

## The impact of geographic expansion in banking: Some axioms to grind

*Douglas D. Evanoff and Diana Fortier*

In recent years the potential impact of relaxing geographic restrictions on banking organizations has been actively debated. Proponents argue that the ability to expand into new markets will produce efficiencies enabling banks to offer improved services at preferred prices. Opponents counter that expansion will result in increases in concentration and market power leading to higher prices and inferior service, and, eventually, impairing the safety and soundness of the industry. The opposing groups have supported their positions relentlessly with the same unchanging arguments. As a result there have evolved several almost axiomatic statements concerning the impact of relaxed geographic restrictions.

This article provides evidence on the validity of a number of these popular "axioms." Past research on geographic barriers to intrastate expansion is reviewed and new evidence is introduced to determine whether these popular conceptions are sound or are overstated arguments. The findings should aid legislators and may help the industry avoid the continual imposition of inefficient market restrictions aimed at avoiding situations which, in fact, have little probability of occurring.

Among the arguments commonly presented in opposition to geographic expansion in banking are: 1) Geographic expansion will lead to significant increases in market concentration. Over time, a relatively small number of institutions will gain control of the local marketplace. 2) Antitrust legislation is not effective in curtailing concentration increases in banking. 3) Banking organizations which compete with each other in a number of markets will, in effect, collude with one another by avoiding aggressive competition in one market, expecting similar behavior by rival firms in other markets (the mutual forbearance hypothesis). 4) Small banks are not able to compete with large banking organizations. Therefore, if increased geographic expansion is allowed, a significant number of bank failures will occur, and the number of small independent banks will significantly decline. 5) Re-

moving restrictions on geographic expansion will lead to excessive market power resulting in an inferior level of banking services. 6) Allowing expansion will lead to higher bank service prices. 7) Service accessibility will decline if geographic expansion is allowed. Additionally, the number of bank alternatives from which financial services can be obtained will decline. 8) Geographic expansion will not significantly aid, and may actually hinder, rural areas because expansion will take place only in more attractive urban markets.

The recent development of regional banking compacts, modified state laws, interstate stakeout agreements, and limited service banks has heightened the controversy over the validity of the preceding statements. The evidence presented here indicates that some of the arguments posed against geographic expansion have little basis in reality.

### **Axiom #1: Market structure will become significantly more concentrated.**

Perhaps the foremost concern with respect to interstate banking is the potential for increased concentration of banking resources. An aversion to the concentration of financial and economic resources has been a major theme in the history of the United States and was in part the impetus behind the Sherman and Clayton Acts and, with respect to banking, the Bank Holding Company Act (BHC Act). The major goals of the BHC Act are the prevention of an undue concentration of resources and the preservation of competition in banking.

Economic theory holds that increased concentration results in reduced competition. That, in turn, leads to a suboptimal allocation of resources and a distortion in the distribution

---

Douglas D. Evanoff is a senior financial economist and Diana Fortier is a regulatory economist at the Federal Reserve Bank of Chicago. A more comprehensive discussion of issues related to geographic expansion in banking can be found in *Toward Nationwide Banking*, Federal Reserve Bank of Chicago, 1986.

of income. That is, the probability of non-competitive behavior can be inferred from the number and size distribution of firms in the market.<sup>1</sup> This perceived relationship prompted antitrust legislation to prevent the concentration of markets and the resulting higher prices, higher profits, inferior services, and reduced output. The adverse effects associated with concentration are of particular concern in markets where customers are limited to local service providers. In banking this primarily means the market for retail financial services since the wholesale market (e.g., corporate loans) is already regional or national in scope.<sup>2</sup>

The ultimate impact of geographic barrier removal depends on two opposing forces. First, barriers create an anticompetitive environment by preventing new entry into a market. Lifting them should result in increased potential and actual market entry. Potential entry is important because the mere threat of new entry may be sufficient to induce procompetitive behavior. Markets in which firms continue to behave anti-competitively would soon be serviced by new entrants.

Most bank expansion occurs, however, through acquisition, rather than *de novo*. This creates a concern that the elimination of entry constraints may lead to extensive acquisition activity, increased concentration, and possibly collusion among large institutions. Although these two opposite considerations pose a dilemma, numerous studies generally support the hypothesis that a relaxation of geographic restrictions has procompetitive effects.<sup>3</sup>

The removal of geographic restrictions is expected to affect concentration of the industry at the national and/or state level differently than that at the local market level. For our analysis, the impact at the local market level is most relevant because measures at broader levels can frequently mask the local situation. For example, the concentration level could, hypothetically, be 100% in all local banking markets (i.e., controlled by one firm) but be relatively low at the state level. To analyze local market conditions, nonmetropolitan county and metropolitan area boundaries were used as approximations of banking markets in the United States.

Between 1970 and 1983 the Herfindahl-Hirschman Index (HHI), a measure of local market concentration, declined significantly; see Table 1. This decline occurred in local

markets regardless of branching restrictions. However, the greatest deconcentration occurred in areas allowing relatively liberal branching.<sup>4</sup>

A closer evaluation of the variation in the HHI between areas with different branching laws indicates that the absolute level of concentration was essentially the same in 1983 irrespective of branching status. However, this is a substantial change from earlier years. In 1970, local markets allowing branching were significantly more concentrated than were markets permitting unit banks only. Over the next ten years the decline in concentration in branching markets was much greater than the decline on average. Apparently, increased market entry, a result of the ability to branch, served to generate the current lower levels of concentration.

The data in Table 1 also indicate the absolute level of concentration differed substantially between metro and non-metro markets. The average HHI has historically been approximately 50 percent lower for metro areas because these markets are better able to support a larger number of competitors. The relatively smaller number of competitors in non-metro areas results in a comparatively high HHI. However, regardless of the absolute levels of concentration, both types of markets have experienced a decline in concentration.

The impact of branching has also been different in metropolitan and nonmetropolitan areas. The variation in the average HHI between markets with different branching status is rather minimal in nonmetro areas. However, the index is significantly lower for metro markets in unit banking states than for those in branching states. This difference has declined over time as the metro markets allowing branching have experienced the greatest concentration decline.

The HHI is a comprehensive measure of market concentration in that it takes into account the market shares of all firms in a market. Alternatively, the one-, three-, and five-firm concentration ratios consider only the largest firms in the market. These ratios are, however, the more commonly reported statistic.

An analysis of concentration in local markets using the three-firm concentration ratio, C3, produced results very similar to those found using the HHI. The concentration trend has been downward with the greatest declines

**Table 1**  
**Local market structure data by branching status**

Type of market	Concentration measure & year	All states <sup>1</sup>			States not changing branching status <sup>1</sup>			States changing branching status <sup>1</sup>			
		All states	Statewide	Limited	Unit	All states	Branching	Unit Banking	All states	Limited	Statewide
All markets	1970	4441	4918*	4387	4267	4594	4693†	4466	3895	3306	5098
	1980	4081	4054	3979*	4226	4224	4223†	4226	3569	3140	4036
	1983	4013	3946	3947	4141	4143	4145†	4140	3546	3132	3995
C3	1970	88.6%	93.2%*	88.5%*	86.6%	90.0%	91.2†	88.5%	83.4%	78.8%	94.7%
	1980	87.0%	87.4%	86.6%	87.1%	88.4%	89.4%†	87.1%	81.8%	78.3%	85.6%
	1983	86.6%	86.8%	86.6%	86.6%	88.0%	89.1%†	86.6%	81.7%	78.2%	85.5%
Nonmetropolitan counties	1970	4706	5257*	4708*	4468	4856	5018†	4659	4153	3402	5213
	1980	4341	4489	4187*	4426	4483	4531†	4426	3818	3238	4535
	1983	4269	4367	4154	4340	4398	4444†	4340	3797	3236	4490
C3	1970	90.7%	95.3%*	91.1%*	88.4%	92.0%	93.6†	90.1%	85.8%	79.7%	95.3%
	1980	89.5%	91.8%*	88.5%*	89.2%	90.8%	92.2†	89.2%	84.7%	79.4%	91.2%
	1983	89.2%	91.3%*	88.5%	88.8%	90.5%	91.9†	88.8%	84.7%	79.4%	91.2%
Metropolitan areas	1970	2297	2731*	2293*	1973	2368	2514	2035	2081	2038	2837
	1980	1972	2024*	2077*	1711	2024	2161†	1711	1815	1842	1801
	1983	1933	1986*	2065*	1625	1982	2139†	1625	1782	1771	1786
C3	1970	71.5%	79.2%*	71.0%	66.4%	73.1%	75.5†	67.6%	66.7%	66.9%	81.7%
	1980	66.2%	66.8%*	68.6%*	61.2%	67.6%	70.5†	61.2%	61.7%	63.5%	61.0%
	1983	65.5%	65.7%*	68.8%*	59.6%	67.0%	70.2†	59.6%	61.0%	62.4%	60.4%

<sup>1</sup> States changing branching laws refers to those changing status between 1960 and 1983. (In 1960 there were 16 statewide, 16 limited and 18 unit banking states. In 1970 there were 19 statewide, 16 limited and 15 unit banking states. In 1980 there were 23 statewide, 16 limited and 11 unit banking states. In 1980 and 1983 there were 23 statewide, 16 limited and 11 unit banking states. States changing from unit to limited were Arkansas, Iowa, Minnesota, and Wisconsin. States changing from limited to statewide were New Hampshire, New Jersey, New York, Maine, and Virginia. Florida changed from unit to limited in 1977 and from limited to statewide in 1980. South Dakota changed from unit to statewide in 1988.) Metropolitan areas crossing states with different branching laws in any year were deleted from the sample. The same number of markets were analyzed for each year by branching status in the given year.

\*Mean for statewide or limited branching states is significantly different at the .05 level from the mean for the given year for unit banking states.

†Mean for branching states not changing branching laws is significantly different at the .05 level from the mean for branching states changing status (i.e., status changing from unit to limited or statewide, and from limited to statewide).

SOURCE: FDIC Summary of Deposit data as of June 30, 1970, 1980 and 1983.

in markets with liberalized branching laws. The only apparent difference is the amount of decline in concentration in nonmetropolitan areas. The C3 would not detect entry unless the entrants obtained a significant share of the market. The HHI, however, would account for a new entrant regardless of the market share obtained. This difference between the measures produces a significant decline in the HHI in nonmetropolitan areas over the period examined without a corresponding significant decline in the C3. Given this difference, the HHI may be the preferred measure of market concentration.<sup>5</sup>

Trends toward increased concentration are of prime concern in markets that are already highly concentrated. Separating local markets by level of concentration (based on HHI data not presented in the tables) shows that highly and moderately concentrated markets became less concentrated between 1970 and 1983. This is true regardless of branching status or changes in branching laws. Moreover, the number of highly concentrated local markets has fallen, and, correspondingly, the number of moderately concentrated local markets has increased.

The above analysis of concentration uses the traditional cluster approach in that it includes only commercial banks as purveyors of the relevant line of commerce. As a result of deregulation and technological developments, other depository institutions compete or have the ability to compete with commercial banks along several service lines. The inclusion of these additional organizations in the relevant line of commerce, in particular, thrifts, will alter absolute concentration measures. In most cases it is expected to lower the level of concentration without affecting the general downward trend in local market concentration.<sup>6</sup>

In summary, concentration in banking has decreased over time. Markets in branching states have shown a greater decrease than have unit banking markets. Concentration levels in non-metropolitan markets do not differ significantly with branching status. However, concentration in metropolitan areas is higher when branching is allowed. Yet, it is in these very markets that concentration decreases have been the greatest.

## **Axiom #2: Antitrust laws are not effective in preventing concentration increases.**

The existing evidence does not support the hypothesis that interstate banking necessarily leads to more concentrated local markets. However, for markets in which this could occur, the critical issue is whether antitrust laws can adequately prevent substantial anticompetitive effects. There has been significant disagreement on the effectiveness of antitrust laws. One way of evaluating that impact is to compare concentration levels in states introducing branching before and after the 1960 Bank Merger Act.

Table 1 subdivides bank structure data into markets located in states which enacted branching laws prior to the 1960 Bank Merger Act and those that did not. Mergers occurring in the latter period were subject to approval by the principal federal regulatory agency and, more importantly, were subject to antitrust laws. If antitrust provisions were effective, anticompetitive mergers would occur less frequently in the latter period. The data in Table 1 suggests that markets allowing branching in the earlier period are indeed more concentrated than those introducing it in the latter period. Statistical tests indicate the difference is significant.

Additional analysis accounting for demographic differences indicate that factors determining the business attractiveness of a banking market, e.g., high population and income levels, produce lower concentration levels. Similarly, the more stringent local regulators are in allowing the chartering of new institutions, the higher the resulting HHI. After accounting for these factors, the impact of branching was considered and, again, was found to influence concentration measures positively only if it was allowed prior to the imposition of antitrust laws in 1960. In markets introducing branching after this period, concentration has not been significantly influenced.<sup>7</sup> Thus, in preventing concentration increases resulting from excessive merger activity the evidence suggests antitrust enforcement has had a significant impact.

An alternative means of evaluating the effectiveness of antitrust legislation is to evaluate its impact on the number of banking organizations in local markets. Studies evaluating

the change over time in states changing to a more liberal branching status found that the number of organizations did not decline. However, numerous cross-sectional studies have found that significantly fewer organizations exist in areas with more liberal branching.<sup>8</sup>

The cross-sectional studies have been criticized for failing to consider demographic differences and to account for the length of time that branching had been allowed. Additionally, areas allowing branching prior to 1960 can be expected to have fewer organizations than areas in which branching was later introduced.

To evaluate the validity of these criticisms, additional analysis was performed. First, data for the average number of banking organizations in local markets in 1970 and 1980 were obtained. Data presented in Table 2 indicate that the number of organizations (i.e., customer alternatives) was less in states allowing branching. This difference was negligible by 1980. A closer analysis of those areas allowing branching prior to 1960, and those introducing it later reveals substantial differences. The average number of organizations is significantly less in regions where branching was introduced in the earlier period. In fact, areas with the most liberal branching laws introduced after 1960 actually had *more* banking alternatives.

The data in Table 2, while supporting the argument that the branching impact has been different in the pre- and post-Bank Merger Act period, ignore demographic factors. These are probably the most important factors determining the number of banking options. To account for these factors a series of estimates were obtained.<sup>9</sup>

After controlling for demographic factors, the changing imposition of antitrust enforcement over time, and the length of time branching had been allowed, the findings suggest that initially branching does adversely influence the number of organizations in the market. However, branching is shown to have had a much larger impact if allowed prior to the Bank Merger Act. Most important, the variable included to account for the length of time that branching had been allowed indicates that the initial negative impact of branching is essentially offset in approximately three years as organizations branch into new markets.

**Table 2**  
**Average number of banking organizations per local market**

Totals	Organizations per banking market*	
	1970	1980
All markets	5.32	6.06
Unit banking markets	5.55	6.06
Branching markets	5.15	6.05
Legislated after 1960	5.72	7.96
Legislated before 1960	5.06	5.29
Unlimited branching markets	4.84	7.60
Legislated after 1960	4.30	9.45
Legislated before 1960	5.06	6.57
<u>Per capita (x 1000)</u>		
All markets	.236	.232
Unit banking markets	.327	.342
Branching markets	.167	.171
Legislated after 1960	.258	.227
Legislated before 1960	.152	.150
Unlimited branching markets	.191	.186
Legislated after 1960	.270	.283
Legislated before 1960	.158	.160

\*Banking markets are defined as counties.

SOURCE: FDIC Summary of Deposits.

The preceding discussion suggests that antitrust law has had an important impact on the structure of local banking markets. If there is significant concern over potential increases in concentration, existing guidelines can be utilized or new guidelines can be introduced to preclude it.

**Axiom #3: Firms competing in several markets will collude to avoid competition.**

With interstate banking, more merger cases will likely involve market extensions, i.e., non-horizontal mergers, rather than combinations within the same market. The resulting potential for anticompetitive behavior associated with linked oligopoly or mutual forbearance is a concern. The issue is whether multi-market firms competing with each other in several markets will behave collusively rather than competitively for fear of retaliation in other (weaker) markets. Such collusion could offset any benefits resulting from the elimination of entry barriers. For this behavior to be effective, the rival firms must hold significant market shares and be among relatively

few firms in the market. The basic premise is that competitive behavior of rivals is interdependent, i.e., each firm acknowledges that its competitive behavior will adversely affect its rivals, which will react in kind. The optimal behavior, therefore, may be to cooperate with or not compete aggressively against the rival firm.

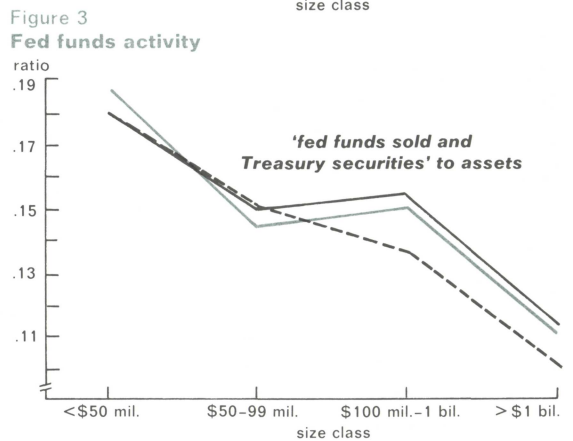
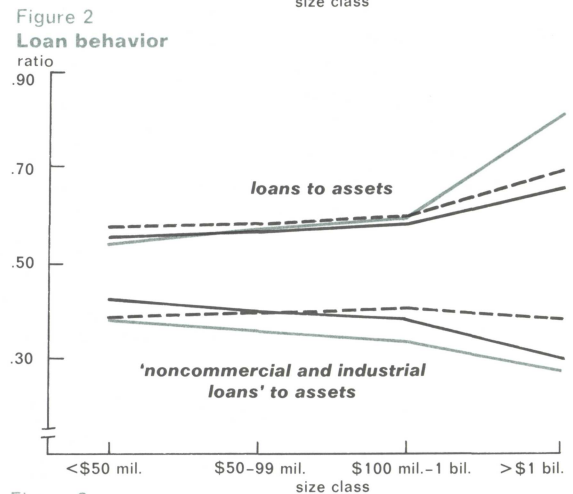
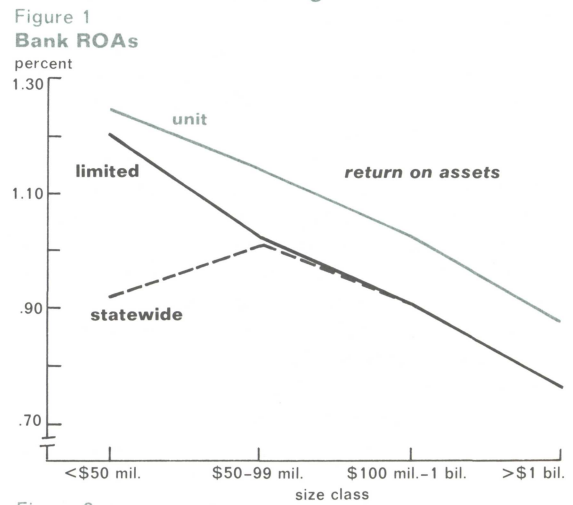
However, interstate expansion need not lead to collusive behavior. Competition may actually be strengthened as firms try to outguess the strategy of their competitors. Indeed, the majority of empirical studies of the linked oligopoly hypothesis do not support it, but instead findings indicate that multimarket links result in increased market competition.<sup>10</sup> Even if firms were to have multi-market links across the nation, competition would likely increase in these markets. With broader expansion, a substantial number of competitors and geographically dispersed markets would diminish the ability of firms to behave collusively. Since the largest and most attractive markets are likely to be metropolitan areas, it is in these markets that consumers are most likely to gain benefits.

**Axiom #4: The viability of small banks and the safety of the industry will be jeopardized.**

Bank performance is the final element of the structure-conduct-performance paradigm, and an important factor indirectly affecting the consumer. It is often alleged that a liberalization of branching laws may threaten the viability of the small bank, and, more importantly, the general safety and soundness of the banking system. However, the evidence does not support either of these allegations.

Data summarized in Figure 1 support the contention that small banks can compete effectively with larger organizations. In fact, small banks have generally outperformed or kept pace with the larger banks. Across all branching categories, it is the larger banks that have performed below average and below that of the smallest banks as measured by return on assets (ROA). Additionally, the experience of California and New York, two large states with over ten years of statewide branching experience, suggests that small banks can survive under liberalized branching laws.<sup>11</sup>

**Bank performance data by size and branching status\***



\*The impact of branching is understated because banks changing status in 1984-85 had little time to adjust.

SOURCE: Data are 6-year averages from *Reports of Condition*, June 30, 1980-1985. ROA data are annualized.

The increased level of competitiveness associated with branching is also evident from the data. Institutions located in branching states have a lower average ROA than do banks in the same size class in unit banking states. Statistical tests indicate the differences are significant. These data reflect more competitive markets in the more liberal branching states wherein potential competition hinders the ability of organizations with significant market shares to reap above-normal profits. The relaxation in branching laws is, therefore, likely to have the greatest impact on bank performance in unit banking states. Banks in these states will no longer be able to use their protected markets to earn higher rates of return.

Bank failure has been shown to be more closely related to management expertise than to the structure of banking laws. Nonetheless, data presented in Table 3 indicate that since 1970 the number of failed banks corresponds directly with the extent of geographic branching restrictions. That is, over this period, 23 percent, 32 percent, and 45 percent of failed banks were in statewide branching, limited branching, and unit banking states, respectively. The majority (74 percent) of failed

banks were unit banks, and the percentage of these failed unit banks corresponds directly with the extent of restrictions on branching. i.e., statewide branching states had the fewest unit bank failures. Additionally, the percentage of unit banks failing between 1970 and 1983 was twice that of branch banks, i.e., 0.1% and 0.05%, respectively. One possible explanation for this disparity is the competitive advantage of branching banks resulting from geographic and customer diversification.

Another concern raised with respect to geographic expansion is the threat to the financial health of expanding banking organizations, and, potentially, the banking system. Some fear that an environment of extensive acquisition activity may cause overly ambitious organizations to pay excessive premiums, over-leverage their capital, spread management too thin, or enter into new types of operations and lending activities in which management is relatively inexperienced. However, bank regulatory agencies already impose controls on bank mergers and acquisitions to prevent such behavior. The Federal Reserve has denied proposed acquisitions on both financial and managerial grounds.<sup>12</sup> Regardless of interstate

**Table 3**  
Number of banks closed because of financial difficulties by branching status (1970-1983)\*

Year	Total	Statewide branching states		Limited branching states		Unit banking states
		Unit banks	Branching banks	Unit banks	Branching banks	Unit banks
1970	6	0	0	4	0	2
1971	6	0	0	1	0	5
1972	3	0	0	1	1	1
1973	6	0	1	1	0	4
1974	4	0	1	2	0	1
1975	10	1	0	1	2	6
1976	13	0	4	1	2	6
1977	4	0	0	1	2	1
1978	5	0	0	3	0	2
1979	10	0	1	2	2	5
1980	9	1	0	1	1	6
1981	9	1	3	2	0	3
1982	41	3	7	10	4	17
1983	47	9	7	6	11	14
Total	173	15	24	36	25	73
(% of total)	100%	8.7%	13.9%	20.8%	14.4%	42.2%

\*Excludes banks not in the continental United States, Hawaii or Alaska. Data were not available by branching status for nine banks: one in 1970, 1977, 1980 and 1981; two in 1975; and three in 1976.

SOURCE: FDIC Annual Reports 1970-1983.

banking laws, financial and managerial standards governing acquisitions will continue to protect the financial health of banks and the banking system.

Some small banks will fail or be acquired if geographic expansion is allowed. Some may be perfectly willing to sell to expanding organizations or may simply not be able to compete. However, most of the studies of the profitability and viability of small banks suggest many will continue to thrive. Finally, the empirical evidence suggests that regardless of institution size, branching results in a lower return on assets. This is indicative of a more competitive market for financial services.

**Axiom #5: The range and level of financial services will be inferior.**

From a social welfare point of view, perhaps the most pertinent factor to be considered with the geographic expansion of banking is the potential impact on consumers concerning service offerings, prices, and availability.<sup>13</sup> One measure of the level of service provided by commercial banks is the range or array of services made available. Perhaps the most important variable influencing service offerings is institution size. Large institutions can justify new services because they generally have a larger customer base and can more readily generate the necessary service volume required for profitability. More services are also offered by larger institutions because they frequently compete by introducing tangential services aimed at acquiring new, or maintaining existing, customers.

Evidence from previous studies tends to support the view that large banks provide a larger array of services.<sup>14</sup> Table 4 summarizes findings from a recent study analyzing bank survey data. The percentage of institutions offering the services increases with institution size. This increase holds true for both consumer and business services.

The available evidence suggests that branching status also affects the array of service offerings. Early studies found trust services, special checking accounts, payroll services, and foreign exchange transactions all to be more commonly offered at small branch banks than at small unit banks. Recent studies have substantiated that finding. Larger institutions tend to offer a more complete banking package,

thus, branching status does not have as significant an impact on their offerings.

Liberalizing geographic expansion could, thus, increase the array of services available to consumers for two reasons. First, smaller institutions would expand their offerings as they branched into new markets, or as they retained their unit bank status and expanded offerings to compete with new branch bank competitors. Secondly, larger institutions, the ones most likely to expand into new regions, would bring with them a larger array of services as they enter new markets. Since unit banking states are characterized by numerous small banking organizations, the benefits would be greatest in these areas.

In addition to leading to a larger array of services, geographic expansion should also influence the supply of bank services. By opening branches or acquiring banks in new markets, banks would be more geographically diversified and less susceptible to deterioration in local economic conditions. Thus, their flow of deposits should be more stable. Similarly, these institutions can be expected to develop new loan customers and, be less susceptible to individual customer failures and resulting loan losses. Both geographic and customer diversification will, therefore, decrease an organization's risk, allowing it to hold fewer highly liquid assets. This will enable it to increase the size of its loan portfolio. Thus, *ceteris paribus*, diversification should enable an institution to better serve its customers' loan needs.

Figure 2 provides data supporting this hypothesis. The loan-to-asset ratio increases with bank size suggesting the banks most likely to branch will tend to offer more loans. The presence of liberalized branching also produces a higher loan-to-asset ratio in all but the very largest size groups. Liberalized branching areas also have the highest non-corporate loan-to-asset ratios indicating that branching leads to improved servicing of consumer loan needs. Figure 3 presents additional information on the liquidity of bank assets. The "fed funds sold plus Treasury securities" -to-asset ratio decreases with institution size, suggesting that liquid assets at smaller institutions are replaced by loans at larger institutions. Branching status is again shown to be important in determining the ability of banks to make loans. In all but one size category, banks located in the most liberal branching areas hold fewer



**Table 4**  
**Percentage of sample banks offering special**  
**customer services—arrayed by bank size\***

Type of services	Bank deposits in millions				
	Under \$10	\$10-25	\$25-50	\$50-100	Over \$100
A. Consumer deposit services	53.4	61.3	71.6	74.2	78.6
B. Business deposit services	44.4	53.9	65.4	67.2	81.8
C. Consumer & business services	47.5	48.5	53.5	58.8	67.1
Examples					
Trust services	22.4	40.9	69.6	80.0	97.1
Drive up windows	78.4	92.2	99.1	100.0	98.6
Special no-minimum checking	38.1	40.8	55.4	54.4	66.2
Revolving charge card	24.5	35.2	50.5	68.4	78.3
Special check services for businesses	36.5	50.0	75.2	76.3	95.5
Locked box services	13.9	27.0	42.0	39.4	74.2
Foreign exchange service	41.7	47.6	60.2	64.1	79.7

\*Sample data are from Rose, Kolari, and Riener. "A Nationwide Survey Study of Bank Services and Prices Arrayed By Size and Structure," in *Journal of Bank Research* (Summer 1985) pp. 72-85. Percentages presented for business and consumer services are averages of a longer list of services provided in the original article.

liquid assets. Again, this indicates they are making more loans.

Geographically diversified institutions may also be better able to allocate resources, efficiently transferring funds between areas of low demand and excess demand. In fact, this is a major reason for expansion. This ability would be even further enhanced with interstate banking because regions with surplus or deficit funding do not necessarily correspond to state boundaries. While the same transfer could be made between independent unit banks or by way of a correspondent bank relationship, additional costs may be introduced by the middle agent.

This reallocation of resources, however, may not benefit local customers if their loan demands are not met because deposits are skimmed off and directed elsewhere. Additionally, opponents of branching argue, funds may be directed to large borrowers only. Thus, this efficiency could lead to funds being directed toward the main office of the bank. Because these offices are usually located in large metropolitan areas, funds may be drained from rural areas. However, with a sufficient branch network, the funds could as easily shift between rural areas. The transferring to urban areas would only occur if the expected return on investments in these areas was higher than that expected in the rural areas. Although agricul-

tural loans have not performed well in recent years, the evidence does not suggest that rural investments earn an inferior return. The evidence on this skimming phenomenon is somewhat limited, frequently dated, and imposes rather restrictive assumptions, but generally does not support the hypothesis that funds are drained from rural areas.<sup>15</sup> Additionally, one could argue that the tendency for unit and small banks to sell a substantial amount of fed funds is also a means of skimming funds away from the local market.

Whether branching organizations adequately service the needs of smaller businesses that are usually limited to local market alternatives is an additional consideration. Larger institutions tend to have larger loan-to-asset ratios, which makes their availability of loans greater. However, they may also deal almost exclusively in large loans, which could leave small businesses with few options. A number of studies have indicated that small businesses may be adversely affected by bank concentration, and many believe that branching may lead to more concentrated local banking markets, particularly in nonmetropolitan areas.<sup>16</sup> Statistics also suggest that a large portion of the dollar value of large bank loans is provided to larger borrowers, while most small bank loans are to small borrowers. However, the statistics are not very meaningful in determining if the

smaller borrowers would be shunned by larger branch organizations. Large banks make large loans because they have the ability to do so, while small banks do not.

A more appropriate way to view this issue is to analyze small loan requests. A recent study surveying small, independent businessmen, after accounting for business type, size, recent growth trends, and demographic factors, indicates that the credit needs of smaller businesses tend to be denied more, or not as adequately met, when liberal branching is allowed.<sup>17</sup> However, when credit needs are met, the terms are generally considered satisfactory. The study may have implications concerning the objectivity of branch bank management in applying credit rating criteria. Smaller businesses may suffer somewhat if branching organizations rely more on financial statements and credit scoring models, and less on the character of the borrower and specific circumstances surrounding the loan request. From an economic viewpoint, these less subjective criteria would be appropriate. Additionally, the argument can still be made that if credit-worthy borrowers are not being adequately serviced, a regional institution willing to specialize in this area will enter and profitably service this group.

**Axiom #6: Deposit rates will be lower and/or loan rates higher.**

If banking markets were perfectly competitive, each facility would sell homogeneous services (e.g., loans, deposit options) at cost-driven prices, and free entry would eliminate any excess profits. These two conditions obviously do not characterize the U.S. banking industry. Significant barriers to entry, non-price competition, market power, and operating efficiencies lead to deviations from purely competitive prices.

Restricted geographic expansion is an obvious impediment to market entry and one reason to expect prices to differ between branching and nonbranching institutions. It has already been shown that relaxation of geographic restrictions eases entry and lowers profitability. It would be logical to assume this lower profitability results from lower loan rates and/or higher rates on deposits.

There are several reasons for expecting branch banks to have lower prices. If cost ef-

iciencies exist with branching, branch banks could offer better prices than independent banks. While most studies evaluating economies of scale in banking have found them fully exhausted at relatively low output levels, branch banks may have an advantage in that they can keep the size of each branch near the cost efficient level by opening new branches. Studies have, however, found cost advantages as a result of offering an array of services that can efficiently be produced in conjunction with one other (i.e., economies of scope).<sup>18</sup> As shown previously, branch banks tend to offer a wider array of services. Prices could also be affected if the process of shifting funds between geographic areas is more cost efficient between affiliated banks than between independent banks. The geographic and customer diversification discussed earlier could also produce efficiencies resulting in preferred prices.

Most of the empirical work analyzing the impact of organizational structure on service prices is dated and frequently fails to account adequately for non-structural factors. Conflicting results are also found. Service charges on demand deposits were found to be higher with branch than with unit banks. However, more recent studies found little or no difference. Conflicting results also occur when determining if branch banks pay higher interest rates on time and savings accounts. Finally, similar inconsistencies have been found when evaluating the rates charged on loans.<sup>19</sup> The conflicting results suggest that the various assumptions and assertions made in these studies significantly affect the findings. There simply is no conclusive evidence that branching affects service prices.

**Axiom #7: Service accessibility will be adversely affected.**

Improved customer service may be the most commonly cited advantage associated with branch banking. Branches can be conveniently distributed and provide basic services, while specialized services may be provided only at the head office or at a limited number of offices. The larger array of services provided by branch banks was discussed earlier. An important element of customer service is the level of service accessibility, i.e., the number of offices available to meet customer needs. Branching can be expected to lead to

greater service accessibility for a number of reasons. Perhaps the major one is that a particular market may be capable of supporting a branch office, but not a new bank. Additionally, accessibility is a form of non-price competition which only branch banks can practice.

Early studies evaluating the impact of branching on service accessibility found little, or even an inverse, relationship between branching and the population per banking office. However, many of these studies failed to account for demographic and market differences. The results from more recent studies viewing either the number of offices or the number of offices per capita suggest that branching does indeed lead to improved accessibility. One study found that if all states had allowed statewide branching in 1975, the number of bank offices in the United States would have increased by 1275, or 4 percent. However, another recent study found that one of the most commonly acclaimed benefits of branching—improved service accessibility in rural areas—could not be supported.<sup>20</sup>

An alternative way to view accessibility is to analyze the number of offices per square mile in branching and nonbranching states after taking demographic factors into account. Since customer convenience is most accurately measured as the required time and distance to access services, a measure incorporating the geographic area will be more appropriate. For example, in a study based on the number of offices per capita, a decline in the number of offices would imply a deterioration of service adequacy. However, an actual deterioration would occur only in the extreme case wherein offices became more congested, had longer lines, and imposed time-consuming hardships on customers. Utilizing the office-per-area measure and taking demographic differences into account, findings indicate that branching significantly improves accessibility in both metropolitan and nonmetropolitan areas. In fact, while results differ slightly depending on the service area considered (i.e., county, metropolitan areas, etc.), service accessibility has been shown to be over 50 percent greater when branching is allowed.

To evaluate thoroughly the impact of branching on service accessibility, the number of alternative banking organizations should also be considered. While an increase in the

number of offices may lead to improved accessibility, variety and competition will be lacking if most of the offices are affiliated. Most studies indicate that the number of organizations in a state decreases with the presence of branching. This could be expected at the state level because most expansion would be accomplished by acquisition of existing banks instead of *de novo*. Thus, although the number of offices may remain relatively constant, the offices would be controlled by fewer organizations. However, we have already shown in the discussion of Axiom #2 that *at the local level* branching may actually increase the number of organizations after an initial adjustment period. This occurs because organizations branch into new markets. It is this local level that is most important in evaluating service accessibility.

**Axiom #8: Benefits from branching will not be realized in rural areas.**

Stated or implied in many of the arguments against geographic expansion has been a concern about the fate of rural markets. Will local market concentration increase in rural areas, leading to inferior market prices and service levels? Will funds be drained away from rural markets so that local demand for loans is not adequately met? Will funds be reinvested in more lucrative metropolitan markets? Such effects of interstate banking would obviously impair the growth of the local rural economy.

As we have seen, however, local market concentration in rural areas is not related to branching status. Similarly, the improved array of services and level of service accessibility resulting from the presence of branching was not limited to metropolitan areas. Indeed, many of the benefits of branching are realized in rural markets also. In fact, the potential for improvements from geographic expansion is very significant in rural areas. Organizations, whether currently present in the market or not, have greater ability to respond to changing market conditions with liberalized branching laws. Rural areas in which the demand for services is not sufficient to warrant a new unit bank may merit expansion via a branch office. The more vehicles of entry available, the larger the number of potential entrants and the greater the probability that entry will occur.

Given this potential for new entry, and its resulting benefits, whether or not it actually occurs will depend entirely on economic factors. Banking organizations will evaluate the demand for loan and deposit services and, if justified, introduce a new office. It should also be emphasized that market forces cannot be eliminated by regulation. For example, numerous states which have approved or are considering entry by out-of-state banks have "protected" local customers by imposing reinvestment requirements. These requirements however, affect the attractiveness of the new market, and, perhaps more importantly, the entering bank's pricing decisions. If state regulations require a larger reinvestment in the local market than market factors would generate, the entering bank will compensate by charging local customers higher loan rates and offering lower deposit rates. The higher loan rates will be of limited value to the community because existing banks would have similar or lower ones. Lower deposit rates will encourage customers to utilize alternative, perhaps nonlocal institutions, thus, again causing funds to leave the local marketplace. Market forces, not legislated restrictions, determine the viability of banking markets.

That banking organizations do indeed respond to market forces is supported by analysis of market growth data. The absolute and percentage change in the number of banking offices and organizations is positively correlated with population growth in all markets. To the extent that population is an adequate proxy for market attractiveness, market entry appears to have been based on market conditions. In rural areas where branching was allowed there was a somewhat closer association between population growth and entry—measured as new offices.<sup>21</sup> The essence of this analysis is that branching apparently has not negatively affected the entry of banks in rural areas. In fact it may have helped it.

### **Summary and conclusions.**

Over time, a number of arguments against liberalizing geographic expansion in banking have come to be accepted almost as axioms. Several of the statements are shown to be inaccurate and little evidence exists to support the remaining ones.

In evaluating these statements our basic findings suggest:

1) The trend in local banking market concentration has been downward. This deconcentration trend has been greatest in markets allowing liberal branching activity. The absolute level of concentration in non-metropolitan areas does not significantly differ as a result of branching, although the absolute level is higher in metropolitan areas when liberal branching activity is allowed. However, it is in these metropolitan areas that the decline in concentration has been the greatest.

2) Stringent antitrust laws can be relatively effective in preventing non-competitive behavior in banking. Evidence suggests that concentration and the number of banking organizations in local markets have been significantly influenced by the imposition of antitrust laws on the banking industry in the early 1960s.

3) To date, there is little support for the contention that liberalized branching will lead to collusive behavior by banking organizations as proposed by the linked oligopoly, or mutual forbearance hypothesis.

4) Lower average returns on assets suggest that competition is greater in more liberal branching markets. Additionally, evidence does not support the contention that liberalizing geographic expansion will threaten the viability of smaller banks.

5) Branch banks and larger institutions, those most likely to branch if allowed, provide a wider array of financial services.

6) There is no substantial evidence suggesting that branching results in service prices that differ from those of unit banks. However, branch banks engage in more lending and have lower profit rates. This suggests that branching induces more intense competition.

7) Service accessibility is superior in markets allowing branching activity—including rural areas. Although the number of alternative service providers may initially decline when branching is introduced, this trend will be reversed over time as entry occurs.

8) Rural areas also stand to benefit from branching in the form of increased market entry, a wider array of services, improved accessibility, and increased competition.

Given these findings, some of the standard criticisms of geographic expansion in banking are shown to be of questionable merit. Realis-

tically, attempts to prevent expansion will probably not be effective if bank management perceives the benefits to be substantial. The fact that numerous institutions have gained an interstate presence via regional compacts, emergency mergers, and regulatory loopholes suggest the perceived benefits are indeed significant. The benefits to the customer also appear to be substantial, suggesting further deregulation of geographic restrictions would be warranted.

A final comment should be made concerning the increasing number of state legislatures considering proposals to develop regional compacts allowing expansion across specific state lines. Response at the national level has been slow, suggesting that liberalization will probably continue to result from action by state governments. When proposals are made, the feasibility of including a *trigger* to move to nationwide expansion is often considered. To date, a number of state laws have excluded this provision. It should be emphasized that the benefits of geographic expansion are not limited by state boundaries. Thus, strong consideration should be given to incorporating these triggers in future legislation.

<sup>1</sup> Joe S. Bain, *Industrial Organization*, (John Wiley and Sons, 1959), pp. 98-101 and 295. For a review of structure-conduct-performance studies in banking see Stephen A. Rhoades, "Structure-Performance Studies in Banking: An Updated Summary and Evaluation," Staff Studies, 119, Board of Governors of the Federal Reserve System, 1982. These studies conclude that relative to other industries, in banking the importance of structure on performance is small.

<sup>2</sup> That concentration is of particular concern in local markets was stated in *U.S. v. Philadelphia National Bank* 359 U.S. 31(1963), *U.S. v. Phillipsburg National Bank* 399 U.S. 363-4 U.S. 350 (1970). A case study of interstate mergers suggests that the most significant factor influencing such mergers is the desire to acquire an extensive retail distribution network. See Dave Phillis and Christine Pavel, "Interstate Banking Game Plans: Implications for the Midwest," in *Toward Nationwide Banking*, Federal Reserve Bank of Chicago, 1986.

<sup>3</sup> See Alan S. McCall and Manfred O. Peterson, "The Impact of *De Novo* Commercial Bank Entry," *Compendium of Issues Relating to Branching by Financial Institutions*, Subcommittee on Financial Institutions of the Committee on Banking, Housing and Urban Affairs, United States Senate, October

1976, 499-521; and Donald R. Fraser and Peter S. Rose, "Bank Entry and Bank Performance," *Journal of Finance*, March 1972, pp. 65-78. Bernard Shull, "Structural Impact of Multiple-Office Banking in New York and Virginia," *The Antitrust Bulletin* (Fall 1978) pp. 511-50. Samuel H. Talley, "Recent Trends in Local Banking Market Structure," Staff Economic Studies 89 (Board of Governors of the Federal Reserve System, 1977). Arnold A. Heggstad and Stephen A. Rhoades, "An Analysis of Changes in Bank Market Structure," *Atlantic Economic Journal*, vol. 4 (Fall 1976), pp. 64-69. These studies were conducted based on 1960-70 data and for that reason may be less conclusive than more current studies because antitrust enforcement was more stringent in the 1970s.

<sup>4</sup> A study by Stephen A. Rhoades on local market concentration across states with different branching status also took into account the relative presence of multibank holding companies. The study concluded that the extent of MBHC activity makes little difference in local market concentration except in the case of unit banking states with MBHCs accounting for less than 50 percent of state deposits. See Stephen A. Rhoades, "Concentration in Local and National Markets," *Economic Review*, Federal Reserve Bank of Atlanta, March 1985.

<sup>5</sup> A relatively high  $C_3$  may be of concern if, for example, the dominant firm in the market is able to affect market price through its output decisions.

<sup>6</sup> For a discussion of the 'cluster approach', see "The product market in commercial banking: Cluster's Last Stand?" Harvey Rosenblum, John J. Di Clemente and Kathleen O'Brien, *Economic Perspectives*, January/February 1985, Federal Reserve Bank of Chicago. John J. Di Clemente, "The Inclusion of Thrifts in Bank Merger Analysis," Staff Memoranda 83-7, Federal Reserve Bank of Chicago, 1983.

<sup>7</sup> This discussion was based on the following regression results:

$$CR = 14.32 - .29(\text{Pop}) - .36(Y) - .18(S) + .02(B) + .02(\text{Pre60})$$

$$(43.1) \quad (-44.4) \quad (-9.4) \quad (-5.7) \quad (.91) \quad (10.9)$$

where CR is the HHI, pop = population in the area, Y = per capita income in the area, S = degrees of regulatory stringency measured as the state charter approval rate during the previous three years, B is a branching binary = 1 if branching is allowed in the market, 0 otherwise, and Pre 60 = B if branching was allowed prior to 1960, zero otherwise. Numbers in parentheses below the estimates are t values. Tests for homoskedasticity could not be rejected.

<sup>8</sup> See Board of Governors Staff, "Recent Changes in the Structure of Commercial Banking," *Federal Reserve Bulletin* (March 1970) pp. 195-210; and

Shull, "Structural Impact of Multioffice Banking in New York and Virginia."

<sup>9</sup> First, the number of banking organizations in local markets in 1980 was estimated ignoring any influence from differing degrees of antitrust enforcement over time. The estimates suggest that branching had a significant negative impact on the number of banking organizations. The estimates were arrived at via an ordinary least squares estimate of a double log form equation, i.e.,

$$\text{Orgs} = -8.85 + .47 (\text{Pop}) + .62 (\text{Y}) + .20 (\text{S}) - .28 (\text{B})$$

$$(-31.3) \quad (6.92) \quad (18.7) \quad (6.6) \quad (-16.0)$$

$$R^2 = .72$$

$$F = 1914$$

where Orgs = number of organizations and the remaining variables are as defined in the previous footnote 7. t values indicate that the impact of each individual variable is statistically significant. However, this significant negative impact is overstated if antitrust legislation was not enforced uniformly prior to and after the Bank Merger Act. This was tested by reestimating the same equation for two groups of local markets, i.e., those having 1980 branching laws in place prior to 1960, and those changing after this period. The two sets of estimates were significantly different. For markets with laws in place prior to 1960, branching decreased significantly the number of banking organizations. However, for the second group the branching impact was not important. More precisely, the estimates below are for the subgroup with branching status determined (1) prior to 1960, and (2) after 1960, respectively:

(1) pre-1960 subgroup: Orgs =

$$-7.70 + .48 (\text{pop.}) + .48 (\text{Y}) + .17 (\text{S}) - .38 (\text{B})$$

$$(-22.1) \quad (65.2) \quad (11.9) \quad (5.0) \quad (-20.1)$$

$$R^2 = .71$$

$$F = 1531$$

(2) post-1960 subgroup: Orgs =

$$-8.05 + .45 (\text{pop.}) + .56 (\text{Y}) + .48 (\text{S}) - .42 (\text{B})$$

$$(-12.6) \quad (31.2) \quad (9.1) \quad (6.5) \quad (-1.0)$$

$$R^2 = .78$$

$$F = 504$$

Finally, an attempt was made to account for differences in the two time periods and for the length of time branching had been allowed—i.e., an adjustment period. Different degrees of antitrust enforcement were again accounted for with a binary variable, Pre60. Assuming ten years was the maximum time needed for the impact of branching to be realized, the adjustment period was accounted for with Lth=length of time branching had been allowed (0,1,2,...10). The results of OLS estimates are presented below.

$$\text{Orgs} = -8.04 + .48 (\text{Pop.}) + .52 (\text{Y}) + .22 (\text{S})$$

$$(-28.6) \quad (71.5) \quad (15.6) \quad (7.2)$$

$$-.27 (\text{B}) \quad -.34 (\text{Pre60}) + .10 (\text{Lth})$$

$$(-4.1) \quad (-11.7) \quad (2.8)$$

$$R^2 = .73$$

$$F = 1384$$

Reestimating and varying the maximum value of Lth resulted in similar results.

<sup>10</sup> See David D. Whitehead and Jan Luytjes, "Can Interstate Banking Increase Competitive Market Performance? An Empirical Test," *Economic Review*, Federal Reserve Bank of Atlanta, January 1984; and Donald L. Alexander, "An Empirical Test of the Mutual Forbearance Hypothesis: The Case of Bank Holding Companies," *Southern Economic Journal*, (July 1985), pp.122-140.

<sup>11</sup> Analysis for individual years generally resulted in similar findings. For an analysis of 1984 data see Douglas Evanoff and Diana Fortier, "Geographic Expansion in Commercial Banking: Inferences from Intrastate Activity," in *Towards Nationwide Banking*. See statement by Paul Volcker before the Subcommittee on Financial Institutions, Supervision, Regulation and Insurance of the Committee on Banking, Finance and Urban Affairs; U.S. House of Representatives, April 24, 1985. 71, *Federal Reserve Bulletin* 430 (1985). Additional studies evaluating small banks' ability to compete include Rhoades, Stephen A. and Donald T. Savage, "Can Small Banks Compete?" *Bankers Magazine*, vol. 164 (Jan.-Feb. 1981), pp. 59-65; Leon Korobow, "The Move to Statewide Banking in New York and New Jersey," *The Banker*, September 1974, pp.11-33.

<sup>12</sup> For an example of a denial on financial grounds, see Corporation for International Agricultural Production Limited 70 *Federal Reserve Bulletin* 39 (1984). For an example of commitments made in light of financial concerns see IVB Financial Corp. 70 *Federal Reserve Bulletin* 42 (1984).

<sup>13</sup> See Jack M. Guttentag and Edward S. Herman, *Banking Structure and Performance*, New York University, February 1967; also Robert Weintraub and Paul Jessup, "A Study of Selected Banking Services by Bank Size, Structure, and Location," Subcommittee on Domestic Finance of the House Committee on Banking and Currency, Washington, 1964. For a more recent and comprehensive review of the impact of branching on various aspects of the banking industry see Larry Mote, "The Perennial Issue: Branch Banking," *Business Conditions* (February 1974) pp. 3-23; and Gary Gilbert and William Longbrake, "The Effects of Branching by Financial Institutions on Competition, Productive Efficiency and Stability: An Examination of the Evidence," *Journal of Bank Research* (Part I - Autumn 1973, Part II - Winter 1974) pp. 154-167, 298-307; Larry Frieder, et. al., *Commercial Banking and Interstate Ex-*

pansion - Issues, Prospects, and Strategies, Ann Arbor, UMI Press, 1985; and U.S. Department of the Treasury, *Geographic Restrictions on Commercial Banking in the United States*, January 1981. In the present study, the analysis of the potential impact of interstate activity on the customer is based on the activity occurring via branching activity. If geographic expansion proceeds by bank holding company expansion the impact on the customer could differ.

<sup>14</sup> Pete Rose, James Kolari, and Kenneth W. Riener, "A National Survey Study of Bank Services and Prices Arranged by Size and Structure," *Journal of Bank Research* (Summer 1985) pp. 72-85.

<sup>15</sup> For a discussion and evidence on this issue see Donald Fraser and Pete Rose, "Bank Entry and Bank Performance," *Journal of Finance* (March, 1972) pp. 67-78; also Donald Jacobs, "The Interaction Effects of Restrictions On Branching and Other Regulations," *Journal of Finance* (May 1965) pp. 332-49. Also Verle Johnston, "Comparative Performance of Unit and Branch Banks," in *Proceedings of a Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago, March 1967. For an analysis which considers both the source and use of funds, see Constance Dunham, "Interstate Banking and the Outflow of Local Funds," *New England Economic Review*, (Federal Reserve Bank of Boston, March/April 1986), pp. 7-19.

<sup>16</sup> See Robert A. Eisenbeis, "Local Banking Markets for Business Loans," *Journal of Bank Research* (Summer 1971) pp. 30-39; and Donald P. Jacobs, *Business Loan Costs and Bank Market Structure*. New York: Columbia University Press, 1971; and also Paul A. Meyer, "Price Discrimination, Regional Loan Rates, and the Structure of the Banking Industry," *Journal of Finance* (March 1967) pp. 37-48.

<sup>17</sup> Peter L. Struck and Lewis Mandell, "The Effect of Bank Deregulation on Small Business: A Note," *Journal of Finance* (June 1983) pp. 1025-1031.

<sup>18</sup> See Thomas Gilligan, Michael Smirlock, and William Marshall, "Scale and Scope Economies in the Multi-Product Banking Firm," *Journal of Monetary Economics* (May 1984) pp. 393-405. For other discussions of economies of scale see Jeffrey A. Clark, "Estimates of Economies of Scale in Banking Using a Generalized Functional Form," *Journal of Money, Credit, and Banking*, (February 1984) pp. 53-68; and George Benston, Gerry Hanweck, and David Humphrey, "Scale Economies in Banking: A Restructuring and Reassessment," *Journal of*

*Money, Credit, and Banking* (February 1984) pp. 435-56.

<sup>19</sup> See Mote or Gilbert and Longbrake for a review of past studies. See also Rose, Kolari, and Riener; and Donald T. Savage and Stephen A. Rhoades, "The Effects of Branch Banking on Pricing, Profits, and Efficiency of Unit Banks," *Proceedings of a Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago, 1979, pp. 187-95. Prices could also be impacted by market pre-emptive behavior. Branch banks could "flood" the market with offices aimed at minimizing the potential market for new entrants. This behavior could increase costs that would be passed on to the customer. See Douglas Evanoff, "The Impact of Branch Banking on Service Accessibility," Staff Memoranda 85-9, Federal Reserve Bank of Chicago, 1985.

<sup>20</sup> See Donald Savage and David Humphrey, "Branching Laws and Banking Offices," *Journal of Money, Credit, and Banking* (March 1979) pp. 153-60 and William Seaver and Donald Fraser, "Branch Banking and the Availability of Banking Offices in Nonmetropolitan Areas," *Atlantic Economic Journal* (July 1983) pp. 72-8. Other studies evaluating the impact of branching on service accessibility include Robert F. Lanzillotti and Thomas A. Saving, "State Branching Restrictions and the Availability of Branching Service," *Journal of Money, Credit, and Banking* (November 1969) pp. 778-88; William Seaver and Donald Fraser, "Branch Banking and the Availability of Banking Services in Metropolitan Areas," *Journal of Financial and Quantitative Analysis* (March 1979) pp. 153-60. For a discussion of service accessibility measured in a spatial context see Evanoff, *op. cit.*

<sup>21</sup> The correlation coefficients supporting this are as shown below (\* indicates that the correlations are not significantly different from zero.)

	Change in population ( $\frac{\text{absolute}}{\text{percentage}}$ )	
	Metro	Rural
Change in # of banks ( $\frac{\text{absolute}}{\text{percentage}}$ )		
Branching areas		
offices	.26/.41	.53/.26
organizations	.09*/.34	.31/.30
Unit banking areas		
offices	.34/.04*	.34/.31
organizations	.17*/.23	.38/.34