Banks in Space

Based on BFI Working Paper No. 2024-32, “Banks in Space,” by Ezra Oberfield, Princeton University; Esteban Rossi-Hansberg, University of Chicago; Nicholas Trachter, FRB of Richmond; and Derek Wenning, Princeton University

The banking deregulation of the 1980s and 90s provides unique evidence of the way in which banks set up their branches across locations. Two forms of sorting explain observed location patterns well. Sorting on size, whereby top banks locate in the largest markets and smaller banks in marginal ones, and sorting according to funding needs whereby banks locate in regions that allow them to balance their loans and deposits.

For most readers, it would be hard to imagine a time in the United States when national and regional bank branches did not fill the corners of city streets, mall parking lots, and even grocery stores. However, it was not until 1996, after years of legal and legislative wrangling, that banks were allowed to operate in all 50 states, regardless of their headquarters. Consequently, bank branches have increased by 50 percent over the last 40 years even as the number of banks has declined by 40 percent.

Which banks are branching where? Does the size of a financial institution impact its branching strategy? What about the mix of deposits and loans in given markets? The authors address these and related questions by reviewing Federal Deposit Insurance Corp. data from 1981, when banks could only operate in their home states or counties, through 2006, and by developing a model to explain banks’ sorting strategies. To begin, the authors show that prior to deregulation, top banks had headquarters in dense counties with an abundance of investment opportunities but relatively few deposits. This made them large, but also reliant on unsecured wholesale funding, which is more expensive than retail deposits.

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**Sorting:** This is the phenomenon driven by such forces as markets and regulation whereby individuals, households, businesses, and other agents make choices. For example, households may sort across neighborhoods according to their wealth and their preferences for public goods, social characteristics, and commuting opportunities. Individuals may sort in marriage markets according to looks, wealth, status, education, among other factors. Companies may sort based on labor quality and quantity, transportation costs, regulations, taxes, and so on.

**Wholesale funding:** This is when banks use Federal Reserve funds, time deposits, or brokered deposits to make loans; such deposits, for example, are made by legal entities, sole proprietorships or partnerships. Because this credit is unsecured, it tends to be more expensive than retail deposits.

**Retail deposits:** These are deposits in a financial institution placed by an individual or household, as opposed to those that derive from wholesale funding.
In 1981, though, large banks could not enter other less dense counties where retail deposits were more abundant and demand for loans smaller.

With the advent of deregulation, big banks expanded into larger markets in other states, first in nearby states because of lower operational costs, and then more broadly as technology improved efficiency at scale. Indeed, distance to headquarters explains, in part, the evolution of a bank’s branching locations, but the story becomes more nuanced as large banks also expanded into less dense markets in search of retail deposits. One upshot is that the large banks that initially relied heavily on wholesale funding reduced their exposure. The ability of large banks to both operate in the largest markets, but without relying on wholesale funds because of their parallel presence in smaller markets with an abundance of retail deposits, was key to their growth and success.

Technology was also important. Bank-level, fixed-cost investments allowed banks to serve their customers better and at a lower cost, for example, by investing in online platforms and information and communication technologies.

The authors’ analysis reveals the presence of two forms of sorting that occur as banks expanded to new markets:

1. **The first form of sorting results from span-of-control management costs.**
   - Large productive banks face relatively large costs from locating branches in small markets because they consume management time that could be dedicated to other more profitable locations. Those profitable locations entail larger fixed costs in terms of rents and other local costs, but they also yield higher revenue. Productive banks care relatively less about these local fixed costs and more about the implied span-of-control costs of an additional branch.
     - In contrast, small banks care more about the local costs, since the span-of-control costs are small or negligible since they only manage a small number of branches.
     - The result is a span-of-control sorting pattern that leads productive banks to locate in the densest markets with the largest local costs, but for small banks to have a larger presence in the smaller markets.

2. **The second form of sorting is due to the spatial mismatch between loans and deposits.**
   - This form of sorting is a trait peculiar to the banking industry. Broadly described, banks lend money at a higher rate than they pay for deposits; minus other costs, the difference is the bank’s profit margin. When a bank’s loans exceed its retail deposits, wholesale funding can fill the gap. However, these funds are more expensive (higher interest rates), so their use is minimized.
   - Because demand for loans and supply of retail deposits varies across space, banks whose operation uses wholesale funding intensively would have an incentive to enter locations with large supplies of retail deposits and low demand for loans; that is, locations with excess “cheaper” retail funds.

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**Figure 1 - The Evolution of Geographic Regulation in the US Banking Industry**

A) Available States that CA Banks Could Enter

B) Reciprocal Inter-state Agreements Over Time

Note: Panel A provides an example of the evolution of permissible out-of-state entry for California banks. States in lightest blue opened early to California’s banks, while states in darkest blue only opened by 1996 when all states liberalized. This map reveals a spatial pattern whereby neighboring and nearby states signed bilateral agreements early with California. Panel B shows the time series of the share of reciprocal interstate agreements across the United States.
Indeed, that is what the authors document. In response to deregulation, large productive banks that initially used more wholesale funding entered smaller, less dense, locations that had a large supply of retail deposits. Hence, this form of spatial “mismatch sorting,” used to balance deposits and loans, tended to weaken the overall sorting of large banks in the densest locations.

The authors then develop a model that provides a general theory of bank sorting across heterogeneous locations that generates, as an outcome, both sorting patterns—span-of-control sorting and mismatch sorting, which operate simultaneously. And they do so within the context of deregulation. Their model shows that large banks headquartered in large urban areas, and which are dependent on wholesale funding, expanded extensively into smaller locations, thereby reducing their reliance on wholesale funding. Importantly, by doing so they displaced small banks that either exited or moved to denser locations. The ability to tap into the abundance of deposits in smaller, less dense, locations allowed top banks to grow and make fixed-cost investments in customer appeal that increase their profitability.

Bottom line for the US banking industry: post-deregulation, there was a large geographic expansion of top banks into smaller locations and a reduction in overall sorting. Ultimately, these spatial patterns mean that consumers in small urban and rural areas gained access to technology and the branch network of top US banks. Questions about welfare gains or losses due to such sorting can be studied with the spatial framework developed in this paper.

Readers interested in a brief history of US bank deregulation are advised to read this paper’s Section 2.1—Institutional Setting: The Bank Deregulation of the 1980s and 90s.