Banker Preferences, Interbank Connections, and the Enduring Structure of the Federal Reserve System

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Matthew Jaremski*

David C. Wheelock

Established by a three person committee in 1914, the structure of the Federal Reserve System has remained essentially unchanged ever since, despite criticism at the time and over ensuing decades. This paper examines the original selection of cities for Reserve Banks and branches, and placement of district boundaries. We show that each aspect of the Fed's structure reflected the preferences of national banks, including adjustments to district boundaries after 1914. Further, using newly-collected data on interbank connections, we find that banker preferences mirrored established correspondent relationships. The Federal Reserve was thus formed on top of the structure that it was largely meant to replace.

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Matthew Jaremski (*corresponding author): Department of Economics, Colgate University (mjaremski@colgate.edu). David C. Wheelock: Research Department, Federal Reserve Bank of St. Louis (david.c.wheelock@stls.frb.org). The authors thank Michael Bordo, Mark Carlson, David Hammes, Tom Garrett, Michael McAvoy, Kris Mitchener, Mary Rodgers, David Weiman and an anonymous referee for comments, data and other information used in preparing this paper. Views expressed herein do not necessarily represent official positions of the Federal Reserve Bank of St. Louis or the Federal Reserve System.

1. Introduction

The Federal Reserve System recently reached a centennial milestone. President Woodrow Wilson signed the Federal Reserve Act on December 23, 1913. The Act assigned to a Reserve Bank Organization Committee (RBOC) the task of determining the number of Federal Reserve districts (between eight and twelve), the boundaries of each district, and the location of a Reserve Bank within each district. The RBOC acted quickly, announcing the selection of 12 cities for Reserve Banks and the locations of district boundaries on April 2, 1914. The choices made by the RBOC were criticized at the time and are widely viewed as out of date today. For example, the RBOC placed four Reserve Banks (Boston, New York, Philadelphia and Cleveland) within just a few hundred miles of each other and two Reserve Banks in the state of Missouri, but assigned only four Banks (Minneapolis, Kansas City, Dallas and San Francisco) to serve nearly the entire western two-thirds of the country. Various proposals have been made over the years to restructure the Fed to reflect changes in the geographic distributions of U.S. population and economic activity.[1] However, despite calls for reorganization at various times in its history, the structure of the Federal Reserve System has remained largely fixed since 1914, with only minor adjustments to district borders and branches.

This paper examines the determinants of the entire original structure of the Federal Reserve System, including Reserve Bank cities, district boundaries and branch office locations. Better understanding of the reasons underlying the Fed's original design can inform ongoing debates about restructuring the System. Further, the choices made by the RBOC in 1914 have proved important historically. Commercial banks rely on the Federal Reserve Banks for

[1] Recent examples include Bordo (2015), Dearie (2015) and Fisher (2015). Senate bill S.1484, The Financial Regulatory Improvement Act of 2015, would, among other things, establish an independent Federal Reserve Restructuring Commission to study the appropriateness of restructuring the Federal Reserve districts.

payments services and liquidity in times of need.[2] The Fed's performance in carrying out these functions has real economic consequences. For example, during the Great Depression, the Federal Reserve Bank of Atlanta's liberal lending policy resulted in differences in response to crises and superior economic performance in the portion of Mississippi served by the Atlanta Fed than in the portion served by the Federal Reserve Bank of St. Louis, which had a more conservative policy (Carlson, Mitchener, and Richardson 2011; Richardson and Troost 2009; Ziebarth 2013). Further, the establishment of a Reserve Bank appears to have conveyed long-term economic benefits on at least some of the cities where they were located (Odell and Weiman 1998).

There remains a debate about the criteria used by the RBOC to select the locations of Federal Reserve Banks and district boundaries. Several studies conclude that, in selecting cities for Reserve Banks, the RBOC relied heavily on the results of a survey of national banks (e.g., Odell and Weiman 1998; Meltzer 2003; McAvoy 2006; Binder and Spindel 2013), but studies disagree about other criteria that influenced the RBOC's decisions. Moreover, most studies examine only the selection of cities for Reserve Banks and do not consider the location of district boundaries or branch offices.[3] We show that soon after the Fed's founding, branch offices were placed in many of the cities that had received considerable support from banks in the RBOC survey, which could help explain why pressure to move Reserve Banks or alter district boundaries has never been strong enough to bring about significant changes to the System's structure.

[2] The Federal Reserve Act required all banks with federal charters, i.e., national banks, to become members of the Fed, but membership was made optional for state chartered banks. Fed services and discount window loans were generally not available to nonmember depository institutions until the Monetary Control Act of 1980.

[3] McAvoy (2004) is an exception. He shows that the territories assigned to Federal Reserve districts generally align with the responses of national banks to the RBOC survey, but does not test alternative hypotheses.

The authors of the Federal Reserve Act clearly anticipated the need for branch offices. As Carter Glass explained in April 1914: "The banking operations and the commercial transactions of any given territory will be practically maintained as they exist today, for the reason that such territory will transact its business with the branch bank instead of the Regional Reserve Bank, if more convenient" (Weed 1914, p. 4).[4] As such, the RBOC may have considered possible branch locations when it selected cities for Reserve Banks and delineated district boundaries. In forming most districts, the RBOC had no choice but to combine territories whose national banks favored different cities for the location of a Reserve Bank. The subsequent establishment of branch offices thus linked more banks with their preferred city and helped knit together distinct markets within Reserve districts. In addition, the establishment of branches may have encouraged state-chartered banks to join the Federal Reserve System.[5] Hence, a comprehensive examination of all components of the Fed's structure helps to better understand the organization of the System as a whole.

We confirm that the responses of national banks to the RBOC survey were important for structuring the Federal Reserve System. Both the total number of votes and county-level tallies help explain the cities chosen for Reserve Banks, regardless of the control variables included in the model. Moreover, we find that the votes also help explain the location of branches of Reserve Banks and district boundaries. Most Federal Reserve districts were formed by joining together contiguous blocs of counties that had supported different cities for Reserve Banks, with branch offices opening in many of the cities that were not awarded Reserve Banks.

[4] Glass sponsored the legislation that became the Federal Reserve Act in the House of Representatives. He has long been identified as the "father" of the Federal Reserve System (http://www.federalreservehistory.org/People/DetailView/14).

[5] Tippetts (1929) reports that many state banks joined the Federal Reserve System only after the opening of a nearby branch office.

Given their importance for the System's structure, we also seek to explain the votes of national banks for individual cities. Despite the emphasis of previous studies on how the preferences of national banks helped shape the structure of the Federal Reserve System, researchers have not systematically investigated the underlying determinants of those preferences. However, in their study on the establishment of Federal Reserve Banks in Atlanta and Dallas, Odell and Weiman (1998) note that leading banks in those cities had developed substantial correspondent banking businesses by the early 20th century, holding deposits and providing services for banks located in their respective regions. Further, both Atlanta and Dallas were top choices for Reserve Banks among national banks in their regions, suggesting that correspondent ties may have helped garner support from national banks already accustomed to doing business with financial institutions in those cities.

Using newly-collected information on the locations of the principal correspondents of all U.S. national banks, we find that the number of correspondent links to a given city help explain both the total number of votes for the city and the number of counties from which it received the most first-choice votes. The Federal Reserve was thus formed on top of the existing interbank network structure, elements of which it was meant to replace.

The next section discusses why the Federal Reserve was established, focusing especially on how the System's geographically-decentralized structure was designed to overcome banking system flaws that reformers saw as contributing to instability. Subsequent sections examine i) the selection of cities for Federal Reserve Banks and branches, ii) the delineation of Reserve district boundaries, and iii) the importance of established correspondent relationships for explaining the expressed preferences of national banks for the location of Federal Reserve Banks.

2. Why the Fed has a Geographically-Decentralized Structure

The Federal Reserve System was established to overcome features of the U.S. banking and payments systems that contemporaries viewed as contributing to banking panics. Those problems included an "inelastic" currency stock and the concentration of the nation's bank reserves in New York City and other money centers (Bordo and Wheelock 2013).[6]

Two features of the U.S. banking system encouraged the nation's bank reserves to amass in large banks in New York City and a few other cities. First, unit banking laws restricted most banks to a single office location.[7] Interbank relationships were thus necessary to operate the payments system, and banks often held deposits with correspondent banks in large financial centers to make payments and to collect checks and drafts on distant locations. Second, the National Banking Acts allowed most national banks to apply their deposits with correspondents in designated reserve or central reserve cities toward their legal reserve requirements. Only national banks in central reserve cities – New York City, Chicago, and St. Louis – were required to fully satisfy their requirement by holding reserves in the form of lawful money in their vaults.

Reflecting the importance of agriculture in many areas of the country, the demand for money and credit was highly seasonal and varied across regions. The interbank network allowed banks throughout the country to hold surplus funds on deposit with correspondents in the larger cities and draw down their balances or borrow from their correspondents when local demands for money and credit were high (e.g., James 1978; James and Weiman 2010). Although the timing of the harvest varied somewhat across regions, "seasonal stringency" in money markets was a perennial challenge. Furthermore, the network transmitted shocks across the banking system

[6] The National Monetary Commission's final report in 1911 lists seventeen defects of the American banking system, most of which pertained to liquidity risk across seasons or the nation's inefficient monetary system (https://fraser.stlouisfed.org/scribd/?title_id=641&filepath=/docs/historical/nmc/nmc_243_1912.pdf#scribd-open).
[7] Even among the few states that allowed branching, most restricted branching to a bank's home city or county (Carlson and Mitchener 2006).

when demand for liquidity spiked and money center banks were forced to suspend deposit withdrawals, as in the Panics of 1893 and 1907 (Kemmerer 1910; Sprague 1910; Calomiris and Gorton 1991; Wicker 2000; Carlson and Wheelock 2016).

Reformers sought to protect local markets from disruptions elsewhere in the system as well as lessen both the banking system's dependence on the interbank market and the central role of the major New York City banks in particular. Although the option of allowing banks to branch throughout the country was proposed, branching was not politically feasible, particularly in light of concerns about a "money trust."[8] Accordingly, the Federal Reserve Act called for the establishment of eight to twelve relatively autonomous districts, each with a Reserve Bank to hold the legal reserves of its member banks, "rediscount" their commercial and agricultural loans (and thereby furnish "elastic" supplies of currency and reserves), and operate the payments system.[9]

The Federal Reserve Act assigned the task of designating the locations of Federal Reserve Banks and district borders to the RBOC, which consisted of Secretary of the Treasury William McAdoo, Secretary of Agriculture David Houston, and Comptroller of the Currency John Skelton Williams. The Act provided the Committee with little explicit guidance, except "That the districts shall be apportioned with due regard to the convenience and customary course of business and shall not necessarily be conterminous with any State or States" (38 Stat. 251, Section 2, paragraph 1). The only true constraint was on the minimum size of Reserve Banks.

[8] The Pujo Committee hearings (May 1912 to January 1913) reflected this fear of concentrated bank power. This congressional subcommittee was called to investigate the concern that a small group of New York City banks (particularly J.P. Morgan) controlled an excessively large share of bank assets either through their ownership or management. The committee's reports are available from the Federal Reserve Bank of St. Louis (https://fraser.stlouisfed.org/title/?id=80).

[9] At the time, most loans were made on a discount basis. A member bank could obtain additional reserves or currency by rediscounting loans with its Reserve Bank. An amendment to the Federal Reserve Act in 1917 permitted direct loans ("advances") from Reserve Banks to their member banks, collateralized by loans that were acceptable for rediscount. See Hackley (1973) for a legal history of Federal Reserve Bank lending.

The Act specified that "No Federal reserve bank shall commence business with a subscribed capital less than $4,000,000" (Section 2, paragraph 14), which effectively established a lower bound on the size of districts. Seen in Figure 1, the geographic distribution of the number and size of national banks in 1914 dictated that districts covering southern and western states would have to be large in area to encompass enough banks to support a Reserve Bank.

The RBOC received proposals from 37 cities seeking Reserve Banks and held public hearings in 18 cities.[10] Bankers and other civic boosters supported their proposals by offering information about the size and strength of their local banks, the extent of their transportation and communications linkages with other cities, and by presenting testimonials from bankers and businessmen from throughout their regions in support of their city's bid for a Reserve Bank.[11] The RBOC also solicited the preferences of the System's future member banks directly. Specifically, the RBOC requested all national banks to 1) name their first, second and third choice cities for the location of their Reserve Bank, and 2) to recommend eight to twelve cities (in no particular order) across the country for Reserve Banks.[12]

On April 2, 1914, the RBOC announced that twelve districts would be formed, identified the boundaries of those districts, and named the cities that would have Reserve Banks.[13] All twelve cities awarded Reserve Banks were among the 37 that requested one. By November 1914,

[10] Local bank clearinghouses typically took the lead in putting together proposals to submit to the RBOC. Most cities that requested a Reserve Bank were large, though several large cities did not request one (e.g., Detroit and Buffalo) while several small cities did (e.g., Chattanooga and Lincoln). We are unaware of any systematic research on the decision to request a Reserve Bank.

[11] Transcripts of RBOC hearings and other documentation are available from the Federal Reserve Bank of St. Louis (https://fraser.stlouisfed.org/theme/#!14).

[12] The RBOC seems to have discounted the latter recommendations, noting that a few cities that were recommended many times (e.g., Denver and New Orleans) had little local support (RBOC 1914a).

[13] The RBOC did not explain its decision to establish the maximum 12 districts allowed under the Federal Reserve Act. According to Hammes (2001), H. Parker Willis "strongly recommended" a 12-district plan in a report he drafted as chair of a technical committee appointed to advise the RBOC, though later Willis (1923) wrote that it might have been more "convenient" to have formed only nine districts. Conceivably, the RBOC created 12 districts in an effort to bolster political support for the System and to dilute the influence of large city bankers, who generally preferred a System comprised of a small number of large districts.

the Reserve Banks were open for business. The RBOC (1914a) listed several criteria that had guided its decisions. In addition to noting that each district must include enough member banks to furnish the minimum $4 million required to capitalize a Reserve Bank, the RBOC sought to provide a "fair and equitable division of the available capital for the Federal Reserve banks among the districts created" (p. 4). The RBOC further stressed the importance of the "mercantile, industrial, and financial connections existing in each district and the relations between the various portions of the district and the city selected for the location of the Federal Reserve bank," and "the geographical situation of the district, transportation lines, and the facilities for speedy communication between the Federal Reserve bank and all portions of the district" (pp. 3-4).[14]

The Federal Reserve began to establish branches almost from the System's inception. Typically, branches were opened in cities that were distant from the Reserve Bank and served distinct banking markets. Hence, branch offices were more common in geographically larger districts.[15] Branch offices were also placed in several cities that had sought Reserve Banks but were not awarded them, such as Pittsburgh, Louisville, and New Orleans. Between 1914 and 1920, the Federal Reserve Board authorized 24 branches at the request of the Reserve Banks and their member commercial banks. A few more branches were authorized in ensuing years, but the vast majority of the system was in place by 1920. The branches provided a full range of payments services, cash delivery, and discount window loans to member banks under the direction of the Reserve Bank and a local board of directors. According to Carter Glass, "For

[14] See McAvoy (2004; 2006), Binder and Spindel (2013) or Federal Reserve Bank of St. Louis (2014, pp. 53-81) for additional information about the RBOC and its selection of Reserve Bank cities and districts.

[15] For example, no branches were opened in the First (Boston) or Third (Philadelphia) districts, yet five were eventually opened in both the Fifth (Atlanta) and Twelfth (San Francisco) districts. By setting up branches in cities that were somewhat remote and thus less integrated with the Reserve Bank cities, the establishment of branches likely fostered capital market integration in the United States, similar to how the establishment of a central bank and other institutional changes helped integrate regional capital markets in Japan during 1866-1922 (Mitchener and Ohnuki 2007).

practical purposes the branch banks are the real working elements of the system." (Weed 1914, p. 3).

3. Banker Preferences and the Selection of Reserve Bank and Branch Locations

Several studies have concluded that the RBOC weighed heavily the results of its survey of national banks in selecting Reserve Bank cities (e.g., Bensel 1984; McAvoy 2004, 2006; Binder and Spindel 2013), but disagree about the influence of other criteria on the RBOC's selections. Table 1 lists the total number of "first-choice" votes for every city that received at least 10 first-choice votes in the RBOC survey, as well as information gleaned from unpublished county-level maps prepared by RBOC staff.[16] The maps indicate the number of first-choice votes cast in each county for each city, allowing us to calculate the total first-choice votes and number of counties "won" by each city. Because the maps were preliminary tallies prepared by the RBOC staff before all votes had been received, the vote totals shown on the maps are less than the totals published in the RBOC reports. However, the ranking of cities based on the county-level data from the maps and the reported vote totals are similar.[17] Hence, we use the maps to identify the winning city for each county, defined as the city that received the most first-choice votes from national banks located in the county.

Table 1 lists the 37 cities that requested Reserve Banks (which includes both Minneapolis and St. Paul, and Dallas and Fort Worth), the 12 cities chosen for Reserve Banks, and the cities

[16] The maps are located with other RBOC materials in Records of the Federal Reserve System, 1878-1996, Record Group 82, National Archives and Records Administration, which are available from the Federal Reserve Bank of St. Louis (https://fraser.stlouisfed.org/archival/#!1344). See McAvoy (2004) for discussion of the state maps.

[17] The maps also frequently lack vote totals for counties with major cities, likely because they were the top choice among most banks located in the county and, hence, there was no need to indicate the relative strength of support for the city. It is unknown whether the RBOC retained records of the votes by individual national banks after preparing the maps and summary tables for their published reports. However, those records apparently are not with the RBOC records at the National Archives.

that subsequently were chosen for branches of Reserve Banks.[18] The 12 cities selected for Reserve Banks were all among the 37 that had requested a Bank, and all had considerable support from national banks. Each city selected was among the top 18 in first-choice votes, and nine were among the top 12 vote recipients. With the exception of Cleveland (which received fewer first-choice votes than either Pittsburgh or Cincinnati), the RBOC located a Reserve Bank in the city that received the most votes in each district that it formed.

Banker preferences likely also influenced the selection of branch cities. The Federal Reserve Board authorized branch offices at the request of Reserve Banks and their member banks, and two RBOC members—Treasury Secretary McAdoo and Comptroller of the Currency Williams—served on the original Board. By 1920, branches had been placed in 15 of the 20 cities that received the most first-place votes other than those chosen for Reserve Banks. Branches were quickly established in cities that by all accounts were strong contenders for Reserve Banks, including Baltimore, Cincinnati and Pittsburgh. Branches were also opened in several medium-sized cities that had received substantial numbers of votes and were located far from the headquarters of their districts, such as Denver, Los Angeles, Louisville, and New Orleans.

3.1 Empirical Models of the Selection of Reserve Bank and Branch Cities

Because we are aware of no evidence that the RBOC considered placing Reserve Banks in cities that did not request one, we estimate a model of the selection of cities for Reserve Banks using information about the 35 cities (or twin cities) that requested a Bank. Previous studies have highlighted the importance of the RBOC survey on the selection of cities for Reserve Banks.

[18] The RBOC recorded separate votes for each city of the following pairs: Minneapolis and St. Paul; Dallas and Fort Worth; Kansas City, Kansas and Kansas City, Missouri; and New York City and Brooklyn. However, we combine the pairs under the assumption that the selection of one city would exclude the other from consideration. Note that these combinations allow us to count many first-choice votes that listed both cities. For instance, 44 votes specified the "Twin Cities" or "Minneapolis or St. Paul," which we have included in the vote total for Minneapolis/St. Paul.

However, we also include in our model other possible economic, financial, and political influences proposed by the literature to limit the possibility that the effect of voting on the location of Reserve Banks is driven by some omitted factor. We start with the combined set of variables in the models of McAvoy (2006) and Binder and Spindel (2013), to which we add newly collected information on correspondent relationships, state bank capital, and interest rates.

Table 2 presents definitions and data sources for the various independent variables in our model. To capture the effects of banker preferences on the selection of Reserve Bank and branch cities, we include, alternatively, the total number of first-choice votes received by a city and the total number of counties in which the city received a plurality of first-choice votes cast. We expect that cities with larger vote totals were more likely to be chosen for Reserve Banks.

We also include the number of national bank correspondent links to a city as an independent variable in some specifications. From Odell and Weiman (1998), we expect that bankers likely favored cities for Reserve Banks and branches where they already had correspondent relationships (we test below the hypothesis that preexisting correspondent links help explain votes). However, controlling for first-choice votes, the number of correspondent links might have exerted an independent influence on the selection of Reserve Bank and branch cities if the RBOC viewed cities whose banks had extensive correspondent business as good candidates for Reserve Bank offices irrespective of the number of votes they received.

We include several variables in our model to control for the possible influence of market size, population, and other economic characteristics of each city. All else equal, we expect that the RBOC was more likely to place Reserve Bank offices in cities with large banking markets, as reflected in the amount or growth of bank capital, in large or rapidly growing cities in terms of

population, and in cities with extensive trade areas or communications and transportation linkages.

We also include a local interest rate as reported by national banks in each state. Previous studies have shown that regional interest rate differentials narrowed significantly after the establishment of the Federal Reserve (e.g., Bodenhorn 1995). If the RBOC sought to better integrate disparate banking markets, it might have placed Reserve Banks in cities with relatively high interest rates ex ante.[19]

Finally, we include a number of variables to test the influence of political considerations on the selection of Reserve Bank cities. Allegations that the RBOC was unduly swayed by politics surfaced soon after the committee announced its decisions, and numerous histories have attributed the RBOC's selections at least partly to political considerations.[20] Following McAvoy (2006) and Binder and Spindel (2013), we measure the influence of politics on the selection of cities for Reserve Bank offices using: the percentage of Democrats in a state's congressional delegation in 1914; the percentage of Republicans in a state's delegation that voted for the Federal Reserve Act; and the number of members of the state's delegation that served on either the House or Senate banking committees. As the Federal Reserve Act was passed with a Democratic majority in both houses of Congress, the RBOC might have sought to reward Democrats in general or the few Republicans that supported the legislation, whereas a banking committee member might have had more influence on RBOC decisions.[21]

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[19] We use a series on interest rates from Office of the Comptroller of the Currency (1910) that would have been available to the RBOC, rather than Bodenhorn's (1995) or another series that was constructed ex post. Unfortunately, the OCC (1910) data and most other series are aggregated at the state-level. Financial publications, such as Bradstreet's, published interest rate data for a few cities, but not for most cities included in our empirical analysis.

[20] Willis (1923) is an early example. See Hammes (2001), McAvoy (2006), Binder and Spindel (2013), or Federal Reserve Bank of St. Louis (2014) for additional discussion and references.

[21] See Binder and Spindel (2013) or McAvoy (2006) for more discussion about the political variables and hypotheses.

We estimate a linear probability model of the selection of cities for Reserve Banks that takes the following form:[22]

$$ReserveCity_i = a + \beta_1 Votes_i + \beta_2 X_i + \beta_3 Correspondents_i + e_i \quad (1)$$

where $ReserveCity_i$ is a dummy variable that takes the value 1 if a Reserve Bank was placed in City i, $Votes_i$ is either the logarithm of total first-choice votes for City i or the log of the number of counties "won" by City i (i.e., number of counties in which the city received a plurality of first-choice votes), X_i is a vector of city and state-level economic, census and political variables discussed above, $Correspondents_i$ is the logarithm of the number of unique bank-to-bank links between City i and all other locations,[23] and e_i is a vector of Huber–White robust standard errors.

We estimate a similar equation for the selection of branch cities, but expand the sample to include all cities with at least 30,000 people in 1910 that did not receive a Reserve Bank. In addition to the independent variables included in Equation (1), we include variables indicating whether a city was among those that had requested a Reserve Bank and for the Federal Reserve district in which the city is located. We also include the distance from the city to its district Reserve Bank. These variables capture the likely dependence of the placement of branch offices on the formation of districts and location of Reserve Banks. Conceivably, bankers were more likely to request branch offices in cities that had been popular choices, but not chosen for

[22] We use a linear probability model (LPM) rather than logit or probit for both technical and practical reasons. The relatively small number of observations (35 applicant cities) and additional restrictions of a nonlinear model prevent the simultaneous inclusion of all variables necessary to test comprehensively different hypotheses about the selection of Reserve Bank cities in such a model. When we estimate a logit or probit model on a subset of variables, we always find that coefficients on national bank votes are statistically and economically significant, regardless which other variables are included. However, the constraint that predicted values fall between 0 and 1 in the nonlinear models results in instability in coefficient values when the model is fully determined (though the coefficients on the voting variables retain statistical significance). Angrist and Pischke (2009) and Wooldridge (2010) support the use of a LPM to estimate marginal effects. Similarly, we report LPM results for other regressions in the paper, but obtain qualitatively similar results when using nonlinear models for the other binary regressions.

[23] The variable is based only on correspondents of national banks. Our definition accounts for national banks that had multiple correspondents in a single city and thus captures the intensity of the links to a given city. However, results are qualitatively similar if we define the variable as the number of banks that had at least one link to a city.

Reserve Banks. Further, we expect that branches were more likely to have been opened in larger (in area) districts and in cities located far from their district's Reserve Bank.

The model is thus:

$$BranchCity_i = a + \beta_1 Votes_i + \beta_2 X_i + \beta_3 Correspondents_i + \beta_4 DistancetoBank_i + \beta_5 RequestedBank_i + d_i + e_i \quad (2)$$

where $BranchCity_i$ is a dummy variable that takes the value 1 if a branch was opened in City i before 1920, $DistancetoBank_i$ is the logarithm of the distance to the Reserve Bank city in the district, *RequestedBank*i is a dummy variable set equal to 1 for cities that had requested a Reserve Bank, and d_i is a vector of district indicator variables. The rest of the variables retain their aforementioned definitions.

Table 3 presents coefficient estimates for Equations (1) and (2). The first five columns pertain to the selection of Reserve Bank cities and the remaining five pertain to the selection of branch cities. The estimation results support the hypothesis that banker preferences influenced the selection of both Reserve Bank and branch cities, regardless whether we measure preferences using the number of first-choice votes or number of counties won.[24] The estimates indicate that doubling the number of votes received would increase the probability of a city's being chosen for a Reserve Bank by 15.1 percent and the probability of being chosen for a branch by 19.5 percent. The statistical significance of the voting variables is reduced for Reserve Banks, however, when the number of correspondent links is also included in the model, suggesting that the variables

[24] In other regressions (which are available from the authors upon request), we included the number of second-choice votes received by a city. However, because the number of second-choice votes is highly correlated with the number of first-choice votes, only the coefficient on first-place votes is statistically significant when both variables are included in a model of the selection of cities for Reserve Banks. While second place votes may not have made a difference for the average Reserve Bank city decision, they still could have influenced outcomes of marginal cases, as discussed by Odell and Weiman (1998). County-level tallies of second-choice votes are not available.

capture similar influences. Conceivably, many bankers voted for cities where they already had established correspondent relationships, which we test in various ways below.[25]

We find some support for the view that politics played a role in locating Reserve Banks and branches, as indicated by positive and statistically significant coefficients on the number of representatives a state had on Congressional banking committees. That said, any effect of committee membership was likely small. Membership on the banking committees was highly correlated with the size of a state's banking sector. For instance, 13 of the 14 states with the most total national bank capital had at least one representative or senator on a banking committee, and together they made up over half of both committees.[26] Thus, membership on the banking committees likely was correlated with aspects of a state's banking sector not directly captured in the model, such as lending or deposit volumes or other services. Moreover, the banking committee variable is no longer significant for the choice of Reserve Bank cities if New York, which had three representatives on the House and Senate banking committees, is dropped from the estimation. New York City was undoubtedly going to get a Reserve Bank; the real decisions for the RBOC concerned the location of the other Banks and district boundaries.

After controlling for banker preferences and correspondent links in the branch regressions, we find little or no evidence that the placement of branch offices was influenced by whether or not a city had requested a Reserve Bank or by how far a city was from its district's Reserve Bank. We do, however, find evidence that the level and growth of city population was important. A city was more likely to obtain a branch, the larger its population in 1910 and

[25] Indeed, a two-stage least squared regression with correspondent links as the instrument in the first stage leads to larger positive coefficients on the voting variables for Reserve Bank cities albeit with less statistical precision due to the limited number of observations. The voting coefficients also increase in size and retain their statistical significance for the branch regressions. These specifications are available from the corresponding author upon request.

[26] The banking committees are also correlated with voting patterns as the 13 cities with the most votes were all in states that had at least one member on the banking committees.

growth over the preceding decade. The negative and statistically significant coefficient on telephones per capita is something of a puzzle and likely spurious. Because the number of telephones per capita is included to capture the development of local communications, we would anticipate it to have a positive impact on the selection of cities for Reserve Banks and branches. However, the data are observed at the state-level, rather than city level, which makes the variable a less than ideal measure of a city's communications infrastructure. Further, the apparent influence of telephones per capita on the selection of branch cities is driven entirely by the St Louis district.[27]

4. Banker Preferences and Reserve District Boundaries

Our regression results support the view that the RBOC survey of national banks influenced the selection of Reserve Bank and branch cities. Conceivably, the survey was also important for the setting of district boundaries. Some evidence for this conjecture is presented in Table 4, which reports the percentage of counties in each district whose national banks had favored 1) the city selected by the RBOC for the Reserve Bank in their district, and 2) a city selected for a branch office in their district.[28]

The table shows that the 12 cities chosen for Reserve Banks were the preferred choice of national banks in 55 percent of all counties (with recorded votes) included in their districts. Perhaps not surprisingly, New York City was the first choice among banks in all 60 counties assigned to the New York district, and Boston, Chicago, Minneapolis and Philadelphia were the first choice in over 70 percent of the counties assigned to their districts. However, the cities

[27] While Illinois and Missouri had high numbers of telephones per capita, the selection of Chicago, St. Louis and Kansas City for Reserve Banks limited the need for branches in either state. Instead, branches of the St. Louis Bank were established in Arkansas, Kentucky and Tennessee—all states that had relatively few telephones per capita. The coefficient on the telephones variable becomes statistically insignificant if the two states are omitted from estimation.

[28] We omit counties with no recorded votes. Many of the counties without votes were in the West and had neither a national bank nor large city. The percentages when all counties are included or using modern Federal Reserve boundaries are available from the authors upon request.

selected for Reserve Banks in all other districts were the top choices of no more than half the counties in their districts. In forming those districts, the RBOC merged blocs of counties that had supported different cities. Branch offices were subsequently opened in many cities that had won sizable blocs of counties but were not chosen for a Reserve Bank. For example, Cleveland won only 22 percent of the 136 counties assigned to its district, whereas Cincinnati and Pittsburgh—the two cities in the district where branches were subsequently located—combined to win 60 percent of the district's counties. Thus, the three cities together won 82 percent of counties assigned to the Cleveland district. Across all Federal Reserve districts, the RBOC assigned 84 percent of the 1,847 counties with at least one recorded vote to a district that included a Reserve Bank or branch city favored by a plurality of the county's national banks.[29]

In forming districts, the RBOC sought to maintain "mercantile, industrial, and financial connections." Thus, the committee likely considered groups of counties that voted similarly as inseparable blocs to be fit together to form Federal Reserve districts of sufficient size and to match more national banks with their preferred city. For example, Willis (1923, pp. 587-88) claims that the RBOC included the southeastern part of Louisiana in the Atlanta district to ensure that the Federal Reserve Bank of Atlanta had the minimum $4 million capital, even though banks in that region had mostly voted for New Orleans and had closer banking and commercial ties to St. Louis. A branch of the Atlanta Bank was opened in New Orleans shortly after the system was established.

The correspondence between Federal Reserve district boundaries and the results of the national bank survey is apparent in Figure 2. The maps show the district borders set by the RBOC (Panel A), the counties won by the city chosen for each district's Reserve Bank (Panel B),

[29] In calculating these percentages, counties with the same number of votes for two different cities (i.e., a tie vote) are included in the county total and counted as non-matches.

and the counties won by each district's Reserve Bank and branch cities (Panel C).[30] Unshaded counties had no recorded votes (either because the county had no national banks, none returned a ballot, or their votes were not transcribed) or voted for a city that was not chosen for a Reserve Bank or branch.

The maps show that district boundaries generally matched voting patterns. Some divisions are clear and match geography. For instance, support for Philadelphia ran to the southern border of Pennsylvania and thus matches the Philadelphia/Richmond district boundary. However, voting patterns also explains some of the less straight-forward geographic divisions between districts. For instance, nearly all counties in Iowa voted for and were assigned to the Chicago district, including those that are closer to either Minneapolis or Kansas City. Moreover, nearly all of the mid-state district splits align with the voting data. For instance, the district boundary lines in Illinois and Pennsylvania largely match the voting blocs of Chicago/St. Louis and Philadelphia/Pittsburgh.

Not all district borders aligned precisely with voting blocs. For example, the RBOC assigned several counties in Wisconsin and the upper peninsula of Michigan to the Minneapolis district, even though national banks in those counties generally favored Chicago. Similarly, the committee assigned a handful of counties in Arizona and New Mexico to the Dallas district even those pluralities of banks in those counties preferred Kansas City or San Francisco. Still, for the most part, the district boundaries correspond closely with the voting patterns observed in the county-level data.

[30] In Panel C, we shade with a single color all of the counties whose banks voted for a given Reserve Bank city or any of the branches that were established in the district; however, to distinguish between the two, we add cross-stitching to counties that voted for any of the branches. Counties shaded in black are those where two or more cities received equal numbers of votes. We add the first-place votes for Reserve and branch cities before determining the outcome of each county-level vote, which eliminates any potential ties between Reserve Bank and branch cities. For instance, we would assign two votes for Cleveland for any county that supplied one vote for Cleveland and one for Cincinnati.

In addition to their explanatory power for the initial district boundaries, banker preferences also help explain the few boundary changes made after the Fed was established. The Federal Reserve Board adjusted district boundaries at the request of member banks. Banks were probably more likely to request a change if they had been assigned to a district that did not include their preferred Reserve Bank city. For example, banks in central and eastern Wisconsin that voted for Chicago yet were placed in the Minneapolis district quickly petitioned to be moved to the Chicago district, arguing that the RBOC had acted "Without due regard to the convenience and customary course of business" (Weed 1914, p. 1). Banks in western Connecticut and northern New Jersey asked to be moved to the New York district for similar reasons.

Table 5 examines the relationship between boundary changes and voting patterns. The Federal Reserve Board moved 84 counties with recorded votes from their originally-assigned districts to other districts.[31] Of those, 70 percent were moved to a district that included the Reserve Bank city or a branch city that had won the county's vote in the RBOC survey. Only 9 counties (10.7 percent) were moved out of a district that included the city that won the county's vote, and 6 percent were moved between districts in which neither included the city that won the county's vote. The remaining 13.1 percent of counties moved had split votes, usually between cities in both the original and new districts. For instance, single votes were recorded for both St. Louis and Kansas City in Johnston County, Missouri. The county was initially placed in the St. Louis district but later moved to the Kansas City district.

4.1 The Relative Importance of First-Choice Votes and Distance for District Boundaries

It seems clear that the RBOC relied heavily, but perhaps not exclusively, on the results of its survey of national banks in selecting Reserve Bank cities and setting district lines. The Committee also claimed that it considered "the geographical situation of the district,

[31] Including counties with no recorded votes, the Board moved 121 counties from their originally-assigned districts.

transportation lines, and the facilities for speedy communication between the Federal Reserve bank and all portions of the district." Accordingly, the RBOC may have preferred to limit the distance between Reserve Bank offices and their members in an effort to ensure timely delivery of services and access to the Fed's discount window. We use a multivariate regression model to examine the relative importance of distance and banker preferences. Because there are many possible outcomes (i.e., one for each Fed district), we look at the choice around each district separately. The dependent variable ($District_i$) is a dummy variable that takes the value 1 when County *i* was placed in the specified district and 0 otherwise. This approach generates 12 regressions of the form:

$$District_i = a + \beta_1 VoteCorrect_i + \beta_2 DistanceCorrect_i + e_i \quad (3)$$

where $VoteCorrect_i$ is a dummy variable that takes the value 1 if a plurality of banks in County *i* voted for the Reserve Bank (or a branch) city of the county's district, and $DistanceCorrect_i$ is a dummy variable that takes the value 1 if County *i* was nearer to its district's Reserve Bank (or a branch) city than to any other district's Reserve Bank or branch cities.[32] Knowing that both variables are likely important, the model essentially sets up a horse race between the two.

Although we could use a sample containing all U.S. counties for each regression, the RBOC's stated goals would not have allowed it to place, say, a county on the West Coast in a district in the Northeast. We thus limit the sample for each district regression to counties that were in the specified district or a neighboring district. The approach minimizes extraneous information and allows us to study the margins that would have concerned the RBOC.

We estimate Equation (3) in two ways for each district. We first consider only the distance to and votes for Reserve Bank cities, and then we consider the distance to and votes for

[32] We calculate each county's GPS coordinates as an average of the bank locations in the county.

Reserve Bank and branch cities. Table 6 reports the results. When considering Reserve Bank cities only, voting is more important than distance for the New York, Philadelphia, Chicago, and Minneapolis districts, whereas distance is more important for the Boston, Cleveland, Richmond, Atlanta, Kansas City, Dallas, and San Francisco districts. The coefficients for voting and distance are not statistically different from one another for the St Louis district. When branch cities are included, the county-level vote totals are almost always more important than distance for explaining whether or not a given county is included in a particular district. The coefficient on the vote dummy is larger than the coefficient on the distance dummy for 10 of the 12 districts. The coefficients on voting and distance are not statistically different for the Dallas district, and the coefficient on the distance dummy is larger for the Boston district.[33]

The regression results tell a story. County-level voting patterns were clearly important for districts where a single city had sufficiently wide support and bank capital to establish a Reserve Bank. However, unless voting for branch cities is included, distance appears relatively more important for determining the boundaries of districts where no single city received enough support for a Bank. Omitting votes for branch cities ignores the possibility that the RBOC foresaw branches as likely in cities that anchored large blocs of counties. Because branch offices were subsequently opened in many of the cities that had received substantial support for a Reserve Bank, the results of the RBOC survey of national banks dominate distance for nearly all districts when we compare the importance of votes for Reserve Bank *and* branch cities with distance to the nearest Fed office city.

[33] Distance likely matters more than votes for Boston because many counties in western Connecticut, Massachusetts, and Vermont that favored New York City were instead assigned to the Boston district. Further, if we redefine $VoteCorrect_i$ to equal 1 if a plurality of banks in County i voted for *any* city in its district, the coefficient on the variable increases and the coefficient on distance decreases for most districts, and the effect of voting becomes much larger than distance for the Atlanta district.

The results beg yet another question: What factors led the RBOC to go against the votes of national banks? Of 1,874 counties with at least one recorded vote, 292 were placed in a district that did not include the city favored by a plurality of the county's national banks (59 of those counties were later moved into their preferred district). Since banks in many of the mismatched counties had voted for a city that was neither chosen for a Reserve Bank nor became a branch location, we focus on the 1,126 counties whose banks voted for one of the 12 cities chosen for a Reserve Bank. Of those, 141 were placed in a district that did not include the city favored by the county's banks in 1914, and 41 of those counties were later moved into their preferred district.

We estimate the following regression:

$$AgainstVote_i = a + \beta_1 DistancetoVote_i + \beta_2 DistancetoDistrict_i + \beta_4 Z_i + d_i + e_i \quad (4)$$

where $AgainstVote_i$ is a dummy that takes the value 1 if County *i* was placed in a district other than the one favored by the banks in that county.[34] $DistancetoVote_i$ is the logarithm of the distance from County *i* to the city that won the county's vote, and $DistancetoDistrict_i$ is the logarithm of the distance from County *i* to the Reserve Bank city of the district to which the county was assigned. The two distances allow us to determine whether the RBOC was more inclined to go against the preferences of a county's banks the further the county was from the county's favored city and the closer it was to the Reserve Bank city of another district. Z_i is a vector that includes County *i*'s population, logarithm of national bank capital, and logarithm of state bank capital. Finally, district dummies capture whether certain districts were more or less likely to include counties whose banks favored a different Reserve Bank city.

[34] We drop counties with tie votes from the sample because the tie often was between a city in the county's original district and one in the district to which it was later moved.

The results reported in Table 7 indicate that counties were more likely to be placed outside their preferred district the farther they were from the city favored by the county's banks and the closer they were to a Reserve Bank or branch city in its assigned district. The coefficient on population is significant and positive, indicating that the RBOC was more likely to place larger counties outside their preferred district, perhaps in an effort to make districts more equal in terms of population.

The coefficients on the district dummies in column (2) indicate the extent to which there were district-specific differences in the assignment of counties to other than their preferred districts.[35] For example, the negative coefficient for the New York district indicates that, relative to the omitted Boston district, banks in counties assigned to the New York district were significantly less likely to have preferred being placed in a different district.

5. Banker Preferences and Correspondent Relationships

The previous sections have provided considerable evidence that the results of the RBOC survey of national banks strongly influenced the selection of cities for Federal Reserve Banks and the delineation of district boundaries, and that banker preferences were also important for where branch offices were established. However, what did the survey results represent? Testing the hypothesis suggested by Odell and Weiman (1998), we examine whether voting patterns reflected established correspondent relationships.

Many bankers expressed their preferences in hearings before the RBOC. Bankers often cited their existing business relationships and markets for why they favored a particular city for a Reserve Bank. For example, a Hopkinsville, Kentucky, banker testified that Louisville was his first choice for a Reserve Bank because "we are very intimately associated with them in a

[35] The results are similar albeit with opposite signs when including dummies for a county's vote outcome rather the district outcome.

business way, and in a social way too. Next to Louisville, our choice is St. Louis…. The majority of the national bankers in eastern Kentucky have accounts in St. Louis. It would be very much to the advantage of our community if we could not get in the Louisville district to come to St. Louis" (RBOC 1914b, pp. 1760-61).

Some bankers did not express a preference for a particular city, but instead emphasized the importance of keeping their market area within a single Federal Reserve district. For example, an El Paso, Texas banker and president of the local clearinghouse testified: "El Paso comes before your Honorable Committee, not as an applicant for a regional Reserve Bank… but simply asking that our territory be kept intact. By our territory, I mean that part which we consider the trade territory of El Paso…." When asked whether this region would be better served by a Reserve Bank in San Francisco, Denver, or Kansas City, the banker responded, "I do not think there is very much difference …. I should say that any of those three points would serve this district equally well." (RBOC 1914c, pp. 3101-03)

As the quotes make clear, established correspondent relationships and trading partners were important considerations for the placement of Reserve Banks and district boundaries. Banks sought correspondents in cities where they had frequent need for payments services, and cities with good transportation services at the center of major agricultural or commercial areas often became significant correspondent banking centers (Duncan and Lieberson 1970; Odell and Weiman 1998). Those cities were likely candidates for Reserve Banks and branches because they met several of the RBOC's stated criteria for selecting Reserve Bank cities, including having extensive transportation and commercial ties within their regions.

We recorded the locations of all correspondents listed for every national bank in the January 1913 *Rand McNally Bankers Directory.* Table 8 reports the number of correspondent

links to every city with at least 10 links.[36] For example, national banks from throughout the United States reported 7,119 correspondent relationships with banks located in New York City—more than twice as many links than to any other city. Of the 7,454 national banks listed in the directory, approximately 84 percent reported at least one New York City correspondent, and some banks had multiple correspondents (which is why the number of links to New York City exceeds 84 percent of 7,454).[37]

Figure 3 provides examples of the density and reach of correspondent banking links to various cities. Whereas New York City and Chicago attracted business from throughout the nation, Boston and Philadelphia attracted most of their correspondent business from banks in the Northeast, though many banks in major cities throughout the country also had correspondents in Boston or Philadelphia. Minneapolis/St Paul and San Francisco were almost entirely regional correspondent centers with only a few links to banks in other regions. Finally, Atlanta and Dallas drew nearly all of their correspondent business from within their own states.

Most of the cities chosen for Reserve Banks were already national or major regional correspondent banking centers, and all received substantial numbers of first-choice votes in the RBOC survey of national banks. Still, the RBOC passed over a few cities with significant correspondent banking links that had also received large numbers of votes. For example, as Figure 4 shows, Baltimore had more correspondent links and drew business from a larger geographic area than did Richmond, and both Pittsburgh and Cincinnati drew from larger areas

[36] Most national banks had either two or three correspondents, usually located in larger cities. Although banks in major cities often had correspondents in other large cities, the vast majority of correspondent links were from country banks to big city correspondents. The variation in the types of correspondents and respondent banks are thus relatively similar across locations. State bank correspondents display similar patterns. If anything, state bank were more likely to have their second correspondent in a smaller and closer city than national banks.

[37] Chicago was the nation's second largest city and commercial center, and its banks also attracted correspondent business from throughout the country, with some 35 percent of all national banks having a Chicago correspondent.

than did Cleveland.[38] Richmond, however, received more first-choice votes than Baltimore and won substantially more counties. By contrast, Cleveland received fewer votes, won fewer counties, and had fewer correspondent links than either Pittsburgh or Cincinnati, suggesting that its selection was based on other criteria.[39]

Next, we investigate how closely the county-aggregated votes align with established correspondent connections. For each city that received a plurality of votes in at least one county outside the city's home county, Table 9 reports 1) the total number of non-home counties won; 2) the percentage of counties won where the city also had the largest share of correspondent links; 3) the percentage of counties won where the city and another city had equal numbers of correspondent links (and no other city had more links); and 4) the percentage of counties won where the city had fewer correspondent links than another city.[40] For example, 24.2 percent of the counties won by Atlanta had more correspondent links to Atlanta than to any other vote-receiving cities, and 27.4 percent of the counties won by Atlanta had the same number of links to Atlanta as to another city (and fewer links to all other cities). By contrast, 48.4 of the counties won by Atlanta had more correspondent links to other cities. Across all cities, 64.9 percent of the counties won had more correspondent links to the given city than to any other cities, and another 18.2 percent of counties won had the same number of correspondent links to the city and another city (and fewer links to all other cities).[41]

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[38] Citizens of Baltimore were so incensed at being passed over that they petitioned the Federal Reserve Board to move the Reserve Bank of the 5th Federal Reserve District from Richmond to Baltimore (which the Board turned down) (https://fraser.stlouisfed.org/docs/historical/nara/nara_rg082_e02_b2661_01.pdf).

[39] The RBOC (1914a, p. 24) noted that Cleveland was one of the nation's six largest cities and that the "geographical situation and all other considerations fully justified" the placement of a Reserve Bank in all of those cities. Otherwise, the committee did not comment on the selection of Cleveland, rather than Pittsburgh or Cincinnati.

[40] Given their legal status as central reserve cities, we drop correspondent links to New York City, Chicago, and St Louis when calculating the percentages for all other cities, and drop New York City correspondents when calculating the percentages for Chicago and St Louis.

[41] Many of the counties with equal numbers of correspondent links to two cities had only one bank.

The final column of Table 9 reports the percentage of counties won by each city that were closer in distance to the city than to any other city that received votes. For example, 46.8 percent of the 63 counties won by Atlanta (excluding its home county) are closer to Atlanta than to any other city that received votes. In general, voting patterns align more closely with correspondent links than with distance, especially among cities that won more than 15 counties. For example, only 25 percent of counties won by Kansas City are closer to Kansas City than to another city that received votes. However, 87 percent of the 150 counties won by Kansas City had more correspondent links to Kansas City than to any other city. By contrast, voting patterns align more closely with distance than correspondent links primarily for cities that won few counties. For example, only one of the nine counties won by Charlotte had more correspondent links to Charlotte than to any other city, but all were closer to Charlotte than to any other city that received votes. In general, the correspondent links of national banks were somewhat more concentrated among the larger financial centers than were their votes, though clearly voting patterns followed established correspondent relationships to a large degree.

5.1 Empirical Model of First-Choice Votes

Whereas voting patterns generally mirrored preexisting correspondent linkages, those links, and hence votes, might simply have reflected a city's size and financial depth. Thus, we examine the effect of correspondent links on the total number of votes and total number of counties won by cities while controlling for other factors, such as whether a city was a designated reserve or central reserve city under the National Banking Act. We estimate city-level regressions in which the dependent variable ($Votes_i$) is the logarithm of either the number of first-choice votes or the number of counties won by City *i*. The sample contains all cities with

urban populations above 30,000 regardless of whether they were subsequently chosen as a Reserve Bank or branch city. The model is:

$$Votes_i = a + \beta_1 Correspondents_i + \beta_2 X_i + \beta_3 ReserveCity_i + s_i + e_i \quad (5)$$

where $ReserveCity_i$ is a dummy that takes the value 1 if City i was a reserve or central reserve city, s_i is a vector of state dummies, and the rest of the variables retain their aforementioned definitions.[42] Because New York City and Chicago were much larger, received many more votes, and had many more correspondent links than other cities, we estimate the specification both with and without those two cities to ensure they are not driving the results.

Table 10 displays the estimation results for Equation (5). In all four specifications, the effect of correspondent links is large and statistically significant. A doubling of the number of correspondent links would increase a city's expected number of votes by 44 to 69 percent and number of counties won by 25 to 39 percent. The effect of correspondent links is stronger when New York City and Chicago are excluded. Encouraged by statutory reserve requirements and the advantages of the correspondent network's payment services and interest income, most national banks had at least one New York City or Chicago correspondent. However, most national banks also had correspondents in regional centers that were closer to home, and likely would have preferred those cities for the location of their Reserve Bank. Indeed, excluding links to New York City and Chicago, the main correspondent location of national banks in over 75 percent of counties was within 200 miles (most of the counties with larger distances to their principal correspondent are in the West where counties and distances between cities are larger). Thus, the relationship between number of votes received and number of correspondent links is closer for most cities than it is for New York City and Chicago.

[42] Because they are measured at the state-level, the number of railroads and telegraph lines are subsumed into the state fixed effects in equation (5).

The estimation results indicate that both the number of votes and the number of counties won were also influenced by city population in 1910 and the percentage change in population over the prior decade. The results are strongest for the percentage change in population, however, as the coefficient on 1910 population is smaller and not statistically significant in regressions that exclude New York City and Chicago. A large increase in population was perhaps a reflection of expanding economic activity that attracted votes from banks hoping to find new business opportunities by becoming affiliated with a Reserve Bank in a growing city. Similarly, the coefficient on national bank capital is smaller (and is much less close to being statistically significant) in both sets of regressions when New York City and Chicago are excluded. At the margin, New York City and Chicago received more votes because of the size of their banking markets. After controlling for correspondent links and other local characteristics, the amount of local banking capital did not influence the number of votes that most cities received. We also find a positive impact of being an urban commercial and transportation center, as reflected in Bensel's (1984) "urban center" designation, on the number of votes received. However, the negative coefficients on the number of businesses in the city listed by Bradstreet are puzzling and perhaps suggest that the type rather than number of businesses influenced preferences.

6. Conclusion

The RBOC's decisions have been the source of much criticism. Early on, critics charged the RBOC with passing over important banking centers, such as Baltimore and New Orleans, while locating Reserve Banks in smaller, less established cities, such as Richmond, Atlanta, and Dallas. Political considerations were viewed as the impetus for the placement of two Reserve Banks in Missouri, and influential on the selections of Richmond, Atlanta and Cleveland.

Our research finds that, in selecting cities for Reserve Banks and drawing district boundaries, the RBOC was guided primarily by the preferences of national banks rather than partisan politics. Those preferences also explain the selection of cities for branch offices in the System's early years. Further, we show that national banks favored cities for Reserve Banks where they already had established correspondent relationships and, hence, the Federal Reserve System was laid on the foundation of the existing interbank network.

The RBOC placed more Reserve Banks in the eastern half of the nation than in the west for two reasons: 1) Eastern cities received far more votes from national banks than cities in the West and South; and 2) the Federal Reserve Act stipulated that each Reserve Bank have a minimum capitalization paid in by its member banks. Given the sparse population of national banks (and people) in the South and West, Federal Reserve districts in those regions had to be larger than those of the Midwest and Northeast simply to amass enough capital to organize a Reserve Bank. Further, by putting more Reserve Banks in the Northeast, the RBOC lessened to some extent the dominance of banks in New York City, the nation's financial capital.[43] With the opening of branch offices in the larger districts of the South and West, the distribution of Reserve Bank offices was spread somewhat more evenly across the country. This likely helped

[43] Lowenstein (2015) describes the origins of the Federal Reserve, and in particular the political infeasibility of establishing a central bank that was dominated by either Washington or Wall Street.

garner and maintain support for the new System, and perhaps explains why pressures to move Reserve Banks or substantially alter district boundaries never built to the point of causing significant changes in the Fed's geographic structure.

The question remains whether there should now be more Reserve Banks in the West or South, either by moving some from the Northeast or establishing new districts. The shift of population and economic activity to the West and South since 1914 suggests that the Federal Reserve System map would look very different if the locations of Reserve Banks and district boundaries were set today. However, whereas the System's structure has not changed significantly in 100 years, both the mission and the technology of central banking have changed dramatically. In the early days, when the Fed's interactions with its member banks were conducted mainly in person or through the mail, minimizing transportation times between Reserve Bank offices and member banks was crucial for performing the System's mission as lender of last resort and for operating the payments system efficiently. Today, however, most of the interactions between the Reserve Banks and commercial banks are electronic, so close proximity to a Reserve Bank or branch is no longer as important for most member banks. Moreover, the Reserve Banks now play a significant role in monetary policymaking—a concept not contemplated by the Fed's founders. Some argue for weakening or removing altogether the Reserve Banks from monetary policymaking while others contend that the Reserve Banks outside of New York should have a stronger voice on the FOMC (e.g., Fisher 2015). Those who favor a continued or expanded role for the Reserve Banks argue that the System's structure promotes good policymaking by helping to ensure that different points of view are heard and the different regions of the country are represented. A system that is responsive to differing

economic conditions that might exist across the regions of a large and diverse nation was certainly a principle on which the Federal Reserve was established and remains relevant today.

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TABLE 1
First Choice Votes By City Receiving Votes

	Requested Reserve Bank	Reserve Bank or Branch Before 1920	Total First Choice Votes (Official)	Total Votes (From County Maps)	Total Counties Won (From Maps)
Chicago	Yes	Bank	906	597	265
New York/Brooklyn	Yes	Bank	673	389	92
Minneapolis/St Paul	Yes	Bank	508	355	163
Philadelphia	Yes	Bank	508	304	50
Kansas City	Yes	Bank	506	301	153
Pittsburgh	Yes	Branch	355	199	38
Dallas/Ft Worth	Yes	Bank	321	183	94
St Louis	Yes	Bank	299	194	99
Cincinnati	Yes	Branch	299	181	87
Boston	Yes	Bank	290	177	44
San Francisco	Yes	Bank	259	144	49
Omaha	Yes	Branch	218	134	67
Richmond	Yes	Bank	170	95	78
Baltimore	Yes	Branch	141	83	38
Denver	Yes	Branch	136	70	45
Atlanta	Yes	Bank	124	81	63
Louisville	Yes	Branch	116	59	49
Cleveland	Yes	Bank	110	71	30
Houston	Yes	Branch	97	67	40
Portland	Yes	Branch	75	45	21
Birmingham	Yes	Branch	55	41	25
New Orleans	Yes	Branch	51	28	25
Seattle	Yes	Branch	40	29	15
Columbus	Yes		36	18	3
Salt Lake City	Yes	Branch	31	16	11
Spokane	Yes	Branch	30	23	10
Columbia	Yes		28	18	14
Washington DC	Yes		28	10	7
Los Angeles	No	Branch	26	17	3
Nashville	No	Branch	25	21	17
Savannah	Yes	Branch	24	16	12
Detroit	No	Branch	23	16	14
Lincoln	Yes		22	11	4
Charlotte	Yes		19	14	10
Indianapolis	No		19	14	4
Des Moines	No		17	10	0
Memphis	Yes	Branch	16	10	9
Jacksonville	No	Branch	14	11	7
Buffalo	No	Branch	14	6	0
Milwaukee	No		13	8	3
Chattanooga	Yes		11	9	6
Albany	No		10	3	0
Sioux City	No		10	6	0

Note: The table lists all cities that received at least 10 first-choice votes. The censoring leaves off four cities that eventually became branches: El Paso, Helena, Little Rock, and Oklahoma City. See Table 2 for data sources.

TABLE 2
Descriptions and Data Sources for Variables Included in Regressions

Bank Preferences		
Ln(# of First Choice Votes)	Total number of first choice votes received by city.	RBOC (1914b)
Ln(# of Counties Won)	Total number of counties where city received the most first choice votes as indicated in county-level maps.	National Archives Records of the RBOC
Ln(# of Corr. Links) in 1913	Number of unique national bank correspondent links to city.	*Rand McNally Bankers Directory* (1913)
Economic, Demographic, and Locational Variables		
Population in 1910	City population in 1910.	Haines (2005)
%Change in Population 1900-1910	Percent change in population 1900 to 1910.	Haines (2005)
%Change in National Bank Capital 1903-1913	Percent change in national bank capital 1903-13.	Office of the Comptroller of the Currency (1903, 1913)
Ln(National Bank Capital) in 1913	National bank capital in city in 1913.	Office of the Comptroller of the Currency (1913)
Ln(State Bank Capital) in 1913	State bank capital in city in 1913.	*Rand McNally Bankers Directory* (1913) and various state records
Ln(City's Bradstreet's Names in 1914)	Number of businesses listed in Bradstreet's credit files in 1914.	National Archive Records of the Federal Reserve System
Urban Center Dummy	Urban center of a trade area in 1895 according to Bensel (1984). Indicator set equal to 1 for urban centers.	Bensel (1984)
Ln(Railroads Per Person in 1910)	Number of railroad miles per person in state in 1910.	Interstate Commerce Commission (1914)
Ln(Telephones Per Person in 1907)	Number of telephones and exchanges per person in state in 1907.	Bureau of the Census (1910)
Ln(Distance to Reserve Bank City)	Logarithm of geographic distance between the city and the Reserve Bank city in its district.	Obtained directly from GPS coordinates
Local Interest Rate	State average interest rate on demand loans.	Office of the Comptroller of the Currency (1910), pp. 776-77
Requested Reserve Bank	Indicator set equal to 1 for cities that requested a Reserve Bank	RBOC (1914a)
Political Variables		
% Democrats in Congress in 1914	Fraction of state's congressmen that were Democrats in 1914.	http://history.house.gov/People/Search
% Republican Votes on Fed Reserve Act	Fraction of state's non-Democrat representatives that voted for the Federal Reserve Act.	*Congressional Record - House* (1913, p. 1464)
# Representatives on Congressional Banking Committees in 1914	Number of representatives on House or Senate Banking Committees.	McAvoy (2006, Table 4).

TABLE 3
Linear Model of Determinants of Reserve Bank and Branch Cities

	Chosen as Reserve Bank City					Chosen as Branch City				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Ln(# of First Choice Votes)	0.151*			0.135		0.195***			0.225***	
	[0.090]			[0.137]		[0.037]			[0.041]	
Ln(# of Counties Won)		0.168*			0.159		0.252***			0.243***
		[0.086]			[0.115]		[0.049]			[0.051]
Ln(# of Corr. Links)			0.057	0.012	0.007			0.053**	-0.033	0.019
in 1913			[0.042]	[0.064]	[0.055]			[0.023]	[0.022]	[0.016]
Ln(Population) in 1910	0.131	0.129	0.157	0.133	0.130	0.074*	0.073	0.108**	0.080**	0.067
	[0.184]	[0.173]	[0.207]	[0.189]	[0.178]	[0.040]	[0.045]	[0.045]	[0.039]	[0.043]
%Change in Population	-0.381	-0.331	-0.235	-0.361	-0.323	0.122	0.173*	0.251***	0.102	0.176*
1900-1910	[0.363]	[0.325]	[0.387]	[0.431]	[0.361]	[0.084]	[0.091]	[0.079]	[0.086]	[0.090]
%Change in National Bank	0.365	0.323	0.352	0.363	0.324	-0.015	0.016	-0.046	-0.010	0.014
Capital 1903-1913	[0.225]	[0.206]	[0.240]	[0.236]	[0.207]	[0.035]	[0.036]	[0.041]	[0.036]	[0.035]
Ln(National Bank Cap)	-0.151	-0.131	-0.071	-0.145	-0.129	-0.005	0.001	0.012	0.001	-0.004
in 1913	[0.163]	[0.153]	[0.175]	[0.183]	[0.162]	[0.019]	[0.019]	[0.025]	[0.019]	[0.019]
Ln(State Bank Cap) in 1913	-0.010	-0.013	-0.003	-0.008	-0.012	0.000	-0.001	-0.000	-0.000	-0.001
	[0.023]	[0.021]	[0.027]	[0.030]	[0.028]	[0.003]	[0.002]	[0.003]	[0.003]	[0.003]
Ln(Railroads Per Person	-0.104	-0.120*	-0.119	-0.106	-0.121*	-0.010	-0.021	-0.012	-0.009	-0.021
in 1910)	[0.065]	[0.059]	[0.076]	[0.069]	[0.061]	[0.020]	[0.022]	[0.031]	[0.020]	[0.022]
Ln(Telephones Per Person	-0.005	-0.003	-0.006	-0.005	-0.004	-0.006***	-0.004**	-0.005**	-0.005***	-0.004**
in 1907)	[0.005]	[0.005]	[0.005]	[0.005]	[0.006]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Ln(City's Bradstreets Names	0.042*	0.038	0.028	0.040	0.038	-0.003	-0.002	-0.009*	-0.001	-0.003
in 1914)	[0.024]	[0.022]	[0.021]	[0.025]	[0.022]	[0.005]	[0.005]	[0.005]	[0.005]	[0.005]
Urban Center Dummy	0.094	0.076	0.203	0.096	0.076	-0.053	0.048	0.138*	-0.058	0.035
	[0.297]	[0.288]	[0.285]	[0.306]	[0.297]	[0.075]	[0.067]	[0.083]	[0.074]	[0.065]
% Republican Votes on	-0.041	-0.004	0.036	-0.029	0.001	0.116	0.017	0.130	0.082	0.043
Fed Reserve Act	[0.274]	[0.272]	[0.291]	[0.280]	[0.283]	[0.144]	[0.111]	[0.158]	[0.145]	[0.120]
% Democrats in Congress	-0.311	-0.325	-0.255	-0.300	-0.318	0.069	-0.033	0.032	0.051	-0.015
in 1914	[0.216]	[0.203]	[0.229]	[0.232]	[0.209]	[0.089]	[0.069]	[0.093]	[0.090]	[0.074]
# of Representatives on	0.233**	0.239**	0.303***	0.244*	0.245**	0.078*	0.056	0.061	0.078*	0.058
Banking Committee in 1914	[0.085]	[0.085]	[0.104]	[0.121]	[0.110]	[0.040]	[0.037]	[0.045]	[0.041]	[0.037]
Local Interest Rate	0.061	0.068	0.111	0.063	0.068	0.034	0.085	0.069	0.038	0.079
	[0.101]	[0.096]	[0.100]	[0.106]	[0.099]	[0.052]	[0.053]	[0.056]	[0.053]	[0.052]
Requested Reserve Bank						0.026	0.026	0.030	0.024	0.027
						[0.016]	[0.017]	[0.019]	[0.016]	[0.018]
Ln(Distance to Reserve Bank						-0.171	-0.189	0.273**	-0.208	-0.193
City)						[0.140]	[0.122]	[0.106]	[0.141]	[0.121]
District Fixed Effects?	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Observations	35	35	35	35	35	161	161	161	161	161
Adjusted R-squared	0.384	0.405	0.353	0.352	0.374	0.714	0.726	0.627	0.717	0.726

Notes: The table presents the results of a linear probability model where the dependent variable is listed at the top of each column. The Reserve Bank City regressions include only cities that requested a Reserve Bank, whereas as the Branch City regressions include all cities with an urban population above 30,000 in 1910 that were not given a Reserve Bank. Huber–White robust standard errors are provided in brackets. * denotes significance at the 10%, ** 5% and *** 1% levels.

TABLE 4
Correspondence of Original District Boundaries and County-Level Voting Patterns

	Total Counties in District with Votes	% Counties in District Won by City	
		Reserve Bank Cities	Branch Cities
Atlanta	163	36.8%	47.9%
Boston	61	72.1%	0.0%
Chicago	262	79.4%	5.3%
Cleveland	136	22.1%	60.3%
Dallas/Ft Worth	193	48.7%	22.3%
Kansas City	232	49.1%	44.8%
Minneapolis/St Paul	219	72.6%	0.0%
New York	60	100.0%	0.0%
Philadelphia	71	70.4%	0.0%
Richmond	164	44.5%	23.2%
San Francisco	121	38.8%	59.5%
St Louis	165	48.5%	23.6%
All	1,847	55.2%	25.4%

Notes: Counties with no recorded votes are excluded. Counties with the same number of votes for two different cities are included in the county total and counted as non-matches.

TABLE 5
Voting Patterns and Changes in District Boundaries (1914-2013)

From	To	Total Counties Moved	Original Reserve Bank or Branch City Won Vote	New Reserve Bank or Branch City Won Vote	Other City Won Vote	Tie Vote Between Cities
Boston	New York	1	0.0%	100.0%	0.0%	0.0%
Dallas	Atlanta	6	0.0%	100.0%	0.0%	0.0%
Dallas	Kansas City	31	16.1%	45.2%	12.9%	25.8%
Dallas	San Francisco	2	0.0%	50.0%	0.0%	50.0%
Minneapolis	Chicago	17	5.9%	82.4%	0.0%	11.8%
Philadelphia	New York	12	0.0%	100.0%	0.0%	0.0%
Richmond	Cleveland	2	0.0%	100.0%	0.0%	0.0%
St Louis	Kansas City	13	23.1%	69.2%	7.7%	0.0%
Any	Any	84	10.7%	70.2%	6.0%	13.1%

Notes: Counties with no recorded votes are excluded. When combining votes for all cities in a district, the percent of counties moved that had votes for other cities declines to 10 percent and the percent of counties that voted for the new district rises to 73 percent.

TABLE 6
Linear Model of the Determinants of Fed District Boundaries

	Dependent Variable: Whether County Was Placed in Specified District in 1914							
	Boston		**New York**		**Philadelphia**		**Cleveland**	
	Reserve Banks Only	Reserve Banks + Branches	Reserve Banks Only	Reserve Banks + Branches	Reserve Banks Only	Reserve Banks + Branches	Reserve Banks Only	Reserve Banks + Branches
Reserve Bank (or Branch City) Was Nearest	0.502***	0.535***	0.014	0.198**	0.137*	0.133	0.682***	0.213***
	[0.119]	[0.120]	[0.095]	[0.097]	[0.080]	[0.082]	[0.041]	[0.060]
Reserve Bank (or Branch City) Won Vote	0.400***	0.368***	0.627***	0.489***	0.826***	0.873***	0.297***	0.522***
	[0.111]	[0.112]	[0.077]	[0.092]	[0.073]	[0.049]	[0.040]	[0.065]
Observations	113	113	183	183	414	414	775	775
Adjusted R-squared	0.664	0.677	0.477	0.497	0.665	0.662	0.637	0.552
	Dependent Variable: Whether County Was Placed in Specified District in 1914							
	Richmond		**Atlanta**		**Chicago**		**St Louis**	
	Reserve Banks Only	Reserve Banks + Branches	Reserve Banks Only	Reserve Banks + Branches	Reserve Banks Only	Reserve Banks + Branches	Reserve Banks Only	Reserve Banks + Branches
Reserve Bank (or Branch City) Was Nearest	0.710***	0.174***	0.654***	0.319***	0.387***	0.190***	0.536***	0.362***
	[0.044]	[0.058]	[0.041]	[0.055]	[0.046]	[0.044]	[0.045]	[0.046]
Reserve Bank (or Branch City) Won Vote	0.260***	0.739***	0.333***	0.606***	0.555***	0.656***	0.517***	0.506***
	[0.059]	[0.051]	[0.041]	[0.059]	[0.038]	[0.037]	[0.049]	[0.049]
Observations	515	515	663	663	988	988	1,115	1,115
Adjusted R-squared	0.567	0.587	0.697	0.782	0.590	0.583	0.554	0.587
	Dependent Variable: Whether County Was Placed in Specified District in 1914							
	Minneapolis		**Kansas City**		**Dallas**		**San Francisco**	
	Reserve Banks Only	Reserve Banks + Branches	Reserve Banks Only	Reserve Banks + Branches	Reserve Banks Only	Reserve Banks + Branches	Reserve Banks Only	Reserve Banks + Branches
Reserve Bank (or Branch City) Was Nearest	0.363***	0.288***	0.584***	0.107***	0.658***	0.497***	0.864***	0.147*
	[0.049]	[0.057]	[0.037]	[0.028]	[0.040]	[0.080]	[0.038]	[0.079]
Reserve Bank (or Branch City) Won Vote	0.603***	0.674***	0.313***	0.727***	0.340***	0.490***	0.114**	0.814***
	[0.049]	[0.052]	[0.044]	[0.036]	[0.040]	[0.080]	[0.044]	[0.083]
Observations	810	810	1,159	1,159	844	844	744	744
Adjusted R-squared	0.721	0.680	0.574	0.736	0.771	0.716	0.891	0.934

Notes: The table presents a linear probability model where the dependent variable is a dummy that denotes whether the county was placed in the specified district. The sample includes only counties with recorded votes that were in the district listed or in a neighboring district. Counties with Reserve Bank cities are dropped from the sample. Huber–White robust standard errors are provided in brackets. * denotes significance at the 10%, ** 5% and *** at 1% levels.

TABLE 7
Determinants of What Led the RBOC to Go Against Vote

	Dependent Variable: Whether County was Placed In a non-preferred District	
	(1)	(2)
Ln(Distance to Chosen Reserve Bank)	-0.262**	-0.235**
	[0.106]	[0.095]
Ln(Distance to Winning Vote City)	0.328***	0.317***
	[0.105]	[0.092]
Ln(State Bank Cap) in 1913	-0.008*	-0.001
	[0.004]	[0.005]
Ln(National Bank Cap) in 1913	-0.011	-0.020
	[0.014]	[0.014]
Ln(County Population in 1910)	0.073***	0.092***
	[0.022]	[0.024]
Placed in New York District		-0.267***
		[0.067]
Placed in Philadelphia District		0.115
		[0.090]
Placed in Cleveland District		-0.177**
		[0.070]
Placed in Richmond District		-0.218***
		[0.067]
Placed in Atlanta District		-0.157**
		[0.073]
Placed in Chicago District		-0.218***
		[0.071]
Placed in St Louis District		0.035
		[0.082]
Placed in Minneapolis District		-0.013
		[0.077]
Placed in Kansas City District		-0.191***
		[0.070]
Placed in Dallas District		0.033
		[0.077]
Placed in San Francisco District		-0.181**
		[0.075]
Observations	1,126	1,126
Adjusted R-squared	0.085	0.203

Notes: The Table presents a linear probability model where the dependent variable is a dummy that equals 1 if a county was placed in other than its preferred district. The sample includes only counties that won by one of the 12 Reserve Bank cities. Counties with Reserve Banks are also omitted from the sample. Huber–White robust standard errors are provided in brackets. * denotes significance at the 10%, ** 5% and *** 1% levels.

TABLE 8
Number of Correspondents Links to Cities with at least 10 Links

Location	Links	Location	Links
New York/Brooklyn	7119	Lincoln	46
Chicago	3080	Seattle	44
Philadelphia	1552	Pueblo	42
St Louis	1137	Washington	40
Minneapolis/St Paul	721	Oklahoma City	39
Kansas City	691	Buffalo	38
Pittsburgh	645	Salt Lake City	37
Boston	623	Columbus	37
Cincinnati	449	Jacksonville	28
Albany	412	San Antonio	20
Omaha	392	Birmingham	20
Baltimore	380	Wilmington	20
San Francisco	361	Fargo	19
Dallas/Ft Worth	240	Peoria	18
Cleveland	201	Waco	15
Indianapolis	176	Wichita	14
Denver	156	Macon	14
Des Moines	142	Chattanooga	14
Louisville	139	Knoxville	12
Portland	127	Muskogee	12
Houston	119	Fort Smith	12
Los Angeles	115	Galveston	11
Milwaukee	100	Norfolk	11
Sioux City	94	Helena	11
Spokane	82	Toledo	11
St Joseph	73	Decatur	10
Cedar Rapids	71	Duluth	10
New Orleans	69	Sherman, TX	10
Detroit	64	Tampa	10
Nashville	62	Boise	10
Richmond	59		
Atlanta	55		
Savannah	50		

Note: The table includes all cities with 10 or more correspondent links as reported in *Rand McNally Bankers Directory* (January 1913).

TABLE 9
Evidence on the Relationship Between Correspondent Links, Geographic Distance and County-Level Votes

	Number of Non-Home Counties Won	Percent of Counties Won where Largest Share of Corr. Links were to City	Percent of Counties Won where City Tied for Most Corr. Links	Percent of Counties Won where City had Fewer Corr. Links than Another City	Percent of Counties Won that were Closer to City than to any other Vote-Receiving City
Atlanta	62	24.2%	27.4%	48.4%	46.8%
Baltimore	37	62.2%	29.7%	8.1%	29.7%
Birmingham	24	20.8%	20.8%	58.3%	54.2%
Boston	42	92.9%	4.8%	2.4%	66.7%
Charlotte	9	11.1%	33.3%	55.6%	100.0%
Chattanooga	5	40.0%	0.0%	60.0%	100.0%
Chicago	258	72.1%	23.3%	4.7%	10.5%
Cincinnati	85	75.3%	8.2%	16.5%	40.0%
Cleveland	28	85.7%	7.1%	7.1%	50.0%
Columbia	13	30.8%	7.7%	61.5%	61.5%
Columbus	2	50.0%	0.0%	50.0%	100.0%
Dallas/Ft Worth	92	56.5%	20.7%	22.8%	47.8%
Denver	44	56.8%	22.7%	20.5%	88.6%
Detroit	13	92.3%	0.0%	7.7%	76.9%
Galveston	1	0.0%	100.0%	0.0%	0.0%
Houston	40	50.0%	37.5%	12.5%	35.0%
Indianapolis	4	25.0%	75.0%	0.0%	100.0%
Jacksonville	7	57.1%	14.3%	28.6%	100.0%
Kansas City	150	86.7%	7.3%	6.0%	24.7%
Lincoln	3	0.0%	33.3%	66.7%	100.0%
Los Angeles	3	66.7%	0.0%	33.3%	100.0%
Louisville	48	56.3%	31.3%	12.5%	50.0%
Memphis	8	25.0%	25.0%	50.0%	75.0%
Milwaukee	3	100.0%	0.0%	0.0%	66.7%
Minneapolis/St Paul	160	88.1%	8.8%	3.1%	34.4%
Montgomery	1	0.0%	100.0%	0.0%	100.0%
Nashville	17	47.1%	41.2%	11.8%	52.9%
New Orleans	24	58.3%	20.8%	20.8%	62.5%
New York	89	-	-	-	29.2%
Omaha	66	77.3%	16.7%	6.1%	7.6%
Philadelphia	49	95.9%	0.0%	4.1%	51.0%
Pittsburgh	37	89.2%	2.7%	8.1%	86.5%
Portland	21	47.6%	38.1%	14.3%	66.7%
Richmond	77	11.7%	26.0%	62.3%	40.3%
St Louis	97	51.5%	33.0%	15.5%	40.2%
Salt Lake City	11	54.5%	9.1%	36.4%	100.0%
San Antonio	1	0.0%	0.0%	100.0%	100.0%
San Francisco	46	80.4%	10.9%	8.7%	52.2%
Savannah	11	36.4%	18.2%	45.5%	45.5%
Seattle	14	42.9%	21.4%	35.7%	92.9%
Spokane	9	55.6%	11.1%	33.3%	100.0%
Washington DC	6	0.0%	16.7%	83.3%	0.0%
Wichita	1	0.0%	100.0%	0.0%	100.0%
Weighted Avg.	1,718	64.9%	18.2%	16.9%	40.1%

Notes: The percentages are not mutually exclusive as a county could both be the closest and have the most correspondent links with a given city. Counties with tie votes and those without votes are omitted. Correspondents in New York City, Chicago, and St Louis are dropped from all cities. Correspondents from New York City are dropped from Chicago and St Louis. The weighted average is obtained by taking the ratio of the total number of correct counties to the total number of counties, and is thus a weighted average of the individual city fractions.

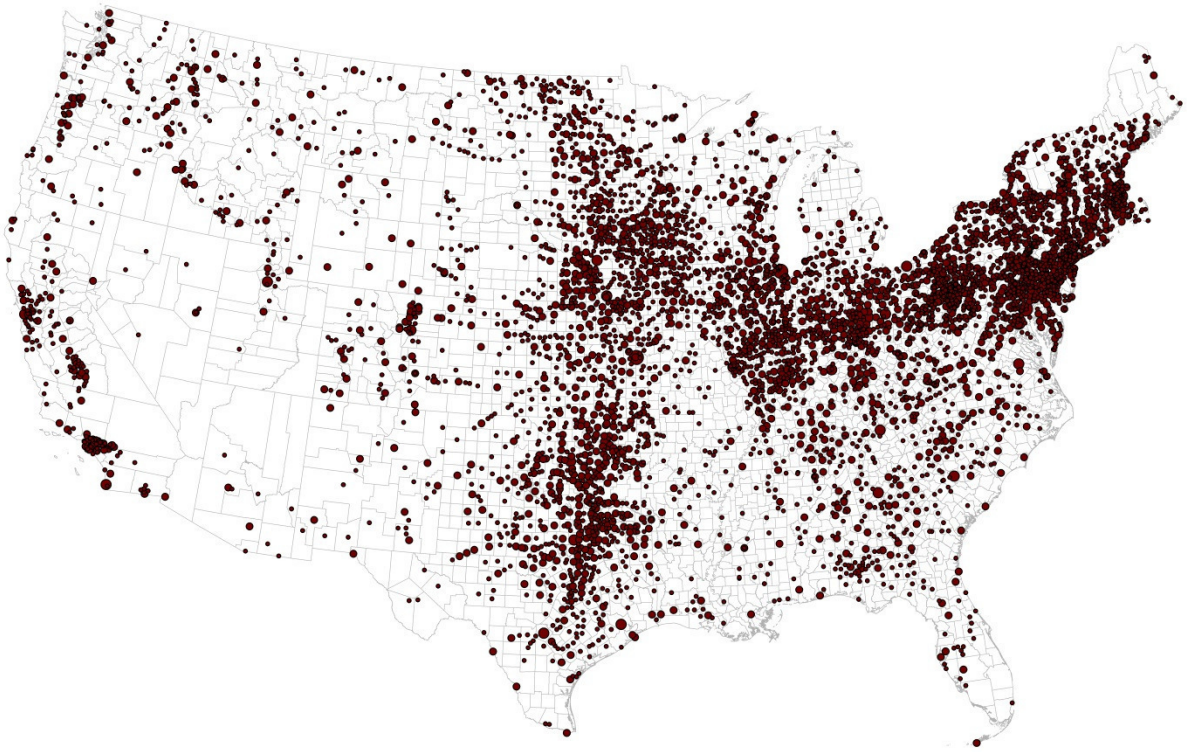
TABLE 10

Linear Determinants of First Choice Votes and Counties Won By City

	Ln(First Place Votes)		Ln(Counties Won)	
	All Locations	**Without NYC and Chicago**	**All Locations**	**Without NYC and Chicago**
	(1)	(2)	(3)	(4)
Ln(# of Corr. Links)	0.442***	0.693***	0.247**	0.391***
	[0.161]	[0.118]	[0.117]	[0.125]
Population in 1910	0.526**	0.213	0.458**	0.222
	[0.208]	[0.182]	[0.188]	[0.197]
%Change in Population 1900-1910	1.091***	1.044***	0.818**	0.803**
	[0.402]	[0.386]	[0.407]	[0.400]
%Change in National Bank Capital 1903-1913	-0.164	-0.126	-0.192	-0.178
	[0.176]	[0.164]	[0.161]	[0.154]
Ln(National Bank Capital) in 1913	0.206*	0.096	0.155*	0.100
	[0.115]	[0.087]	[0.091]	[0.079]
Ln(State Bank Capital) in 1913	0.022	0.023	0.019	0.020
	[0.027]	[0.023]	[0.023]	[0.019]
Ln(City's Bradstreet's Names in 1914)	-0.072***	-0.061***	-0.048**	-0.040*
	[0.025]	[0.022]	[0.023]	[0.021]
Urban Center Dummy	0.690*	0.695*	0.331	0.362
	[0.379]	[0.366]	[0.354]	[0.342]
Reserve City Dummy	0.740	0.153	0.656	0.312
	[0.520]	[0.422]	[0.493]	[0.487]
State Fixed Effects?	Yes	Yes	Yes	Yes
Observations	173	171	173	171
Adjusted R-squared	0.824	0.832	0.720	0.709

Notes: The table presents the results of a linear regression model where the dependent variable is either the log of first place votes or counties won. The sample includes all cities with an urban population above 30,000 in 1910. Huber–White robust standard errors are provided in brackets. * denotes significance the 10%, ** 5% and *** 1% levels.

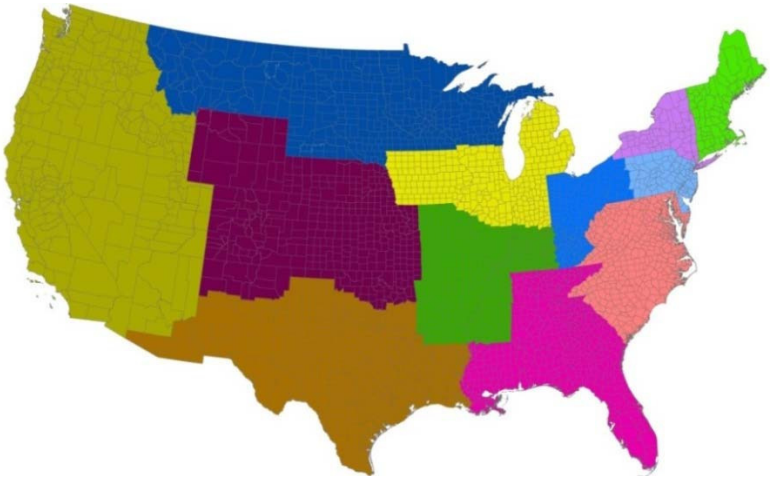
FIGURE 1
National Banks in 1914



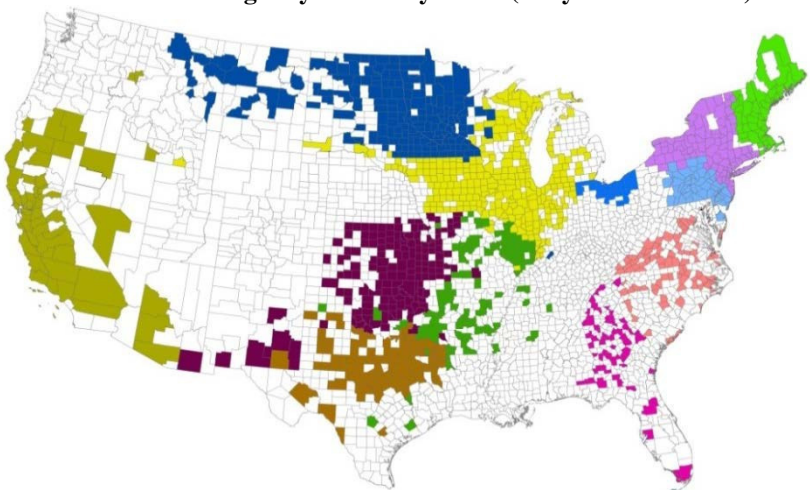
Notes: The figure displays the location of every national bank in operation in 1914. Bank locations were obtained from the Office of the Comptroller of the Currency, *Annual Report* (1914). Dot size is proportionate to the number of banks in the city.

FIGURE 2
Fed Districts and Voting Behavior

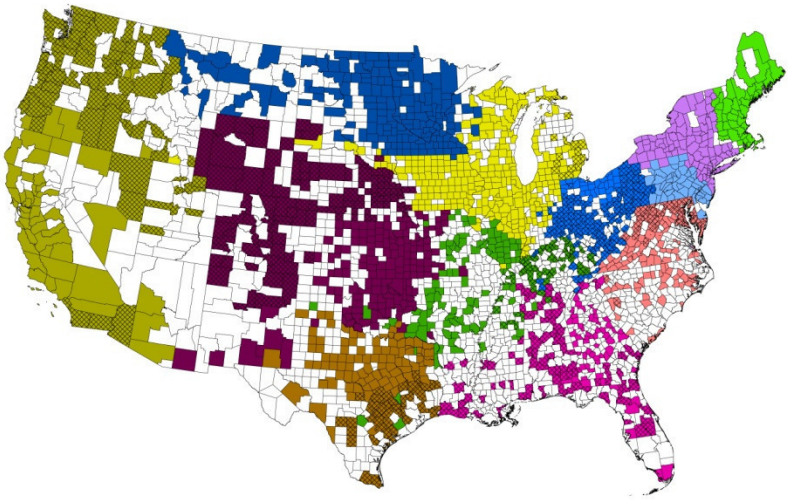
Panel A: Fed Districts 1914



Panel B: Winning City in County Votes (Only Reserve Cities)



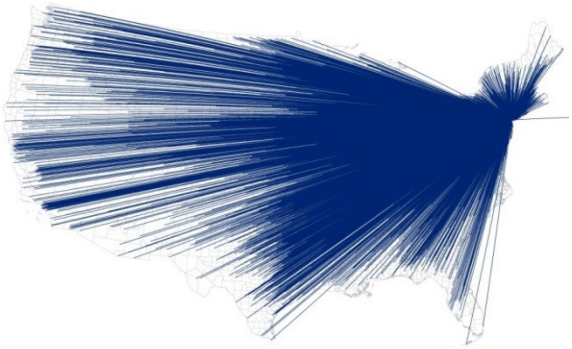
Panel C: Winning City in County Votes (Combining Reserve Cities and Branches)



Notes: Panel A displays the original Fed district boundaries. Panel B displays the results of the county-level votes only for Reserve Bank cities. Panel C displays the result of the county-level votes for Reserve Bank and branch cities. Colors denote the district. Cross-stitching in Panel C denotes counties won by an eventual branch city.

FIGURE 3
Correspondent Networks of Selected Reserve Bank Cities in 1913

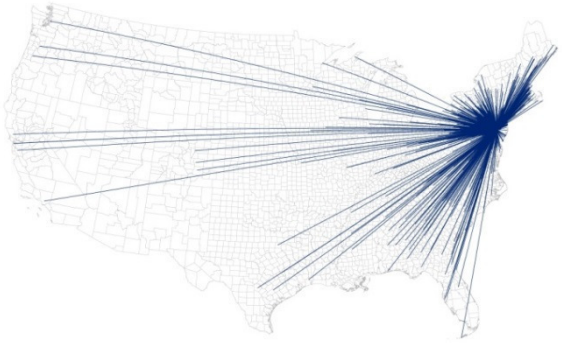
New York



Chicago

Boston

Philadelphia



San Francisco

Minneapolis & St Paul

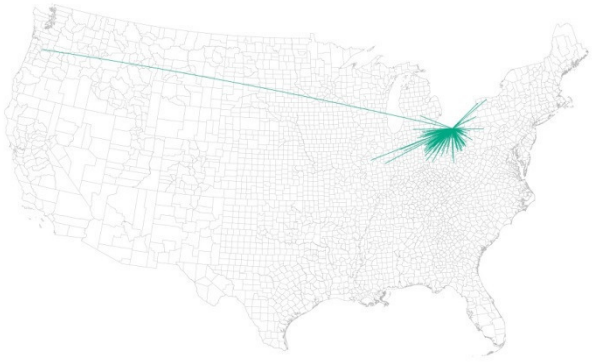
Atlanta

Dallas

Notes: Figures display correspondent connections at the city-level for the various listed cities.

FIGURE 4
Correspondent Networks of Selected Cities in 1913

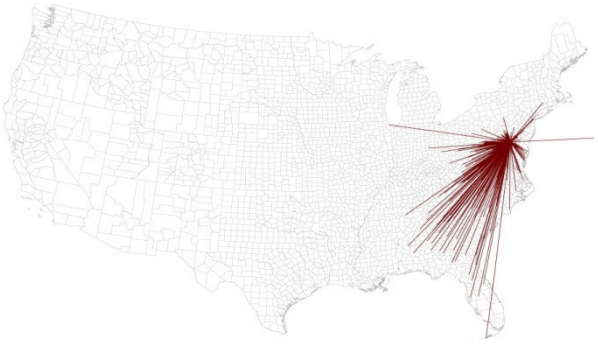
Cleveland



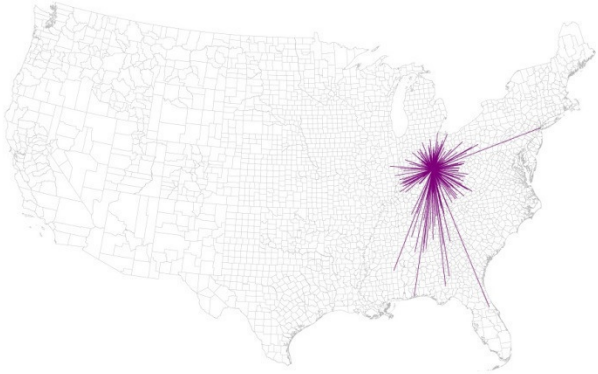
Richmond

Pittsburgh

Baltimore



Cincinnati



Notes: Figures display correspondent connections at the city-level for the various listed cities.