

An Analysis of Bank Consolidation Trends in Rural Pennsylvania

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Abstract

U.S. banking markets have undergone important structural and institutional changes. Overall, the sector has experienced steady consolidation through mergers and acquisitions that have resulted in fewer banks holding a greater value of the total assets. Despite consolidation, new branch offices and the growth of alternative providers has increased the access to banking-type services.

This paper documents and describes trends in the banking industry in Pennsylvania, with special emphasis on rural areas. The first section shows that while the number of “bricks and mortar” offices in the state’s rural counties has grown, the distribution of the growth has been quite uneven. As a result, access has potentially declined for some of the state’s rural residents.

In the second section the analysis shows that consolidation is dramatically reducing the number of banks headquartered in Pennsylvania. The analysis shows that, should current trends continue—the loss of 1.25 banks per quarter—then there will be no banks headquartered in rural Pennsylvania in 2025.

Consolidation appears to be having an effect on the competitiveness of rural banking markets. While the analysis suggests that urban county banking markets remain fairly competitive, it also suggests that the state’s rural banking markets may have less competition.

Introduction

U.S. financial markets have undergone important structural and institutional changes over the last few decades that have had significant implications for the nation's banking sector, and in turn, rural areas. Overall, the banking sector has experienced steady consolidation through mergers and acquisitions that have resulted in fewer banks holding a greater value of the total assets in the sector (DeYoung 1999). For example, in Pennsylvania, the total number of commercial banks with headquarters in the state fell from 400 in 1976 to 227 in 2002 (a 43 percent decrease). Similarly, commercial banks headquartered in Pennsylvania's rural counties—which number 48, based on the Center for Rural Pennsylvania's (CRP) definition—fell from 220 to 92 (58 percent) over the same period of time. Despite the fact that new or start-up banks do appear from time to time, the net change in the number of banking entities has been negative, with mergers accounting for the majority of the consolidation.

While the number of banking entities has declined over time, there has been a sharp increase in the number of bank branches and offices and ATMs. For example, FDIC data show that in 1976 the state had 2,322 bank offices. By 2003, this had increased to 3,222 offices. Most of this growth was from 1976 to 1994; since 1994, the number of commercial bank branches in Pennsylvania has actually declined about 10 percent.

One of the primary drivers of the structural change in banking in recent years has been the Riegle-Neal Interstate Banking Law, which was approved by Federal lawmakers in 1994. Riegle-Neal eased the regulations on interstate banking, and was designed to reduce the cost of duplicating banking companies and personnel across state lines. As a result, the law provided more convenient services to the 60 million Americans who cross state lines every day (Rose 1999).

By allowing banks to operate across state lines, Riegle-Neal has arguably greatly speeded up consolidation trends. Lence (1997) catalogs a number of factors that have led to consolidation, including: cost reduction (with larger banks more efficient), geographic portfolio

diversification, the potential for increased revenues, increased market power, and economies of scale gained by lower average costs of regulatory compliance.

With such dramatic change, there is legitimate concern about the effects of bank consolidation, and especially how it might impact rural areas (ERS 1999; RUPRI 1997). Some argue that mergers reduce the availability of financial services, especially in low- and moderate-income areas, where banking offices may be closed and hours of operation may be reduced. Others are concerned that industry consolidation reduces competition and results in higher prices overall for credit and credit-related services. There is further concern that large regional or national financial institutions may cause the transfer of decision-making authority out of rural communities, resulting in reduced willingness by the acquiring institution to respond to particular community needs (Keeton 2001a). Finally, many perceive that the evolution of the financial services industry may threaten the Community Reinvestment Act's (CRA) effectiveness and reduce the availability of credit and credit-related services for low- and moderate-income persons and areas.¹ Such concerns are supported in a recent study by Samolyk and Richardson (2001) that finds CRA lending activity has grown slower in banks that have been part of mergers than those that were not.

While such scenarios may have unfolded in some rural areas, it is important to recognize that consolidation is also creating many advantages and opportunities that can benefit banks and their lower-income communities (Keeton 2001b, Gramlich 1999). For example, larger banks may be highly diversified, thus better able to facilitate more effective partnerships at the local level. Larger banks may also feel the need to work more closely with local groups than did the predecessor bank. Finally, acquiring institutions that are moving into a new market may have to rely more heavily on the expertise of local officials and community-based development groups in

¹ The CRA--established by the US Congress in 1977--requires that deposit-taking financial institutions offer equal access to lending, investment and services to all those in an institution's geographic area—usually defined as at least three to five miles from each branch. In the case of large banks with many branches, the geographic area may encompass an entire county or even a state.

order to maintain effective reinvestment programs. Thus, mergers can reinvigorate dialogue between affected banking organizations and communities.

To date, there has been little research that examines the extent of consolidation and its impacts on Pennsylvania's rural people and places. This paper aims to enhance policymakers' and government agencies' understanding of the extent consolidation in the banking industry in the Commonwealth, and its potential impacts on access and competition. Overall, we have two primary goals. The first is to document consolidation in general and in rural areas in particular. To accomplish this, we examine trends in the location and availability of various "banking-type" service providers. Here, the term "banking-type service provider" refers generally to establishments that offer services such as deposit-taking, loans, checking accounts and the like. Two types of providers are examined: commercial banks and savings institutions. Data comes from the Federal Deposit Insurance Corporation (FDIC), which insures depositors in case of bank failure.

Our study's second goal is to document how consolidation is affecting market competitiveness. While the state has had a proliferation of "bricks and mortar" establishments, these are operated by fewer and fewer organizations. As noted above, the potential outcome is that some regions may have less competitive banking markets than they did previously.

One important limitation of our study is that we do not address the proliferation of "non-traditional" services, most notably internet banking. While the rise of internet banking was heralded in some corners as portending the demise of "bricks and mortar" establishments, bank branches remain as popular as ever. Still, although the vast majority of people still bank in traditional ways, a 2002 study notes that "nearly two-thirds of all U.S. households now have Internet access, and of that number, about 25% are banking online" (<http://www.bcentral.com/articles/enbysk/161.asp>). Thus, when assessing rural access to banking-type services, it is important to keep in mind that viable alternatives are emerging, the impact of which is not well understood.

Trends in Availability of Banking-type Services in Rural Pennsylvania

Because of the dramatic and ongoing changes in the banking sector that have reduced the number of banking entities, there may be concern about the effects of these change on access to banking-type services, particularly in rural areas. This section takes a broad approach to this question by documenting recent trends in the numbers and location of “brick and mortar” establishments in Pennsylvania counties. Two types of banking-service providers are examined—commercial banks and savings institutions.

The analysis draws extensively on Report of Condition and Income (Call Report) and Summary of Deposit data made available by the Board of Governors of the Federal Reserve and the FDIC. The data represent quarterly financial (and some demographic) information for all banks in the U.S. from 1976-2003. Federal bank regulators use this data to analyze the risks to bank and holding company balance sheets and income streams. Regulators also use the data to monitor the health of the banking industry by different bank segments and geographical areas, and in the aggregate. Much of the data in financial regulatory reports is publicly available, providing information for investment analysts and others. The Summary of Deposits data is provided by the FDIC and summarizes the data collected in the Call Reports.

While the number of competing bank entities has declined over time, Pennsylvanians’ access to bank services has generally increased. For example, FDIC data show that in 1976 the state had 2,322 bank branch offices. By 2003, this had increased to 3,222 offices (Chart 1). Most of this growth was from 1976 to 1994; since 1994, the number of commercial bank branch offices in Pennsylvania has actually declined about 10 percent.

[Chart 1 about here]

Chart 1 also shows data on the number of savings institutions in the state, starting with 1994 (the first year data is available). Here, the data shows that the number of FDIC savings institutions offices has increased from 787 in 1994 to 1,284 in 2003. Combining the FDIC

commercial bank offices and savings institutions data shows a negligible increase in FDIC “brick and mortar” offices between 1994 and 2003.

Trends in the state’s rural counties have mirrored those of the Commonwealth. Overall, since 1994—the first year for which county data was available on the web—rural counties have experienced a slight increase in the total number of FDIC offices. Disaggregated, this is the result of a slight decline in commercial bank offices coupled with an increase in savings institution offices. A summary of these trends is shown in Table 1.

[Table 1 about here]

Map 1 shows the ratio of population to FDIC “bricks and mortar” offices for each Pennsylvania county for 2003. For 2003, the state average was about 2,400 people per office. Here, the map indicates that the state’s south central and northern tier counties—typically rural by the CRP definition—tend to have lower ratios, which indicates more offices per person than the state average. Conversely, the state’s western rural counties tend to have higher than average ratios. Overall, this gross indicator suggests that access to banking services is quite variable across rural Pennsylvania.

[Map 1 about here]

Quantifying and Describing the Degree of Bank Consolidation in Rural Pennsylvania

The second focus of this project is to document the degree of bank consolidation in Pennsylvania. While there has been extensive national work looking at this issue, little attention has been given to rural areas. This section looks at consolidation from several angles. First, it looks at the current presence and recent changes in the number of FDIC institutions that are *competing* in each county. Here, an institution is defined as competing if it has a physical presence in the county (i.e., “bricks and mortar”). Overall, the data shows that while all rural counties housed at least one FDIC establishment in 2003, nearly half of all rural counties had fewer institutions with a presence in 2003 than 1994. This may suggest that many rural residents and businesses have fewer choices of service providers than they did 10 years ago.

The second part of this section directly examines the nature and extent of commercial bank consolidation by examining data from banks according to the location of their headquarters. The findings show 1) a substantial decline in the number of commercial banks that are headquartered in rural Pennsylvania, and 2) a dramatic increase in the size of the remaining banks. The analysis suggests that this is due to bank consolidation rather than bank failure. One important *potential* policy implication may be that rural banking markets are becoming less competitive over time.

The final part of this section looks at local market competitiveness, as measured by the Herfindahl-Hirschman Index. Here, the analysis suggests that market competitiveness varies widely across the state, with rural areas overall having less competition than urban areas.

An Analysis of Competing Institutions

Perhaps the simplest measure of the competitiveness of county financial markets is the number of providers that have a physical presence in a county. In 2003, the number of FDIC commercial bank and savings institutions with a presence in the state's rural counties varied substantially, ranging from 21 competing interests in Butler County to only 1 institution in Forest County (Map 2). The average for all rural counties was 8.2.

[Map 2 about here]

An alternative way to look at county competitiveness is to look at the ratio of the population to the number of competing entities per county (Map 3); overall, the state's county average is 14,000 people per competing institution. One interpretation of this ratio is that individuals in counties with lower ratios have potential access to more providers, on average. (This is a loose interpretation, however, as counties with low populations can have low ratios even if there is only one or two competing institutions. This is especially apparent when looking at the northern tier.) At the county level, the data shows that Pennsylvania's rural places tend to have, on average, a higher number of competing institutions per person.

[Map 3 about here]

Map 4 shows the change in the number of FDIC institutions competing in each Pennsylvania county for the period 1994-2003. Overall, 12 rural counties saw an increase in the number of institutions with a physical presence. Conversely, 23 experienced a decline in the number of FDIC institutions with a presence. Of these, 12 counties saw a decrease of at least 2 institutions.

[Map 4 about here]

Documenting Trends in Consolidation

This section focuses on changes in the banking market in terms of the number of banks that are competing overall and the relative size of these banks. This section does two things. First, it examines the number of banks that are headquartered in rural Pennsylvania. The findings indicate that there are substantially fewer entities that are based in the state's rural counties today than there was 25 years ago. Second, it examines changes in the size of commercial banks. The finding of interest is that consolidation is resulting in much larger banks.

In accomplishing these objectives, Call Report and Summary of Deposit data was used to determine and compare the extent of banking consolidation in rural and urban counties in Pennsylvania. From the data, a detailed record of consolidation was constructed, including reasons for consolidation such as a merger, acquisition, bank failure, etc. It is important to note that in the following analysis, a bank is identified by the location of its headquarters.

An Overview of State Banking Trends

As noted above, the number of banks headquartered in Pennsylvania steadily declined over time, from 400 in the first quarter of 1976 to 227 in the fourth quarter of 2002. With respect to urban and rural differences, in 1976 there were 180 urban banks and 220 rural banks, while in 2002 there were 135 urban banks and 92 rural banks (see Chart 2 and Map 5). In percentage terms the decline in the number of banks in the state was 43 percent overall; this decline was greater in the states rural counties (58 percent) than it was in the urban counties (25 percent).

[Chart 2 about here]

[Map 5 about here]

This is an interesting finding in that it shows that until 1988 there were more rural banks than urban banks. Also, since 1988, the number of urban banks declined only 15 percent, whereas the number of rural banks declined 42 percent. This relatively fast decline in rural areas is depicted in Chart 3, which shows the number of banks as a percent of the 1976 level for urban and rural counties.

[Chart 3 about here]

The fast decline in the number of banks headquartered in rural counties is, perhaps, the most startling finding. If current trends continue, projections show that there will be very few banks that are headquartered in rural Pennsylvania in only a few years. This is evidenced in Chart 2, which shows the trend line that best fits the relationship between time and the number of banks. Here, the analysis shows that rural Pennsylvania experiences a loss of 1.25 headquartered banks every quarter. As one can see, the line appears to fit the data quite well; the r-square is 0.98. Should the decline in rural banks continue at historic rates, then the state is predicted to have only 2 banks headquartered in rural counties in the year 2020.

This trend can have important policy implications if there are unique services or abilities provided only by rural banks. As was noted in the introduction, some analysts and development practitioners argue that locally owned banks provide better customer service and are more involved in their communities than are larger banks. Also, some believe that locally owned banks better understand the business operations and credit needs of local businesses, and thus are more willing to lend to local residents than might a bank that is headquartered outside of the region. If this is true, then the decline in rural banks will likely adversely affect the state's rural communities and their residents.

Consolidation is Driving These Trends

There are two potential reasons for a decline in the number of banks: failure and consolidation. The evidence shows that consolidation—or a merger between two or more banks—is almost entirely responsible for the changes described above. From 1976-2002 there were 42 bank failures in Pennsylvania. Interestingly, 36 of these failures occurred between 1989 and 1994 and only 3 of these failures were in rural counties.

By comparison, from 1976-2002 there were 450 bank mergers in the state.² The predominant activity was “merger/charter discontinued.” Here, the “non-surviving” bank merges into the surviving bank and one charter continues. Of these cases, there were two outcomes:

- In 134 mergers the head offices (and *possibly* branches) of the non-surviving institutions were closed. This also indicates cases where the head office closes and the branches continue with a new head office. Most of these (125 cases) were mergers between two Pennsylvania-based banks.
- In most cases (316), the head office and branches of the non-surviving institution continued to operate under the same bank ID. This includes cases where the head office becomes a branch of the survivor. Most of these (287 cases) were mergers between two Pennsylvania-based banks.

There were, however, a number of new banks as well. According to the FDIC, 68 new bank charters were issued in Pennsylvania between 1976 and 2002 for an average of about 2.5 new bank charters per year. However, the average is a little misleading in that most of this activity occurred in the late 1980s and early 1990s.

Consolidation is Resulting in Bigger Banks

In 1976, 117 of the 220 (53%) rural banks in the state had (CPI inflation adjusted) assets of less than \$25 million. On the other side of the spectrum, large banks—greater than \$100 million in inflation adjusted assets—numbered 24 in 1976 (11 percent of all rural banks).

Predictably, as banks merge, the surviving institution becomes bigger. In 2002, there were only 8 small banks (less than \$25 million in inflation adjusted assets) in rural Pennsylvania,

² The merger data does not include a county name for the institutions. Thus, it is not possible to determine the relative extent of merger activity in rural and urban counties.

comprising 9 percent of all rural banks. By comparison, large banks (greater than \$100 million in assets) made up 35 percent of all rural banks. Trends in the number and distribution of banks by asset class are detailed in Charts 4 and 5.

[Chart 4 about here]

[Chart 5 about here]

Rural Banks have Maintained Deposit Share

Another trend of interest is the change in total deposits over time. Chart 6 shows that urban headquartered banks had about \$130 billion in deposits in 2002 compared to \$30 billion in banks headquartered in rural counties. By comparison, urban county headquartered banks had less than \$50 billion in deposits in 1976, while rural headquartered banks had about \$10 billion in deposits. The data shows an unusual blip in the years 1996 and 1997, the reason for which is unclear.

[Chart 6 about here]

While urban deposits grew at a higher level than did rural deposits, rural banks' share of all deposits has remained remarkably steady over time, at about 18 percent of all deposits (Chart 7). This suggests that rural banks are maintaining their strength relative to their urban counterparts. Here, the 1996-97 blip is the result of the short-term surge in urban deposits noted above.

[Chart 7 about here]

Modeling Consolidation as a Markov Process

This section quantifies the extent of consolidation by estimating the probability that banks remain in a given size category or transition to an alternative size category (larger or smaller) over a quarter of year and on an annual basis. For example, small banks characterized by relatively low total assets will likely remain small unless they experience substantial growth and/or merge with another bank. Typically, one would expect a bank to transition to a larger

asset category after a merger or acquisition. In addition, there is a probability that banks in a given size category will fail over a given time period. These probabilities are estimated from the Call Report data. The estimation of transition probabilities also offers a view of the future since the probabilities can be used to forecast the extent of future consolidation.

Depicted in Tables 2 and 3 are transition probabilities estimated from Call Report data on a quarterly (Table 2) and annual (Table 3) basis. The estimates presented were obtained using a Quadratic Programming approach. The left hand side of each table represents the present while the top of each table represents one quarter (respectively year) later, where each time period is characterized by seven potential states of nature for a bank in rural Pennsylvania. The seven states of nature are: (1) less than \$25 million in assets, (2) between \$25 and \$50 million in assets, (3) between \$50 and \$75 million in assets, (4) between \$75 and \$100 million in assets, (5) greater than \$100 million in assets, (6) failed, and (7) merged and closed. The entries of the tables are the probabilities of transitioning between the various states over the time frame of interest (i.e., quarterly or annually).

A brief illustration will help make sense of the estimates. The data suggest that a rural Pennsylvania bank with \$20 million in assets has a 98.4% probability of remaining in this asset size class over the next quarter and about a 1.6% chance of moving to the next larger sized asset class over the next quarter. By contrast, the data suggest that the same bank has a 94.9% probability of remaining in this asset size class over the next year and a 5.1% chance of moving to the next larger sized asset class over the next year. The difference in probabilities merely suggests that in the latter case, there is a higher probability of getting bigger over a longer period of time.

It is also important to point out that the estimated probabilities of a bank transitioning to the failure or merge/closure states from the other states are essentially zero (see, for example, the failure or merge/closure columns in Tables 2 and 3). In theory, this result is not entirely correct since any bank, irrespective of size, has a probability of failing or merging with another

bank. However, from an empirical standpoint, the data suggest a very low incidence of bank failures and merger/closures in rural Pennsylvania and hence the estimated probabilities are zero or very close to zero.

Given the preceding example, it is clear from Tables 2 and 3 that the majority of banks remain in their present size category over time, but when they do move to different classes, they generally tend to get bigger. Also, on an annual basis banks in the \$25-\$50 million and \$75-\$100 million asset size classes tend to have the highest probability of transitioning to the largest asset size class (> \$100 million). This is likely due to the influence of mergers among fairly large banks and mergers involving a fairly large bank buying up smaller banks.

[Table 2 about here]

[Table 3 about here]

Using the transition probability estimates appearing in Table 3, it is a straightforward procedure to project future distributions of banks by asset size classification. Beginning with the present distribution of banks distributed by asset size category,³ future distributions are plotted in Chart 8. As shown, the estimated transition probabilities suggest that future consolidation and growth is likely. Further, the results suggest that if the past is any indication of the future, by the year 2030, large banks (> \$100 million) will represent nearly 50% of all rural Pennsylvania banks while the smallest banks (<\$25 million) will represent about 2% of all rural Pennsylvania banks. (Of course, if the projections implied by the trend line in Chart 2 are accurate, there will be no banks in rural Pennsylvania in 2030!)

[Chart 8 about here]

³ In 2002, 8.7% of all rural PA banks were in the < \$25 million category, 22.8% were in the \$25-\$50 million category, 17.4% were in the \$50 to \$75 million category, 16.3% were in the \$75 to \$100 million category, and 34.8% were in the > \$100 million category.

Chart 9 is similar to Chart 8 in that the concept and starting point are similar. However, Chart 9 depicts the projected bank distribution using transition probabilities similar to those estimated and presented in Tables 2 and 3, but for one year, namely, from 2001 to 2002.⁴

[Chart 9 about here]

Using estimated 2001-2002 transition probabilities results in a much faster decline in the proportion of all rural Pennsylvania banks that would be classified in the smallest asset size category and a much faster increase in the proportion of all rural Pennsylvania banks that would be classified in the largest asset size category.

These results highlight some of the difficulty in making long term projections as the results presented in Charts 9 and 10 are anticipated values. However, it is clear that if the system continues to evolve in a manner consistent with the recent past, and that no structural change or policy action occurs to disrupt the trend in banking consolidation, there will be fewer, larger banks in rural Pennsylvania in the not too distant future.

Using the HHI to Measure Changes in Market Competition

The previous section shows that consolidation has resulted in a significant decline in the number of banks, a trend that could have potentially substantial impacts on competition. This section quantifies competition in Pennsylvania banking markets by building on an analysis of *concentration* known as the Herfindahl-Hirschman Index (HHI). For each banking market, this index equals the sum of the squared percentage deposit shares of all banking organizations competing in the market. The HHI can take on values between 0 and 10,000, with higher values representing higher levels of concentration. According to the Department of Justice, a market with an HHI below 1,000 is considered un-concentrated; one with an HHI between 1,000 and 1,800 is considered to be moderately concentrated; and a market with an HHI above 1,800 is

⁴ In addition to the transition probabilities already presented, transition probabilities were estimated for each year of the sample period (1976 to 2002) using an entropy-based econometric approach. The results are not presented here given their extensiveness (i.e. 49 transition probabilities per year) but are available upon request.

considered to be concentrated. DOJ guidelines state that a banking merger is unlikely to be challenged unless the post-merger HHI exceeds 1,800 and the increase in the HHI is at least 200.

This study compares the HHIs for rural and urban Pennsylvania counties over time to see if these regions perform differently, hence potentially setting the stage for policy intervention. This is similar to the work of Keeton (2001a) in his study of all rural banks. It is important to note that a “bank market” is defined in this study as a county.⁵

In the first step of the analysis, HHI were constructed for all rural and urban counties for 1994 and 2003. In 2003 the average rural county HHI was 2,526, while the urban average was 1,341. Comparisons with 1994 show both rural and urban county-level banking markets have seen only a negligible change in market concentration over time. Using the DOJ guidelines, urban county markets are, on average, “moderately concentrated” while rural county markets are, on average, “concentrated.” Map 6 shows county-level HHIs for 2003.

[Map 6 about here]

Based on the DOJ guidelines, 33 rural county-level banking markets are considered “concentrated” and an additional 12 are “moderately concentrated.” For the urban county-level markets, 5 are considered “concentrated” and 6 are “moderately concentrated.” Comparisons with 1994 show that 3 rural counties that were “moderately concentrated” in 1994 were “concentrated” in 2003 (Columbia, Franklin and Somerset). Conversely, Blair, Centre and Monroe moved from “concentrated” to “moderately concentrated” over that time period.

The fact that the state’s rural banking markets overwhelmingly tend to be concentrated raises important policy questions. Recall, the analysis the first objective of the report showed that rural counties have, on average, lower ratios of population to “bricks and mortar” banking

⁵ There are alternative means that look at multi-counties. For example, the Philadelphia Federal Reserve Bank, which uses HHI analysis when analyzing the competitive effects of proposed bank and bank holding company mergers, constructs multi-county measures using MSA definitions, U.S. Census journey-to-work data, and geographic facts. In general, as more counties are included, the HHI for that market is most likely to fall. For details, see <http://www.phil.frb.org/files/bm/mktframe.html>.

service providers relative to urban counties. This seems to suggest that rural Pennsylvanians have good access. Yet, the results of the HHI analysis show that rural county markets tend to be less competitive. This can be problematic if the *quality* of service is lower or *cost* of service is higher in areas with less competition, a fear of those who caution about consolidation's impacts.

One potential reason for less competition and low population:provider ratios is that banking-type operations may have important fixed costs that prevent effective competition in less populated areas. For example, there may be a fairly high "threshold" number of customers that a bank must be able to capture in order to be profitable; less populated counties may only have enough people to support one or two banking entities, thus reducing the potential for competition. This is akin to a natural monopoly such as those enjoyed by electric companies, which have significant fixed costs that preclude competition; only here, it is a natural spatial monopoly, with population densities affecting the potential for competition.

Summary, Policy Implications and Future Research

This study was designed to enhance our understanding of rural banking conditions in an era of consolidation. Overall, the results show that consolidation is dramatically reducing the number of banks in rural Pennsylvania. The analysis shows that, should current trends continue—the loss of 1.25 banks per quarter—then there will be no banks headquartered in rural Pennsylvania in 2025. While such an outcome seems intuitively unlikely, the evidence suggests that the number of banks will continue to decline precipitously.

The results also show rural banks are increasing in size over time, adjusted for inflation. Some of this is attributable to natural growth in banking activity as the population becomes wealthier; yet it is most likely attributable to consolidation, with two banks becoming one. The analysis shows that small banks—less than \$25 million in assets—are the main sector of rural banks declining, with those being the most likely targets of acquisition by larger banks. The analysis also shows that while banks are highly likely to stay in the same size category from one quarter to the next, they are also likely to move into larger categories over time.

Consolidation appears to be having an effect on the competitiveness of rural banking markets. While the HHI analysis suggests that urban county-level banking markets have remained fairly competitive over time, the state's rural county-level banking markets are quite "concentrated." This can have important policy implications in terms of rural residents and businesses having access to "fair" market banking services. Of course, the HHI analysis must be tempered by the finding that the population:bank ratio is lower (in aggregate) in rural counties than it is in urban counties.

In sum, the work shows that there are fewer rural banks in Pennsylvania. Furthermore, rural banking markets seem to be less competitive overall than urban banking markets. While these trends can have important implications of rural people and businesses, we hesitate at this time to offer any policy "solutions." This hesitance results from uncertainty as to whether these trends are actually having a negative impact on the state's rural population needing "solving."

For example, while there are fewer rural headquartered banks, there may still be "enough." Alternatively, it may not much matter where a bank is headquartered, only that there is adequate access to "fair" market banking services. For example, it is not known if rural residents get worse service or terms than do urban residents. Simply put, the impact—positive or negative—that consolidation is having on the state's rural places is unclear.

Reluctantly, the recommendation is for complementary research into the impacts of consolidation. Such a research agenda would quantify the extent to which businesses and individuals are affected by consolidation in terms of choice and adequate services to rural places. If consumers are seeing diminished quality of services, terms, credit access, etc., then policymakers may want to explore avenues to increase competition. While legislative tools to increase banking market competition may be rather limited at the state level, the information can be used by the state at the national level to lobby for change in current banking laws as they come under review. Of course, should rural bank markets be deemed to operate efficiently, we may suggest that the state "do nothing."

References

- DeYoung, R. 1999. Mergers and the Changing Landscape of Commercial Banking (Part 1). Federal Reserve Bank of Chicago, *Chicago Fed Letter*, September.
- ERS (Economic Research Service). 1997. Credit in Rural America Rural Economy Division, Agricultural Economics Report No. 749. April.
- Gramlich, E. 1999. "Small Business Access to Capital and Credit" Comment at the Federal Reserve System Research Conference on Business Access to Capital and Credit, Arlington, Virginia, March 8.
- Keeton, W. 2001a. The Transformation of Banking and Its Impact on Consumers and Small Businesses. *Economic Review* Federal Reserve Bank of Kansas City, First Quarter.
- Keeton, W. 2001b. The Transformation of Banking: What Does It Mean for Rural Economies and Its Impact on Consumers and Small Businesses. *Main Street Economist* Center for Study of Rural America, Federal Reserve Bank of Kansas City, November.
- Lence, S. H. "Recent Structural Changes in the Banking Industry, Their Causes and Effects: A Literature Survey." *Review of Agricultural Economics* 19(Fall/Winter 1997):371-402.
- Rose, P. 1999. *Commercial Bank Management, 4th Ed.* McGraw-Hill, New York.
- RUPRI. 1997. *The Adequacy of Rural Financial Markets: Rural Economic Development Impacts of Seven Key Policy Issues* White Paper P97-1.
- Samolyk, K. and C. Richardson. 2001. The Impact of Bank Consolidation on CRA Business Lending. Proceedings Federal Reserve System Community Affairs Research Conference: Changing Financial Markets and Community Development, Washington DC, April 5-6.
- Shafer, R. and G. Pulver (1990). Rural Nonfarm Businesses' Access to debt and Equity Capital in Financial Market Intervention as a Rural Development Strategy ERS staff report No AGES90-70 39-59.

Table 1. Summary of Rural and Urban FDIC Data on Savings Institutions and Commercial Banks

Type	Number of FDIC Offices: 2003	Change in FDIC Offices: 1994-2003	Number of Bank Offices: 2003	Change in Bank Offices: 1994-2003	Number of Savings Institutions Offices: 2003	Change in Savings Institutions Offices: 1994-2003
Rural	1,430	33	1,143	-88	287	121
Urban	3,176	100	2,179	-274	997	376

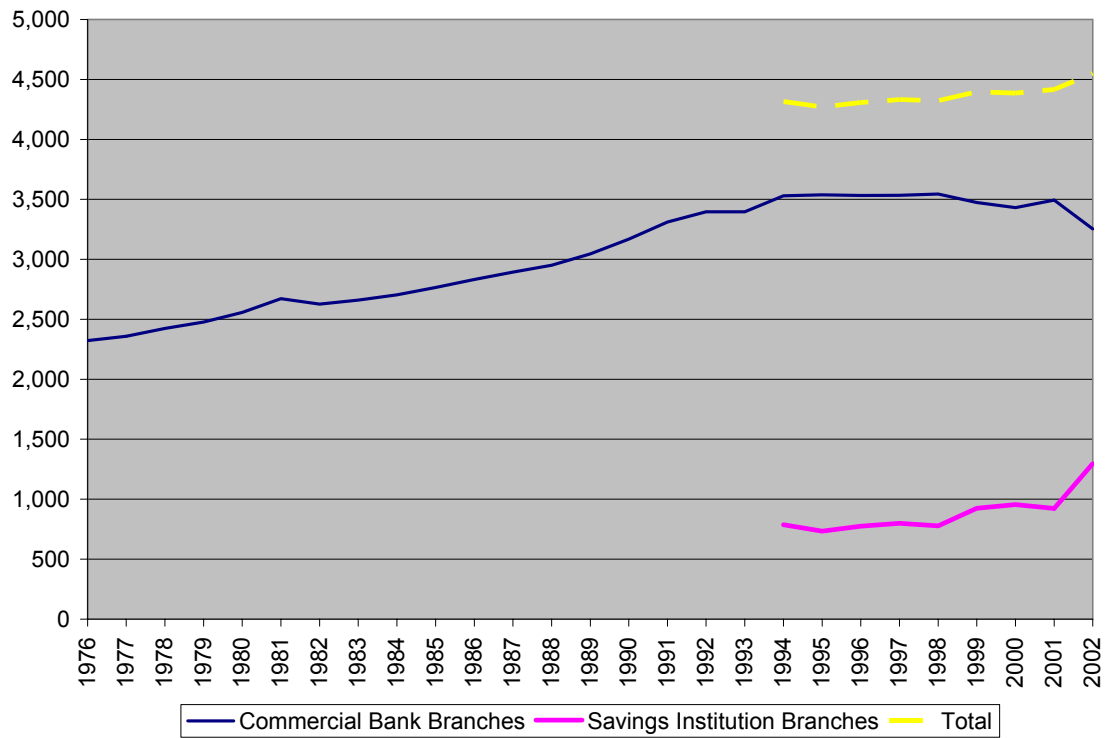
Table 2. Quarterly probabilities of rural banks transitioning among asset size categories (million of dollars).

		t+1						
		< \$25	\$25-\$50	\$50-\$75	\$75-\$100	> \$100	failure	merge/close
t	< \$25	98.427%	1.573%	0.000%	0.000%	0.000%	0.000%	0.000%
	\$25-\$50	0.319%	91.300%	6.613%	0.000%	1.764%	0.000%	0.003%
	\$50-\$75	0.000%	9.940%	89.295%	0.765%	0.000%	0.000%	0.000%
	\$75-\$100	0.000%	0.000%	2.336%	92.988%	4.676%	0.000%	0.000%
	> \$100	0.000%	0.000%	0.000%	3.094%	96.906%	0.000%	0.000%
	failure	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	0.000%
	merge/close	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%

Table 3. Annual probabilities of rural banks transitioning among asset size categories (millions of dollars).

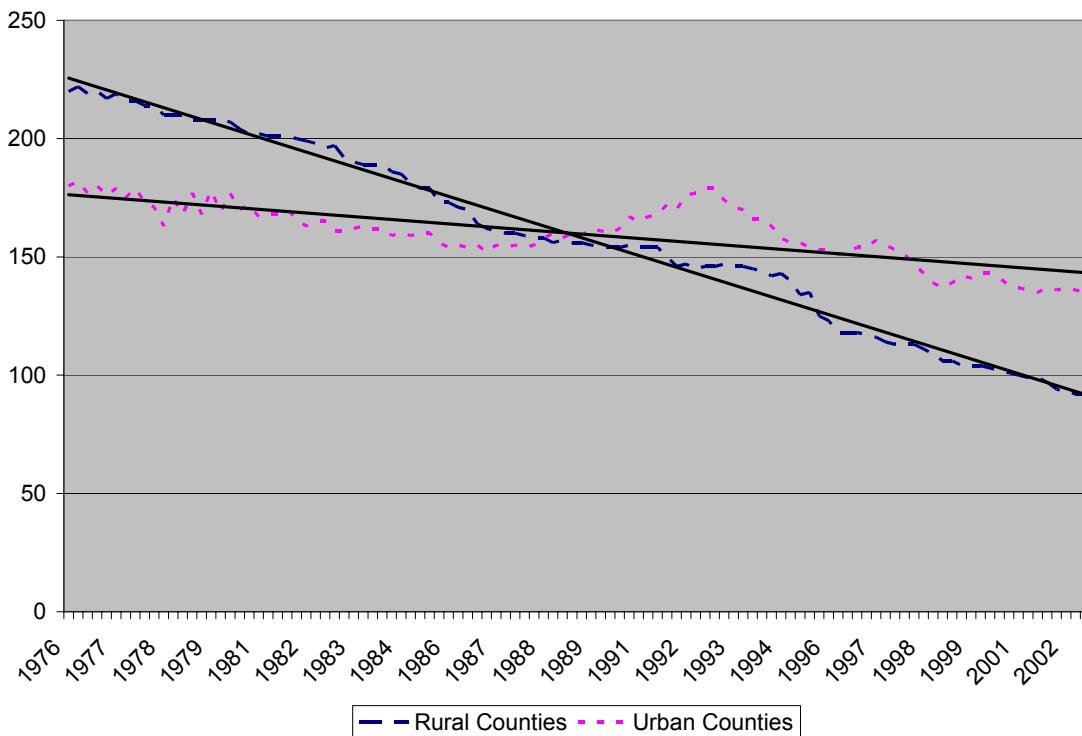
		t+1						
		< \$25	\$25-\$50	\$50-\$75	\$75-\$100	> \$100	failure	merge/close
t	< \$25	94.895%	5.105%	0.000%	0.000%	0.000%	0.000%	0.000%
	\$25-\$50	0.000%	77.822%	18.451%	0.000%	3.727%	0.000%	0.000%
	\$50-\$75	0.000%	21.854%	71.758%	6.388%	0.000%	0.000%	0.000%
	\$75-\$100	0.000%	2.063%	4.689%	79.331%	13.917%	0.000%	0.000%
	> \$100	0.000%	0.000%	0.000%	6.276%	93.724%	0.000%	0.000%
	Failure	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%	0.000%
	Merge/close	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	100.000%

Chart 1: Number of Commercial Bank and Savings Institution Offices in Pennsylvania: Select Years



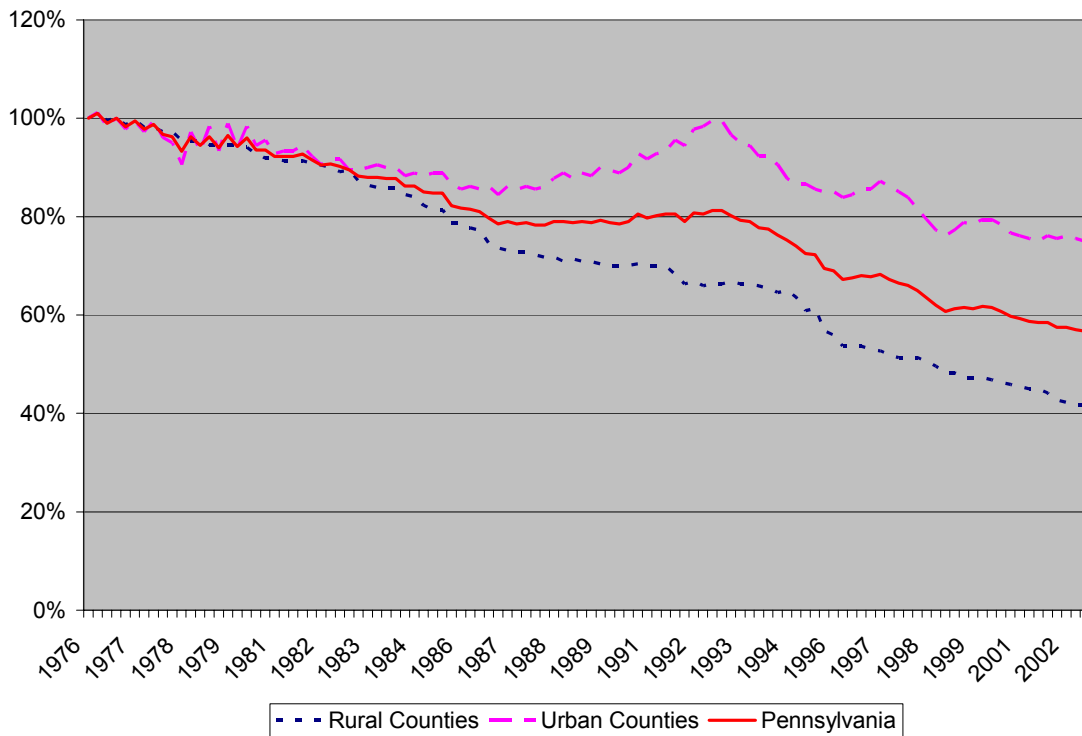
Source: FDIC (<http://www2.fdic.gov/hsob/index.asp>)

Chart 2. Number of Banks Headquartered in Pennsylvania: 1976-2002



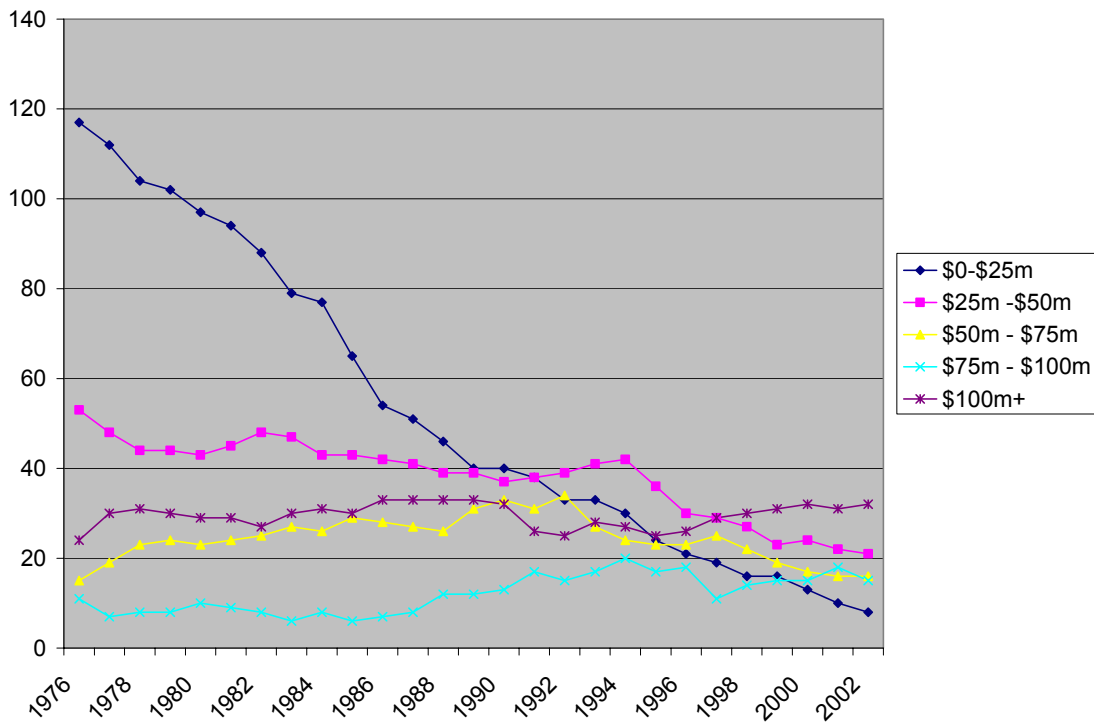
Source: FDIC

Chart 3. Banks Headquartered in Pennsylvania as Percent of 1976 Level



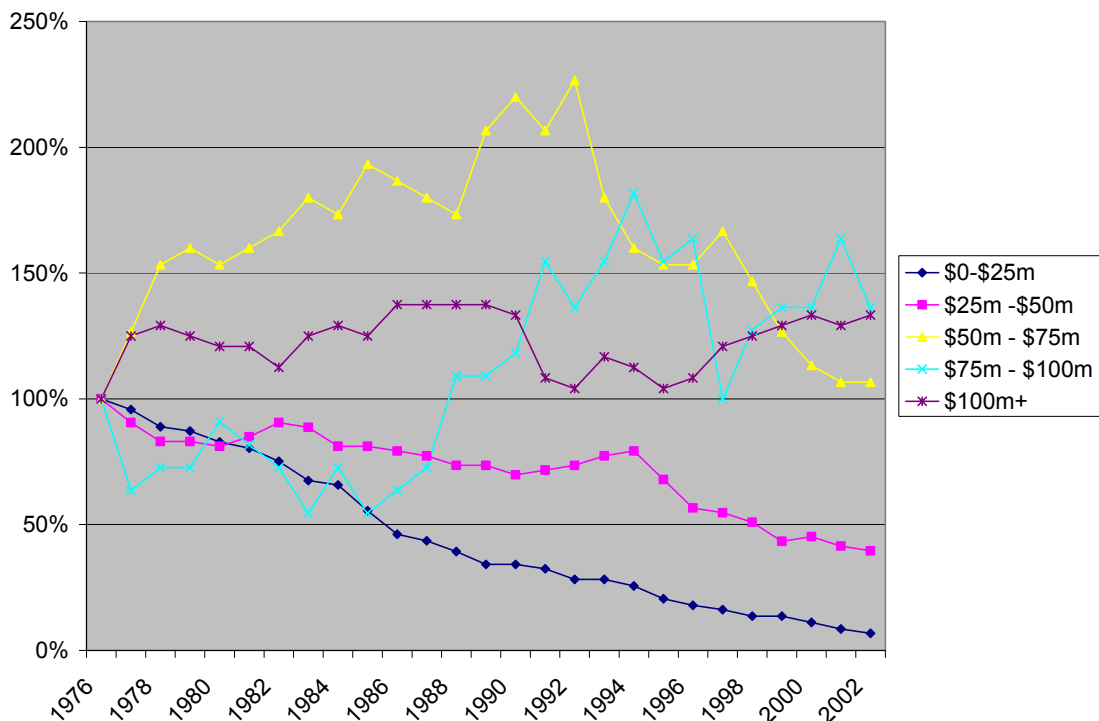
Source: Call Report Data

Chart 4: Number of Rural Banks by Assets (Deflated): 1976-2002



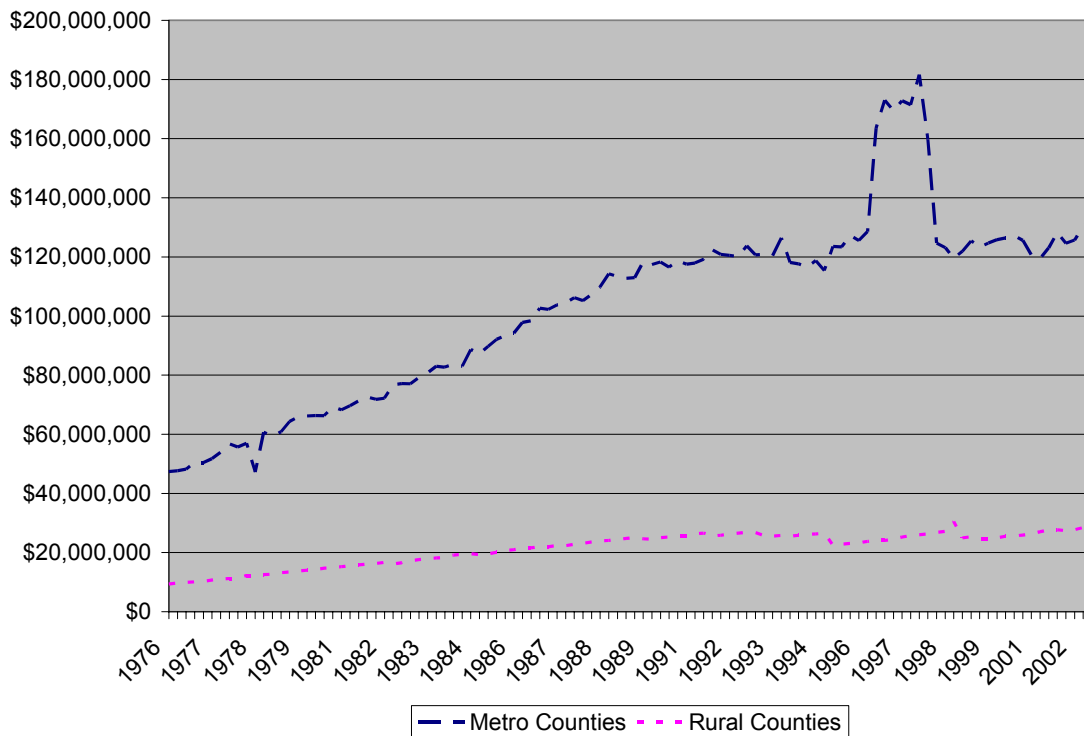
Source: Call Report Data

Chart 5: Number of Rural Banks in Asset Class Relative to 1976



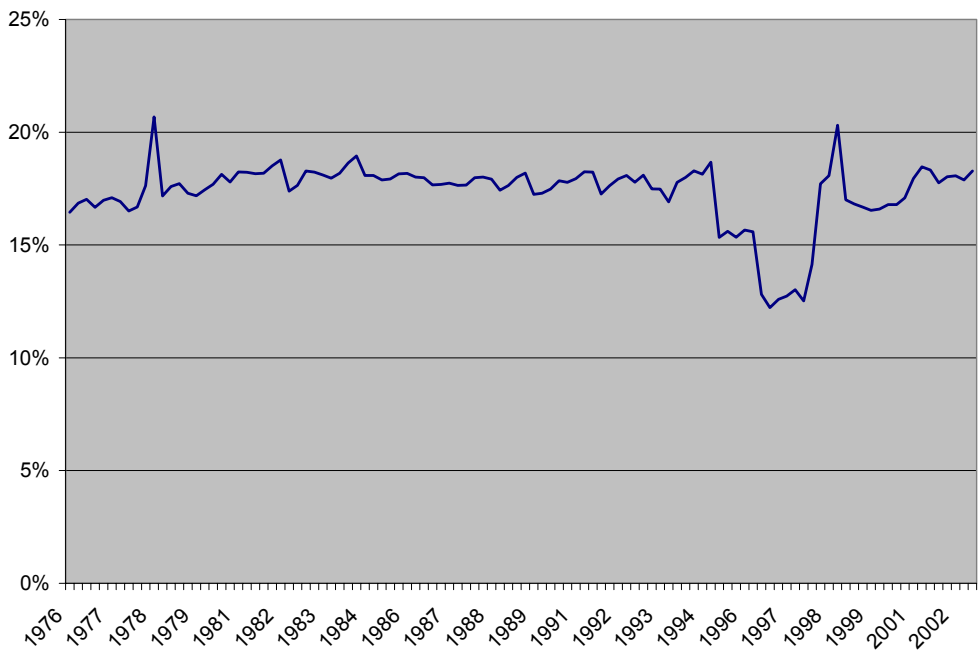
Source: Call Report Data

Chart 6: Total Deposits in Rural and Urban Banks: 1976-2002



Source: Call Report Data

Chart 7: Rural Banks' Share of All Deposits: 1976-2002



Source: Call Report Data

Chart 8. Projected Distribution of Banks by Asset Size (using transition probabilities from Table 3).

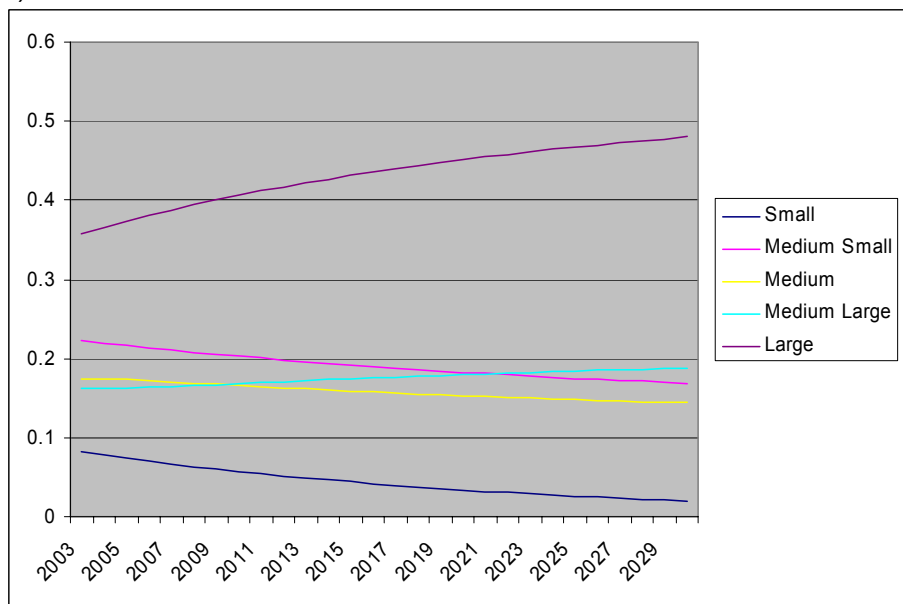
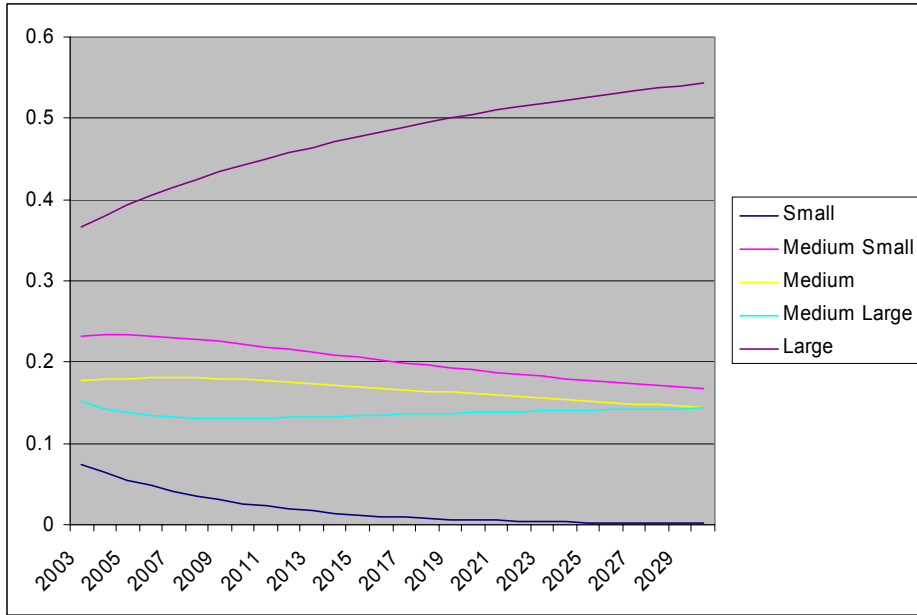
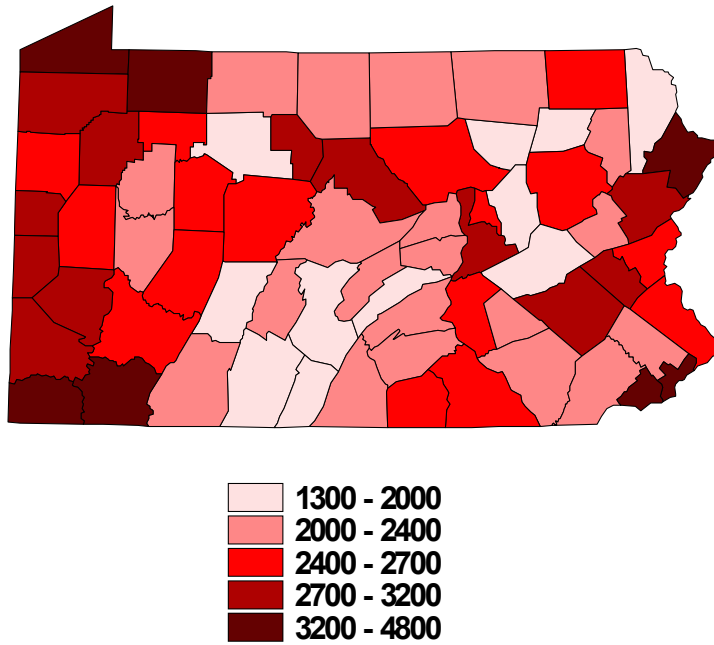


Chart 9. Projected Distribution of Banks by Asset Size (using transition probabilities from 2001-02).

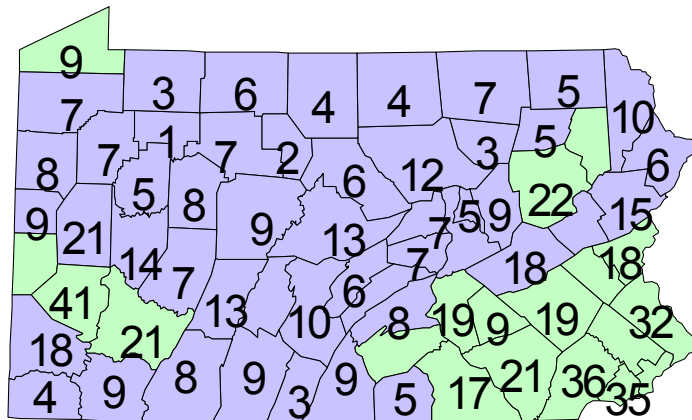


Map 1. Number of People per FDIC Commercial Bank and Savings Institution Offices: 2003



Source: FDIC and Census Bureau

Map 2. Number of Individual FDIC Institutions with a Presence in a County: 2003



Source: FDIC

