

Small business, big job growth

Eleanor H. Erdevig

Introduction

Efforts to quantify and better describe the importance of small business within the United States economy have emphasized the importance of small business as a major source of job generation. The findings have important implications for both national and state policies directed toward the small business sector. On a regional basis, the states of the Midwest, in particular, view small business programs as one way to offset major job losses that have ravaged their industrial base.

While significant strides have been made toward a better understanding of the significance of small business to the economy, many questions remain. For example, just what is a small business? Is it measured in terms of employment size, sales volume, age, number of offices, or some combination of factors? How many small businesses are there and how rapidly do their numbers expand and contract? Improvements to data bases are suggestive of some answers, but many truly small businesses (the cottage industries, for example) are not captured in these data bases.

This article summarizes the recent research on the process of job generation by small businesses. The importance of small business to the Seventh Federal Reserve District states—Illinois, Indiana, Iowa, Michigan, and Wisconsin—is compared with the nation. Lastly, the contribution of small businesses to employment growth in the District over the business cycle and in major industry categories is analyzed.

Recent research

Before the late 1970s, little was known about the relationship between individual firms and the aggregate economy. Research had focused on either the macro economy and its aggregate measures (such as the gross national product and its components) or on the individual firm as the independent unit of analysis.

The absence of reliable information on how individual firms influence aggregate eco-

nomic activity has hampered efforts to develop public policies that generate jobs for people and places that need them. When little is known about who generates jobs, where they are generated, how they are created, and thus who are most likely to respond to public policies, it is difficult to design and implement efficient and effective economic policies for an area.

In 1979 David L. Birch of the Massachusetts Institute of Technology published pioneering research on the structure of the job generation process. Birch relied on a data file known as Dun's Market Identifier file (DMI) from Dun and Bradstreet. This data base contained information on 5.6 million business establishments at four different points in time—1969, 1972, 1974, and 1976. From this source he was able to define and measure for each firm the processes by which change takes place, with emphasis on new formations, expansions, contractions, dissolutions, and movements. By aggregating firms at any given location, he was able to describe in considerable detail how economic change occurs in that location.

The results of this research were startling. Among the major findings were the following:

- Most of the variation in job growth among states and areas is due to differences in the rate of job generation (i.e., births and expansions of firms), not to differences in rates of job loss (i.e., deaths and contractions).
- Virtually no firms migrate from one area to another in the sense of physically relocating their operations. Branching, however, is quite important, particularly in manufacturing, and it is differential branching, not physical migration, that causes many of the regional differences in job growth.
- The components of job change are sensitive to the business cycle. For most states, births and expansions of firms were fewer and deaths and contractions were more numerous during an economic downturn than during a preceding upturn.

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- Small firms—defined as those with 20 or fewer employees—generated 66 percent of all new jobs in the country during the early seventies. Middle-sized and large firms, on balance, provided few new jobs in relation to their size.

- On a regional basis, small firms generated all the net new jobs in the Northeast, 67 percent in the Midwest, 60 percent in the West, and 54 percent in the South.

Birch concluded that: "The job generating firm tends to be small. It tends to be dynamic (or unstable, depending on your viewpoint)—the kind of firm that banks feel very uncomfortable about. It tends to be young."¹

Subsequent research by Birch and MacCracken on corporate employment growth over time confirmed that the size effect almost totally dominates the age effect. While there is some tendency for all size groups to grow more (or decline less) at younger ages than older ones, it is not a marked effect, nor is it universal. Size in general was found to be a much better predictor of job growth than age, with a major break between firms with more than 20 employees and those with less. Over the period studied, 1969-1976, the share of net job creation attributable to very small businesses was found to fluctuate between 50 and 70 percent, depending upon economic conditions and the performance of other firms. The authors suggested that it was better to view the corporation as "an adaptive, learning system than in terms of a maturing, aging system, with increased size and/or stability dulling the ability to adapt."²

Beginning in 1979 the Small Business Administration (SBA), following a Congressional mandate, began the development of a small business database (SBDB) to be used for historical description and policy analysis. The file known as the U.S. Enterprise and Establishment Microdata file (USEEM) of the SBDB was developed under contract at the Brookings Institution and is based primarily on the Dun's Market Identifier files (DMI). The USEEM contains cross-sectional business microdata as of 1976, 1978, 1980, and 1982. Updates are scheduled for every second year thereafter.

Based on the USEEM file, researchers at the Brookings Institution challenged Birch's previous work. Using a definition of "small business" as a firm with fewer than 100 em-

ployees, the Brookings researchers contended that small businesses employ only 36 percent of the labor force and generate just 39 percent of net new jobs. These findings contrast to the 70 to 80 percent reported by Birch.

Although the Brookings researchers found that the small business share of employment growth was roughly equivalent to its share of private sector employment, there were exceptions by region and industry. In weak or declining regions and industries, small businesses increased their employment share by expanding and by new start-ups while large businesses failed to open new branches. In expanding regions and industries, large firms experienced high rates of employment growth due to branch births. As a consequence, small firms tend to exert a stabilizing influence, slowing the rate of economic decline in weak industries and geographic regions, and facilitating expansion in strong industries and regions.³

Birch and MacCracken had found that small businesses with less than 100 employees had created 82 percent of the new jobs for the period of 1969-1976 compared to the 39 percent found by Armington and Odle in the Brookings file for 1979-1980. When Birch and MacCracken reviewed the Brookings file, they questioned the methodology employed by Armington and Odle. After adjusting for this, they found that the small business share of net job creation for 1979-1980 was about 70 percent and suggested that a range of 65 to 75 percent was realistic.⁴

The U.S. Establishment Longitudinal Microdata (USELM) sample was constructed for the Small Business Administration from the USEEM files specifically for time series analysis of establishment employment growth patterns, such as job generation. The USELM is a stratified sample containing just over eight million establishments that existed at any of the four years in the USEEM files, roughly half of the total establishments represented. This sample file is weighted by employment to represent the entire population of U.S. businesses and is benchmarked to 1976 and 1982 employment totals.⁵

Recent research involving an analysis of the accuracy of the SBDB by comparing the files with state unemployment insurance data, has also provided information on job generation by firm size. Jacobsen (1985) matched records from the SBDB (excluding branches)

with unemployment insurance records in Texas from 1978 to 1982. Within the matched population, particularly for small businesses, measures of aggregate employment growth between 1980 and 1982 were found to be very similar. He also found that the major conclusions of the earlier studies were valid, despite distortions caused by reporting lags. Most growth in employment was found to occur among young, small firms. In the matched sample the unemployment insurance data for 1980-1982 for Texas showed employment growth of 23.2 and 16.7 percent for the 1-5 and 6-19 employment size classes, respectively, compared to 3.7 percent for firms with 500 or more employees. Fifty-six percent of the new jobs occurred among firms with less than 20 employees and only ten percent in the largest size (over 500 employees) firms.⁶

Research on job generation in Wisconsin for 1969-1981 also found that very small businesses—those that have 20 or fewer employees—dominate that state's job generation process. Dun and Bradstreet data for 1969-1976 were obtained from David L. Birch to provide an historical perspective and to compare results for Wisconsin with the rest of the nation. Complete annual Wisconsin unemployment insurance data were analyzed for 1977 to 1981.

Among the results of that research were the following:

- From 1969 to 1979, very small businesses created more than twice as many net new jobs as their share of total employment would predict, usually more than all other businesses combined.

- Only very small businesses generated more jobs than they lost during the 1979 through 1981 recession years.

- Very small businesses create the most net new jobs in all industry groups, including manufacturing, where they have a smaller share of total employment.

- Even during the 1980-to-1981 recession period, very small manufacturing firms continued to add more jobs than they lost, in contrast to the larger manufacturers.

- The most important factor in explaining the ability of very small businesses to generate the most net new jobs is that every year, during both economic expansions and recessions, there are many new businesses that start up. The majority of these are very small

businesses with 20 or fewer jobs. In addition, very small businesses expand and grow as their markets and product lines expand.

- The job creation rate of very small businesses through both births and expansions is considerably higher than that of larger firms and more than offsets their job loss rates, which are slightly higher than those of larger firms.

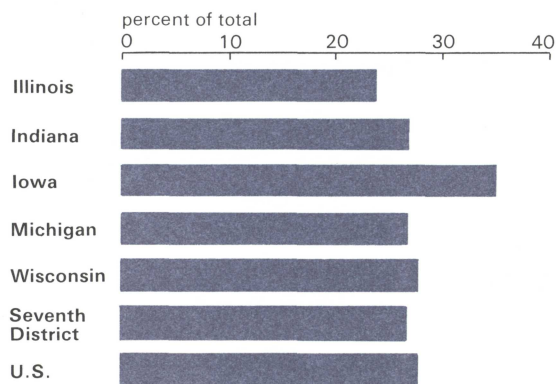
- Employment change at larger firms is more sensitive to recession. The relative fall in shares of employment at expanding firms and rise in shares at contracting firms are both greater for larger firms.

- Among the major industrial sectors, the services sector is found to be a consistent and somewhat countercyclical source of net new jobs; the manufacturing sector is sensitive to changes in the business cycle and a very cyclical job generator; and the high technology production sector is small and not a consistent source of new jobs.⁷

Importance of small businesses in Seventh District states

Data on the number of small business establishments are derived from the annual *County Business Patterns* (CBPD) data with the latest as of 1983. An establishment is a single physical location where business is conducted or where services or industrial operations are performed. However, individual establishments are not necessarily separate business firms. The fact that separate locations of a multi-establishment firm are counted as individual establishments tends to overstate the relative importance of small businesses in an

Figure 1
Small business employment: 1983



area. Offsetting this are the small businesses that do not have paid employees and are not included.

According to the latest CBPD data, small businesses generally represent about 88 percent of all establishments, both in the Seventh District and nationally. Among the individual states in the District, the range is from 87 percent in Illinois to 90 percent in Iowa.

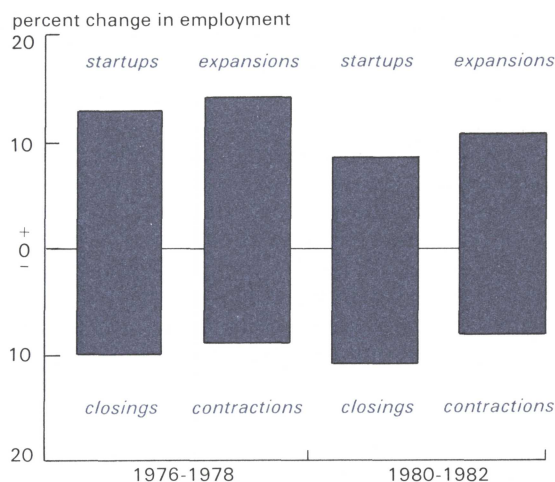
More variation exists among the states in the proportion of total employment located in small business establishments. Although employment in small business establishments represents about 27 percent of total employment in the Seventh District compared to 28 percent in the United States, the range among the states in the District is from a low of 24 percent in Illinois to a high of 35 percent in Iowa.

The proportion of establishments that are small businesses and their proportion of total

Figure 2
Small business employment by industry: 1983



Figure 3
Components of employment change over the business cycle: United States



employment varies considerably among industries. Agricultural services has the highest proportion of employment in small businesses at 60 percent nationally and in the Seventh District at 73 percent. Manufacturing has the smallest proportion at eight percent nationally and seven percent in the Seventh District. Other industries are within these ranges.

Components of employment change

The components of employment change are the proportions of employment change that occur in firms that are new, (i.e., births), in existing firms that are expanding or contracting, or in firms that have closed, (i.e., deaths). Comparisons of the behavior of the components of employment change over the business cycle indicate the differences in the sources of change during periods of the cycle.

Utilizing data from the USELM file allows an analysis to be made of employment change during a period of economic recovery and a recession. A comparison of the employment change between 1976-1978 (a period of recovery) and 1980-1982 (a recessionary period)⁸ indicates that nationwide most of the difference in employment change between the two periods is due to the decline in births and expansions. Very little of the difference in employment change is due to closings and contractions. About 10 percent of the employment

change from 1976 to 1978 was due to closings and about 11 percent in the 1980 to 1982 period—a very small difference. About nine percent was due to contractions in the earlier period and eight percent in the latter period. The major difference between the two periods is in the percentage of employment change due to births and expansions. Thus, births account for about 13 percent of the employment change during the recovery but only nine percent during the recessionary period. Similarly, the percentage contributed to employment growth by expansions dropped from 14 percent in the recovery period to 11 percent in the recessionary period.

These results are rather surprising in light of the emphasis that the media places on plant closings and layoffs. Considerably less attention is given to trends in new incorporations and firms expanding employment.

Comparisons of the sources of employment change in the Seventh District with that in the United States show the same pattern. The proportions of employment change from closings and contractions change very little between the two periods. Most of the differences were from declines in births and expansions.

The percentage change from closings is slightly lower for the District relative to the nation during both periods. The differences

due to contractions are mixed. Generally higher birth rates and greater employment growth mean higher closing rates.

The poorer performance of the Seventh District in employment growth during both periods is thus primarily due to lower percentage increases in employment from births and expansions.⁹ It also means that a higher percentage of the employment is in firms with no change in employment during the period.

Comparing the components of employment change for small businesses with the components of change for total employment in the Seventh District reveals that small businesses have higher employment rates from births and expansions during both periods of the business cycle. Except for the change in employment from closings during the 1976-1978 recovery period, small businesses also have smaller percentage changes in employment from closings and contractions than total employment throughout the cycle.

As a result of the higher contributions of births and expansions to employment growth and the generally smaller losses from closings and contractions, the contribution of small businesses to overall employment growth exceeds its share of total employment. This is consistent with the Birch results mentioned above.

Figure 4
Components of employment change over the business cycle: United States and Seventh District

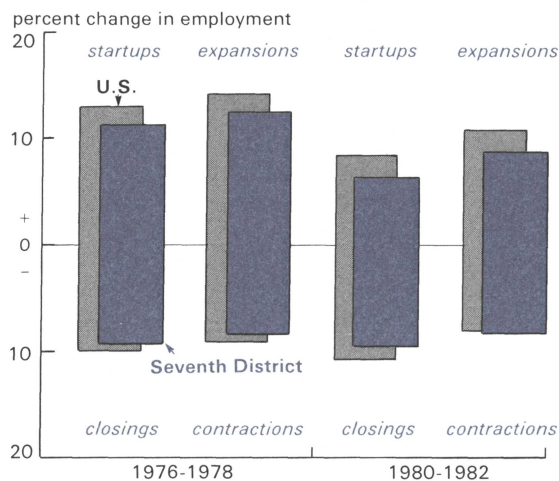


Figure 5
Components of small business and total employment change over the business cycle: Seventh District

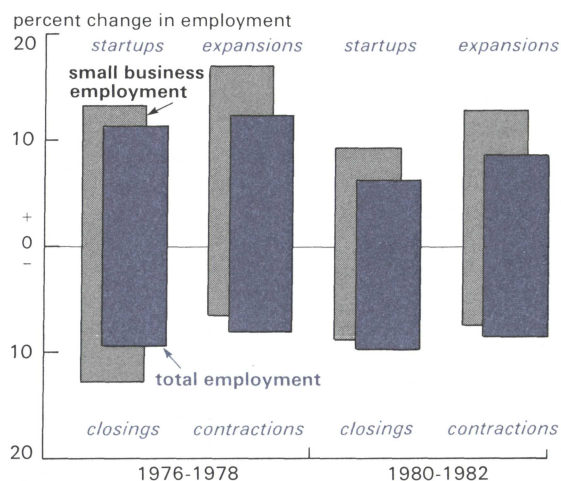
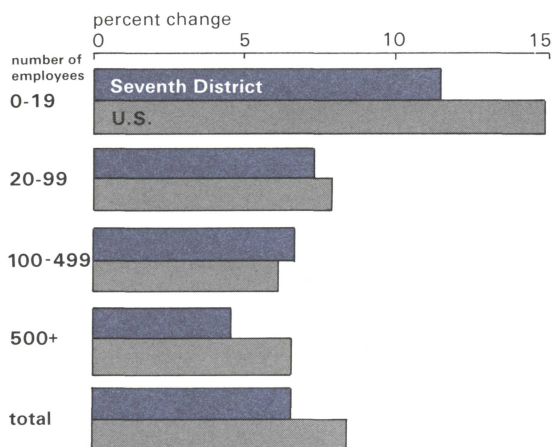


Figure 6
Employment change by firm size: 1976-78



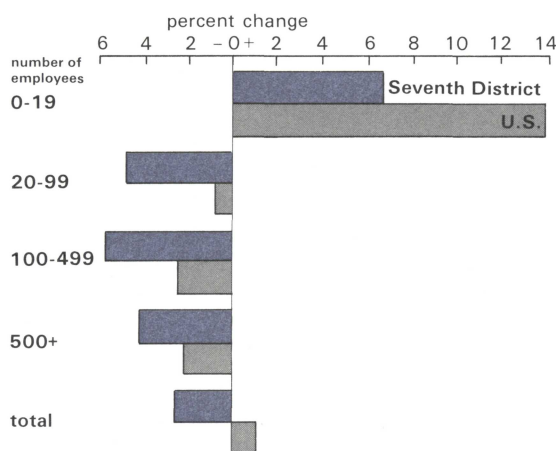
Importance of small businesses to employment growth

Small businesses are important to employment growth during both recovery and recessionary periods. The contributions of small businesses are particularly evident during recessionary periods when employment at medium- and large-sized businesses may be declining in the aggregate but employment growth is continuing in the group of small businesses with fewer than twenty employees.

For both the District and the nation the employment growth rate was greater for smaller firms than for other size groups during the recovery of 1976-1978. (See Figure 6.) With the exception of firms with 500 or more employees in the U.S., employment growth rates decreased as the size of the firm increased. In the Seventh District the rate of employment growth for all firm sizes except those with 100-499 employees was much lower than that nationally, a reflection of the poorer overall economic performance of industry in the District generally.

During the period from 1980-1982, the USELM data show that small businesses with less than 20 employees continued to increase employment. Firms in all the other employment size groups lost employment. In the Seventh District, although total employment declined about three percent during this period, small businesses had increased their employment by about seven percent. The same

Figure 7
Employment size by firm size: 1980-82

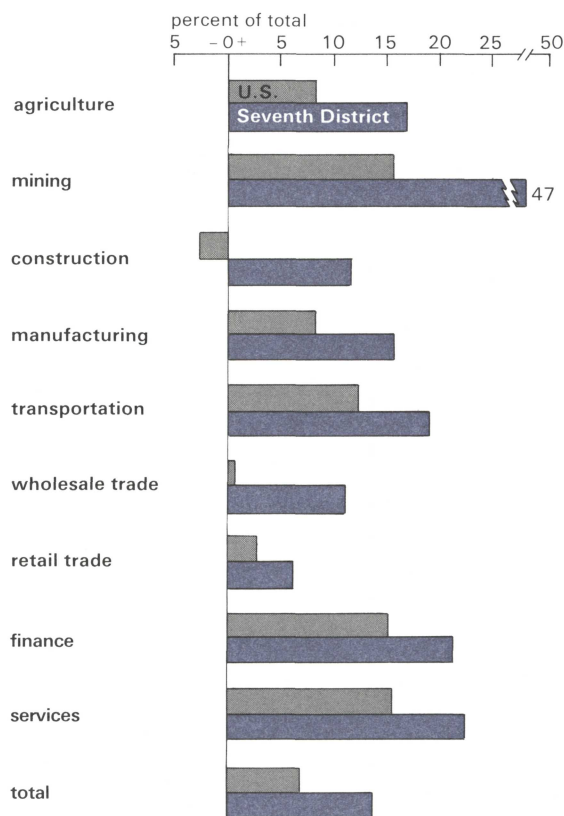


pattern was true for the United States but the employment growth rate for small businesses was greater at 14 percent and the employment loss rate was less for the other firm sizes than in the Seventh District. The growth rate for small businesses in the United States during this period was actually sufficiently large so as to offset the losses at medium- and large-sized businesses and thus produce a net gain in total employment.

Employment growth in small businesses during the recessionary period was not confined to just a few industry sectors but occurred generally in all industries. This was true for the nation as a whole and also in the Seventh District with the exception of the construction industry. The growth rates for employment in small businesses in the Seventh District, however, consistently lagged those in the United States in all major industry sectors.

There was, however, variation in small business growth rates among the industry sectors. Below average small business employment growth rates occurred nationally in retail and wholesale trade and in construction which have a higher base of small business employment. The same was true for these sectors in the Seventh District when compared to the District average. The strongest growth sectors both nationally and in the Seventh District were mining;¹⁰ services, which includes business services; finance, insurance, and real estate; and transportation and communications. Even

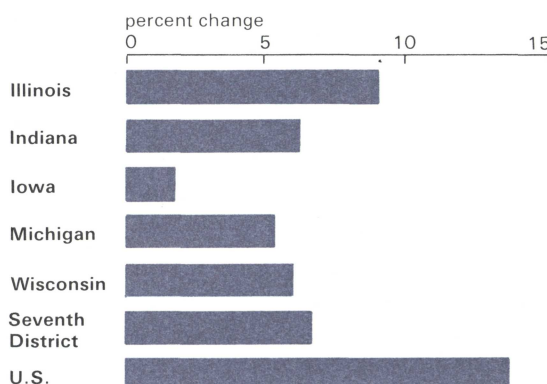
Figure 8
Small business employment change
by industry: 1980-82



small businesses in manufacturing and agricultural services, two sectors generally regarded as having performed poorly in employment during the recession, had small business employment growth rates which were slightly above the Seventh District small business average growth rate.

Among the individual states in the District, small business employment growth during the 1980-1982 period varied from a high of about nine percent in Illinois to a low of two percent in Iowa. Only Illinois was above the Seventh District average of seven percent. Small businesses in Illinois contributed half of the total small business employment growth in the Seventh District, but accounted for only about a third of small business employment. Despite a near-average rate of growth for a Seventh District state, small businesses in Michigan accounted for only 15 percent of

Figure 9
Small business employment change:
1980-82



small business growth in the Seventh District although the state had 25 percent of the area's small business employment.

The major factors contributing to the lagging growth of small businesses in the Seventh District during the 1980-1982 period were low birth rates and low expansion rates. The death rate (closings) of Seventh District small businesses was below the national average. This is consistent with the finding discussed above that areas with lower birth rates generally have lower rates of closings.

Differences in small business growth among Seventh District states were also largely due to relative performance in births and expansion. The stronger performance of Illinois reflected its above District average birth and expansion rates. Iowa's poor performance was due to its lower birth rate and expansion rate and a higher rate of contractions. Michigan and Indiana had similar birth, death, and contraction rates and the difference in contributions of small businesses to employment growth in the two states was due to the somewhat higher rate from expansions in Indiana compared to Michigan.

Employment growth in small businesses in the individual states varied among the major industries. In Indiana, employment growth in small businesses engaged in manufacturing was almost twice the District average and comparable to the national average. In Iowa the rate was half the District average and about one-fourth the national average. Michigan and Wisconsin were below the District average.

Table 1
Sources of small business employment change: 1980-82

	<u>Birth rate</u>	<u>Death rate</u>	<u>Net births</u>	<u>Expansion rate</u>	<u>Contraction rate</u>	<u>Net expansion</u>	<u>Total change</u>
U.S.	12.2	9.5	2.7	17.5	6.3	11.2	13.8
Seventh District	9.4	8.7	0.7	13.2	7.2	6.0	6.7
Illinois	10.7	8.8	1.4	14.1	6.3	7.8	9.2
Indiana	9.2	9.0	0.2	13.7	7.6	6.1	6.4
Wisconsin	8.8	8.2	0.6	13.1	7.5	5.6	6.2
Michigan	9.2	8.9	0.3	12.7	7.7	5.0	5.3
Iowa	7.9	8.5	-0.6	10.8	8.4	2.4	1.9

Both Illinois and Indiana showed strength in employment growth for small businesses in the finance, insurance, and real estate group. Indiana's strong showing was due mostly to relatively high expansion rates. Again Iowa's performance was poor and that in Michigan and Wisconsin was below the District average.

Small business employment growth in the wholesale trade sector was above the District average in Illinois but also in Michigan. Michigan's strong showing in wholesale trade was apparently due mostly to above average birth rates. Employment in small wholesale trade businesses in Iowa actually declined during the 1980-1982 period.

Conclusions

Analysis of existing small business datasets for Seventh District states gives results consistent with other research emphasizing the importance of small businesses for employment

growth. This result holds during both recovery and recessionary periods.

The components of job change that are most sensitive to the business cycle over time are births and expansions. Rates of employment growth from closings and contractions are less variable.

Small firms—those with 20 or fewer employees—create a larger proportion of new jobs than their share of employment in the economy and continue to create jobs even during recessions.

The patterns of employment growth for small businesses in the Seventh District are similar to that in the United States. However, the rates of employment growth were generally lower in the Seventh District during the two periods studied.

The strongest growth industries for small businesses during the recessionary period both nationally and in the Seventh District were mining; services including business services; finance, insurance, and real estate; and trans-

Figure 10
**Small business employment change:
manufacturing, 1980-82**

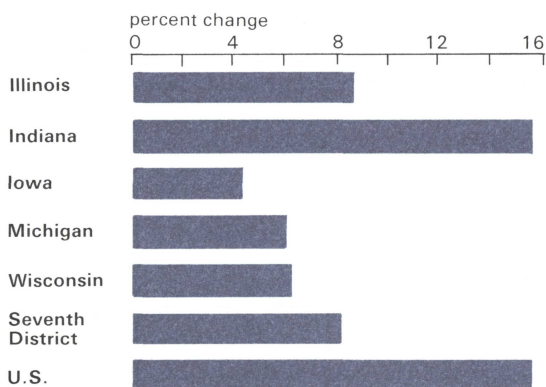


Figure 11
**Small business employment change:
finance, insurance, real estate, 1980-82**

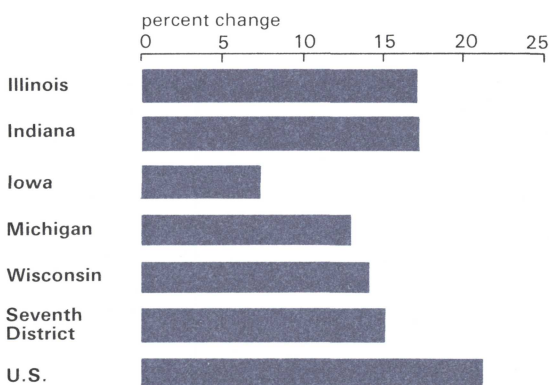
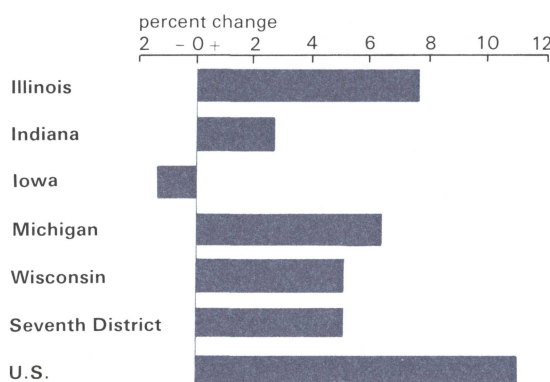


Figure 12
Small business employment change:
wholesale trade, 1980-82



portation and communications. The weakest sectors were retail and wholesale trade and construction. Small businesses in manufacturing and agricultural services had small business employment growth rates which were slightly above the overall small business average for the Seventh District.

Most of the variation in job growth among states is due to differences in job creation (i.e., births and expansions), not to the differences in job loss (i.e., deaths and contractions). In fact, areas with higher birth rates, and hence higher employment growth rates, tend to have higher death rates.

Small businesses had the highest employment growth rate in Illinois among Seventh District states and the lowest in Iowa. The stronger performance in Illinois reflects its above District average birth rate and expansion rate. Iowa's poor performance on the other hand was due to its lower birth rate and expansion rate and also a higher rate of business contractions.

The performance in individual states varied by industry. In Indiana, employment growth in small businesses engaged in manufacturing was almost twice the District average and comparable to the national average. In Iowa the rate was half the District average.

Both Illinois and Indiana showed strength in employment growth for small businesses in the finance, insurance, and real estate group. Indiana's strong showing was due mostly to relatively high expansion rates.

Small business employment growth in the wholesale trade sector was above the District average in Illinois but also in Michigan. Michigan's strong showing in wholesale trade was apparently due mostly to above average birth rates.

The findings cited in this study suggest that small business can have a net positive effect on employment, especially if a high rate of start-ups and expansions can be generated. From a public policy point of view the question that remains unanswered by the data is why do small businesses expand more rapidly in some states and regions than in others. Is it due to previous public policies (i.e., subsidized financing and assistance) or is it that some states have a more attractive entrepreneurial climate? The answer to this question will be a major contribution to the formulation of future public policies.

¹ Birch, David L., *The Job Generation Process*, M.I.T. Program on Neighborhood and Regional Change, Cambridge, Massachusetts, 1979.

² Birch, David L., and Susan MacCracken, *Corporate Evolution: A Micro-Based Analysis*, M.I.T. Program on Neighborhood and Regional Change, January 1981.

³ Armington, Catherine, and Marjorie Odle, "Sources of Job Growth: A New Look at the Small Business Role," *Economic Development Commentary*, Vol. 6, No. 3, Fall 1982, pp. 3-7. Armington, Catherine, and Marjorie Odle, "Small Business—How Many Jobs?," *The Brookings Review*, Vol. 1, No. 2, Winter 1982, pp. 14-17.

⁴ Birch, David, and Susan MacCracken, *The Small Business Share of Job Creation: Lessons Learned from the Use of a Longitudinal File*, M.I.T. Program on Neighborhood and Regional Change, Cambridge, Massachusetts, November 1982.

⁵ For more information on the Small Business Data Base, see *The Small Business Data Base: A User's Guide*, Office of the Chief Counsel for Advocacy, U.S. Small Business Administration, Washington, D.C., June 1986 and Bruce D. Phillips, *The Development of the Small Business Data Base of the U.S. Small Business Administration: A Working Bibliography*, Office of Advocacy, U.S. Small Business Administration, Washington, D.C., Revised November 1985.

⁶ Lou Jacobsen, *Analysis of the Accuracy of SBA's Small Business Data Base*. Prepared by the Hudson Institute of the Center for Naval Analysis under

contract to the Office of Advocacy of the U. S. Small Business Administration, August 1985.

⁷ *The Job Generation Process in Wisconsin: 1969-1981*, Report 84-2, Bureau of Research, Division of Policy Development, Department of Development, State of Wisconsin, December 1984.

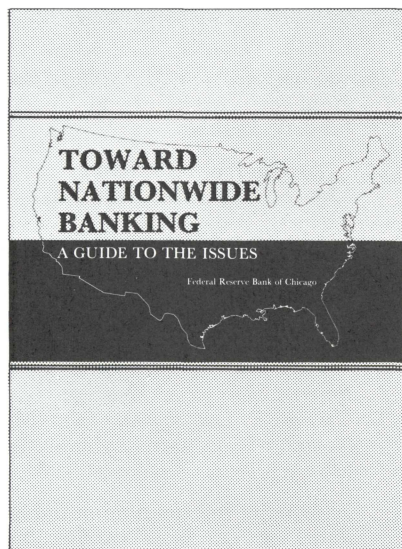
⁸ Technically, the 1980-1982 period contains two recessions and one recovery; however, the recovery lasted only 12 months.

⁹ Overall employment in the District underperformed trends in nationwide employment. From March 1976-March 1978 seasonally adjusted payroll employment in the District was up seven percent and eight percent in the U.S. From March 1980-March 1982 employment was down six percent in the District and one percent in the U.S.

¹⁰ While strong in percentage terms, this sector has a low starting base of employment.

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