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DEPOSIT INSURANCE, UNINSURED DEPOSITORS, AND LIQUIDITY RISK DURING PANICS

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Keywords: postal savings, Great Depression, regulatory competition, deposit insurance, bank failures

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> While banks were failing all over the country and a veritable avalanche of funds came out of other banks, it was the Postal Savings System that salvaged much of the money withdrawn by the frightened and the timid.
>
> -Rep. Emanuel Celler of New York (*Congressional Record*, Dec. 9, 1931, p. 235)

1. Introduction

While deposit insurance is a common solution for preventing runs, the lack of universal coverage can increase liquidity risk during crises as uninsured depositors flee to safety.[1] For example, not only did thousands of uninsured depositors at Silicon Valley Bank and Signature Bank move their funds to other banks in March 2023, but so did uninsured depositors at regional banks (e.g., Drechsler et al. 2023; Chang et al. 2023; Kim et al. 2024). Isolating this type of competitive effect, however, is hard because deposit insurance is often present across all banks in a country and thus uninsured depositors would be different from insured ones. Therefore, to gain traction, we study an environment that allows a closer empirical examination of depositor behavior. Before the Federal Deposit Insurance Corporation (FDIC) became active in 1934, the only federally insured deposit accounts available to American households were through the U.S. Postal Savings System (1911-1967), which was offered at many (but not all) post offices throughout the nation. Postal savings deposits increased nearly 584% in nominal terms between June 30, 1929 and June 30, 1935, while commercial bank deposits dropped precipitously. Contemporary accounts and modern scholars such as O'Hara and Easley (1979) suggest that this shift stripped needed reserves away from banks and led to additional distress. We test whether the availability of the federally insured deposit option contributed to commercial bank closures in the early 1930s.

Deposit insurance spread throughout the world in the latter half of the 20th century as a result of external and internal political pressures favoring its adoption (Demirgüç-Kunt et al. 2008). Despite support from organizations such as the International Monetary Fund, the European Union, and the World Bank, a large literature suggests that the moral hazard costs of deposit insurance have outweighed its benefits.[2] The literature's main focus has been on how insured banks expand their risk and increase the probability of a financial crisis occurring. The

[1] In the paper, we use the phrase liquidity risk to refer to the specific liquidity risk posed by depositor withdrawals.
[2] See Brewer (1995), Caprio and Klingebiel (1996), Martinez-Peria and Schmukler (2001), Demirgüç-Kunt and Detragiache (2002), Demirgüç-Kunt and Huizinga (2004), Cull et al. (2005), Barth et al. (2006), Beck and Laeven (2008), Laeven and Valencia (2013), Calomiris and Jaremski (2016, 2019), and Calomiris and Chen (2023).

recent crisis suggests that the lack of universal coverage might also increase liquidity risk during a crisis. This aspect is hard to test because most deposit insurance systems span all banks in a country, preventing the separation of the moral hazard consequences from the competitive liquidity risk. And while systems with low limits allow uninsured and insured depositors to exist at the same bank, it is hard to separate the effects because uninsured depositors are more likely to be high income individuals or businesses compared to insured depositors.

The historical Postal Savings System offers a near-ideal environment to identify this competitive liquidity effect. First, post offices were narrow banks that did not make loans with the deposits they collected (e.g., Pennacchi 2012). As such, the existence of postal savings did not cause moral hazard, allowing us to isolate the competitive liquidity risk from other factors. Second, post offices operated beside commercial banks in towns throughout the country, but not every post office accepted deposits. Since branching was largely prohibited, we can compare commercial banks that were exposed to the availability of postal savings in their town with those in otherwise identical towns that did not have postal savings. This close comparison mitigates the potential for omitted variables. Third, by construction, post offices attracted relatively few deposits before 1929, and mostly served those marginalized individuals that commercial banks did not want to pursue. Their low costs of operation allowed many post offices to accept deposits despite very limited demand. The availability of postal savings thus did not affect commercial banks during normal periods of time and their presence was not strictly related to local demand.

To examine the role that postal savings played on bank closure, we collect the balance sheets of over 16,000 commercial banks just before the start of the Great Depression and match them with information on which post offices accepted deposits. Using an OLS estimator, we find banks that operated nearby a post office that accepted deposits were more likely to close between 1929 and 1935 than those that did not, even when controlling for bank fundamentals and location characteristics. The effect of postal savings is severely weakened after deposit insurance was installed across commercial banks and federal liquidity support was expanded. This lends credence to the theory that we are capturing a competitive liquidity effect due to the lack of universal coverage rather than some other mechanism.

The acceptance of postal deposits is likely endogenous to a community's demand for both postal and banking services. Within an Instrumental Variables framework (IV), we thus exploit a structural change in the 1910s to estimate a causal effect of the presence of postal

savings on bank closures. During World War I (WWI), the Post Office stopped thousands of post offices from accepting deposits and prevented most from regaining the ability despite significant economic and population growth before 1929. We find that post offices that initially accepted deposits were significantly less likely to stop taking deposits in 1915-1916 if they had any usage, no matter how small that usage was. Therefore, we compare commercial banks during the Great Depression that operated in locations that had a postal savings bank with 0 depositors in the mid-1910s with those in locations that had a postal savings bank with exactly 1 depositor in the mid-1910s. Those locations were very similar to each other and avoid concerns of omitted variables. Reassuringly, our instrumental variable (IV) analysis confirms the OLS results, showing that commercial banks that operated in the same town as a postal savings bank were more likely to close by 1935.

Supporting contemporary accounts, the data point to a particular mechanism for our results: liquidity risk. Even after controlling for the stabilizing effect of reserves across all banks, the effect on closure of being near a postal office that accepted deposits was primarily for those banks that had lower reserves. Deposits in post offices near closing banks also grew dramatically larger compared to those at other post offices. Alternatively, the effect on closure of being near postal savings was largely mitigated for insolvent banks that were likely to close regardless. The result not only confirms our suggested narrative, but also adds weight to our identification strategy. If post offices that accepted deposits were endogenously attracted to areas with high bank closure risk ex ante, then we would expect that all banks in postal savings areas would be more likely to close during the Great Depression. The finding that only some banks in postal savings areas were affected indicates that there is not a location-specific unobserved characteristic driving both bank closures and the availability of postal savings.

The paper provides insight into two current policy debates. First, many regulators and politicians are pushing to expand deposit insurance limits in the wake of Silicon Valley Bank. In May 2023, the FDIC published a report outlining possible deposit insurance reforms, including unlimited coverage. Politicians such as Senator Elizabeth Warren have also pushed for higher caps. The historical period allows us to show that deposit insurance – even without explicit moral hazard – can lead to additional risk when coverage is not universal. This complements the surrounding literature on deposit insurance but presents policymakers with a trade-off. Systems with high coverage rates avoid this competitive liquidity risk but increase moral hazard, whereas

systems with low coverage rates limit moral hazard but increase competitive liquidity risk. Therefore, the data show that increasing the limits might eliminate the type of competitive behavior seen during the Great Depression, but would exacerbate the moral hazard issues.

Second, the research informs the debate regarding the re-establishment of postal savings. Since 2018, there have been numerous legislative proposals to bring postal savings back. Senators Kirsten Gillibrand and Bernie Sanders have put forth numerous postal legislation, most recently in 2022, when Sen. Gillibrand also released a report arguing that postal banking could be used by 25 million American households ("Postal Banking" 2022). Our results show that lawmakers need to take into consideration the effect that new postal banking capabilities may have on private markets. At the same time, the narrow banking approach of postal savings without the fixed interest rate might lead to increased financial stability by replacing deposit insurance on commercial banks and providing less informed depositors a safe return (see for instance, Gorton and Pennacchi 1990 and Pennacchi 2012).

Our results shed light on how competition among institutions for funds can worsen financial crises. Typically, studies highlight how financial crises were created by less regulated and more risky institutions attracting funds through promises of high returns (Moen and Tallman 1992; Shoven et al. 1992; Gertler and Gilchrist 2018). However, we show that this competition might also worsen financial crises when they do occur. The availability of a federally insured deposit option during the Great Depression allowed investors to shift their funds into a safe asset which stripped them out of banks and led to additional closures. This behavior could have extended or worsened the depth of the Depression by preventing funds from being loaned out.

We also extend the literature on the Postal Savings System. Following O'Hara and Easley (1979), Fleitas et al. (2023) show that some postal savings increases during the Great Depression were associated with a relative decline in the value of shares in local Building and Loans (B&Ls). They, however, find no effect of postal savings on B&L closures because their shares were not demandable. Moreover, they do not find that postal savings reduced deposits at commercial banks at the county-level. The difference in results is likely due to postal savings deposits being redeposited back in local commercial banks as the requirement would mitigate any county-level effect. To put it another way, our results show that the shifting of funds might have made some commercial banks safer while making others weaker despite keeping deposit totals the same. The results thus lend empirical evidence to the narrative analysis in Sprick

Schuster et al. (2020) who argue the rise of postal savings during the Great Depression was a flight to quality.

2. Historical Background

Created in June 1911, the United States Postal Savings System offered individuals the ability to start a savings account at thousands of local post offices. Postal accounts paid depositors a fixed 2 percent interest rate and were initially capped at $500 per person. Most postal deposits were to be re-deposited in commercial banks in exchange for roughly an equal amount of bonds as collateral and 2.25% interest payments (and 2.5% after 1934). The deposits were a liability of the US government, meaning if a commercial bank holding postal deposits closed, postal customers' accounts would be unaffected.

While U.S. officials had initially advocated for Postal Savings based on the profitability of other international systems, the Panic of 1873 re-framed the discussion toward the security offered to savers. John A. Creswell, the Postmaster General under President Ulysses S. Grant, emphasized the safety of postal deposits and how it was a solution to the problem of savers hiding their money rather than depositing it in banks (Post Office Department 1873). In 1878, Rep. Thomas J. Tipton (R-IL) articulated the need for safety: "(P)eople all over the country will be afforded an opportunity to invest their savings with assurance that the principal will be returned with a small interest...The failure of savings banks and consequent loss, especially to the poorer class, makes the demand greater than ever before" (Congressional Record, 3/11/1878, Pg. 1680). The Panic of 1907 then helped break the political logjam and got the bill passed.

The nation's banking sector was the main opponent of postal savings. Bankers argued the Post Office would siphon money out of communities. A 1907 criticism of U.K. postal savings quoted the *London Banker's Magazine*: "The branches of the Post-Office Savings-Bank convey all the savings of the district which they receive straight up to the central office in London... it is thus removed from the district in which it originates" (Roberts 1907). The American Banking Association (ABA) argued that postal savings would compete with existing banks, going so far as to distribute a nation-wide letter to bankers with the following passage:

> The Postmaster General naively says: 'These postal savings banks will not compete in any way with our present banks.' He thinks he is stating a fact, doubtless, but as well might a highwayman, emptying a repeating Colt at you,

> say: 'I am shooting these bullets at you, but I do not intend to hurt you in any way.' (quoted in Kemmerer 1917, Pg 14-15).

Many of the system's key characteristics were an attempt to mitigate bankers' fears and gather their support. For instance, the system's 2% fixed rate of interest was significantly lower than the over 3.25% interest that commercial banks paid on average during the period. The initial deposit limits on postal saving accounts also would have discouraged many households from starting an account. Postal accounts were thus slated towards the small depositors that commercial banks would not normally pursue (Sprick Schuster et al. 2020).

The Post Office allowed deposits to be accepted at almost 13,000 post offices by 1913. However, as constructed, most initial postal savings depositors were relatively poor and held only a small amount in their account. In 1916, $0.086 billion was deposited at post offices compared to $22.6 billion in commercial banks (Board of Governors 1959). To make the system more attractive, the Post Office raised the maximum account balance to $2,500 by 1917. This was a sizable amount of money per person (representing $78,327 in 2023 dollars), and was also the initial limit established on insured commercial bank deposits by the FDIC in 1934.

While postal savings continued to see limited aggregate use in the 1920s, there were local spikes in usage linked to local banking panics. Contemporary accounts (e.g., *The St. Louis Star and Times* 1924) attributed the increasing use of postal accounts in some parts of the country to a desire for security following the bank failures of the early 1920s (Alston et al. 1994). For example, real postal deposits in Florida grew by 600% in the four years following the collapse of the state's real estate bubble in 1925-6 (Calomiris and Jaremski 2023), and the collapse of the few state deposit insurance systems in the 1920s led to large increases in local postal deposits (Davison and Ramirez 2017).

The Great Depression supercharged the demand for accounts at post offices (see Appendix Figure A1). The 1929 Stock Market Crash and run on commercial banks in 1930 coincided with a large rise in postal deposits. Between 1928 and 1934, the amount on deposit increased by almost 587% in nominal dollars from $0.15 to $1.20 billion, while deposits in the commercial banks declined from $46.58 to $36.81 billion (Board of Governors 1959). Growth in postal deposits did not even reverse when the FDIC became active in 1934. Almost 70% of the growth of postal deposits over the period came from an increase in the number of depositors

rather than an increase in the size of the existing accounts. The new depositors came from across the income and demographic spectrum. Therefore, most individuals seemed happy with the higher interest rates of commercial banks during good times but shifted funds to the guaranteed lower interest rate of postal savings during periods of financial stress.

There is no question that post offices attracted substantial deposits during the Great Depression, but did the existence of postal savings as a federally insured option lead to additional commercial bank failures? The ability for depositors to quickly move their funds from a local bank to a local post office presented a substantial liquidity risk. For instance, Kemmerer (1917, Pg. 80) considered the role that postal savings could play during a crisis:

> Opponents of postal savings said that the difference between the interest paid by the postal savings bank and that paid by the other banks would be a matter of slight consequence in times of panic, safety of deposits being the great desideratum; and that the accessibility and safety of postal savings banks would encourage excessive withdrawals from other banks.

Observers during the Great Depression also highlighted the competition between postal savings banks and commercial banks. For example, a resolution at the Michigan Bankers Convention in 1936 argued that "there has been no reduction in the rate of interest payment to Postal Savings depositors although it has been both necessary and required of most savings banks….the Postal Savings Banks in competing for savings depositors funds tend to segregate and withdraw these funds from the normal credit and investment uses of the community".

While post offices redeposited funds back into commercial banks, relatively few banks received any redeposits. Even at the max in the 1932/1933 fiscal year, only 5,521 of over 19,000 banks received redeposits and 3,272 were large national banks that were Fed members and subject to higher requirements. It was the small state-chartered banks in more rural areas that would have had the greatest closure risk, yet they received the fewest funds. The rest of this paper utilizes bank-level data to test whether the availability of a local federally insured option led to a higher probability of a commercial bank closing.

3. Data

Bank-level data are needed to analyze whether the availability of postal savings affected the stability of commercial banks. We collect individual balance sheet information in 1928 for

national banks from the *Annual Report of the Comptroller of the Currency* and for state-chartered banks from state banking reports.[3] Several states did not report individual bank balance sheets during the period, and must be excluded from the analysis. Nevertheless, the data span the entire country and include nearly 65% of banks operating during 1928. We determine whether each state bank was a Fed member using the *Annual Report of the Federal Reserve Board*.

We use the list of "Discontinued Bank Titles" in the January 1935 edition of *Rand McNally Bankers' Directory* to identify bank closures. The list describes every change in a bank's title and the year of occurrence from late 1929 through early 1935. This allows us to avoid conflating terminal bank closures with temporary closures, location changes, or name changes, and provides a consistent source of information for all banks. The closure variable includes any bank that was closed, liquidated, acquired, assumed, absorbed, consolidated, merged, or was succeeded or replaced by another bank. For name or location changes, we link closures under the new name or location back to the original bank in order to fully capture closures. Any bank not in the list is denoted as remaining open through 1935.

Town-level postal savings data are drawn from *Annual Reports on the Operation of the Postal Savings System*. Collected by Sprick Shuster et al. (2020), they include the annual value of deposits and number of depositors at each post office. Our primary year of interest is postal savings in 1928 in order to avoid endogenous changes during the Great Depression. The post office only reported names of post offices that had at least 1 depositor in their 1928 report. This means that post offices that accepted postal savings but had no depositors at the end of 1928 fiscal year were not included in the 1928 annual report. Fortunately, the 1927 and 1929 reports list all postal repositories, even if they had no depositors. We, therefore, imputed whether a post office had postal savings in 1928 for places with missing data using whether a post office reported having a depository in 1927 or 1929 with 0 depositors. This approach yields a total number of postal depositories very close to that reported by the Post Office in 1928. As we will show, the results are not sensitive to picking other years in which to examine the availability of postal savings.

Figure 1 shows the location of postal savings depositories and commercial banks in 1928. The coverage of both types of institutions matches the distribution of population (i.e., more

[3] We use observations for June 1929 for Nebraska as the state did not publish any information in 1928. The results are not affected if we drop out these banks.

concentrated in the Northeast and Midwest and more diffuse in the South and West). The maps also show that there is variation in postal savings availability. About 51.4% of commercial banks are located in a town that lacked postal savings in 1928. Our analysis thus should be representative of the entire nation and have sufficient treatment and control groups to identify the effect of postal savings on bank stability.

Finally, we add county-level information on demographics and economic characteristics from the U.S. Census Bureau and digitized by Haines (2018) and tax return data from Fishback et al. (2011).

4. Effect of Postal Savings on Bank Closures

To test the effect of the local availability of postal savings on commercial bank closures, we start with an analysis of all locations where we have balance sheet information, and then narrow the sample to make use of an instrumental variable approach. An IV is important because a post office's choice to accept deposits was not random. As seen in Figure 1, every large city had access to postal savings due to their dense populations and many of the extremely rural parts of the country did not. That said, the nature of the Postal Savings System reduces some of the worry about endogeneity. Deposits could be accepted in any post office with approval of the Post Office as there were little to no fixed costs. In fact, most of the variation in postal savings in 1928 was driven by decisions of the Post Office to stop many offices from taking deposits during WWI. After the war, low use of postal deposits in an area did not spur closures of postal depositories and few new offices began taking deposits. For example, 2,097 of the 5,855 postal savings banks in 1928 had less than $100 of deposits. Moreover, only 467 new postal banks were established between 1921 and 1928 despite significant economic and population growth. This suggests that postal savings bank locations were not an endogenous response to growth or demand in the 1920s.

We also structure our analysis to try to avoid endogeneity of postal savings. In addition to controlling for the determinants of postal savings and bank stability, our primary measure of postal savings is whether a town had a post office that accepted deposits in 1928. We pick 1928 to avoid any endogenous choice of post offices to start taking deposits in response to bank distress during the Depression. We measure the availability of postal savings in a location rather than its deposits to avoid capturing explicit preferences for postal savings over commercial

banks. Even if no one used postal savings before 1929, the mere existence of an office during the Great Depression would have given depositors the ability to quickly shift deposits away from commercial banks.[4] The measure thus captures the mechanism we seek to observe and treats all postal savings locations the same regardless of whether they had $1 on deposit or $1 million.

4.1 Nation-Wide Analysis

We start our analysis of commercial bank closures from 1929 to 1935 by utilizing the full sample of commercial banks that had balance sheet data for 1928.

The model controls for many types of characteristics that could have affected bank stability and postal savings status. First, we examine each bank's balance sheet position[5]: the logarithm of total assets, loans to assets, paid-in capital, surplus, and undivided profits to assets (i.e., capital to assets), surplus and undivided profits to paid-in capital, surplus, and undivided profits (i.e., profit to capital), and cash and due from banks to total deposits (i.e., cash to deposits). These measures have been found to be correlated with the probability of bank closure during the Panic of 1907 (Jaremski and Wheelock 2023), the 1920s agricultural depression (Jaremski and Wheelock 2020), and Great Depression (White 1984, Richardson and Troost 2009, Calomiris et al. 2022). They are also similar to the measures which regulators use to determine the health of bank balance sheets during modern stress tests. We further include indicators for whether the bank was a national bank or a Fed member state bank (with state-chartered, non-Fed member banks as the excluded group) to capture their higher regulatory requirements and supervision.[6]

Second, we include county-level demographic and economic control variables in 1929 that account for local variation that could influence bank stability and induce the local post office to accept deposits. These variables include: the logarithm of population, fraction living in an urban location of 2,500 or more people, the fraction of the adult population that is illiterate, the fraction of the population that is non-white, the logarithm of the number of farms per capita and

[4] Indeed, the results when using contemporaneous postal deposits or depositors in Table A1 are similar if not larger.
[5] During the period, information on income statements and loan loss provisions were not publically available, and in many cases, regulators did not collect such information. However, the bank-balance-sheet measures available to the public which we analyze were highly correlated with bank performance.
[6] Almost no banks of any type were allowed to branch outside of the local area until after the period we study. Therefore, national banks were still unit banks and the word "national" refers to their regulatory body being federal rather than state. The results are similar if we drop the one state in our sample (i.e., California) which allowed its banks to branch throughout the state and had a substantial number of branches in 1929.

the logarithm of the number of manufacturing establishments per capita, the fraction of population that filed a tax return in 1929 (a proxy for high income households), and indicators for whether the bank was located in a city designated as a Central Reserve City or Reserve City.[7]

Third, we include state-fixed effects to capture both regional differences in economic activity as well as differential bank regulations. For instance, Mitchener and Jaremski (2015) show wide differences in the types of regulation and supervision that each state installed.

We use OLS to estimate the probability that a bank present in 1928 closed by 1935:[8]

$$Closure_i = a + \beta_1 Postal_i + \beta_2 BalSheet_i + \beta_3 X_i + \beta_4 State_i + e_i \quad (1)$$

Where $Closure_i$ is an indicator for whether bank i had closed between 1929 and 1935, $Postal_i$ is an indicator for whether postal savings was available in the location in 1928, $BalSheet_i$ is a vector of bank balance sheet items in 1928 discussed above and indicators for whether the bank is a national bank or a Fed member. X_i is a vector of the Census characteristics discussed above. $State_i$ is a vector of state indicator variables, and e_i is Huber-White robust standard errors clustered at the state level.

Table 1 provides the effects estimated of equation (1) for the full sample of banks. As seen in column 1, having a local post office that accepted deposits in 1928 was positively correlated with a bank's probability of closure over the Great Depression. Specifically, a bank that was in the same town as postal savings was about 3.2 percentage points more likely to close.

We also divide the analysis by the type of bank charter. Compared to state-charted banks, national banks (which were chartered by the Office of the Comptroller of the Currency) had much higher capital and reserve requirements, and as such they tended to be larger and less likely to close (White 1984). The results show that the effect of postal savings was larger for state banks, but their effect on national banks falls just outside standard statistical significance (i.e., a p-value of 0.185). This difference makes sense as individuals would likely have been more worried about their deposits at the less regulated state banks.

We test whether the results are sensitive to different samples and variable definitions. First, one potential concern is that post offices required some amount of population to operate.

[7] There are a few outliers in the data likely caused by typos in the original documents. Banks for which cash and due from banks to total deposits is greater than 1 or loans to assets less than 0.1 are dropped as well as counties that report more than 100% of the population filing a tax return. Values of cash and due from banks to total deposits less than 0.01 are windsorized to 0.01. The results are not affected if we keep these banks in or choose other cutoffs.
[8] We estimate a linear probability model to be consistent with the instrumental variable regressions in the next section. Logit and probit models provide similar results as the OLS.

Every large city had one, and very few rural areas did. Therefore, we drop locations with either 1st or 4th-class post offices (i.e., the largest cities and smallest towns) in column (1) of Table 2. The results are slightly lower when focusing on locations in the middle of the population distribution, but still economically and statistically significant. As such, the effect of access to postal savings is not driven by a comparison of the most and least populated areas.

Second, in Column 2 of Table 2, we examine whether the effect of the availability of postal savings is driven by local closure rates. If postal savings was attracted to high bank risk locations, then the measured effect would be biased upward. We, therefore, calculate the fraction of all other commercial banks in the county that closed during the period and include it as an additional control. While the new variable is significantly correlated with bank closure, the coefficients on the availability of postal savings remain very close to those in Table 1. In this way, the results are not being driven by an attraction of postal savings to areas with high closure risk in general.

Third, we examine whether the effect of the availability of postal savings varies over time. The FDIC was created by the Glass-Steagall Act in July 1933 (and its insurance became active in January 1934) which might have weakened the attraction of postal savings. Additional liquidity and capital provisions were also introduced to help commercial banks in 1933 and 1934. In Figure 2, we thus provide the coefficient on postal savings when equation (1) is estimated for each individual closure year.[9] As expected, our results are especially driven by closures in 1930 and 1931. In all other years, having a postal depository is not strongly correlated with bank closures. The lack of an effect in 1932 is driven by holding postal savings constant in 1928. Some new post offices began to accept deposits in 1930 and 1931 and these new locations would be part of the control group. Appendix Figure A1 regenerates Figure 2 when using the availability of postal savings in each contemporaneous year as the independent variable of interest rather than 1928. This approach shows a statistically significant effect in 1930, 1931, and 1932 but not in 1933 and afterwards. The evidence suggests that the effect of postal savings was through its federal guarantee as the introduction of the FDIC and other liquidity and capital provisions decreased the risk posed by the system.

[9] Before estimating closures for a given year, we drop banks that closed before that year so the model predicts closure among banks that were present at the start of that year.

Third, we rule out that the results are being driven by our choice of postal savings year. Some post offices stopped taking deposits during the 1920s and some new ones started taking them during the Great Depression. We, therefore, re-estimate equation (1) using the local availability of postal savings in other years and report the coefficients for those other measures in Figure 3. Postal saving availability in any year after 1917 is positively and significantly related to commercial bank closures. The lack of an effect before 1918 is driven by the fact that many postal offices stopped taking deposits during WWI and thus were not around to attract deposits during the Great Depression (See Appendix Figure A1). Indeed, the coefficients on postal savings availability are relatively stable in the 1920s, and only increases in 1932-1935.

The results from Figures 2 and 3 suggest that the new postal savings banks created after 1928 were in places that experienced later commercial bank closures. We test this assertion in Appendix Table A2. Looking only at places without postal savings in 1928, we show that those places where a post office began accepting deposits between 1929 and 1935 were positively and significantly correlated with local bank closures over the same period. While we do not observe the month of postal savings entry or commercial bank closure to pin down timing, the results suggest that postal savings was entering places around the time a commercial bank closed. This finding supports our interpretation that local depositors saw postal savings as important for their federal guarantee in times of crisis. Moreover, the analysis indicates that using the 1928 postal savings indicator biases our estimates towards zero because bank closures near new postal depositories are included in the control group.

4.2 Instrumental Variables Analysis

The nationwide analysis shows a strong correlation between bank closure and depositors' ability to make insured deposits at a local post office. However, we must use a stronger identification strategy to make causal claims that the availability of postal deposits caused bank failures. Table 3 shows the average values for our variables for places both with and without postal savings. It shows differences in many of the relevant co-variates used in our analysis. While explicitly controlling for these variables, we proceed with an instrumental variables analysis in case these differences represent some underlying unobservable factor.

To isolate a causal effect, we make use of a structural change that took place in the mid-1910s. Nearly every Presidential post office (1^{st}, 2^{nd}, or 3^{rd} class) rushed to start receiving

deposits in 1911, with the number of depositories peaking at 12,820 in 1913. The Postmaster General ordered many post offices to stop taking deposits surrounding WWI. Between 1913 and 1920, 7,414 post offices were ordered to stop.[10] However, of those post offices that retained deposit-taking through 1920, only 3.7% stopped in the 1920s. Of those post offices that stopped deposit-taking, very few restarted in the 1920s, though many did during the Depression.

The Post Office did not provide guidelines for which local post offices would be forced to stop taking deposits, but their initial approach is visible in the data. Some of it was due to post office size. Nearly all 4th class postal depositories were closed in 1914. Conversely, nearly all 1st class postal depositories were kept open. The decisions for 2nd and 3rd class postal depositories appear to be determined by depositors in those first few years. Specifically, of depositories in 2nd and 3rd class post offices where we observe exactly 1 depositor at the 1913/1914 year-end snapshots, less than 3.2% of them closed by 1915 compared to 56% of those where we do not observe any depositors. The Post Office followed a similar pattern in the following year. Of the places where we do not observe any depositors in 1914/1915, 93% were closed by 1916, compared to only 24% of those with 1 depositor. The elimination of postal savings with zero depositors was virtually complete. By 1916, only 34 2nd or 3rd class post offices had depositories with no depositors, yet 975 of depositories with 1 depositor were still in operation. This division is astonishing as most of the single depositors held less than $5 on deposit. It reflects the low operating costs of the system.[11] Receiving postal deposits did not require any extra buildings or personal at the local post office and commercial banks that received redeposits paid for most of the other expenses.

As seen in Figure 4, the Post Office continued to stop more post offices from taking deposits after 1915 but had to make choices on factors other than initial depositors.[12] By 1928 only 7.34% of 0-depositor places still had postal savings, while 22.76% of 1-depositor places did. This means that having a single depositor in 1913-1915 more than tripled the chances that a

[10] Reported in Appendix Table A3, those locations that had a postal savings bank at some point before 1928 but lost it did not experience a higher bank closure rate than those locations that never established postal savings. This provides additional evidence that postal savings was not particularly attracted to those locations with higher probabilities of closure. Table A4 shows that places that lost postal savings in the 1910s were much more likely to regain it during the Great Depression even controlling for the location controls.

[11] In 1913, a postmaster with a depository that no one uses would earn only an additional $0.27 a year from the existence of postal savings (Congressional Record 63 Cong. 2nd Session (1913) LI part 1, Pg 654)

[12] Appendix Figure A3 shows the same graph with more depositor cutoffs. As would be expected, the probability of remaining open increases linearly with the number of depositors.

post office would still offer postal savings more than a decade later. During the Depression, the number of post offices accepting deposits increased, but there was still a large difference between places that had 0 or 1 depositors in the mid-1910s.

The data suggest that the Post Office made initial closing decisions based on any activity at the local office in 1913-1915 and did not reestablish almost any of those depositories before 1929 despite substantial economic and population growth. We, therefore, focus on the sample of banks in locations that had 2nd or 3rd class post offices with postal savings with either 0 or 1 depositors in 1913/1914 or 1914/1915 (see geographic distribution in Figure 5), and use the presence of having only one depositor as an instrument for postal savings availability in 1928. The benefit of the IV is that all locations with 0 or 1 depositors chose to take postal savings initially, and the choice of a single person in an area to put even $1 on deposit was likely relatively random.

In Table 4, we show summary statistics for the sample of towns with 0 or 1 depositors during 1913-1915. As expected, towns with 1 depositor in the 1910s were much more likely to keep receiving postal deposits through 1928. However, in stark contrast to the full sample information in Table 3, the towns are similar on almost all other dimensions. The only other variable for which the two groups of locations are significantly different at the 1% level is the fraction of the population that was non-white which seems solely driven by the South having fewer postal depositories.

Comparing banks in the two locations, we find the banks in one-depositor towns have more assets and issued a smaller share of loans. As seen in Table 1, banks with larger assets and fewer loans are less likely to close. If we use the estimates from column 1 of Table 1 to predict the overall probability of closure, the balance sheets in the average bank in 1-depositor towns make them 0.52 percentage points less likely to fail than the average bank in 0-depositor towns. This suggests that the differences in the 1928 balance sheets between banks are not only very small but also push against the closure results we find.

Using banks in locations that had a 2nd or 3rd class post office that accepted deposits but had 0 or 1 depositors in 1913-15, our IV specification, estimated via 2SLS, is as follows:

$$Closure_i = a + \beta_1 BalSheet_i + \beta_2 \widehat{Postal}_i + \beta_3 X_i + \beta_4 State_i + e_i \quad (2A)$$

$$Postal_i = a + \pi Depositors_i + \xi BalSheet_i + \xi X_i + u_i \quad (2B)$$

where the second-stage regression in equation (2A) is essentially the same as equation (1) above. The only difference is the indicators for being in a Central Reserve or Reserve City are dropped, as no towns in our IV sample was either; $\widehat{Postal}_i$ is now a predicted value, based on the results of the first-stage regression. In the first-stage regression in equation (2B), the indicator for having an active postal savings bank in 1928 is regressed on an indicator for whether the postal bank had 1 depositor in 1913-1915 ($Depositors_i = 1$) as well as the same balance sheet and Census controls as in the second stage.

The first stage results of equation (2B) are provided in the bottom panel of Table 5.[13] The treatment effect of having 1 depositor in 1913-1915 (as opposed to having zero) is statistically and economically significantly correlated with having an open postal savings bank in 1928. Places with 1 depositor in 1913-1915 were 9.96 percentage points percent more likely to have an open postal savings bank in 1928. The first-stage is quite strong with a Cragg-Donald Wald F statistic of 50.46, well above the Stock-Yogo weak IV critical value (16.38). The second and third columns show the first-stage regressions for national and state banks yield similar results as the combined sample.

The second stage results of equation (2A) in the top panel of Table 5 confirm the findings in Table 1. Having an open postal savings bank in 1928 is associated with a higher probability of closure for the full sample. The IV estimates are larger than the OLS estimates for three reasons. First, places that had postal savings in 1928 likely have more demand for banking services in general and therefore were less likely to close. This would bias our OLS estimates towards zero compared to the IV. Second, there are significant differences between the OLS and IV samples (See Tables 3 and 4). While many towns only had 0 or 1 depositors, these towns were overwhelmingly small (the average population was 1,196 in the IV sample, compared to 10,144 for all towns). The banks in these towns were also smaller than average ($631,404 in average assets for our IV sample, $3,440,482 for the all banks). The average rise in postal savings (from $354 in 1928 to $46,560 in 1934) thus would have had a larger effect in the IV sample than full sample. Third, very few banks in the IV sample would have received postal redeposits. If postal redeposits were a mechanism through which banks were supposed to be protected from competition from the Post Office, then this subset of banks was outside that sphere of protection.

[13] Table A5 shows that using the contemporaneous value of postal deposits or depositors provides similar IV results.

These factors mean that this subset may have been especially likely to be negatively affected by the liquidity risk that came with having a federally insured deposit competing for funds.

These results show that the availability of postal savings depositories, which were federally insured, significantly increased the likelihood that commercial banks in the same town would close during the Great Depression. The IV analysis helps avoid any unobserved location heterogeneity and isolate a causal effect of postal savings on commercial bank closures.

4.3 Mechanism – Liquidity Risk

The previous empirical analysis has shown that the availability of local postal savings is associated with a higher probability of closure for surrounding commercial banks. Based on contemporary accounts, we have interpreted this as depositors removing their funds from commercial banks thus draining liquidity. This section tests this assertion. If our results are driven by liquidity risk, then the effect of nearby postal savings should be strongest for banks with low levels of liquidity. To put it another way, banks with large cash reserves would have been able to withstand more of their depositors transferring funds to postal savings. We, therefore, estimate equation (1) when adding an interaction between the postal savings indicator and each bank's reserves in 1928. The model is:

$$Closure_i = a + \beta_1 Postal_i + \beta_2 Postal_i X Reserves_i + \beta_3 BalSheet_i + \beta_4 X_i + \beta_5 State_i + e_i \quad (3)$$

where $Reserves_i$ is the level of the bank i's reserves (i.e., cash and due from banks to total deposits) in 1928, and the rest of the variables retain their previous definitions. The interaction tests whether high liquidity banks had a higher or lower closure effect of being near a postal savings bank while controlling separately for the level of $Reserves_i$ and $Postal_i$ to capture the average effect of liquidity and the average effect of postal savings.

Table 6 reports the estimates of equation (3). The coefficient on "Has Postal Savings" now provides the estimated effect of postal savings on a hypothetical bank with no reserves. The large coefficient shows that banks with low levels of reserves were especially likely to close when a postal depository was present. The negative coefficient on the interaction term indicates that the likelihood that a bank closed when postal savings was available nearby decreased as that bank's reserves increased. For instance, moving from the 25th percentile of reserves (0.118) to the 75th percentile (0.234) decreased the effect of postal savings on closure from 4.32 to 2.47

percentage points. Note that the general effect of reserves on all banks remains negatively correlated with closure. In this way, the interaction pulls out the additional importance of liquidity when a bank is near a post office that accepted deposits. The evidence suggests that liquidity constraints were driving the closures associated with postal savings.

We can also test for a similar liquidity effect within our instrumental variable framework. Specifically, we estimate the IV regression separately for those banks with above median levels of reserves and those with below median levels. The results in Table 7 show that banks with higher levels of reserves had much less of an effect of closing when located nearby a post office that accepted deposits than those with lower. In this way, it is clear that being located near a postal savings bank was primarily affecting those banks with low reserves.

The differential liquidity effect raises the question of whether the result is instead driven by overall balance sheet risk (of which liquidity is only a portion). We, therefore, calculate the closure probability of every bank's balance sheet based on the coefficients in column (1) of Table 1 and interact that probability with the postal savings indicator.[14] In column 2 of Table 6, we interact this balance sheet closure probability with the postal savings indicator. The results show that the effect of postal savings was lower on those banks with a higher probability of closure based on their balance sheet. The effect, therefore, is opposite what would be predicted by column 1 of Table 6 and column 3 of Table 7. If all balance sheet risk is the same, the negative coefficient on the liquidity interaction should imply that a higher probability of closure would increase the postal savings effect, but that is not the case. Instead, the availability of postal savings banks had much less of an effect on insolvent banks that were likely to close regardless. Liquidity thus seems to play a unique role in the dynamics we identify.

One last way to see the liquidity mechanism is to examine the value of deposits in each post office. If the local availability of postal savings encouraged depositors to move their funds from risky commercial banks, then deposits in postal offices should rise faster in locations with bank closures than in other locations. We test this by looking at locations with only one bank and postal savings and then separate town into four groups: 1) towns that lost their bank in 1930, 2) towns that lost their bank in 1931, 3) towns that lost their bank in 1932, and 4) towns whose bank survived through 1932. We graph out the average amount of postal deposits for each of

[14] The interactions with the balance sheet closure probability are similar when we do not include reserves when calculating the closure probability from equation (1). See Appendix Table A6

these town types relative to the year a bank closed in Figure 6 (or 1930 if no bank closed). The data show that postal savings grew for all locations, but they grew significantly faster in areas with a closed bank. The differential growth typically started in the year of a bank's closure and grew even larger the year after. Since we observe postal savings growth July through June and commercial bank closures January through December, this shows that deposits were particularly moving between struggling commercial banks and post offices in the way suggested by the rest of our analysis.

The result suggests that the effect of postal savings on commercial banks operated through a liquidity risk channel. It also provides evidence that we are measuring the true effect of postal savings on commercial banks rather than some unobserved characteristic that was correlated with both postal savings and commercial bank closure. If there was some unobserved characteristic, then it should have affected all banks near a postal savings bank and would not have been isolated to those banks with low liquidity.

5. Conclusion

The lack of universal deposit insurance can affect depositor behavior during crises, shifting funds away from uninsured accounts towards insured ones, potentially exacerbating runs on banks and creating liquidity problems for financial institutions. Using a historical setting, we examine whether the existence of a federally insured deposit opportunity increased the likelihood that banks closed during the Great Depression. The Postal Savings System offered the first federally insured deposits in the United States, allowing people to deposit money in thousands of post offices nationwide. Initially, the target audience for Postal Savings was small-scale depositors, especially immigrants, many of whom were seen as skeptical of commercial banks. While largely unused for over two decades, the Great Depression led to a substantial increase in demand for postal accounts by all households, stripping liquidity out of banks when it was needed the most. Whether using an OLS or IV model, banks in towns with postal savings were more likely to close than otherwise identical towns without postal savings. The effect of postal savings availability, however, disappears when federal deposit insurance and additional liquidity provisions were extended to commercial banks.

The data further show that the availability of postal savings was associated with liquidity risk at nearby commercial banks. Specifically, the effect of postal savings is primarily on those

banks that had relatively lower reserves before the Great Depression. The effect, however, is weaker for banks with the most risky balance sheet position, suggesting that the availability of deposit insurance only affected certain types of banks and was not isolated to those who were likely to close regardless of postal savings. In this way, we are confident that the measured effect is not some unobserved characteristic that drives both bank closure and postal savings, but rather is an effect of depositors withdrawing money in response to having a federally insured alternative.

These findings advance both our historical understanding of the Great Depression and the current debate about postal banking. The results shown here support the idea that liquidity was a driving factor in bank closures during the Great Depression. Lawmakers and regulators interested in re-establishing the Postal Savings System should take note of these results. Though the system was explicitly designed to avoid competition with banks, we find that such competition nonetheless occurred for two reasons. First, legislators who established postal savings underestimated the appeal of deposit insurance during crises, even though contemporary accounts argued that such insurance would be especially appealing to depositors in times of turmoil. Postal savings' low fixed rate of interest was not enough to detract depositors from moving their funds, and if anything, the rate became a better deal as bond yields dropped during the Great Depression. Second, the redeposit mechanism of the system was insufficient to insulate banks from competition. The post office only allowed some banks to accept redeposits, leaving other banks fully exposed to the liquidity pressures that resulted from the draw of postal deposits. In fact, the fixed interest rate required by the Post Office for redeposits prevented many commercial banks from accepting them (even those who had previously received them).

While the fixed rate of interest might have led to a competitive effect during the Great Depression, the literature on narrow banks suggests that the reintroduction of postal savings might present an opportunity for modern policymakers. Given the nature of their investments, postal savings offered a guarantee to its depositors without increasing systemic risk or bailout exposure for taxpayers. As discussed by papers such as Pennacchi (2012) and Gorton and Pennacchi (1990), narrow banks such as the postal savings system could help separate less informed consumers from "insiders" who are better informed about risky investments. Postal savings could thus be used to provide deposit insurance accounts to less informed consumers while uninsured commercial banks could attract more informed money. Pennacchi (2006) also

shows that the subsidy for mispriced deposit insurance in a traditional banking system is unambiguously larger than from insuring a narrow bank styled after a Money Markey Mutual Fund. Wilmarth (2012) argues that if government insurance is restricted to narrow banks, other financial institutions would have less incentive to become too big and complex because they would not be supported by government insured depositors. Uninsured commercial banks also would have a greater incentive to operate with more prudence given the source of their funding and the fact that depositors could move to postal savings during crises. In this way, a modified version postal savings with a variable interest rate could be an element of a new regulatory structure.

References

Alston, Lee J., Wayne A. Grove, and David C. Wheelock. (1994) "Why Do Banks Fail? Evidence from the 1920s." *Explorations in Economic History* 31: 409-31.

Barth, James R., Gerard Caprio, and Ross Levine (2006). *Rethinking Bank Supervision and Regulation: Until Angels Govern* (Cambridge University Press, Cambridge).

Beck, Thorsten, and Luc Laeven (2008). "Deposit insurance and bank failure resolution: Cross country evidence", in A, Demirguc-Kunt, E. Kane, and L. Laeven, eds.: *Deposit Insurance Around the World: Issues of Design and Implementation* (MIT Press).

Board of Governors of the Federal Reserve System. (1959). *All-Bank Statistics, United States, 1896-1955*.

Brewer III, E. (1995). "The impact of deposit insurance on S&L shareholders' risk/return trade-offs." *Journal of Financial Services Research* 9(1): 65-89.

Calomiris, Charles W., and Sophia Chen. (2022). "The spread of deposit insurance and the global rise in bank asset risk since the 1970s." *Journal of Financial Intermediation* 49.

Calomiris, Charles W., and Matthew Jaremski (2016). Deposit Insurance: Theories and Facts, *Annual Review of Financial Economics* 8: 97-120.

Calomiris, Charles W., and Matthew Jaremski (2019). "Stealing deposits: Deposit insurance, risk-taking, and the removal of market discipline in early 20th-century banks." *The Journal of Finance* 74: 711-754.

Calomiris, Charles W., Jaremski, Matthew, and David C. Wheelock. (2022). "Interbank Connections, Contagion and Bank Distress in the Great Depression." *Journal of Financial Intermediation* 51.

Caprio, G, and Daniela Klingebiel. (1996). "Bank insolvencies: Cross-country experience." World Bank Policy Research Paper 1620.

Chang, B., Cheng, I.-H., and Hong, H. G. (2023). The fundamental role of uninsured depositors in the regional banking crisis. Available at SSRN 4497863.

Cull, Robert, Lemma W. Senbet, and Marco Sorge, 2005, Deposit insurance and financial development, *Journal of Money, Credit and Banking* 37: 43-82.

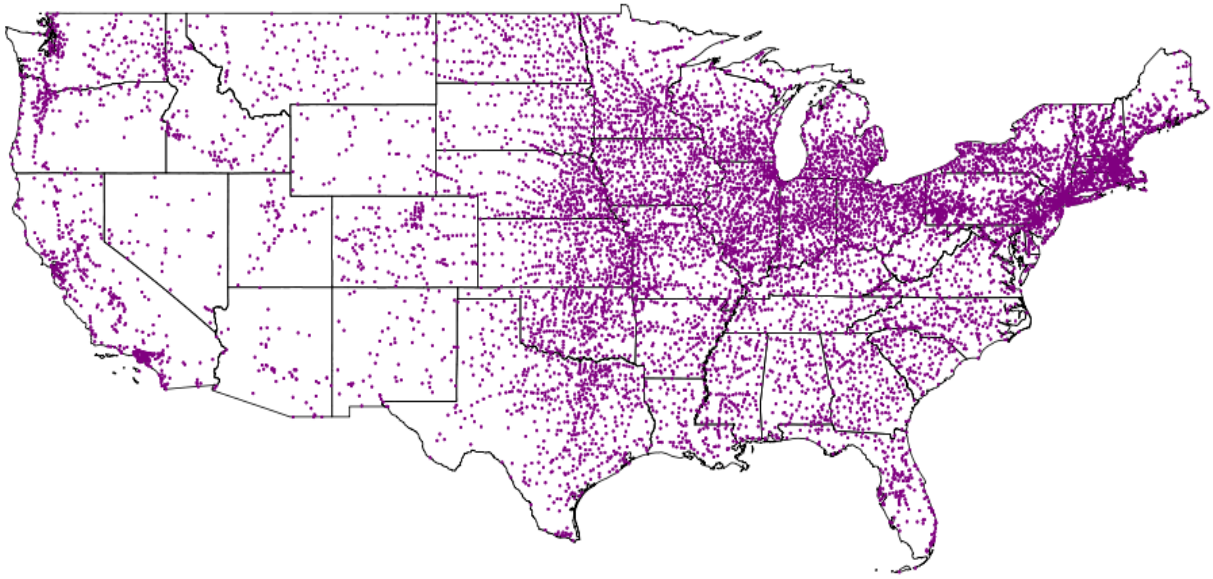
Davison, Lee, and Carlos D. Ramirez. (2017). "Does deposit insurance promote financial depth? Evidence from the Postal Savings System during the 1920s." *FDIC Center for Financial Research Paper No. CFR WP* 2.

Demirgüç-Kunt, A. and Detragiache, E. (2002). “Does Deposit Insurance Increase Banking System Stability? An Empirical Investigation.” *Journal of Monetary Economics* 49: 1373-1406.
Demirgüç-Kunt, Asli, and Harry Huizinga, (2004). “Market discipline and deposit insurance.” *Journal of Monetary Economics* 51, 375-399.
Demirgüç-Kunt, Asli, Edward Kane, and Luc Laeven, (2008). “Determinants of deposit-insurance adoption and design.” *Journal of Financial Intermediation* 17: 407-438.
Drechsler, I., Savov, A., Schnabl, P., and Wang, O. (2023). Banking on uninsured deposits. Available at SSRN 4411127.
Federal Insurance Deposit Corporation (2023). *Options for Deposit Insurance Reform*.
Fishback, P., Troesken, W., Kollmann, T., Haines, M., Rhode, P., and Thomasson, M. (2011) “Information and the Impact of Climate and Weather on Mortality Rates During the Great Depression.” *Economics of Climate Change: Adaptations Past and Present*. Ed. by G. Libecap and R. Steckel. Chicago: University of Chicago Press, 131-168.
Fleitas, Sebastian, Matthew Jaremski, and Steven Sprick Schuster. (2023) "The US Postal Savings System and the collapse of building and loan associations during the Great Depression." *Southern Economic Journal* 89: 1196-1215.
Gertler, M., and Gilchrist, S. (2018). “What happened: Financial factors in the great recession.” *Journal of Economic Perspectives* 32(3): 3-30.
Gorton, Gary, and George Pennacchi. (1990). "Financial intermediaries and liquidity creation." *Journal of Finance* 45: 49-71.
Haines, Michael R. (2008). *Historical, Demographic, Economic, and Social Data: The United States Inter-university Consortium for Political and Social Research*, pp. 1790-2000. Ann Arbor, MI. ICPSR Study 2896.
Jaremski, Matthew, and David C. Wheelock. (2020). "Banking on the boom, tripped by the bust: Banks and the World War I agricultural price shock." *Journal of Money, Credit and Banking* 52: 1719-1754.
Jaremski, Matthew, and David C. Wheelock. (2023). “Interbank Networks and the Interregional Transmission of Financial Crises: Evidence from the Panic of 1907”. Working paper.
Kemmerer, E. (1917). “Six Years of Postal Savings in the United States”. *American Economic Review*, 7(1): 46-90.
Kim, Edward T. and Kundu, Shohini and Purnanandam, Amiyatosh. (2024). *The Economics of Market-Based Deposit Insurance*. Available at SSRN 4813996.
Laeven, Luc, and Fabian Valencia (2013). “Systemic banking crises database”, *IMF Economic Review* 61, 225-270.
Martinez-Peria, Maria Soledad, and Sergio L. Schmukler. (2001). "Do depositors punish banks for bad behavior? Market discipline, deposit insurance, and banking crises." *Journal of Finance*. 56(3): 1029-1051.
Mitchener, Kris James, and Matthew Jaremski. (2015). "The evolution of bank supervisory institutions: Evidence from American states." *Journal of Economic History* 75: 819-859.
Moen, J., and Tallman, E. (1992). “The bank panic of 1907: The role of trust companies.” *Journal of Economic History* 52(3): 611-630.
O’Hara, M., & Easley, D. (1979). “The Postal Savings System in the Depression.” *Journal of Economic History* 39(3): 741-753.
Pennacchi, George. (2006). "Deposit insurance, bank regulation, and financial system risks." *Journal of Monetary Economics* 53: 1-30.

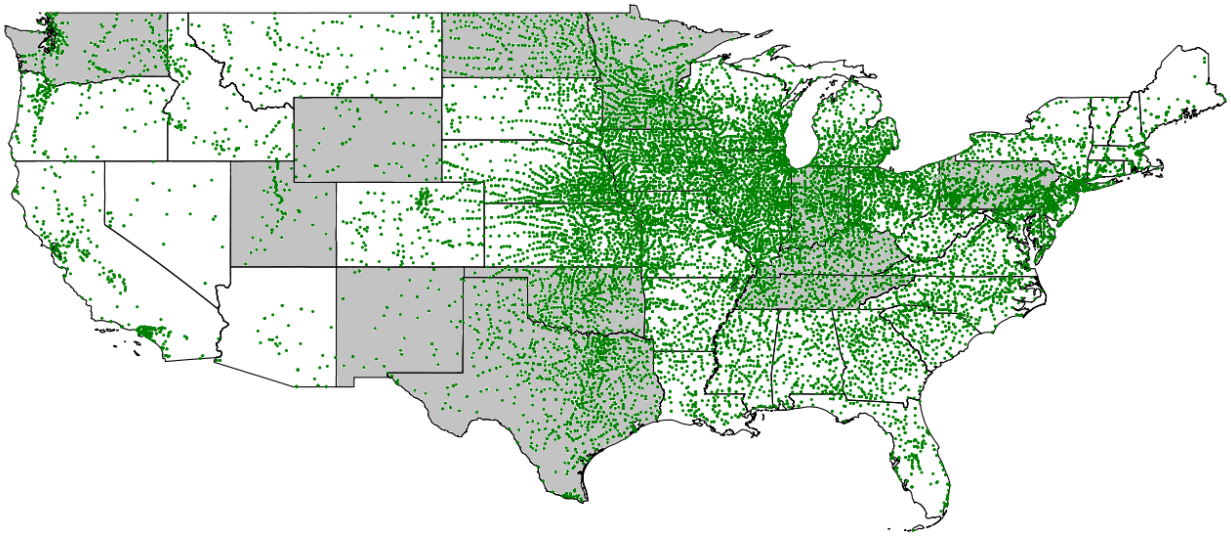
Pennacchi, George. (2012). "Narrow banking." *Annual Review of Financial Economics.* 4: 141-159.
Postal Banking: Delivering for the American People (2022). Retrieved from https://www.gillibrand.senate.gov/wp-content/uploads/imo/media/doc/Postal%20Banking%20Report%20-%20FINAL1.pdf
Richardson, Gary, and William Troost. (2009). "Monetary intervention mitigated banking panics during the great depression: quasi-experimental evidence from a federal reserve district border, 1929–1933." *Journal of Political Economy* 117: 1031-1073.
Roberts, G. E. (1907). “Objections to a Postal Savings-Bank”. *North American Review* 184(609): 364-370.
Shoven, J., Smart, S. and Waldfogel. J. (1992). “Real interest rates and the savings and loan crisis: The moral hazard premium.” *Journal of Economic Perspectives* 6(1): 155-167.
Post Office Department. Annual Report of the Postmaster General. GPO, various issues, Washington, DC.
Post Office Department. Operations of the Postal Savings System. GPO, various issues, Washington, DC.
Sprick Schuster, S., Jaremski, M., and Perlman, E. (2020). “An Empirical History of the United States Postal Savings System.” *Social Science History*. 44(4): 667 – 696.
White, Eugene N. (1984). "A Reinterpretation of the Banking Crisis of 1930,” *Journal of Economic History* 44 (1): 119–38.
Wilmarth A. (2012). Narrow banking: an overdue reform that could solve the too-big-to-fail problem and align U.S. and U.K. regulation of financial conglomerates. Law Sch., George Wash. Univ. Public Law Leg. Theory Paper 2012-40.

Figure 1: Location of Postal Savings Depositories and Commercial Banks, 1928

Panel A: Postal Savings Depositories

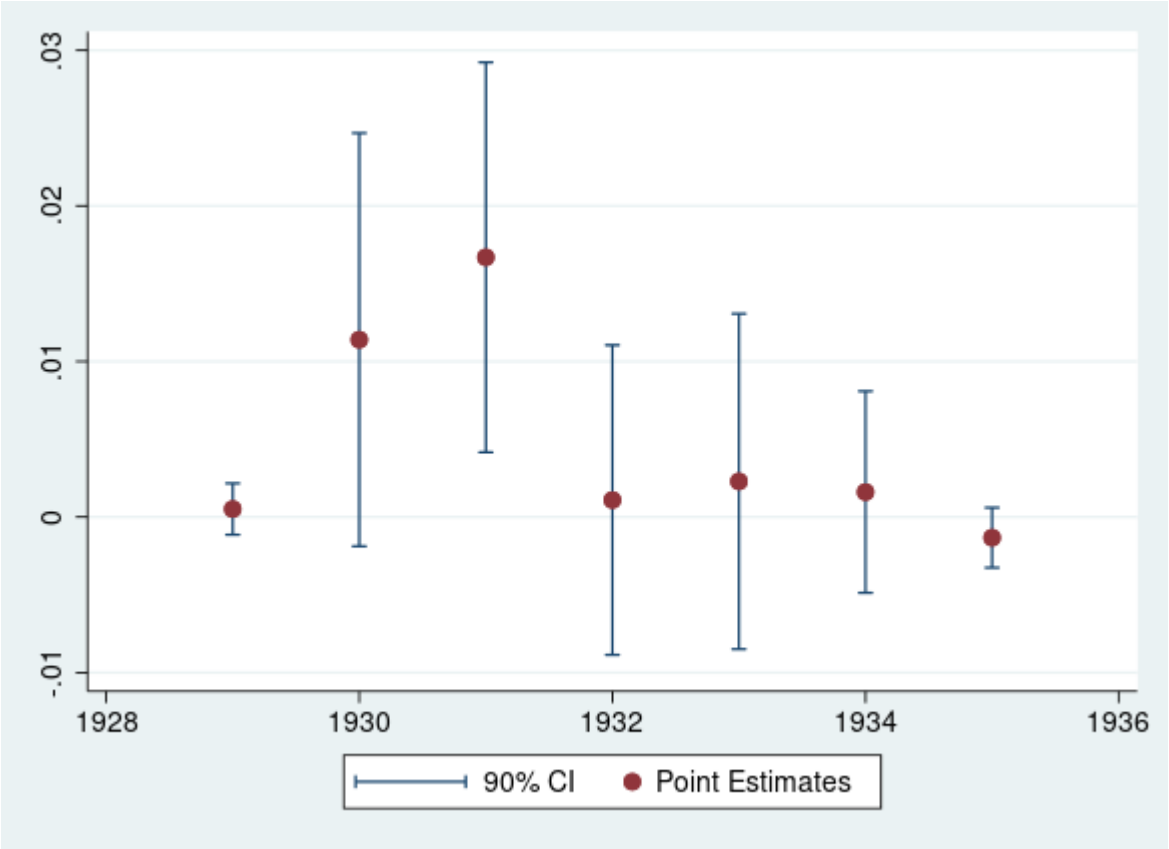


Panel B: Commercial Banks



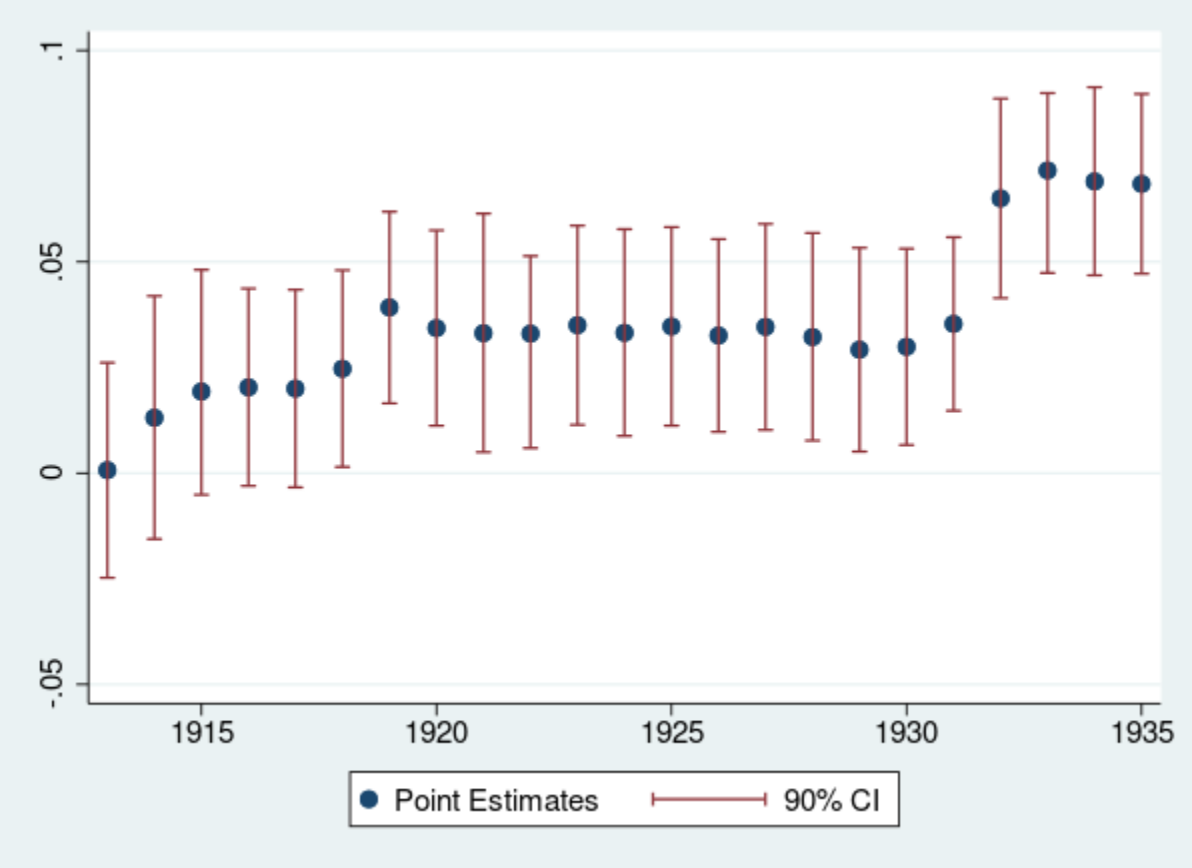
Note: Panel A shows the location of postal savings depositories in operation in 1928. Panel B shows the location of towns with a commercial bank in 1928. The shaded states are those for which we do not have balance sheet data. See Section 3 for the sources of the data.

Figure 2: Effect of Postal Savings Availability on Bank Closure by Closure Year



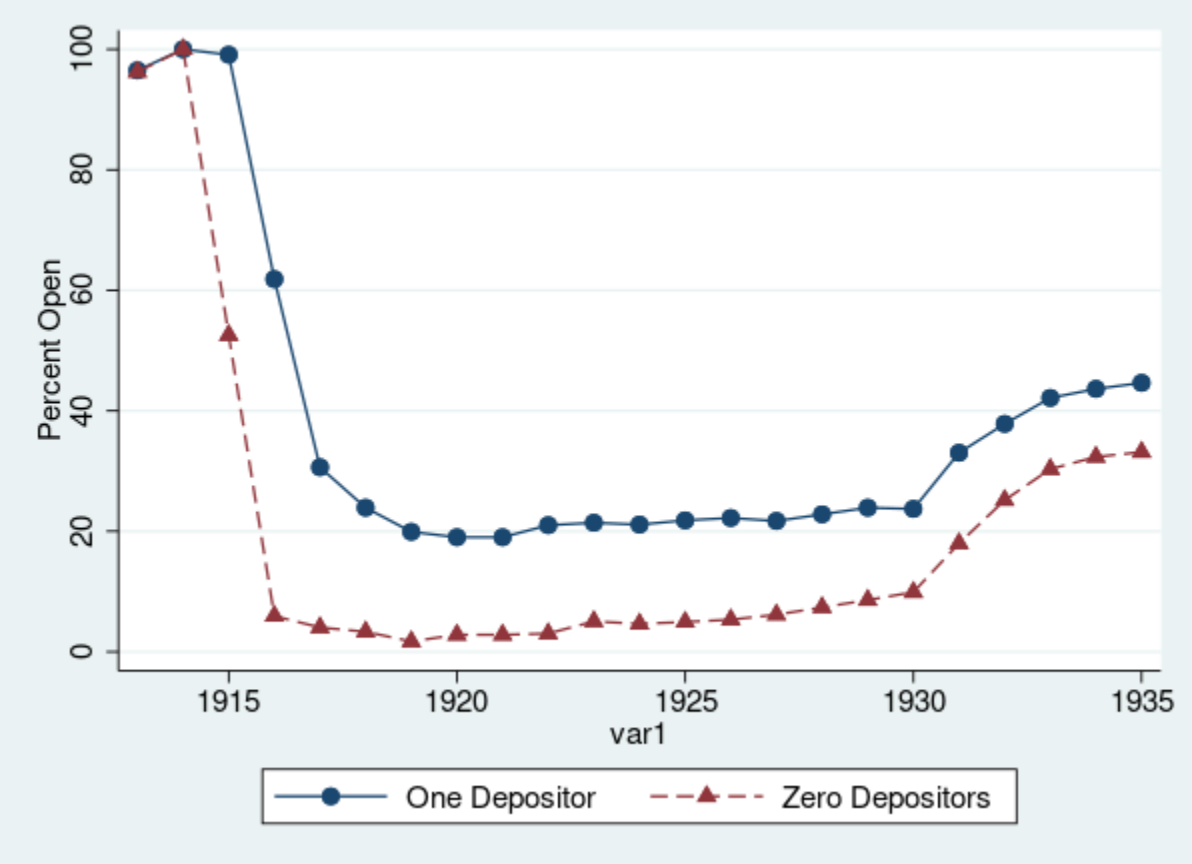
Note: Figure shows the point estimates of the regression described in equation (1), along with the 90% confidence intervals, but estimated for each individual closure year. We drop any bank that had already closed in a previous year.

Figure 3: Effect of Postal Savings Availability in Other Years on Bank Closure



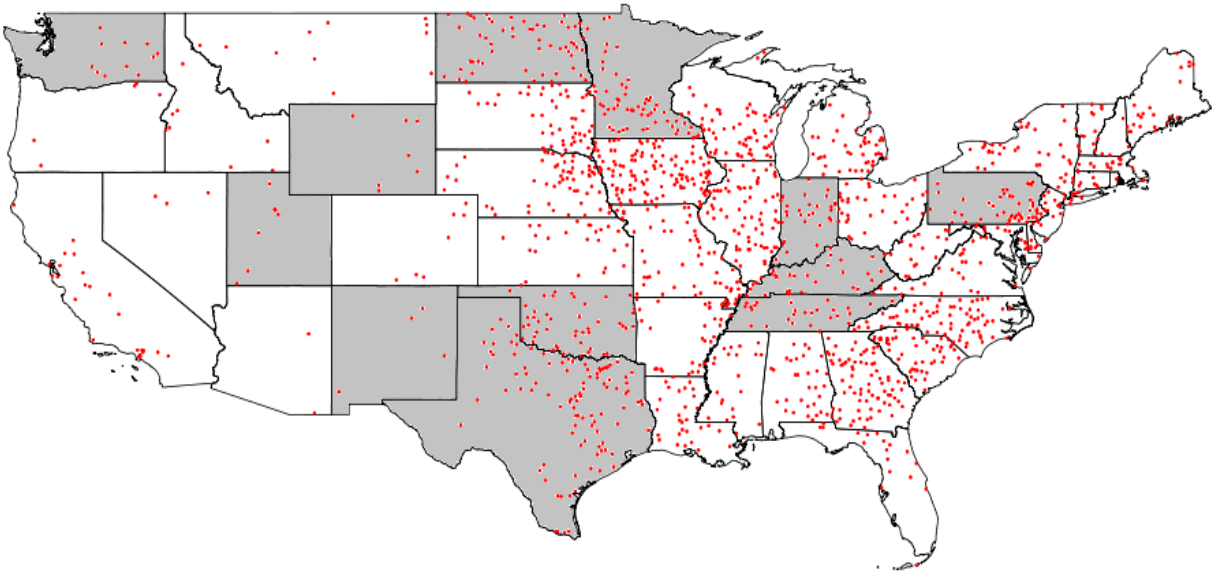
Note: Figure shows the point estimates of the regression described in equation (1) using different years of local postal savings availability, along with the 90% confidence intervals.

Figure 4: Survival of Initial Postal Savings Depositories (1913-1935)



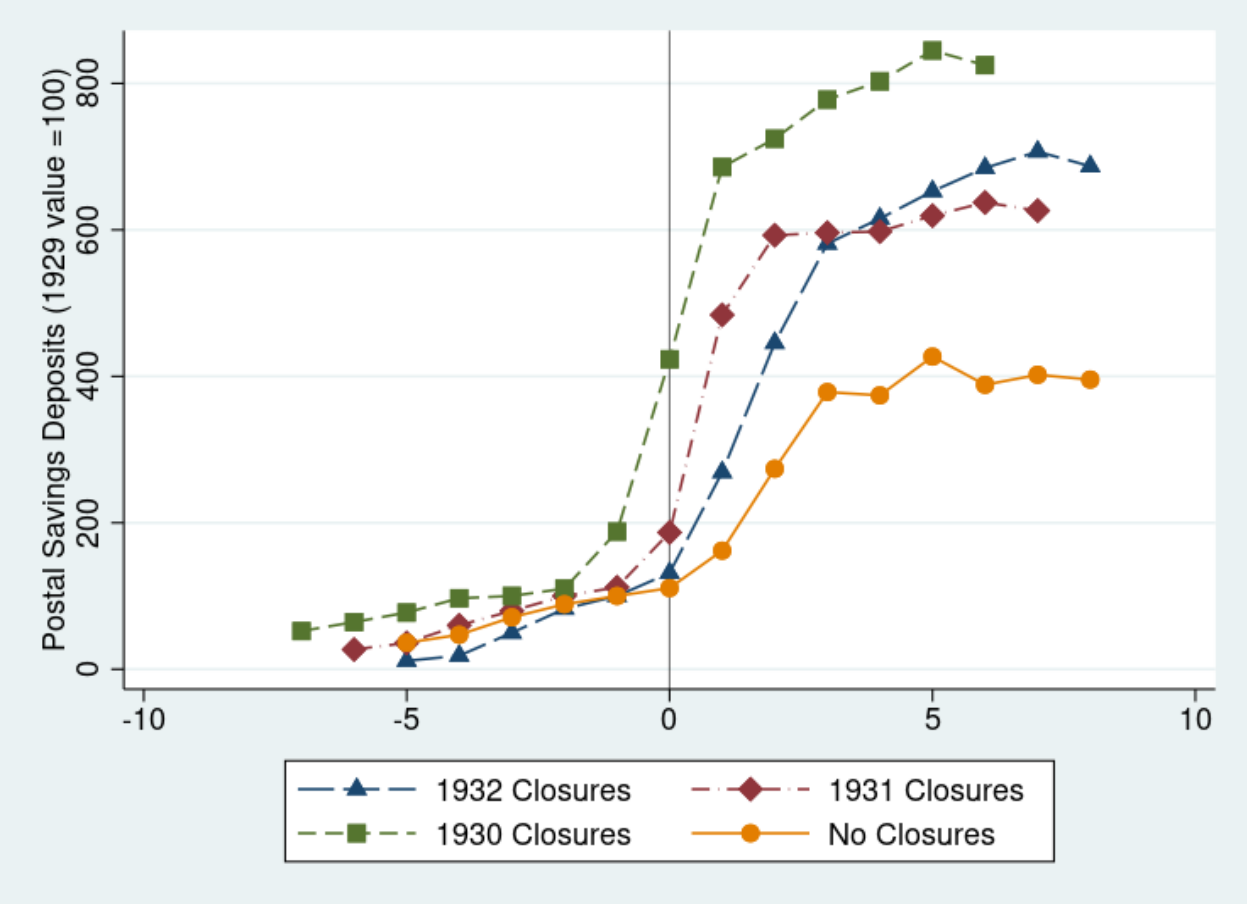
Note: Figure shows the percent of postal depositories that were open in 1914 that remained open in subsequent years. The "One Depositor" group is depositories with exactly one depositor in 1913/1914 or 1914/1915. The "Zero Depositors" group is depositories with no depositors during that time. This graph includes all years when the Post Office reports open depositories with 0 depositors in the data.

Figure 5: Location of Postal Savings Depositories in IV Sample



Note: Figure shows the location of all postal savings depositories that were in operation in 1913-1915 and had 0 or 1 depositor. The shaded states are those for which we do not have balance sheet data and are therefore not part of our IV sample.

Figure 6: Value of Postal Savings Deposits In Towns With One Bank



Notes: The figure displays the average amount of postal savings deposits (normalized to 100 in 1929) for each of the city types. Time is normalized to the year a bank closed in the town (with zero being the year of closure) except for towns without a closure which are normalized to 1930. The figure only contains towns that had exactly one commercial bank in 1928. Data on postal savings deposits comes from 1925 through 1938.

Table 1: Effect of Postal Savings Availability on Bank Closure (1929-1935)

	(1)	(2)	(3)
	All Banks	National Banks	State Banks
Has Postal Savings (1928)	0.0323**	0.0241	0.0327*
	(0.0145)	(0.0187)	(0.0170)
Ln(Assets)	-0.0450***	-0.0351***	-0.0443***
	(0.00847)	(0.00988)	(0.00993)
Cash/Deposits	-0.280***	-0.461***	-0.207***
	(0.0644)	(0.131)	(0.0655)
Loans/Assets	0.199***	0.184***	0.234***
	(0.0401)	(0.0618)	(0.0453)
(Profits+Capital)/Assets	-0.173*	-0.308*	-0.150*
	(0.0890)	(0.179)	(0.0876)
Profits/(Profits+Capital)	-0.406***	-0.444***	-0.429***
	(0.0369)	(0.0469)	(0.0411)
Observations	16,755	4,592	12,163
Location Characteristics	Y	Y	Y
State Fed Member Indicator	Y	N	Y
National Bank Indicator	Y	N	N
State Fixed Effects	Y	Y	Y
R-squared	0.104	0.115	0.111

Note: Results from a linear regression. The outcome variable is an indicator for whether a bank closed, for any reason, from 1929-1935. The sample contains all banks for which we have balance sheet data. Location characteristics include log of county population, percentage of the population paying federal taxes, the log of manufacturing facilities per capita, the log of farms per capita, the percent of a county that is urban, the percent of county population that is white, and whether the town was a Central Reserve or Reserve City. Standard errors clustered at the state level are provided in parentheses. *** p<0.01, ** p<0.05, *p<0.1

Table 2: Robustness Checks for OLS Specification

	(1)	(2)
	Banks in Towns with 2rd or 3rd Class Post Offices	All Banks
Has Postal Savings (1928)	0.0267**	0.0326**
	(0.0128)	(0.0141)
% of Other Banks in County That Closed 1929-1935	-	0.204***
		(0.0334)
Ln(Assets)	-0.0532***	-0.0462***
	(0.0115)	(0.00835)
Cash/Deposits	-0.411***	-0.278***
	(0.0963)	(0.0621)
Loans/Assets	0.239***	0.191***
	(0.0432)	(0.0395)
(Profits+Capital)/Assets	-0.431***	-0.177**
	(0.154)	(0.0855)
Profits/(Profits+Capital)	-0.374***	-0.395***
	(0.0404)	(0.0369)
Observations	8,415	16,593
Location Characteristics	Y	Y
State Fed Member Indicator	Y	Y
National Bank Indicator	Y	Y
State Fixed Effects	Y	Y
R-squared	0.107	0.111

Note: Results from a linear regression. The outcome variable is an indicator for whether a bank closed, for any reason, from 1929-1935. The sample in Column 1 contains all banks for which we have balance sheet data in towns with 2nd or 3rd class post offices. The sample for Column 2 is all banks with at least 1 other bank in the county, Location characteristics include log of county population, percentage of the population paying federal taxes, the log of manufacturing facilities per capita, the log of farms per capita, the percent of a county that is urban, the percent of county population that is white, and whether the town was a Central Reserve or Reserve City. Standard errors clustered at the state level are provided in parentheses. *** p<0.01, ** p<0.05, *p<0.1

Table 3: Summary Statistics of Towns With and Without Postal Savings in 1928

	Without Postal Savings (1928)	With Postal Savings (1928)	Difference
Town-level Variables			
Number of Banks (1928)	1.26 (0.54)	2.44 (5.08)	1.18†
Percent with Postal Savings (1928)	0	100	100†
County-level Variables (in 1929)			
Log(County Population)	10.25 (1.10)	10.65 (1.22)	0.40†
County Percent Urban (2,500+)	25.16 (26.99)	37.87 (27.82)	12.71†
Farms Per Person	0.101 (0.048)	0.0724 (0.047)	-0.0286†
Manufacturing Facilities Per Person	0.0012 (0.0009)	0.0014 (0.0008)	0.0002†
Percent Paying Federal Taxes	1.70 (2.06)	2.57 (2.63)	0.88†
Percent White	90.46 (17.04)	92.95 (3.30)	2.50†
Bank-level Variables (in 1928)			
Ln(Assets)	12.64 (0.93)	14.19 (1.37)	1.54†
$\frac{Cash}{Deposits}$	0.204 (0.119)	0.173 (0.099)	-0.031†
$\frac{Loans}{Assets}$	0.628 (0.150)	0.566 (0.148)	-0.062†
$\frac{Capital + Profits}{Assets}$	0.158 (0.07)	0.137 (0.066)	-0.021†
$\frac{Profits}{Profits + Capital}$	0.366 (0.195)	0.467 (0.23)	0.101†

Note: Table shows the average values for variables of interest between towns with and without postal savings in 1928. The data are aggregated to the town level before obtaining the town and county averages. Bank-level variables are bank-level averages. Standard deviations are in parentheses below the averages. The third column displays differences, and 2-sided t-tests were performed to determine if the zero and one-depositor groups differed. † $p<0.01$,

Table 4: Summary Statistics of Locations in IV Sample

	Zero Depositor Locations	One Depositor Locations	Difference
Town-level Variables			
Number of Banks (1928)	1.55 (0.63)	1.60 (0.67)	0.05
Percent With Postal Savings (1928)	7.1 (26)	18.8 (39)	11.7†
County-level Variables (in 1929)			
Log(County Population)	10.19 (0.90)	10.23 (0.93)	0.04
County Percent Urban (2,500+)	20.35 (23.78)	21.13 (23.46)	0.79
Farms Per Person	0.104 (0.045)	0.102 (0.044)	-0.002
Manufacturing Facilities Per Person	0.0012 (0.0008)	0.0012 (0.0008)	0.00
Percent Paying Federal Taxes	1.40 (1.31)	1.53 (1.38)	0.13
Percent White	86.03 (20.71)	89.74 (17.97)	3.71†
Bank-level Variables (in 1928)			
Ln(Assets)	13.03 (0.72)	13.15 (0.76)	0.12†
$\frac{Cash}{Deposits}$	0.203 (0.114)	0.192 (0.107)	-0.011
$\frac{Loans}{Assets}$	0.621 (0.149)	0.603 (0.151)	-.018†
$\frac{Capital + Profits}{Assets}$	0.151 (0.063)	0.147 (0.064)	-0.005
$\frac{Profits}{Profits + Capital}$	0.392 (0.201)	0.392 (0.20)	0.000

Note: Table shows the average values for variables of interest between towns with zero depositors and those with 1 depositor in 1913-1915. The data are aggregated to the town level before obtaining the town and county averages. Bank-level variables are bank-level averages. Standard deviations are in parentheses below the averages. The third column displays differences, and 2-sided t-tests were performed to determine if the zero and one-depositor groups differed. † $p<0.01$,

Table 5: Instrumental Variables Regression of Postal Savings Availability on Bank Closure (1929-1935)

	Panel A: Dependent Variable=Bank Closure			
	Instrumental Variable			Reduced Form
	(1)	(2)	(3)	(4)
	All Banks	National Banks	State Banks	All Banks
Has Postal Savings (1928)	0.575***	0.696**	0.524**	
	(0.207)	(0.319)	(0.258)	
One Depositor in 1913/1915				0.0573***
				(0.0168)
Ln(Assets)	-0.0858***	-0.151**	-0.0608*	-0.0468**
	(0.0318)	(0.0647)	(0.0310)	(0.0225)
Cash/Deposits	-0.412**	-0.573**	-0.353*	-0.309*
	(0.187)	(0.292)	(0.200)	(0.175)
Loans/Assets	0.399***	0.349**	0.453***	0.398***
	(0.110)	(0.172)	(0.128)	(0.109)
(Profits+Capital)/Assets	-0.434	-0.286	-0.475*	-0.379
	(0.302)	(0.718)	(0.244)	(0.262)
Profits/(Profits+Capital)	-0.361***	-0.500***	-0.349***	-0.408***
	(0.0713)	(0.194)	(0.0646)	(0.0670)
Observations	2,180	608	1,572	2,180
Location Characteristics	Y	Y	Y	Y
State Fed Member Indicator	Y	Y	Y	Y
National Bank Indicator	Y	Y	Y	Y
State Fixed Effects	Y	Y	Y	Y
Cragg-Donald Wald F Statistic	50.46	23.18	25.10	-
R-Squared (Reduced Form)				0.116
Panel B: Dependent Variable=Has Postal Savings in 1928				
	First-Stage Regression			
One Depositor in 1913/1915	0.0996***	0.139***	0.0807***	
	(0.0199)	(0.377)	(0.187)	
Observations	2,180	608	1,572	
Bank Characteristics	Y	Y	Y	
Location Characteristics	Y	Y	Y	
State Fed Member Indicator	Y	Y	Y	
National Bank Indicator	Y	Y	Y	
State Fixed Effects	Y	Y	Y	
R-Squared (First Stage)	0.130	0.206	0.127	

Note: Columns 1-3 of Panel A shows the results of an instrumental variables regression. The outcome variable is an indicator for whether a bank closed, for any reason, from 1929-1935. Panel B shows the first-stage regression for each of the IV regressions in columns 1-3, and the reduced form regression in column 4. The sample contains all towns for which we have balance sheet data and that there were either 0 or 1 depositors in the local postal depository in 1913-1915. Location characteristics include: log of county population, percentage of the population paying federal taxes, the log of manufacturing facilities per capita, the log of farms per capita, the percent of a county that is urban, and the percent of county population that is white. Bank characteristics include: the logarithm of total assets, loans to assets, paid-in capital, surplus, and undivided profits to assets (i.e., capital to assets), surplus and undivided profits to paid-in capital, surplus, and undivided profits (i.e., profit to capital), and cash and due from banks to total deposits (i.e., cash to deposits). Standard errors clustered at the state level are provided in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6: Effect of Postal Savings Availability on Bank Closure (1929-1935), With Interaction Terms for Liquidity and Balance Sheet Risk

	(1)	(2)
	All Banks	All Banks
Has Postal Savings (1928)	0.0620**	0.0576***
	(0.0241)	(0.0181)
Has Postal Savings (1928)	-0.160*	-
X Cash/Deposits	(0.0839)	
Has Postal Savings (1928)	-	-0.200***
X Closure Probability		(0.0724)
Ln(Assets)	-0.0446***	-0.0519***
	(0.00838)	(0.00923)
Cash/Deposits	-0.219***	-0.297***
	(0.0657)	(0.0649)
Loans/Assets	0.203***	0.217***
	(0.0406)	(0.0851)
(Profits+Capital)/Assets	-0.166*	-0.207**
	(0.0897)	(0.0851)
Profits/(Profits+Capital)	-0.409***	-0.444***
	(0.0371)	(0.0578)
Observations	16,755	16,755
Location Characteristics	Y	Y
State Fed Member Indicator	Y	Y
National Bank Indicator	Y	Y
State Fixed Effects	Y	Y
R-squared	0.104	0.147

Note: Results from a linear regression. The outcome variable is an indicator for whether a bank closed, for any reason, from 1929-1935. Closure Probability is estimated by applying each bank's balance sheet statistics to the coefficients on those balance sheet statistics in column (1) of Table 1. The sample contains all banks for which we have data. Location characteristics include: log of county population, percentage of the population paying federal taxes, the log of manufacturing facilities per capita, the log of farms per capita, the percent of a county that is urban, the percent of county population that is white, and whether the town was a Central Reserve or Reserve City. Standard errors clustered at the state level are provided in parentheses. *** p<0.01, ** p<0.05, *p<0.1

Table 7: Instrumental Variables Regression of Postal Savings Availability on Bank Closure (1929-1935), Split By Bank Reserves

	(1)	(2)	(3)
	All Banks	Below Median Reserves	Above Median Reserves
Has Postal Savings	0.575***	0.766**	0.338
	(0.207)	(0.347)	(0.225)
Ln(Assets)	-0.0858***	-0.1000***	-0.0637
	(0.0318)	(0.0318)	(0.0388)
Cash/Deposits	-0.412**	-0.529	-0.113
	(0.187)	(0.465)	(0.194)
Loans/Assets	0.399***	0.301	0.528***
	(0.110)	(0.192)	(0.141)
(Profits+Capital)/Assets	-0.434	-0.576*	-0.307
	(0.302)	(0.345)	(0.318)
Profits/(Profits+Capital)	-0.361***	-0.371***	-0.406***
	(0.0713)	(0.107)	(0.0956)
Observations	2,180	1,090	1,090
Location Characteristics	Y	Y	Y
State Fed Member Indicator	Y	Y	Y
National Bank Indicator	Y	Y	Y
State Fixed Effects	Y	Y	Y
Cragg-Donald Wald F Statistic	50.46	25.26	24.78

Note: Table shows the results of an instrumental variables regression. The outcome variable is an indicator for whether a bank closed, for any reason, from 1929-1935. The full sample contains all towns for which we have balance sheet data and that there were either 0 or 1 depositors in the local postal depository in 1913-1915. It is then broken up by the bank's reserve level in 1928. Column 2 is banks with reserve levels below the median (0.1742). Column 3 is all banks above the median. Location characteristics include: log of county population, percentage of the population paying federal taxes, the log of manufacturing facilities per capita, the log of farms per capita, the percent of a county that is urban, and the percent of county population that is white. Standard errors clustered at the state level are provided in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A1: Effect of the Level of Postal Savings Deposits on Bank Closure (1929-1935)

	(1)	(2)	(3)	(4)
	All Banks	Banks in Postal Savings Towns	All Banks	Banks in Postal Savings Towns
Log(Amount on Deposit+1)	0.00594***	0.00698***	-	-
	(0.00192)	(0.00208)		
Log(Number of Depositors +1)	-	-	0.0164***	0.0189***
			(0.00491)	(0.00557)
Ln(Assets)	-0.0514***	-0.0456***	-0.0537***	-0.0492***
	(0.00827)	(0.00727)	(0.00829)	(0.00764)
Cash/Deposits	-0.284***	-0.328***	-0.289***	-0.334***
	(0.0654)	(0.0927)	(0.0657)	(0.0939)
Loans/Assets	0.201***	0.178***	0.199***	0.180***
	(0.0406)	(0.0309)	(0.0409)	(0.0306)
(Profits+Capital)/Assets	-0.201**	-0.304**	-0.214**	-0.320**
	(0.0883)	(0.123)	(0.0893)	(0.120)
Profits/(Profits+Capital)	-0.394***	-0.391***	-0.390***	-0.384***
	(0.0370)	(0.0480)	(0.0373)	(0.0477)
Location Characteristics	Y	Y	Y	Y
State Fed Member Indicator	Y	Y	Y	Y
National Bank Indicator	Y	Y	Y	Y
State Fixed Effects	Y	Y	Y	Y
Observations	16,755	8,089	16,755	8,089
R-squared	0.105	0.122	0.106	0.123

Note: Results from a linear regression. The outcome variable is an indicator for whether a bank closed, for any reason, from 1929-1935. The primary dependent variable for columns 1 and 2 is the log of the amount on deposits (+1) in a town's Postal Savings bank. The primary dependent variable for columns 3 and 4 is the log of the number on depositors (+1) in a town's Postal Savings bank. The sample for columns 1 and 3 is all banks for which we have balance sheet data. The sample for columns 2 and 4 is banks in towns that had a postal depository in 1928. Location characteristics include log of county population, percentage of the population paying federal taxes, the log of manufacturing facilities per capita, the log of farms per capita, the percent of a county that is urban, the percent of county population that is white, and whether the town was a Central Reserve or Reserve City. Standard errors clustered at the state level are provided in parentheses. *** p<0.01, ** p<0.05, *p<0.1

Table A2: Bank-level Closure and Establishment of New Postal Depositories

	(1)
	All Banks
Gained Postal Savings	0.0860***
(1929-1935)	(0.0145)
Ln(Assets)	-0.0860***
	(0.0131)
Cash/Deposits	-0.261***
	(0.0797)
Loans/Assets	0.200***
	(0.0626)
(Profits+Capital)/Assets	-0.229*
	(0.121)
Profits/(Profits+Capital)	-0.392***
	(0.0441)
Observations	8,666
Location Characteristics	Y
State Fed Member Indicator	Y
National Bank Indicator	Y
State Fixed Effects	Y
R-Squared	0.098

Note: Results are from a linear regression. The sample contains all banks for which we have balance sheet data and there were no postal savings available in 1928. The "Gained Postal Savings (1929-1935)" variable is an indicator equal to 1 if postal savings was established in a town between 1928 and 1935. Location characteristics include: log of county population, percentage of the population paying federal taxes, the log of manufacturing facilities per capita, the log of farms per capita, the percent of a county that is urban, the percent of county population that is white, and was a Central Reserve or Reserve City. Standard errors clustered at the state level are provided in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A3: Bank Closure and Alternative Definitions of Postal Savings Availability

	(1)
	All Banks
Has Postal Savings (1928)	0.0263
	(0.0184)
Lost Postal Savings (1913-1928)	-0.00935
	(0.0166)
Ln(Assets)	-0.0444***
	(0.0088)
Cash/Deposits	-0.281***
	(0.00647)
Loans/Assets	0.199***
	(0.0402)
(Profits+Capital)/Assets	-0.173*
	(0.089)
Profits/(Profits+Capital)	-0.406***
	(0.0369)
Observations	16,755
Location Characteristics	Y
State Fed Member Indicator	Y
National Bank Indicator	Y
State Fixed Effects	Y
R-Squared	0.104

Note: Results are from a regression that is identical to Table 1, Column 1, but with the inclusion of an indicator variable equal to 1 if a town had postal savings at any point but lost it. Therefore, the coefficients for both "Has Postal Savings (1928)" and "Lost Postal Savings (1913-1927)" measure the likelihood of closure against a third (omitted) category: towns that never has postal savings. Location characteristics include: log of county population, percentage of the population paying federal taxes, the log of manufacturing facilities per capita, the log of farms per capita, the percent of a county that is urban, the percent of county population that is white, and whether the town was a Central Reserve or Reserve City. Standard errors clustered at the state level are provided in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A4: Town-Level Correlations of Bank Closures and New Postal Savings Depositories

	(1)
	All Banks
% of Commercial Banks Closed (1929-1935)	0.0325***
	(0.00956)
Lost Postal Savings (1913-1928)	0.174***
	(0.0151)
Ln(Assets)	0.0355***
	(0.00851)
Cash/Deposits	-0.00480
	(0.00404)
Loans/Assets	-0.0140
	(0.0244)
(Profits+Capital)/Assets	-0.0572
	(0.0875)
Profits/(Profits+Capital)	-0.0739***
	(0.0251)
Observations	10,217
Location Characteristics	Y
State Fixed Effects	Y
R-squared	0.124

Note: Results are from a linear regression. The sample contains all towns for which we have balance sheet data and there were no postal savings available in 1928. We also drop out counties that only had one bank. The "Lost Postal Savings (1916-1928)" variable is an indicator equal to 1 if postal savings existed in 1916 and was stopped by 1928. Location characteristics include: log of county population, percentage of the population paying federal taxes, the log of manufacturing facilities per capita, the log of farms per capita, the percent of a county that is urban, the percent of county population that is white, and was a Central Reserve or Reserve City. Standard errors clustered at the state level are provided in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A5: Instrumental Variables Regression of the Level of Postal Savings Deposits on Bank Closure (1929-1935)

VARIABLES	(1) All Banks	(2) All Banks
Log(Amount on Deposit+1)	0.127**	
	(0.0587)	
Log(Number of Depositors+1)		0.406**
		(0.181)
Ln(Assets)	-0.108***	-0.105***
	(0.0377)	(0.0361)
Cash/Deposits	-0.543**	-0.592***
	(0.214)	(0.227)
Loans/Assets	0.343***	0.325***
	(0.0954)	(0.0935)
(Profits+Capital)/Assets	-0.590*	-0.551*
	(0.332)	(0.327)
Profits/(Profits+Capital)	-0.332***	-0.316***
	(0.0703)	(0.0711)
Observations	2,180	2,180
Location Characteristics	Y	Y
State Fixed Effects	Y	Y
State Fed Member Indicator	Y	Y
National Bank Indicator	Y	Y
Cragg-Donald Wald F Statistic	25.00	22.34

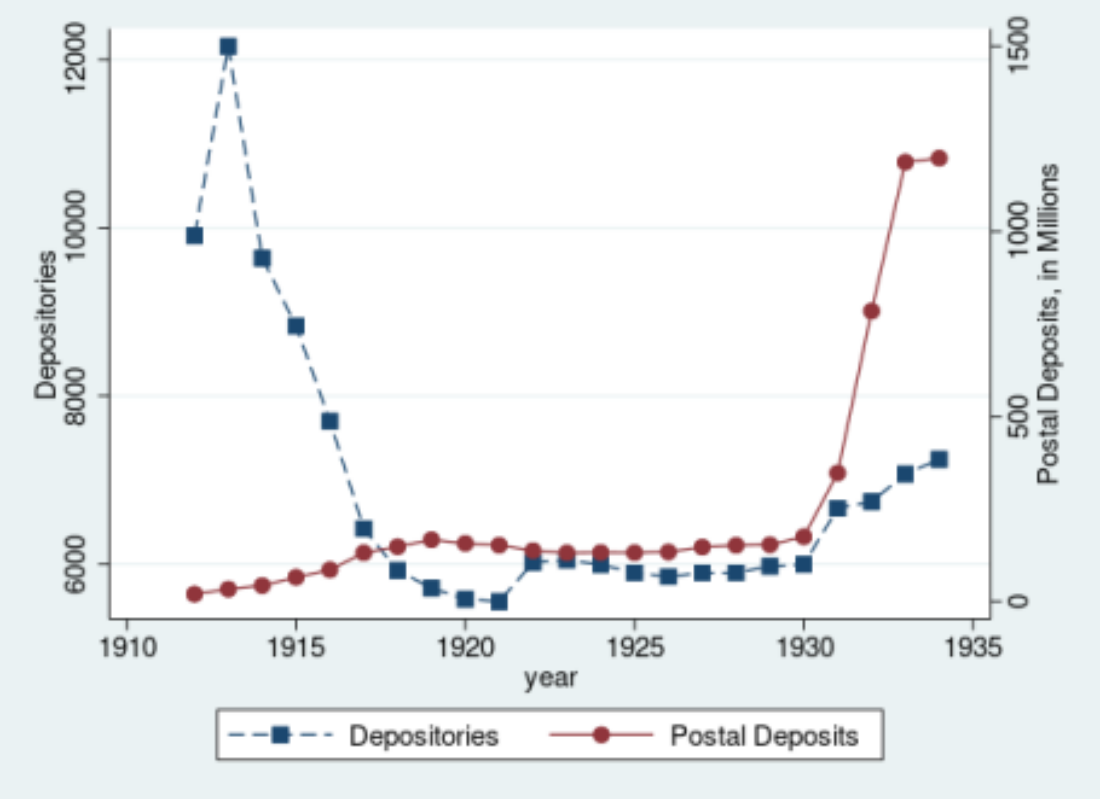
Note: Results show the results of an instrumental variables regression. The outcome variable is an indicator for whether a bank closed, for any reason, from 1929-1935. The instrumented variable for column 1 is the log of the amount on deposits (+1) in a town's Postal Savings bank. The instrumented variable for column 2 is the log of the number on depositors (+1) in a town's Postal Savings bank. The sample contains all towns for which we have balance sheet data and that there were either 0 or 1 depositors in the local postal depository in 1913-1915. Location characteristics include: log of county population, percentage of the population paying federal taxes, the log of manufacturing facilities per capita, the log of farms per capita, the percent of a county that is urban, and the percent of county population that is white. Bank characteristics include: the logarithm of total assets, loans to assets, paid-in capital, surplus, and undivided profits to assets (i.e., capital to assets), surplus and undivided profits to paid-in capital, surplus, and undivided profits (i.e., profit to capital), and cash and due from banks to total deposits (i.e., cash to deposits). Standard errors clustered at the state level are provided in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A6: Effect of Postal Savings Availability on Bank Closure (1929-1935), With Balance Sheet Risk Interaction Without Including Reserves

	(1) All Banks
Has Postal Savings (1928)	0.0732***
	(0.0226)
Has Postal Savings (1928) X Predicted Closure Probability	-0.229**
(Without Including Reserves)	(0.0779)
Ln(Assets)	-0.0527***
	(0.00949)
Cash/Deposits	-0.276***
	(0.0633)
Loans/Assets	0.221***
	(0.0414)
(Profits+Capital)/Assets	-0.209**
	(0.0846)
Profits/(Profits+Capital)	-0.452***
	(0.0360)
Observations	16,755
Location Characteristics	Y
State Fed Member Indicator	Y
National Bank Indicator	Y
State Fixed Effects	Y
R-squared	0.105

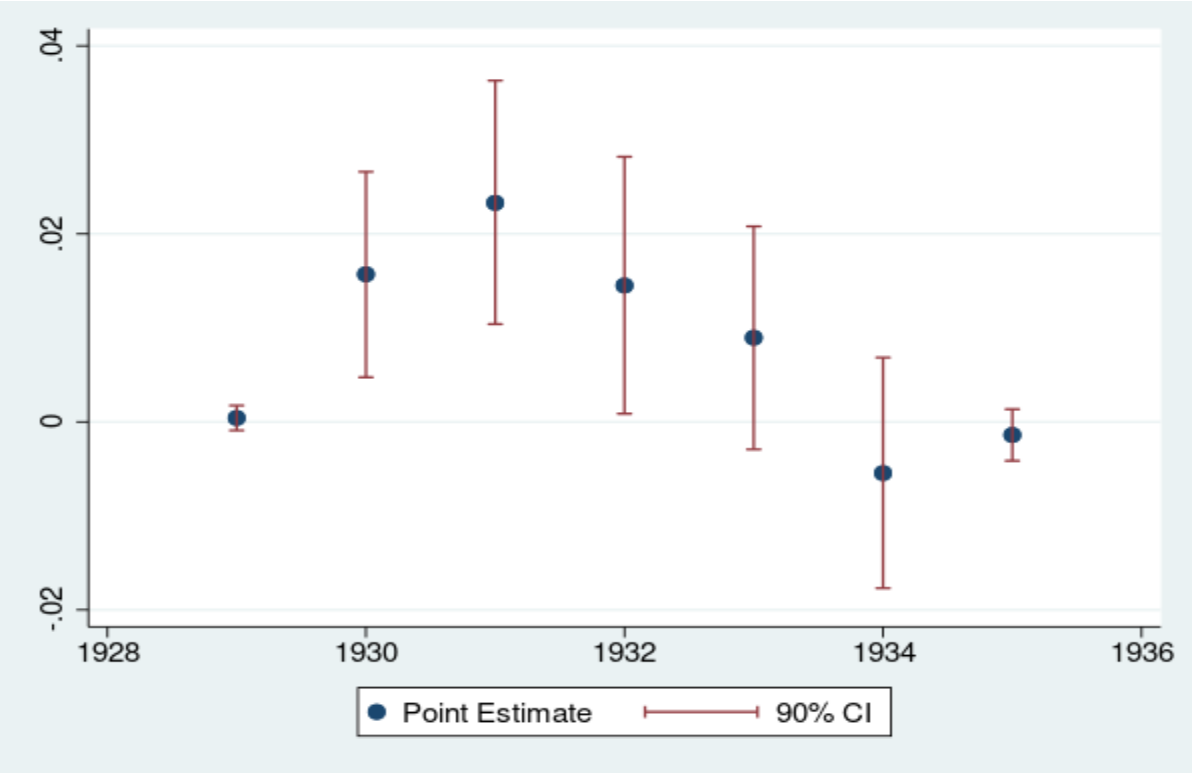
Note: Results from a linear regression. The outcome variable is an indicator for whether a bank closed, for any reason, from 1929-1935. Closure Probability is estimated by applying each bank's balance sheet statistics (except for reserves) to the coefficients on those balance sheet statistics in column (1) of Table 1. The sample contains all banks for which we have data. Location characteristics include log of county population, log of tax returns per county, the log of manufacturing facilities per capita, the log of farms per capita, the percent of a county that is urban, the percent of county population that is white, and whether the town is a Reserve City. We also control for whether the bank is a national bank. Standard errors clustered at the state level are provided in parentheses. *** p<0.01, ** p<0.05, *p<0.1

Figure A1: Aggregate Postal Banking Statistics (1911-1934)



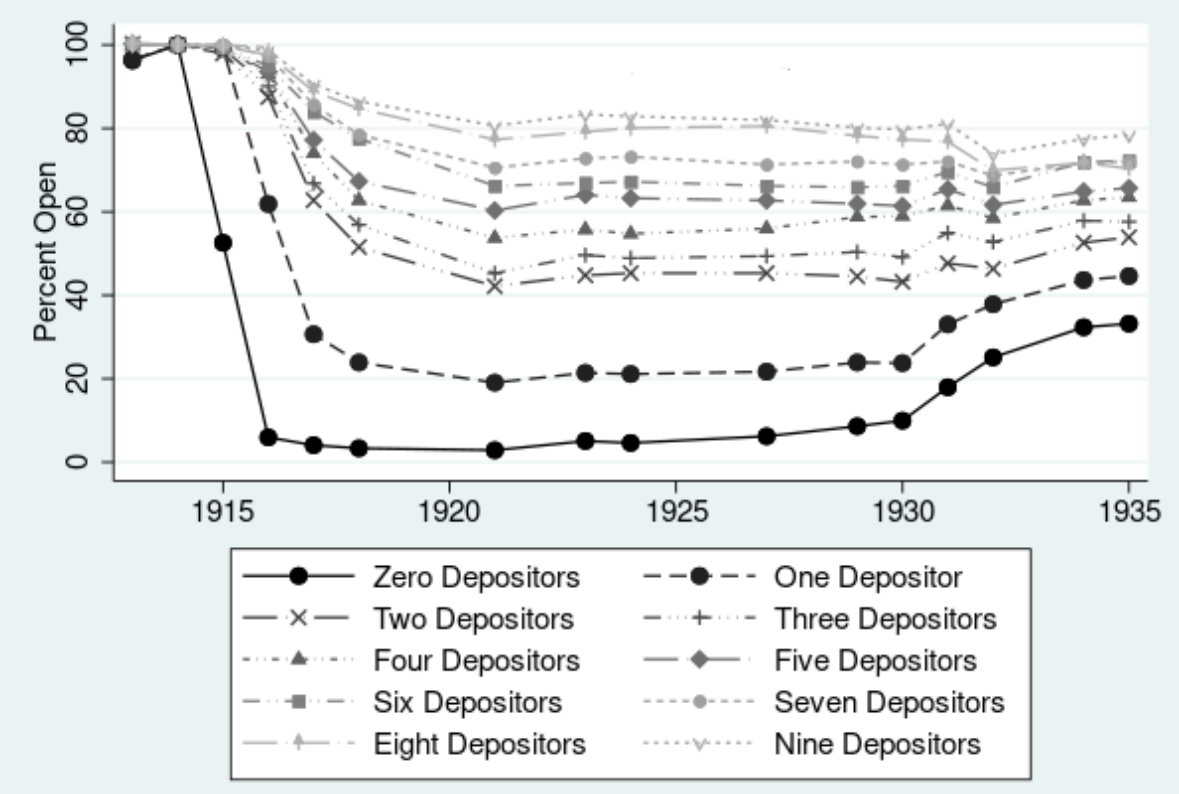
Notes: The figures provide the total number of post offices that accepted deposits in a given year and the value of all deposits in the system.

Figure A2: Effect of Postal Savings Availability on Bank Closure by Closure Year - Using Contemporaneous Postal Savings Availability



Note: Figure shows the point estimates of the regression described in equation (1), along with the 90% confidence intervals, but estimated for each individual closure year. To obtain estimates of the effect of having postal savings on closures in each year, we created a dummy variable equal to 1 if a bank closed in that year, and 0 otherwise. We then ran an OLS regression, dropping any bank that had already closed in a previous year.

Figure A3: Survival of Postal Savings Depositories (1913-1935), Additional Cutoffs



Note: Figure shows the percent of postal depositories that were open in 1914 that remained open in subsequent years. The "Zero Depositors" group is depositories with no depositors in 1913/1914 or 1914/1915. For the others, the definitions follow "# Depositors" is depositories with exactly # depositors in 1913/1914 or 1914/1915. This graph includes all years when the Post Office reports open depositories with 0 depositors in the data.