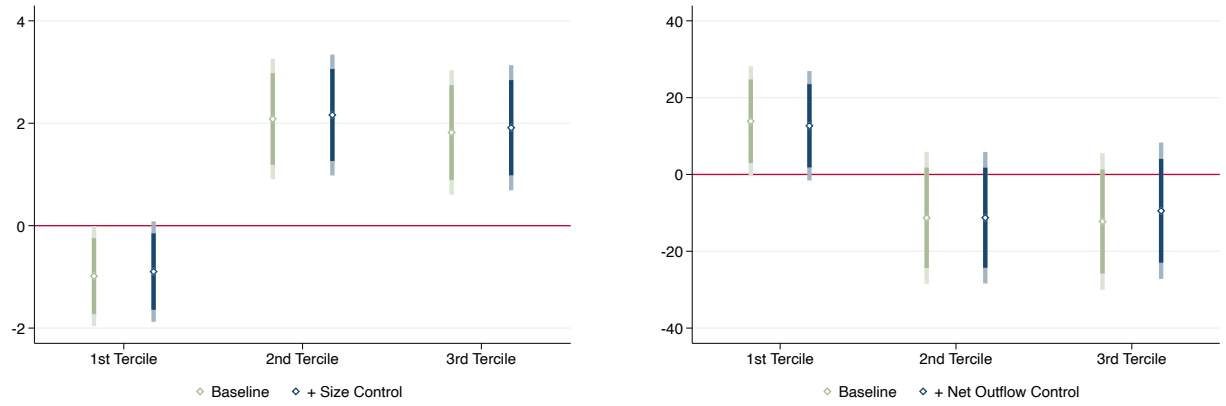
where $\beta_{tercile}$ coefficients show how branch portfolio allocation varies by office size within each network. We classify branches into terciles based on their deposit size and control for state-charter

type fixed effects and bank-level characteristics.

Figure 11a documents a clear pattern: the smallest branches (bottom tercile) had strongly negative net outflows, indicating they were net recipients of funds from elsewhere in their networks. Conversely, the largest branches (top terciles) show positive net outflows, meaning they transferred deposits to other offices. This pattern is economically large and statistically significant across all specifications.

These capital inflows also translated into dramatically higher lending at small branches. Figure 11b shows that small branches achieved loan-to-deposit ratios nearly 20 percentage points higher than comparable unit banks. This difference is offset by lower lending ratios at large branches. Together, these results demonstrate that branch networks did not simply mobilize capital randomly, but that they systematically channeled deposits toward smaller locations where it was converted into local lending. Branch networks' ability to internally redistribute funds from deposit-rich urban centers to capital-constrained smaller locations directly explains why shocks to banks' institutional form yield persistent local development effects.

Figure 11: Net capital flows and lending by banking office size



(a) Net capital outflows

(b) Loans/deposits

Notes: These two panels report results from estimating Equation 5 using either office-level net capital flows or loans/deposits as the outcome variable. Terciles defined by branch deposits within branch network. All regressions include fixed effects for unit bank status and state-charter type. Coefficients are β for each tercile, alongside 95% and 99% confidence intervals using state-clustered standard errors. Sources: Federal Reserve Board (1937) and authors' calculations.

6 Conclusion

This paper documents that a significant change in United States financial regulation occurred during the 1930s. Motivated by a desire to restore banking services in the wake of the Depression, many states permitted bank branching for the first time in their histories. However, skepticism

about large-scale finance meant that these branching laws often incentivized entry in smaller, less-developed areas and capped branch networks' sizes. The uneven access to bank branching granted by these laws lasted until the start of the interstate banking deregulations of the 1970s. They were quantitatively significant: by the 1970s, over 70% of bank offices belonged to a branch network.

National trends blur significant, long-lasting divergence from introducing bank branching. States that began bank branching in the aftermath of the Great Depression experienced faster recovery and persistently higher financial development in the subsequent decades. This one-time shock to financial access accelerated deposit and manufacturing growth which did not decline as national financial markets deregulated.

This path dependence in financial access reflects fundamental improvements in capital mobility within financial systems. Using banking office-level balance sheets, we demonstrate that branch networks systematically reallocated capital from large, deposit-rich locations to smaller offices where it was converted into local lending at dramatically higher rates than comparable unit banks could achieve. This internal capital reallocation, which was unavailable to geographically constrained unit banks, enabled branch networks to channel funds toward higher-return opportunities across space, creating persistent differences in local economic development.

Our results indicate that the uneven takeup of this form of institutional change generated lasting economic divergence across states. When financial institutions gain the ability to move capital more efficiently, they create path-dependent advantages that persist even after broader financial liberalization. This mechanism suggests that the timing and structure of financial reforms can have profound, long-lasting consequences for regional development patterns.

In an era of ongoing financial innovation and integration, understanding how institutional changes in capital mobility shape economic geography remains critical. The 1930s branching reforms offer a historical laboratory for these dynamics, demonstrating that such regulatory changes can fundamentally alter the spatial distribution of economic activity for generations.

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A Additional Tables and Figures

Table A.1: Branch Entry Clauses Over Time

Clause Type	1924	1929	1936
Prohibited	17	22	9
No law	12	7	5
A: Geographic			
Single city	4	6	4
Limited	4	4	13
Statewide	11	9	17
B: Competition			
Maximum network branches	2	3	5
Location bankless	0	1	18
C: Capital			
Branch minimum	9	11	20
Bank minimum	3	4	17
D: Population			
Minimum	2	6	12
Maximum	0	1	3
Memo: no restrictions	2	2	2
Memo: only geographic restrictions	1	2	1

Sources: Counsel of the Board of Governors (1925), Counsel of the Board of Governors (1930), Counsel of the Board of Governors (1936), and authors' calculations. From left to right, these columns represent the stock of laws as of December 31, 1924; December 31, 1929; and June 1, 1936. Only the first five rows are mutually exclusive within each year. Capital requirements here refer to the existence of branch-qualifying amounts, not those for unit bank entry. With the exception of Kentucky, states with no laws on branching tacitly prohibited them. No restrictions includes states which permitted statewide branching subject to no other restrictions while "only geographic restrictions" includes those states which allow either city or limited branching without other qualifiers.

Table A.2: Branch permissions' effect on 1930s household bank deposit usage

	(1)	(2)	(3)	(4)	(5)
	1(Bank Acct)		1(Savings Acct)	1(Checking Acct)	Net Δ deposits
A. Timing variation only					
Branching Introduced	0.368***	0.373***	0.230**	0.188**	322.053*
	(0.11)	(0.12)	(0.11)	(0.08)	(187.81)
N	430	430	430	430	430
B. Difference-in-difference					
Branching Introduced	0.377***	0.421***	0.254***	0.225***	365.144*
	(0.00)	(0.02)	(0.01)	(0.01)	(189.59)
Dep Var Mean	0.30	0.30	0.26	0.06	16.80
N	4,087	4,087	4,087	4,087	4,087
Individual controls	N	Y	Y	Y	Y

Sources: 1935–1936 Survey of Consumer Purchases, and authors' calculations. The treatment variable is an indicator for cross-city branching becoming legal during the household's interview year. Outcome variables in Columns 1–4 are 1 if a household reports increasing or decreasing their bank account holdings during the survey year, whereas Column 5 is the net increase in bank account holdings during the survey year. Panel A compares early versus late surveyed households in states introducing branching between 1935 and 1936 (Pennsylvania, Alabama, and Mississippi). Panel B also uses all survey responses but uses the same treatment definitions, permitting the inclusion of survey year fixed effects and state clusters. Controls refer to a quadratic in age, indicators for homeownership, reported race as white, living in a single family home, number of household members, household head employment status, and city size-state dyad fixed effects.

Table A.3: Branch legalization difference-in-difference effects on financial and economic development

	(1)	(2)	(3)	(4)	(5)	(6)
	Log deposits		Log mfg value-added per capita		Log mfg establishments per capita	
Branch x post	0.021	-0.129***	0.148***	0.072	0.080***	0.065**
	(0.04)	(0.04)	(0.05)	(0.06)	(0.02)	(0.03)
County below median		0.127**		-0.070		0.028
		(0.05)		(0.08)		(0.04)
Below median x branch		0.294***		0.244**		0.053
		(0.07)		(0.11)		(0.05)
N	48,302	48,302	19,752	19,752	26,720	26,720

Notes: Only counties in a border pair with a discontinuity in branching included. We estimate the difference-in-difference version of Equation 2 and then add in a third difference based on whether a county was below the 1929 sample median. Samples run from 1920 to 2000. Standard errors two-way clustered at the border pair and decade level. We use 1937 as the reference year for deposits and 1939 for manufacturing, which correspond to the last 1930s observation for each variable. Population linearly interpreted between censuses. We also control for border pair-year dyad and county fixed effects. Sources: State session laws, FDIC, Federal Reserve call reports, Janas (2024), ICPSR, and authors' calculations.

Table A.4: Predicting branch locations by 1937 with local branching eligibility

	(1)	(2)	(3)	(4)	(5)
Pop. share branching eligible	0.154***	0.142***		0.119**	0.091*
	(0.04)	(0.04)		(0.05)	(0.05)
Log 1930 population		-0.003	-0.003	-0.012*	-0.012*
		(0.01)	(0.01)	(0.01)	(0.01)
Log of 1937 deposits		0.020*	0.061***	0.010	0.028***
		(0.01)	(0.01)	(0.01)	(0.01)
1(Branch eligible)			0.217***		
			(0.05)		
1930 deposits under median					0.045**
					(0.02)
Pop elig share x under median					0.078*
					(0.04)
Constant	0.012**	-0.249	-0.828***	0.012	-0.154
	(0.01)	(0.15)	(0.18)	(0.08)	(0.09)
Dep Var Mean	0.08	0.08	0.14	0.06	0.06
N	2,054	2,052	2,052	1,640	1,640
Drop early branchers?	N	N	N	Y	Y

Notes: Branching eligibility defined by applying 1939 geographic, competition, and population based branching laws to each city, then aggregating to the county level. The share of deposits held by branches calculated using 1937 call reports is the outcome except in Column 3 which is an indicator for having any branch. Both branch eligibility and deposit indicators are 1 if the share is greater than 0. Standard errors are clustered by state. * p<0.1, ** p<0.05, *** p<0.01

Table A.5: Predicting 1929–37 deposit market access growth using local branching eligibility

	(1)	(2)	(3)	(4)
Pop. share branching eligible	0.110	0.196*		
	(0.08)	(0.10)		
1(Permit Branching in 1930s)			0.111	0.202**
			(0.08)	(0.10)
Log 1930 population		0.003		0.001
		(0.03)		(0.03)
Log 1930 deposits		-0.131***		-0.132***
		(0.03)		(0.03)
Constant	-0.050	0.910***	-0.055	0.909***
	(0.06)	(0.23)	(0.06)	(0.23)
Dep Var Mean	-0.01	-0.01	-0.01	-0.01
N	2,405	2,334	2,444	2,334
Drop early branchers?	N	Y	N	Y

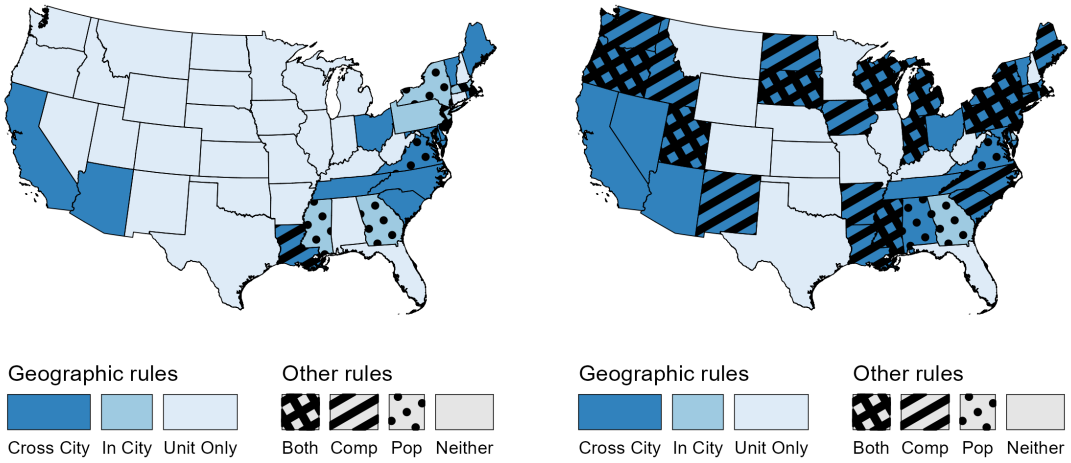
Notes: Branching eligibility defined by applying 1939 geographic, competition, and population based branching laws to each city, then aggregating to the county level. Deposits and population controls are as of 1930. Branch permission defined as introducing cross-city branching between 1930 and 1940; early branchers introduce it before 1930. Standard errors are clustered by state. * p<0.1, ** p<0.05, *** p<0.01

Table A.6: Branch deregulation and manufacturing convergence in the 1930s

	(1)	(2)	(3)	(4)	(5)	(6)
	%Δ SD est. per state		1929–39%Δ VA per est.		1929–39%Δ output per est.	
1(Branch)	-0.128*	0.000940	0.0712**		0.124***	
	(0.0666)	(0.0887)	(0.0340)		(0.0340)	
1929 SD		0.280				
		(0.227)				
1(Branch) x 1929 SD		-1.662**				
		(0.633)				
1929 VA per est				0.178***		
				(0.0420)		
1(Branch) x VA per est low				0.144*		
				(0.0757)		
1929 output per est						0.160***
						(0.0358)
1(Branch) x output per est low						0.214***
						(0.0669)
Constant	-0.139***	-0.157***	-0.0573***	-0.142***	-0.0550***	-0.125***
	(0.0287)	(0.0351)	(0.0200)	(0.0206)	(0.0200)	(0.0188)
Observations	48	48	824	824	869	869
Level	State	State	County	County	County	County
Fixed Effects	N	N	N	State	N	State

Notes: Branch indicator is 1 for states deregulating branching between 1933 and 1939. All states included in the first two columns, only counties in states not permitting branching by 1933 included in county regressions. Medians calculated within sample. Standard deviations calculated in each year based on share of state manufacturing establishments in each county. Standard errors are heteroskedasticity-robust due to the small number of clusters (24 in the final 4 columns). * p<0.1, ** p<0.05, *** p<0.01

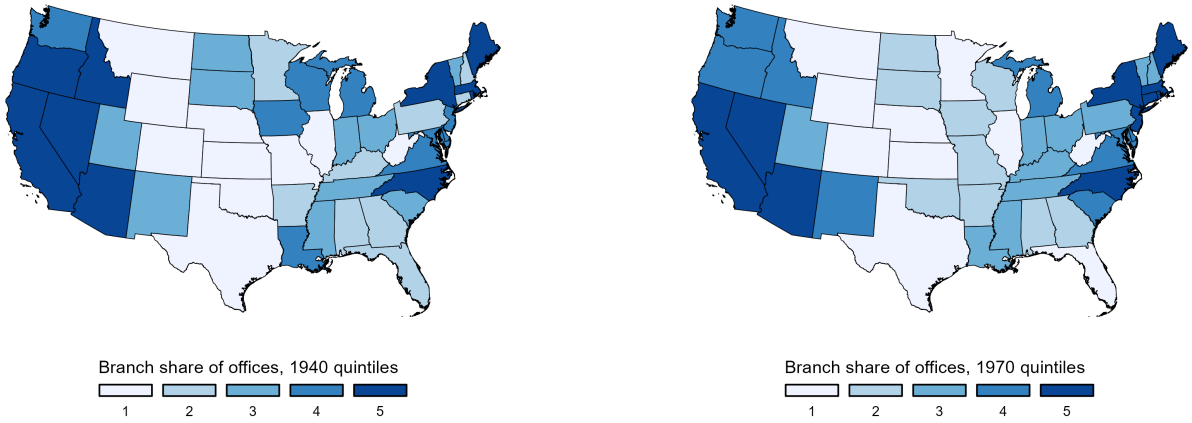
Figure A.1: Branch bank restrictions, 1929 and 1939



(a) 1929 (b) 1939

Notes: The depth of the color refers to states' geographic permissions. The different levels of geographic restrictions are overlaid with shading for population and competition requirements. Sources: State session laws and authors' calculations.

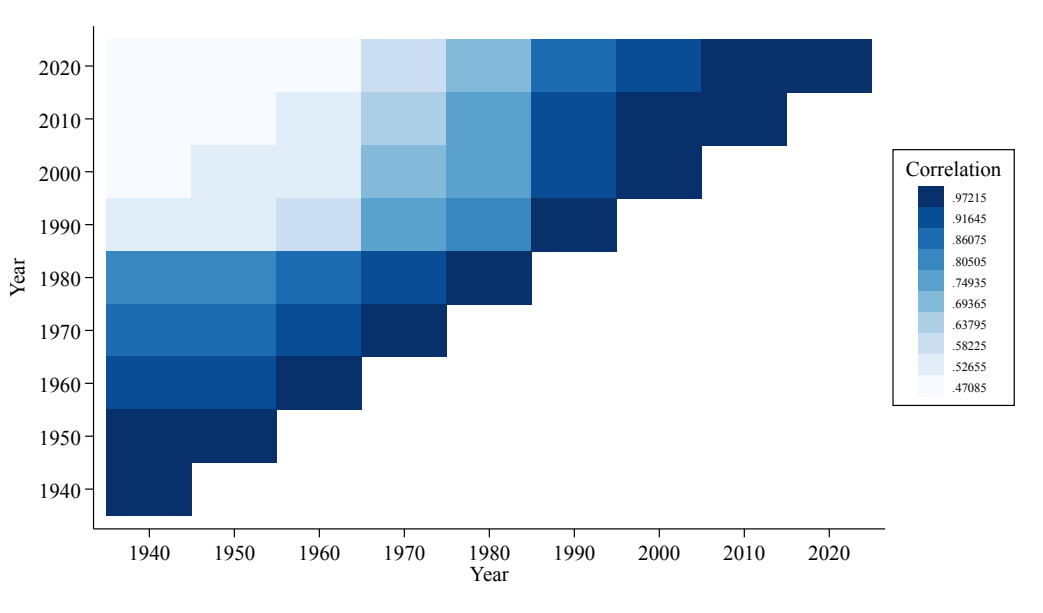
Figure A.2: Share of banking offices in branch networks



(a) 1940 (b) 1970

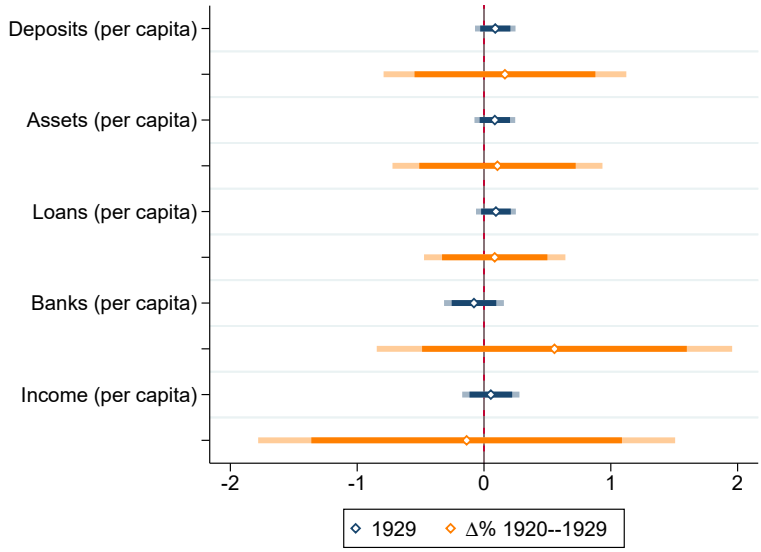
Notes: Shading refers to year-specific quintiles in the share of banking offices in a branch network in that state. Sources: FDIC BankFind, and authors' calculations.

Figure A.3: Pairwise correlations in states' branch office share over time



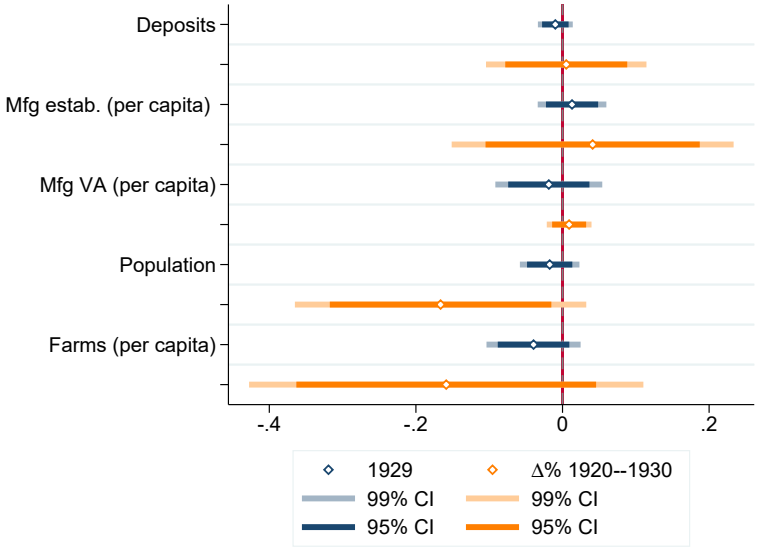
Sources: FDIC, and authors' calculations. Each square is a correlation between states' branch office share quintile in the years corresponding to the row and column. All correlations are statistically significant.

Figure A.4: State Characteristics Balance on Branch Legalization



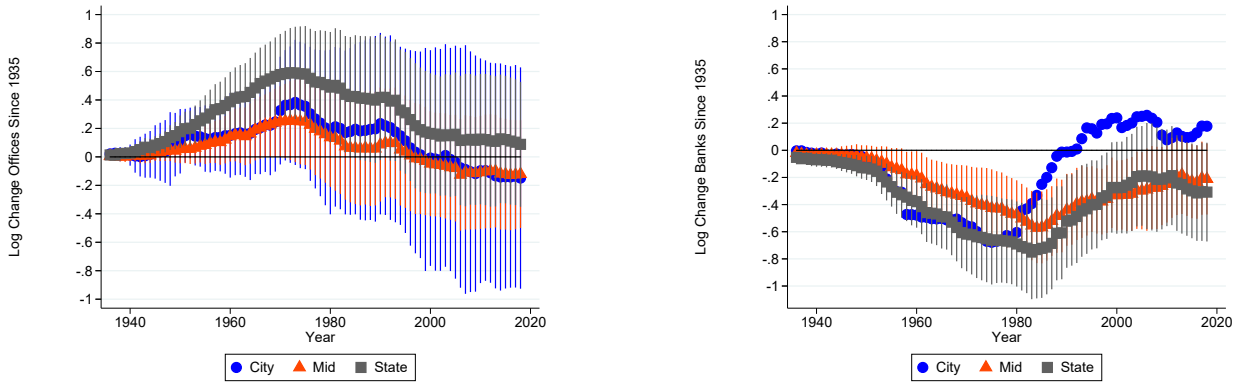
Sources: Bank data–Flood (1991), population–FRED, per capita personal income–FRED (1929) and Easterlin (1960) (1920) . Each row is the result of a regression on state-level outcomes on an indicator for deregulating branching during the 1930s, omitting states allowing cross-city branching before 1929 , along with 95 and 99% confidence intervals. Standard errors are robust.

Figure A.5: County Characteristics Balance on Branch Introduction



Sources: ICPSR and state session laws. Each row is the result of a regression on county-level outcomes on an indicator for introducing cross-city branching during the 1930s with county border pair fixed effects, omitting states allowing cross-city branching before 1929, along with 95 and 99% confidence intervals. Standard errors are clustered at the county border pair level.

Figure A.6: Long Run Banking Development and Geographic Deregulation

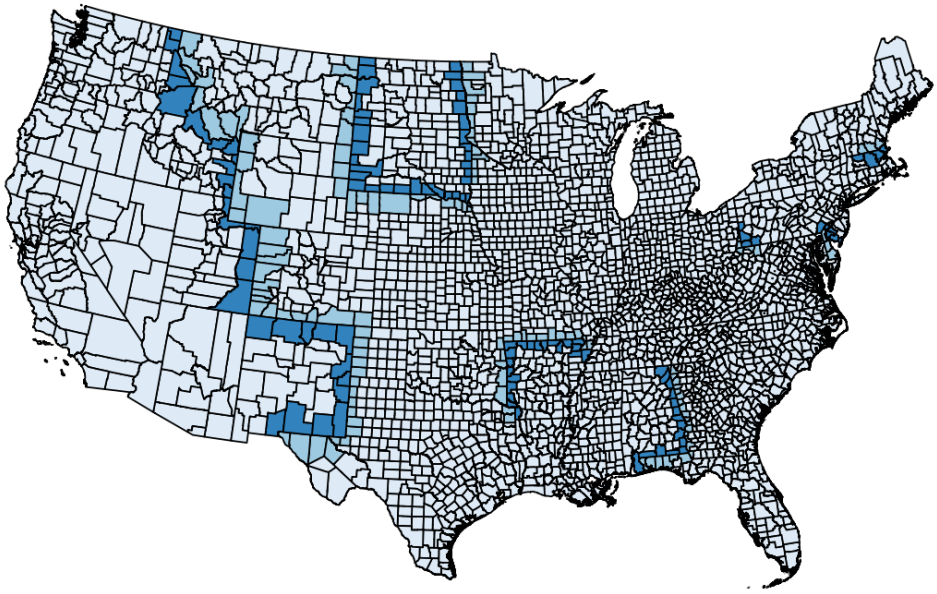


(a) Banking Offices

(b) Banks

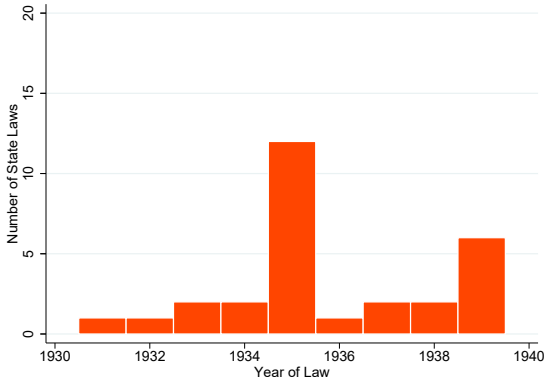
Sources: State session laws, FDIC, and authors' calculations. Each point is the result of a separate regression of the log change in the outcome relative to 1935 on 1939 branch geography legality, controlling for region fixed effects. City standard errors omitted because no coefficient was significant at conventional levels.

Figure A.7: County border pair sample map

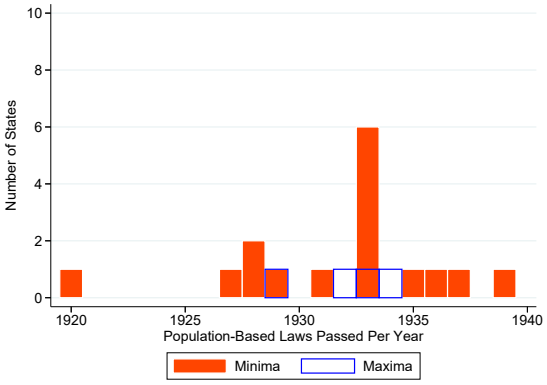


This map displays the counties which are on a state border where state branching laws change between contiguous states as of 1939. All states permitting cross-city branching in 1929 are dropped from the sample, as are state borders without a change in branching policy at the state line. Dark blue shaded states permit cross-city branching, light blue states permit only city-wide branching, and gray shaded states do not permit branching.

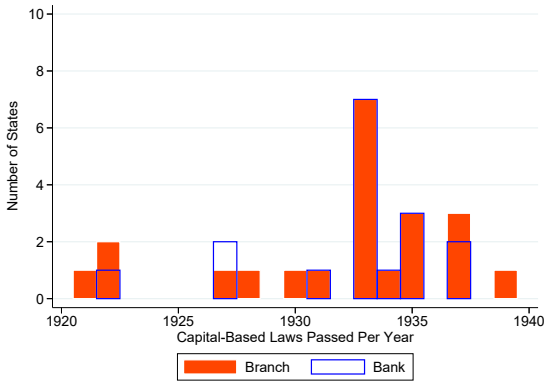
Figure A.8: Types of State Bank Regulation Passed, 1920–1940



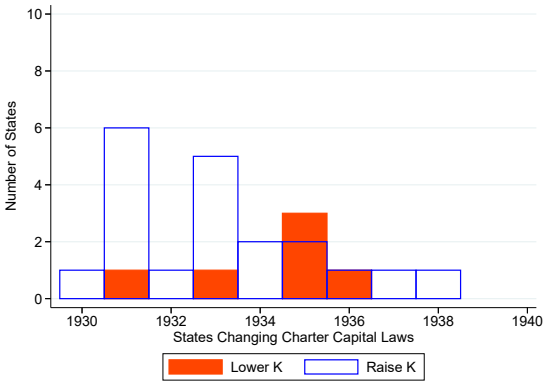
(a) Competition



(b) Population



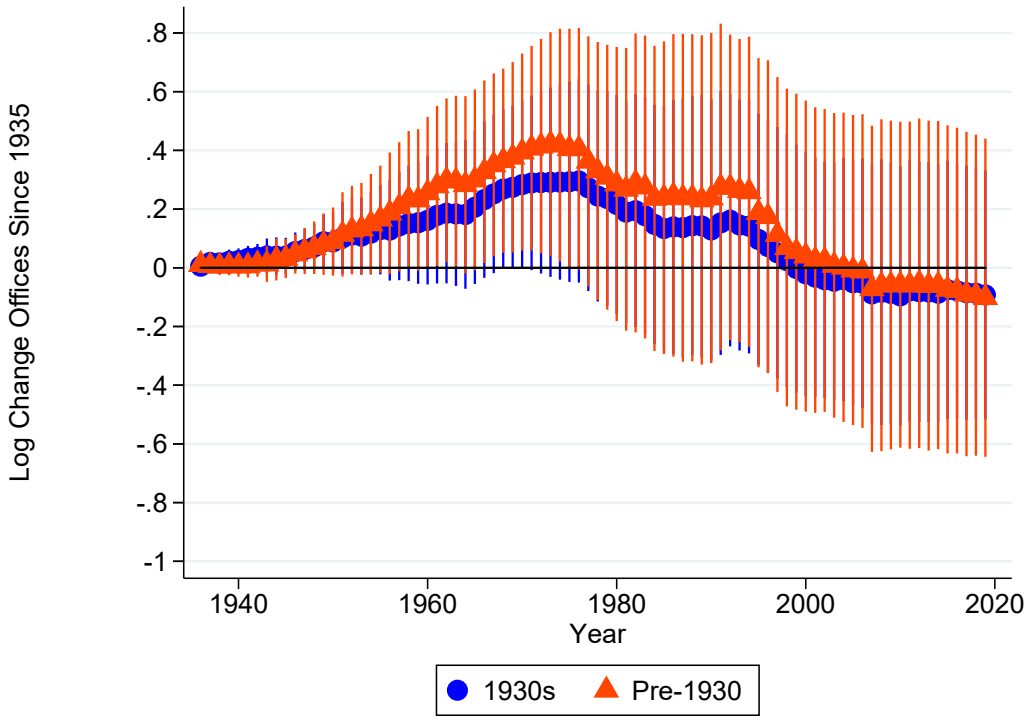
(c) Branching Capital



(d) Unit Bank Capital

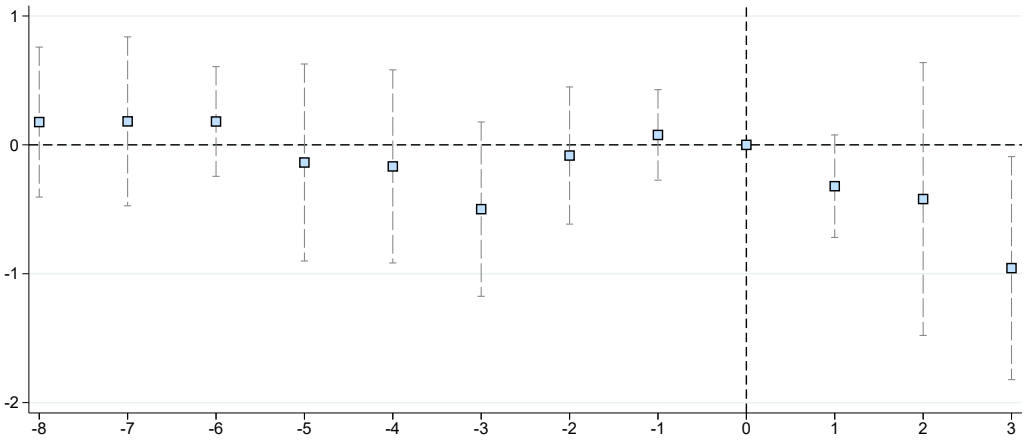
Sources: State session laws and authors' calculations.

Figure A.9: Long Run Banking Development by Timing of Branching Permissions



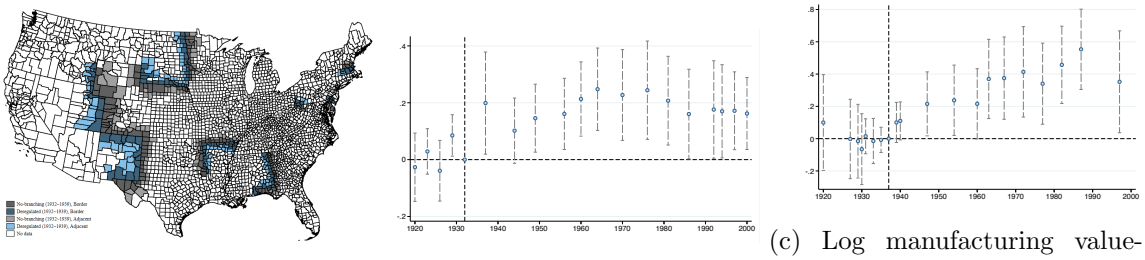
Sources: State session laws, FDIC, and authors' calculations. Each point is the result of a separate regression of the log change in the outcome relative to 1935 on 1939 branch legality, (separately for pre-1930 and 1930s first deregulation) controlling for region fixed effects.

Figure A.10: Regional interest rate differential trends based on branch legalization



Sources: State session laws, OCC annual reports, and authors' calculations. We construct reserve city and non-reserve city interest rates for each state in each year using loan expenses divided total expenses reported by national banks. We then take the difference between reserve city and non-reserve city interest rates. Our specification estimates the change in this interest rate gap relative to the passage of branch permissions using local projections (allowing us to include state and year fixed effects). We plot the coefficient with 90% confidence intervals.

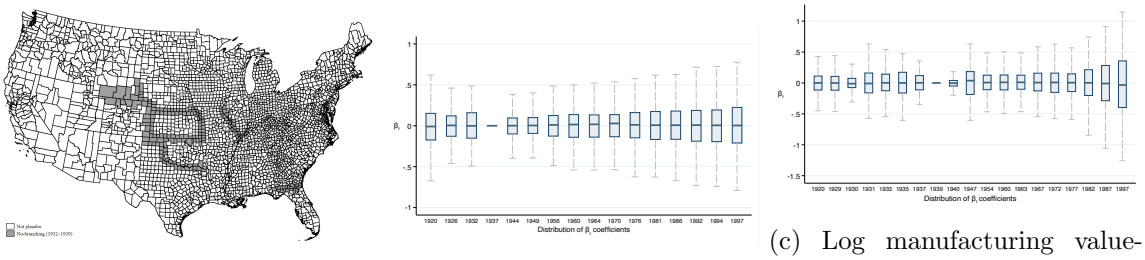
Figure A.11: County border pair robustness: adjacent counties



(a) Included counties (b) Log deposits (c) Log manufacturing value-added per capita

Sources: State session laws, FDIC, Federal Reserve call reports, ICPSR, and authors' calculations. Each point is the β coefficient for 1930s Deregulation interacted with that year with 95 percent confidence intervals, defined using standard errors two-way clustered at the border pair and decade level. This specification uses counties which are adjacent to our border pair sample but not on the state border.

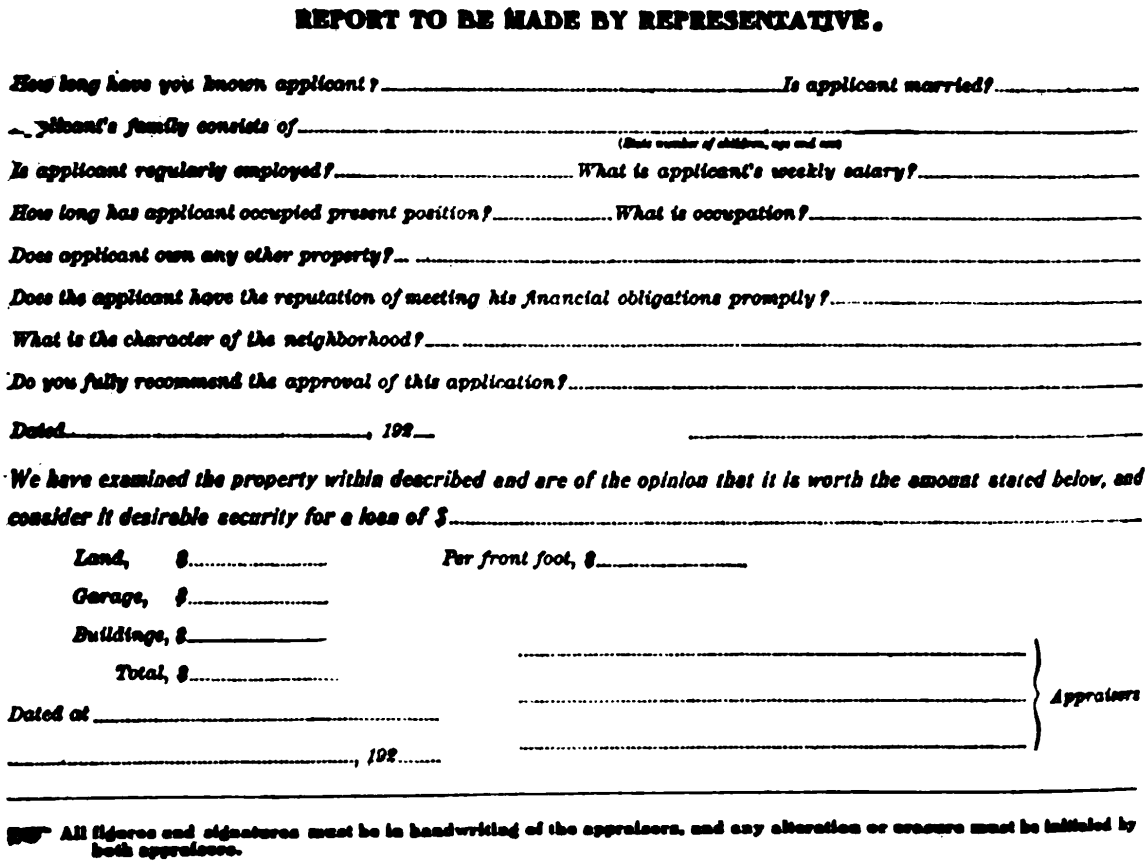
Figure A.12: County border pair robustness: simulated border pairs



(a) Included counties (b) Log deposits (c) Log manufacturing value-added per capita

Sources: State session laws, FDIC, Federal Reserve call reports, ICPSR, and authors' calculations. Each point is the β coefficient for 1930s Deregulation interacted with that year with 95 percent confidence intervals, defined using standard errors two-way clustered at the border pair and decade level.

Figure A.13: Sample 1920s loan application



REPORT TO BE MADE BY REPRESENTATIVE.

How long have you known applicant? _____ Is applicant married? _____

_____pplicant's family consists of _____
(State number of children, age and sex)

Is applicant regularly employed? _____ What is applicant's weekly salary? _____

How long has applicant occupied present position? _____ What is occupation? _____

Does applicant own any other property? _____

Does the applicant have the reputation of meeting his financial obligations promptly? _____

What is the character of the neighborhood? _____

Do you fully recommend the approval of this application? _____

Dated _____, 192__ _____

We have examined the property within described and are of the opinion that it is worth the amount stated below, and consider it desirable security for a loan of $ _____

Land, $ _____ Per front foot, $ _____

Garage, $ _____

Buildings, $ _____

Total, $ _____

Dated at _____ _____ } Appraisers

_____, 192____ _____

☞ All figures and signatures must be in handwriting of the appraisers, and any alteration or erasure must be initialed by both appraisers.

Source: Sample bank real estate loan from North et al. (1928).

B Constructing the legal database

B.1 Data sources

We collect and standardize bank branching regulations from 1910 to 1994 based on the laws passed by each state legislature over that time frame. This allows us to identify the flow of conditions governing bank branching from the National Banking Era to the modern branch deregulation. We start with 11 collections of state laws put together by federal bank regulators and lawyers spanning 1910 to 1993. The first, Welldon (1910), lists a range of bank legal conditions in force in 1910. We take this as our starting point. Then, we check branching laws in a series of Federal Reserve Board (various years) articles (1924, 1930, 1932, 1936, 1939, 1959) and research publication (Federal Reserve System, 1931), which list the stock of current laws. After 1959, we use a series of law review articles (Gup, 1971; Hablutzel, 1977) and the post-1960 legal compilation conducted by Amel (1993) to trace out the geographic constraints governing bank branching (defined below).

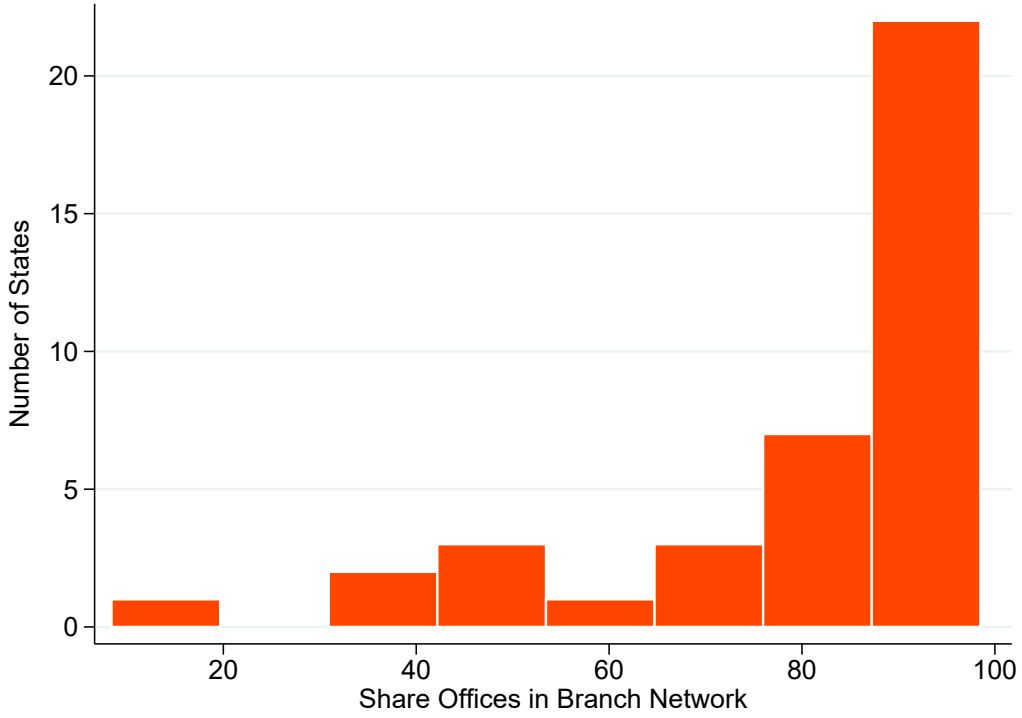
If there are any changes in law content between cross-sections, we manually search the flow of state laws, searching forward from the first cross-section of laws to the next to find each law change using the State Session Laws database on HeinOnline.[20] Keyword searches permit us to identify each law that mentions branching for each state over this time period for further review. We manually review each law to check whether it altered the conditions under which branch banking could occur.

This process yields a comprehensive list of branching laws for each state. These laws typically trace out the legal evolution of bank branching from total prohibition to modern *de novo* branching that is not conditional on any other requirements does not require any other pre-requisites. While previous research has typically focused on the final stage of deregulation (unrestricted *de novo* branching) as defined by Amel (1993), our approach differs in two important ways. First, we trace the entire legal evolution of bank branching, from total prohibition through various conditional stages to eventual full liberalization. Second, we examine a much longer time span than previous studies.

This broader approach is necessary because by the time states reached their final deregulation date as documented in Amel (1993), most already had extensive branch networks. Figure B.1 plots the branch share of banking offices in each state the year before their final *de novo* deregulation; over half of states had branch shares over 90% at that time. Therefore, we focus on understanding how branch expansion occurred under earlier, more restricted regulatory regimes, which captures the periods of most branching development in most states.

[20] This database contains high-quality text from every law passed by every state legislature at every meeting over our period.

Figure B.1: The branch share of banking offices in each state the year prior to their final branch deregulation

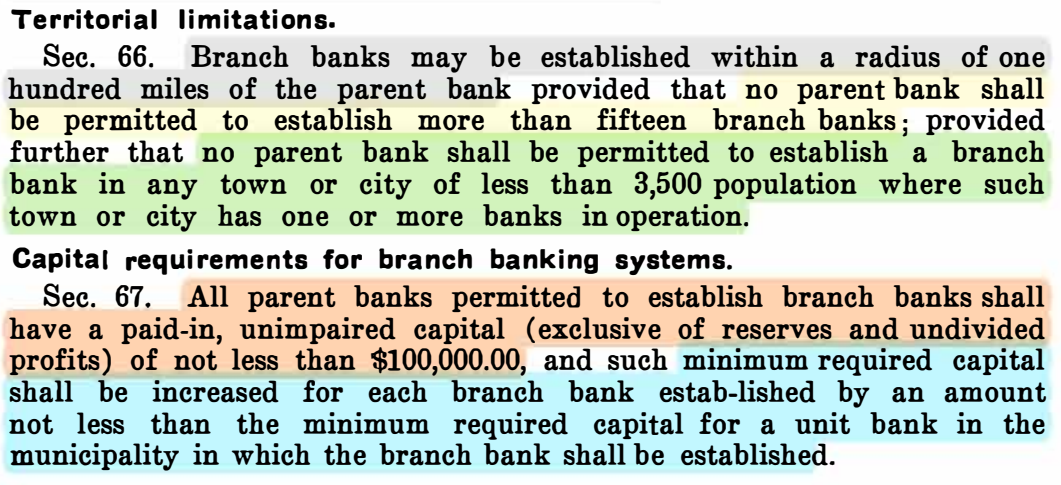


Sources: FDIC BankFind and Amel (1993). We calculate the share of banking offices in each state which are part of branch networks in the year prior to the intrastate full service branch deregulation from Jayaratne and Strahan (1996b) sourced from Amel (1993) or the passage of the Riegle-Neal Act in 1994. This omits 11 states which permitted unrestricted intrastate branching before 1960 (AK, AZ, CA, DE, ID, MD, NV, NC, RI, SC, SD) and therefore are omitted from Amel (1993).

B.2 Definitions

We next categorize the branching laws in our database based on the conditions they impose on branch expansion. Because our focus is on geographical differences in branch access, we emphasize the *de jure* rules that govern where branches could be located. This approach deliberately sets aside changes in discretionary charter issuance, as we can directly observe those changes by tracking actual bank and branch openings. After reviewing the legal digests described above, we identify four main categories of regulatory conditions in our corpus of state session laws: (1) geographic rules, (2) population restrictions, (3) competition requirements, and (4) capital requirements. While in some instances these conditions operated independently, they were more often interdependent. Therefore, we examine each law for all four categories of conditions, documenting each instance in which a law either modified a previously enacted rule or established a new one. Figure B.2 illustrates this interdependence with an example from Mississippi, which shows how multiple entry conditions jointly regulated branch establishment for both state and national banks.

Figure B.2: Sample bank branching regulation



Territorial limitations.

Sec. 66. Branch banks may be established within a radius of one hundred miles of the parent bank provided that no parent bank shall be permitted to establish more than fifteen branch banks; provided further that no parent bank shall be permitted to establish a branch bank in any town or city of less than 3,500 population where such town or city has one or more banks in operation.

Capital requirements for branch banking systems.

Sec. 67. All parent banks permitted to establish branch banks shall have a paid-in, unimpaired capital (exclusive of reserves and undivided profits) of not less than $100,000.00, and such minimum required capital shall be increased for each branch bank estab-lished by an amount not less than the minimum required capital for a unit bank in the municipality in which the branch bank shall be established.

Sources: Mississippi Session Laws 1934, ch.134. These laws apply to all banks except capital for Federal Reserve member banks (which was higher). Each color corresponds to a different clause governing bank branching. The top section is an exemption to the other two sections' conditions in case of a banking emergency.

Geographic rules: Geographic rules limited the area in which banks could branch. These proscriptions ranged from within-city branching to state-wide branching (i.e., no restriction). We group together all laws permitting cross-city branching in our analysis, so changes in geographic rules occur if states switched between the following regimes: unit banking only, within-city branching only, and cross-city branching. We treat a lack of any branching law as a unit banking state because, as in the Glass-Steagall Act (see Figure B.3), a lack of explicit branching permission prohibited creating new branches.

Population restrictions: Regulators used city population thresholds to govern the possibility of bank branching at a more disaggregated level than geographic restrictions alone. By restricting branch operation to larger cities ("population minima"), regulators limited the potential for branch banks to dominate rural banking markets. For the most part, the direct population thresholds set a minimum city size for branches (e.g. the 3,500 person number in Figure B.2) but there were exceptions. Georgia, for example, also set population maximum rules for branch entry.

Competition requirements: Many early branch banking laws sought to restrict branch network networks to locations where no other banks operated. These "bankless town" clauses restricted branch expansion to *de novo* branching only in places lacking any banking office, or they explicitly limited the ability to expand branch services through a merger with unit banks. For example, Idaho's 1935 banking act legalized branching in 3 specific scenarios tied to local competition: the expanding bank could merge with an existing unit bank in existence for five years, open a *de novo* branch with unanimous consent from existing bankers in a town, or open a *de novo* branch in a town currently without any banking offices (Counsel of the Board of Governors, 1936). The

bankless town provisions were often the only exception allowed in branching regulations because they addressed a unique situation: by definition, a city without banks could not be merged into a network, so only de novo branching could serve these communities. This explains why locations without any banks frequently received special treatment in branching laws, as demonstrated in section 66 of the Mississippi regulations (Figure B.2).

Alternatively, lawmakers placed a cap on the number of branches a network could operate ("maximum branches"), as in Figure B.2. We refer to these two types of clauses as competition clauses because they limited branch networks' ability to affect other banks.

Note that we do not include in this definition the oft-nebulously worded "public convenience" criterion due to its uneven application by branch banking regulatory regimes over time.

Capital requirements: Bank capital governed branch entry in two distinct ways. First, regulators established minimum capital thresholds that banks needed to meet before they could begin branching. The Glass-Steagall Act, for example, used state population figures to determine the minimum required capital for any bank operating branches (see Figure B.3). State regulators employed similar requirements to ensure that only larger banks could operate multiple branches. Federal Reserve member banks were required to comply with whichever capital requirement was more stringent—federal or state.

In addition to branch-specific capital rules, we also trace minimum capital requirements for all state banks over time using the same iterative state session law process. Most states established a floor on the charter capital banks needed to open. In many cases, similar to national banks, these requirements increased at specific population thresholds. We collected these general capital requirements across the entire city size distribution in each state from 1910 to 1940 to ensure we could distinguish between changes affecting branch bank entry versus unit bank entry in our results.

Comparative regulatory context: To place bank branching regulation in a broader context, we also examine whether non-financial chain store laws changed during the 1929-1940 period using Library of Congress-authored legal digests first digitized by Quincy and Xu (2024). By comparing branch deregulation to changes in chain store taxation and expansion conditions, we can demonstrate that our results are specific to bank branch deregulation rather than reflecting overall pro-corporate regulatory attitudes.

Figure B.3: Branching provisions in the Banking Act of 1933

SEC. 23. Paragraph (c) of section 5155 of the Revised Statutes, as amended (U.S.C., title 12, sec. 36), is amended to read as follows:

"(c) A national banking association may, with the approval of the Comptroller of the Currency, establish and operate new branches: (1) Within the limits of the city, town or village in which said association is situated, if such establishment and operation are at the time expressly authorized to State banks by the law of the State in question; and (2) at any point within the State in which said association is situated, if such establishment and operation are at the time authorized to State banks by the statute law of the State in question by language specifically granting such authority affirmatively and not merely by implication or recognition, and subject to the restrictions as to location imposed by the law of the State on State banks. No such association shall establish a branch outside of the city, town, or village in which it is situated unless it has a paid-in and unimpaired capital stock of not less than $500,000: *Provided*, That in States with a population of less than one million, and which have no cities located therein with a population exceeding one hundred thousand, the capital shall be not less than $250,000: *Provided*, That in States with a population of less than one-half million, and which have no cities located therein with a population exceeding fifty thousand, the capital shall not be less than $100,000."

Paragraph (d) of section 5155 of the Revised Statutes, as amended (U.S.C., title 12, sec. 36), is amended to read as follows:

"(d) The aggregate capital of every national banking association and its branches shall at no time be less than the aggregate minimum capital required by law for the establishment of an equal number of national banking associations situated in the various places where such association and its branches are situated."

Note: This is Section 23 of the Banking Act of 1933, better known as the Glass-Steagall Act. This section permits each state to set the minimum conditions required for bank branching by both state and nationally chartered banks, overturning the rules set out by the McFadden Act of 1927. The text of the entire law can be found here.

C Branch and bank balance sheets

Once Congress passed the Glass-Steagall Act, the Federal Reserve began collecting statements of condition for national bank *branches* at the same frequency as their bank-level call reports. They also began tracking *state* member bank *branch* balance sheets after the FDIC requested help tracking the phenomenon in 1937.[21] This level of detail on branch-level operations is not available in modern banking data, which make these data unique in the history of U.S. banking.

After 1937, there was inconsistency in the preservation of branch-level data for state and national

[21] See this 1937 Federal Reserve memo on its decision to ask state member banks for these records.

banks. Branch-level data for national banks was only preserved through 1938, while state member banks' branch balance sheets became significantly less detailed in later years.[22] As a result, there is only one regulatory call date for which both state and national member banks have extant branch-level reports of condition in comparable detail: 1937.

The Federal Reserve's branch-level records of condition document each branch's location, the name of its parent bank network, and separately reported its assets and liabilities. Since most bank branches maintained records of liabilities and loans originated at each office, completing these branch-level statements was straightforward (Chapman and Westerfield, 1942).

Branch-level and bank-level balance sheets were very similar in many ways. Most of the branch-level balance sheet categories correspond directly to items reported at the bank level. For example, branches separately report their time certificates of deposits and savings accounts (corresponding to items 1(a) and 2 on Schedule K of the bank-level call report), but these reflected funds collected specifically at that location. Other categories were more aggregated at the branch level, such as Christmas accounts (item 1(c) on Schedule K) and postal savings (item 3 on Schedule K), which were combined into a single "other time deposits" category. Table C.1 provides a detailed crosswalk between branch and bank-level reporting categories.

There are three major departures between the two sets of balance sheets. The first is that branches did not include capital, so assets equal deposits plus miscellaneous liabilities (for instance interest collected but not earned). Similarly, branches typically did not maintain their own account with the Federal Reserve, so that category, along with other headquarters-specific duties like security purchases, were not frequently reported at the branch level. We note that bank branches *did* conduct interbank payments, which is reflected in the "due from (to) other bank" categories, defined as the gross volume of each office's assets (liabilities) currently involved in interbank transactions. We refer to these cross-bank transfers, visible for both branches and unit banks, as "external capital markets" because they moved funds between firms.

The third and most unusual category on the branch balance sheet is an item that cannot exist on a unit bank balance sheet. That is the "from (to) rest of network" categories, defined as the net volume of each office's assets (liabilities) currently involved in *intra*bank transactions. Unlike interbank transactions, these must sum to zero for each branch because it either is a net donor or receiver of funds from its fellow branches. For example, assume a bank moves \$10 from Branch A to Branch B. Branch A is lending its deposits elsewhere in the network, so it would report having \$10 of funds due from the the rest of the network as an asset and zero funds due to the rest of the network. Branch B would have the opposite, as it lent zero funds to Branch A but owes \$10 to Branch A, yielding \$0 in the funds due from the the rest of the network asset category but \$10

[22] The lack of branch data for national banks after 1938 is consistent with the declining number of reels held for these records, alongside an increase in frequency of calls in FRASER, see this summary.

in the funds due to the the rest of the network category. When summing over the entire network, these "internal capital markets" will sum to zero as well. Bank branches typically tracked these transfers alongside their interbank accounts per FDIC deposit assessment guidelines (Langston, 1940). Because these transfers total to zero across an entire network and are unavailable to unit banks, they also keep individual branch balance sheets from being directly equivalent to bank-level categories.

Table C.1: Conversion between branch and bank call report categories

Branch category	Bank equivalent
Loans on real estate	Schedule E item 6
All other loans including rediscounts	Total loans minus the other two categories
Overdrafts	Summary line 2
Total loans	Summary line 1
US government and other securities owned	Summary line 3 plus 4
Banking house	Summary line 6-1
Furniture and fixtures	Summary line 6-2
Total house furniture fixtures	Summary line 6
Cash	Schedule I line 6
Checks and other cash items	Summary line 10, summary line 11
Due from head office or other branches	NA
Due from other banks including exchanges for clearing house	Summary line 9 less Schedule I item 6 (cash)
Other assets	Could be securities borrowed (line 12), other real estate owned (line 7), reserve with Federal Reserve bank (line 8)
Total assets	Total assets*
Checks and letters of credit outstanding	Schedule J item 7 ("transit account")
Total demand deposits except bank deposits	sum below
Individual demand deposits	Schedule J item 1
Certificates of deposit–demand	Schedule J item 1
State, county, and municipal demand deposits	Schedule J item 3
Other demand deposits excluding US	Schedule J item 5
Total time deposits including postal savings	sum below
State, county, and municipal time deposits	Schedule K item 4
Total savings pass book accounts	Schedule K item 2-1
Total savings pass book time deposits	Schedule K item 2-2
All other time deposits, including postal savings	Schedule 1a, 1b, 3 of Schedule K
Due to head office, or to other branches	NA
Due to other banks	Schedule J item 4-6 plus Schedule K Items 5-7
US deposits other than postal savings	Schedule J item 2
Total deposits	Summary line 18c
Other liabilities	Could be summary lines 19-30
Total liabilities	Total liabilities, less capital account*