Branching Out: Bank Deregulation and Long-Run Growth*

Sarah Quincy† and Chenzi Xu‡

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Abstract

We show how banks can improve capital mobility and affect economic growth by studying a major but overlooked wave of bank deregulation in the United States. In the aftermath of the Great Depression, half of US states meaningfully relaxed restrictions on bank branching for the first time. These legal regimes remained largely unchanged until the interstate branching deregulations of the 1970s, by which point over 70% of banking offices were already part of branch networks. We show that these early regulatory changes had persistent real effects: states that deregulated first experienced significantly higher deposit growth and real manufacturing value added growth through the 1990s. Using a novel dataset of branch-level balance sheets, we show that these effects stem from branch networks' internal capital markets allocating resources to less financially developed areas.

Key words: Bank regulation, Bank branching, Great Depression, Financial development, Economic growth

JEL Classifications: G21, G28, N22, O16, R11

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

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

1 Introduction

The rise of branch banking transformed the American financial landscape during the twentieth century. While scholars have extensively studied the impact of the interstate banking deregulation in the 1970s and 1980s, we document for the first time that in fact, by 1970, more than 70% of U.S. banking offices were already part of branch networks (Figure 1a). This first, and largely overlooked, wave occurred during the Great Depression, when states meaningfully relaxed limitations on bank branching in response to the financial crisis. This reform reshaped banking: the share of bank offices in branch networks more than doubled from 1930 to 1940. We study this historical setting to ask a fundamental question: what are the real effects of expanding banks' access to geographically distinct markets?

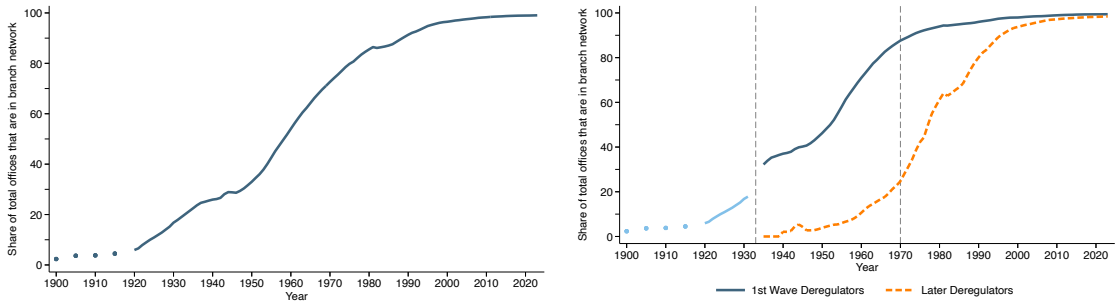
The real economic implications of this shift from unit to branch banking are theoretically ambiguous. Both business models rely on matching funding sources with lending opportunities. The key difference lies in how they access capital: unit banks must rely exclusively on external capital markets, either drawing from their local economy or the broader banking system, while branch banks can additionally leverage internal capital markets through their network of branches. From the perspective of a local economy, both unit and branch banks should, in principle, be capable of directing capital to profitable ventures — unit banks through their connections to external funding sources, and branch banks through their internal networks. Whether internal capital markets have economically significant advantages in the allocation of capital remains an empirical question central to models of financial intermediation.

The post-Great Depression deregulations in the United States provide a unique opportunity to answer this question. While most other advanced economies experienced significant consolidation in their banking sectors in the 19th century, the U.S. was notably late to this transition. This delay in branching deregulation enables us to study the impacts of geographic expansion during the modern era, when many of the informational frictions traditionally associated with banking were much lower and economic development was more comparable. Moreover, the nature of 1930s deregulation was distinct from later reforms: while the second wave of the 1970s fundamentally transformed bank competition by enabling the formation of large banking organizations that could exploit economies of scale and scope, the 1930s reforms were designed to create small branch networks that operated under significant restrictions. Depression-era branch banks remained remarkably similar to their unit bank counterparts in terms of their overall business model and balance sheet composition. This unique feature of the first deregulation wave allows us to isolate the pure effects of geographic expansion through branching from the broader changes in bank business models and market structure that characterize modern banking reforms.

We first document that this expansion in bank branching occurred through a widespread but heteroge-

neous shift in state-level regulations during the 1930s, with all but nine states modifying their bank entry laws during the decade. The regulatory changes varied substantially across states, leading to significant geographic disparities in bank branching: by 1970, just 15 states hosted 74% of all branched establishments while 25% of states continued to prohibit branching entirely. We show these stark differences across states in Figure 1b.

Figure 1: Banking Offices in Branch Networks



(a) Nationwide branch share

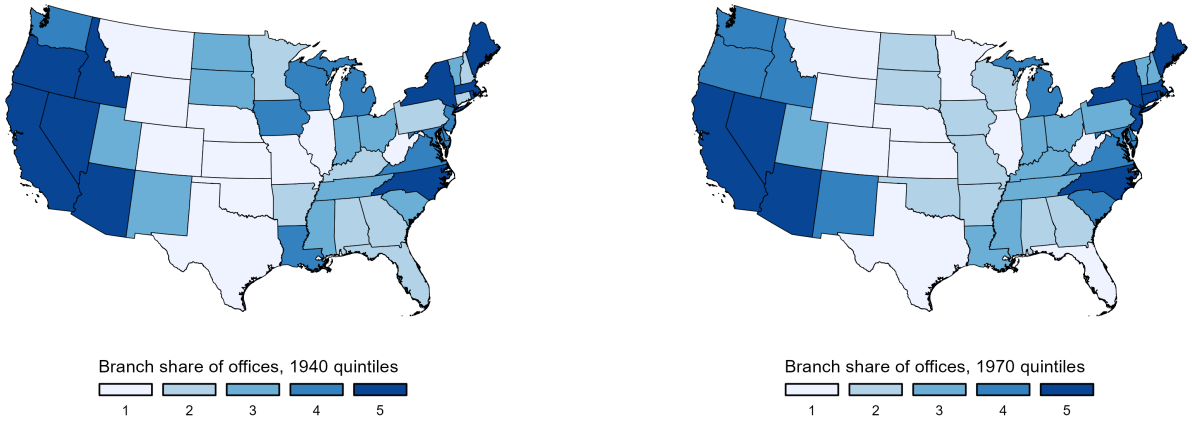
(b) Branch share by 1939 laws

Notes: From 1935 onwards, the time series banking outcomes for FDIC-insured commercial banks only. Legal status observed in state session laws. Legalization includes all states permitting any form of branch banking. First wave refers to those referring to those states allowing cross-city branching by 1939 while second wave captures all later deregulators. Sources: State session laws, Federal Reserve System (1931a), FDIC BankFind, and authors' calculations.

Second, we find that both the regulatory changes and their effects were remarkably long-lived. Following the wave of deregulation in the 1930s, states rarely changed their restrictions in subsequent decades. As a result, the degree of deregulation across states in the 1930s shaped the geographic distribution of bank branching for more than half of the 20th century. This persistence is evident in Figure 2, which shows how the different types of laws enacted during the Great Depression influenced branching patterns over time. The divergence in branching across states that emerged in the 1930s did not begin to close until the interstate deregulations in the 1970s, with full convergence not occurring until the early 2000s. Indeed, the states that adopted branching by 1940 remained the most branching-heavy places in all subsequent decades.

In the next part of the paper, we examine the impact of this first wave of deregulation on both financial access and real economic outcomes. This era's regulatory framework provides key advantages for our analysis. States typically permitted branching only under specific conditions, often tied to cities' populations, banks' minimum capital requirements, or the loss of banking services during the financial crisis. These constraints resulted in relatively small networks that averaged just five branches before the advent of interstate banking. This modest scale of branch networks, combined with their similarity to unit banks in business model and balance sheet composition, allows us to identify the economic gains from geographic diversification without from the economies of scale and scope that characterize modern banking organizations.

Figure 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.

We begin by comparing outcomes across states, finding that early adopters of branch banking experienced substantially different patterns of financial development that persisted for decades. These differences in financial development between early and late adopters remained large through the interstate banking deregulation of the 1970s and 1980s, illustrating how Depression-era branching policies shaped economic and financial development well into the modern era.

In order to provide causal estimates of these effects, we then turn to a county border pair differences-in-differences empirical design that compares the evolution of county outcomes before and after deregulation. Comparing adjacent counties on opposite sides of state borders allows us to account for unobserved shocks that may impact a small geographic area, and therefore to isolate the effects of branching deregulation. In our event studies starting in the 1920s, we find that counties in deregulating states experience more rapid financial recovery, as measured by deposits per capita in the 1930s, which persists until the 2000s. These effects were strongest in counties with smaller deposit bases in 1929. Our analysis of manufacturing and agricultural outcomes indicates that branching facilitated financial deepening and subsequent structural change, with the largest impacts in previously under-served areas.

Building on these local differences in finance-led economic development, we next provide evidence that branching (reduced) improved capital (mis)allocation across markets. While direct measurement of capital allocation efficiency using firm-level data is not possible for this period, our evidence indicates that branch networks reduced financial frictions, enabling firms with high marginal revenue product of capital to pursue

profitable investments. This improvement in capital allocation is evident in the convergence of manufacturing activity within states that deregulated. States that introduced bank branching exhibited more uniform distributions of manufacturing establishments immediately after deregulation compared to other states. Furthermore, within these branching states, counties that had lower productivity and output in 1929 grew faster along these dimensions from 1929 to 1939 than either other locations in the same state or counties in unit banking states. This convergence of less-developed areas toward more productive regions within the same state suggests that branching deregulation helped equalize the cost of capital across local markets.

Finally, we provide direct evidence that these real economic effects stem from the enhanced capital mobility within branch networks. Using novel data on 1930s banking office-level balance sheets spanning all Federal Reserve member banks, we document systematic differences in how branch networks mobilize and utilize capital compared to unit banks. Branch offices more actively redistribute deposits to other locations than similarly sized unit banks, demonstrating greater capital mobility within these networks. Moreover, the branch offices receiving these deposit inflows are systematically smaller than unit banks that receive capital from other banks, suggesting that internal capital markets facilitate a more efficient allocation of resources. Most importantly, branch offices engage in more effective financial intermediation: after receiving capital flows, they consistently convert these resources into loans. In contrast, similarly sized unit banks not only receive less capital but also generate fewer loans when they do receive funds. Internal capital markets appear to redirect funds within branch networks to make loans in ways not replicated by correspondent bank networks, so increasing banks' geographic coverage can create more financial intermediation and therefore economic growth.

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 (Gerschenkron, 1962; Goldsmith, 1969). However, time series evidence casts doubt on the stability of this relationship, raising questions about how the financial sector can accelerate both economic stability and development (Loayza and Ranciere, 2006; Rousseau and Wachtel, 2011; Arcand, Berkes, and Panizza, 2015). This ambiguity is particularly evident in the United States: despite experiencing substantial economic growth in the post-war period, the U.S. has rarely been viewed as an example of finance-led development because its banking sector remained relatively fragmented compared to other advanced economies (King and Levine, 1993).

Motivated by these questions around the finance-growth nexus, a substantial literature examines the real and financial impacts of the bank deregulation that began in the 1970s. Upon branch legalization, states' income, lending, and industrial concentration all increased (Jayaratne and Strahan, 1996; Cetorelli and Stra-

han, 2006). These state-level changes have since improved bank efficiency, increased cross-location liquidity transfers, and reallocated firm capital at shorter horizons (Berger, Demsetz, and Strahan, 1999; Gilje, Loutskina, and Strahan, 2016; Bai, Carvalho, and Phillips, 2018). For households, access to bank branches also raises financial inclusion and wealth accumulation, which also improves labor market outcomes (Célerier and Matray, 2019; Fonseca and Matray, 2022). Our analysis of the first wave of branching deregulation shows that these benefits of geographic expansion emerged much earlier and had lasting effects on U.S. economic development.

Our historical setting allows us to isolate the specific mechanism through which branching affects development. Unlike modern banking reforms, where increased bank size has had mixed effects on competition and real outcomes (Carlson, Correia, and Luck, 2022; Goetz, Laeven, and Levine, 2016; Jayaratne and Strahan, 1996; Mian, Sufi, and Verner, 2020), we demonstrate that lowering financial frictions through branching alone — without changes in bank scale — contributed significantly to structural transformation (Rajan and Zingales, 1998; Levine and Zervos, 1998; Quincy, 2024). The role of bank branching in improving capital allocation also builds on studies that highlight capital market integration as central to U.S. economic development (Rousseau and Sylla, 2005; Hornbeck and Rotemberg, 2019; Xu and Yang, 2024; d'Amico and Alekseev, 2024).

Finally, we contribute to the literature on the Great Depression's long-run impact. While prior work has emphasized how banking sector disruptions deepened the crisis (Bernanke, 1983), we show that the regulatory response to these failures - specifically, the liberalization of branching restrictions — had positive effects on financial development that persisted for decades. This perspective complements other studies that have highlighted various channels of recovery, such as the money supply (Friedman and Schwartz, 1963), exchnage rate depreciation (Romer, 1992; Hausman, Wieland, and Rhode, 2019), and New Deal programs (Fishback, 2017; Cole and Ohanian, 2004). Our findings suggest that crisis-induced financial innovation can have lasting beneficial effects, even as the initial disruptions impose significant economic costs.

2 Historical background

2.1 Branch bank regulation before 1933

The United States came 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 which saw rapid consolidation of their banking sectors as industrial firms did the same (Chapman and Westerfield,

1942).[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 (White, 1983). As constituents lobbied for credit access in the 1890s, both federal and state regulations eased capital requirements to permit ever-smaller banks to form rather than allowing for individual states to expand their networks(Chapman, 1934). By the 1920s these small, independent unit banks dominated the American financial system.

The potential benefit of having larger, more diversified bank branch networks were seriously discussed for the first time following the widespread bank failures after WWI. 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] Congress debated branching deregulation for three years but ultimately passed the McFadden Act in 1927, which capped bank branch expansion. The law allowed national banks to keep any branches in operation at the time of its passage if state law would permit it, but prohibited further branch openings outside of the bank's headquarter city. The alliance between the unit banker-dominated American Bankers' Association and local elites remained strong in the years immediately preceding the Great Depression, preventing further deregulation (Rajan and Ramcharan, 2016; Economides, Hubbard, and Palia, 1996; Calomiris and Ramirez, 2004).

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 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, which would let large banks restore banking services in rural areas (Chapman, 1934). Though neither of these bills made it through the other house before the height of the banking crisis in early 1933, they became the basis for the Banking Act of 1933, more commonly called the Glass-Steagall Act.

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,

[1] Prior to the Civil War, some states outside the northeast permitted branching before the national banking era drove state banks out of business. Bank 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).

[2] See, for instance, Southworth (1926) or Collins (1926) in the 1920s or Cartinhour (1931) and Southworth, Chapman 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.

1933a,b).[3] Legislators then debated whether whether deposit insurance or bank branching could resolve the remaining problem, a widespread loss of banking services, without irreparably damaging banking markets in the process.

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. The Depression, they argued, showed that small banks were the most likely to fail, leaving rural areas unable to support sufficiently capitalized. One senator reluctantly embraced bank branching because the"stockholder reserve [was] dry" in towns where depositors had sustained prior losses (72nd Congress, 1933). After waves of bank failures in the past decade and a half, he argued, letting big-city centered branch network expand was the only feasible way to restore banking services. This argument failed to sway many congressmen, who believed branching would all concentrate funds in the hands of the wealthy urban few, as they had in the past (73rd Congress, 1933a; 72nd Congress, 1933; 73rd Congress, 1933b). Branching would not restore services to rural areas if urban banks drained rural areas of their deposits, as was the case in Canada at the time, for instance.

Deposit insurance was a much more palatable solution for those who blamed big banks for the crisis, like Alabama Representative Henry Steagall. Its supporters argued that it was unfair for depositors to lose funds due to banker misbehavior, in contrast to the moral hazard costs emphasized by its detractors (Flood, 1991). Some lawmakers also argued that market failures were sufficiently pervasive in the banking sector to require public sector lending alternatives or nationalization of the entire sector (73rd Congress, 1933a).[4] In their view, insuring small banks would ensure depositor safety and stimulate bank entry while limiting banks' political and geographic power.

Months of debate failed to resolve this debate, but Congress knew it needed to pass a law before the end of the legislative session in June 1933. Carter Glass, unable to sway the populist wing of his (majority) Democrat party, to his cause, was forced to broker a compromise.[5] Deposit insurance would be provided nationwide but Congress delegated the most controversial policy, bank branching, to the states. From 1933 to 1994 (the Riegle-Neal Interstate Banking and Branching Efficiency Act), state law governed branching permissions for all banks operating in their boundaries, regardless of charter type.

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

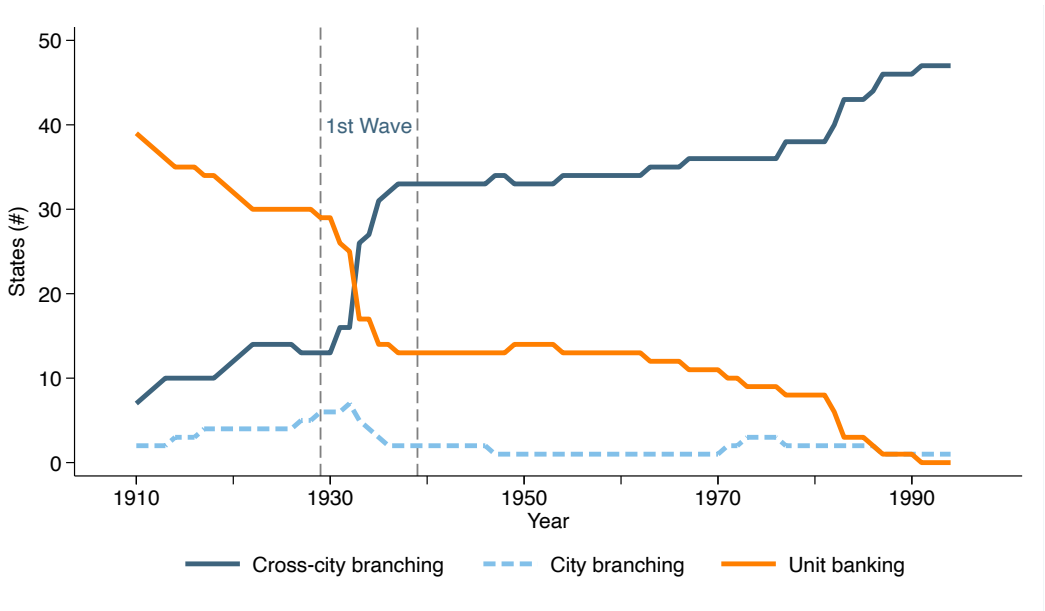
[4]Though the 72nd Congress debated expanding a pre-existing federal bank, the postal savings system, they did not do so, perhaps because the program was costly and inflexible (72nd Congress, 1933; O'Hara and Easley, 1979).

[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.

2.3 State branch regulation in the 1930s

After the passage of Glass-Steagall in June 1933 delegated branch banking restrictions to the states, comparable arguments on the merits of branch banking occurred in state legislatures. Cartinhour (1934) reports that almost every state legislature considered updates to their branch banking law between 1933 and 1934, regardless of party affiliation.[6] As a result, 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 between 1929 and 1939 (Counsel of the Board of Governors, 1930, 1939). The speed and persistence of this change can be seen in Figure 3, which plots the number of states permitting each kind of geographic branch condition in each year. No other period between 1910 and 1970 compares to this flurry of deregulation; the 1930s swing was the exception to an otherwise static regime.

Figure 3: Geographic bank branching restrictions by state



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 all states either implicitly (though a lack of law granting permission) or explicitly prohibiting bank branching. Cross-city refers to all potential geographic configurations larger than a city-only network. Sources: State session laws and authors' calculations.

Unlike the post-1970s branch deregulation, 1930s legislatures debated legalizing bank branching subject to constraints on branch location and bank size. They argued over how to restore banking services without angering constituents who often resented large-scale finance, leading to a wide range of proposals. In Alabama in 1933, for instance, the Senate passed a bill legalizing statewide branching subject to a minimum capital and population requirement, but eight different representatives proposed alternatives in the House (Senate,

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

1933).[7] Each of the observed legal barriers to entry is likely the culmination of negotiations between pro- and anti-branching factions about how to best restore banking services. After the 1930s, both state and national regulators became more concerned with limiting bank risk taking and "overbanking" (which they believed caused the Depression) than incentivizing banking office entry, leaving branch regulations largely static until the technological shocks of the 1970s (Robertson, 1968).

3 Data

This paper explores the long-run effects of 1930s branch bank deregulation. To examine this phenomenon, we link banking law changes to local economic and financial development.

3.1 Bank branch regulations over time

We collect and standardize bank branching regulations from 1910 to 1970 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.[8] Understanding these patterns requires a focus on the *types* of state *branch* regulations enacted in the *aftermath* of the Great Depression, complementing earlier work on other pre-Depression legal regimes (e.g. Mitchener (2007); Dehejia and Lleras-Muney (2007); Wheelock et al. (2008); Anderson, Barth, and Choi (2019); Aldunate et al. (2021)) and binary measures of branch deregulation through 1933 (Economides, Hubbard, and Palia, 1996; Abrams and Settle, 1993; Dehejia and Lleras-Muney, 2007). As the contemporary legislative debates suggest, state lawmakers chose very specific conditions under which branching could occur, unlike the modern period (e.g. Jayaratne and Strahan (1996)), making regional heterogeneity a crucial component of this phenomenon.[9] In addition, we gather information on related laws in this period, including minimum capital requirements and non-bank chain taxation, to show that branching drives the changes we observe, not complementary regulation.

[7] Some, but not all, of these suggested branch entry conditions made it into the successful 1935 bill. Branching was not legalized in Alabama till 1935, with higher population and capital minima than in 1933 but without the banklessness and sufficient business language (Senate, 1935). In contrast, Mississippi legalized branching in 1934 based on town (not county) populations and minimum charter capital requirement one-tenth that of Alabama's.

[8] We start with the stock of branching laws published by Federal Reserve Board (various years) in 1924, then go back to find any earlier laws changes in state session laws on HeinOnline. Then we update the cross-section in every year by searching session laws back to the 1910 stock of laws collected in Welldon (1910). Finally, we cross-check our database against the stock of laws in 1930, 1932, 1936, 1939, 1959, and 1993 Federal Reserve Board (various years); Amel (1993) updates as well as a more detailed 1931 study Federal Reserve System (1931a).

[9] The post-1970 intrastate deregulation literature studies the switch to *de novo* intrastate branching without any other conditions using the corpus of laws constructed by Amel (1993). Due to this focus on unrestricted intrastate branching, most states were already heavily branched by their deregulation date in Amel (1993). Only six states had under 50 percent of their banking offices in branch offices the year before their *de novo* deregulation date in Amel (1993).

3.2 Banking data

We link these legal changes to banking sector outcomes at the state level by combining several extant data sources. Before 1935, we capture banking market structure for each state every year with data first 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.[10] These data permit us to measure changes in states' financial development over time, and the later data capture switches in bank type from unit banks to branch networks, the key treatment in this paper.

Then, to see how these laws affect financial development, we examine the effect of branch deregulation on county deposits from 1920 to the present. Bank deposits capture local participation in financial markets, making them a common measure of financial development (see, e.g. Fonseca and Matray (2022)). Before the advent of branching, we measure deposits by county annually using the FDIC Banking Changes dataset on ICPSR. These data record all of a bank's deposits as belonging to the bank headquarter's county, so they reflect residents' deposits only when branching is illegal. Therefore we use them only for the pre-deregulation period.[11] The federal government's City and County Databooks correctly measure deposits based on banking office locations beginning in the 1940s. We extend these series forward by aggregating banking office-level deposit data from the FDIC Summary of Deposits dataset after 1992, which gives us nearly a century of local deposit data.

Finally, we contrast branch network and unit bank behavior using a unique set of establishment-level balance sheets for all Federal Reserve member banks in 1937. Unlike modern data products, these data separately record detailed assets and liabilities for each banking office, including their use of both cross-bank (commonly called correspondent banking) and within-bank (in the case of branches) capital markets, not just their deposits. We use these data to test 1) the effects of bank deregulation on deposits before World War II and 2) the portfolio allocation mechanisms which can explain these effects. Future versions of this paper may include city-level changes in banking markets during the 1930s.

3.3 Economic outcomes

To test whether bank deregulation affected non-financial outcomes, we bring together several datasets on county-level economic data. Our goal is to capture both establishment and output growth by sector over the same window of time as our banking data. Although other measures are available for some years (e.g. median income), we focus here on variables which exist both before and after 1933 at the county level.

[10] We use these data starting in 1935 because some 1934 observations underpredict the size of the financial sector.

[11] Regulators did not systematically record deposits at the branch level until 1933, when the Federal Reserve began collecting national banks' branch data, which extended to state-charted banks after the FDIC requested the Federal Reserve help them do the same in 1936.

To do so, we build a panel of manufacturing, retail, and agricultural data from 1920 to the 1990s using the collection of decennial census data in ICPSR 2896 and county data books (also on ICPSR). Then, we leverage manufacturing and retail data in other interwar years gathered by Pawel Janas, and Shawn Kantor and Price Fishback, respectively. In some cases, we scale our outcomes using population, which we linearly interpolate between census years.

4 New stylized facts on branch deregulation

The first wave of bank branch deregulation differed in three crucial ways from more recent changes in bank regulation. Unlike later laws, 1930s branching permissions conditioned branch expansion on banks' size and market competition. This created substantial qualitative differences between 1930s–1970s bank branch networks, which had similar business models to unit banks, and the large, diversified banks operating today. Branch networks also operated in similar markets to unit banks, as there was substantial geographic heterogeneity in legal regime. Finally, we show that the 1930s marked the only change in branching laws until the 1970s, which induced persistent differences in banking market structure.

4.1 Conditional deregulation

Branching in the 1930s was subject to interlocking conditions set by state legislatures. Figure A.1 highlights each aspect of one such law in a different color. After this law passed, Mississippi branch networks were subject to both bank and branch-specific minimum capital requirements up to a maximum number of branches withing a given geographic radius. These offices could not be in a city under a specific population if there were no incumbent banks. We read and processed each branching-related law for each state in a similar fashion to this example and then categorized the resulting set of branching restrictions along four dimensions: geographic, competition, population, and capital. In some cases, these conditions were mutually exclusive, but for the most part they were interdependent. For instance, Figure A.1 requires all four of these in sections 66 and 67. We next describe each of these four sets of entry conditions in turn.

Geographic rules limited the area in which banks could branch; these proscriptions ranged from within-city to state-wide. We refer to the availability of branching between city and statewide in scope as limited. Each type of geographic restriction usually operated in tandem with other kinds of constraints on bank size, limiting banks' potential expansions in ways that the post 1970s deregulation (e.g. Jayaratne and Strahan (1996)) did not. As seen in Figure 3, cross-city branching became the most popular form of geographic branch regime in the 1930s.

Regulators used city population and competition thresholds to limit the potential branch bank networks

would drive rural banks out of business. Some states, like Georgia, restricted branch networks' operations to cities below a specific population threshold regardless of competition, while others only allowed banks to open new branches in small towns if there were no extant banks operating there. For example, Idaho's 1935 banking act legalized branching in three 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). Alternatively, lawmakers placed a cap on the number of branches a network could operate, as in Figure A.1.[12] During the 1930s, these laws rose in prominence to ensure that branching only occurred in towns deemed too small to support their own unit banks.

Another method of ensuring bank branch networks did not expand unchecked was to set higher capital requirements for branching than for simply opening a bank. The national, and most state, regulator mandated a minimum amount of capital be paid in by bank shareholders before opening based on the size of the city receiving the bank. In the 1930s, states increasingly required that banks have even higher capital to begin branching, ensuring that urban banks were the most likely to operate multiple branches.[13]

Opening each new branch also often required additional bank capital. Many states required that a branch network have aggregate capital equal to the total required for the establishment of the equivalent number of unit banks in the places it operated. In other words, branch banks were frequently paying the same per-branch opening cost as a prospective unit banker would based on the population at the new location. Other states either made branching cheaper than unit banks (e.g. Arizona) on a per-office basis. In either case, these branch capital requirements were lower in smaller towns than large ones, pushing large banks to open branches in less-populous places.

4.2 Timing of state bank deregulation

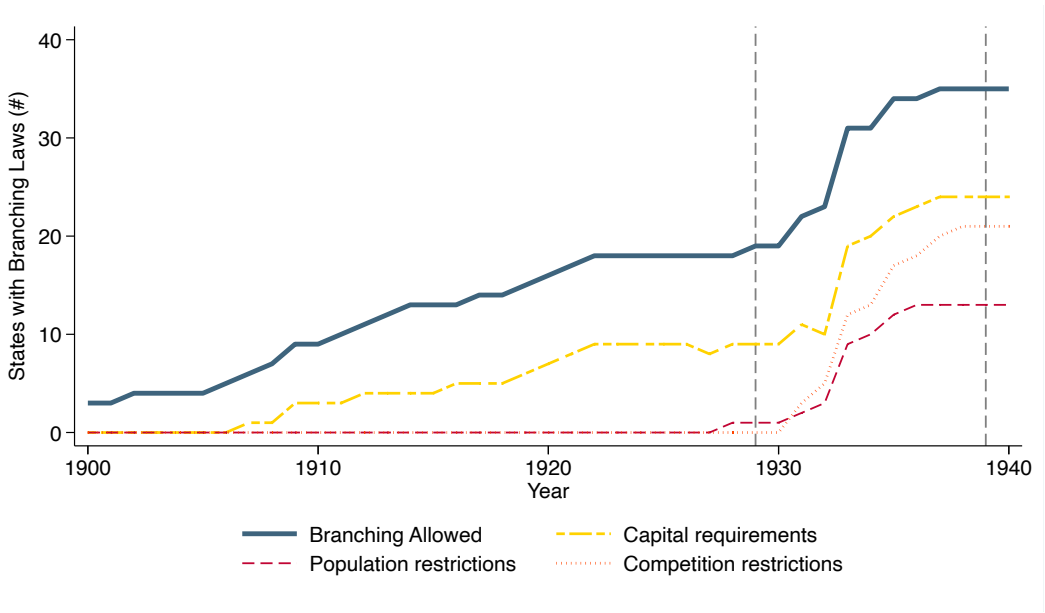
With these definitions in hand, we first present stylized facts on the type of branch network formation newly permitted in the 1930s. Figure 3 plots the shares of states using each kind of branch entry condition in a given year. The number of states not permitting any form of bank branching halved from 1931 to 1935, with a smaller decline occurring in the share of states only allowing within-city networks. Instead, cross-city networks became the norm, rising to almost 70 percent of states by 1936 from 30 percent in 1930. The

[12] 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. However, we do include information on whether the number of branches was capped per branch network. Based on our reading of the laws, in the case of bank mergers, all but the bankless town requirements tended to remained in action.

[13] In addition, the Glass-Steagall Act used state population information to set the minimum size of bank capital for national banks operating any sort of branch which were often substantially higher than those required by state laws.There was only one tier of capital in the original 1932 Glass Bill, but senators from Vermont and South Dakota campaigned to have two lower tiers of capital in less-populous states included in the Banking Act of 1933 (73rd Congress, 1933b).

deregulation wave of the 1930s created opened up new ways for banks to operate in multiple cities well before the modern regime change.

Figure 4: Local bank branching restrictions by state



Notes: Prior to 1927, national banks could not branch. Starting in 1927, these laws apply to all banks in a state. 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. Sources: State session laws and authors' calculations.

Many states permitted branches across city lines, like today, but there were additional restrictions in the past. States instituted branch banking subject to a new range of restrictions in the 1930s, plotted in Figure 4. Before the Great Depression, the few states permitting bank branching did so with relatively few conditions beyond geography and banking capital, with some states requiring branches open only above specified population thresholds. Table A.1 summarizes this change in state bank regulations before and after the 1927 McFadden Act and the 1933 Glass-Steagall Act in greater detail. It is clear that by 1936, capital and population laws had become even more popular, suggesting that state legislatures wanted to ensure only well-capitalized banks could expand over space.[14]

Perhaps the most striking shift in branching conditions during the 1930s was the birth of maximum competition clauses, which did not exist at all before 1930 but were virtually inescapable by 1940. These laws often exempted branching destinations from other restrictions if the city did not have any banks. Though less common, population maxima also protected large and well-developed banking markets from

[14]In contrast to earlier crises, most regulators increased, not lowered, minimum capital requirements for unit banks as well. The Glass Steagall Act raised paid-in capital thresholds for national and state member banks and many state legislatures followed suit. Figure A.6d plots the number of states raising versus lowering charter capital requirements for each year from 1930 to 1940 relative to their 1929 levels.

branch expansion starting in the 1930s. So long as branch networks were the first mover into small and un-banked markets, they could leverage this combination of restrictions into new regional networks.

Taking a step back, these 1930s laws are markedly different than the current legal environment. Legislators created interlocking conditions which limited branching destinations based on city population (either directly or through capital requirements) and existing banking access while also only allowing highly capitalized banks to begin branching. The Great Depression bank deregulation wave intended to restore access to banking services, especially in rural areas, by promoting the spread of urban-based branch networks without creating the large branch networks which are so prevalent today.

Perhaps unsurprisingly, then, unit banks and branch banks were much more similar in the 1930s than today. Figure 5 compares unit and branch banks' balance sheet characteristics during the first wave of deregulation and after the most recent wave.[15] In 1937, branches were about 0.01 standard deviations larger than unit banks, but their asset composition and funding structures were otherwise indistinguishable. By 2000, the average branch was 0.05 standard deviations larger, did more lending, kept less cash on hand, and were more reliant on deposit funding than unit banks headquartered in the same state with the same type of charter. Branches and unit banks' business models were nearly identical during the first wave of deregulation, making it more likely that network access itself differentiated their operations.

Figure 5: Single- and Multi-Establishment Banks' Balance Sheets



(a) 1937 (b) 2000

Notes: Each point is a regression of a standardized balance sheet ratio on a unit bank indicator, adding controls for bank charter type or charter type-headquarters location dyad. 90 and 95% confidence intervals using robust standard errors included. Sources: Federal reserve call reports: 1937 Federal Reserve Board (1937), 2000: Correia, Luck, and Verner (2024).

[15]Data limitations currently constrain us from using earlier years' call reports separately for branch and unit banks. We thank Stephan Luck for facilitating access to the 2000 branch indicator data.

4.3 Spatial patterns of deregulation

Figure 6 describes the spatial distribution of these restrictions at the start and end of the Great Depression deregulation wave. In each case, the color describes the geographical extent permitted while the pattern pertains to the existence of competition ("other banks") and population thresholds. States without either had no laws on branching, which usually meant it was implicitly prohibited in all scenarios. In 1929, few states permitted cross-city branching (in dark blue) and even fewer had any sort of local competition based rule for allowing branching, though several tied branching to city populations.[16] Outside the Northeast and South, bank branching was relatively rare before the Great Depression.

By 1939, most states outside the Great Plains allowed cross-city bank branching.[17] Newly deregulating states often put competition requirements in place as they allowed cross-city branching for the first time, unlike pre-1929 legalizers. The type of regime varied greatly within census region. In the South, for instance, there were 6 different configurations of legal branching by 1939 using these broad categories. Similar heterogeneity can be found in other parts of the country as well, suggesting that sub-regional trends played a role in what kinds of deregulation occurred.

These differences in Depression-era bank deregulation were not correlated with pre-1929 trends in financial development. We show in Figure A.3 that neither financial or income trends throughout the 1920s drive the choice to deregulate. Appendix B describes how rural populism likely pressured states into permitting branch banking for the first time as the power of business elites waned in the face of the farm crisis.[18] States' choice of regulatory regimes were unlikely to be the product of long-run shocks or regional differences, making branch and unit banks' business models comparable across space.

4.4 Persistence of regulatory changes

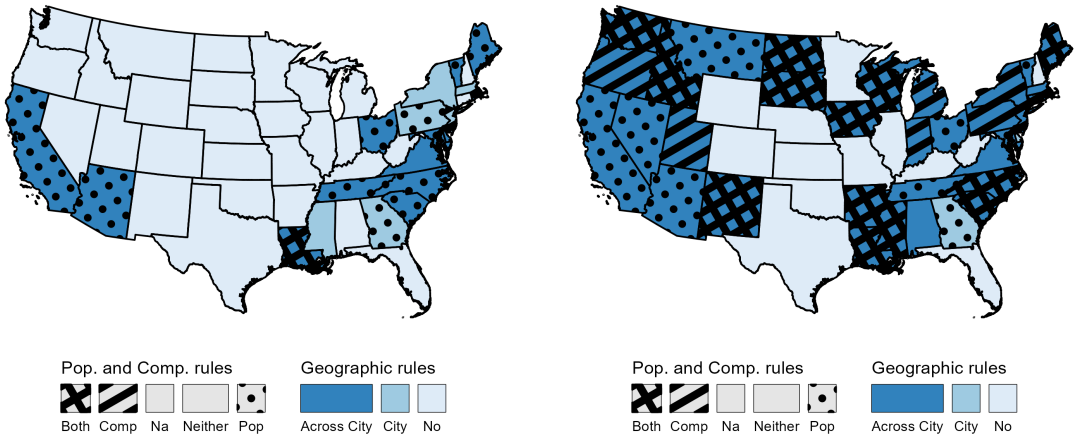
This wave of deregulation ended before World War II, leading to long-run differences in branch rules until the onset of the modern wave of deregulation in the 1970s. As plotted in Figure **??**, half of US states introduced bank branching in the 1930s, but the rest did not legalize branching until interest rate pressure and technological advances made branching politically feasible (Kroszner and Strahan, 2014). States which allowed branching by 1940 were still the leaders in branching in 1970 (Figure 2). We formalize this comparison by plotting the pairwise correlations in states' branching share of offices in any given decade in Figure A.8.

[16] This map does not account for conditions like branching-specific capital requirements, which also governed branching in places without any shading, like California and Arizona.

[17] Some Plains and Dust Bowl-affected states, such as Colorado and South Dakota, also legalized branching, so the 1930s drought cannot perfectly predict banking attitudes.

[18] States' willingness to regulate the private sector skyrocketed in the 1930s as the Supreme Court became receptive to arguments justifying minimum wages, price floors, and financial regulations which addressed the ongoing economic emergency (Fliter and Hoff, 2012). These laws often contravened earlier laissez-faire business interests' regulations, which had been quite effective in banking (Rajan and Ramcharan, 2016; White, 1982; Economides, Hubbard, and Palia, 1996; Calomiris, 2000, e.g.).

Figure 6: 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.

Later deregulation induced some convergence but states' 1940 branching shares had correlations over 0.5 with branching a half century later. In 2020, even after Riegle-Neal and a financial crisis, this correlation was 0.48 and still statistically significant. The first wave of bank branching deregulation didn't substantially alter banks' business models in the short-term but affects the structure of banking markets today.

5 Long-run effects of deregulation

5.1 State banking market structure

The Great Depression deregulation wave was intended to spur financial recovery in the 1930s, particularly in the places hit hardest by the banking crisis. A robust literature on the post-1970s branch deregulation finds that this most recent wave of bank branch deregulation induced rapid consolidation of the United States financial system (Kroszner and Strahan, 2014). We next investigate the extent to which the same was true in the years following the Great Depression both to fill in the chronological middle and to analyze whether the 1930s deregulation correlated with long-run trends in financial structure. Given the stability of regulation between 1939 and 1970, we hypothesize that the unusual (for regulators in the United States)

embrace of large banks in the 1930s may relate to the patterns of branch bank density we see in 1970 (Figure 2b). Specifically, we hypothesize that public opposition during this utterly unusual (for regulators in the United States) embrace of large banks shaped states' financial development for decades. To provide evidence in favor of this idea, we demonstrate that 1930s banking laws predict long-run differences in states' banking markets. Though we make no claims on whether these are the direct causal effects of these types of regulation, we jointly estimate the correlations between each branch entry condition and several measures of financial market structure in a state s in a year t relative to its 1935 levels controlling for census region c in each year:

$$LOGMKT_{s,t}–LOGMKT_{s,1935} = \beta_0 + \gamma_r BRANCHCONDITIONS_{c,1939} + \beta_c + \epsilon_{st} \quad (1)$$

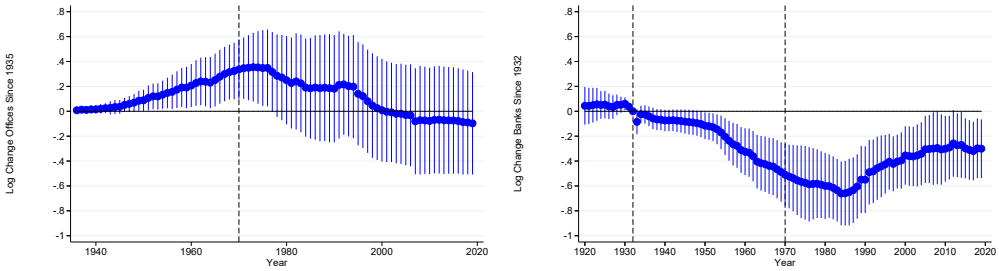
We plot the results of this rolling regression for total banks and banking offices in Figure 7, along with 95 percent confidence intervals based on robust standard errors. States which had legal branch banking by 1940 saw markedly stronger growth in the total banking offices, peaking in the late 1970s around 40 percentage points. The gap became statistically insignificant after the most recent wave of deregulation began in that decade as well. Moreover, this is due to cross-city branching, as seen in Figure A.4, and is driven by states deregulating in the 1930s (see Figure A.7 for this result). This suggests that states willing to relax geographic restrictions on branching also saw accelerated financial development, but does not relate directly to bank branching.

Next, we show that states permitting bank branching experienced a contraction in the number of banks operating in states with branching, as seen in Figure 7. In this case, we can extend our analysis back to include the 1920s bank failure period using data from Flood (1991). After a decade of similar growth compared to the same baseline year as above, there is a marked decline in the number of banks in states which legalize bank branching.[19] From 1933 to the late 1980s, a period of rising bank concentration, as shown by Fohlin and Jaremski (2020), states encouraging bank branching had large and statistically significant declines in the number of banks operating in their state compared to non-branching states, reaching 40 percentage points before the latter states began to permit branching.

How do we reconcile these two figures? Bank branches make up the difference between the number of banks and the number of banking offices in states permitting bank branching. Branching states had higher banking office growth and declines in the number of banks operating, which is consistent with banks taking the opportunity to open branches, despite the relatively restricted nature of expansion.

[19]The larger than usual drop from the downward trend starting with the dashed line in 1933 is 1934, which means that deregulating states saw a faster rebound in the number of banks from 1934 to 1935 than non-branching states.

Figure 7: State Branch Deregulation and Long-Run Banking Development



(a) Banking Offices

(b) Banks

Notes: Each point is the result of a separate regression of the log change in the outcome relative to 1935 on 1939 branch legality, controlling for census region fixed effects. Sources: State session laws, FDIC, Flood (1991), and authors' calculations.

5.2 Branching's local financial effects

Next, we confirm that the 1930s Great Depression deregulation wave had long-running effects using a county border pair design. This complements the state-level analysis by showing that otherwise very similar locations experienced markedly different post-Depression economic and financial trajectories based on whether or not their state permitted branching during the 1930s (or much later). In this case, we drop out all states which allowed cross-city branching before the 1930s and zoom in on state borders where branching became legal on one side of the border and remained illegal through 1939 on the other.[20] This exercise is similar in spirit to exercises identifying the employment effects of minimum wage laws, for instance. We estimate the effect of deregulation on an outcome Y in an event study framework including each county c in a border-pair p and state s in every year t:

$$Y_{c,p,t} = \gamma_c + \gamma_{p,t} + \Sigma_{\tau=1920}^{1992} \beta_\tau DEREG_s \times 1(t = \tau) + X_{s,t} + \epsilon_{pt} \tag{2}$$

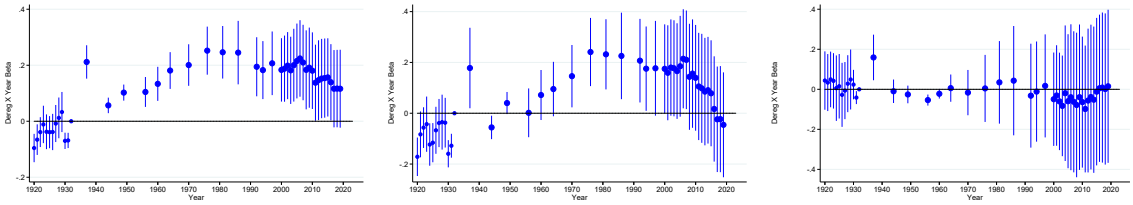
The β coefficients represent the time-varying correlation between state-level differences in deregulation and counties' outcomes conditional on fixed effects for each county and county border pair-year dyad. The identifying assumption is that there is no unobserved shock to counties that deregulate during the period of deregulation, conditional on controls. Interpreting these coefficients as the partial equilibrium effect of deregulation also requires that the unit banking side of the border is not affected by the deregulation across state lines. Though there was some chance that customers could cross county or state lines to use other banks, distance deterred such behavior in the past, as it still does today (Agarwal and Hauswald, 2010, e.g.).[21]

[20] See Figure A.5 for a map of the included counties.

[21] Bank regulators' notes on charter approvals in the 1940s, for instance, defined deposit access at the neighborhood or city-level, even in rural areas (Delano, 1945). Loans were even more localized, as loan applications asked the officer to reflect on how

Following the minimum wage literature, we two-way cluster our standard errors at the border pair and decade levels.

Figure 8: 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 Deregulation 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 1932 as the omitted year because it is the year before Glass-Steagall. 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 the log number of banks in each state in each year and control for border pair-year dyad and county fixed effects. Observations are truncated at the 1 percent level in each year. Sources: State session laws, FDIC, Federal Reserve call reports, ICPSR, and authors' calculations.

Figure 8 presents evidence that the 1930s bank branching deregulation improved financial outcomes compared to bordering unit banking-only locations. Figure 8a shows that counties in deregulating states experienced markedly higher deposit growth than their neighboring non-deregulating county only after 1932. Once deregulation began, a sizeable gap opens between newly branched counties and their unit banked counterparts. We note, however, that the 1937 datapoint includes only Federal Reserve member banks, so we hesitate to interpret the size of this effect relative to other years. After 1940, estimates are for all FDIC insured banking offices in each county. These deposit gaps remain statistically significant until the 2010s. As in the state-level regressions, bank branching accelerated financial development at the county level.

Next, we examine whether these gains varied by counties' pre-Depression financial development. When we separate our sample at the 1929 median, we see that the branch deregulation effect is no longer persistent for counties with higher than average pre-Depression deposits in Figure 8c. If anything, branching improved local deposits only in the 1930s for more-developed areas compared to unit banking neighbor counties also above the median. Instead, Figure 8b reveals that branch deregulation spurred local deposit growth over the rest of the 20th century in counties below the median compared to similarly un-developed counties without branch banking across the border. In unreported results, we show these results are robust to adding controls for county-level World War II spending or saving, as well as all other forms of 1930s state banking legislation, suggesting the 1930s branching legal change is the shock that drives the divergence between

long they had known the applicant and the character of the applicant's neighborhood, see Figure A.16 for an example. Even when nearby banks advertised lower rates, credit markets often remained highly localized well after the end of World War II (Schweiger and McGee, 1961).

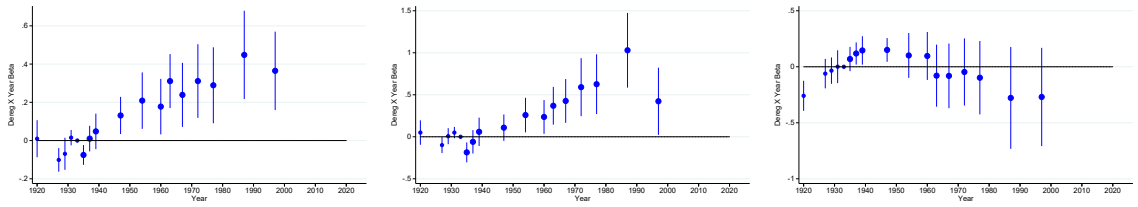
otherwise comparable places.[22] The estimation approach does not drive the results either. When expanding our sample to include all counties in 1930s deregulating and unit banking-only states in a two-way fixed effect model, as in Figure A.15, branching again induces deposit growth in the long run, especially in less-developed places. 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.

5.3 Real effects of branch deregulation

Having established that this wave of branching increased financial development, we turn next to economic outcomes using the same estimation strategy as in Section 5.2. We focus on two main outcomes: manufacturing value-added, which captures the difference between establishments' input costs and total output, and the number of farms in a county. In each case, we scale by population to measure the intensity of each sector's production relative to the labor force.

Manufacturing activity accelerated in deregulated places, and again, the effects are long-lived. Figure 9a 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 deregulation began, but lingered.

Figure 9: 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 Deregulation 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 1933 as the omitted year because census conducted before the Glass-Steagall Act. Population is interpolated between census years. Value-added is only for the manufacturing sector and medians are defined in the county border pair sample in 1929. We also control for the log number of banks in each state in each year and control for border pair-year dyad and county fixed effects. Observations are truncated at the 1 percent level in each year. Sources: State session laws, FDIC, Federal Reserve call reports, ICPSR, and authors' calculations.

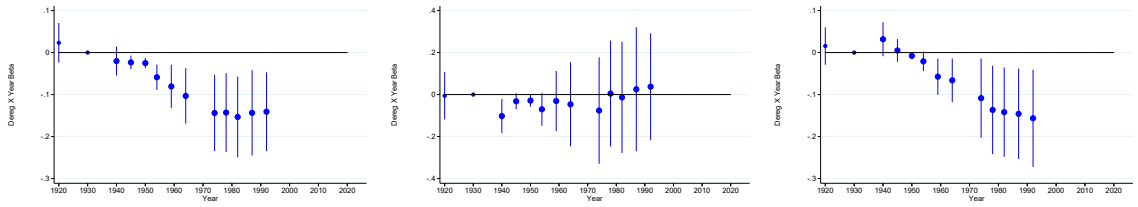
When stratifying the estimation sample by 1929 medians in the outcome variable, it is also the case that low value-added places experienced the biggest effects from bank branch deregulation. The effects of

[22]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.

bank branching among above-median county pairs is noisy and small, shown in Figure 9c. Gains to lower value-added per capita places, in contrast, grew through the 1970s. This effect may capture some diversion of prior productive capacity from control counties across the state border, so we do not treat this as the direct effect of branching all else constant. Reassuringly, however, when we look at all counties in these sets of states, which abstracts from these negative proximity spillovers, we still see the same patterns (see Figure A.12). Manufacturing establishments per capita also rose as a result of deregulation, which suggests bank branching stimulated manufacturing as local financial capacity rose (see Figure A.9).

Not all sectors grew in the wake of financial development, however. We show that the agricultural sector shrank faster in branch deregulating counties compared to their unit banking counterparts across the border in Figure 10a. These results are the mirror image of the manufacturing ones: branch deregulating counties have persistently *lower* farms per capita, and these effects are driven by counties *above* the pre-Depression median. The timing, however, remains the same. Bank branching accelerated deposit growth, which then translated into declines in farming. The appendix demonstrates that branching-exposed areas with higher county-level farm land and building values also had larger falls in farm value per capita after 1930 (see Figure A.10).[23] Both the number and value of farming establishments contracted after the onset of branch deregulation as the number and value of manufacturing establishments rose, driven by less-developed locales. Combined, these results indicate that financial development translated into decades-faster structural transformation.

Figure 10: Branch deregulation's effects on log farms per capita



(a) Overall (b) Below 1930 median (c) Above 1930 median

Notes: Only counties in a border pair with a discontinuity in branching included. 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. We use 1930 as the omitted year. Population is interpolated between census years. Medians are defined in the county border pair sample in 1930. We also control for the log number of banks in each state in each year and control for border pair-year dyad and county fixed effects. Observations are truncated at the 1 percent level in each year. Sources: State session laws, FDIC, Federal Reserve call reports, ICPSR, and authors' calculations.

[23]There is a rise in farm values per capita in below-median counties, but this result does not generalize to the sample outside of border counties, unlike the others. Therefore we do not treat it as a robust finding.

6 Internal capital markets and long run growth

The deregulation of bank branching can explain long-lived differences in financial and economic development between states which did not begin to fall until the 1970s. This section provides an explanation for why the 1930s bank deregulation wave accelerated deposit and manufacturing growth relative to unit banking-only places, particularly in ex ante less-developed locations. A robust macro literature posits that banks are particularly salient for long-run growth when financial development is otherwise low (Levine, 2005). Consistent with lower financial frictions accelerating economic development, we first show branch deregulation immediately leveled manufacturing dispersion within states. Then, we demonstrate why branch networks relax financial constraints which unit banks cannot. We show that branch offices faced lower barriers to capital mobility than unit banks due to networks' internal capital markets, which often concentrated loans in smaller branches.

6.1 Manufacturing sector convergence

The next step of our analysis establishes that the manufacturing sector became more similar within states which deregulated bank branching in the 1930s than in unit banking states. If capital flows towards smaller offices, and less-developed counties experience the strongest economic benefits from branch deregulation, as shown above, then we hypothesize that branch deregulation equalized access to capital within states with branch networks. Because we cannot directly address questions of capital allocation due to a lack of long-run firm-level data, we instead focus on measures of manufacturing sector dispersion over space.

First, we show that deregulation lowered the concentration of manufacturing establishments within states during the 1930s. This combines both changes in firm entry and changes in the number of establishments per firm. We are agnostic as to which is changing, as higher branch access many spur on new entrepreneurs or help incumbent firms conduct business in new areas within the area served by the same set of internal capital markets. If bank branching helps direct funds towards more financially constrained and less developed areas, then those areas should gain manufacturing activity relative to other parts of the same capital market (here, the state). Therefore we examine the standard deviation of counties' share of each state's total manufacturing establishments in a given state over time. The higher the standard deviation, the more a state's manufacturing is concentrated in only a few counties, with a decline signalling a fall in the cross-county dispersion of manufacturing establishments. We show in Table 1 Column 1 that deregulating states experience the latter effect: the spatial distribution of manufacturing becomes more similar within these states over time. Dispersion in unit banking states comparatively remained elevated at the end of the Depression. Table 1 Column 2 shows these effects are driven by branching states with higher 1929 dispersion;

Table 1: 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

this is consistent with the idea that branching lowered financial frictions, spurring manufacturing sector convergence where it was available.

Second, we demonstrate that bank branch deregulation increased average establishment value-added and output during the 1930s. These results complement the value-added and establishment per capita effects in the prior section by showing that bank branching improved establishments' productive capacity, not just the number of establishments. On average, Table 1 Columns 3 and 5 show that counties in deregulating states experienced a rise in value-added per establishment and output per establishment from 1929 to 1939. However, as seen in Columns 4 and 6, ex ante less productive counties increased more, especially in places which deregulated branching in the 1930s. Though these estimates likely contain some simple regression to the mean, it is striking that branching accelerated productivity growth in both cases. This exercise provides some evidence that bank branching deregulation induced states' manufacturing sectors to spread out while

also spurring more output and value-added from each establishment, especially in places without significant pre-deregulation production. Though we cannot directly observe firms' inputs, these results are consistent with improvements in capital misallocation due to reductions in financial frictions.

6.2 Branch networks and capital flows

Bank branch networks may reduce financial frictions for several reasons. By virtue of operating multiple offices, bank branch networks are often larger than unit banks, leading to economies of scale, economies of scope, and the ability to use internal, rather than external, capital markets to shift funds geographically. In recent decades, the move towards interstate branch networks has induced markedly higher income growth and financial inclusion, among other outcomes, through the first two of these channels (Kroszner and Strahan, 2014). However, in the Great Depression, branch banks could still operate only in one state, and as seen above, faced a web of restrictions on where and how they could expand. As a result, these networks were much more similar in size to unit banks in the decades following the Glass Steagall Act, suggesting that scale effects were far less likely. Indeed, Figure A.2 shows that branch networks and unit banks had fairly similar loan-asset and interbank loan-asset ratios overall in the late 1930s.

This leaves one major difference between branch offices and unit banks: internal capital markets. Branch networks have the ability to funnel funds within the organization while unit banks can only do so by borrowing or lending externally. Branch membership will differentiate offices if internal and external capital markets are not perfect substitutes. A priori it is not obvious which form of network yields more financial intermediation; theory suggests it depends on the structure of agency costs within organizations (Gertner, Scharfstein, and Stein, 1994).[24] Depending on how banks used internal versus external capital markets, branch networks may have had one more margin on which to adjust their balance sheets office by office, potentially altering other dimensions of their portfolios.

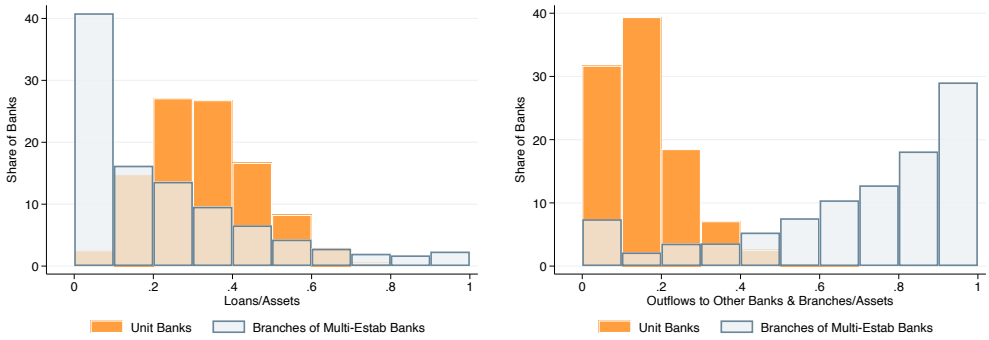
Given this theoretical ambiguity with respect to capital market access, we characterize the differences in their usage in our 1937 cross section of Federal Reserve member banking offices. This unique dataset separately measures each bank establishment's balance sheet, allowing us to observe where exactly each firm is lending. In the case of unit banks, this distinction is trivial, but because branch networks operate multiple offices, these data provide a window into how networks redistribute funds across offices to make loans. Crucially, this permits us to compare internal capital market usage, which aggregate to zero at the bank level, to external capital market patterns, which all banks can use. Our analysis proceeds in three steps:

[24] Bank headquarters may be able to monitor branches more efficiently than they could other banks, reducing the costs typically associated with lending (Diamond, 1984; Gertner, Scharfstein, and Stein, 1994). In contrast, if there is rent-seeking within an organization, internal capital markets are less efficient (Scharfstein and Stein, 2000; Rajan, Servaes, and Zingales, 2000).

1) we show that 1930s branch networks treated internal capital markets and lending as substitutes at the office level, unlike unit banks' participation in external capital markets, 2) this difference can be explained by bank office size, and 3) this difference translates into more local lending.

Figure 11 presents histograms for the share of assets that banking offices put into bank transfers. We first contrast interbank transfers for unit banks and within-network, or intrabank, transfers for members of branch network systems in Figure 11b. Unit banks largely avoid allocating too many funds to interbank transfers; this distribution is highly right skewed. Branch banks, however, are bimodal with ten percent of offices not transferring any money to the rest of the branch system. The density of branching offices increases with the transfer share except for this cluster at zero. By observing both within and across network bank transfers, we find evidence of internal capital market usage for branch offices which we do not replicate for unit banks' external capital market participation.

Figure 11: 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.

Branch networks used these transfers to concentrate loans in only some of their establishments. The distribution of branch loan-asset ratios, also plotted in Figure 11a, has the reverse pattern as the bank transfer figure. Branches have a highly right skewed loan-deposit ratio when examining them office by office. There is a large mass near 0, implying that a large number of branches primarily issued deposits without creating loans. This is in marked contrast to unit banks; unit banks' bank transfer asset share is more *right* skewed than their loan-asset ratio. Branches either transferred their deposits elsewhere in the network or made loans locally while most unit banks only did the latter and did not export funds the same way.

Individual branches' asset allocation do not reflect bank aggregates, and in fact, likely had a very different business model than unit banks. For this difference to explain the persistent effects in the prior section, it

Table 2: Banking office capital flows, branch membership and banking office size

	(1)	(2)	(3)	(4)	(5)	(6)
	Log Bank Outflows			Log Bank Inflows		
1(Branch)	-0.170	-0.323	-1.300	-7.142***	-7.330***	-5.222***
	(0.682)	(0.564)	(0.788)	(0.355)	(0.473)	(0.514)
Deposits over median		2.198***	1.876***		2.722***	3.422***
		(0.174)	(0.0664)		(0.295)	(0.286)
Branch x Deposits			1.625**			-3.513***
			(0.797)			(0.555)
Constant	12.07***	11.02***	11.17***	8.810***	7.503***	7.184***
	(0.151)	(0.133)	(0.107)	(0.0790)	(0.163)	(0.135)
Observations	7689	7689	7689	7689	7689	7689

Notes: Regression table omits state - bank charter type dyad fixed effects. Standard errors clustered at state-charter level in parentheses. All Federal Reserve member banking offices in 1937 included. * p<0.1, ** p<0.05, *** p<0.01

must be the case that branch networks funneled funds to less-developed areas, which the prior section showed had the largest long-run benefits from branch deregulation. We provide evidence on this margin by contrasting how unit banks and branch networks' capital flows varied with banking office size. Specifically we regress capital inflows (a deposit into the banking office from elsewhere) and capital outflows(a loan made to another banking office) at each banking establishment e operating in state s with charter type c in 1937:

$$CAPITALFLOW_{e,s,c} = \beta_0 + \beta_1 1(BRANCH)_e + \beta_2 DEPOSITS_e + \beta_3 1(BRANCH) \times DEPOSITS_e + \beta_{s,c} + \epsilon_{s,c} \quad (3)$$

We focus on whether capital flows varied by branch status ($1(BRANCH)_e$) and banking office size (banking office deposits greater than the sample median, $DEPOSITS_e$), holding regulatory differences constant with state-charter type fixed effects. Our main coefficient of interest is the interaction term β_3, which reflects whether branch networks differentially participated in capital markets based on local financial development, as proxied by the amount of deposits at a banking office. Standard errors are clustered at the same level as the fixed effects. Table 2 presents results on both capital outflows (loans made to other banking offices) and inflows (deposits from other banking offices).

Table 2 Columns 1 through 3 examine the effect of branch network membership on banking offices' capital outflows. The branch indicator is negative but not consistently statistically significant for this outcome. However, the sign is reversed when interacted in Column 3 with local financial development. The larger the banking office, the more likely the banking office is to move money elsewhere (as also seen in Column 2). The β_3 coefficient is almost as large as the β_2 coefficient and offsets the β_1 effect, suggesting that large branch offices experienced substantively higher outflows than small ones, even when adjusting for size differences.

Table 3: Capital market inflows, branch membership, and banking office outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
	Log Office Deposits			Non-Bank Loans/Assets		
1(Branch)	0.00262	0.307	1.250***	-0.155***	-0.129***	-0.212***
	(0.222)	(0.348)	(0.204)	(0.0152)	(0.0237)	(0.0148)
1(Receive Inflows)		0.387	1.160***		0.0330	-0.0353***
		(0.254)	(0.0679)		(0.0209)	(0.00758)
Branch x 1(Receive)			-1.856***			0.165***
			(0.490)			(0.0504)
Constant	13.92***	13.55***	12.82***	0.193***	0.161***	0.226***
	(0.0486)	(0.259)	(0.0747)	(0.00333)	(0.0205)	(0.00803)
Observations	7639	7639	7639	7645	7645	7645

Notes: Regression table omits state - bank charter type dyad fixed effects. Standard errors clustered at state-charter level in parentheses. All Federal Reserve member banking offices in 1937 included. * p<0.1, ** p<0.05, *** p<0.01

In contrast, Table 2 Columns 4 through 6 show that small branches experienced much larger inflows of capital than large ones. Branch networks had smaller capital inflows overall, but there is a negative interaction between banking office deposits and branch status. Offices with fewer deposits experienced larger inflows than larger ones, and we take this as evidence that external and internal capital markets directed funds to different offices in this dataset

To confirm that internal capital market transfer locations differed from external capital market receivers, we regress log banking office deposits on a branch indicator, an indicator for receiving capital inflows, and the interaction between those two measures in Table 3. Though branches are no smaller overall than unit banks in terms of log deposits (see Column 1), there is a strong negative association between branching and receiving inflows which is about 60 percent larger in magnitude than the inflow indicator in Column 3. These estimates suggest that bank branch networks could and did use internal capital markets to redirect deposits to less-developed branches.

The last piece in this chain is to show that these small branches transformed capital inflows into more local lending than unit banks. Table 3 Columns 4 through 6 examines how branches and unit banks' share of assets allocated to non-bank loans varied by whether or not they receive bank deposits (either within or across networks). As we might expect from Figure 11's right-skewed branch loan-asset ratios, Column 4 shows a negative effect of branching approximately the same size as the sample's median outcome. Adding an indicator for capital market inflows in Column 5 reveals that banking offices have higher loan-asset ratios if they receive bank transfers. However, as Column 6 shows, that relationship is solely driven by branch offices receiving flows. The indicator for receiving capital flows turns slightly negative while its interaction with branch status becomes large and statistically significant. Branches receiving capital market transfers

do most of their bank's lending, despite being smaller on average than other establishments in the branch network. Unit banks' use of external capital markets fails to replicate this sort of targeted lending, which may help explain why branching induced such strong, persistent local effects.

More suggestively, these results are driven by states which included "bankless town" provisions in their branch deregulation.[25] When we split our branching treatment group by whether states lowered the barriers to branching for place not served by any bank, we see that the small branch inflows and large branch outflows are driven by these "banklessness" conditions. Again, this is consistent with branch networks facilitating the movement of funds to the parts of their networks most starved of capital. Later nationwide studies align with these results, finding that branch offices lend more of their assets than comparable unit banks in smaller communities, allowing them to succeed where unit banks could not (Schweiger and McGee, 1961).

7 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 largescale 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 heterogeneity in real outcomes due to bank branching deregulation. States that deregulated in the aftermath of the Great Depression experienced faster recovery and persistently higher financial development in the subsequent decades. In addition, counties with earlier branching experienced significantly higher deposit and manufacturing production growth and faster exits from farming that also persisted throughout this period. Less-developed places drive these results, suggesting that bank branch deregulation accelerated financial deepening and structural transformation in areas which had limited banking access before the change in laws.

We find that bank offices in branch networks are better able to both mobilize and utilize capital from other locations, which is suggests branch offices were better able to channel capital to areas with higher returns. Also consistent with this mechanism, we find that manufacturing dispersion fell within deregulating states. These estimates suggest that the persistent effects of bank branching may be due to the delay in remaining states' branch deregulation if less-developed places in unit bank-only states did not reap the benefits of

[25] See Figure A.1 for an example of this condition.

internal capital markets inducing manufacturing sector convergence within the 1930s deregulating states.

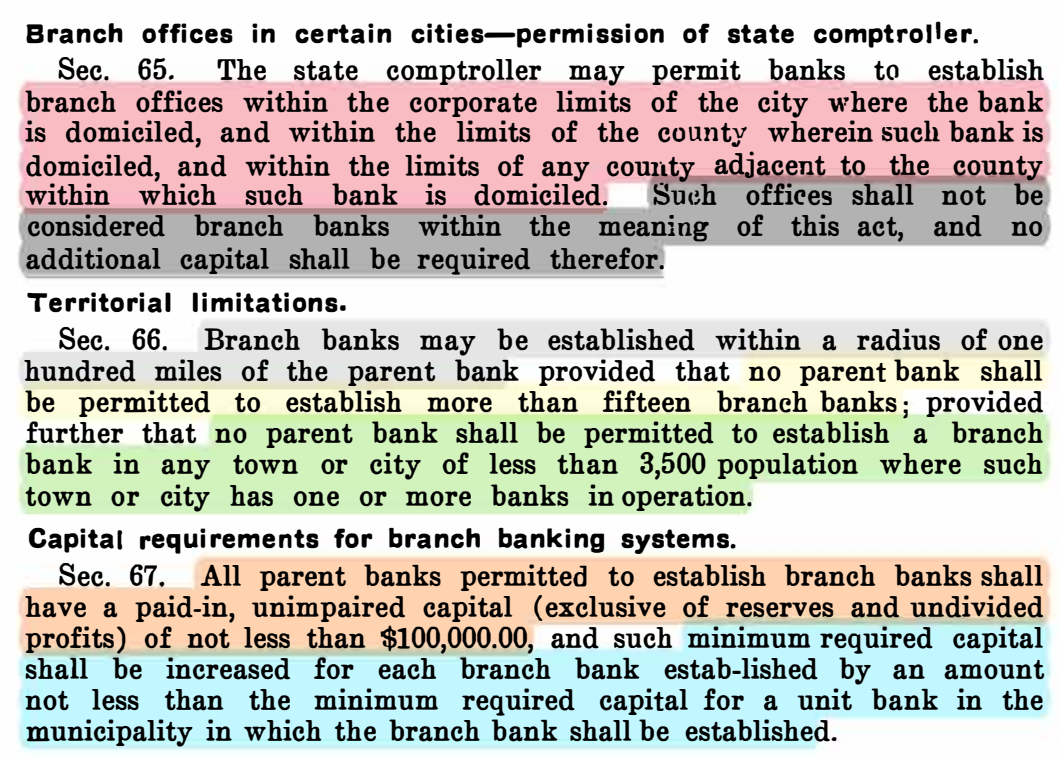
A Additional Tables and Figures

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.

Figure A.1: Sample bank branching regulation



Branch offices in certain cities—permission of state comptroller.

Sec. 65. The state comptroller may permit banks to establish branch offices within the corporate limits of the city where the bank is domiciled, and within the limits of the county wherein such bank is domiciled, and within the limits of any county adjacent to the county within which such bank is domiciled. Such offices shall not be considered branch banks within the meaning of this act, and no additional capital shall be required therefor.

Territorial limitations.

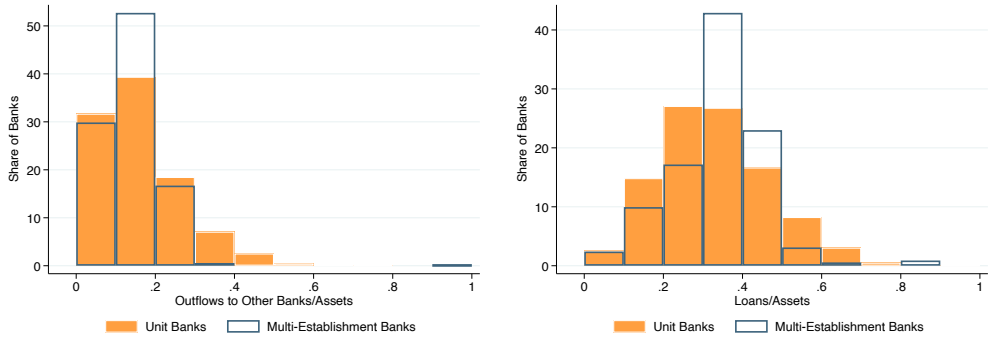
Sec. 66. Branch banks may be established within a radius of one hundred miles of the parent bank provided that no parent bank shall be permitted to establish more than fifteen branch banks; provided further that no parent bank shall be permitted to establish a branch bank in any town or city of less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

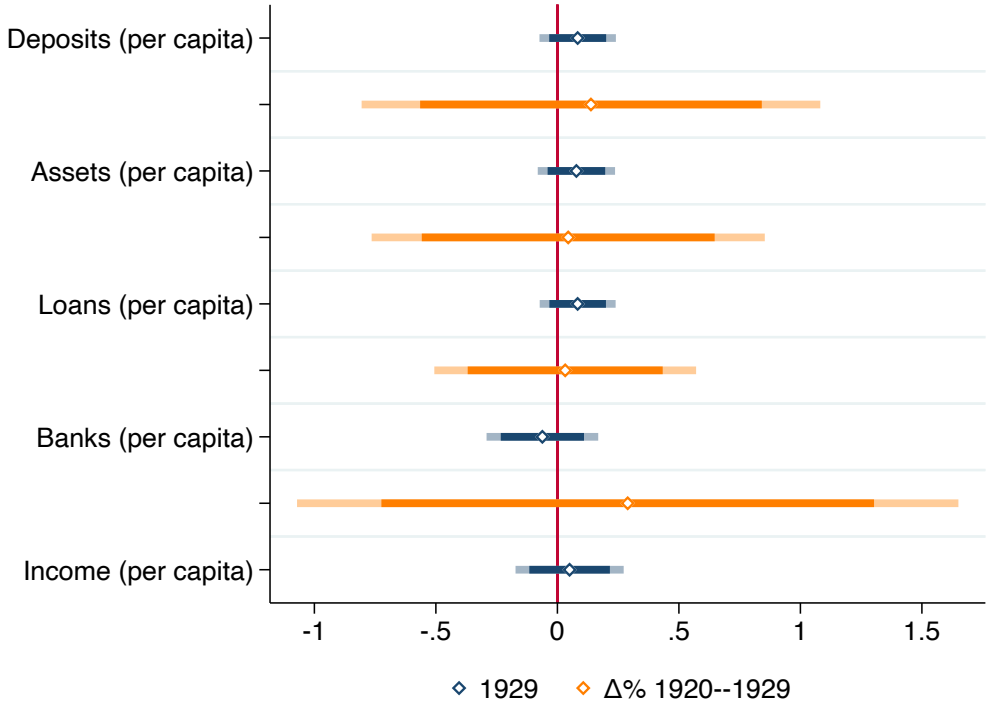
Figure A.2: Contrasting branch network and unit bank balance sheets, 1937



(a) Interbank Loan/Assets (b) Loan/Assets

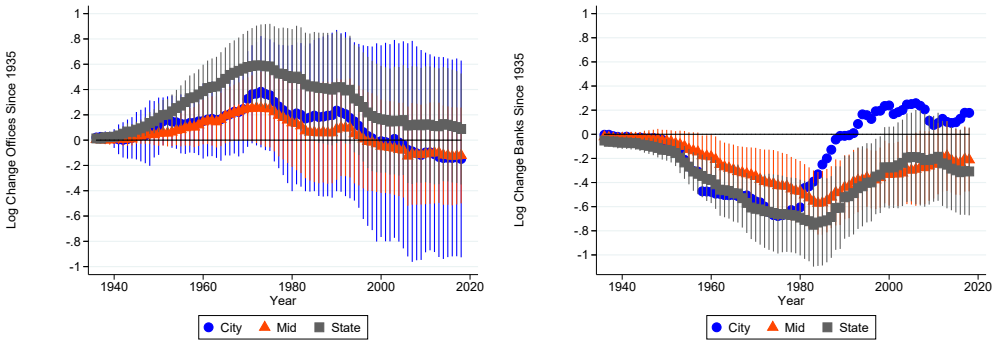
Sources: Federal Reserve Board (1937) and authors' calculations. All balance sheets are at the bank level. All Federal Reserve member bank offices in 1937 included. Interbank loans include only external bank transfers.

Figure A.3: State Characteristics Balance on Deregulation



Sources: Bank data–Flood (1991), population–FRED, per capita personal income–FRED. 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 90 and 95% confidence intervals. Standard errors are robust.

Figure A.4: Long Run Banking Development and Geographic Deregulation

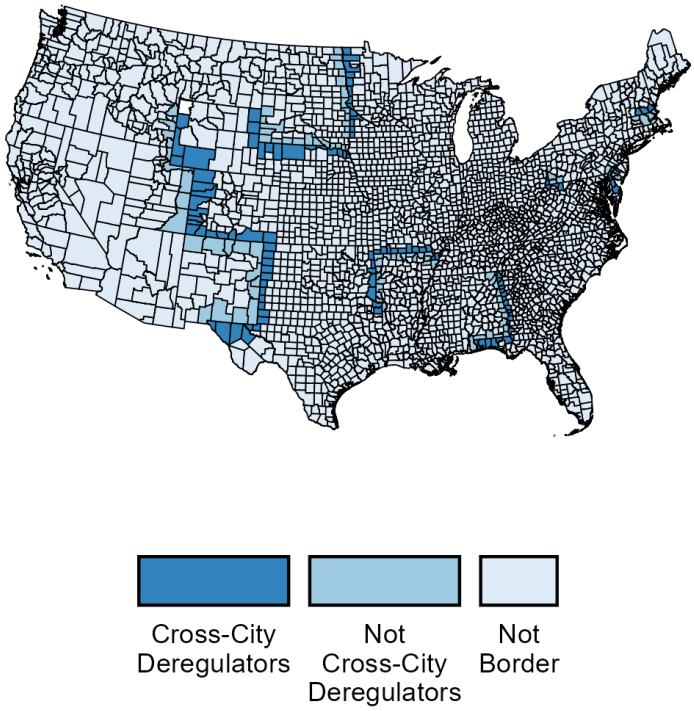


(a) Banking Offices

(b) Banks

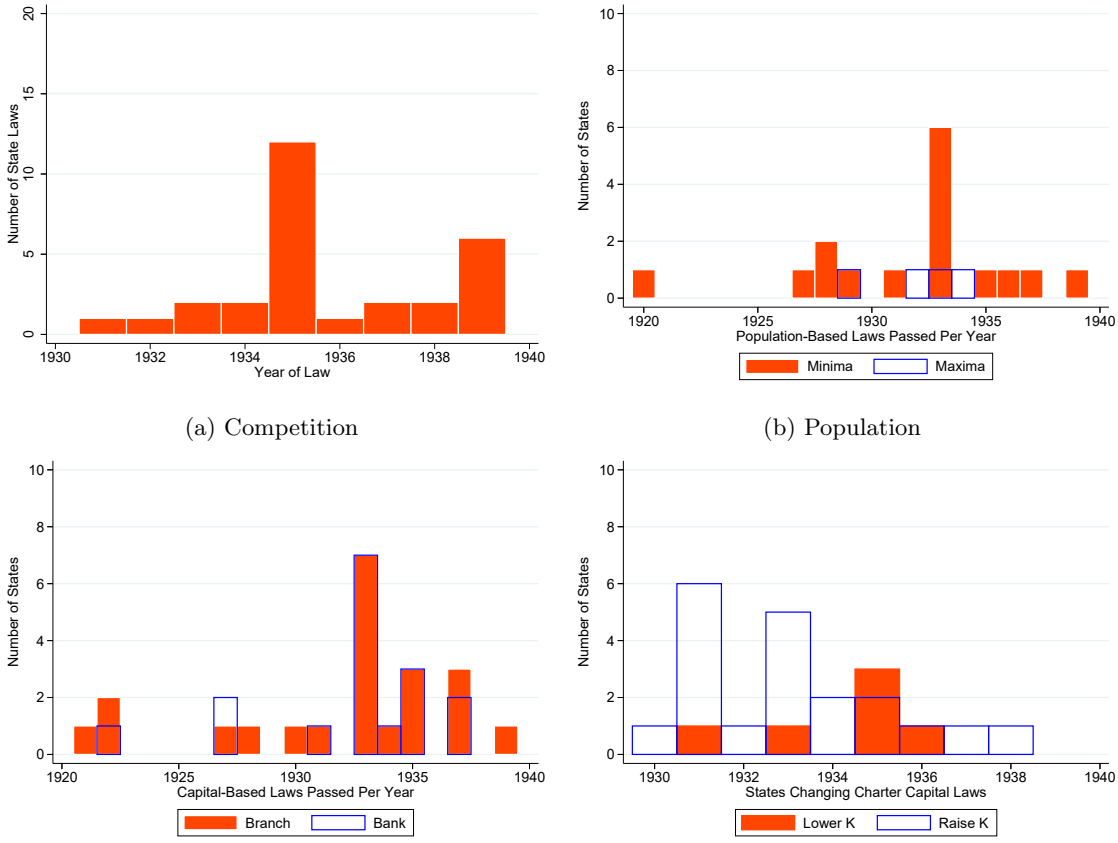
Sources: State session laws, FDIC, and authors' calculations. Each point is the result of a separate regression of the log change in the outcome relative to 1935 on 1939 branch geography legality, controlling for region fixed effects. City standard errors omitted because no coefficient was significant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

Figure A.5: 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.6: Types of State Bank Regulation Passed, 1920–1940



(a) Competition

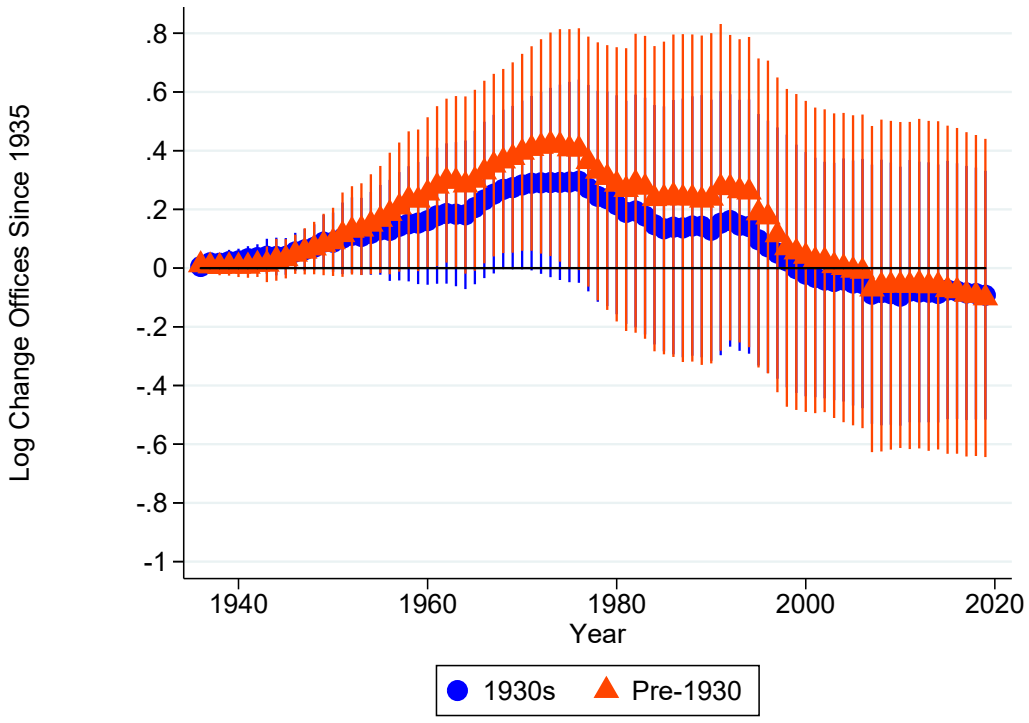
(b) Population

(c) Branching Capital

(d) Unit Bank Capital

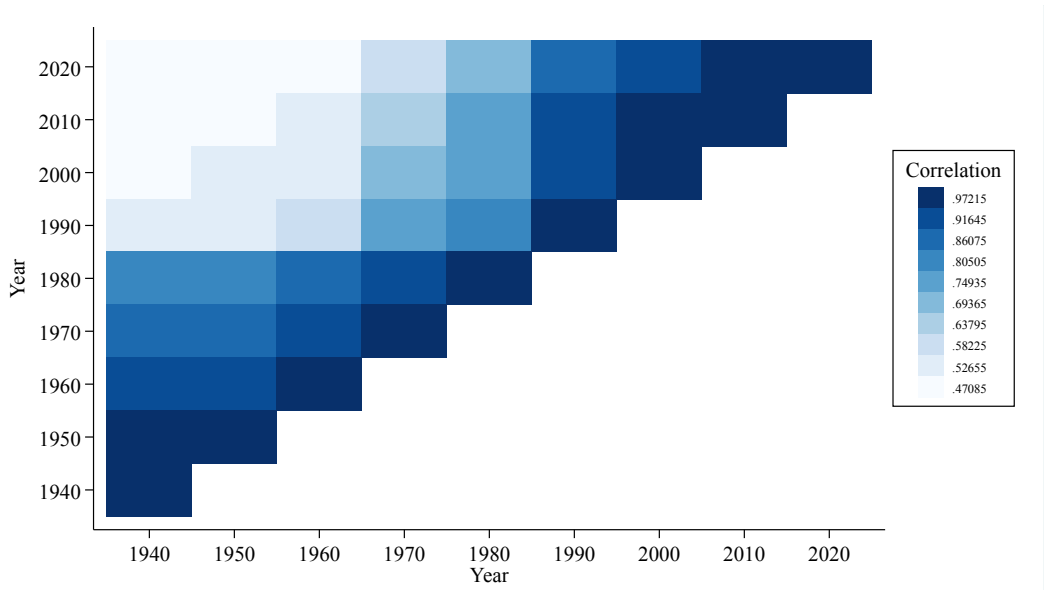
Sources: State session laws and authors' calculations.

Figure A.7: Long Run Banking Development by Timing of Deregulation



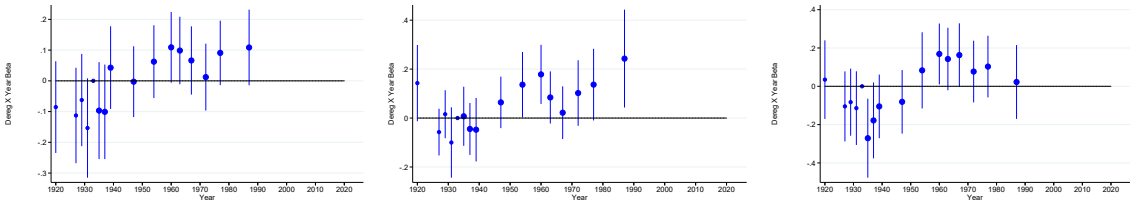
Sources: State session laws, FDIC, and authors' calculations. Each point is the result of a separate regression of the log change in the outcome relative to 1935 on 1939 branch legality, (separately for pre-1930 and 1930s first deregulation) controlling for region fixed effects.

Figure A.8: 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.

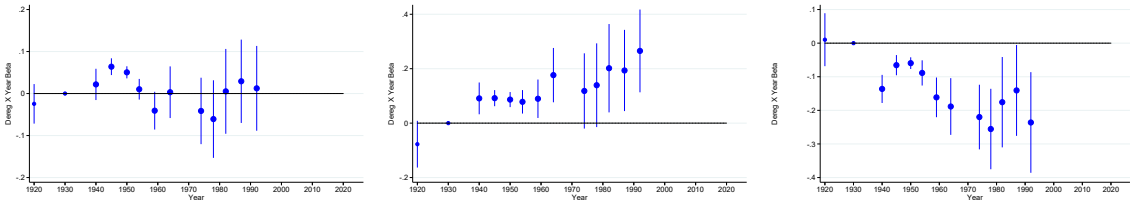
Figure A.9: Branch deregulation's effects on log manufacturing establishments per capita



(a) Overall (b) Below 1929 median (c) Above 1929 median

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. We use 1933 as the omitted year because census conducted before the Glass-Steagall Act. Population is interpolated between census years. Outcome is log number of manufacturing establishments per capita in each county in each year and medians are defined in the county border pair sample in 1929. Observations are truncated at the 1 percent level in each year.

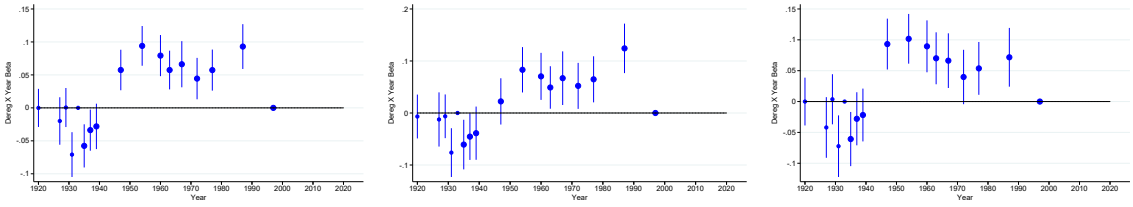
Figure A.10: Branch deregulation's effects on log farm value per capita



(a) Overall (b) Below 1930 median (c) Above 1930 median

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. We use 1930 as the omitted year. Farm value refers to land and buildings only. Population is interpolated between census years. Medians are defined in the county border pair sample in 1930. Observations are truncated at the 1 percent level in each year.

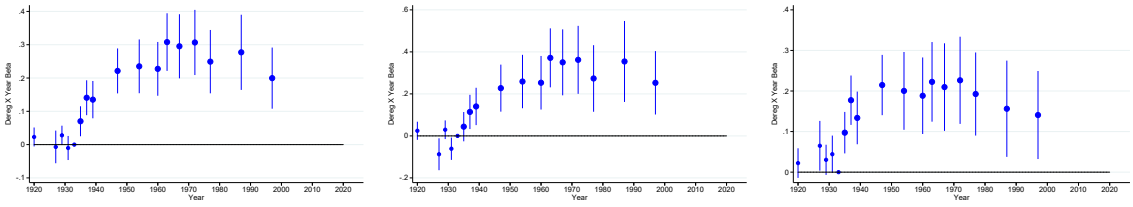
Figure A.11: Log manufacturing establishments per capita using all potential counties



(a) Overall (b) Below 1929 median (c) Above 1929 median

Sources: State session laws, FDIC, Federal Reserve call reports, ICPSR, and authors' calculations. This regression includes all counties in post-1933 states, with treatment defined as 1930s deregulation after 1933. 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 county level. We use 1933 as the omitted year. Other controls are the 1920 outcome and 1920–29 percent change in the outcome separately interacted with each year, county fixed effects, and census region-year dyad fixed effects. Population is interpolated between census years. Medians are defined in the county border pair sample in 1929. Observations are truncated at the 1 percent level in each year.

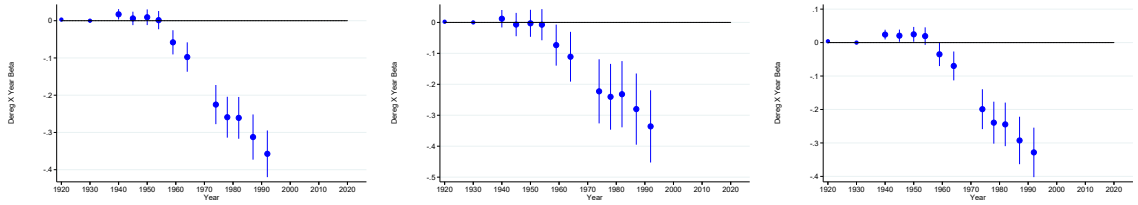
Figure A.12: Log manufacturing value-added per capita using all potential counties



(a) Overall (b) Below 1929 median (c) Above 1929 median

Sources: State session laws, FDIC, Federal Reserve call reports, ICPSR, and authors' calculations. This regression includes all counties in post-1933 states, with treatment defined as 1930s deregulation after 1933. 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 county level. We use 1933 as the omitted year. Other controls are the 1920 outcome and 1920–29 percent change in the outcome separately interacted with each year, county fixed effects, and census region-year dyad fixed effects. Population is interpolated between census years. Medians are defined in the county border pair sample in 1929. Observations are truncated at the 1 percent level in each year.

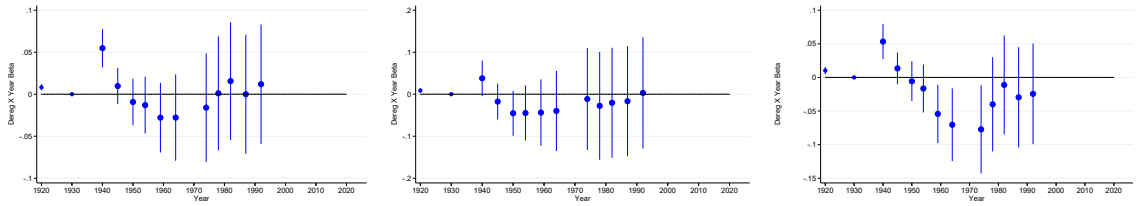
Figure A.13: Log farms per capita using all potential counties



(a) Overall (b) Below 1930 median (c) Above 1930 median

Sources: State session laws, FDIC, Federal Reserve call reports, ICPSR, and authors' calculations. This regression includes all counties in post-1933 states, with treatment defined as 1930s deregulation after 1933. 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 county level. We use 1930 as the omitted year. Other controls are the 1920 outcome and 1920–29 percent change in the outcome separately interacted with each year, county fixed effects, and census region-year dyad fixed effects. Population is interpolated between census years. Medians are defined in the county border pair sample in 1930. Observations are truncated at the 1 percent level in each year.

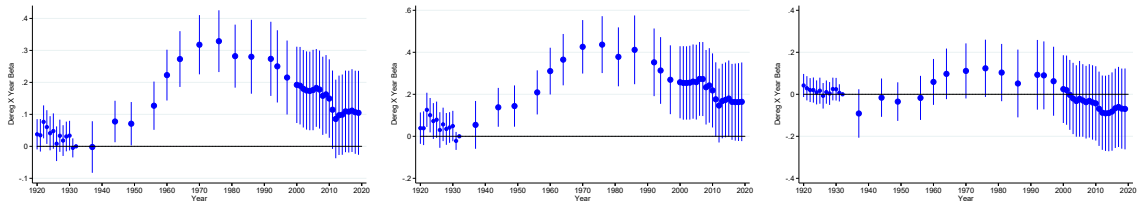
Figure A.14: Log farm value per capita using all potential counties



(a) Overall (b) Below 1930 median (c) Above 1930 median

Sources: State session laws, FDIC, Federal Reserve call reports, ICPSR, and authors' calculations. This regression includes all counties in post-1933 states, with treatment defined as 1930s deregulation after 1933. 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 county level. We use 1930 as the omitted year. Other controls are the 1920 outcome and 1920–29 percent change in the outcome separately interacted with each year, county fixed effects, and census region-year dyad fixed effects. Population is interpolated between census years. Medians are defined in the county border pair sample in 1930. Observations are truncated at the 1 percent level in each year.

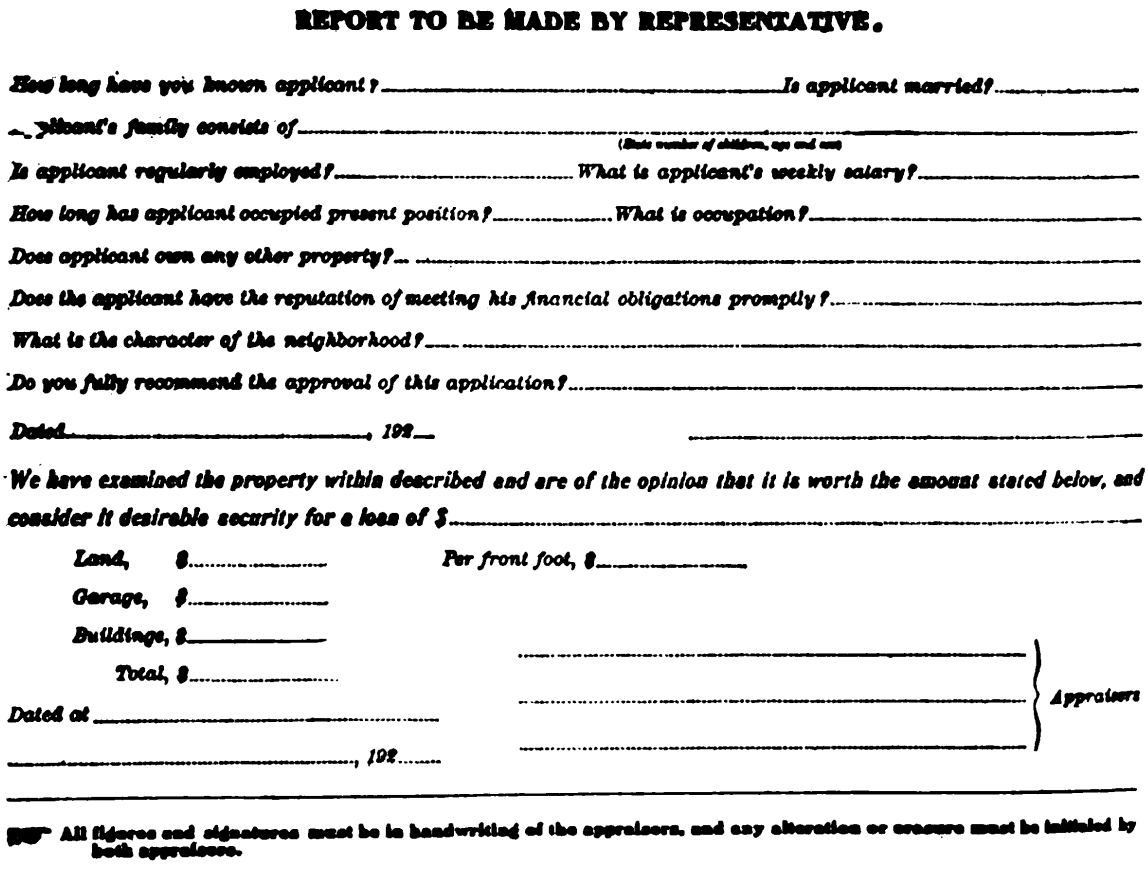
Figure A.15: Log deposits using all potential counties



(a) Overall (b) Below 1929 median (c) Above 1929 median

Sources: State session laws, FDIC, Federal Reserve call reports, ICPSR, and authors' calculations. This regression includes all counties in post-1933 states with 1937 call report data, with treatment defined as 1930s deregulation after 1933. 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 county level. We use 1930 as the omitted year. Other controls are the 1920 outcome and 1920–28 and 1928–29 percent changes in the outcome separately interacted with each year, county fixed effects, and census region-year dyad fixed effects. Population is interpolated between census years. Medians are defined in the county border pair sample in 1929. Observations are truncated at the 1 percent level in each year.

Figure A.16: Sample 1920s loan application



REPORT TO BE MADE BY REPRESENTATIVE.

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

_____ plicant'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, Smith et al. (1928).

B Determinants of deregulation

B.1 State choice of restrictions

Although bank branching was often in the news in the 1920s and early 1930s, it was not until after 1933 that most states adopted bank branching (see Figure A.6). Beyond the sheer number of legalizations, the format was different than before, as seen in Figure 4. To better understand why states chose the branching regimes they did during the 1930s, we outline several political economy-based hypotheses which could explain this shift in regulation.

Both public and private interests likely played a role in the solutions state legislatures proposed. Bankers lobbied quite frequently, with both state specific and nationwide trade associations debating to endorse regulations (Chapman, 1934). Occasionally, they even contributed the actual text of legislation, perhaps due to their earlier experience working in financial regulation.[26] Their ability to influence banking laws was well established in this setting, with contemporary economists frequently blaming unit bankers for the slow legalization of branch banking before 1933 (Chapman, 1934). However, the sheer scope of the financial crisis greatly reduced the number of incumbent unit bankers willing and able to combat branching.

The lack of banking services also created political incentives for legislatures to reform financial regulation. Constituents were anxious to resume access to banking services, especially as the liquidation of failed banks dragged (Anari, Kolari, and Mason, 2005). As in earlier financial crises, farmers clamored for the reinstatement of credit lines. Branch banks, with their ability to make larger loans, had long been particularly attractive to large businesses. Before the Depression, rural elites were associated with support for unit banking, likely to a desire to maintain power and a sort of loan forbearance implied by bank solvency being tied so closely to a hyper local portfolio (Calomiris, 2000). Joining large landowners in the anti-branching coalition were populists in the Huey Long mold (see below for more on this wing of the Democratic party).[27]

First, we capture these competing interests in a simple regression framework at the state level to predict branch bank regulation in the 1930s. Based on the historical narrative, we separate out state population shares by urban and rural status, using the share of population in places between 2,500 and 25,000 as an omitted category. Similarly, because small farmers and large landholders often had different attitudes towards branch banking, we include two measures of agricultural land inequality (Rajan and Ramcharan, 2016). We also proxy for large firms' credit demand using the average value added per manufacturing establishment. As a rough proxy for potential populist sentiment, we also include the native-born white

[26] Between his time as a Treasury secretary and California senator (who introduced several bills to allow cross state branching in the 1930s), William McAdoo Jr. worked at the largest branch network in the country, Bank of America, for example.

[27] Huey Long supported the passage of the Glass-Steagall Act but had filibustered bank reform earlier in 1933 (72nd Congress, 1933). Many populist newspapers cheered his actions as a way to fight big business.

share of the population.[28]

In addition to these state-level economic variables, we measure the effect of various financial interests. We differentiate between household and business need for credit using the imposition of mortgage moratoria in a state and the share of respondents noting the need for working capital loans, respectively (Wheelock et al., 2008; Carlson and Rose, 2015). To capture the lingering impact of bank liquidation by the state, we measure the share of 1932 bank deposits in non-member banks which remained in non-licensed banks at the end of December 1933 (Federal Reserve System). We proxy for group and chain bank presence using the share of banks in group systems in 1931 (Federal Reserve System) and use a McFadden Act-era survey of bankers to measure support for branch banking (Bankers Magazine, 1925). Using these variables, we then predict the probability of a given type of bank regulation in state s in time t in the following way:

$$LAW_{s,t} = \gamma_0 + \gamma_r ECON_{s,1930} + \gamma_b BANK_{s,1930} + \gamma_c + \epsilon_{st} \tag{4}$$

Finally, we include fixed effects for the four census regions to absorb characteristics which may affect the tendency to adopt different types of laws and are correlated over space but are otherwise unobserved. We include heteroskedasticity robust standard errors in this version. Our analysis proceeds in two parts. First, we examine how the determinants of loosening geographic restrictions on bank branching changed from the 1920s (when few states deregulated) to the 1930s, building on earlier cross-sectional approaches (Abrams and Settle, 1993; Economides, Hubbard, and Palia, 1996; Dehejia and Lleras-Muney, 2007). Then, we analyze the types of other branch conditions adopted for states permitting some form of branching to improve our understanding of the barriers erected to modern bank branching.

For many states, the 1930s were the first time that bank branch networks were allowed to operate legally. For each of three branching permission types, we estimate Equation 4 with just the economic variables on the left and including the banking variables on the right. Any branching includes states which legalize any form of branching after it not being explicitly permitted. Cross-city branching is defined as any regime which permits branching at a more geographically aggregated area than city-only and less than state-wide. We also note that here state-wide branching being legal is merely the geography technically allowed; it does not imply that there were no other conditions to bank branch expansion. Table A.2 displays the probability of passing different types of branch laws by 1939 if that type of law was not in place by 1929.

Regardless of the type of geography, the rural population share is positively correlated with allowing branch networks between 1929 and 1939. Increases in the share of farms with under 100 acres is also positively

[28]The next subsection provides more localized evidence on the importance of this pressure group. We do not use the 1932 election, or overall Democratic party affiliations because the leaders of both the pro- and anti-branching camps, Carter Glass and Huey Long, were both (southern) Democrats, complicating notions of party membership.

Table A.2: Political economy predictors of 1929–39 branch deregulation

	(1)	(2)	(3)	(4)	(5)	(6)
	Any branching		Cross-city branching		Statewide branching	
Native-born white share population, 1930	-3.11***	-0.45	-1.25	1.22	-1.13	-0.12
	(1.06)	(1.39)	(0.99)	(0.93)	(0.98)	(0.92)
Share population in places over 25,000, 1930	1.30	3.98*	2.18	5.63***	0.19	1.96
	(1.24)	(1.98)	(1.59)	(1.55)	(1.40)	(1.20)
Share population in places under 2500, 1930	4.77***	6.66***	4.26**	7.36***	1.78	3.80**
	(1.36)	(1.79)	(1.64)	(1.63)	(1.73)	(1.48)
Share of farms over 1000 acres, 1930	-3.39	-0.00	-0.29	3.17	-5.81***	-4.87
	(2.44)	(2.44)	(2.92)	(2.51)	(2.00)	(3.22)
Share of farms under 100 acres, 1930	1.22*	1.92**	1.30	2.82***	0.06	0.61
	(0.70)	(0.75)	(0.78)	(0.74)	(0.51)	(0.70)
Manufacturing value per establishment, 1930 ($m)	1.75**	1.14	0.56	0.38	1.57*	1.47*
	(0.66)	(0.83)	(0.68)	(0.60)	(0.87)	(0.73)
1(mortgage moratorium)		0.25		0.42**		0.06
		(0.21)		(0.15)		(0.13)
Share respondents requiring more credit, 1934		-0.37		-1.35		-0.27
		(1.26)		(0.89)		(0.82)
Share non-member deposits unlicensed, Dec. 1933		0.33		0.48		-0.28
		(0.38)		(0.31)		(0.30)
Share banks in group system, 1931		1.57**		2.03***		2.13***
		(0.70)		(0.62)		(0.56)
Bankers supporting branching, 1924		0.58		0.66		0.81
		(0.65)		(0.64)		(0.48)
Constant	-0.90	-5.84**	-2.19	-8.28***	-0.15	-3.42**
	(1.44)	(2.12)	(1.90)	(1.82)	(1.60)	(1.49)
R-sq	0.61	0.71	0.44	0.70	0.41	0.65
F-stat	8.80	8.58	4.62	10.42	3.77	4.21
N	29	28	35	34	39	38

Sources: State session laws, Wheelock et al. (2008), (Haines, 2010), Carlson and Rose (2015), Federal Reserve System (1931b), Federal Reserve System, and authors' calculations. Fixed effects for the four census regions not shown. Population, agriculture, and manufacturing data from 1930 census. All states not permitting branching to that extent in 1929 included.

associated with allowing at least some branching only in the 1930s (see Table A.4 for 1929 results). Despite historic resistance to banking concentration, these interests favored deregulation, perhaps due to lingering banking shortages, as suggested by Columns 2 and 4. The change in small farmers' attitudes is likely correlated with the farm mortgage crisis, which Alston (1984) and Wheelock et al. (2008) show drove the passage of mortgage moratoria. Our quantitative evidence builds on Great Depression narratives centering agricultural distress to show their impact on long-run banking regulation.

Though branching became more popular between 1929 and 1939, it remained controversial enough to induce all but two states to place other sorts of barriers to branch expansion in 1939. Now, using the subset of states which adopted new regulations between 1929 and 1939, we conduct a similar exercise as above for to see what correlates with these conditions including both economic and banking interest group measures. Table A.3 displays the results for each type of branching condition.

Table A.3: Political economy predictors of 1939 branch conditions

	(1)	(2)	(3)	(4)	(5)	(6)
	Any branching		Cross-city branching		Statewide branching	
Native-born white share population, 1930	-3.11***	-0.45	-1.25	1.22	-1.13	-0.12
	(1.06)	(1.39)	(0.99)	(0.93)	(0.98)	(0.92)
Share population in places over 25,000, 1930	1.30	3.98*	2.18	5.63***	0.19	1.96
	(1.24)	(1.98)	(1.59)	(1.55)	(1.40)	(1.20)
Share population in places under 2500, 1930	4.77***	6.66***	4.26**	7.36***	1.78	3.80**
	(1.36)	(1.79)	(1.64)	(1.63)	(1.73)	(1.48)
Share of farms over 1000 acres, 1930	-3.39	-0.00	-0.29	3.17	-5.81***	-4.87
	(2.44)	(2.44)	(2.92)	(2.51)	(2.00)	(3.22)
Share of farms under 100 acres, 1930	1.22*	1.92**	1.30	2.82***	0.06	0.61
	(0.70)	(0.75)	(0.78)	(0.74)	(0.51)	(0.70)
Manufacturing value per establishment, 1930 ($m)	1.75**	1.14	0.56	0.38	1.57*	1.47*
	(0.66)	(0.83)	(0.68)	(0.60)	(0.87)	(0.73)
1(mortgage moratorium)		0.25		0.42**		0.06
		(0.21)		(0.15)		(0.13)
Share respondents requiring more credit, 1934		-0.37		-1.35		-0.27
		(1.26)		(0.89)		(0.82)
Share non-member deposits unlicensed, Dec. 1933		0.33		0.48		-0.28
		(0.38)		(0.31)		(0.30)
Share banks in group system, 1931		1.57**		2.03***		2.13***
		(0.70)		(0.62)		(0.56)
Bankers supporting branching, 1924		0.58		0.66		0.81
		(0.65)		(0.64)		(0.48)
Constant	-0.90	-5.84**	-2.19	-8.28***	-0.15	-3.42**
	(1.44)	(2.12)	(1.90)	(1.82)	(1.60)	(1.49)
R-sq	0.61	0.71	0.44	0.70	0.41	0.65
F-stat	8.80	8.58	4.62	10.42	3.77	4.21
N	29	28	35	34	39	38

Sources: Counsel of the Board of Governors (1925), Counsel of the Board of Governors (1930), Counsel of the Board of Governors (1936), Wheelock et al. (2008), (Haines, 2010), Carlson and Rose (2015), Federal Reserve System (1931b), Federal Reserve System, and authors' calculations. Fixed effects for the four census regions not shown. Population, agriculture, and manufacturing data from 1930 census. All states permitting branching to any extent in 1936 included.

We find evidence that the expansion of branch networks came about thanks to a coalition favoring expansion to otherwise underserved areas. As above, there is no evidence that this coalition existed before the

Great Depression, which we examine using 1929 branching rules in Table A.5. Concentration of population in very small or large places correlated with support for the most common type of entry condition passed in the 1930s, that a location not having any banking offices. Most unbanked places had populations under 2,500 so cities could have sought the use of rural deposits for their own use (Southworth, Chapman et al., 1941).

The results on minimum branch network capital in Column 3 support this interpretation. Pro-branch forces argued at the time that branching would give less-populous areas access to large banks despite not having the wealth to sustain high levels of capital on their own (72nd Congress, 1933). Large rural and city share states were more likely to enact this restriction, as were those with large manufacturing concerns. In contrast, states dominated by large farms were opposed to mandating banks be large to branch or permitting statewide branching. To the extent highly unequal farmland distribution correlates with the presence of rural, economically marginalized voters, this finding indicates that Father Coughlin and Huey Long's supporters were hostile towards bank deregulation while less unequal and more urban areas supported it.

We find less evidence for hypotheses centering banking interests. By tracing out bank regulation at the state-condition level over time, we find that the arrival of bank deregulation in the 1930s did not significantly alter the banking industry's attitudes towards branching, unlike the more aggregated cross-sectional analysis in Abrams and Settle (1993). For instance, we show that banker opposition to branching always correlated with lower probability of deregulation; it did not change in the Depression. Similarly, states with group banks always were more likely to dissuade branching competition, either through capital or number of branch restrictions (Table A.5). Instead, we show that changing non-banking attitudes correlate with the onset of deregulation, in ways consistent with a rural realignment towards supporting branching and a populist backlash against it.

B.2 Local opposition to bank entry

There was substantial anti-bank sentiment during this unprecedented era of bank deregulation. As detailed in the historical background section above, the public mistrusted the sector they blamed for the crisis, continuing a long tradition of hostility towards large-scale finance in the United States. Although Congress greatly altered its stance towards bank branching during the Depression, many Americans sided with firebrands like Huey Long and Father Coughlin and instead campaigned for strong unit banking systems if a public alternative could not be found. Because bank entry was a function of both state-level unit bank capital requirements and restrictions on branch expansion, constituents could press on both dimensions to alter their access to banking services.

Table A.4: Political economy predictors of 1924–29 branch deregulation

	(1)	(2)	(3)	(4)	(5)	(6)
	Any branching		Cross-city branching		Statewide branching	
Native-born white share population, 1930	0.24	-0.62	0.08	-0.04	-0.07	-0.28
	(0.41)	(0.88)	(0.22)	(0.33)	(0.19)	(0.39)
Share population in places over 25,000, 1930	-1.02	-2.36	-0.69	-1.40	-0.80	-1.51
	(0.91)	(1.46)	(0.59)	(0.89)	(0.70)	(1.08)
Share population in places under 2500, 1930	-1.12	-1.94	-0.29	-0.94	-0.52	-1.26
	(1.11)	(1.45)	(0.43)	(0.73)	(0.55)	(0.95)
Share of farms over 1000 acres, 1930	0.09	-1.76	-1.38	-2.91	-1.37	-1.25
	(1.31)	(2.81)	(1.45)	(1.98)	(1.40)	(1.30)
Share of farms under 100 acres, 1930	0.03	-0.80	-0.19	-1.16	-0.21	-0.53
	(0.17)	(0.81)	(0.20)	(0.70)	(0.21)	(0.44)
Manufacturing value per establishment, 1930	-0.00	0.00	-0.00	0.00	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
1(Mortgage moratorium)		-0.16		-0.16		-0.03
		(0.14)		(0.10)		(0.06)
Share respondents requiring more credit, 1934		1.17		1.18		0.67
		(0.93)		(0.71)		(0.52)
Share non-member deposits unlicensed, Dec. 1933		-0.09		0.03		-0.03
		(0.11)		(0.07)		(0.06)
Share banks in group system, 1931		-0.30		-0.10		-0.44
		(0.36)		(0.31)		(0.37)
Bankers supporting branching, 1924		-0.42		-0.06		-0.18
		(0.44)		(0.24)		(0.22)
Constant	-0.22	0.18	-0.22	-0.12	-0.04	0.10
	(0.34)	(0.71)	(0.27)	(0.39)	(0.21)	(0.37)
R-sq	0.51	0.60	0.40	0.60	0.32	0.48
F-stat	0.25	0.31	0.31	0.31	0.26	0.20
N	29	29	33	33	37	37

Sources: Counsel of the Board of Governors (1925), Counsel of the Board of Governors (1930), Counsel of the Board of Governors (1936), Wheelock et al. (2008), (Haines, 2010), Carlson and Rose (2015), Federal Reserve System (1931b), Federal Reserve System, and authors' calculations. Fixed effects for the four census regions not shown. Population, agriculture, and manufacturing data from 1930 census. All states not permitting branching to that extent in 1924 included.

Table A.5: Political economy predictors of 1929 branch conditions

	(1) Location bankless	(2) Max. network branches	(3) Bank min. capital	(4) Branch min. capital	(5) Population min.
Native-born white share population, 1930	0.00	2.28	0.65	-9.02*	-6.79*
	(.)	(1.10)	(2.85)	(3.53)	(3.16)
Share population in places over 25,000, 1930	0.00	-6.45***	-0.60	-4.47	-1.40
	(.)	(1.16)	(2.23)	(3.57)	(2.21)
Share population in places under 2500, 1930	0.00	-9.28***	-0.22	-2.19	-1.79
	(.)	(1.70)	(3.09)	(4.35)	(3.31)
Share of farms over 1000 acres, 1930	0.00	38.54	3.14	-69.76	-44.93
	(.)	(20.54)	(53.83)	(72.38)	(54.68)
Share of farms under 100 acres, 1930	0.00	-1.28	0.25	-0.98	-1.47
	(.)	(0.68)	(1.25)	(1.85)	(1.42)
Manufacturing value per establishment, 1930	0.00	-0.00	0.00	0.00	-0.00
	(.)	(0.00)	(0.00)	(0.00)	(0.00)
1(Mortgage moratorium)	0.00	0.65**	0.21	-0.59	-0.93*
	(.)	(0.14)	(0.34)	(0.35)	(0.34)
Share respondents requiring more credit, 1934	0.00	0.26	-2.31	-0.77	1.67
	(.)	(0.95)	(1.42)	(2.36)	(2.06)
Share non-member deposits unlicensed, Dec. 1933	0.00	-0.02	-0.69	-0.75*	-0.93*
	(.)	(0.21)	(0.35)	(0.32)	(0.39)
Share banks in group system, 1931	0.00	10.27***	6.47	-7.79	-4.59
	(.)	(1.55)	(3.63)	(3.86)	(4.03)
Bankers supporting branching, 1924	0.00	-1.60***	-1.85	3.96**	0.99
	(.)	(0.33)	(0.92)	(1.10)	(0.98)
Constant	0.00	5.98**	1.65	8.33	8.40*
	(.)	(1.56)	(3.56)	(5.94)	(3.34)
R-sq	.	0.95	0.84	0.79	0.86
F-stat	.	57.99	23.69	10.30	9.26
N	18	18	18	18	18
States with rule	0	3	4	5	6

Sources: Counsel of the Board of Governors (1925), Counsel of the Board of Governors (1930), Counsel of the Board of Governors (1936), Wheelock et al. (2008), (Haines, 2010), Carlson and Rose (2015), Federal Reserve System (1931b), Federal Reserve System, and authors' calculations. Fixed effects for the four census regions not shown. Population, agriculture, and manufacturing data from 1930 census. All states permitting branching in 1929 included. Note that column 1 cannot be estimated due to a lack of that form of restrictions.

We provide support for the populist explanation by modeling county-level costs of opening a bank in 1933 as a function of exposure to populist rhetoric, state fixed effects, and fixed county-level economic and geographic controls. Figures A.17 and A.18 map the unit bank entry cost measures in 1929 and 1936, respectively, with warmer colors corresponding to lower costs of bank entry per person. Due to states' differing capital requirements, even places with similar populations in different states face different bank entry costs.

We measure the effect of populist exposure on this new measure of local banking market entry costs using each county's exposure to Father Coughlin via Wang (2021). Specifically, counties whose geography made it easier to listen to Father Coughlin's anti-bank broadcasts are considered more populist. More formally, we estimate the following:

$$CAPITALCOSTSc,t = \delta + \delta_p POPULISM_{c,1936} + \delta_e ECON_{c,1930} + \delta_g GEOGRAPHY_{c,1930} + \delta_s + \epsilon_{st} \quad (5)$$

Table A.6: Populism and bank entry costs

	(1)	(2)	(3)	(4)	(5)
A. Any Bank					
Coughlin Exposure	0.238	0.834	4.385**	3.833**	4.487**
	(1.402)	(1.416)	(1.773)	(1.877)	(1.739)
N	2926	2926	2926	2926	2918
B. All Branching Costs					
Coughlin Exposure	0.426	-1.397	0.505	0.745	2.258***
	(1.442)	(1.313)	(0.811)	(1.063)	(0.778)
N	999	997	997	997	996
C. New 1930s Branching Costs					
Coughlin Exposure	-2.832***	1.100	1.500	1.071	2.254*
	(0.415)	(0.942)	(1.109)	(0.992)	(1.198)
N	487	483	483	483	483
State FE	N	Y	Y	Y	Y
Other signals	N	N	Y	Y	Y
Geographic char	N	N	N	Y	Y
County socioecon char	N	N	N	N	Y

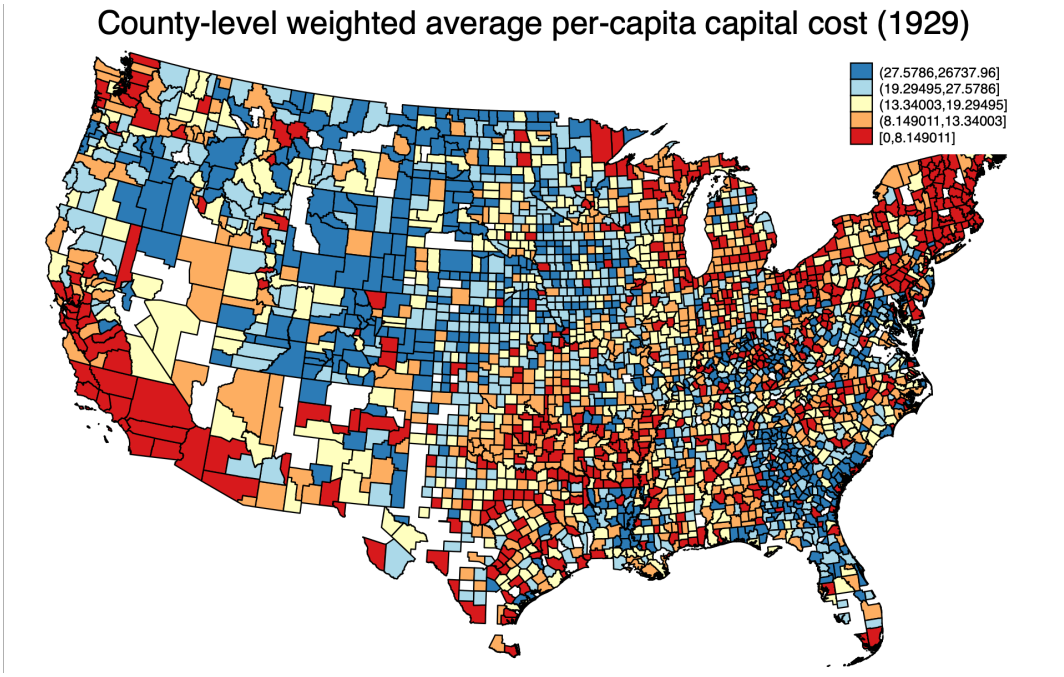
Sources: Ruggles et al. (2021), Wang (2021), and authors' calculations. Population, agriculture, and manufacturing data from 1930 census. All states with bank capital requirements included. Outcome uses 1930 city and county populations and 1940 minimum capital requirements to construct the population-weighted average start-up capital required per person in each county. All states permitting branching as of 1940 included in panel B. Geographic controls include quadratics in average elevation, area, and average ruggedness. Other controls, all in 1930, include log population, male share of population, native-born white percent population, native-born foreign percent population, percent Black, percent urban, percent over age 65, percent illiterate, percent Catholic, percent unemployed, mean occscore, share of families with a radio, manufacturing and agriculture employment shares, log average farm size, log average land value, and share of acreage in tenant farming, as in Wang (2021). Standard errors clustered at state level except in Panel C, where there are too few clusters.

Each column of Table A.6 adds successively more controls to our estimation of Equation 5. We find that places more exposed to Father Coughlin also were more likely to have a difficult time raising sufficient paid-in capital to open a bank. These coefficients in Panel A are consistently positive and are significant at the 5 percent level once we control for basic geographic controls like state and elevation. We take this table as suggestive evidence of populist headwinds in bank expansion.

Turning to Panel B, we next document similar patterns for branching-specific capital costs. This is driven by states that legalize branching during the 1930s, as seen in Panel C. More consumption of populist rhetoric correlates with both higher bank entry costs and higher branch entry costs. These coefficients are all estimated within states which permit bank branching during the 1930s, suggesting that local opposition could effectively counteract state-level support for deregulation.

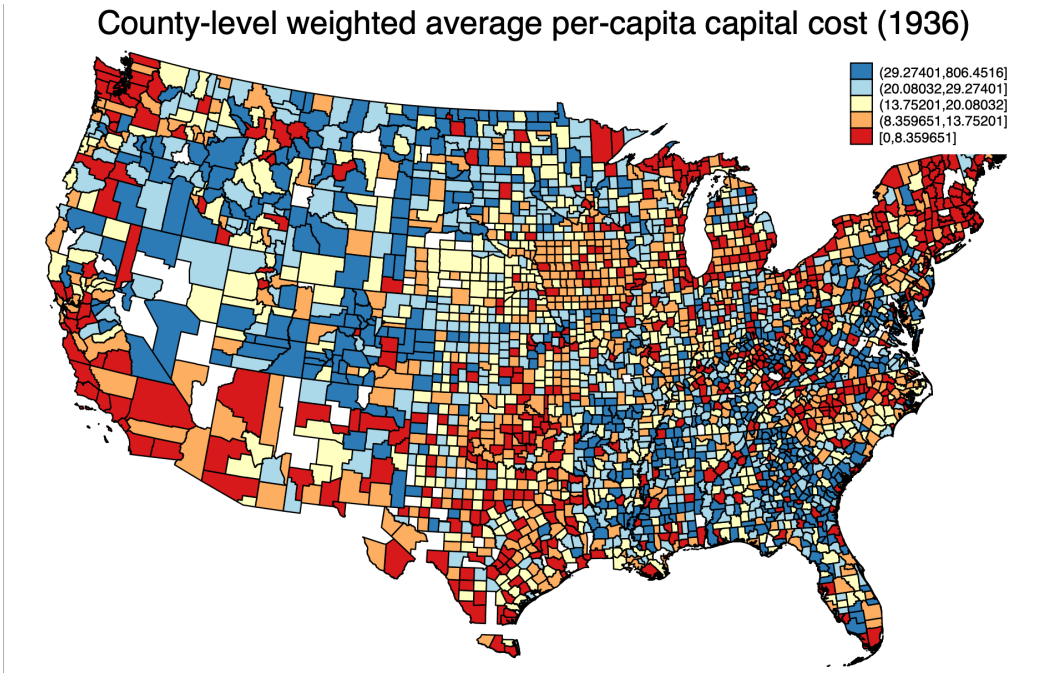
In all three panels, higher degrees of economic populism, and its attendant hostility towards concentration of power and finance, corresponds to more difficult bank entry procedures. This helps reconcile the differences in predictions based on large farm share versus rural population share in Table A.2. When we have more statistical power, as we do at the county level, we can show that rual places with more economically marginalized voters were less supportive of bank branching during the 1930s. Local access to banks, especially branch networks, depended on whether voters could be convinced that large-scale finance was the solution to the banking crisis. When that was not the case, they pressured lawmakers into erecting more barriers.

Figure A.17: Capital costs per capita using 1929 capital requirements



Sources: Ruggles et al. (2021) and authors' calculations. Capital requirements are taken from state statutes and session laws and reflect the 1929 stock of requirements. Counties not appearing in the map do not have any incorporated places in the 1920 census, which is the measure used to calculate capital requirements. We divide the capital requirement in dollars by the place's population and then construct a county weighted average.

Figure A.18: Bank entry costs per capita using 1936 capital requirements



Sources: Ruggles et al. (2021) and authors' calculations. Capital requirements are taken from state statutes and session laws and reflect the 1936 stock of requirements. Counties not appearing in the map do not have any incorporated places in the 1930 census, which is the measure used to calculate capital requirements. We divide the capital requirement in dollars by the place's population and then construct a county weighted average.

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