The Role of Local Information in Credit Market Development*

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Abstract

Exploiting the heterogeneity in legal constraints on local bank employees' mobility, I show that access to local information influences banks' modes of expansion. Banks entering a market typically establish new branches directly when interbank labor mobility is less restrictive but acquire incumbent branches otherwise. The treatment effect is strengthened when information asymmetries between local and entrants are severe. When entrants establish new branches, I find a surge in the total amount of local small business and mortgage loans granted, a higher mortgage approval rate, and a reduction of mortgage rates by surrounding incumbent branches, which indicates intensified competition among banks.

Keywords: Local information, Labor mobility, Credit market development

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1. Introduction

The importance of local information in financial markets has been extensively discussed in the field of financial economics (e.g., Coval and Moskowitz, 2001; Hau, 2001; Ivković and Weisbenner, 2005; Bae, Stulz, and Tan 2007; Baik, Kang, and Kim, 2010). However, the role of local information in the banking sector, one of the most information-intensive industries, is less understood. Local information that is collected and updated over time through the interactions between employees (e.g., loan officers) and local clients is highly valuable to banks, helping them effectively intermediate the credit market (Petersen and Rajan, 1994; Karokyi, 2015). Critical information about the local credit market poses an entry barrier for nonlocals to compete with incumbent banks (Dell'Ariccia and Marquez, 2004). Theory shows that a lack of direct access to local information is a disadvantage for banks seeking to enter a new market (Dell'Ariccia et al., 1999). How can banks obtain local information when entering a distant market where information disadvantage is a primary concern? First, entry banks gain access to local information by opening branches and poaching incumbent bank employees. However, if interorganizational labor mobility is restricted, access to local information through hiring is less likely, and entrants will have to acquire incumbent branches instead. In this paper, I focus on the key channel through which an out-of-market bank could gain access to local information: the mobility of incumbent bank employees who have critical information about local markets.[1] I investigate whether the mobility of local bank employees influences the mode of banks' interstate expansion into new markets and how the local credit market competition is correspondingly changed.

The main challenge in establishing a causal effect is to identify exogenous variation in the local labor market. To do this, I focus on the changes in jurisdictional enforcement of the non-compete covenants, in addition to using a measure for the local bank employees' mobility. Such a regulation introduces frictions into the labor market and imposes significant

[1] The extant literature suggests that one primary channel for proprietary firm information to be leaked to competitors is through the mobility of employees with production-relevant information (e.g., Almeida and Kogut, 1999; Argote and Ingram, 2000; Jaffe et al., 1993; Moen, 2000; and Song et al., 2003).

constraints on the mobility of the labor force in the same industry. The enforcement of the non-compete covenants restrains local employees from being poached by outside banks and prevents entrants from closing the information gap. As the former chief of the antitrust litigation section of the U.S. Department of Justice said, "... the branch manager and loan officer are critical in small business and retail lending and tying up good branch managers or loan officers with non-compete agreements can be detrimental to a new entrant's ability to attract or retain customers" (Kramer, 1999, p. 323). Employing a difference-in-differences approach, I exploit the heterogeneity in enforcement of non-compete agreements across different states and over time, applying it to explain developments in local credit markets during the post-interstate branching deregulation era in the United States.[2] Because the measure of non-compete enforcement is regional, it is possible that other local factors correlated with non-compete enforcement could drive the results. I use two techniques to address this concern. First, I build on Huang (2008) and test the effect of non-compete enforcement on banks' entry modes only using contiguous counties bordering the states with changes in non-compete enforcement. The advantage of this analysis is that counties bordering the states tend to share similar unobserved heterogeneity. Second, I follow a technique similar to the one introduced by Rajan and Zingales (1998) in the cross-state context. If local information accessibility is the key reason labor mobility affects a bank's entry mode, the treatment effects should be more evident in situations in which getting access to local information is critical. I direct the tests to cases when banks enter a distant market or a market with a higher level of information asymmetry.

The entry of outside banks changes the competitive landscape of the credit market. Are there different consequences for local credit market competition when banks enter with different approaches? Credit market competition is likely to increase when new entrants establish local branches and the total number of local credit providers increases. It is,

[2] Although the initial process of bank deregulations (e.g., intrastate banking) started earlier, banks did not have the complete freedom of establishing and acquiring branches across the United States until the enactment of Riegle-Neal Act. Focusing on the post-deregulation era is thus suitable for this study.

however, less straightforward how the competition shifts after banks enter by acquiring local branches. While the number of credit providers remains constant, acquisitions of local branches could allegedly exploit economies to scale. In addition to the changes in the total amount of loans granted in a market, I examine changes in the approval rates and prices of loans after outside bank entries to identify possible shifts in local credit supply as a result of changing competition.

The main result from the difference-in-differences analysis shows that the relaxation of enforcement of non-compete agreements causes an average 37.3 percentage point increase in the proportion of out-of-state banks entering the market by establishing branches (rather than by acquiring local branches). The positive effect of local labor mobility on the likelihood that a bank expands by establishing branches in new markets remains robust using contiguous counties analyses. I further show that this treatment effect is strengthened when there is a stronger need for entry banks to access local information. In particular, I find that the effect is stronger when banks face severe information asymmetries when entering a market—either when the target market is far away or when a market with a higher percentage of informationally opaque small-size firms is present. Further tests show that access to local information plays a stronger role during banks' initial entry into a new market than in the subsequent years.

Next, I find that more banks entering by establishing new branches decreases banks concentration in the market, which leads to a surge in local small business and mortgage lending volume and is accompanied with an increased mortgage approval rate. Event study results using loan pricing data suggest that local incumbent bank branches immediately adjust the base rate of the 30-year fixed-rate mortgage loan downward by, on average, 55 basis points over the month following the addition of one new branch established by an entrant bank in the same market. All the evidence points to the same direction and suggests that, compared with bank entries through acquisitions, entries through branching add more competition to the local credit market and boost the credit supply.

In addition, I conduct various robustness checks, including a placebo test and alternative measurements, and the results substantiate the validity of the empirical tests and increase confidence in the interpretation of the main finding. Overall, the evidence indicates that the mobility of incumbent bank employees in the target market matters for banks' entry mode decision, which in turn reshapes the competitive landscape of the local credit market and ultimately increases the credit supply.

This paper contributes to the literature on the role of local information in the financial industry. Studies show that investors located near firms have superior knowledge over nonlocal investors. For example, Coval and Moskowitz (2001), Ivković and Weisbenner (2005), and Baik, Kang, and Kim (2010) show that both professional and individual investors in the United States earn higher returns from their local investments relative to their nonlocal investments, and the effects become stronger when information asymmetries between local and nonlocal investors are severe. Studies also investigate the importance of local information for financial analysts, showing that geographically proximate analysts issue more accurate earnings forecasts and update the forecasts more frequently (Malloy, 2005; Bae, Stulz, and Tan, 2008).

The role of local information in banking is crucial considering the severe information asymmetries that exist in the intermediation process. Recent empirical studies show that banks collect information about local markets and develop relationships with local firms through loan contracts and other financial services (e.g., Petersen and Rajan, 1994; Mester et al., 2007; and Norden and Weber, 2010); in addition, requisite soft information is primarily local, and borrower proximity facilitates the collection of soft information (Agarwal and Hauswald, 2010). Without access to local information, entrant banks are especially susceptible to the "winner's curse" problem in which they "win" some deals from poor-quality borrowers that were rejected by local banks (Broecker, 1990; Shaffer, 1998; Rajan, 1992; Ogura, 2006). Theories about the informational advantage of incumbent against nonlocals demonstrate that the local information possessed by incumbent banks, including their lend-

ing relationships with borrowers, serves as an entry barrier for banks looking to enter the market (Dell'Ariccia et al., 1999; Dell'Ariccia and Marquez, 2004). Building on a series of identification steps using comprehensive data at the county and branch level, this study is among the first that empirically identifies a causal link between labor mobility and bank entry mode. By demonstrating a stronger treatment when a bank faces more severe information asymmetries upon entry, the findings pinpoint the access to local information as the exact channel that explains the causal relation. Moreover, by providing evidence on the reaction of incumbent banks serving the same market, this paper identifies changes in local credit supply after banks enter with different strategies.

This paper is related to the literature on bank competition and credit market development. Previous research shows that development in the local credit market, featured by increased local bank competition and financial integration, contributes to local economic growth (Jayaratne and Strahan, 1996; Guiso, Sapienza, and Zingales, 2004; Huang, 2008). Notably, many studies use U.S. interstate banking reforms to identify the causality between bank competition and economic growth. In particular, credit competition improves bank services (Dick, 2006), expands credit availability, and lowers interest rates (Zarutskie, 2006; Rice and Strahan, 2010), while limiting access to credit for underperforming firms (Bertrand et al., 2007). Instead of focusing on the consequences of bank competition, this paper adds to this literature by highlighting the difference in how the credit supply changes as local credit market competition evolves after outside banks enter with different strategies.

This study also adds new evidence to the classical literature on the interplay between law and finance. Previous studies primarily focus on the role of enforcement of legal systems in the area of investor protection and show that strong law enforcement, which provides the best legal protection for investors, also facilitates financial market development (La Porta et al., 2001). Some recent studies focus on labor regulations and investigate the effects on firm behavior (see, e.g., Fallick et al., 2006; Marx et al., 2009; Garmaise, 2011; and Acharya et al., 2013). For example, Garmaise (2011) shows that tougher labor restrictions negatively

affect employee salary and firms' capital expenditures, and Bird and Knopf (2014) show that the enforcement of non-compete covenants is negatively correlated with the creation of new banks as well as the salary expenses and profitability of those new banks. In contrast to those studies, which focus on the usage non-compete enforcement for local firms, this paper considers the situation in which local employee mobility matters the most—when a *nonlocal* seeks entry into a new market about which the bank has little local information. In addition, instead of looking at the pre-interstate branching deregulation era, when most banks operated locally, this study focuses on the post-deregulation era, when the competitive landscape of the entire U.S. banking system was drastically reshaped by banks' nationwide expansions and consolidations (see Fig. 1) after the spatial branching restriction was removed. As restrictive enforcement of the non-compete helps incumbent banks preserve their information advantage against potential nonlocal banks (e.g., Dell'Ariccia and Marquez, 2004), it is particularly relevant to consider how nonlocal banks' entry strategy was correspondingly affected. By showing that local labor mobility is an important channel for entry banks' access to information, I link the changes in law enforcement in the area of labor mobility to the shift/development in the credit market.

The rest of the paper is organized as follows. Section 2 discusses the institutional and legal background in the United States, related data, and measurement. Section 3 reports the empirical strategy and results. Section 4 summarizes the findings from robustness tests and further checks. Section 5 concludes.

2. Institutional background and data

I build a novel data set that incorporates comprehensive information capturing labor mobility in the target market, the dynamics of bank entry activity at the bank branch level, changes in local credit market competition at the county level, and the reaction of local banks at the incumbent branch level. I further complement the data set with target market

economic and political conditions as well as the characteristics of entrant and incumbent banks.

2.1. Banks' local information and enforcement of the non-compete covenants

Banks spend time and resources accumulating information and compiling a client base. This information about the local market and customers is highly valuable and serves as an entry barrier for nonlocal banks. The extant literature suggests that one primary channel for proprietary firm information to be leaked to competitors is through the mobility of employees with production-relevant information (e.g., Almeida and Kogut, 1999; Argote and Ingram, 2000; Jaffe et al., 1993; Moen, 2000; Song et al., 2003). In the banking industry, non-compete covenants are most often used to protect such information assets that could otherwise be lost as employees change jobs to competing firms (Franco and Mitchell, 2008).[3] A non-compete covenant is an employment contract in which an employee pledges not to work for a competitive firm operating in the same geographic area within a period of time after resigning or being dismissed. In the case of *Downeast Mortgage Corp. v. Balzano et al.* No. cv-04-411 (M.E. Sup. Ct. Jun. 29, 2004), three former loan officers were sued by Downeast Mortgage Corp. for breaching their respective noncompetition and nondisclosure agreements by bringing confidential customer information to Meridian Mortgage Group, a direct competitor of Downeast in the mortgage lending business. During their employment at Downeast, the three employees' duties primarily involved the origination and processing of mortgage loan applications, and each of the three had access to the firm's "confidential proprietary information and client base." The employees were accused of carrying confidential information about local borrowers and using it to solicit business for their new employer. In another recent case, six former employees from Huntington National Bank's mortgage loan department were accused of breaching confidential proprietary client information and

[3] In recent years, such agreements have become a common term of employment, especially for jobs such as executives, R&D staff, salespeople, and loan officers, who have access to essential firm-specific information and relationships. Survey evidence suggests that around 90% of these employees are constrained by non-compete covenants as they enter jobs (Leonard, 2001; Kaplan and Stromberg, 2003).

joining a competing banks' first local loan production office, which was established three days after the Huntington's employees' resignations. Clearly, information about local borrowers matters a great deal to both incumbents and nonlocals, as it helps incumbents maintain information advantage over potential competitors.[4]

It is appropriate to focus on the enforcement of non-compete covenants in this study. When banks expand across state borders, acquiring information in the local market apparently becomes a primary considerations for the nonlocals. As illustrated by the lawsuits, the non-compete covenants were specifically targeted at limiting employees' opportunity in joining competitors in the local market where the incumbent serves (Fallick et al., 2006; Garmaise, 2011; Marx et al., 2009).[5] Enforcement of non-compete covenants does not impede employees' seeking jobs outside the home market, where the value of the local knowledge is lower. In other words, the usage of non-compete covenants most effectively restrains the leakage of incumbent's *local information*.

In the United States, firms are free to write any sort of employment contract, but the enforcement of non-compete covenants is left to the states. Enforcement of the non-compete covenant varies across state jurisdictions and over time in the nature of what a firm can claim as a legitimate protectable interest. The changes in the state jurisdiction's enforcement of non-compete covenants serve as natural experiments that relax/restrain the mobility of incumbent bank employees in the target market; they are largely exogenous to the decisionmaking process of out-of-state banks on how to expand into the market. The changes in the non-compete enforcement due to the court's judicial decisions are largely an idiosyncratic function of the particular case and the character of the justices. To further mitigate concerns about omitted variables, I control for the local economic situation, political climate,

[4] Additional recent examples include *TD Bank, N.A. v. DiSanto et al.* No. 2:2014cv07191 (N.J. Dist. Ct. Nov. 18, 2014) and *Bridgeview Bank Group v. Meyer*, No. 1-16-0042 (Ill. App. Ct. Feb. 17, 2016).

[5] Other legal agreements, while similar in constraining information leakage through job hopping, are less suitable for this study focusing on the role of *local* information. For example, geographic limit is not considered when it comes to the enforcement of inevitable disclosure doctrine, and it also limits employees' opportunities in joining firms that serve a different location outside the market where the former employers operate.

and banking market structure over time.

Besides using the intensity of non-compete covenants enforcement, I also use a direct measure for the local labor mobility in the robustness checks, the job turnover of local commercial banking employees from the U.S. Census database. There is a significant negative correlation between the intensity of state enforcement of non-compete covenants (Garmaise, 20011) and the local commercial banking employees' job turnover variable at the 1% confidence level. This negative correlation indicates that a restrictive non-compete enforcement restricts local interorganizational labor mobility.

2.2. Modes of expansion and characteristics of outside banks

When considering the role of local labor mobility in banks' modes of expansion, I focus on the post-interstate branching deregulation (IBBEA) era when banks have options in both establishing and acquiring out-of-state branches.[6] Importantly, throughout most of the twentieth century, as U.S. banks have been primarily operating within their headquarters' state, they have had much less information about borrowers and credit markets in other states. Acquiring local information is likely to be a major consideration for banks expanding beyond state borders. Also, the data used for constructing all key dependent variables (e.g., location, establishment and ownership changes of bank branches, the county-level small business lending data, the branch-level mortgage loan rates data) and explanatory variables (e.g., county-level labor turnover in the banking industry data) in the analyses have only become available since the mid-1990s, after interstate bank branching was deregulated.

I identify the date and location of the bank branches that are established or acquired by out-of-state banks from the Summary of Deposit (SOD) of the Federal Deposit Insurance Company (FDIC), which covers the universe of bank branches in the United States since

[6] The process of bank deregulation in the United States started around 1970, when multiple states started to abandon the unit banking system and allowed banks to expand within state borders, and continued into the 1990s with the passage of the Riegle-Neal Interstate Banking and Branching Efficiency Act (IBBEA), which not only removed any restrictions that were left on interstate acquisitions but also permitted banks to establish branches across the nation for the first time. Prior to the 1970s, interstate bank branching and acquisition were largely prohibited.

1994 and provides annual updates on detailed branch characteristics such as the address, geographic coordinates, deposit quantities, date of establishment and ownership changes following mergers and acquisitions (M&A). As shown in Fig. 1, interstate bank expansion in the United States has become increasingly important over the past two decades after the enactment of IBBEA, and branches owned by out-of-state banks have become the majority in many states (e.g., 75.2% in Michigan, 63.2% in California, and 87.1% in Arizona as of June 2015).

Based on the unique identifier of each branch, their parent bank, and the county identifier from SOD, I aggregate the total number of out-of-state bank entries through new branch establishment and incumbent branch acquisition at the county and year level. I then calculate the ratio of total bank entries through establishing branches in each county in each year of the sample period. County is often considered as a proxy for the local market in the study of banking (e.g., Huang, 2008), as valuable local information and bank-firm relationships can only be preserved at a short distance, as suggested by Petersen and Rajan (2002). Also, a county-level study minimizes the potential endogeneity problem—in this case, the change in the state legal enforcement is less likely to be driven by the economic situation of a particular county (Huang, 2008).

2.3. Bank competition in the target market

I measure changes in competition in the local credit market in several ways. At the target county level, I first capture changes in bank concentration in the local credit market using the combined market share of the top three banks based on the amount of branches' deposits from the FDIC SOD. Second, I calculate the yearly aggregated amount of small and medium-size enterprise (SME) loan provision in the target market based on data from the Community Recovery Act (CRA) database from the Federal Financial Institutions Examination Council (FFIEC). Third, I calculate the amount of yearly aggregated amount of mortgage loans granted in the target county as well as the average approval rates of mortgage loans from

the FFIEC's Home Mortgage Disclosure Act (HMDA) database. At the incumbent bank branch level, I look at incumbent banks' reactions to out-of-market banks' entry and use the branch-level mortgage lending rate from the RateWatch database to investigate incumbent banks' rate-adjusting behavior when facing competition from outside banks entering the local market. The RateWatch database contains weekly branch-level data on mortgage loan rates by product. The data are from 1997 to the present and cover roughly half of all branches in across the country. They provide a unique identifier that allows me to link them to the SOD data, which are further linked to the labor mobility data in the target market through county identifiers and bank characteristics using bank identifiers.

2.4. Controls for target market, entrant, and incumbent bank characteristics

I construct variables that reflect the local economic situation—such as market size and growth perspective—based on data from various sources, such as the U.S. Census Bureau, the Bureau of Economic Analysis, and the Bureau of Labor Statistics. In addition, I manually collect archival data from the House of Representatives website and calculate the percentage of the House of Representatives that are Democratic Party members for each state to proxy for the political climate in that state in that year. To control for the characteristics of entrant banks as well as local incumbent banks, I collect FDIC Call Report data on bank characteristics from Federal Reserve Bank of Chicago. The Call Report data contain quarterly balance sheet and income statement data, including bank age, size, liquidity, profitability, and capital ratio, for all U.S. commercial banks. In addition, I take into account the geographic distance between the target state that the bank is entering and the home state where the headquarters of the bank are located to proxy for the level of entrant banks' familiarity of the target market.[7] I match the bank-level Call Report data to the branch-level bank entry mode and loan rate data using the unique FDIC bank identifier. An overview of the main variables and the summary statistics is shown in Table 1.

[7] I extract spatial information on the distance between states from the package developed by Scott Merryman (http://econpapers.repec.org/software/bocbocode/s448405.htm).

3. Empirical results

As a first step, I zoom in to the period around the deregulation of interstate branching in each state and examine the relation between the fraction of bank entries into local market via branching and the local labor mobility. One should expect a higher fraction of bank entry via branching in states with higher labor mobility, and this is exactly what I find, shown in Fig. 2. In this figure, I show the fraction of out-of-state bank entry that occurs via establishing new branches is higher in states with higher labor mobility—captured by a higher turnover ratio of banking employees' job turnover rate in the local commercial banking industry and states with a less restrictive enforcement of non-compete covenants. I find a relatively higher percentage of out-of-state banks entering by establishing new branches in places that have less-restrictive enforcement of non-compete covenants and with a higher level of labor turnover in the commercial banking industry, immediately after the interstate banking deregulation took place.

3.1. The primary modes of banks' entry after deregulation

Along the same vein of the trend shown in Fig. 2, I focus on the three years after the interstate branching deregulation and first compare the primary modes of out-of-state banks' entry across markets with different labor mobility. Following Garmaise (2011), I use the non-competition enforcement index (NC_score) to capture cross-state variations in the enforcement of the non-compete covenants immediately before interstate bank deregulation. This index measures the extent to which the covenant not to compete is enforced at the state level, and it captures several important dimensions of the jurisdiction's enforcement on non-compete covenants documented in Malsberger (2004).[8] The NC_scores range from zero—as in California, where non-compete covenants are not enforceable at all–to nine, as in Florida, where the non-competition agreement is the most strictly enforced. A cross-sectional

[8] For a complete overview of the construction of the index of enforcement of the non-compete covenants, please refer to Malsberger (2004) and Garmaise (2011).

comparison is suitable in this case, as the NC_score measure varies largely across states but remains largely stable over the years it covers. I calculate the percentage of bank entries via branching per county one year, two years, and three years after the enactment of the IBBEA and regress them on the local non-compete enforcement prior to the deregulation. I include variables that control for the local economic, political, and market characteristics. For instance, I control for the wealth level and business condition of the local market using the local per capita income; local bank competition using Herfindahl-Hirschman index (HHI) of banks' deposit size; and the business structure using the average number of employees hired in local firms. I control the state political climate using the fraction of states' Congress members in the U.S. House of Representatives that belong to the Democratic Party. I also include total population and personal income growth rate to capture the size and growth perspectives of the local economy. As states were allowed to implement the deregulation at different points in time over the period of 1994 to 1997, I include the year fixed effects to control for nationwide shocks that could affect both the local legal/political/economic situation as well as banks' entry mode in each regression. The results are shown in Table 2.

I find a negative relation between the intensity of non-compete enforcement and the ratio of out-of-state banks entering by establishing new branches after banking deregulation. This finding means that the more restrictive the local non-compete enforcement is, the lower the percentage of banks entering through branching is. The coefficients on the NC_score remain consistently negative throughout column (1) to (3), regardless of the choice of the time window. This result indicates that the cross-state difference in the legal enforcement of non-compete covenants continues to influence modes of out-of-state banks' entry into the local market. The result is robust after controlling for the local political, economic, and market situation (such as the local market size, bank concentration, growth perspectives, etc.), which might influence both the non-compete enforcement and bank entry mode. In addition, the result is also economically significant; for example, moving to a county that is 1 point higher in the non-compete enforcement index would be correlated with a 1.5 percentage

point decrease in the proportion of bank entries through establishing branches during the first year after bank deregulation, which is equivalent to a 6% decrease compared with the sample mean.

Next, I zoom in on each event when a bank enters an outside market and model the bank's entry mode choice in a binary regression framework. For each time an out-of-state bank enters the local market, I test whether the choice between branching and M&A entry is correlated with the intensity of non-compete enforcement in the target market. Compared with the first test of county-level cross-sectional regression, one advantage of conducting a bank-entry level analysis is that I can better control for the rich heterogeneity across banks, target markets, and years that might influence banks' entry mode choices. For example, this test allows me to compare the modes of entry by the *same* bank into *different* geographic locations. I look at all events in which banks enter an out-of-state county and construct a dummy variable that equals one if an out-of-state bank enters a local market via setting up branches and zero if this entry is completed via acquiring a local branch. I regress the entry mode dummy on the local NC_score and control for bank characteristics and the local political and economic situation prior to the deregulation of interstate branching. I include the year fixed effects to control for the unobservable shocks that affect all markets in certain years, and I cluster the standard error at both the state and bank level to account for the correlations in the error terms.[9]

The results from Table 3 are consistent with the findings from the county-level analysis. The likelihood that a nonlocal bank will establish a new branch is lower when the target market has a more restrictive enforcement of non-compete covenants, compared with a market with less restrictive enforcement, conditional on the entry. The effect appears economically

[9] Individual bank fixed effects are not included, as the fixed effects estimates will be imprecise when including a large number of cross-sectional dummies (Allison 2009). When including a large number of cross-sectional dummies, observations within the same category where there is little variation in the modes of bank entries will be dropped. In addition, the inclusion of cross-sectional fixed effects potentially biases the estimation in the maximum likelihood regression frameworks (e.g., Greene, 2004). Individual target market fixed effects are not included because of their perfect correlation with the explanatory variable. As a robustness check, all results in Table 3 remain quantitatively and qualitatively similar when individual bank fixed effects are included and when the regression is estimated using a linear probability model.

significant; the unconditional probability of a bank's entry through establishing branching is 7.7%. The marginal effect of -0.02 for bank entry mode choice in the first year after the deregulation indicates that a 1 point increase in the intensity of non-compete enforcement decreases the probability of out-of-state banks to enter via branching by 26% (0.02/0.077). Columns (2) and (3) repeat the analysis using a longer test period after the deregulation. The sign of the coefficients and the marginal effects are consistent with the result using a one-year period. Overall, the results of bank-level entry mode analysis confirm the findings from tests at the county level.

3.2. The primary modes of banks' entry after deregulation

Another advantage of conducting the analysis at the bank-entry level is that it allows me to utilize the home-target distance as a measure for the level of information asymmetry faced by entry banks, which is key to identifying the channel through which local labor mobility affects a bank's entry mode decision. In the banking literature, geographic distance between the banks and borrowers is often considered as a proxy for the strength of the relationship/mutual information. It is less likely that a bank will have information about a local firm a thousand miles away than the one that is two blocks away. The further the distance, the less local information the entry bank has about local borrowers prior to the entry, and the stronger the need for a bank to acquire local information. If the primary reason local labor mobility affects bank entry modes is the acquisition of local information, it can be expected that the strongest effects will happen when a bank enters an alien market about which it has no information. I differentiate distant bank entries from close-by bank entries based on the median distance between banks' headquarters state and the target state of all bank entries. I rerun the logit regression on the two subsamples for bank entry mode choice during the first three years after the deregulation in the local markets. The results are shown in Table 4.

I observe that the negative correlation between the restrictiveness of the local labor

market and nonlocal banks' entry via branching is primarily dominated in cases when a bank enters a market that is more distant from the home market, and the effect vanishes when a bank enters a market that is close by. The economic significance is sizable: When a bank enters a distant state, the marginal effects of NC_score on bank entry mode is more than twice the effect when a bank enters a closer market. This result confirms my conjecture that obtaining local information is a key consideration for banks entering a new market; the effect of labor mobility on bank entries strengthens as the needs to obtain local information become stronger.

3.3. Difference-in-differences analysis of changes in non-compete enforcement

Analyses focusing on the period right after deregulation show that the local constraints on labor mobility correlate with out-of-state banks' decisions on how to enter the market, especially when entering a distant market. I use a difference-in-differences approach to further establish a causal relation between the mobility of local bank employees and banks' entry mode choice. I identify the time-varying changes in the intensity of state legal enforcement of non-compete covenants throughout the sample period based on the analyses from legal and management literature (Garmaise, 2011; Malsberger, 2011; Marx and Fleming, 2011), and construct a difference-in-differences (DD) indicator *relaxation of non-compete enforcement* to capture those changes accordingly. In total, I identify five shocks to non-compete enforcement during the post-deregulation period of 1997 through 2010; Idaho (Id. SB1393) strengthened the non-compete law by extending firms' ability to enforce the non-compete in 2008, while two other states, New York (Ny. S02393) and Oregon (Or. SB248), relaxed the enforcement of the non-compete. The enforcement of non-compete covenants was radically relaxed in Louisiana (La. R.S. 23:921) in 2001 after the supreme court's ruling of *SWAT 24 Shreveport Bossier, Inc. v. Bond*, 808 So. 2d 294, and the state legislature reversed the change in 2003. In the three cases in which the non-compete enforcement be-

comes more relaxed, I set the indicator equal to zero for all years preceding the year that the non-compete enforcement was relaxed and one afterwards. In the other two cases in which states strengthened the non-compete enforcement, I set the indicator to one for all years preceding to the year that law enforcement was strengthened and zero afterwards. The model specification is

$$\begin{aligned} \textit{Ratio of bank entries through branching}_{c,t} = \alpha + \beta_1 \textit{Relaxation of noncompete enforcement}_{s,t\text{-}1} \\ + \beta_2 \textit{Controls}_{s,c,t\text{-}1} + \omega_c + \mu_t + \epsilon_{ct} \end{aligned} \tag{1}$$

Regression (1) tests the effect of the relaxation of the non-compete enforcement on bank entry mode at the target county and year level, where c represents county, s represents the state, and t represents year. The ratio of bank entries through branching is the measure of county-level bank entry mode, relaxation of non-compete enforcement is the DD indicator, and $\hat{\text{I}}\check{\text{s}}_1$ is the DD estimate which captures the effects of the relaxation of the non-compete enforcement on the modes of entry by out-of-state banks to the target county. All variables that capture the local economic, political, and market characteristics in Table 2 are also included as controls here. Including those variables mitigates the concern that local business conditions and political climate could affect both changes in the non-compete enforcement and out-of-state banks' entry mode decision. In addition, I include county fixed effect ω_i and year fixed effect μ_t to control for both time-invariant unobservable county factors and nationwide shocks that happened during a particular year that could possibly affect both changes in the non-compete enforcement and banks' entry mode choices. I cluster the standard error at the state level to address the concern that the residuals might be correlated within a state and any serial correlation induced by the small variation in the DD indicator (Bertrand et al., 2004).

Column 2 of Table 5 reports the difference-in-differences regression results. It is clear that there is a positive treatment effect of the DD indicator on banks' entry modes. The coefficient

is statistically significant at the 1% level, and the baseline regression result indicates that the relaxation of non-compete enforcement, on average, leads to a 37.3 percentage point increase in the proportion of banks entering the target county by establishing branches. Considering the average ratio of bank entries through establishing branches (25.3%), the economic significance is sizable.

The validity of the research design relies on the parallel trend assumption, in which the control and treatment states should share the same common trend and no other idiosyncratic shocks simultaneously affect one group of states but not the other. I conduct further placebo tests to show the conditions of applying the difference-in-differences are met in this case. I create fictitious shocks in the non-compete enforcement that happen one year before and one year after the actual shocks in the treatment states and test whether fictitious shocks influence the entry mode choice of out-of-state banks into the local market. If the common trend assumption holds and there are no other shocks affecting one group or another, there should not be any significant positive effect on the ratio of branching entry after the placebo shocks took place. I re-estimate the difference-in-differences regression models using these placebo DD indicators. Although the coefficients of DD indicator in column (1) and (3) are positive in the two placebo regressions, they are decaying in magnitude when we move further away from the actual change, and none are statistically significant at the conventional level.

3.4. Difference-in-differences analysis using contiguous counties

The DD method relies on the assumption that the treatment and control groups are fundamentally similar and subject to the same common trend. One might worry that the estimation result might be biased if the states include a sample that consists only of contiguous counties lying on the borders of states that experience changes in the non-compete enforcement and the neighboring states. The merit of the method relies on the fact that, as contiguous counties are geographically closely located, they are likely to subject to the

same unobserved factors, such as trends in economic development and shocks to the local economy (e.g., resource discovery and natural hazards) (Holmes, 1998; Huang, 2008; Ager and Spargoli, 2016). Thus, using the counties that are located on the borders will create a better matching between the control and the treatment groups. The model specification is

$$\begin{aligned} \textit{Ratio of bank entries through branching}_{c,t} = \alpha + \beta_1 \textit{Relaxation of noncompetes}_{s,t\text{-}1} \\ + \beta_2 \textit{Controls}_{s,c,t\text{-}1} + \omega_c + \omega_{cc} + \mu_t + \epsilon_{ccct} \quad (2) \end{aligned}$$

The test is similar to the regression discontinuity design by Black (1999), and the major difference between models (2) and (1) is that I now include the contiguous county paired fixed effects ω_{cc} that control for the unobserved linear time trend and common shocks that happened to counties on the border that might influence out-of-state banks' entry mode choice. Column (4) of Table 5 reports the within-county level response of ratio of branching entry to the relaxation of non-compete enforcement. The result shows that the percentage of bank entries through branching has significantly gone up in counties from states that experience a relaxation of non-compete enforcement. The relaxation of non-compete enforcement results, on average, in a 32.3 percentage point increase in the proportion of banks entering target counties by establishing branches. The economic magnitude of the effect is substantial and comparable to the DD estimates from the full sample regression. This finding indicates that the causal relation between the relaxation of local non-compete enforcement and the increase of the bank entries through branching remains robust after taking into account the unobservable trends and shocks in target market.

3.5. Differential effects of local information asymmetry

Similar to the analysis in Table 4, I further investigate the channel through which the mobility of labor influences banks' entry mode choice. I argue that banks choose different modes to enter a market to acquire local information. If this is true, a stronger effect could be

observed when the incentive for outside banks to acquire local information becomes stronger, i.e., when facing a higher level of information asymmetry in a new market. Banks have a strong incentive to acquire local information when entering a distant market; they also have a strong incentive to acquire information when entering a market with more opaque borrowers. Firms with annual gross revenues of less than $1 million are considered highly opaque, as the information about those firms is very limited. In this case, I calculate the total number and the amount of small business loans that were extended to opaque borrowers with less than $1 million revenue in each county prior to out-of-state banks' entry using data from FFEIC's CRA data reports. I create two dummy variables that denote a higher level of information asymmetry based on the median split on the relative share of opaque firm loans in the target market. I interact the two information asymmetry dummies prior to each bank entry with the DD indicator and relaxation of non-compete enforcement, and I test whether the coefficient of the interaction term is a significant positive, meaning that banks care more about labor mobility when entering markets where acquiring local information is more important. The results are shown in Table 6.

I find the changes in enforcement of non-compete covenants on bank entry mode are stronger in credit markets with severe information asymmetry, characterized by a higher percentage of opaque local small-size firms. The coefficient estimates are significantly positive for the interactions using both dummy variables, and the results are robust across different specifications using all counties and using contiguous counties. The economic significance is sizable considering the relative size of the coefficients on the interaction terms to the base effects. This result is consistent with the findings using bank-level analysis and highlights the importance of getting access to local information as the primary channel through which labor mobility affects bank entry mode choice.

3.6. Implications for local credit market competition

Banks choose different modes to expand across state borders in response to the accessibility of local information through labor turnover. This section investigates the implications of different bank entry modes for local credit market competition. Previous studies (e.g., Dick, 2006; Zarutskie, 2006) show that the increase in bank competition after the interstate branching deregulation has benefited local clients by improving the service level and credit supply. I take one step back and compare the changes in how the local banking competitive landscape changes after out-of-state banks enter through different entry modes. Specifically, I focus on the changes in local bank concentration and small business and mortgage lending in the local county market after the entries of out-of-state banks. The general model specification is

$$\begin{aligned} \textit{Local bank competition}_{c,t} = \alpha + \beta_1 \textit{Ratio of bank entries through branching}_{c,t\text{-}1} \\ + \beta_2 \textit{Controls}_{s,c,t\text{-}1} + \omega_c + \mu_t + \epsilon_{ct} \end{aligned} \tag{3}$$

where β_1 captures changes in the competitive landscape of local banking market reshaped by bank entries through branching as compared to mergers and acquisitions. First, I use the combined market share of the top three banks to directly measure local banks' concentration in the local market after bank entries in the preceding year. The result reported in Table 7, column 1 shows that compared to bank entries through acquisitions, bank entries through branching decrease the local bank concentration more, indicating an increase in competition in the local credit market after banks enter through establishing branches. Changes in local credit market competition after bank entries with different modes are likely reflected in the local lending market, especially in the SME and mortgage lending market. SMEs tend to be financially constrained and are likely to gain better access to bank loans once the credit availability in the local market increases after new branches are established. Similarly, the increase in the number of loan providers is likely to benefit the local individual mortgage

borrowers, as they now have more options when applying for mortgages. I follow a regression setup of model (3) using the SME and mortgage lending as dependent variables to test whether new branches add to the total credit supply in the local market.

Consistent with my conjecture, results shows a positive relation between the ratio of bank entries through branching and the amount of SME and mortgage loans in the local market after out-of-state bank entries. A one standard deviation increase in the ratio of bank entries through branching contributes to a $4.3 million increase in the loans to local SMEs and a $173.2 million increase in the mortgage loans. This is equivalent to a 6% increase and a 28% increase of the average total amount of local SME loans and mortgage loans in the county lending market, respectively, which suggests that the result is economically meaningful.

3.7. Further identifications of changes in credit supply channel

Results suggest that there is a substantial shift in credit availability for local small businesses and mortgage borrowers following the establishment of new branches by out-of-state banks. This increase in lending could be driven by the increased credit supply as a result of outside bank entries local market, but it could also be a result of the increase in local demand that is not related to the bank entries. To address this issue, I run two additional tests that help identify whether the increase in local lending activity mainly came from the channel of increased credit supply. First, I calculate the mortgage approval rates from the HMDA database in the target county after outside bank entries. In addition to the mortgage loans being granted in each county, HMDA also covers the mortgage applications that were rejected by banks. Based on this information, I calculate the percentage of mortgage loans applications that are approved in each county over the years and link it to the primary modes of bank entries in the county. The results in Table 7, column (4) show that a one standard deviation increase in the ratio of bank entries through branching contributes to a 20 basis point increase in the mortgage approval rates in the target market.

Second, I examine the changes in loan pricing in the local market and focus on the

reaction of incumbent branches that serve the same market around the time of out-of-state banks' entry. As pointed out in the previous analyses, it is important to consider whether the increase in bank credit and check is primarily driven by additional supply as a result of increased competition after branching entries rather than the long-term increase in local lending opportunity. Closely monitoring the reactions of existing incumbent branches serving the surrounding market where new banks enter helps identify the channel.

First, I look at the direction of incumbent banks' loan rate adjustment. A decrease in the loan pricing at the time of additional bank entry should be expected if the increase in the aggregate amount of bank lending is primarily driven by increased competition among loan providers. Second, the timing of incumbent banks' adjusting lending rate should only be around the short period when out-of-state banks enter the market if the surge in credit supply is mainly driven by bank entries. Although it is difficult to obtain data on small business loan pricing, I am able to extract data on mortgage lending base rates from around 9,000 branches located across the nation surveyed at the weekly frequency from RateWatch. One important feature of the data set is that it reports the base rates set by the branches rather than actual rates of mortgage loans provision. Looking at the base rate setting behavior during a narrow window around outside banks' entry allows me to pinpoint the exact reaction of incumbent branches to different modes of bank entries. In the United States, the 30-year fixed mortgage is traditionally used as the most common financial means of acquiring home residence. For example, according to the Mortgage Bankers Association, 86% of people applying for purchase mortgages in 2015 opted for 30-year loans. Using data on 30-year fixed mortgage loans, I calculate the main dependent variable, the cumulative changes in the mortgage lending base rate set by each local incumbent branch immediately (one month) after the out-of-state banks' entries. I regress changes in incumbent branches' lending rate on the number of out-of-state bank entries in the same market through setting up new branches and through M&As. I include control variables at the county and state level as well as county and year fixed effects. As the regression is conducted at the incumbent

branch level, I further control for incumbent bank characteristics and also include incumbent banks fixed effects in the regression. Another advantage of this test is that it allows me to compare the changes in loan rate across branches with *different* geographic locations within the *same* bank and identify the heterogeneity in loan rate solely driven by variations in local condition across different incumbent branches. I run an event study of incumbent branches' reactions by estimating the following OLS model:

$$\begin{aligned}\Delta \textit{incumbent branches' mortgage base rates}_{b,c,t,t+x} = \alpha &+ \beta_1 \textit{nr of bank entries via branching}_{c,t} \\ &+ \beta_2 \textit{nr of bank entries via M\&A}_{c,t} \\ &+ \beta_3 Controls_{s,c,b,t-1} \\ &+ \omega_c + \delta_b + \mu_t + \epsilon_{cbt} \qquad (4)\end{aligned}$$

Column 1 of Table 8 presents the event study results. It is clear that incumbent branches immediately adjust the base rate downward after new branches are established in the service area. The cumulative adjustment in mortgage lending rate is 55 basis points immediately during the month after the establishment of one new bank branch and is statistically significant at the 5% level. Bank entries through M&A do not seem to increase local credit market competition, as incumbent branches do not significantly reduce mortgage lending rates in response to M&A entries; on the contrary, they adjust the lending rate upward. The economic significance is sizable: Setting up one new branch in the local market contributes to an additional 11.8% decrease in the mortgage lending rates, while the average change is -4.68 percentage points during the sample period.

I then calculate the cumulative changes in the mortgage lending rates during the 3-month, 6-month, and 12-month periods after the actual month of outside bank entries. I regress the changes on the actual bank entries through branching as well as through acquisitions. Results show that the timing of incumbent branches' rate reduction is precisely during the month after outside branches are added to the local market, and the effect fades away

when longer periods after the establishment of one branch are applied. This unique pattern suggests that the changes in lending rate are a one-time reduction by incumbent branches in reaction to the increased competition in the lending market from a specific bank entry, and the fundamental demand in the local market for the long-term mortgage loans remains unchanged. In addition, there is no evidence that incumbent branches adjusting the rates reversely (after half a year) suggests the increase in credit supply is not short-lived after new branches are added to the market. This finding is consistent with earlier results documenting increased competition indices and bank lending volume after banks enter by setting up new branches.

Combining the empirical evidence, I conclude that the establishment of new branches has a significant positive effect on local credit market competition, characterized by increased credit availability and a reduction in local mortgage lending rates by the incumbent branches. No clear effect on bank competition is observed on the local credit market after an incumbent branch is acquired by entrant banks.

4. Further analysis and robustness checks

4.1. Pre-existing trends between controls and treatments

In this section, I conduct further placebo tests to verify the parallel trend assumption that the difference-in-differences analyses are based on. If courts' changes in the enforcement of non-compete covenants are largely exogenous, there should not be pre-existing trends that drive differences between the control and treatment groups. In addition to the analyses in Table 5, I move further back to identify any possible pre-existing trends that could exist prior to the actual changes in non-compete enforcement. I construct two placebo DD indicators that switch to one year, two years, and three years prior to the actual shock and repeat the analyses as shown in Table 5. I apply the experiment on the whole sample including all U.S. counties as well as on a subsample that includes only counties on the borders to better control

for the unobservable factors. The results are reported in Table 6. In all cases, the placebo relaxation in the non-compete enforcement fails to yield any significant positive effects on banks' entries through establishing branches. With the result, it could be concluded that the parallel trend assumption for the difference-in-differences method is not violated and the causal effect between changes in the non-compete enforcement and bank entry mode choice remains robust.

4.2. Alternative measure of the local information mobility

In the analysis, I use the heterogeneity in legal enforcement of local non-compete covenants as the main measure affecting the level of local bank employees' mobility. In this section, I use an alternative measure for interorganizational labor mobility by directly looking at the labor mobility within the local banking industry. I collect county-level data on the size of the labor force, number of new hires, and number of separations in the commercial banking industry (with the first three digits of NAICs codes of 522) from the Census Quarterly Workforce Indicators (QWI) database and calculate the year-average turnover ratio in the local commercial banking industry in each target county prior to the enactment of the IBBEA. The higher the turnover ratio is, the higher the mobility of local banking employees is. There is a significant negative correlation between the new local job turnover variable and the NC_score at the 1% confidence level. This correlation indicates that a restrictive non-compete enforcement limits the local interorganizational labor mobility. The negative correlation of -0.05 indicates that the labor mobility variable contains extra information that is not completely explained by the differences in the legal enforcement. I conjecture that banks are more likely to enter through branching in places with higher bank employee mobility, as the pattern indicates in Fig. 2.

As the county-level job turnover rates for the banking employees are time-varying, it is possible to use them to study banks' entry mode decisions across time. I analyze the relation between bank employees' turnover and outside banks' decisions of how to enter the market

using logit regressions. As mentioned earlier, a logit regression allows me to analyze different modes of entries into various market by the same bank while controlling for the characteristics of the target market and the entrant bank. All control variables and year fixed effects in the regression models of Table 3 are also controlled in the regression models of Table A2.[10] Column (1) of Table A2 shows that the lagged job turnover in local commercial banking sector is positively correlated with the likelihood that out-of-state banks entered through branching. The effect appears economically significant; the unconditional probability of a bank's entry through establishing branching is 7.7%. The marginal effect of -1.70 for bank entry mode choice indicates that a one standard deviation increase in the job turnover of local bank employees increases the probability of out-of-state banks to enter via branching by 55.2% (0.025*1.7/0.077).

I then conduct two additional tests using a sample split based on the level of information asymmetry faced by banks in the new market and conjecture that the effects concentrate in cases in which banks entered places facing higher information asymmetries. In addition to splitting the sample based on the short- versus long- home-target distance, I differentiate banks' initial entry in a new target county in the first year from the follow-up entries, as the analyses cover a longer period than the ones in Table 4. When banks enter a distant market or enter a market for the first time, they are likely to face a higher level of information asymmetries and have a higher need to obtain local information. I conjecture that the effects of local labor mobility on bank entry mode choice is stronger in those two cases. Column 2 shows that the positive effects of employee mobility on bank entry through branching are large in magnitude and highly significant when banks enter the county for the first year. In contrast, column 3 shows that the coefficient estimates for the job turnover is close to zero for cases in which banks enter counties after the first year. A similar contrast could be observed when comparing banks' entries into distant markets (column 4) versus into markets close by

[10]Similar to the model specification of Table 3, individual cross-sectional fixed effects are not included (Allison 2009, Greene 2004). As a robustness check, all results in Table A2 remain quantitatively and qualitatively similar when individual bank and target market fixed effects are included and when the regression is estimated using a linear probability model.

(column 5). The difference is also sizable: The relative size of marginal effects across the two columns indicates that given the same level of employee mobility in the target markets, the likelihood that banks set up new branches is 50% higher when entering distant markets compared with entering a market closer to home.

Thus, my earlier findings are most likely driven by banks' needs to acquire local knowledge, and the results vary across markets with different level of information asymmetry present.

5. Conclusion

Local information plays an important role in the financial industry, and a lack of direct access to critical information about the local credit market can act as an important barrier to nonlocals. In the past decades, the U.S. credit market has undergone a drastic development characterized by the nationwide expansion of banks that previously operated in their own segregated markets. The question of how local information access affects the process of credit market development has therefore become relevant. In this paper, I exploit the heterogeneity in non-compete enforcement as exogenous variations for out-of-market banks' access to local information. I conjecture that entry banks gain access to important local information by opening branches and poaching incumbent bank employees. However, if interorganizational labor mobility is restricted in the target market, entrant banks instead acquire incumbent branches to gain information access.

The main result shows a positive causal relation between the relaxation of non-compete enforcement in the local market and the likelihood that out-of-state banks enter the market via establishing new branches, and the effect is stronger when a bank enters a distant market or a market with more-opaque borrowers. Further evidence shows that compared with bank entries through M&As, entries via establishing branches contribute to a drop in bank concentration, an improvement in credit availability for local borrowers, and an immediate

adjustment of the mortgage lending rate by incumbent branches serving the same market. I conduct multiple robustness checks and the main results remain unchanged.

This study has important policy implications. First, findings of this paper highlight the importance of the local information accessibility channel that drives banks' choice of entry mode when expanding into new markets. Second, the results suggest that policymakers should take into account the role of local labor mobility in shaping the competitive landscape in credit market development. Future research is needed to understand the roles of other factors such as culture and management discretion in the process of banks' expansion.

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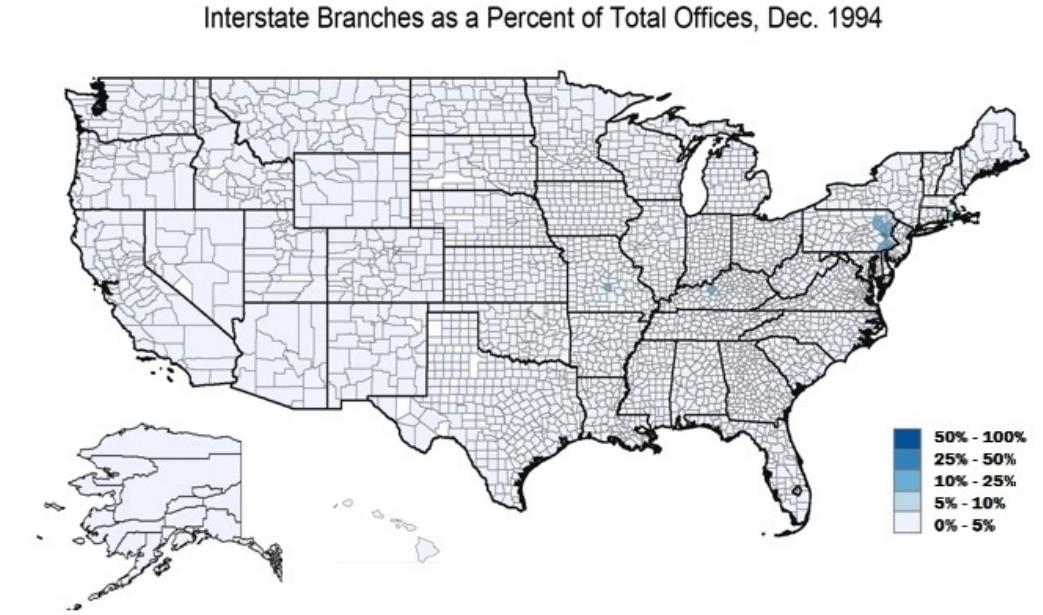
Figure 1: Changes in the Percentage of County Bank Branches Owned by Out-of-state Banks

This figure shows the percentage of bank branches owned by out-of-state banks in each county of the United States before and after the introduction of the Interstate Banking and Branching Efficiency Act (IBBEA) using the FDIC summary of deposit database. Lighter blue color indicates lower out-of-state bank ownership in the county, and darker blue indicates a higher percentage of local branches owned by out-of-state banks.



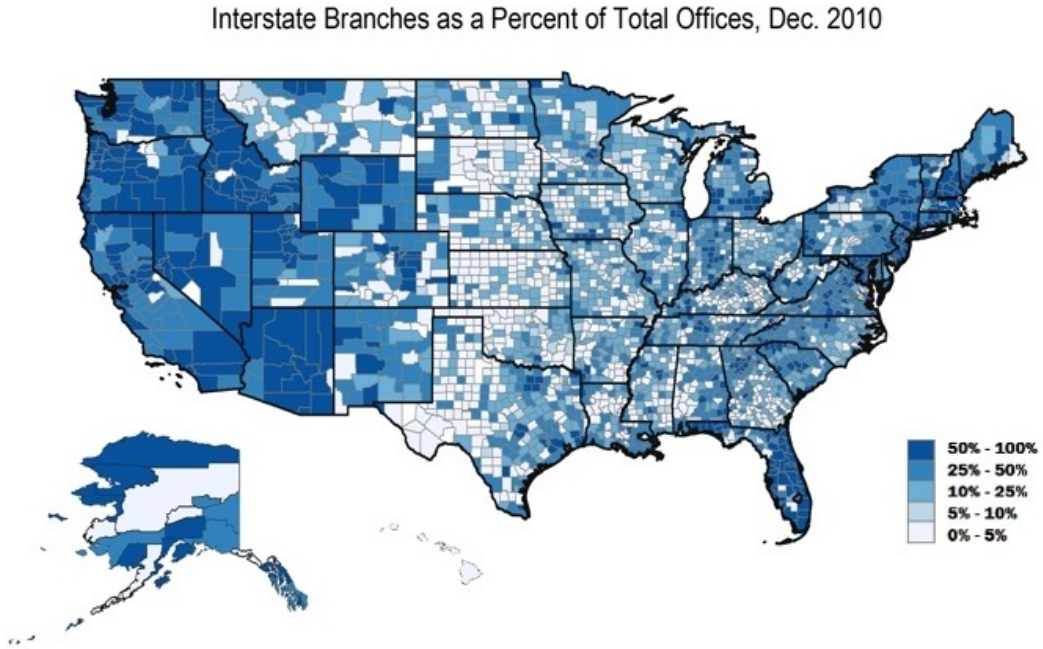
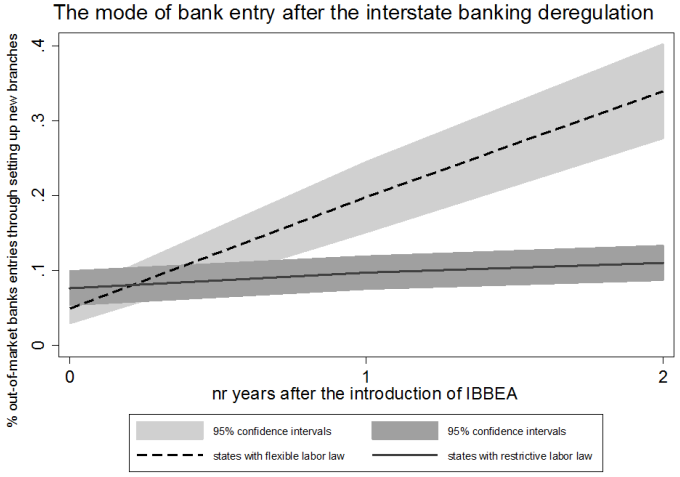


Figure 2: Changes in the Percentage of County Bank Branches Owned by Out-of-state Banks

This figure shows the relation between banks' entry modes and the local market flexibility during the first three years after bank deregulation. The x-axis shows the number of years after the introduction of the Interstate Banking and Branching Efficiency Act (IBBEA), and the y-axis shows the percentage of out-of-market banks' entries through setting up new branches, which is measured as the number of new branches established by out-of-state banks as a percentage of total number of out-of-state bank entries. The broken line shows the average percentage of bank entries through establishing branches in states with flexible labor laws, and the solid line shows the mean percentage of out-of-market banks' entries through establishing new branches in states with restrictive labor laws. The gray shaded areas illustrate the lower and upper bounds measured at a 95% confidence interval. In Figure 2a, the flexibility/restrictive labor market states are defined using the median split of the NC_score prior to the passage of IBBEA; in Figure 2b, the two groups of states are defined using the mean split of local job turnover in commercial banking industry prior to the passage of IBBEA.

a. States with flexible versus restrictive enforcement of non-compete covenants.



b. States with higher versus lower average labor turnover rate in the commercial banking industry.

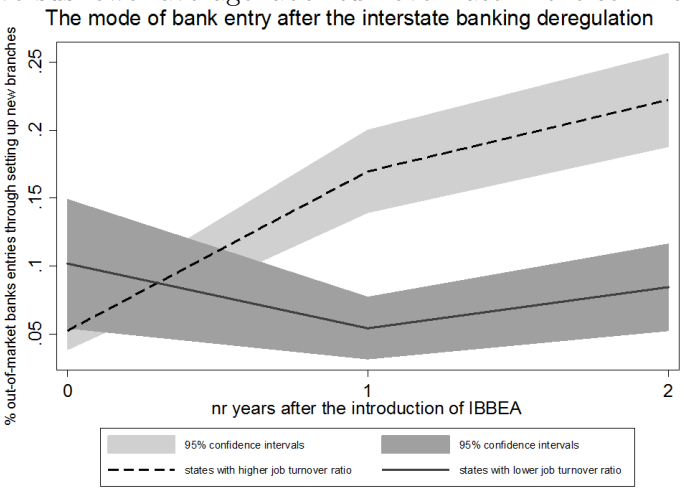


Table 1: Definitions of the Main Variables and Summary Statistics

TYPE	Variable	Definition	Mean	Median	S.D.
Local market characteristics *(source: U.S. Bureau of Economic Analysis, County Business Patterns database, Bureau of Labor Statistics, FDIC Summary of Deposit, House of Representatives)*					
	Local market size	Total number of establishment of the target state (in millions)	0.205	0.146	0.191
	Local bank competition	Herfindahl-Hirschman Index (HHI) calculated based on the deposit size size of the local banks of the target state	0.073	0.061	0.060
	Local per capita income	Per capita income of the target state (in thousands $)	30.868	30.351	6.116
	Average size of local firms	Average number of employees a firm has in the target state	15.463	15.847	1.808
	Political balance	Percentage of U.S. House of Representatives that are members of the Democratic Party in the target state	0.427	0.444	0.240
	Personal income growth rate	Percentage change in the personal income of the target county	0.041	0.040	0.058
	Total population	Total population of the target county (in millions)	0.093	0.025	0.303
Modes of bank entries *(source: FDIC Summary of Deposit, Scott Merryman (2005))*					
	Ratio of bank entries through branching	The number of out-of-state banks entries through establishing new branches as a percentage of total number of out-of-state bank entries (branching plus M&A) in a county	0.253	0	0.391
	Bank entry mode dummy	Equals to one if the out-of-state bank enters via setting up a new branch and zero if the bank enters through M&A with a local bank branch	0.177	0	0.382
	Nr of bank entries via branching	The number of out-of-state bank entries in the target county through establishing new branches	1.094	0	2.987
	Nr of bank entries via M&A	The number of out-of-state banks entries in the target county through acquiring existing local branches	5.068	2	11.516
Bank characteristics *(source: FDIC Call report)*					
	Bank age	Years since the date the bank or the oldest bank owned by the bank holding company was established	103.9	105.0	40.1
	Bank size	Bank total asset (in billions $)	0.230	0.084	0.327
	Bank liquidity	The ratio of cash to bank total deposit	0.078	0.068	0.243
	Bank ROA	The ratio of annualized net income to total asset	0.007	0.008	0.005
	Bank capital ratio	The ratio of the sum of bank tier 1and tier 2 capital to total assets	0.117	0.112	0.059

Local labor mobility
(source: Census QWI, Garmaise 2011, own readings of legal documents)

NC_score	The intensity of non-compete enforcement (Garmaise 2011)	4.383	5	1.801
Relaxation of non-compete enforcement	Diff-in-Diff indicator that takes value of one during period when state non-compete enforcement is relaxed and zero otherwise	0.017	0	0.129
Local job turnover in the commercial banking industry	Yearly average of $\frac{\text{number of hires in quarter}_t + \text{number of separations in quarter}_{t+1}}{\text{the full-quarter employment}}$ in the industry of "credit intermediation and related activity" (with the first three digits of NAICs codes of 522) of the target country	0.075	0.077	0.025

Credit market competition
(source: FFIEC CRA database, HMDA database, FDIC Summary of Deposit, RateWatch)

Bank concentration	The combined market share of the top three banks operated in a county based on the deposit size of the local banks of the target county	0.563	0.523	0.333
Amount of SME loans originated	Yearly aggregated amount of newly originated SME loans with original amounts of $1 million or less that were reported on the institution's Call Report or TFR as either "Loans secured by nonfarm or nonresidential real estate" or "Commercial and industrial loans" (in billions $)	0.071	0.011	0.257
Amount of mortgage loans granted	Yearly aggregated amount of mortgage loans granted in the target county (in billions $)	0.598	0.053	3.160
Approval rate for the mortgage loans	Yearly aggregated amount of mortgage loans granted in the target county as a percentage of the yearly aggregated amount of mortgage loans application filed within the county (in percentage points)	45.72	45.80	9.94
x-month Adjustment in incumbent branches' mortgage base rate after bank entries	Cumulative changes in the incumbent branches' base rate of 30-year fixed mortgage loans x months after bank entries (summary statistics are calculated using 1-month change)	-4.68	-1.04	33.31

Table 2: Non-Compete Enforcements and the Primary Mode of Bank Entries after Deregulation

This table presents estimated coefficients from OLS regressions of primary modes of out-of-state bank entries. The dependent variable is the number of out-of-state bank entries through establishing new branches as a percentage of total number of out-of-state bank entries (branching plus M&A) in a county. The incumbent bank employees' mobility is measured using NC_score, which reflects the intensity of non-compete enforcement prior to the IBBEA. The analyses are conducted using yearly data from January 1994 to December 2010 with independent variables lagged for one year. Models (1), (2), and (3) show banks' primary entry modes in counties one year, two years, and three years after the implementation of IBBEA, respectively. All other control variables are lagged one year prior to bank entries and defined in Table 1. Fixed effects are denoted at the bottom of the table, and robust standard errors are clustered at state level and are shown in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)
Dep. Var.: **Ratio of bank entries through branching**	in the first year after IBBEA	in the first two years after IBBEA	in the first three years after IBBEA
NC_score$_{Prior\ to\ the\ enactment\ of\ IBBEA}$	-0.015**	-0.027***	-0.010***
	(0.008)	(0.004)	(0.003)
State controls			
Local market size	-0.120	-0.296***	-0.145***
	(0.153)	(0.072)	(0.054)
Local bank competition	0.447	0.538**	0.669***
	(0.331)	(0.238)	(0.196)
Local per capita income	0.029***	0.024***	0.014***
	(0.006)	(0.004)	(0.003)
Average size of local firms	0.000	-0.018***	-0.007*
	(0.008)	(0.006)	(0.004)
Political Balance	0.163**	0.171***	0.021
	(0.070)	(0.053)	(0.036)
Country controls			
Personal income growth rate	0.019	0.051*	0.059***
	(0.028)	(0.028)	(0.023)
Total population	-0.532***	-0.082	-0.092
	(0.160)	(0.113)	(0.080)
Year f.e.	yes	yes	yes
Adjusted R^2	0.110	0.105	0.050
Number of obs.	744	1,454	2,306

Table 3: Non-Compete Enforcements and Banks' Entry Modes Decision after Deregulation

This table presents coefficient estimates from logistic regressions of banks' entry mode decision on local labor mobility. The dependent variable of bank entry dummy equals one if the out-of-state bank enters via establishing branches and zero if the bank enters through M&A with a local bank branch, conditional upon each time of an out-of-state bank's entry. The incumbent bank employees' mobility is measured using NC_score, which reflects the intensity of non-compete enforcement prior to the IBBEA. The analyses cover a period from January 1994 to December 2010 and are conducted at the bank-entry level with independent variables lagged for one year. Models (1), (2), and (3) are conducted with bank entries over the periods of one year, two years, and three years after the implementation of IBBEA, respectively. All other control variables are lagged one year prior to bank entries and defined in Table 1. Marginal effects with associated significance for the NC_score are reported in square brackets. Fixed effects are denoted at the bottom of the table, and robust standard errors are clustered at state level and are shown in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)
Dep. Var.: **Bank entry mode dummy**	Banks' entry mode choice in the first year after IBBEA	Banks' entry mode choice in the first two years after IBBEA	Banks' entry mode choice in the first three years after IBBEA
$\text{NC\_score}_{\textit{Prior to the enactment of IBBEA}}$	-0.311***	-0.158***	-0.042
	(0.115)	(0.045)	(0.045)
	[-0.020**]	[-0.013***]	[-0.003]
State controls			
Local market size_{t-1}	1.727	0.425	-0.091
	(1.799)	(0.932)	(0.814)
Local bank competition_{t-1}	11.661***	12.069***	8.572**
	(0.952)	(3.630)	(3.509)
Local per capita income_{t-1}	0.253***	0.114***	0.072*
	(0.055)	(0.035)	(0.040)
Average size of local firms_{t-1}	0.085***	-0.083	-0.034
	(0.015)	(0.92)	(0.059)
Political Balance_{t-1}	-0.911	-0.927	-1.251
	(1.338)	(0.792)	(0.778)
County controls			
Personal income growth rate_{t-1}	0.287	7.008**	5.051*
	(4.900)	(2.743)	(2.821)
Total population_{t-1}	-0.071	0.092*	0.168***
	(0.079)	(0.053)	(0.063)
Entrant bank controls			
Bank age_{t-1}	0.030**	0.011	0.007
	(0.014)	(0.010)	(0.009)
Bank size_{t-1}	2.083	-2.906**	0.008
	(5.045)	(1.482)	(2.030)
Bank liquidity_{t-1}	-5.371	-0.971	-7.9
	(9.571)	(5.503)	(6.058)
Bank ROA_{t-1}	-271.224	-281.802**	-170.478
	(181.226)	(119.371)	(104.358)
Bank capital ratio_{t-1}	4.584	6.431	10.114
	(14.100)	(3.962)	(9.882)
Year f.e.	yes	yes	yes
McFadden Adjusted R^2	0.140	0.091	0.052
Number of obs.	4,695	9,186	14,076

Table 4: Home-Target Distance and Banks' Entry Mode Decisions after Deregulation

This table presents coefficient estimates from logistic regressions of banks' entry mode decisions on local labor mobility. The dependent variable of bank entry dummy equals one if the out-of-state bank enters via establishing branches and zero if the bank enters through M&A with a local bank branch, conditional upon each time of an out-of-state bank's entry. The incumbent bank employees' mobility is measured using NC_score, which reflects the intensity of non-compete enforcement prior to the IBBEA. The analyses cover a period from January 1994 to December 2010 and are conducted at the bank-entry level with independent variables lagged for one year. Models (1), (2), and (3) are conducted with bank entries over the period of one year, two years, and three years after the implementation of IBBEA, respectively. All other control variables are lagged one year prior to bank entries and are defined in Table 1. Marginal effects with associated significance for the NC_score are reported in square brackets. Fixed effects are denoted at the bottom of the table, and robust standard errors are clustered at state level and are shown in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
Dep. Var.: **Bank entry mode dummy**	Longer home-target distance	Shorter-home target distance
NC_score$_{Prior\ to\ the\ enactment\ of\ IBBEA}$	-0.169***	-0.075
	(0.063)	(0.098)
	[-0.013***]	[-0.006]
State controls		
Local market size$_{t-1}$	2.062	0.044
	(1.275)	(1.367)
Local bank competition$_{t-1}$	14.522***	5.082
	(5.022)	(6.596)
Local per capita income$_{t-1}$	0.075*	0.060
	(0.041)	(0.055)
Average size of local firms$_{t-1}$	-0.186*	0.116
	(0.107)	(0.187)
Political Balance$_{t-1}$	-0.639	-2.520**
	(0.955)	(1.245)
County controls		
Personal income growth rate$_{t-1}$	5.956	6.311**
	(4.343)	(2.937)
Total population$_{t-1}$	0.081	0.214***
	(0.062)	(0.038)
Entrant bank controls		
Bank age$_{t-1}$	0.016*	-0.001
	(0.009)	(0.009)
Bank size$_{t-1}$	2.756	-3.748
	(2.232)	(3.347)
Bank liquidity$_{t-1}$	-15.333**	-2.908
	(6.646)	(5.043)
Bank ROA$_{t-1}$	-118.119	-298.623*
	(115.095)	(169.780)
Bank capital ratio$_{t-1}$	14.414	4.582
	(9.675)	(8.402)
Year f.e.	yes	yes
McFadden Adjusted R^2	0.100	0.068
Number of obs.	7,325	6,751

Table 5: The Effect of Changes in the Local Non-compete Enforcement on the Primary Modes of Bank Entries

The table presents coefficient estimates from difference-in-differences (DD) analyses of the changes in the primary modes of out-of-state bank entries after changes in non-compete enforcement. The dependent variable is the number of out-of-state banks' entries through establishing new branches as a percentage of total number of out-of-state bank entries (branching plus M&A) in a county. The coefficients on (Placebo) relaxation of non-compete enforcement capture the difference-in-differences estimate of the effect of the (fictitious) relaxation of the non-compete enforcement on out-of-state banks' interstate entry mode choice. Models (1) to (3) are conducted using all counties in the sample, and Model (4) is conducted using only contiguous counties on the border of law-changed states and neighboring states to control for the unobserved variable bias. The analyses are conducted using yearly data that cover the period from January 1994 to December 2010. All other control variables are lagged one year prior to bank entries and defined in Table 1. Fixed effects are denoted at the bottom of the table, and robust standard errors are clustered at state level and are shown in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
Dep. Var.: **Ratio of bank entries through branching**	All counties in the U.S.			Contiguous counties on the border of the law-change states and neighboring states
Placebo Relaxation of non-compete enforcement *one year before* the change$_{t-1}$	0.04 (0.103)			
Relaxation of non-compete enforcement$_{t-1}$		0.373*** (0.103)		0.323*** (0.111)
Placebo Relaxation of non-compete enforcement *one year after* the change$_{t-1}$			0.075 (0.088)	
State controls				
Local market size$_{t-1}$	-0.231 (0.146)	-0.273* (0.159)	-0.236 (0.147)	-0.6 (0.416)
Local bank competition$_{t-1}$	0.650* (0.380)	0.635 (0.381)	0.659* (0.374)	0.579 (0.576)
Local per capita income$_{t-1}$	-0.016 (0.010)	-0.019* (0.010)	-0.016 (0.010)	-0.025 (0.026)
Average size of local firms$_{t-1}$	0.105** (0.045)	0.112** (0.044)	0.104** (0.046)	-0.037 (0.094)
Political Balance$_{t-1}$	0.093 (0.085)	0.098 (0.088)	0.093 (0.085)	0.327** (0.156)
County controls				
Personal income growth rate$_{t-1}$	-0.001 (0.211)	0.007 (0.205)	-0.001 (0.212)	0.063 (0.560)
Total population$_{t-1}$	0.023 (0.145)	0.042 (0.146)	0.025 (0.146)	0.508 (1.225)
County f.e.	yes	yes	yes	yes
Neighboring county paired f.e.	no	no	no	yes
Year f.e.	yes	yes	yes	yes
Within-sample R^2	0.084	0.089	0.084	0.317
Number of counties	2,309	2,309	2,309	129
Number of obs.	9,553	9,553	9,553	1,407

Table 6: Differential Effects of Local Information Asymmetry on the Primary Modes of Bank Entries

The table presents coefficient estimates from difference-in-differences (DD) analyses of the cross-sectional variation in the changes of the primary modes of out-of-state bank entries into countries with different levels of information asymmetries after changes in non-compete enforcement. The dependent variable is the number of out-of-state banks' entries through establishing new branches as a percentage of total number of out-of-state bank entries (branching plus M&A) in a county. Models (1) and (2) are conducted using all counties in the sample, and Models (3) and (4) are conducted using only contiguous counties on the border of law-changed states and neighboring states to control for the unobserved variable bias. The analyses are conducted using yearly data that cover the period from January 1994 to December 2010. All other control variables are lagged one year prior to bank entries and defined in Table 1. Fixed effects are denoted at the bottom of the table, and robust standard errors are clustered at state level and are shown in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
Dep. Var.: **Ratio of bank entries through branching**	All counties in the U.S.		Contiguous counties on the border of the law-change states and neighboring states	
Relaxation of non-compete enforcement$_{t-1}$	0.329***	0.352***	0.195*	0.207**
	(0.097)	(0.084)	(0.111)	(0.079)
Dummy percentage number of small business loans	-0.018		-0.056	
	(0.027)		(0.099)	
Dummy percentage dollar amount of small business loans		-0.023		0.019
		(0.021)		(0.070)
Relaxation of non-compete enforcement$_{t-1}\times$ Dummy percentage number of small business loans	0.255***		0.346***	
	(0.042)		(0.096)	
Relaxation of non-compete enforcement$_{t-1}\times$ Dummy percentage dollar amount of small business loans		0.162**		0.230**
		(0.066)		(0.086)
State controls				
Local market size$_{t-1}$	-0.262	-0.26	-0.765*	-0.762*
	(0.157)	(0.158)	(0.410)	(0.406)
Local bank competition$_{t-1}$	0.641	0.726	0.424	0.799
	(0.462)	(0.484)	(0.730)	(0.939)
Local per capita income$_{t-1}$	-0.014	-0.014	-0.005	-0.008
	(0.011)	(0.011)	(0.025)	(0.024)
Average size of local firms$_{t-1}$	0.135***	0.134***	-0.082	-0.064
	(0.047)	(0.047)	(0.136)	(0.131)
Political Balance$_{t-1}$	0.097	0.096	0.336	0.308
	(0.112)	(0.112)	(0.202)	(0.211)
County controls				
Personal income growth rate$_{t-1}$	-0.007	-0.019	0.11	-0.111
	(0.203)	(0.200)	(1.007)	(0.927)
Total population$_{t-1}$	-0.179	-0.168	-1.609	-1.441
	(0.223)	(0.223)	(1.917)	(1.928)
County f.e.	yes	yes	yes	yes
Neighboring county paired f.e.	no	no	yes	yes
Year f.e.	yes	yes	yes	yes
Within-sample R^2	0.094	0.093	0.343	0.33
Number of obs.	9,003	9,003	1,114	1,114

Table 7: Bank Entry Modes and Credit Market Competition

The table presents coefficient estimates from panel regressions of the local credit market competition after out-of-state bank entries with different modes. The tests show the effects of the percentage of total numbers of bank entries through branching on the local credit market in 1994 to 2010. The dependents are measured at the county level and capture the concentration of the local banking sector, dollar amount of small business loans originated, dollar amount of mortgage loans originated, and the approval rate of mortgage loans applications, respectively. All other control variables are lagged one year prior to bank entries and defined in Table 1. Fixed effects are denoted at the bottom of the table, and robust standard errors are clustered at state level and are shown in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
Dep. Var.:	Bank concentration	Amount of SME loans originated	Amount of mortgage loans granted	Approval rate for the mortgage loans
Bank entries				
Ratio of bank entries through branching$_{t-1}$	-0.007**	0.011**	0.443***	0.459***
	(0.003)	(0.005)	(0.126)	(0.108)
State controls				
Local market size$_{t-1}$	0.194	-0.206**	-5.740***	0.087
	(0.142)	(0.084)	(1.971)	(0.962)
Local bank competition$_{t-1}$	0.166***	-0.067	1.338	1.559
	(0.061)	(0.090)	(2.721)	(2.115)
Local per capita income$_{t-1}$	0.003*	0.001	-0.066*	-0.605***
	(0.002)	(0.002)	(0.035)	(0.061)
Average size of local firms$_{t-1}$	-0.003	0.006	0.991***	1.895***
	(0.007)	(0.008)	(0.210)	(0.264)
Political Balance$_{t-1}$	-0.031	0.043**	0.977***	3.402***
	(0.022)	(0.020)	(0.379)	(0.764)
County controls				
Personal income growth rate$_{t-1}$	0.02	0.553***	1.58	9.011***
	(0.042)	(0.132)	(1.641)	(2.245)
Total population$_{t-1}$	-0.091***	1.657***	12.579	-15.164***
	(0.033)	(0.633)	(9.777)	(3.445)
County f.e.	yes	yes	yes	yes
Year f.e.	yes	yes	yes	yes
Adjusted R^2	0.069	0.232	0.116	0.548
Number of obs.	8,266	8,809	8,809	8,809

Table 8: Reactions of Incumbent Branches' Adjusting Mortgage Lending Rate to Bank Entries

The table presents coefficient estimates from panel regressions of changes in incumbent branches' mortgage lending base rate after out-of-state bank entries with different modes. The tests show the cumulative adjustments in the 30-year fixed mortgage loan base rate by local incumbent branches during the first month following bank entries into the local market (county) with either entry mode, as well as the changes in the base rates during the first 3 months, 6 months, and 12 months after bank entries. All other control variables are lagged one year prior to bank entries and defined in Table 1. Fixed effects are denoted at the bottom of the table, and robust standard errors are clustered at the state level and are shown in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
Dep. Var.:	1-month adjustment in incumbent branches' mortgage base rate after bank entries	3-month adjustment in incumbent branches' mortgage base rate after bank entries	6-month adjustment in incumbent branches' mortgage base rate after bank entries	12-month adjustment in incumbent branches' mortgage base rate after bank entries
Bank entries				
Nr of bank entries via branching	-0.550**	-0.571	1.067	-1.039
	(0.242)	(0.454)	(0.822)	(0.983)
Nr of bank entries via M&A	0.077***	-0.036	-0.001	0.095***
	(0.024)	(0.075)	(0.059)	(0.036)
State controls				
Local market size$_{t-1}$	-88.320*	-84.364	-290.376***	-270.928***
	(48.213)	(78.706)	(78.992)	(86.601)
Local bank competition$_{t-1}$	125.477***	62.231	152.879	241.469***
	(44.537)	(63.638)	(109.04)	(87.458)
Local per capita income$_{t-1}$	-0.864	0.437	2.586**	3.676***
	(0.674)	(0.918)	(1.138)	(1.385)
Average size of local firms$_{t-1}$	2.644	5.886*	4.22	5.561
	(2.149)	(3.308)	(3.428)	(4.723)
Political Balance$_{t-1}$	-7.206	-19.217*	-35.155***	-37.088***
	(8.606)	(10.008)	(12.880)	(13.641)
County controls				
Personal income growth rate$_{t-1}$	15.524	24.094	2.988	31.278
	(10.484)	(15.937)	(15.229)	(22.280)
Total population$_{t-1}$	-0.019	0.104	-0.029	1.387
	(0.546)	(0.621)	(0.883)	(1.349)
Incumbent bank controls				
Bank age$_{t-1}$	2.124**	2.803**	1.568	6.061***
	(0.866)	(1.229)	(1.799)	(1.874)
Bank size$_{t-1}$	-3.803	-25.649***	-42.009***	-29.414**
	(3.729)	(9.015)	(10.296)	(11.680)
Bank liquidity$_{t-1}$	-24.112	28.67	-28.562	-23.007
	(17.486)	(38.960)	(50.709)	(31.374)
Bank ROA$_{t-1}$	-149.296	39.884	-356.249	-250.814
	(246.271)	(268.896)	(387.855)	(650.319)
Bank capital ratio$_{t-1}$	107.97	106.221	334.617***	293.396***
	(68.830)	(95.000)	(93.404)	(79.076)
Incumbent bank f.e.	yes	yes	yes	yes
County f.e.	yes	yes	yes	yes
Year f.e.	yes	yes	yes	yes
Adjusted R^2	0.081	0.175	0.314	0.462
Number of obs.	11,695	11,457	10,812	9,704

Appendix A.1: Placebo Tests of the Effect of Fictitious Changes in the Non-compete Enforcement

The table presents coefficient estimates from difference-in-differences (DD) analyses of the fictitious changes in the primary modes of out-of-state bank entries after changes in non-compete enforcement. I run placebo tests in which I create fictitious changes in non-compete enforcement that have taken place two and three years before the real changes in the four states, and I test their effects on bank entry mode. The dependent variable is the number of out-of-state banks entries through establishing new branches as a percentage of total number of out-of-state bank entries (branching plus M&A) in a county. The coefficients on Placebo relaxation of non-compete enforcement capture the difference-in-differences estimate of the effect of the fictitious relaxation of the non-compete enforcement on out-of-state banks' interstate entry mode choice. Models (1) and (2) are conducted using all counties in the sample, and Models (3) and (4) are conducted using only contiguous counties on the border of law-changed states and neighboring states to control for the unobserved variable bias. The analyses are conducted using yearly data that cover the period from January 1994 to December 2010. All other control variables are lagged one year prior to bank entries and defined in Table 1. Fixed effects are denoted at the bottom of the table, and robust standard errors are clustered at state level and are shown in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
Dep. Var.:	All counties in the U.S.		Contiguous counties on the border of the law-change states and neighboring states	
Ratio of bank entries through branching				
Placebo Relaxation of non-compete enforcement *three* year before the change$_{t-1}$	-0.025		-0.146*	
	(0.059)		(0.083)	
Placebo Relaxation of non-compete enforcement *two* year before the change$_{t-1}$		-0.025		-0.049
		(0.071)		(0.091)
State controls				
Local market size$_{t-1}$	-0.224	-0.223	-0.165	-0.218
	(0.149)	(0.148)	(0.398)	(0.372)
Local bank competition$_{t-1}$	0.662*	0.664*	0.667	0.615
	(0.377)	(0.380)	(0.701)	(0.682)
Local per capita income$_{t-1}$	-0.015	-0.016	-0.015	-0.02
	(0.011)	(0.011)	(0.024)	(0.024)
Average size of local firms$_{t-1}$	0.102**	0.102**	-0.129	-0.099
	(0.046)	(0.046)	(0.104)	(0.100)
Political Balance$_{t-1}$	0.092	0.092	0.288*	0.276
	(0.085)	(0.085)	(0.163)	(0.164)
County controls				
Personal income growth rate$_{t-1}$	-0.005	-0.005	0.131	0.156
	(0.213)	(0.213)	(0.575)	(0.578)
Total population$_{t-1}$	0.018	0.018	1.178	0.934
	(0.145)	(0.146)	(1.334)	(1.323)
County f.e.	yes	yes	yes	yes
Neighboring county paired f.e.	no	no	yes	yes
Year f.e.	yes	yes	yes	yes
Within-sample R^2	0.084	0.084	0.308	0.3
Number of counties	2309	2309	129	129
Number of obs.	9553	9553	1407	1407

Appendix A.2: Local Labor Mobility and the Banks' Entry Mode Decision

This table presents coefficient estimates from logistic regressions of banks' entry mode decisions on local labor mobility. The dependent variable of bank entry dummy equals one if the out-of-state bank enters via establishing branches and zero if the bank enters through M&A with a local bank branch, conditional upon each time of an out-of-state bank's entry. I measure the incumbent bank employees' mobility using the lagged (by one year) actual local job turnover in commercial banking industry. The analyses cover a period from January 1994 to December 2010 and are conducted at the bank-entry level with independent variables are lagged one year. Marginal effects with associated significance for the job turnover variable are reported in square brackets. All other control variables are lagged one year prior to bank entries and defined in Table 1. Fixed effects are denoted at the bottom of the table, and robust standard errors are clustered at state level and are shown in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
Dep. Var.: **Bank entry mode dummy**	Full sample	Entries in the first year	Entries in the following years	Longer home-target distance	Shorter home-target distance
Job turnover in local commercial banking sector$_{t-1}$	12.070***	7.519***	-0.069	14.432***	10.088***
	(1.696)	(1.651)	(3.719)	(2.609)	(1.997)
	[1.700***]	[0.472***]	[-0.139]	[2.029***]	[1.338***]
State controls					
Local market size$_{t-1}$	0.408	0.57	0.12	0.503	0.293
	(0.337)	(0.477)	(0.532)	(0.507)	(0.419)
Local bank competition$_{t-1}$	1.454	1.445	1.415	1.838	-2.17
	(0.928)	(0.901)	(1.520)	(1.360)	(1.366)
Local per capita income$_{t-1}$	-0.007	0.012	-0.030	-0.006	-0.018
	(0.017)	(0.019)	(0.024)	(0.026)	(0.016)
Average size of local firms$_{t-1}$	0.030	0.093*	-0.063	0.106**	-0.133*
	(0.052)	(0.052)	(0.039)	(0.053)	(0.068)
Political Balance$_{t-1}$	0.130	0.753**	-0.089	-0.169	0.199
	(0.153)	(0.372)	(0.356)	(0.194)	(0.347)
County controls					
Personal income growth rate$_{t-1}$	0.855	-1.766	-0.707	2.287**	-2.870**
	(0.804)	(1.973)	(2.352)	(1.155)	(1.233)
Total population$_{t-1}$	0.051**	-0.120**	0.048	0.028	0.082**
	(0.025)	(0.047)	(0.040)	(0.025)	(0.038)
Entrant bank controls					
Bank age$_{t-1}$	-0.006**	-0.015***	-0.006	-0.006*	-0.005
	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
Bank size$_{t-1}$	-0.166	-1.251***	0.374	-0.021	-0.076
	(0.286)	(0.328)	(0.388)	(0.495)	(0.473)
Bank liquidity$_{t-1}$	-0.418	0.332	-10.527	-0.489**	-0.816
	(0.393)	(2.728)	(6.529)	(0.225)	(0.504)
Bank ROA$_{t-1}$	71.55	136.251**	-14.438	150.648**	-21.801
	(46.513)	(61.541)	(37.785)	(67.175)	(32.144)
Bank capital ratio$_{t-1}$	3.128	1.341	16.07	0.751	12.084**
	(3.979)	(1.498)	(10.602)	(1.061)	(6.164)
Year f.e.	yes	yes	yes	yes	yes
McFadden Adjusted R^2	0.085	0.147	0.16	0.139	0.068
Number of obs.	50,446	32,140	18,306	25,010	25,436