

2 copies

881676

UNDERSTANDING JOB GROWTH
IN MINNESOTA

September 1986

Prepared by

Minnesota Department of Energy and Economic Development
Policy Analysis Division
900 American Center Building
150 East Kellogg Boulevard
St. Paul, Minnesota 55101

PREFACE

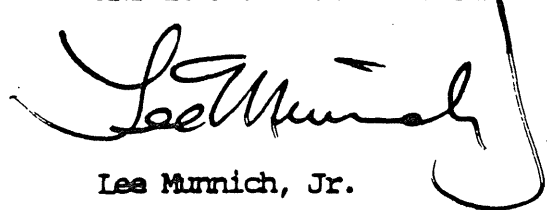
This study presents an analysis of important factors affecting the job creation process in Minnesota industry. The extent of job gains from new business formation and expansion, as well as job losses from business dissolution and contraction, is examined across different sizes of firms, types of industries, classes of ownership and location of corporate headquarters, and during different phases of the business cycle. This study reveals new trends in job creation and breaks with conventional belief about the dominance of small independent firms in job creation. The findings from this study will be used to assist the Commission on the Economic Future of Minnesota in developing effective strategies for economic development.

This report is authored jointly by Ernesto C. Venegas, Chris Evans and Rose Ripka, Forecasting and Modeling Manager, Economic Research Analyst, and Research Analyst, respectively, in the Policy Analysis Division, Minnesota Department of Economic Development.

Policy Analysis Division

MINNESOTA DEPARTMENT OF ENERGY

AND ECONOMIC DEVELOPMENT



Lee Munnich, Jr.

Assistant Commissioner

Executive Summary

This study analyzed Microdata files of the U.S. Small Business Administration that track the growth of establishments and business firms since 1976. The objectives of the study are to determine the relative contribution of small firms and large firms to job creation in the state, evaluate the performance of these firms during business cycles, compare job gains and losses by independent firms with those by branches of corporations, and measure job changes from interstate migration of businesses. The findings from this study will be used to assist the Commission on the Economic Future of Minnesota in developing effective strategies for economic development.

Establishments are separate operating units or branches of business firms. In 1984, more than 87 percent of all establishments in the state had fewer than 20 employees. Small entities reporting fewer than 100 employees comprised 98 percent of all establishments. This creates a large clientele for economic policies favoring small businesses. Also, 87 percent of all births and deaths of establishments between 1976 and 1982 were confined to businesses owned by small firms with fewer than 100 employees. This high volatility exhibited by small firms occurs nationwide. Large numbers of small establishments being formed or dissolved each year give an impression that these small firms are the important, yet volatile, factor in job creation.

However, nonfarm employment was distributed evenly across different sized establishments in the state, with the few large establishments providing as much as 20 percent of employment. Small, independent firms own mostly the very small, entrepreneurial establishments with fewer than 20 employees. Small establishments with 20 to 99 employees are owned by small, medium-sized and large firms. Likewise, medium-sized establishments with 100 to 499 employees are owned by medium-sized and large firms. In fact, large firms have more than half their total employment in their small and medium-sized branches. In formulating jobs policy, it is important to examine the impact of branching activity by large firms on new job creation and the extent of their control over small operating businesses. Working with the few large corporations to promote branching operations could be productive in creating jobs, developing new areas of opportunity and stabilizing the job base. More direct and cost-effective inducements could be designed for this group, such as skills development and retraining for the local labor force. On the other hand, small entrepreneurial firms are numerous and naturally volatile, and they are not generally influenced by conventional policy initiatives.

During the period 1976 to 1982, large firms with 500 or more employees provided 43 percent of net new jobs in the state, and most of these jobs were created in their small and medium-sized branches. This compares with 49 percent of net new jobs that were created by small firms with fewer than 100 employees. It is significant that net job creation by these small firms reaches only about as much as their share of total employment.

The contribution of small firms to net job creation is generally believed to be larger at the national level. Earlier estimates by Professor David Birch at the Massachusetts Institute of Technology that

indicated a high reliance on small firms for job growth are now being revised downward. Using data for establishments and business firms from 1969 to 1976, Birch found that small firms with no more than 100 employees created 82 percent of net new jobs in the nation. However, the original data source did not report the year that branches were started so that new branch listings were assumed by Birch to be births of new small businesses. This was corrected by the Brookings Institution on similar data for 1978-1980. Brookings estimated that 78 percent of the net increase in jobs occurred in establishments with fewer than 100 employees, but small independent firms generated only 39 percent of the net new jobs. It appears that formation and expansion of small branches by large firms provided half the net job creation by small establishments.

Branching was first noted by Birch as the main form of corporate expansion, and this activity continued through the rest of the 1970s and early 1980s. Hence, jobs policy should continue to encourage branching and expansion by Minnesota-based corporations because these are sources of large numbers of jobs.

In Minnesota, expansion of existing businesses provided slightly more new jobs than births of new businesses. By contrast, in Wisconsin, other neighboring states and the nation, births of new businesses provided significantly more jobs than expansion of existing businesses. Job losses from business deaths were larger than losses from business contractions. This was due partly to the tendency of small firms to dissolve entirely rather than contract.

Minnesota, Wisconsin, North Dakota and South Dakota fared as well or better than the nation in terms of net job creation. For the older industrial states of Illinois, Ohio, Michigan and Indiana, a combination of business contraction and slow expansion by large firms that were adjusting to more competitive markets resulted in below-average performance at net job creation. Hence, job losses now vary across states, depending on the industrial mix of the state's economy. With almost similar rates of job gains from business births, it appears that net job creation across states depends more on their ability to sustain and foster existing businesses, compared to differential rates of new business formation. This suggests a jobs policy that continues to support and nurture existing businesses.

Large job losses in the state came from dissolution or deaths of establishments, particularly during the 1982 recession. In fact, business dissolutions and contraction determined the direction of net job creation in the state during the last business cycle. Business births and expansion generated more new jobs during the 1980-1982 recessionary period than during the previous 1978-1980 period, but large job losses from business deaths and contraction during the recession severely limited the size of net job gains.

During the 1982-84 economic recovery, job losses from business deaths started to recede for large firms, but business contraction was still removing numerous jobs.

Small firms with fewer than 100 employees created substantial numbers of new jobs from business births, but these were accompanied by equally large losses from business deaths. During economic recoveries, small firms

accounted for a larger proportion of job gains and losses from business births and deaths, compared to large firms with 500 or more employees.

Thus, it is important to analyze the factors affecting the viability of existing businesses in the state, and keep current with market developments that could adversely affect large employers. A jobs policy supporting branching of large firms would promote stability in the economy, compared to the volatility introduced by numerous births and deaths of small firms.

Between 1976 and 1982, the services sector led all industries in terms of net job creation. Some 41 percent of net new jobs were created in the services sector, followed by retail trade at 23 percent and manufacturing at 15 percent. Services was the only sector that showed a disproportionately large share of net new jobs, compared to its share of total employment. Also, employment and net job gains in the service sector were bi-modal, concentrated in both small firms with fewer than 100 employees and large firms with 500 or more employees. In contrast, retail trade had a larger concentration of small firms, where business births and deaths were the important causes of job changes. In manufacturing, the new jobs were concentrated in large firms, but net job creation by these large firms amounted to only half those created by small manufacturing firms. Numerous jobs were created through formation of new businesses and expansion by several large manufacturing firms, but jobs lost due to dissolution of branches and contraction by other large manufacturing firms were substantial and nearly offsetting. These job losses resulted from business reorganizations, closing old plants and phasing-in new technologies in response to keener competition in national and world markets. This turnover of businesses and jobs is healthy for the economy over the long term. Large manufacturing firms still have enormous job creation potential. After they have adjusted to new economic conditions ushered by the 1982 recession, large manufacturing firms could reduce losses from business deaths and contractions, and create many net new jobs.

Most of the new jobs from business expansion were created by large firms in manufacturing and services. Expansion by a number of small service and retail firms also contributed to job gains, but births and dissolutions were the major sources of job changes in these businesses. Small firms in services and trade are location-specific because they compete mostly in local markets, opening and closing businesses in several neighborhood locations according to changes in population densities, consumer incomes and purchasing patterns. Hence, different patterns of job creation emerged for various industries depending on the dominant type and size of firms, characteristics of their products or services, and developments in their markets. Jobs policy should encourage new investments in capital and labor in order for manufacturing to regain its competitiveness and keep current with its markets.

When classified by type of input/market orientation, business firms in banking, insurance and other producer services led all groups in net job creation. This was followed by health services, retail trade and technology-intensive industries. Resource-intensive, capital-intensive and labor-intensive industries were less significant job providers in the state during the 1976-1982 period. Most of the job gains in producer services, health services and technology industries came from expansion of existing

establishments rather than births of new establishments. These expansion activities create agglomeration economies and economies of scale that benefit client industries and consumers in the form of lower unit costs for their products and services. Such economies are important to the producer services and health service industries themselves, because they compete in neighboring states and national markets. In contrast, births of new businesses are a more important source of new jobs for consumer-oriented and location-specific industries in consumer services and retail trade.

Minnesota-based firms provided more than 80 percent of nonfarm employment in the state. Independent firms that are predominantly small accounted for half of employment, followed by corporate headquarters and their branches at one-third of the jobs. Employment in corporate headquarters alone provided about one-fifth of all jobs. Branches of out-of-state firms contributed 17 percent of nonfarm jobs in Minnesota, compared to 23 percent for Wisconsin. This high proportion of corporate jobs and total jobs controlled by Minnesota-based firms tends to promote economic stability. In Wisconsin, multiple-location, Wisconsin-owned firms were less affected by the recession, continuing to generate jobs and losing relatively fewer jobs if they contract.

Between 1976 and 1984, employment by branches of corporations based in the state grew by 38 percent, compared to a 30 percent gain for independent firms. Establishments based in the north central region showed a 20 percent increase in employment within the state, while branches of firms located outside the region grew by only 10 percent. Hence, branching activity by corporations based in Minnesota are already producing significant numbers of jobs, with a growth rate higher than those by independent firms. This suggests that local economic conditions are conducive to job growth at corporate branches.

Branches of corporations based outside the state displayed an 18 percent share of total job gains, but this was lower than their 22 percent share of job losses. In-migration through formation of new branches contributed 13 percent of new jobs, while out-migration by dissolution of branches comprised 19 percent of job losses. Expansions and contractions of firms with out-of-state headquarters were not significant.

Two-thirds of establishments existing in 1976 and owned by corporations based outside the state ceased operations by 1984, compared to 53 percent losses for independents and 48 percent for establishments owned by Minnesota-based corporations. Firms with headquarters located further away from Minnesota are more likely to dissolve rather than contract. This reflects on the volatility of establishments owned by firms based outside the state.

Locally based independents and branches of corporations are the dominant sources of net new jobs. For firms based outside the state, job gains from in-migration are nearly offset by job losses from out-migration. Hence, jobs policy in the state should focus on Minnesota-based firms, as exemplified by a business "retention-expansion" program now being promoted at the local community level.

In contrast to surrounding states and the nation, business expansion in Minnesota produced more new jobs than business births. Large firms were

relatively more important sources of new jobs in the state, compared to those in other states. Examination of growth patterns and business ownership reveals that public policies that induce large corporations to venture into new fields and businesses could be equally productive to job creation in Minnesota, compared to assisting the formation of numerous small businesses. This is a departure from a policy of concentration of efforts towards small firms, advocated earlier by Birch and accepted as conventional wisdom. Branches of large corporations have the advantage of administrative, technical, financial, marketing and other support services of the parent firm. This promotes job stability and enhances the success of new business ventures, compared to the volatile nature of small independent firms. Large firms were adversely affected by the last recession, but the creation of numerous jobs through formation and expansion of branches during that period suggests enormous potential for job growth.

Minimization of job losses should be pursued and this involves identification of viable industries. The high turnover of small firms through births and deaths is an indifferent market selection process, which does not consider benefits from job and income stability, and economies from agglomeration and expansion of related industries. This study found retrenchment by manufacturing as a large source of job losses during the recession, but large firms in manufacturing and its related producer services industry have enormous potential for job growth. Moreover, banking, legal services, health services and other producer and consumer service industries grew with manufacturing and other basic industries, and they now have the size and cost structure to compete in surrounding states and national markets.

Introduction

After the Arab oil price shocks and inflationary period of the 1970s, U.S. industry lapsed into a short recession in 1980 and a deep recession in 1982, followed by heightened competition in national and world markets from foreign producers. The strength of the dollar, emerging trends toward new products, production processes and cost structures, and new economic realities of the 1980s severely affected the ability of U.S. industry to create and maintain jobs for the growing labor force. States compete not only for new factories and new businesses, but even for the relocation of company headquarters and existing production operations. Tax increment financing, tax abatements, training facilities, employee housing and other incentives including outright grants are offered by various states to attract new businesses. It is hoped that the influx of these businesses will expand the local economy and widen the tax base.

According to Professor David Birch of the Massachusetts Institute of Technology,

"We know very little about who generates jobs, where they generate them, who controls those jobs, and who is thus most likely to respond to economic development incentives. In the absence of such knowledge, our approach has usually been to stimulate whole economies with such shotgun policies as tax incentives and easy access to money and public works programs. This can be very expensive and inflationary strategy if, in fact, most of the recipients do not use the incentives to increase employment and/or productivity. What we need and have lacked, is the ability to target our incentives to those who can make good use of them without wasting taxpayer's monies on those who cannot." (Birch, 1979, p.2)

It is the purpose of this study to answer these questions posed by Birch of who generates new jobs for the Minnesota economy and where losses occur. The study will identify the characteristics of Minnesota's job-generating businesses in order to assist the Commission on the Economic Future of Minnesota in developing effective strategies for economic development.

Review of literature

New jobs are created by births of new businesses and expansion of existing firms, but equally important are jobs lost by dissolution or contraction of existing businesses. The level of employment during a given year is the net effect of independent actions by these businesses prior to that year. Between 1969 and 1976, Birch found, the rate of job losses due to business dissolutions and contractions nationally was quite high at eight percent per year, and this was consistent for all states (Birch, Ibid., p.4). At this rate, every area loses about 50 percent of its job base every five years (Greene, 1982).

The high rates of job losses observed by Birch were offset by equally

large job gains due to formation of new businesses and expansion of existing businesses (Birch, Ibid., pp.6-17). At the national level, two-thirds of all net new jobs were created by very small firms with fewer than 20 employees; and about four-fifths were created by firms with fewer than 100 employees. These firms were mostly independent and volatile. With this knowledge, the easier strategy relied upon by most state governments of working with larger, known corporations did not seem productive in creating jobs (Birch, Ibid., p.20).

The Brookings Institution reviewed the components of employment change between 1978 and 1980 using an update of the Establishment and Enterprise Microdata files of the U.S. Small Business Administration which were first produced and analyzed by Birch. During the economic expansion period of 1978-80, 55 percent of net employment growth occurred in establishments with fewer than 20 employees, and 78 percent of net growth occurred in establishments with fewer than 100 workers (Armington and Odle, 1982). However, the new data suggested that a significant portion of the growing small establishments were branches or subsidiaries of large firms. Small, independent firms with fewer than 100 workers generated only 39 percent, not 78 percent, of net new jobs using this analysis. About half of the employment growth by small establishments represented branching or formation of subsidiaries by large firms (Greene, 1982). This finding contradicted the dominance of small firms in job creation espoused by Birch and the conclusions drawn from the earlier study. It appeared that branchings by corporations were assumed as births in the earlier study, thus crediting the new jobs to small firms rather than to branching by large firms.

The University of California Institute of Urban and Regional Development used a sample of individual employer records from the mandatory unemployment insurance system to analyze job creation in the state (Teitz, 1981, Greene, 1982). Between 1975 and 1979, small establishments accounted for 56 percent of net new jobs. There appeared some concentration of employment growth in relatively few small firms. Also, more than 90 percent of net new jobs in young, small firms were in nonmanufacturing. In California manufacturing, larger firms were the major generators of net new jobs.

The Wisconsin Department of Development used the U.S. Small Business Administration Microdata files to analyze job growth between 1969 and 1976, and unemployment insurance data for 1977 to 1981 (Wisconsin Department of Development, 1984). Major conclusions were:

- * Very small businesses with no more than 20 employees dominate the job generation process in Wisconsin. Most new jobs in this class are created through new business starts or births. Most job losses among very small businesses occur through business dissolutions or deaths and not contractions. During the short economic downturn in 1980, only very small businesses gained more jobs than they lost, primarily due to their low contraction rates.

- * Overall, expansion of existing businesses in Wisconsin created the vast majority of jobs, rather than new enterprises that start up or migrate from other areas.

* During both economic expansions and recessions, 90 percent of jobs lost come from firms that cut employment, and only 10 percent from business closings.

* Firms with headquarters in Wisconsin generate more new jobs during economic expansions and lose fewer jobs in recessions than branches of out-of-state firms. Furthermore, migration of firms across state lines does not seem important in job gains or losses between 1969 and 1976.

From this study, the Wisconsin Department of Development recommended first priority to a business "retention/expansion" program for existing businesses. Although births of small businesses created large numbers of jobs, expansion of existing firms in Wisconsin provided the single most important source of new jobs. The policy recommendations attached great emphasis on working with existing businesses to help them succeed and grow. Similar to Birch, the Wisconsin study indicated that migration of businesses and rates of dissolutions were less important than new job creation through births and expansions.

In Minnesota, Tazell used unemployment insurance data for 1977 through 1980 to determine survival rates of new businesses (Tazell, 1982). One-third of all businesses that started in 1977 were dissolved by the end of 1980. Ninety-nine percent of the failed businesses had fewer than 50 employees. About half the newly established small firms (fewer than 50 employees) were out of business by 1980, compared to 16 percent for large firms.

Objectives of the study

This study analyzes the sources of job growth in Minnesota from 1976 to 1984 using Microdata files of the U.S. Small Business Administration. The influence of the following factors on job creation is examined in this paper in order to find opportunities for emphasizing or formulating effective development policies:

- o Size of firm

Very Small (entrepreneurial)	fewer than 20 employees
Small	20-99 employees
Medium	100-499 employees
Large	500 or more employees

- o Business cycles

Economic recovery	1976-1978
Economic expansion	1978-1980
Deep economic recession	1980-1982
Economic recovery	1982-1984

- o Industry sector groupings

Major economic sectors	One-digit Standard Industrial Classification (SIC)
Major industry sectors	Two-digit SIC
Input/market similarities	Groups of two-digit SICs

- o Business organizational structure
 - Independent, single location businesses
 - Corporate headquarters
 - Corporate branches

- o Location of headquarters
 - Minnesota
 - Rest of north central region
 - Outside of north central region

The specific objectives of this study are:

* To evaluate the performance of small firms versus large firms in creating jobs, retaining jobs and weathering recessionary periods of the business cycles.

* To analyze the distribution of small and large firms among various industries and review the sources of net new jobs in the state.

* To investigate any differences in job growth components: births, deaths, expansion and contraction due to differences in ownership of establishments and location of headquarters.

* To determine the job impact of firms migrating into the state, as well as of firms leaving the state.

* To compare the sizes and importance of job creation components in Minnesota with those in surrounding states and the nation.

Sources of data

Social and Scientific Systems, Inc., and the Office of Advocacy, U.S. Small Business Administration (SBA), provided time series data on sources of employment change in Minnesota, neighboring states and the nation by size group of the reporting firms, industry classification, and organizational structure. The original source of data was a Dun and Bradstreet (D&B) Market Identifier File for all businesses with commercial credit ratings. Information collected by D&B includes year started, location, employment, sales, major industry and any branch or subsidiary relationships. SBA proceeded to create from this file its own U.S. Enterprise and Establishment Microdata (USEEM). This became a bi-annual data base on employment, sales, organizational relationship and location of nearly all U.S. firms and their branches. SBA took a 50 percent stratified sample of USEEM to construct the U.S. Establishment Longitudinal Microdata (USELM), which links establishment records over time (Boden and Phillips, 1985). This sample was used to estimate the components of job growth between 1976 and 1982 for the nation and various states.

In this study, the data series covering 1976 through 1982 came from the USELM 50 percent sample of USEEM. Separate compilations were performed on the entire USEEM data file for the 1982-1984 and 1976-1984 tables. These more recent tabulations were intended to provide detail on ownership of firms and location of headquarters. However, data verification and processing are still continuing for this series, and errors on employment data increase with greater disaggregation of industry sectors. This report used the newer data to review overall job creation performance during the 1982-1984 economic recovery, and analyze the effects of different types of ownership, location of firm headquarters and migration of establishments on job creation. Industry detail and direct comparisons with earlier data series were avoided.

Employment data reported by various sources

Table 1 presents employment data for Minnesota as reported by various sources. The Minnesota Department of Jobs and Training (DJT, formerly Department of Economic Security) reports total jobs including farm employment, self-employed and all other categories. This is based on monthly household surveys that generate statistics on labor force and unemployment rates. In addition, DJT prepares wage and salary data from monthly sample surveys of business firms that are subject to unemployment insurance reporting requirements. These employment estimates do not include self-employed, agriculture and other categories not covered by unemployment insurance. The County Business Patterns (CBP) reports employment for the same categories as wage and salary data, but CBP data come from annual company surveys and search of administrative records by the U.S. Department of Commerce. CBP shows the lowest employment totals for the state, owing to a more limited coverage of its sources. Also, CBP and wage and salary data are based on establishments, defined as separate operating units of a business firm.

Employment reported under Dun and Bradstreet originated from its master list of companies that applied for credit ratings. This data file has practically no coverage for the farm sector, government and semi-public agencies, and it could understate the numbers of very small proprietary

Table 1. Comparison of Employment Data for Minnesota, 1976-1984.

Year	Total Jobs	Wage & Salary	County Business Patterns	Dun & Bradstreet
(all figures in thousands)				
- number of jobs -				
1976	1,740	1,520.9	1,191.1	1,311.1
1978	1,903	1,689.3	1,383.4	1,432.3
1980	1,985	1,770.2	1,494.7	1,532.8
1982	1,998	1,707.3	1,434.5	1,565.3
1984	2,088	1,824.1	1,505.6	
- Net Changes -				
1976-78	163	168.4	192.3	121.2
1978-80	82	80.9	111.3	100.5
1980-82	13	-62.9	-60.2	32.5
1982-84	90	116.8	71.1	

Sources: Total Jobs = Minnesota Department of Economic Security, Review of Labor and Economic Statistics, August 1985, St. Paul, Minnesota.

Wage and Salary = Minnesota Department of Economic Security, Non Agricultural Wage and Salary Data, Employment and Earnings, April 1985, St. Paul, Minnesota.

County Business Patterns = U.S. Bureau of Census, County Business Minnesota, Annual, Washington D.C.

Dun and Bradstreet = Social and Scientific Systems, Inc., "Tabulation of USELM for Paired Years," under Contract with U.S. Small Business Administration, 1986, Bethesda, Maryland.

businesses. SBA processed this data file to track births, deaths, expansions and contractions of business firms at the national level (USELM). Current tabulations at the state and substate levels are also available.

Economic expansion from 1976 through 1980 produced large numbers of new jobs that were reflected in all data sources. A different pattern emerges during the subsequent economic downturn. During 1980-1982, the decline in total count of jobs was captured by wage and salary and CBP data but not by total jobs and D&B. The greater sensitivity of data based on unemployment insurance to the recession was also reported by SBA for other states (SBA, 1984). During the 1982-1984 recovery, total jobs and wage and salary data showed strong employment gains, while CBP lagged with its mid-March employment count for 1984. CBP will capture most of the employment growth during 1984 with its 1985 survey.

Employment in establishments versus employment in firms
as basis for size classification of businesses

Wage and salary data and CBP use employment in separate operating establishments to form various size classes of businesses. In contrast, D&B aggregates employment in all branches or establishments owned by a firm, and forms various size classes of firms. In 1982, wage and salary data indicated 85,731 very small establishments (fewer than 20 employees) employing some 370,000 workers (Table 2). CBP reported 73,836 very small establishments, with 381,000 workers. On the other hand, D&B reported 73,017 very small firms with 369,000 workers. The similarity of job counts among data sources for the very small establishments and very small firms implies that almost all very small establishments are also very small, independent firms. This size class is characterized as the small, independent and entrepreneurial class of business. In contrast, small independent firms with 20 to 99 employees reported a total of 267,000 jobs, compared to more than 400,000 jobs in small establishments of this size. Hence, 140,000 jobs or slightly more than one-third of employment in small establishments were provided by medium-sized and large firms in their smaller branches.

Similarly, medium-sized independent firms (100-499 employees) provided 242,000 jobs, compared to 343,000 jobs in medium-sized establishments posted by CBP.

CBP reported 302,000 jobs in large establishments (500 or more employees), but D&B showed a total of 688,000 jobs provided by large firms. Hence, more than half of total employment reported by large firms to D&B were in their small and medium-sized branches. CBP showed only 238 separate large establishments, while D&B reported a total of 5,532 small, medium-sized and large establishments owned by large firms in various locations in the state (See Table 2).

This distribution of employment among various sizes of establishments and sizes of firms indicates that the numerous jobs in small operating establishments are not entirely created or controlled by small, independent firms. A significant proportion of jobs in small and medium-sized establishments represents branching activity by large firms. Earlier, Birch understated the size of this activity, but later noted the importance

Table 2. Comparison of Number of Establishments and Employment From Various Data Sources, by Size Group, Minnesota, 1982.

Data Source	Very Small (below 20)	Small (20-99)	Medium (100-499)	Large (500+)	Total
Number of Establishments					
Wage and Salary a)	85,731	10,406	2,136	327	98,600
County Business Patterns a)	73,836	9,986	1,808	238	85,868
Dun & Bradstreet (Firms) b)	73,017	10,088	3,997	5,532	92,634
Number of Employees					
Wage and Salary a)	369,956	425,876	413,884	432,271	1,641,987
County Business Patterns a)	381,140	408,507	343,239	301,620	1,434,506
Dun & Bradstreet (Firms) b)	368,582	267,025	241,965	687,712	1,565,284

SOURCES:

Total Jobs = Minnesota Department of Economic Security, Review of Labor and Economic Statistics, August 1985, St. Paul, Minnesota.

Wage and Salary = Minnesota Department of Economic Security, Non Agricultural Wage and Salary Data, Employment and Earnings, April 1985, St. Paul, Minnesota.

County Business Patterns = U.S. Bureau of Census, County Business Patterns, Minnesota, Annual, Washington, D.C.

Dun and Bradstreet = Social and Scientific Systems, Inc., "Tabulation of USELM Data for Paired Years under Contract with U.S. Small Business Administration, 1986 Bethesda, Maryland.

a) classified by size of establishment

b) classified by size of parent firm of the establishments

of branching as the main form of corporate expansion (Birch, Ibid., p.81). This branching should be encouraged among Minnesota-based corporations because it involves large numbers of jobs.

More than 87 percent of all establishments in 1984 had fewer than 20 employees (Figure 1). Small entities reporting fewer than 100 employees comprised 98 percent of all establishments in the state. However, employment was distributed evenly across different sizes of establishments, with the few large establishments contributing as much as 20 percent of total employment. This distribution of the number of establishments and employment was little changed from 1976 to 1985 (Figure 2).

The proliferation of small establishments and small firms creates a large clientele for economic policies favoring small businesses. However, medium-sized and large establishments are just as important as small establishments in terms of total jobs provided. While fewer in number, these medium-sized and large establishments should receive as much consideration as the numerous small businesses in the formulation of job strategies.

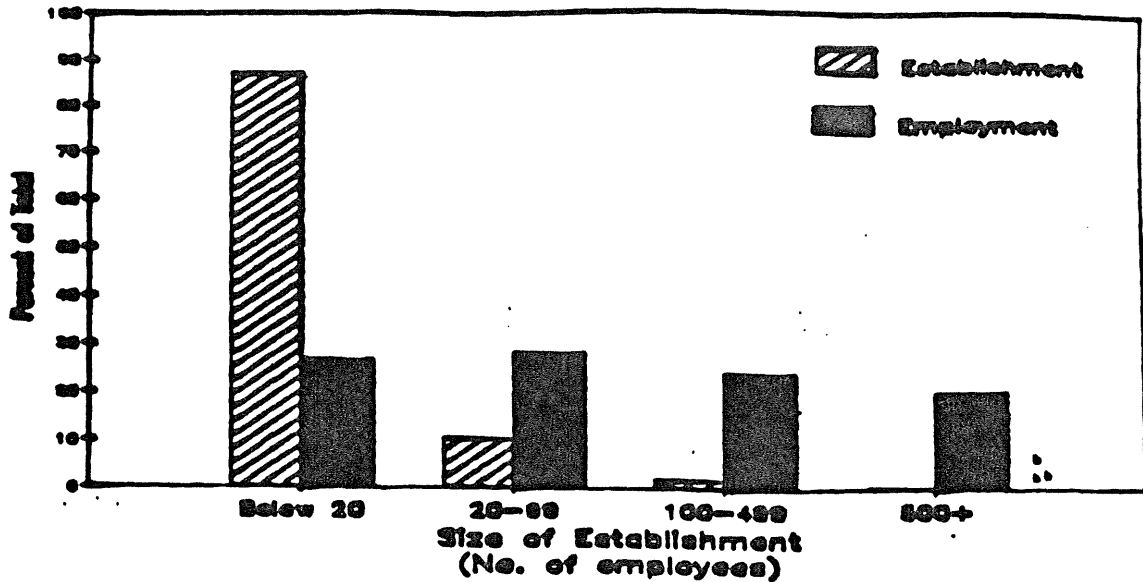
Between 1976 and 1984, more than 56 percent of net job gains were created in establishments with fewer than 100 employees (Figure 3). Medium-sized establishments contributed about 25 percent of the net employment change, while large establishments accounted for 18 percent. Most of the very small establishments (fewer than 20 employees) were independent businesses, while large firms own many small and medium-sized establishments (20-499 employees). Hence, half of net new jobs were created in small establishments predominantly owned by small firms (fewer than 100 employees), while the other half were created by medium-sized and large firms that were expanding and diversifying their operations across their small, medium-sized and large branches. This reinforces the argument that small firms should not overshadow the larger firms during development of new job strategies.

Importance of large firms

Large firms may own one or more large establishments, a number of small branches or establishments, medium-sized branches, or a combination of these size classes. A large firm may have its headquarters in Minnesota, surrounding states, or elsewhere. Decisions made in these headquarters affect employment in all its branches by way of changes in product emphasis, investment and location plans. Between 1976 and 1982, large firms with 500 or more employees contributed 43 percent of net job gains, and most of these jobs were created in their small to medium-sized branches (Figure 4). This contribution compares with the combined 49 percent of net gain provided by very small firms (fewer than 20 employees) and small firms (20-99 employees). Medium-sized firms with 100 to 499 employees provided eight percent of net job gains. Thus, large firms not only control as many jobs as small firms, but large firms also create many new jobs like the small firms.

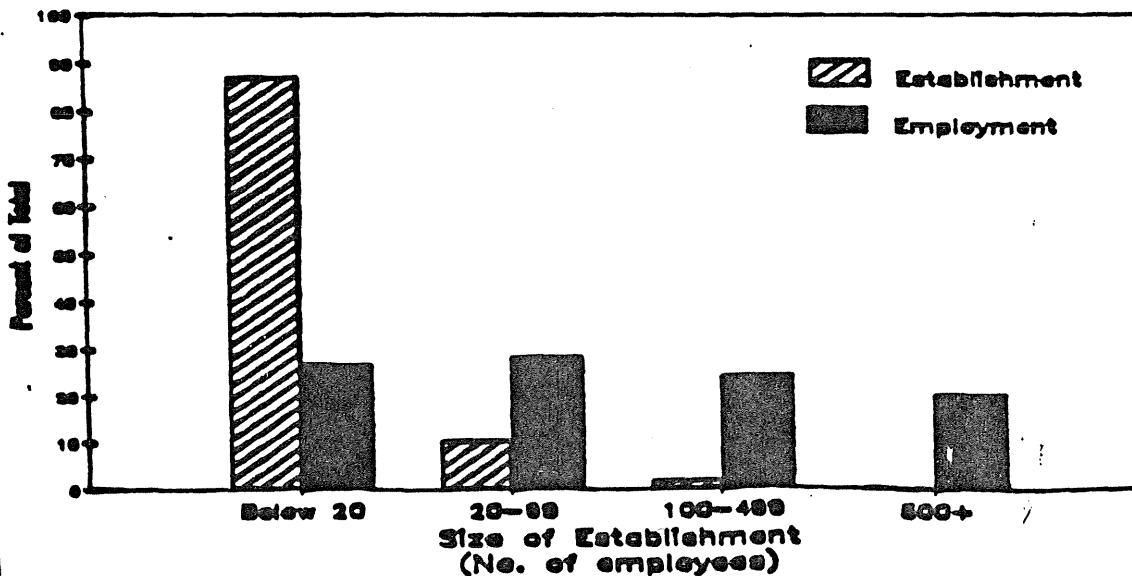
D&B data that are used in this report group businesses into various size classes according to the total count of jobs from all branches, headquarters and separate establishments of each firm. This is important because:

Fig. 1. Distribution of Establishments and Employment by Size Class, Minnesota, 1984.



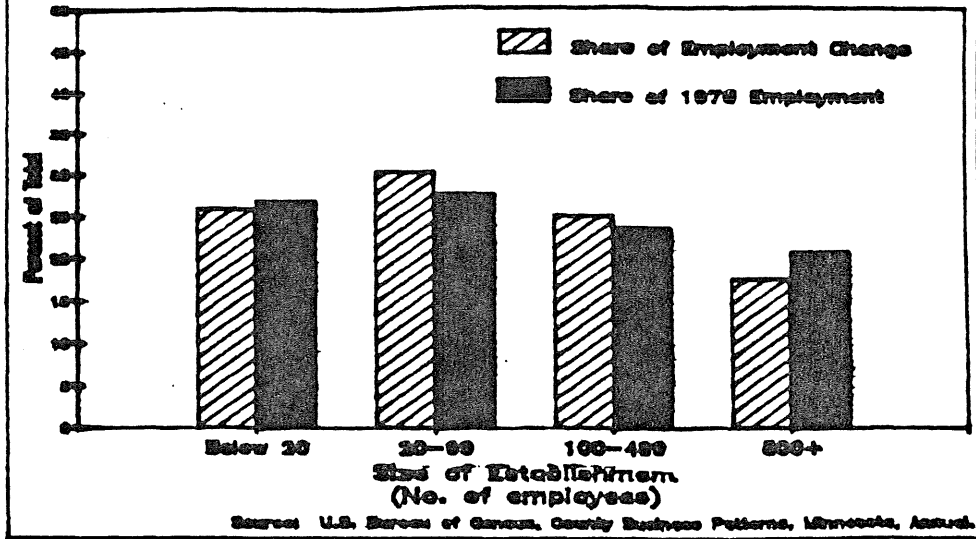
Source: U.S. Bureau of Census, County Business Patterns, Minnesota, Annual.

Fig. 2. Distribution of Establishments and Employment by Size Class, Minnesota, 1976.

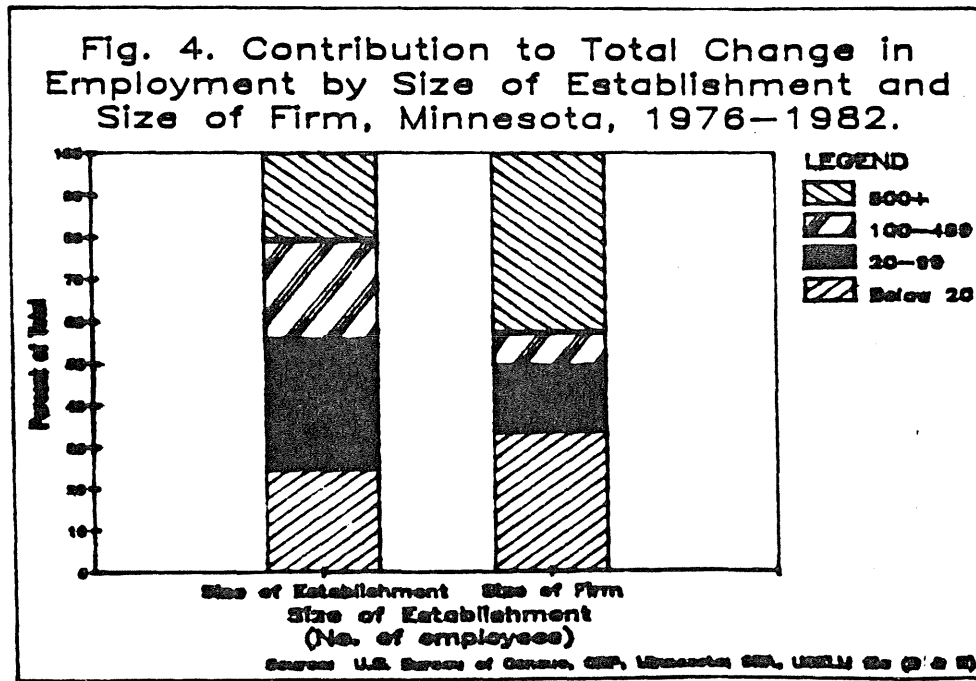


Source: U.S. Bureau of Census, County Business Patterns, Minnesota, Annual.

**Fig. 3. Contribution to Total Change
In Employment by Size Class,
Minnesota, 1976-1984.**



**Fig. 4. Contribution to Total Change in
Employment by Size of Establishment and
Size of Firm, Minnesota, 1976-1982.**



"It is the parent firm that makes the business policy decisions that determine much of the behavior of the neighborhood branch of a department store, the business office of the telephone company, or the local cannery of a large food-processing company. Similarly, most government policies affecting businesses are directed at the legal and financial entity, the parent firm. So although the number of employees at the establishment location may be the appropriate unit of measure for studies of management techniques or sociology of the work place, the size of the entire firm's work force is the preferable measure for evaluating the effects of public policy on small business and assessing the impact of the small-business sector on the economy." (Armington and Odle, 1982, p.14)

Results and discussion

Employment trends in Minnesota and the U.S., 1976-1985

Total employment in Minnesota grew by 361,000 jobs between 1976 and 1985 (DJT, 1986). This is equivalent to a 21 percent increase in nine years, which is similar to the growth in employment at the national level. This represents a net gain in jobs, meaning that a large number of new jobs were created, but many jobs also were lost from business contraction and dissolutions.

Figure 5 shows quarterly wage and salary employment in Minnesota and the U.S. between 1976 and 1985. This period starts with a strong recovery from a worldwide recession in 1975. Minnesota's economy performed relatively better than the nation's in creating jobs through 1979. Wage and salary employment fell in 1980, followed by a quick recovery in 1981. Subsequently, Minnesota and the nation began losing jobs to a deep recession in 1982. Recovery from the 1982 recession was again stronger in Minnesota compared to the nation, but emerging trends in 1985 suggest slow growth of wage and salary employment in the state, while employment for the nation continues on its upward trend.

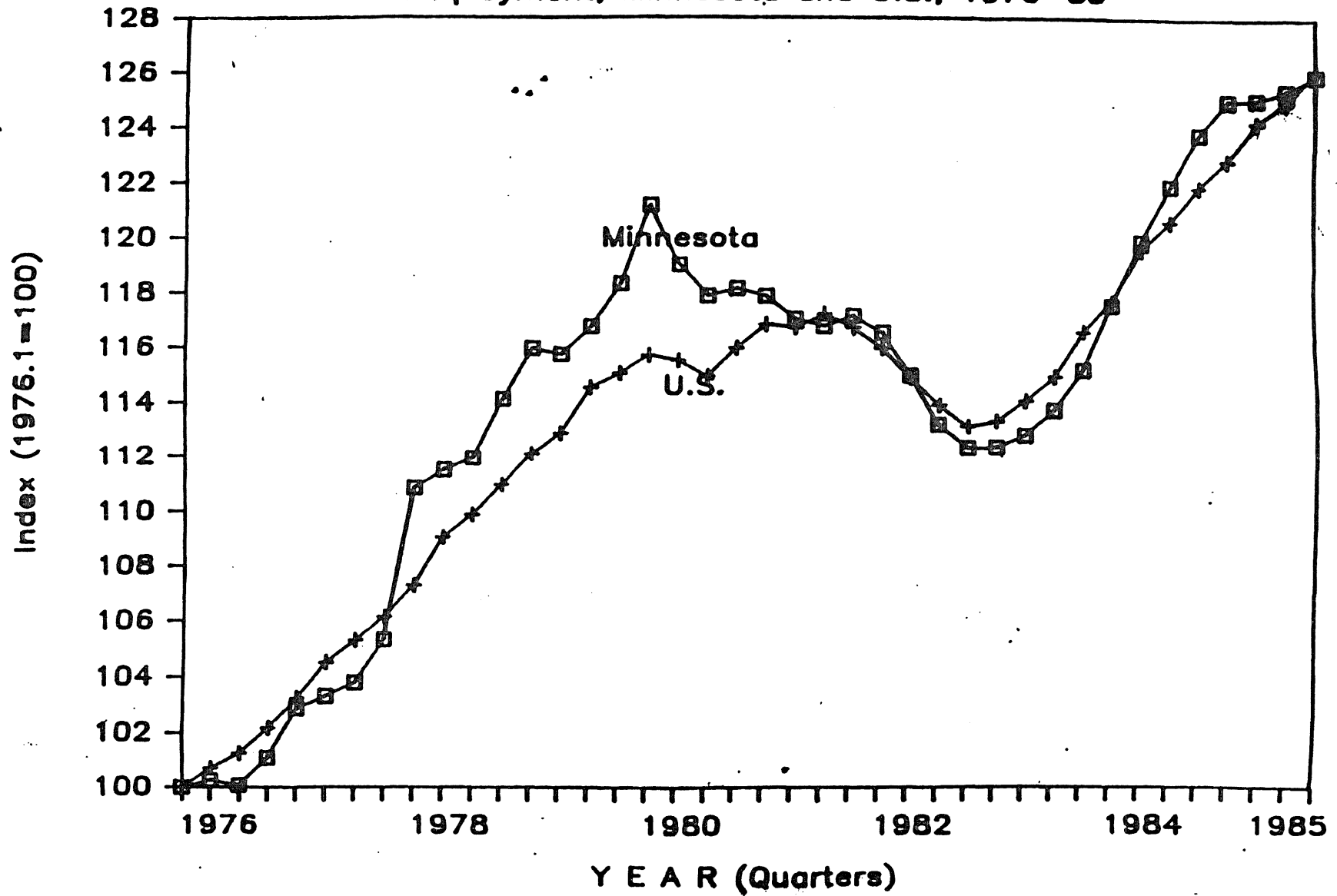
Components of job growth in Minnesota and the U.S., 1976-1982

Bi-annual employment and establishment data from D&B were processed by Social and Scientific Systems, Inc., and SBA to estimate the number of jobs arising from births and expansions of establishments, as well as job losses due to dissolutions and contractions. Job changes and total employment refer only to nonfarm, mostly wage and salary jobs. Table 3 shows that for the period 1976-1982, births of new businesses and business expansion in Minnesota together created more than 680,000 new jobs, equivalent to 52 percent of the 1976 count of jobs. Similar to the Birch study, half the new jobs came with births of new businesses and half were due to expansion of existing businesses (Birch, *Ibid.*, p.6). During this period, business dissolutions and contractions removed a combined total of 430,000 jobs, or 33 percent of 1976 reported employment. The 254,000 jobs were a net gain, which compares favorably with CBP reports of some 243,000 additional jobs between 1976 and 1982.

The job creation process in Minnesota and the nation involved a large proportion of business establishments, some of which were creating jobs while others were simultaneously laying off workers. In Minnesota, some 30,000 business establishments were formed between 1976 and 1982 while 22,000 establishments were dissolved. Also, 30 percent of establishments expanded while 21 percent contracted. This volatility caused the large gains and losses of jobs in the state. Although numerous job losses were offset by equally large numbers of new jobs, understanding the causes of these losses and whether high turnover is healthy for the local economy is important. This paper examines the factors influencing the magnitudes of these changes.

From the SBA tabulations, the net increase in jobs between 1976 and 1982 amounted to 19.4 percent in Minnesota, compared to 15.6 percent for the U.S. Existing firms fared better in the state, as evidenced by higher rates of job creation from business expansions and lower death rates.

Fig. 5. Index of Wage and Salary
Employment, Minnesota and U.S., 1976-85



Source: Minnesota Department of Jobs and Training, Review of Labor and Economic Conditions, Quarterly, St. Paul, Minnesota.

Table 3. Components of Job Growth, Minnesota and U.S.,
1976-1982, and 1976-1984.

	Number of Jobs		Number of Establishments	
	Minnesota	U.S.	Minnesota	U.S.
- n u m b e r -				
USELM Data Source File				
1976	1,311,071	75,961,361	84,633	4,280,809
1982	1,565,283	87,832,340	92,633	4,723,718
Net Change	254,212	11,870,979	8,000	442,909
Gains due to Firm:				
Births	340,186	21,776,361	29,812	1,712,052
Expansion	<u>343,740</u>	<u>17,016,331</u>	<u>25,598</u>	<u>1,217,554</u>
TOTAL GAIN	683,926	38,792,692	55,410	2,929,606
Losses due to Firm:				
Deaths	245,705	16,744,923	21,811	1,269,142
Contraction	<u>184,008</u>	<u>10,176,789</u>	<u>17,317</u>	<u>811,583</u>
TOTAL LOSS	429,713	26,921,712	39,128	2,080,725
Constant	225,836	13,894,266	19,906	982,529
- p e r c e n t o f 1 9 7 6 -				
Net Change	19.4	15.6	19.2	19.8
Births	25.9	28.7	35.2	40.0
Expansion	26.2	22.4	30.2	28.4
Deaths	-18.7	-22.0	-25.8	-29.6
Contraction	-14.0	-13.4	-20.5	-19.0
Constant	17.2	18.3	23.5	23.0
USEEM Data Source File				
1976	1,058,946	59,698,301		
1984	1,306,521	72,252,999		
Net Change	247,575	12,554,698		
- p e r c e n t o f 1 9 7 6 -				
Net Change	23.3	21.0		
Births	46.4	51.0		
Expansion	24.1	21.2		
Deaths	-33.0	-36.5		
Contraction	-14.2	-14.6		

SOURCE: Social and Scientific Systems, Inc., "Tabulation of USELM and USEEM Data for Paired Years, Minnesota," under Contract with U.S. Small Business Administration, 1986, Bethesda, Maryland.

Births of new businesses were more significant to job changes at the national level than in Minnesota. Thus, expansion and contraction of existing businesses have larger effects on net job creation in Minnesota than they do in the nation as a whole. Jobs policies in the state should continue to support and nurture existing businesses.

Comparison of job growth components between Minnesota and neighboring states, 1976-1982

Between 1976 and 1982, Minnesota and surrounding states showed large net gains in jobs, except Iowa, where new jobs from business expansion lagged (Table 4). In Wisconsin, new business formation between 1976 and 1982 created more jobs than business expansion, which was the reverse of findings from a previous Wisconsin study (Wisconsin, 1984, p.10). Other neighboring states and the nation displayed the same pattern, but in Minnesota new jobs from business expansion were slightly more numerous than those from new business formation. Job losses from business deaths were larger than losses from business contraction in Wisconsin, Minnesota, neighboring states and the nation.

Iowa and the older industrial states of Illinois, Ohio, Michigan, and Indiana had small net gains in jobs between 1976 and 1982. Job gains were limited by low expansion rates in these states, and job losses from business contraction were slightly higher, compared to those at the national average or the other high-growth states. This pattern of job change highlights the influence of business expansion and contraction to net job creation across states, relative to the effects of business births and dissolutions.

Large firms (more than 500 employees) provided most net new jobs in Minnesota, Wisconsin, Iowa, North Dakota and South Dakota (Table 5). In Illinois, Ohio and Indiana, very small firms with fewer than 20 employees were the largest contributors to net new jobs. In Michigan, large firms accounted for 55 percent of net new jobs, compared to 44 percent for very small firms.

Small firms (fewer than 100 employees) provided about half of net new jobs in Minnesota and the nation. In the surrounding states of Wisconsin, Iowa, North Dakota and South Dakota, the contribution of these small firms reached only about one-third of net new jobs. In the older industrial states of Illinois, Ohio, and Indiana, the small firms were dominant sources of net new jobs because of low job creation by the large industrial firms. These large firms were severely affected by the 1982 recession. Industry mix therefore, seems to be an important determinant in the profile of job change.

Components of job growth for 1976-1984 (preliminary)

Allowing for their preliminary nature, the 1976-1984 tabulations imply greater volatility in business births and deaths, compared to the 1976-1982 reports (See Table 3). Business births and deaths continued to be more important causes of job changes at the national level than in Minnesota. Also, business expansion created relatively more jobs in Minnesota than in the nation.

Table 4. Comparison of Job Growth Components between
Minnesota and Neighboring States, 1976-1982.

State	Job Gains		Total Gains	Job Losses		Total Losses	Net Change
	Births	Expand		Deaths	Contract		
	- percent of 1976 employment -						
U.S.	28.7	22.4	51.1	22.0	13.4	35.4	15.7
Minnesota	25.9	26.2	52.1	18.7	14.0	32.7	19.4
Wisconsin	23.4	21.1	44.5	16.9	12.1	29.0	15.5
Iowa	23.1	15.8	38.9	21.0	13.7	34.7	4.2
North Dakota	32.3	22.1	54.4	21.2	10.5	31.7	22.7
South Dakota	27.0	22.0	49.0	17.2	11.3	28.5	20.5
Illinois	21.2	17.5	38.7	21.2	12.1	33.3	5.4
Ohio	25.0	16.8	41.8	21.5	15.2	36.7	5.1
Michigan	24.3	19.6	43.9	21.2	15.2	36.4	7.5
Indiana	20.3	17.2	37.5	18.8	15.6	34.4	3.1

SOURCE: Social and Scientific Systems, Inc., "Tabulation of USELM Data for Paired Years, Minnesota," under Contract with U.S. Small Business Administration, 1986, Bethesda, Maryland.

Table 5. Net Change in Jobs By Size of Firm, Minnesota and Neighboring States, 1976-1982.

State	Size of Firm				Total
	Very Small (0-19 employees)	Small (20-99)	Medium (100-499)	Large (500 and above)	
	- percent of net change in jobs -				
U.S.	38.5	14.1	9.8	37.6	100.0
Minnesota	33.7	15.7	7.8	42.8	100.0
Wisconsin	26.5	13.3	11.8	48.4	100.0
Iowa	32.9	0.3	26.3	40.5	100.0
North Dakota	23.3	11.7	10.3	54.7	100.0
South Dakota	24.7	7.5	11.1	56.7	100.0
Illinois	59.9	9.0	0.9	30.2	100.0
Ohio	56.6	16.9	18.1	8.4	100.0
Michigan	43.7	1.7	-0.7	55.3	100.0
Indiana	89.2	27.8	30.3	-47.3	100.0

SOURCE: Social and Scientific Systems, Inc., "Tabulation of USEIM Data for Paired Years, Minnesota," under Contract with U.S. Small Business Administration, 1986, Bethesda, Maryland.

Job creation and losses during business cycles

Between 1976 and 1978, economic recovery from the 1975 recession created some 353,000 new jobs (Table 6). Job losses amounted to 232,000 for a net gain of 121,000 jobs. Continued economic expansion induced job gains to outpace losses by 100,000 jobs in 1978-1980. However, the economic downturn that persisted through 1982 caused numerous worker layoffs in the state. Between 1980 and 1982, jobs lost from business dissolutions amounted to 142,000, or twice the losses during the previous period. Business contractions eliminated 121,000 jobs, or 46 percent more than in 1978-80. Similar to the Birch finding for all states in 1969-1976, job losses from business dissolutions and contractions averaged eight percent per year in Minnesota between 1976 and 1982. However, this average losses masked significant variations during different segments of the business cycle.

Figure 6 presents a comparison of job changes due to the various growth components during the last business cycle. Business dissolutions and contractions appear to exert the dominant influence on net job change in the state. Job creation from new businesses and expansions declined in 1978-1980 compared to the previous period, but smaller losses from business dissolutions and contractions caused net job gains to keep the earlier pace. During the severe economic downturn in 1980-1982, actual job gains were larger than those for the previous period, but substantial losses from business dissolutions and contractions reduced net job creation to less than one-third of the previous period.

More recent data from USEEM files suggest a continuation of high rates of job losses due to business deaths and contraction through the 1982-1984 economic recovery. However, new business formation created substantially more new jobs, resulting in a three percent net gain in jobs during this recovery period (See Table 6).

Importance of business dissolutions and contractions

During the economic growth periods of 1976-1978 and 1978-1980, job creation by new businesses offset losses from business dissolutions. The reverse occurred during the last recession, when job losses from business dissolutions more than doubled and exceeded the number of new jobs from business formations.

The volatility in net job creation due to business dissolutions requires closer attention. Factors affecting the viability of existing businesses in the state appear to be critical to job growth. New business formation and expansion continued to create significant numbers of jobs even during economic downturns, but business dissolutions eliminated a large number of jobs at the same time. There were indications that high rates of job losses due to business dissolutions continue through the early phases of the economic recovery.

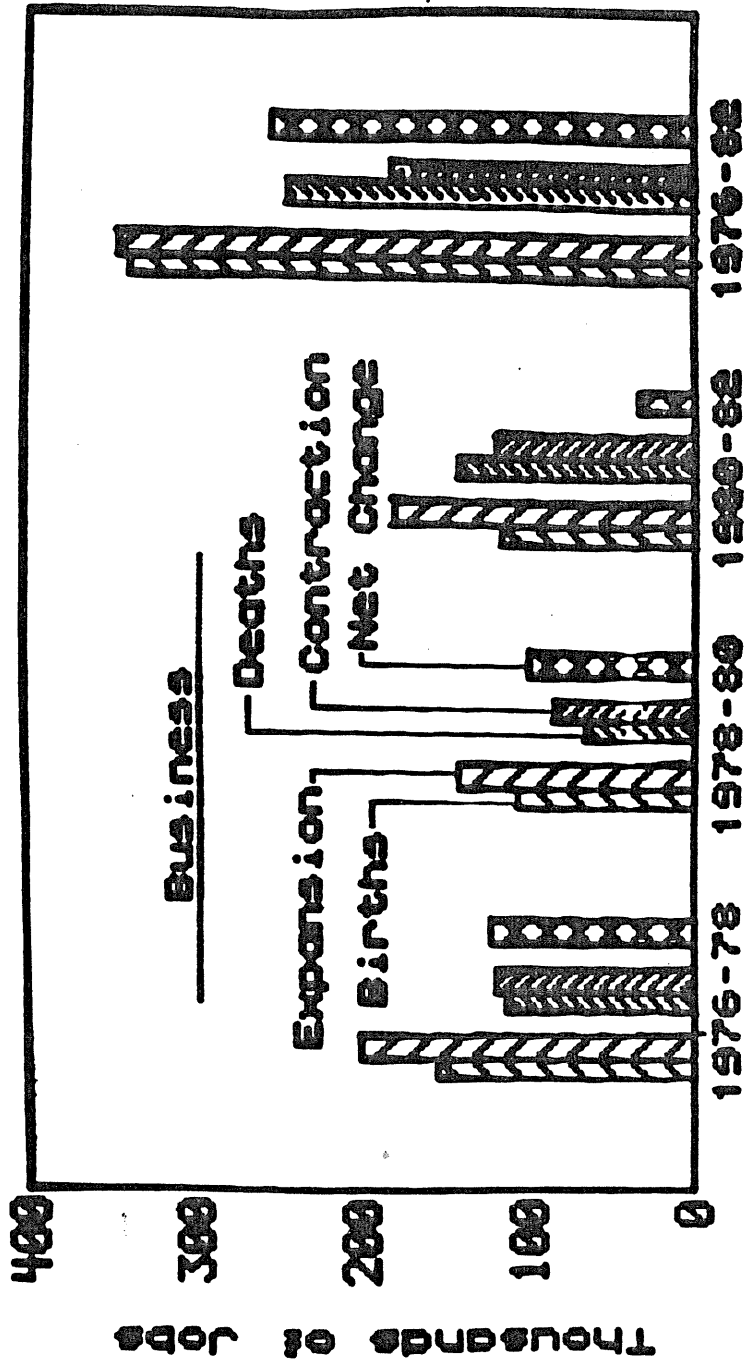
This trend is a significant change from earlier job growth evidence. Birch found that across states in 1969-1976, variations in net change in jobs were due more to variations in job generation, rather than variations in rates of job loss (Birch, *Ibid.*, p.4). It was argued that practically all the leverage of state public policy lies in affecting location of new

Table 6. Components of Job Growth, Minnesota, 1976-1984.

	Beginning Year	Job Gains Business Births	Business Expansion	Job Losses Business Deaths	Business Contractions	Net Job Gains
		-- number of jobs --				
1976-1982	1,311,071	340,186	343,740	-245,705	-184,008	254,213
1976-1978	1,311,071	153,608	199,645	-111,820	-120,160	121,273
1978-1980	1,432,342	105,566	143,010	-65,777	-82,344	100,455
1980-1982	1,532,795	115,288	179,707	-141,963	-120,543	32,489
USEEM 1982-84	1,269,844	151,866	132,888	-142,687	-105,390	36,677
		-- percent of beginning year jobs --				
1976-1982	1,311,071	25.9	26.2	-18.7	-14.0	19.4
1976-1978	1,311,071	11.7	15.2	-8.5	-9.2	9.2
1978-1980	1,432,342	7.4	10.0	-4.6	-5.7	7.0
1980-1982	1,532,795	7.5	11.7	-9.3	-7.9	2.1
USEEM 1982-84	1,269,844	12.0	10.5	-11.2	-8.3	2.9

Source: Social and Scientific Systems, Inc., "Tabulation of USELM Data for Paired Years, Minnesota", under Contract with U.S. Small Business Administration, Maryl 1986, Bethesda, Md.

**Fig. 6 . Components of Job Growth,
Minnesota, 1976-82.**



Source: Social and Scientific Systems, Inc.; "Tabulation of USELM Data for Paired Years, Minnesota," under Contract with U.S. Small Business Administration, Maryland, 1986.

firms or expansion of existing businesses. The rate of job losses due to business dissolutions, contractions and transfer was about the same for all states. For the 1976-1982 period, SBA data shows that in Iowa and neighboring industrial states with small net gain in jobs, business expansion provided fewer jobs, while business contraction caused larger job losses, relative to the job creation performance of Minnesota, Wisconsin, North Dakota, and South Dakota. The increasing importance of business dissolutions and contractions suggests that a jobs policy should search and support viable industries, and should not merely seek to induce the creation of numerous new firms.

Job creation by size of firm

In Minnesota, USELM tabulations for 1976-1982 show that very small firms with fewer than 20 employees accounted for 34 percent of net job change, compared to their 24 percent share of employment (Table 7). Small firms (20-99 employees) contributed about 16 percent of net change, but this was lower than their 18 percent share of total employment. All small firms with fewer than 100 employees produced some 49 percent of net job change while accounting for 42 percent of total jobs.

This contribution to net job change by small firms in Minnesota was considerably lower than the 82 percent share found by Birch between 1969 and 1976 at the national level. In Wisconsin, 77 percent of net job gain between 1969 and 1976 was ascribed to small firms, and more than 60 percent was created by small firms after 1976 (Wisconsin, 1984, pp.6-7). However, the 1969-1976 data used by Birch did not include the year that branches were started so that new branch listings were assumed as births. This was corrected by the Brookings Institution on similar data for 1978-1980. Brookings estimated that small establishments in the nation accounted for 78 percent of net job gain, but the small independent firms provided only 39 percent of the net gain (Armington and Odle, 1982). Branching or formation of subsidiaries by large firms were responsible for half the net job contribution credited to small establishments.

Large firms (500 employees and above) contributed 43 percent of all net job gain in Minnesota between 1976 and 1982, but their share of total jobs was equally large at 42 percent.

By contrast, at the national level, small firms with fewer than 100 employees contributed significantly more to net job gain than their share of total employment. Small firms with fewer than 100 employees produced 53 percent of net job gain between 1976 and 1982, compared to their 37 percent share of total employment. Large firms accounted for 38 percent of net job gain, which was considerably less than their 48 percent share of total employment.

The relative contribution of small firms to net job creation has been reduced sharply from earlier estimates. Job creation by large firms, particularly in their branching activities, seems more important. A jobs strategy inducing large firms to form new branches and expand could be as productive as one that seeks to induce numerous small firms to create new jobs. In Minnesota and the U.S., very small firms with fewer than 20 employees showed the highest volatility in job creation. These firms had larger proportions of new jobs from business births and expansions, and

Table 7. Components of Employment Growth, by Size of Firm, Minnesota and U.S., 1976-1982.

Size of Firm	Births	Deaths	Expansion	Contraction	Net Change	1976 Employment
Minnesota (No. of jobs)						
			1976-1982			
Very Small(0-19 employees)	93,785	-67,940	95,102	-35,342	85,605	316,190
Small (20-99)	55,235	-42,532	59,297	-32,146	39,854	236,906
Medium (100-499)	40,123	-39,342	48,847	-29,763	19,865	212,880
Large (500 and above)	151,043	-95,889	140,495	-86,757	108,892	545,095
Total	340,186	-245,703	343,741	-184,008	254,216	1,311,071
Percent of Total (USELM Data)						
Very Small(0-19 employees)	27.6	27.7	27.7	19.2	33.7	24.1
Small (20-99)	16.2	17.3	17.3	17.5	15.7	18.1
Medium (100-499)	11.8	16.0	14.2	16.2	7.8	16.2
Large (500 and above)	44.4	39.0	40.9	47.1	42.8	41.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Percent of Total (USEEM Data)						
			1976-1984			
Very Small(0-19 employees)	32.8	32.3	25.7	13.3	38.1	24.1
Small (20-99)	18.2	16.1	19.4	15.7	24.1	18.3
Medium (100-499)	12.1	13.3	15.4	15.9	11.3	15.4
Large (500 and above)	36.9	38.3	39.5	55.1	26.5	42.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
U.S. (No. of jobs)						
			1976-1982			
Very Small(0-19 employees)	5,408,819	-3,958,122	4,691,387	-1,567,311	4,574,773	15,597,190
Small (20-99)	3,298,533	-2,674,630	2,811,836	-1,759,372	1,676,367	12,834,160
Medium (100-499)	2,757,234	-2,204,002	2,264,416	-1,657,086	1,160,562	10,866,048
Large (500 and above)	10,311,775	-7,908,165	7,248,691	-5,193,020	4,459,281	36,663,964
Total	21,776,361	-16,744,919	17,016,330	-10,176,789	11,870,983	75,961,362
Percent of Total (USELM Data)						
Very Small(0-19 employees)	24.8	23.6	27.6	15.4	38.5	20.5
Small (20-99)	15.1	16.0	16.5	17.3	14.1	16.9
Medium (100-499)	12.7	13.2	13.3	16.3	9.8	14.3
Large (500 and above)	47.4	47.2	42.6	51.0	37.6	48.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
Percent of Total (USEEM Data)						
			1976-1984			
Very Small(0-19 employees)	29.2	30.0	26.1	10.4	37.7	22.2
Small (20-99)	16.8	15.4	17.4	14.9	21.0	17.2
Medium (100-499)	11.7	11.7	13.1	14.9	11.0	13.6
Large (500 and above)	42.3	42.9	43.4	59.8	30.3	47.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Social and Scientific Systems, Inc., "Tabulation of USELM and USEEM Data for Paired Years, Minnesota," under Contract with U.S. Small Business Administration, 1986, Bethesda, Maryland.

larger job losses from business deaths relative to their share of employment. Also, business deaths reduced employment to a greater degree than contractions because these small firms tend to vanish rather than contract (See Table 7).

In Minnesota and the U.S., births of new establishments and expansion of existing establishments by large firms produced nearly as many new jobs as those by all small firms (fewer than 100 employees). On the other hand, business contraction and dissolutions among large firms caused more job losses than those for all small firms.

Volatility in number of establishments by size of firm

More than three-fourths of all births, deaths, expansions and contractions of establishments were confined to very small firms with fewer than 20 employees (Table 8). Some 90 percent of establishments showing changes in employment were owned by all small firms with fewer than 100 employees. Corresponding growth components for establishments owned by large firms (500 or more employees) contributed less than 10 percent of the total change.

This volatility in the number of establishments owned by small firms occurs nationwide. Large numbers of small firms being established and dissolved each year give an immediate impression that these small firms are the important, yet volatile, factor in job creation.

Effects of business cycles on components of job creation by different size firms

Business expansion by large firms with 500 or more employees created numerous jobs during the 1980-1982 recessionary period, but large losses from business deaths and contraction limited the net gain in jobs (Table 9).

Small firms with fewer than 100 employees created a large number of jobs, particularly during economic recoveries. However, large job gains from births of new businesses were accompanied by large job losses from business dissolutions or deaths.

During the 1982-1984 recovery, large firms appeared to continue losing a substantial number of jobs from business contraction and dissolutions. The recessionary period of 1980-1982 and ensuing intense market competition have adversely affected existing branches of large firms. However, more new jobs were created by business births during the 1982-1984 recovery period, and job losses from business deaths were reduced.

In contrast, the small firms produced substantial net job gains during the 1982-1984 recovery. Large numbers of small firms were formed during economic recoveries, providing for larger job growth in the local economy, compared to the national average.

Components of job growth in various industries

The proportionate share of employment and net job changes of various industry sectors are given in Table 10. The services sector consistently produced more net new jobs than its share of total employment. Retail

Table 8. Components of Change for Number of Establishments,
by Size of Firm, Minnesota and U.S., 1976-1982.

Size of Firm	Births	Deaths	Net Change	Expansion	Contraction
Minnesota (No. of establishments)			1976-1982		
Very Small(0-19 employees)	23,506	-17,330	6,176	20,061	13,441
Small (20-99)	2,710	-1,982	728	3,006	2,416
Medium (100-499)	1,228	-834	394	1,083	712
Large (500 and above)	2,368	-1,662	706	1,448	748
Total	29,812	-21,808	8,004	25,598	17,317
Percent of Total					
Very Small(0-19 employees)	78.8	79.5	77.2	78.4	77.6
Small (20-99)	9.1	9.1	9.1	11.7	14.0
Medium (100-499)	4.1	3.8	4.9	4.2	4.1
Large (500 and above)	7.9	7.6	8.8	5.7	4.3
Total	100.0	100.0	100.0	100.0	100.0
U.S. (No. of establishments)			1976-1982		
Very Small(0-19 employees)	1,295,751	-987,221	308,530	929,008	592,317
Small (20-99)	171,316	-122,081	49,235	153,659	130,474
Medium (100-499)	86,396	-49,594	36,802	54,462	39,066
Large (500 and above)	158,589	-110,243	48,346	80,425	49,726
Total	1,712,052	-1,269,139	442,913	1,217,554	811,583
Percent of Total					
Very Small(0-19 employees)	75.7	77.8	69.7	76.3	73.0
Small (20-99)	10.0	9.6	11.1	12.6	16.1
Medium (100-499)	5.0	3.9	8.3	4.5	4.8
Large (500 and above)	9.3	8.7	10.9	6.6	6.1
Total	100.0	100.0	100.0	100.0	100.0

SOURCE: Social and Scientific Systems, Inc., "Tabulation of USELM Data for Paired Years, Minnesota," under Contract with U.S. Small Business Administration, 1986, Bethesda, Maryland.

Table 9. Components of Employment Growth by Size of Firm,
Minnesota, Biennial, 1976-1984.

Size of Firm	- number of jobs -					- percent -				
	Births	Deaths	Expansion	Contraction	Net Change	Births	Deaths	Expansion	Contraction	Net Change
1976-78 Recovery (USELM Data)										
Very Small (0-19 employees)	47,380	-35,310	60,332	-19,595	52,807	30.8	31.6	30.2	16.3	43.5
Small (20-99)	23,473	-15,945	35,209	-18,602	24,135	15.3	14.3	17.6	15.5	19.9
Medium (100-499)	19,553	-15,460	32,644	-14,683	22,054	12.7	13.8	16.4	12.2	18.2
Large (500 and above)	63,201	-45,101	71,460	-67,280	22,280	41.1	40.3	35.8	56.0	18.4
Total	153,607	-111,816	199,645	-120,160	121,276	100.0	100.0	100.0	100.0	100.0
1978-80 Expansion										
Very Small (0-19 employees)	25,647	-20,912	41,076	-23,910	21,901	24.3	31.8	28.7	29.0	21.8
Small (20-99)	13,032	-12,299	31,198	-16,897	15,034	12.3	18.7	21.8	20.5	15.0
Medium (100-499)	8,631	-8,681	20,774	-18,216	2,508	8.2	13.2	14.5	22.1	2.5
Large (500 and above)	58,256	-23,882	49,962	-23,322	61,014	55.2	36.3	34.9	28.3	60.7
Total	105,566	-65,774	143,010	-82,345	100,457	100.0	100.0	100.0	100.0	100.0
1980-82 Recession										
Very Small (0-19 employees)	32,047	-28,054	52,668	-25,592	31,069	27.8	19.8	29.3	21.2	95.6
Small (20-99)	16,719	-23,532	24,579	-25,030	-7,264	14.5	16.6	13.7	20.8	-22.4
Medium (100-499)	14,234	-25,002	23,836	-23,545	-10,477	12.3	17.6	13.3	19.5	-32.2
Large (500 and above)	52,287	-65,373	78,624	-46,376	19,162	45.4	46.0	43.8	38.5	59.0
Total	115,287	-141,961	179,707	-120,543	32,490	100.0	100.0	100.0	100.0	100.0
1982-84 Recovery (USEEM Data)										
Very Small (0-19 employees)	51,070	-44,483	37,591	-15,714	28,464	33.6	31.2	28.3	14.9	77.6
Small (20-99)	21,869	-22,849	27,017	-17,659	8,378	14.4	16.0	20.3	16.8	22.8
Medium (100-499)	17,642	-17,699	22,221	-19,731	2,433	11.6	12.4	16.7	18.7	6.6
Large (500 and above)	61,285	-57,656	46,059	-52,286	-2,598	40.4	40.4	34.7	49.6	-7.1
Total	151,866	-142,687	132,888	-105,390	36,677	100.0	100.0	100.0	100.0	100.0

SOURCE: Social and Scientific Systems, Inc., Tabulation of USELM and USEEM Data for Paired Years, Minnesota, under Contract with U.S. Small Business Administration, 1986, Bethesda, Maryland.

Table 10. Share of Job Base and Net New Jobs by Industry Sector,
Minnesota, 1976-1982.

Industry Sector	Share of 1976 Job Base	Share of Net Job Changes			
		1976-78	1978-80	1980-82	1976-82
- - percent - -					
Total	100.0	100.0	100.0	100.0	100.0
Agriculture	0.9	1.0	-0.5	2.0	0.5
Mining	1.0	3.5	-0.5	-4.2	0.9
Construction	6.6	10.0	-0.3	-19.6	2.2
Manufacturing	26.6	6.6	27.5	4.0	14.6
Transportation, Communication, etc	5.8	-1.5	14.6	17.3	7.3
Wholesale	8.3	3.1	9.6	-18.6	2.9
Retail	21.7	29.5	17.8	12.0	22.6
Finance, Insurance	6.2	8.4	1.3	29.0	8.3
Services	22.7	39.4	30.4	78.0	40.8

Source: Social and Scientific Systems, Inc., "Tabulation of USELM Data for Paired Years, Minnesota", under Contract with U.S. Small Business Administration, 1986, Bethesda, Md.

trade, finance and insurance, and transportation and communications are also important sources of net new jobs. In contrast, manufacturing appeared to lose ground in terms of a disproportionately small share of net new jobs in relation to its share of total employment. The deep recession in 1982 has severely affected net job creation by the manufacturing sector.

Table 11 shows components of job growth for business firms in Minnesota under various employment size classes and industry groups. Services dominated net job creation by different industries in all size classes. Employment in this sector was bi-modal, concentrated in both small firms with fewer than 100 employees and large firms with more than 500 employees. Job gains from business expansion were larger than those from business births, while job losses from business deaths were significantly larger than losses from business contraction. The number of jobs created and lost were almost similar for both small and large firms in the service sector.

In retail trade, the number of new jobs from business births was larger than those from business expansion for both small and large firms. Business deaths were also a larger source of job losses than business contractions.

Manufacturing jobs were concentrated in large firms, yet net job creation by these large firms amounted to only half those created by small manufacturing firms. Substantial job losses from both business contraction and dissolution severely affected net job creation by the large firms. For small manufacturing firms, business expansion created numerous jobs, while losses from business contraction and dissolutions were comparatively small.

In table 12, various industry groups at the two-digit Standard Industrial Classification (SIC) level were ranked according to their job creation performance during the 1976-1982 period. Health services, business services, and eating and drinking places of the services sector each provided more than 25,000 net new jobs, leading all other industries in job creation. Technology-related industries producing instruments and related products, and electric and electronic equipment ranked next with 22,000 jobs and 17,000 jobs, respectively. The other important job-creating industries were food stores, education services, wholesale trade of durables, and air transportation.

This pattern of job creation has important policy implications. In the services sector, the relative sizes of the growth components could lead to increasing importance of large firms in net job creation as well as greater concentration of employment in the large size class. Large companies with multi-location branch operations could increase their market share of personal services, business services, health services, legal and other professional services, and other services. In retail trade, proliferation of small establishments produced numerous job gains and losses from business births and deaths. A number of dispersed markets and population shifts among various cities and municipalities would continue these high rates of births and deaths. In the metropolitan areas, large retail firms created numerous jobs through their branching activities.

Large manufacturing firms created numerous jobs, but losses from contraction and deaths of less competitive businesses were large and

Table 11. Components of Job Growth by Firm Size and Industry Group, Minnesota, 1976-1982.

Industry Group	1976	1982	Employment Births	Deaths	Expand- ing	Contract- ing	Net Change
- number of employees -							
Very Small Firms (less than 20 employees)							
Total	316,190	401,793	93,785	-67,940	95,102	-35,342	85,603
Agriculture	8,683	9,926	1,744	-1,221	2,134	-1,414	1,242
Mining	901	699	87	-184	129	-233	-201
Construction	40,614	47,430	11,435	-7,928	10,402	-7,093	6,816
Manufacturing	29,481	43,998	9,509	-6,557	14,050	-2,485	14,517
Trans, Comm, etc	13,162	16,860	3,136	-2,667	4,768	-1,539	3,698
Wholesale	41,813	51,624	10,088	-8,481	11,890	-3,685	9,811
Retail	111,189	122,359	29,014	-28,600	21,008	-10,251	11,171
Finance, Ins, etc	19,469	28,755	6,864	-3,032	8,305	-2,850	9,286
Services	50,877	80,142	21,905	-9,261	22,415	-5,792	29,265
Small Firms (20-99 employees)							
Total	236,906	276,758	55,235	-42,532	59,297	-32,146	39,853
Agriculture	2,048	1,685	573	-355	165	-744	-362
Mining	993	601	59	-202	19	-267	-391
Construction	19,449	15,674	1,761	-3,582	2,832	-4,785	-3,774
Manufacturing	46,154	56,283	7,272	-6,608	14,584	-5,118	10,129
Trans, Comm, etc	12,402	14,620	2,434	-2,395	3,308	-1,127	2,218
Wholesale	24,378	27,954	3,234	-4,082	7,206	-2,781	3,575
Retail	66,717	76,593	23,651	-15,038	9,584	-8,320	9,876
Finance, Ins, etc	12,357	15,781	3,188	-2,141	4,006	-1,628	3,425
Services	52,408	67,568	13,064	-8,120	17,593	-7,376	15,160
Medium Size Firms (100-499 employees)							
Total	212,880	232,746	40,123	-39,342	48,847	-29,763	19,865
Agriculture	1,024	1,232	77	-16	232	-83	208
Mining	696	700	214	-215	250	-243	5
Construction	12,011	10,658	944	-1,362	2,255	-3,189	-1,352
Manufacturing	56,432	56,737	7,578	-11,926	12,727	-8,073	305
Trans, Comm, etc	8,875	10,536	2,878	-1,169	1,423	-1,470	1,661
Wholesale	11,867	12,911	1,830	-2,515	3,430	-1,701	1,044
Retail	32,947	40,575	13,370	-8,627	7,077	-4,191	7,628
Finance, Ins, etc	12,801	12,439	1,612	-2,020	3,442	-3,394	-361
Services	76,228	86,958	11,621	-11,483	18,012	-7,418	10,730
Large Firms (500+ employees)							
Total	545,095	653,986	151,043	-95,889	140,495	-86,757	108,891
Agriculture	587	766	531	-212	6	-145	179
Mining	11,102	14,074	1,057	-525	4,057	-1,616	2,972
Construction	14,935	18,745	5,595	-910	2,879	-3,753	3,810
Manufacturing	216,311	228,379	46,087	-44,232	46,450	-36,235	12,068
Trans, Comm, etc	42,041	52,931	16,066	-4,645	12,161	-12,691	10,890
Wholesale	30,835	23,787	5,734	-10,319	4,097	-6,559	-7,047
Retail	73,454	102,357	32,221	-14,018	20,654	-9,953	28,902
Finance, Ins, etc	37,099	45,746	8,393	-6,672	9,524	-2,597	8,647
Services	118,731	167,201	35,360	-14,349	40,667	-13,207	48,470

Source: Social and Scientific Systems, Inc., "Tabulation of USELM Data for Paired Years, Minnesota," under Contract with the U.S. Small Business Administration, 1986, Bethesda, Md.

Table 12. Job Growth Components, by Industry Group, Minnesota, 1976-82.

Industry Group	Net Change	1976	1982	Births	Expand	Deaths	Contract	Net Change
		- No. of Jobs -				- percent of 1976 -		
80 Health Services	33,341	81,402	114,743	23	34	-12	-4	12
73 Business Services	29,867	50,742	80,609	36	54	-20	-11	16
58 Eating & Drinking Places	25,455	67,247	92,702	57	21	-29	-11	16
38 Instruments & Rel. Produc	21,938	10,864	32,802	27	195	-16	-4	5
36 Electric & Electronic Eqp	17,279	21,413	38,691	78	33	-28	-3	26
54 Food Stores	15,334	40,215	55,549	42	26	-21	-9	35
82 Education Services	12,837	53,721	66,558	23	21	-9	-12	18
50 Wholesale Trade-Durable G	11,067	59,070	70,138	23	29	-22	-12	16
45 Transportation by Air	9,292	6,928	16,221	13	127	-5	-1	3
27 Printing & Publishing	8,316	26,416	34,732	25	27	-16	-5	19
34 Fabricated Mtl Products	8,243	30,153	38,396	22	29	-15	-9	12
59 Miscellaneous Retail	6,748	41,133	47,880	30	21	-21	-14	23
49 Electric, Gas, & Sanitary	6,691	7,467	14,158	78	23	-10	-2	14
83 Social Services	6,491	13,339	19,830	27	45	-7	-15	8
89 Miscellaneous Services	5,824	12,283	18,107	33	36	-13	-8	16
53 Gnr'l Merchandise Stores	5,804	32,908	38,712	31	24	-26	-12	20
60 Banking	4,998	17,805	22,802	25	22	-12	-6	3
17 Special Trade Contractors	4,415	41,534	45,950	23	22	-16	-19	21
75 Auto Repair, Srvcs, & Gar	4,379	12,264	16,643	32	32	-21	-8	18
63 Insurance Carriers	4,213	15,455	19,668	15	32	-17	-2	36
57 Furn & Home Furnishings S	4,039	15,819	19,858	23	31	-19	-10	21
64 Ins Agents, Brokers & Srv	3,315	8,655	11,970	25	35	-10	-12	11
65 Real Estate	3,300	24,837	28,137	31	28	-18	-28	18
61 Credit Agencies Other Tha	3,049	6,130	9,179	21	53	-17	-7	7
16 Heavy Construction Contra	3,012	20,685	23,697	20	23	-11	-17	11
81 Legal Services	2,817	3,429	6,246	29	60	-3	-3	14
62 Security, Commodity Broka	2,720	4,461	7,181	25	54	-11	-6	8
56 Apparel & Accessory Store	2,716	17,114	19,830	39	14	-27	-11	21
10 Metal Mining	2,669	11,142	13,811	11	34	-5	-16	11
42 Trucking & Warehousing	2,594	24,862	27,457	23	23	-26	-10	20
30 Rubber & Misc. Plastics P	2,539	10,324	12,863	21	32	-20	-8	17
72 Personal Services	1,904	10,275	12,179	49	18	-28	-20	19
76 Miscellaneous Repair Srv	1,895	7,482	9,376	30	24	-15	-14	23
79 Amusement & Recreation Sr	1,871	10,724	12,595	25	29	-17	-20	19
47 Transportation Services	1,615	3,983	5,597	35	37	-8	-24	24
39 Misc Manufacturing Indust	1,430	11,486	12,917	22	35	-29	-15	15
48 Communication	1,421	8,448	9,868	37	18	-13	-25	19
20 Food & Kindred Products	1,315	47,816	49,130	15	18	-20	-10	29
52 Bldg Materials & Garden S	1,173	18,696	19,869	18	19	-16	-15	18
86 Membership Organizations	1,120	15,826	16,946	10	30	-6	-27	14
25 Furniture & Fixtures	962	4,490	5,452	21	29	-15	-14	22
33 Primary Metal Industries	943	7,337	8,279	23	26	-27	-9	8
84 Museums, Botanical, Zoolo	916	460	1,376	210	14	-2	-22	7
41 Local & Interurban Transi	689	9,064	9,753	36	15	-21	-23	10
78 Motion Pictures	423	1,367	1,790	38	32	-26	-13	29
29 Petroleum & Coal Products	318	2,206	2,523	14	7	-5	-2	61
46 Pipelines Exc Natural G	119	171	289	86	11	0	-28	9
09 Fishing, Hunting & Trapp	0	109	7	16	-4	-4	4	13
88 Private Households	0	2	1	50	0	-50	0	0
70 Hotels & Other Lodging Pl	-58	24,928	24,869	30	15	-26	-20	26

SOURCE: Social and Scientific Systems, Inc., "Tabulation of USELM Data for Paired Years, Minnesota," under Contract with U.S. Small Business Administration, 1986, Bethesda, Maryland.

offsetting. Small manufacturing firms produced more net new jobs than the large firms, but the large firms still have enormous job creation potential. After adjusting to new economic conditions with more competitive business organizations, new plants and production processes, these large firms could reduce losses from business deaths and contraction and create substantial net new jobs.

Business expansion produced most of the job gains in leading growth sectors such as health services, business services, instruments and related products, and wholesale trade. For location-specific industry groups such as eating and drinking places, food stores and educational services, more jobs were created in new establishments than those from expansion of existing businesses.

Components of job growth in various industry groups

Table 13 shows components of job growth for various industry groups in Minnesota when classified by type of inputs and market orientation. Agriculture, forestry, fishery, mining except metals, and agricultural services are classified under the primary resources group (Appendix 1). Manufacturers of food products, lumber and wood, paper and allied products, petroleum and coal, leather products and stone, clay and glass products are grouped under resource-intensive industries. The capital-intensive, labor-intensive, and technology-intensive groups are also formed based on major input requirements of manufacturing establishments. Transportation, communication and public utilities are combined into distributive services. Wholesale trade and retail trade are shown separately. Consumer services are composed of eating and drinking places, hotels, personal services, auto repair and other direct consumer-related services. Banking services, insurance, business services, legal services and other classes that cater directly to businesses form the producer-services group. Health services cover the large hospitals, nursing homes and other providers of medical service. Non-profit organizations include educational services, social services, museums and other organizations.

The producer-services group showed the largest net increase in employment at 61,000 jobs between 1976 and 1982. Consumer services, health services and retail trade each provided more than 30,000 net new jobs, followed by technology-intensive industries with 25,000 jobs. Of the 14 major industry groups, these groups accounted for 73 percent of net new jobs in the state. Also, these industries led the rest in terms of net job creation as a percentage of their 1976 employment.

Support services for the producing and consuming sectors of the state's economy developed rapidly during the 1976-82 period. Expanding domestic and export markets induced primary goods production, especially in technology-intensive and capital-intensive industries. In turn, this increased production activity generated larger demands for producer goods and services including banking, insurance, legal and other services. Combined with population growth, rising personal incomes led to higher consumer demands for goods and services.

Expansion by producer and consumer services within the state created agglomeration economies and economies of scale that could have benefited their client industries in the form of lower unit costs. In fact, most of

Table 13. Components of Job Growth by Major Industry Group, Minnesota, 1976-1982.

Industry Group	1976	1982	Employment		Deaths	Contracting	Net Change
			Births	Expanding			
- number of employees -							
TOTAL	1,311,071	1,565,283	340,186	343,740	-245,705	-184,008	254,212
(1) Primary Resources	14,892	15,873	3,170	3,215	-2,419	-2,980	986
(2) Metal Mining	11,142	13,811	1,172	3,775	-511	-1,767	2,669
(3) Construction	87,010	92,508	19,734	18,369	-13,782	-18,819	5,498
(4) Resource Intensive	88,424	85,645	11,984	13,052	-18,640	-9,165	(2,772)
(5) Capital Intensive	90,611	106,383	19,631	22,642	-17,013	-9,481	15,774
(6) Labor Intensive	24,636	23,655	5,116	5,742	-8,104	-3,832	(981)
(7) Technology Intensive	144,708	169,712	33,715	46,376	-25,651	-29,431	25,007
(8) Distributive Services	76,481	94,946	24,515	21,661	-10,872	-16,827	18,468
(9) Wholesale Trade	108,893	116,276	20,886	26,622	-25,399	-14,725	7,383
(10) Retail Trade	217,060	249,181	59,726	44,490	-46,581	-25,507	32,123
(11) Consumer Services	134,289	170,155	60,460	28,605	-34,802	-18,389	35,869
(12) Producer Services	164,005	224,628	44,735	63,719	-26,441	-21,376	60,625
(13) Health Services	81,402	114,743	18,502	28,009	-9,858	-3,310	33,341
(14) Non-profit Organ	67,520	87,764	16,841	17,462	-5,660	-8,395	20,244
- percent of 1976 employment -							
TOTAL	100.0	119.4	25.9	26.2	-18.7	-14.0	19.4
(1) Primary Resources	100.0	106.6	21.3	21.6	-16.2	-20.0	6.6
(2) Metal Mining	100.0	124.0	10.5	33.9	-4.6	-15.9	24.0
(3) Construction	100.0	106.3	22.7	21.1	-15.8	-21.6	6.3
(4) Resource Intensive	100.0	96.9	13.6	14.8	-21.1	-10.4	-3.1
(5) Capital Intensive	100.0	117.4	21.7	25.0	-18.8	-10.5	17.4
(6) Labor Intensive	100.0	96.0	20.8	23.3	-32.9	-15.6	-4.0
(7) Technology Intensive	100.0	117.3	23.3	32.0	-17.7	-20.3	17.3
(8) Distributive Services	100.0	124.1	32.1	28.3	-14.2	-22.0	24.1
(9) Wholesale Trade	100.0	106.8	19.2	24.4	-23.3	-13.5	6.8
(10) Retail Trade	100.0	114.8	27.5	20.5	-21.5	-11.8	14.8
(11) Consumer Services	100.0	126.7	45.0	21.3	-25.9	-13.7	26.7
(12) Producer Services	100.0	137.0	27.3	38.9	-16.1	-13.0	37.0
(13) Health Services	100.0	141.0	22.7	34.4	-12.1	-4.1	41.0
(14) Non-profit Organ	100.0	130.0	24.9	25.9	-8.4	-12.4	30.0
- percent of total -							
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(1) Primary Resources	1.1	1.0	0.9	0.9	1.0	1.6	0.4
(2) Metal Mining	0.8	0.9	0.3	1.1	0.2	1.0	1.0
(3) Construction	6.6	5.9	5.8	5.3	5.6	10.2	2.2
(4) Resource Intensive	6.7	5.5	3.5	3.8	7.6	5.0	-1.1
(5) Capital Intensive	6.9	6.8	5.8	6.6	6.9	5.2	6.2
(6) Labor Intensive	1.9	1.5	1.5	1.7	3.3	2.1	-0.4
(7) Technology Intensive	11.0	10.8	9.9	13.5	10.4	16.0	9.8
(8) Distributive Services	5.8	6.1	7.2	6.3	4.4	9.1	7.3
(9) Wholesale Trade	8.3	7.4	6.1	7.7	10.3	8.0	2.9
(10) Retail Trade	16.6	15.9	17.6	12.9	19.0	13.9	12.6
(11) Consumer Services	10.2	10.9	17.8	8.3	14.2	10.0	14.1
(12) Producer Services	12.5	14.4	13.2	18.5	10.8	11.6	23.8
(13) Health Services	6.2	7.3	5.4	8.1	4.0	1.8	13.1
(14) Non-profit Organ	5.1	5.6	5.0	5.1	2.3	4.6	8.0

Source: Social and Scientific Systems, Inc., "Tabulation of USEIM Data for Paired Years, Minnesota," under Contract with the U.S. Small Business Administration, 1986, Bethesda, Maryland.

the job increase in producer services, health services and technology-intensive industries came from expansion of existing firms rather than births of new firms. These industry groups are composed of large, well established firms whose operations are expanding in such areas as banking, hospitals and health care, chemicals, machinery, and electric and electronic equipment manufacturing. In contrast, births of new establishments were more important sources of new jobs for consumer-oriented and location-specific sectors, such as consumer services and retail trade.

Ownership and location of headquarters of business firms operating in Minnesota

Minnesota-based firms are composed of independent, single-location establishments, headquarters of multi-unit companies, and separate operating units or branches of these companies. Business organizations based in other states operate in Minnesota through their branches and auxiliary units. Social and Scientific Systems, Inc., and SBA processed more recent USEEM data to estimate the components of job growth for independent, single-location establishments, headquarters and branches, and Minnesota-based versus out-of-state companies.

USEEM data for 1976 showed that Minnesota-based firms provided 81 percent of total nonfarm employment reported in the state (Table 14). This share of employment increased slightly to 83 percent in 1984, but the distribution of jobs across other type firms and location of headquarters was little changed from 1976. Independent firms accounted for half of total employment, followed by corporate headquarters and their branches at slightly less than one-third of total jobs. Corporate headquarters alone provided about one-fifth of total jobs. Also, branches of out-of-state firms contributed nearly one-fifth of total jobs in Minnesota.

In Wisconsin, 77 percent of total nonfarm jobs were provided by firms with in-state headquarters (Wisconsin, 1984, pp. 269-273). Independent firms accounted for two-thirds of all jobs, compared to one-half of all jobs in Minnesota. However, there are more corporate headquarters in Minnesota, resulting in a one-third share of all jobs by corporations based in the state. This compares with only a 10 percent contribution to all jobs by corporations based in Wisconsin. Corporations based outside Wisconsin control eight percent of all firms, which is twice the proportion for Minnesota. Consequently, branches of these non-Wisconsin-based corporations provide 23 percent of total jobs, compared to 17 percent for similar branches in Minnesota.

Significant numbers of jobs in corporate headquarters and their branches in Minnesota tend to promote economic stability. In Wisconsin, multiple-location, Wisconsin-based firms were less affected by the recession, continuing to generate jobs and losing relatively fewer jobs when they contract (Wisconsin, 1984, p.14). Also, a high proportion of jobs controlled by Minnesota-based firms enhances the overall effectiveness of local jobs policy, compared to conditions in Wisconsin where nearly one-fourth of all jobs are controlled by non-Wisconsin based corporations.

Job growth by type of firm and location of headquarters

Table 14. Share of Employment and Jobs Growth by Minnesota-based Firms and Branches of Out-of-state Firms, 1976-1984.

Type of Firm	Share of Total Jobs		Jobs Growth	
	1976	1984	Number of Jobs	Percent Growth
	- percent -		- # - -percent-	
Minnesota-Based Firms	81.2	82.6	220,790	25.7
Independents	48.2	50.7	152,711	29.9
Corporate Headquarters	22.7	18.4	1,103	0.5
Branches	10.3	13.5	66,976	38.1
Branches of Firms with Out-of-State Headquarters	18.8	17.4	26,785	13.4
North Central Region	6.9	6.8	14,551	19.8
Other States	11.9	10.6	12,234	9.7
Total	100.0	100.0	247,575	18.9

Source: Social and Scientific Systems, Inc., "Tabulation of USEEM for 1976 and 1984," under Contract with U.S. Small Business Administration, 1986, Bethesda, Maryland.

Branches and subsidiaries of Minnesota-based firms showed a 38 percent increase in employment between 1976 and 1984, followed by independent firms with a 30 percent gain in jobs (See Table 14). Establishments based in other states of the north central region showed a 20 percent increase in employment while branches of firms based outside the north central region grew by only 10 percent. Employment among corporate headquarters in the state did not show any significant change.

Contribution to job creation by type of firm
and location of headquarters

Minnesota-based firms accounted for 82 percent of all job gains between 1976 and 1984, and incurred 78 percent of all job losses (Table 15). In contrast, establishments owned by out-of-state firms accounted for 18 percent of all job gains and 22 percent of the job losses. The distribution of job gains among independent firms and corporate branches was similar to their share of employment.

Independent, single-location establishments contributed 62 percent of net new jobs in the state between 1976 and 1984, higher than their 51 percent share of total employment (See Table 15). Corporate headquarters and their branches in the state raised the contribution of Minnesota-based firms to 89 percent of all net new jobs. Branches of out-of-state firms provided 17 percent of total employment, but they created only 11 percent of net new jobs. Over half of this contribution to net new jobs came from businesses based in other states of the north central region. Firms based outside the north central region provided 11 percent of all jobs in the state, but they contributed less than five percent of the net increase in jobs.

Headquarters of multi-establishment firms provided nearly one-fifth of total jobs, but corporate headquarters alone were not significant sources of net new jobs. On the other hand, smaller enterprises affiliated with Minnesota-based complex firms, such as branches and subsidiaries, created 27 percent of net new jobs, twice their share of total jobs.

In Wisconsin, the relative importance of independent firms and corporate branches in job creation switched between two time periods:

- (1) Between 1969 and 1976, branch establishments showed exceptional performance at job creation, overshadowing performance by independent firms, and
- (2) Between 1977 and 1981, openings by new branches fell, and independent firms dominated job creation, particularly very small, entrepreneurial firms with fewer than 20 employees (Wisconsin, 1984, p. 264).

Also, Wisconsin-based firms outperformed branches of out-of-state firms in generating jobs during the 1977-1979 growth period, as well as keeping jobs during the 1979-1981 short recessionary period.

In Minnesota, the combined contribution of independent firms and branches of corporations to net new jobs reached 89 percent between 1976 and 1984. Branching by corporations based in the state was already

Table 15. Share of Job Gains and Losses by Minnesota-Based Firms and Branches of Out-of-State Firms, 1976-1984.

Type of Firm	Share of Total Jobs 1984	Share of Job Gains 1976-84	Share of Job Losses 1976-84	Share of Net New Jobs 1976-84
	- percent -			
Minnesota-Based Firms	82.6	81.9	78.2	89.2
Independents	50.7	50.9	45.7	61.7
Corporate Headquarters	18.4	14.2	20.9	0.4
Branches	13.5	16.8	11.6	27.1
Branches of Firms with Out-of-State Headquarters	17.4	18.1	21.8	10.8
North Central Region	6.8	6.9	7.4	5.9
Other States	10.6	11.2	14.4	4.9
Total	100.0	100.0	100.0	100.0

Source: Social and Scientific Systems, Inc., "Tabulation of USEEM for 1976 and 1984," under Contract with U.S. Small Business Administration, 1986, Bethesda, Maryland.

creating significant numbers of jobs, with a growth rate in employment higher than those of independent firms. This trend suggests that economic conditions are conducive to the growth of corporate branches.

Components of job gains and losses for various type firms and location of headquarters

In Table 16, job gains and losses between 1976 and 1984 are each divided into three categories. Job gains are broken down by births, expansions and in-migration of establishments. Job losses are shown by dissolutions, contractions and out-migration.

Jobs created by births or start-ups of establishments provided 53 percent of all job gains. New business formation by independent, single-location firms accounted for two-thirds of these startup jobs; the other third was contributed by corporations that set up new branches and subsidiaries. Additional jobs from expansion of existing firms comprised 29 percent of all job gains. Independent firms and corporations each provided about half of these jobs.

Firms based outside Minnesota contributed 18 percent of all new jobs, with 13 percent created by businesses moving into the state. Only five percent of all new jobs were due to expansion by firms based outside the state.

Share of job losses by type of firm

Dissolutions of independent, single-location firms caused one-third of all job losses in the state. This share of losses by independent firms was roughly equal to their share of job gains from new business formations. Births and expansion of branches owned by Minnesota-based corporations accounted for 31 percent of job gains, while dissolution and contraction of these businesses produced 33 percent of job losses in the state. In most cases, these losses can be attributed to closing branches or other parts of the firm rather than dissolution of the entire corporation.

Contraction by Minnesota-based corporations accounted for 15 percent of all job losses, which was higher than the 12 percent share of job losses by independent firms in the same situation. On the other hand, independents posted substantially larger losses from dissolutions, compared to those by corporations. These are indications that independent firms tend to be smaller and have narrower margins between contracting and going out of business altogether.

Migration of establishments

Business firms based outside Minnesota contributed 11 percent of net job gains in the state. These firms accounted for 22 percent of job losses, higher than their 18 percent share of new jobs. Closing establishments in the state contributed 19 percent of total job losses, while business contraction caused another three percent of the losses. Opening new establishments in the state created 13 percent of all new jobs, and expansion of existing businesses another five percent.

The odds of losing jobs due to withdrawal of the business rather than

Table 16. Components of Job Gains and Losses,
Minnesota, 1976-1984.

Job Gains		Job Losses	
Components of Gains	Percent of Gains	Components of Losses	Percent of Losses
Births or Startups		Dissolutions	
- Independents	35.0%	- Independents	33.9%
- MN-based corp	17.5%	- MN-based corp	17.6%
	<hr/>		<hr/>
Total	52.5%	Total	51.5%
Expansions by Existing Firms		Contractions by Existing Firms	
- Independents	15.9%	- Independents	11.9%
- MN-based corp	13.4%	- MN-based corp	15.0%
	<hr/>		<hr/>
Total	29.3%	Total	26.9%
Total Jobs		Total Jobs	
- Independents	50.9%	- Independents	45.8%
- MN-based corp	30.9%	- MN-based corp	32.6%
In-Migration		Out-Migration	
- Start-ups	13.3%	- Deaths	18.6%
- Expansions	4.8%	- Contractions	3.2%
	<hr/>		<hr/>
Total	18.1%	Total	21.8%
TOTAL GAINS	100%	TOTAL LOSSES	100%

SOURCE: Social and Scientific Systems, Inc., "Tabulation of USEEM Data for 1976 and 1984," under Contract with U.S. Small Business Administration, 1986, Bethesda, MD.

contraction were 6 to 1 for firms based outside Minnesota, double the odds for independent firms in the state. Furthermore, corporations based in Minnesota had an equal ratio of losses from contraction and dissolution.

Table 17 compares job gains and losses from migration of firms based in Minnesota, the north central region and other states. Firms based outside the north central region had about twice the share of job gains and losses compared to firms based in other states within the region. The ratio of job losses due to dissolution relative to losses from contraction was seven to one for firms based outside the region. This ratio was four to one for firms based within the region and two to one for firms based in Minnesota. In other words, more jobs and businesses in the state were dissolved rather than furloughed by parent firms, as these parent firms were located further away from Minnesota. These trends reduce the importance of out-of-state firms to job creation in the state. Public policy should concentrate on Minnesota-based firms, particularly expansion by Minnesota-based corporations. Similar findings in Wisconsin advocate a business "retention-expansion" program for Wisconsin-based firms.

Changes in the number of firms by type of ownership
and location of headquarters

Table 18 compares the number of independent firms to those affiliated in some way with a larger parent company. Four out of five businesses in Minnesota are independently owned and situated in one business location. Only four percent, or one establishment in 25, is owned by corporations located outside the state.

Forty thousand independent firms were formed in the state between 1976 and 1984. This represents 59 percent of all independent businesses in 1984. Two-thirds of businesses owned by corporations outside the north central region are also fairly recent. More than half of all businesses owned by corporations based in Minnesota and the north central region started after 1976.

Components of change for firms existing in 1976

Over half the establishments operating in 1976 went out of business by 1984 (Table 19). Establishments owned by corporations outside the north central region had the highest death rate at 67 percent, followed at 63 percent for establishments owned by firms located in other states within the region. About half the Minnesota-based establishments existing in 1976 had ceased operations by 1984.

Expansion of businesses was the second highest category of job change for establishments. One-fourth of corporate branches expanded, compared to one-fifth for independents and one-sixth for establishments owned by firms based in other states. Contractions were not as prevalent, ranging from 16 percent of businesses owned by Minnesota-based corporations to 10 percent for businesses based in other states. The overall volatility in number and sizes of establishments is indicated by the small proportion of establishments with constant employment.

Table 17. Job Gains and Losses due to Migration
of Firms, Minnesota, 1976-1984.

Job Gains	Number of jobs	Share of Total Job Gains	Job Losses	Number of jobs	Share of Total Job Losses
In-Migrations	135,448	18.1%	Out-Migrations	-108,663	21.8%
North Central	51,319	6.9%	North Central	-36,768	7.4%
- Start-ups	40,144	5.4%	- Dissolutions	-29,796	6.0%
- Expansions	11,175	1.5%	- Contractions	-6,972	1.4%
Other U.S.	84,129	11.2%	Other U.S.	-71,895	14.4%
- Start-ups	59,179	7.9%	- Dissolutions	-62,858	12.6%
- Expansions	24,950	3.3%	- Contractions	-9,037	1.8%

SOURCE: Social and Scientific Systems, Inc., "Tabulation of USEEM for 1976 and 1984," under Contract with U.S. Small Business Administration, 1986, Bethesda, Maryland.

Table 18. Number of Firms by Location of Headquarters,
Minnesota, 1976-1984.

	INDEPENDENT	COMPLEX Location of Headquarters			TOTAL
		Minnesota	North Central	Rest of U.S.	
1976					
Number of Firms	59,268	9,594	1,584	1,802	72,248
Percent Total	82.0%	13.3%	2.2%	2.5%	100.0%
1984					
Number of Firms	68,238	10,802	1,553	1,756	82,349
Percent Total	82.9%	13.1%	1.9%	2.1%	100.0%
1976-1984					
Net Change	8,970	1,208	-31	-46	10,101
Percent Growth	15.1%	12.6%	-2.0%	-2.6%	14.0%
New Firms Since 1976					
Number of Firms	40,182	5,835	970	1,166	48,153
Percent 1984 Firms	58.9%	54.0%	62.5%	66.4%	58.5%

SOURCE: Social and Scientific Systems, Inc., "Tabulation of USEEM Data for 1976 and 1984," under Contract with U.S. Small Business Administration, 1986, Bethesda, Maryland.

Table 19. Change Components for Number of Firms
in Existence Since 1976, Minnesota, 1976-1984.

Type of Change	Headquarters in Minnesota		Headquarters outside Minnesota		TOTAL
	Independent	Corporate	North Central	Other U.S.	
Expanded	19.5%	24.1%	16.7%	16.0%	19.9%
Ceased	52.7%	48.3%	63.2%	67.3%	52.7%
Contracted	13.3%	16.3%	9.7%	9.6%	13.6%
Constant	14.5%	11.3%	10.4%	7.1%	13.8%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%

SOURCE: Social and Scientific Systems, Inc., "Tabulation of USEEM
Data for 1976 and 1984," under Contract with U.S. Small
Business Administration, 1986, Bethesda, Maryland.

Bibliography

Birch, David L., "The Job Generation Process", MIT Program on Neighborhood and Regional Change, MIT, Cambridge, Mass.

Boden, R. and B.D. Phillips, "Uses and Limitations of USEEM/USELM Data", U.S. Small Business Administration, November 1985, Washington D.C.,

Federal Reserve Bank of Chicago, "The Great Lakes Economy, A Resource and Industry Profile of the Great Lakes States", 1985, Chicago, Ill.

Greene, Richard, "Tracking Job Growth in Private Industry", Monthly Labor Review, September 1982.

Minnesota Department of Jobs and Training, Review of Labor and Economic Statistics, Quarterly, St. Paul, Minn.

_____, Non-Agricultural Wage and Salary Data, Employment and Earnings, April 1985, St. Paul, Minn.

Scientific and Social Systems, Inc., "Tabulation of USELM Data for Paired Years, Minnesota", under Contract with U.S. Small Business Administration, 1986, Bethesda, Md.

_____, "Tabulation of USEEM Data for 1974 and 1984, Minnesota and U.S.", under Contract with U.S. Small Business Administration, 1986, Bethesda, Md.

U.S. Bureau of Census, County Business Patterns, Minnesota, Annual, Washington D.C.

U.S. Small Business Administration, "The Derivation of U.S. Establishment Longitudinal Microdata (USELM) File: The Weighted Integrated USEEM 1976-82 Sample", December 1984, Washington D.C.

_____, "A Guide to Understanding U.S. and State Level Business Job Generation Data", December 1984, Washington D.C.

_____, "Constructing a Business Microdata Base for the Analysis of Small Business Activity", November 1984, Washington D.C.

Wisconsin Department of Development, "The Job Generation Process in Wisconsin, 1969-1981", Report 84-2, December 1984, Madison, Wisc.

Appendix Table 1. Industrial Groupings, Minnesota Job Growth Analysis.

Industry Group	SIC Code and Title
Primary Resources	01 Agricultural Production- Crops 02 Agricultural Production- Livestock 07 Agricultural Services 08 Forestry 09 Fishing, Hunting, Trap 12 Bituminous Coal and Lignite 13 Oil and Gas Extraction 14 Nonmetallic Minerals
Metal mining	10 Metal Mining
Construction	15 General Bldg Contractors 16 Heavy Const Contractors 17 Special Trade Contractors
Resource-Intensive	20 Food and Kindred Products 24 Lumber and Wood Products 26 Paper and Allied Products 29 Petroleum and Coal Products 31 Leather and Leather Products 32 Stone, Clay and Glass Products
Capital-Intensive	22 Textile Mill Products 27 Printing and Publishing 30 Rubber and Misc Plastics 33 Primary Metal Industries 34 Fabricated Metal Products 37 Transportation Equipment
Labor-Intensive	23 Apparel and Other Textile 25 Furnitures and Fixtures 39 Miscellaneous Manufacturing
Technology-Intensive	28 Chemicals and Allied Products 35 Machinery except Electrical 36 Electric and Electronic Equipment 38 Instruments and Related Products
Distributive Services	40 Railroad Transportation 41 Local and Interurban Passenger 42 Trucking and Warehousing 44 Water Transportation 45 Transportation by Air 46 Pipelines exc Natural Gas 47 Transportation Services 48 Communication 49 Electric, Gas, Sanitary Services

Appendix Table 1 (contd). Industrial Groupings, Minnesota Job Growth Analysis.

Industry Group	SIC Code and Title
Wholesale Trade	50 Wholesale Trade-Durable Goods
	51 Wholesale Trade-Nondurable Goods
Retail Trade	52 Bldg Materials and Garden Shops
	53 General Merchandise Stores
	54 Food Stores
	55 Automotive Dealers and Services
	56 Apparel and Accessory Stores
	57 Furniture and Home Furnishings
	59 Miscellaneous Retail
Consumer Services	58 Eating and Drinking Places
	70 Hotels and Other Lodging Places
	72 Personal Services
	75 Auto Repair, Services and Garages
	76 Miscellaneous Repair Services
	78 Motion Pictures
	79 Amusement and Recreation Services
	88 Private Household Services
Producer Services	60 Banking
	61 Credit Agencies
	62 Security, Commodity Brokers
	63 Insurance Carriers
	64 Insurance Agents, Brokers and Services
	65 Real Estate
	66 Combined Real Estate, Insurance
	67 Holding and Other Investment Companies
	73 Business Services
	81 Legal Services
	86 Membership Organizations
89 Miscellaneous Services	
Health Services	80 Health Services
Non-Profit Organizations	82 Educational Services
	83 Social Services
	84 Museums, Botanical, Zoo Organizations

Source: Federal Reserve Bank of Chicago, "The Great Lakes Economy, A Resource and Industry Profile of the Great Lakes States," 1985, Chicago, IL.