

NEW FIRMS IN MINNESOTA:  
THEIR CONTRIBUTIONS TO EMPLOYMENT AND EXPORTS, THEIR  
START-UP PROBLEMS AND CURRENT STATUS

Draft Report of Phase I  
of the New Firms Project

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## EXECUTIVE SUMMARY

The objective of this pilot project was to estimate the extent to which new Minnesota firms contributed to the Gross State Product (GSP), exports sales, and job opportunities for Minnesota citizens.

A random sample of Minnesota firms was selected from the Dun's Marketing Identifier files as starting in 1979 or 1982 to represent all industry sectors. They were the basis for a survey of autonomous, ongoing firms less than six years old. An executive involved in both start-up and current management responded for 76 percent or 551 of these new firms.

### MAJOR POLICY IMPLICATIONS

- Policies designed to encourage new firms should emphasize a broad base of activities. (Less than 5 percent of the sample were high-tech, most in distributive services and producer services.)
- Efforts to promote domestic exports should give equal emphasis to new firms in manufacturing, producer (business) services, and selected firms in distributive services.
- Different strategies may be required to promote exports and employment, for they are not necessarily provided by the same firms (there is a low positive correlation between the two).
- Efforts to promote international exports should not emphasize new firms; it is a small factor in manufacturing sales, absent for all other industries.
- Substantial resources devoted to assist new firms need only be provided for two years after their inception. Firms with high potential for sales and employment will be apparent within twenty-four months. They are 10-20 percent of all new firms.
- The single most persistent, universal start-up problems are related to finding, motivating, and retaining personnel.
- Efforts to attract new firms are unlikely to be effective. The vast majority of new firms are started by people who were well established in Minnesota. All jobs provided by new firms were taken by Minnesota citizens.
- There is little reason to initiate drastic shifts in the educational programs in the state. Most new firms hire

a broad range of employees. (Seventy-five percent of new jobs required post-high school training or education.)

- Assistance in developing basic strategies for planning, organizing, and managing resources (particularly cash flow) may be of benefit to new firms. Principals in new firms are universally confident about the need for the products or services they provide.



CHAPTER 1  
PURPOSE, STRATEGY

The major purpose of this project is to estimate the extent to which new Minnesota firms--less than six years old--have:

- provided new jobs for Minnesota citizens,
- contributed to the Gross State Product (GSP) through the production of goods and services, and
- increased the GSP through exports of goods and services.

RATIONALE

A growing state economy can help to provide jobs and increase the Gross State Product (GSP) through the production of goods and services for intra-state consumption and exports. Economic growth generally reflects the contributions and growth of both existing firms, some with a considerable history, and new firms. Substantial interest has developed over the relative contributions of large and small firms to the maintenance and growth of the economy. While it is clear that both large, established firms and autonomous new firms may both provide new jobs, and new goods and services, the relative contributions of each are still a topic of new attention.

Precise estimates of the sources of new jobs and GSP have substantial implications for public policy. Government efforts to stimulate economic growth may take a quite different form depending on the major source of economic growth. Policies

designed to assist a small number of well-established, massive, international corporations would be quite different from those designed to encourage entrepreneurs to establish and develop new enterprises where none had existed.

In addition to providing estimates of the jobs and contributions to the GSP, this project is also designed to explore other issues related to public policies relevant to encouraging the establishment of new firms. Such as:

- Comments on why the firm was started in Minnesota and consideration of moving out of state.
- The problems associated with the establishment of the new firms.
- Estimates of the current status of the firms on a number of dimensions relevant to economic survival.

As no estimates of contributions to employment or GSP, problems, or current status of firms have an absolute value, the major analysis is related to comparisons among new firms. Comparisons based on age or stage of development; the sample is composed of firms from one to six years old. Comparisons among firms in different industries; all major industry sectors are represented in the sample. Comparison on the basis of socio-economic context; the sample reflects firms from both the Twin Cities region and greater Minnesota. Comparisons based on success or effectiveness; there is a substantial range of success among these new firms.

## OUTLINE OF THE REPORT

The second chapter will provide a brief review of the procedure used to gather data on new firms. Chapter 3 focuses on the nature of the new firms at start-up, with attention to the start-up events, and prestart financing. The reasons given for starting the new firm in Minnesota are reviewed in Chapter 4. Chapter 5 reviews the current status of the contributions of these new firms--jobs, sales, and exports.

Chapter 6 considers alternative models of new firm start-ups, the first of several analysis exploring antecedents to contributions to the state--sales and jobs. Chapter 7 considers the start-up problems of the new firms and the relationship to contributions. Chapter 8 considers the current status and its association to contributions. Chapter 9 provides an overview of the factors preceding performance.

The aggregate contributions of new firms to the Minnesota economy and the correspondence with other estimates of contributions is the focus of Chapter 10. A review of the major findings and the implications for public policies designed to promote new firms are covered in the final chapter, 11.

The two major appendices are A and B; the first provides the questionnaire and the second a list of the basic activities of all firms in the sample.

## CHAPTER 2

### CONDUCT OF THE SURVEY OF NEW FIRMS

There are three major features of the survey itself: the selection of respondents; the data collection instrument or, in this case, the questionnaire; and the procedure used to gather data from the respondents. The final section will review the success of the endeavor.

#### SELECTION OF REPRESENTATIVE NEW FIRMS

The initial stage of a project to survey new Minnesota businesses was to identify a representative sample of new firms. The incorporation records of the Minnesota Secretary of State were difficult to utilize and would not include proprietorships and partnerships. The files of the Department of Economic Security are not organized to provide listings of annual additions of new firms; the legal confidentiality of their files pose additional problems. A local marketing resource, based on updates of "Yellow Page" listings did not cover the rural portions of the state.

The most suitable option appeared to be the information available from Dun's Marketing Services--the Duns Market Identifier (DMI) files. The Dun's sales representative for Minnesota estimated that about 5,000 new listings were added to the Minnesota files each year; this is approximately 5 percent of the 95,000 establishments--stand alone production units, not autonomous enterprises--in the file for 1982. Two random samples of 1,000 establishments were ordered; each to be drawn

at random from those establishments with "year started" listed as 1979 and 1982, a total of 2,000.

Preliminary analysis of the DMI file indicated that eighteen of the establishments were nonprofits and one a government unit; these were set aside. But the DMI file identified another 43 as subsidiaries, 147 as headquarters (possibly paper organizations only), and 26 as both subsidiaries and headquarters; these were also set aside. The remaining 1,765 establishments formed the basis for the initial sample. Because such a large percentage were listed as retail or consumer services, those in this category were selected at random from the DMI sample. The final list included 1,245 establishments.

To determine: a) which firms might no longer be in business, b) who would qualify in ongoing firms to complete a questionnaire, and c) the current mailing address of potential respondents, attempts were made to contact all 1,245 establishments. All those contacted were cooperative, courteous, and helpful.

It was found that only 724, 54 percent of these 1,245 establishments were autonomous, ongoing new firms. The largest percentage were firms that could not be contacted (202 or 16 percent). An equal number were, despite classification by DMI as new firms, existing firms under new ownership (200 or 16 percent). Representatives from a substantial number reported they had existed for more than eight years and had not changed ownership (94 or 7 percent). A small number reported they were subsidiaries of larger firms (25 or 2 percent).

Hence, the initial sample of 2,000 was finally reduced to a potential sample of 724.<sup>1</sup>

#### THE QUESTIONNAIRE

There were eight parts to the questionnaire sent to the 724 firms that remained as new, autonomous, ongoing new firms after screening by phone calls to those selected from the DMI sample. They were:<sup>2</sup>

- I Products/services: Request for a general description of the products or services offered by the firm and percentage sold outside the state (of Minnesota).
- II Choice of location: Request for the reasons for starting in Minnesota and consideration of moving or expanding in another state.
- III Inventory of operating issues: Fixed choice responses regarding the severity of thirty-five start-up problems related to products and markets; technology/scheduling; management/organization; and financial issues. This is followed by items related to the amount and sources of financial investments prior to the first outside funding.
- IV Assessment of the firm: Fixed choice responses reflecting the current status of the firm on twenty-five aspects of management, marketing, and finance.
- V Employment policy: Eight items related to volatility in employment and the employment policy of the firm.
- VI Sales, financial history: Request for the history of gross sales, including domestic and foreign sales, as well as return on sales and recent average return on equity.

VII Operating structure, census of employees: Information on the number of different types of employees (e.g. managers, skilled office workers, unskilled blue collar, etc.) now employed and hired the first year; the number that are full and part time, the number moved to Minnesota for the job; and the number in each major category working in different functional areas (marketing, production, etc.).

VIII Comments: Provisions were made for general comments on the back of the questionnaire. A substantial percentage of respondents made some suggestions.

While most of those contacted completed this self-administered questionnaire and returned it to the project offices, a substantial minority were eventually contacted by phone and answered key questions over the phone.

#### DATA COLLECTION PROCEDURE

To be an eligible respondent for a firm, those answering the questions were required to have been involved in initiating the firm as well as actively involved in management at the time of the survey. Individuals in the firms were contacted a number of times over an eight week period.

1. Initial phone contact when the first sample was identified from the DMI data. This contact was used to identify a specific individual suitable as a respondent. If they were involved in this first meeting, they invariably agreed to contribute.
2. An initial mailing of a questionnaire, a stamped return envelope, and a cover letter describing the

project and the importance of their contribution.

3. Two weeks after the first questionnaire, a "form" postcard reminded them their questionnaire was important to the project was sent to all participants.
4. Those that had not returned the questionnaire after three weeks received a second questionnaire and personalized cover letter.
5. Those that had not returned the questionnaire after five weeks were sent a third questionnaire and personalized cover letter by registered mail.
6. Those that did not return the questionnaire after eight weeks were contacted by phone and asked key questions from the questionnaire in a brief, fifteen minute interview.

Of the 724 firms that were in the initial sample, self-completed questionnaires were received from 402 (a response rate of 56 percent). But another 149, or 46 percent, of the nonresponders were willing to answer selected questions over the phone. Hence, for the most important questions the response rate is 76 percent. Compared to the response rates achieved in other survey projects, particularly those of busy businesspersons--and none are more harried than entrepreneurs trying to breath life into new firms--this is a substantial accomplishment.<sup>3</sup>

The characteristics of new firms from which data was obtained at different stages of the data collection process may be compared; this is done in Table 1. Several patterns appear



in this presentation. There is no difference in response tendencies based on the year started as provided by the DMI. There is little difference among industries. Except for the few responses from agricultural firms, and there were only nine in the initial sample, there is little variation among the industries in the overall response rate.

TABLE 1  
COMPARISON OF NEW FIRMS PARTICIPATING AT DIFFERENT STAGES OF THE DATA COLLECTION PROCESS

	Number Of Firms	Data Collection				No Response
		1st	2nd	3rd	Phone	
Total	724	31%	14%	10%	21%	24%
Year start as per DMI data set						
1979	370	30	15	11	19	24
1982	354	32	14	8	22	23
Industry sector						
Agriculture	9	11	11	--	11	67
Construction (1)	147	29	12	12	21	26
Manufacturing	137	36	18	7	17	23
Distributive services	154	36	14	12	18	20
Producer services	133	31	16	8	21	23
Retail	114	27	14	9	25	25
Consumer services	30	31%	14%	10%	21%	24%
Average number of jobs in 1984	(2)	10.1	11.1	10.0	9.5	
Average 1983 sales in \$1,000	(2)	516	697	931	472	
Average 1983 total exports (\$1,000)	(2)	757	135	474	78	

NOTES: (1) Includes one mining firm.  
(2) Based on responses to survey questions.

There are some small differences in firm characteristics, those responding to the phone interview tended to have fewer employees, lower average 1984 sales, and the greatest difference seems to be related to reported exports--those responding over the phone report substantially lower 1984 export sales.

#### COMPARISON WITH OTHER ESTIMATES

The sample from which the data was collected can be compared to other estimates of new firms. One is the detailed estimate of all existing establishments provided by the United States Department of Commerce for each state, the County Business Patterns. This may not represent new firms, but it represents the existing population which new firms join and, in many cases, are the incubators for new firms.

A second source is an analysis completed of new firms that entered the files of the Minnesota Department of Economic Security in 1977 and their history over the next four years.<sup>4</sup> All firms employing individuals for more than twenty continuous weeks are required to file a report and make payments to this office. It is perhaps the most comprehensive list of new firms available. A comparison of these three sources is provided in Table 2.

The comparison of either sample with existing firms shows the same general trends: 1) a concentration of firms in retail and consumer services, and 2) a very low percentage in agriculture, mining, and transportation, communications, and

utilities. Nothing suggests that all three sources are not measuring the same population of firms.

TABLE 2  
SAMPLE COMPARED WITH OTHER  
ESTIMATES OF MINNESOTA ESTABLISHMENTS

	County	New Firm	Economic	New Firm Survey	
	Business Patterns <u>1981</u>	Survey* Summer <u>1984</u>	Security Analysis <u>1977+3yr</u>	Less than Econ.Sec. <u>Analysis</u>	More than Econ.Sec. <u>Analysis</u>
Number	85,581	993	5,240		
Agriculture	.8%	.9%	1.6%	.7%	--
Mining	.2	.2	.1	--	.1%
Construction	9.9	14.6	20.5	5.9	--
Manufacturing	7.2	13.8	5.7	--	8.1
Transportation, communications, public utilities	4.4	1.7	4.3	2.6	--
Wholesale	10.1	13.8	10.0	--	3.8
Retail	26.8	30.7	24.7	--	6.0
Finance, insurance, real estate	9.0	3.3	8.4	5.1	--
Services	26.8	20.9	24.6	3.7	--
Totals	99.8%	99.9%	99.9%	18.0%	18.0%

\* Based on estimates of viable, autonomous, ongoing new firms after initial screening by phone corrected for the undersampling in retail and consumer service.

The differences between the two samples of new firms are of more interest. Particularly the differences in the distribution. The 1984 new firm survey, using a sample based on DMI, has a larger percentage of firms in manufacturing, wholesale and retail. However, the basis for a firm being included in the DMI files is a need for credit--financial support. Firms in manufacturing and wholesale industries have a greater need for start-up capital than other industries<sup>5</sup> and this could increase the probability of a Dun's credit check. Those starting retail firms may have fewer resources than others and, hence, more likely to need a line of credit.

In summary, neither comparison suggests the sample of firms selected for the 1984 survey is not representative of the population of new firms. In particular, confidence should be justified in comparisons across industries.

#### CONFIDENCE IN THE RESULTS

The major problems associated with confidence that this sample is representative of all new firms are related to the source of the sample, not the data collection from the firms themselves. Two problems are of some significance:

- The failure of the Dun and Bradstreet procedures to incorporate all new firms into their files, a problem that varies by industry sector.
- The distinctive procedures used by Dun and Bradstreet to arrive at a "start date" for the firms in its files.

The second problem was partially solved through the screening phone calls that preceded the data collection.

The first problem<sup>6</sup> cannot be solved except to use another source as representing the population of new firms. The additions to the lists of firms filing unemployment insurance payments maintained by the Department of Economic Security are a much better source of such information.

In comparison to this problem, the slight biases regarding the phone interviews and nonresponding new firms--smaller, slightly lower sales and substantially less exports are reported--is not very significant. Given the current status of research on new firms, this procedure has provided information that is as accurate and as timely as any available at this time--anywhere.

## CHAPTER 3

### MINNESOTA NEW FIRMS: WHAT, WHERE, WHEN, AND FINANCING

There is considerable speculation and comment on the nature of economic growth in Minnesota. That portion of the growth attributable to new firms is often considered to be the result of distinctive speciality, high technology--particularly in data processing and medical technology--is often considered a key source of new firm growth. The following discussion will emphasize:

- The types of goods and services provided by the new firms.

Further, the discussion will consider several other features of the establishment of new firms.

- Their location in the state.
- The timing of the start-up period or window.
- Sources and amount of the initial financing.

#### NATURE OF THE NEW FIRM'S BUSINESS

Based on the Standard Industrial Classification (SIC) codes assigned to each new firm in the DMI, the 551 firms in this sample emphasize 206 different activities.<sup>7</sup> In this report, new firms will be discussed on the basis of seven industry categories (the number of firms in the survey sample is indicated in parentheses):

1. Agriculture: Firms (3) that provide services to the agricultural sector.
2. Construction: Firms (109) involved in construction

of any kind. This includes general and subcontractors involved in roads, highways, buildings, dwellings, etc. One firm providing service to the mining industry is included.

3. Manufacturing: Firms (105) engaged in manufacture of any kind, including food products, textiles, printing and publishing, biological and pharmaceuticals, industrial metal products, commercial and industrial machinery, electrical and electronic parts, process control, medical supplies and equipment, and so on.
4. Distributive services: Firms (123) that specialize in transportation and utilities, including refuse collection, and the distribution of any type of product. All wholesale distribution firms are included in this category.
5. Producer services: Firms (133) that provide services oriented toward a commercial customer. Included are all banks, financial, insurance, real estate, but also all types of consulting, advertising, data processing, leasing services as well as traditional commercial services such as legal, accounting, engineering, etc.
6. Retail: Firms (85; a 37 percent of the DMI sample) that engage in direct retail sales, most from fixed locations but some by other means: telephone, door to door, etc.
7. Consumer services: Firms (24; a 36 percent sample of DMI sample) that provide services directed toward the

individual consumer, such as motels, automotive repair, appliance repair, amusement activities, etc.

As in all sampling, the 551 firms in this sample represent a substantial reduction for the actual population of new firms. The first loss occurs because of the less complete coverage of Dun and Bradstreet, to be ignored for now but a major issue in Chapter 10. Another loss occurred because 216 of the Dun's Marketing Identifier (DMI) firms were listed as branches and headquarters. There is another loss because a sample of retail and consumer service firms was taken from the DMI sample. This is why their numbers appear small. Finally, there is the loss due to nonresponses--not all firms provided responses.

The magnitude and industry source of these losses is presented in Table 3. An approximation of the distribution of firms if the full DMI sample was used is estimated by correcting for the reduction in retail and consumer service firms.

The major feature of this presentation is the distribution of new firms across all industry segments--with a noticeable absence of firms related to agriculture. As might be expected from their reputation for volatility, 40 percent are oriented toward individual consumers--as retail or consumer service firms.

The industry speciality of the individual firms is presented in Appendix B by SIC codes--detailed descriptions of the commercial emphasis of each of the 551 firms. Outside of retail consumer services, there is a substantial range of activity. The general impression is one of the establishment



of new firms across a wide range of commercial activity.

TABLE 3  
LOSSES FROM INITIAL TO FINAL  
SAMPLE: BY INDUSTRY

	DM New Firms	Firms Screened	Firms Contacted	Responding Firms	Full DMI Sample (1)	
Agriculture	28	28	9	3	3	*%
Construction	216	216	147	109	109	15
Manufacturing	185	185	137	105	105	14
Distributive services	285	285	154	123	123	17
Producer services	221	221	133	102	102	14
Retail	648	242	114	85	228	31
Consumer services	182	68	30	24	66	9
Total firms	1,765	1,245	724	551	736	100%

NOTES: (1) Includes correction to increase retail and consumer services.

\* Indicates less than 0.6%.

#### NEW FIRMS AND HIGH TECHNOLOGY

Using a liberal definition of "high technology,"<sup>8</sup> no more than 26 of these 551 new firms could be considered high-tech. They were located in three industry sectors and their specialities are indicated in Table 4.

The absence of high technology new firms is striking; less than 5 percent of the 551 firms in the sample. Further, they

are not concentrated in manufacturing, only 5 of 105 manufacturing firms are high-tech. They are more prevalent in distributive services, consisting of 11 of 123 new firms, and producer services, consisting of 10 of 102 new firms.

TABLE 4

SPECIALITIES OF HIGH-TECH  
FIRMS IN THE SAMPLE

	<u>Number</u>	<u>SIC</u>	<u>Speciality</u>
<b>MANUFACTURING</b>			
	1	2831	Biological products
	1	3662	Radio & TV communications
	1	3679	Electronics components, n.e.c.*
	1	3823	Process control instruments
	1	3841	Surgical, medical instruments
Total	5		
<b>DISTRIBUTIVE SERVICES</b>			
	10	5081	Wholesale: commercial machines and equipment
	1	5199	Wholesale: miscellaneous non-durables
Total	11		
<b>PRODUCER SERVICES</b>			
	3	7372	Computer programming & software
	1	7374	Data processing services
	3	7379	Computer-related services, n.e.c.*
	2	8911	Engineering and architectural services
	1	8931	Accounting, auditing, bookkeeping
Total	10		

\* n.e.c. = not elsewhere classified.

## START-UP LOCATIONS OF NEW FIRMS

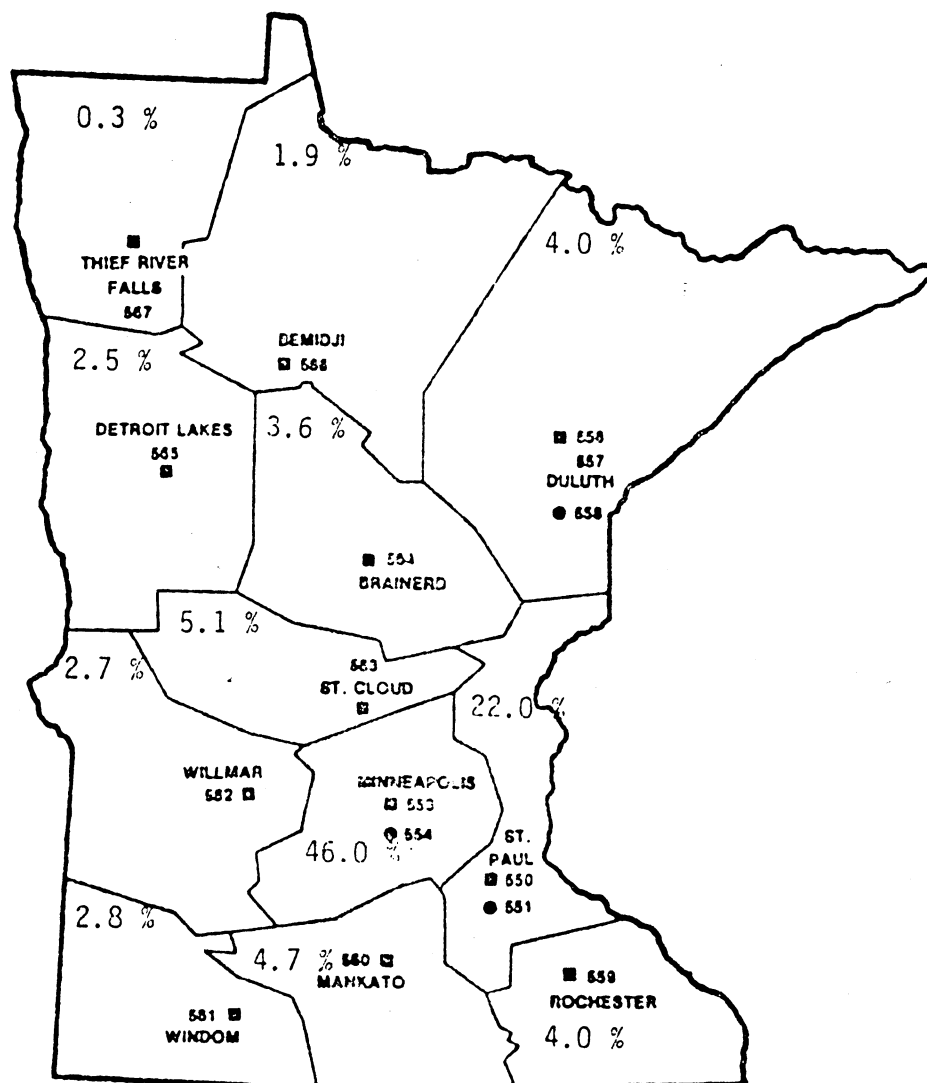
Based on its population, Minnesota is almost evenly divided into two distinctly different economic contexts--the complex, multifaceted economic system of the Twin Cities and the more agriculturally-based greater Minnesota. As of 1981, approximately one-half of all business establishments--autonomous productive units, not autonomous business entities--were located in the Twin Cities and one-half in greater Minnesota.<sup>9</sup>

The percentage of new firms in the sample located in different parts of Minnesota is presented in Figure 1. Location is based on the U.S. Post Office zip code of the respondents.<sup>10</sup>

Approximately 68 percent of the new firms in the sample are located in the Twin Cities urban region. Analysis based on the U.S. Census data indicates a net increase of 8,731 new establishments in Minnesota between 1975 and 1981.<sup>11</sup> Of this increase, approximately 80 percent occurred in the Twin Cities urban region. However, this net increase represents the results of both creation and death of firms. If the death rate of new firms is higher in greater Minnesota, then a higher birth rate could be present and the net result could be more viable new firms in the Twin Cities urban region. Finding 32 percent of new firms in greater Minnesota could still be an accurate estimate.

FIGURE 1

Minnesota New Firms Location by Zip Code Region



LEGEND:

- Serves associate post offices within that 3-digit ZIP Code area.
- Is a city which has been assigned its own 3-digit ZIP Code but which is not a sectional center.

NOTE: This map provides an approximation of the service area of each Sectional Center Facility. Consult Section 7 of this Directory for specific information.

Nonetheless, it provides confidence in both estimates to find they are approximately the same--68 percent of new firms are located in the Twin Cities urban area; 80 percent of the net increase is in the Twin Cities urban region.

Using these different regions of the state, the proportion of new firms in each industry for the different regions of the state is presented in Table 5.

As might be expected, the firms in the Twin Cities urban region have more employees, greater annual sales volume, and substantially more sales outside of the state.

Further, composition of the new firms, across industries, varies for different regions of the state: there is a substantially greater percentage of producer services and distributive service firms in the urban area. Among the three areas of greater Minnesota, the southern tier has a substantially greater percentage of distributive services among the new firms.

TABLE 5  
LOCATION OF NEW FIRMS IN MINNESOTA

	Urban Mpls & St. Paul	All Greater	North Tier	Mid- section	South Tier
All firms	68%	32%	6%	14%	11%
Employment					
Average first year	6.3	5.2	4.4	6.8	3.8
Average 1984 employment	10.8	8.6	6.3	12.0	5.7
1984 in \$1,000					
Sales	\$1,162	\$569	\$232	\$773	\$492
Exports	410	102	30	82	175
Composition of new firm emphasis					
Agriculture	*%	1%	2%	--%	1%
Construction	14	16	18	14	18
Manufacturing	16	10	10	10	11
Distributive services	15	20	18	16	28
Producer services	19	4	--	6	5
Retail (1)	28	36	37	41	30
Consumer services (1)	8	11	16	12	7
Percentage of high-tech new firms	81%	20%	4%	8%	8%

NOTES: (1) Increased by 2.75 to correct for sampling from DMI list.

\* Indicates less than 0.6%.

#### NEW FIRM START-UP DATE/WINDOW

The sample of firms selected from DMI files were selected on the basis of their "year started;" half started in 1979 and half in 1982. For most firms, it is naive to consider start-up as a discrete event.

Three questions were asked related to start-up activi-

ties:<sup>12</sup>

1. Time invested: When did major investments of time and resources devoted to the development of this company first start?
2. Funding: When did the firm receive its first major outside funding, such as the first major bank loan, private placement of stock, public offering of stock, etc.?
3. Sales: When did the firm receive its first income?

It is difficult to conceive of a new firm as a viable commercial enterprise without all three of these events having taken place. Two characteristics are of some interest--the sequence of events and the range of times between the first and last events in the sequence.

All possible sequences of these three events are reported for the firms in the sample. The percentage of firms for which each of the six possible sequences are reported is as follows:

● funding, personal time, sales	33%
● personal time, funding, sales	24%
● personal time, sales, funding	19%
● sales, personal time, funding	17%
● sales, funding, personal time	4%
● funding, sales, personal time	2%

Remarkably, the common event seems to be the last event in the sequence, for 57 percent report the last event is the first income; 36 percent report the last event is external funding; and 6 percent report the last event is a major personal investment.

How could a new firm be initiated when a major investment of personal resources is the last major event? It has to do with the range of time encompassed by these events, varying from less than one month to over twelve years, and averaging approximately one year. The maximum range of time between the first and last start-up event, regardless of which event is first or last, is presented in Table 6.

TABLE 6  
STATISTICAL RANGE OF START-UP WINDOW,  
BY INDUSTRY  
(All time in months)

	Number (1)	Median (2)	Average (3)	Standard Deviation	Minimum	Maximum (4)
All new firms	323	5.1	11.5	15.8	0	65
Agriculture	2	10.7	10.7	--	9	12
Construction	60	7.2	12.5	14.8	0	67
Manufacturing	67	4.1	12.0	14.9	0	61
Distributive services	75	6.1	13.5	20.4	0	65
Producer services	56	5.1	11.5	15.4	0	63
Retail	51	3.1	6.1	8.3	0	37
Consumer services	12	9.0	13.2	18.5	0	63

NOTES: (1) Number of firms for which complete data is available.  
(2) The value for which half are above and half below.  
(3) The average value among all firms in sample.  
(4) The maximum is actually 147 months for a single distributive service firm, clearly an extreme outlier. The next highest maximum is 65.

Several features of the analysis of the start-up window are striking. First, the speed with which a substantial number of new firms are able to go into operation--over half of all



firms become operational in less than six months. Second, the rather substantial variation--from "instant firms" to a five year process. Finally, the distinctive role of the retail firms, which clearly start up much faster--almost twice as fast--than firms in any other industry.<sup>13</sup>

These firms were deliberately selected to represent two "year start" dates as indicated in the DMI files, about half from 1979 and half from 1982. The relationship to the start-up period is presented by indicating the percentage of firms for which each of the three start-up events have occurred during each calendar year. This ignores the actual event, attending only to their order of occurrence. This is illustrated in Table 7.

---

TABLE 7  
START-UP EVENTS BY CALENDAR YEAR

	Up to							
	1978	1978	1979	1980	1981	1982	1983	1984
First start-up event	4%	10%	32%	5%	6%	34%	7%	1%
Second start-up event	2	5	34	6	5	34	11	2
Last start-up event	2%	3%	22%	10%	6%	29%	20%	7%

---

There is clearly a relationship to the DMI year start, for the majority of the events occurred in 1979 or 1982. But it is also clear that the start-up period is of significance, for over one-quarter of the firms do not complete the last event until after 1982, the latest DMI year start date.

## START-UP FINANCING

The typical new firm in this sample required \$75,000 dollars in start-up funds before outside financing was obtained. These bank loans or equity investments may generate a Dun and Bradstreet credit check and, in turn, listing of the firm in the DMI data set. Both the sources and amounts of start-up funds vary substantially by industry.

The major sources of prestart financing, in both percentages and absolute amounts, are presented in Table 8. Despite the apparent misunderstanding by those in distributive services who treated bank loans (presumably against inventory) as pre-outside financing, there are interesting variations among industries. The requirement for new consumer service firms is distinctly low; \$25,000 is about one-third the average. The requirement for new distributive service firms is distinctly high; \$124,000 is 60 percent above the average.

The major sources of pre-start funds are the same for most industries: principals savings and salaries foregone. They are similar across industries except, again, for distributive services and, to some extent, for manufacturing. Both report reliance on greater amounts of "other," usually bank loans.

TABLE 8  
PRESTART FINANCING, BY INDUSTRY

	Total (1)	Personal Savings (2)	Relatives (3)	Friends (4)	Salary Foregone (5)	Credit from Suppliers (6)	Other (7)
All firms (\$1,000)	\$76	\$33	\$5	\$2	\$11	\$4	\$21
Agriculture	18	13	1	--	--	4	--
Construction	43	25	2	1	8	5	2
Manufacturing	84	34	6	5	16	4	18
Distributive services	124	38	7	1	13	4	60
Producer services	59	32	2	2	11	3	9
Retail	68	41	10	4	5	2	8
Consumer services	\$25	\$17	\$1	\$1	\$2	\$3	\$1
All industries	100%	44%	6%	3%	14%	5%	28%
Agriculture	100	71	6	--	--	23	--
Construction	100	58	5	2	18	12	5
Manufacturing	100	41	7	6	19	5	22
Distributive services	99	31	5	1	11	3	48
Producer services	101	55	4	3	18	5	16
Retail	100	60	14	5	7	3	11
Consumer services	100%	64%	6%	2%	8%	11%	4%

NOTES: (1) All firms in the sample, without correction.  
(2) Personal savings of principals.  
(3) Loans, gifts provided by relatives and kin.  
(4) Friends, associates.  
(5) Salary foregone by principals.  
(6) Credit from suppliers.  
(7) Other, usually blank loans, particularly for distributive services.

CHAPTER 4

"WHY MINNESOTA?"

Response to questions about sources considered as a context for the new firm were quite straightforward--90 percent never even considered any other location besides Minnesota. The reasons given by the five hundred that had considered only Minnesota and the fifty that considered some other location are presented in Table 9.

TABLE 9  
REASONS FOR STARTING NEW FIRM IN MINNESOTA

	<u>Those considering</u>	
	<u>only</u>	<u>else-</u>
	<u>Minn.</u>	<u>where</u>
Percentage in each group	90%	10%
Major reason for decision to start in Minnesota:		
Live here	74	52
Market established	9	9
Business potential	6	7
Market knowledge	4	7
Production facilities	2	11
Lifestyle	*	7
Others	4%	9%

\* Indicates less than 0.6%.

This finding is consistent with most research on entrepreneurs; they start firms where they live. Perhaps the risk is less, or seen as more acceptable where they are well establish-

ed and need not face the problems of relocating their family while starting a new firm.

This suggests it would be difficult--perhaps impossible--to attract new firms to Minnesota (or any other state). Encouraging start-ups by established citizens is the only viable alternative. Attracting the expansion of established firms is, however, another matter.

Once established, a new firm may consider moving out of state. The largest percentage (46 percent) said they had not considered moving, a substantial minority (41 percent) and a minority (13 percent) were "unsure." The reasons given for considering or not considering a move are provided in Table 10.

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TABLE 10  
CONSIDERED MOVING OUT-OF-STATE

	<u>Considered Moving Out-of-state</u>		
	<u>No</u>	<u>Unsure</u>	<u>Possible</u>
Percentage in each group	46%	13%	41%
Reasons for reaction			
Taxes	10	52	29
Taxes and other issues	1	30	32
Total tax related	11	82	61
Impractical for business	37	--	3
Personal/family	33	3	6
In-state business potential	11	--	1
Cost factors	3	--	6
Business climate	--	6	6
Market changes	1	9	3
Out-of-state potential	--	--	5
Other	5%	--%	8%

---

This list of reasons for those considering a move suggests that taxes are a major concern. Those that have not considered a move are giving primary concern to the fact that their family and business are established within Minnesota.

Only a follow-up, one or two years hence, will allow for a reasonable interpretation of the reactions provided at this time. One of the first responses to problems is to blame others, such as the state; and high taxes, particularly for businesses, have been a constant, recurring theme in the mass media.

While moving out of state is a major decision, out of state expansion is a more viable alternative for most businesses. Although most (47 percent) had not considered such an expansion, a substantial number had (40 percent) and a few (13 percent) were unsure about such a shift. Their reasons for such a response are provided in Table 11.

It is clear that the largest reason given for not considering expansion out of state is that it is impractical for the firm. Quite reasonable for many involved in providing services--distributive, producer, or customer; in construction or retail industries where an established reputation may be a major factor in success. Conversely, the major reason given for out of state expansion is the business potential; such expansion is clearly appropriate for a number of firms. Taxes and "business climate" are not major issues associated with potential expansion.

TABLE 11  
CONSIDERED OUT-OF-STATE EXPANSION

	<u>Out-of-state Expansion</u>		
	<u>No</u>	<u>Unsure</u>	<u>Possible</u>
Percentage giving each response	47%	13%	40%
Major reason given			
Impractical for business	65	--	4
Out-of-state potential	3	43	41
Taxes	--	10	11
Taxes plus other factors	2	20	14
In-state business potential	15	--	--
Market changes	--	3	10
Personal/family	3	10	3
Just moved business	8	--	--
Cost factors	1	3	5
Business climate	--	7	5
Other	4%	3%	5%

## CHAPTER 5

### NEW FIRM PERFORMANCE: JOBS, SALES, AND EXPORTS

New firms make three major contributions: create new jobs for residents, contribute to the Gross State Product (GSP) through sales, and increase the aggregate wealth through domestic and international exports. Each type of contribution will be explored individually in the following sections. Estimates of financial performance follow.

Of some importance for policies designed to promote the state economy through new firm development is the extent to which all three types of contributions--jobs, sales, and exports--are provided by the same firms. This will be explored in the fifth section.

A review of the contributions of high technology new firms concludes the chapter.

#### NEW FIRMS AND JOBS FOR MINNESOTANS

Several aspects of the jobs provided by new firms will be discussed. First, the size of the new firms and the number of jobs they provide. Second, the nature of the positions filled by the firms. Third, the nature of those distinctive firms that are now, in a few short years, each providing over ninety jobs.

#### Jobs Provided by Firm Size and Industry

This sample of firms provided a total of almost 7,000 jobs, and an average of ten positions per firm.<sup>14</sup> The first



year of hiring, they provided an average of six jobs per new firm.

It is clear from the presentation in Table 12 that there are substantial industry differences in firm size. In 1984 the average new consumer service firms had slightly less than five employees, 86 percent had less than ten employees. In contrast, new producer services and manufacturing firms had average sizes greater than twelve (fifteen for manufacturing) and one out of six had more than twenty employees.

TABLE 12  
NEW FIRM EMPLOYMENT SIZE BY INDUSTRY

	Beg. 1984	1984,	Number of Jobs in Firm					
	Ave. (1)	Ave. (2)	None	1-4	5-9	10-19	20-99	100-149
All firms	6.0	10.1	1%	42%	29%	18%	9%	1%
Agriculture	2.7	5.0	--	33	67	--	--	--
Construction	4.6	7.6	--	47	30	17	7	--
Manufacturing	8.1	15.4	2	29	27	26	14	3
Distributive services	4.5	7.4	--	50	29	14	7	--
Producer services	5.7	12.4	1	29	38	16	12	3
Retail	8.6	9.4	1	52	19	19	9	--
Consumer services	2.9	4.5	--%	56%	30%	13%	--%	--%

NOTES: (1) Average number of positions in firms in first year.  
(2) Average number of positions for summer 1984.

A slightly different perspective is provided by an analysis related to the number of jobs provided by firms of different sizes. This is provided in Table 13.

TABLE 13  
JOBS PROVIDED BY FIRM SIZE AND INDUSTRY

	Total Jobs Provided (1)		Percentage of Jobs by Firm Size					Total Firms
			1-4	5-9	10-19	20-99	100-149	
All firms	6998	100%	11%	19%	23%	36%	11%	100%
Agriculture	15	*	13	87	--	--	--	100
Construction	819	12	15	26	28	31	--	100
Manufacturing	1622	23	4	12	22	39	23	100
Distributive services	915	13	16	26	25	33	--	100
Producer services	1257	18	5	19	18	30	28	100
Retail	2083	30	14	14	26	45	--	99
Consumer services	287	4%	29%	39%	32%	--%	--%	100%

NOTES: (1) Corrections made for undersampling of retail and consumer services to approximate the full DMI sample.  
\* Indicates less than 0.6%.

The largest concentration of new positions is among industries with a high proportion of small firms. New retail and consumer service firms provide one-third of the new jobs, but three out of four of these firms have less than ten employees. In contrast, it is clear that a few large new manufacturing and producer service firms provided a substantial number of new positions; one-quarter of the jobs in these industries were provided by new firms with over 100 employees.

Considered together, the patterns in Tables 12 and 13 can be summarized in the following statements:<sup>15</sup>

- 11 percent of the jobs are in 45 percent of the firms

with 0-4 positions.

- 19 percent of the jobs are in 28 percent of the firms with 5-9 positions.
- 23 percent of the jobs are in 18 percent of the firms with 10-19 positions.
- 36 percent of the jobs are in 9 percent of the firms with 20-99 positions.
- 11 percent of the jobs are in 1 percent of the firms with 100-149 positions.

This type of pattern immediately leads to consideration of the nature of those few large firms that are providing a substantial portion of the new positions.

#### Nature of Major Employers

It is clear that some new firms are dramatically more successful at providing new jobs than others. Ten firms no more than six years old each provided ninety or more jobs. What were these firms doing? Their major activities are listed in Table 14.

It is clear that these "high employment" new firms are not concentrated in any of the categories receiving popular attention. They are spread across the entire range of commercial endeavors. Perhaps equally significant, they are not universally associated with high levels of exports; four of the seven on which there is sales data have no exports at all.

TABLE 14  
CHARACTERISTICS OF HIGH EMPLOYMENT  
NEW FIRMS

1984 Size (1)	1983 Sale (2)	1983 Exp. 1st (2)	1983 Sale	SIC	Description of Activities
102	3.5	0	1980	2511	Wooden household furniture
93	7.0	0.7	1980	# 3412	Metal cans and shipping containers
115	1.7	0.1	1982	# 3679	Electronic components, n.e.c.*
96	7.0	6.5	1982	3823	Process control instruments
125	12.0	11.4	1983	3999	Manufacturing industries, n.e.c.*
91	1.5	0	1982	5812	Eating place
90	1.8	0	1982	5812	Eating place
130	25.0	10.0	1979	7331	Direct mail advertising services
120	1.0	0	1979	7349	Building maintenance service
106	1.5	1.2	1983	# 7392	Management and public relations

NOTES: (1) Number of employees.  
 (2) Sales in millions.  
 \* n.e.c. = not elsewhere classified.  
 # indicates located in midsection of greater Minnesota;  
 all others in Twin Cities region.

#### Nature of the New Jobs

There is, of course, more to an employee than just a warm body. It is often necessary to have skilled, trained individuals to perform organizational tasks. Conversely, most employees expect more from a job than just a paycheck. Some are more interesting and challenging than others. The nature of the new positions for each industry is presented in Table 15.

Table 15

## NEW POSITIONS BY INDUSTRY

	<u>All Firms (1)</u>	<u>Construc- tion</u>	<u>Manu- facturing</u>	<u>Distrib- utive Services</u>	<u>Producer Services</u>	<u>Retail</u>	<u>Consumer Services</u>
Executives, administrators, supervisors	36%	37%	31%	43%	34%	36%	47%
Staff professionals	9	6	6	9	21	5	2
Skilled office	9	8	9	12	13	6	6
Unskilled office	5	2	4	4	5	7	6
Skilled craftsmen	13	30	23	9	6	4	20
Operatives	8	5	10	6	5	8	9
Unskilled blue collar	10	12	12	9	9	9	10
Other	11	*	4	8	7	25	1
	101	100	99	100	100	100	101
SUMMARY OVERVIEW							
Managerial/ professional	45	43	37	52	55	41	48
Skilled: office, craftsmen, operatives	30	43	43	27	24	18	35
Unskilled: office, blue collar, other	26	14	20	21	21	41	16
	101%	100%	100%	100%	100%	100%	99%

NOTES: (1) Includes correction for undersampled retail, consumer services. Agriculture omitted.  
\* Indicates less than 0.6%.

Specific skills may vary, but it is clear that these new firms require trained, educated people; three out of four positions are managerial, professional, or require technical skills.<sup>17</sup> This percentage is even higher if those classified as "other" in the retail industry would be excluded.

Perhaps unexpected are the high percentages of managerial and professional positions found in distributive services and producer services. Greater than found in the manufacturing industry, where the few "high technology" firms are classified. It should be noted that research and development firms are classified under producer services.

It is possible to consider the relative importance of these different types of employees across industry. The percentage of each type required in different industries is presented in Table 16. This indicates the concentration of new jobs requiring skilled technical workers in manufacturing and the concentration of unskilled/other employees in new retail firms.

TABLE 16  
DISTRIBUTION OF POSITIONS ACROSS INDUSTRIES

	<u>Con.</u>	<u>Mfg.</u>	<u>Dist. Serv.</u>	<u>Prod. Serv.</u>	<u>Re-tail</u>	<u>Cons. Serv.</u>	<u>Total Posi-tions</u>
Managerial/ professional	11%	19%	15%	22%	27%	5%	99%
Skilled: office, craftsmen, operatives	17	33	12	15	18	5	100
Unskilled: office, blue collar, other	6%	18%	11%	14%	48%	3%	100%

### Source of New Employees

A total of 5,509 new positions were provided by these new firms for 1984. Only two positions were reported to have been filled by someone from out of state. In other words, virtually all--100 percent--of the new jobs were taken by Minnesota citizens. No contribution to the economy of the state could be more direct or immediate.

### CONTRIBUTIONS TO THE GROSS STATE PRODUCT (GSP)

Annual sales provide a measure of contributions to the Gross State Product. Average sales reported for 1983 (70 percent reporting) were \$612,000; for 1984 (89 percent reporting) the average was \$980,000. As might be expected, there is substantial variation by industry, as reflected in Table 17.

### Nature of High Sales New Firms

There is, of course, some interest in the nature of those firms with extremely high sales. Selected features of twenty-one new firms expecting 1984 sales to exceed \$5 million are presented in Table 18.

As with the previous analyses, these firms reflect a wide range of activities. Very few can be considered high technology in nature. Most seem to provide traditional goods and services, although the methods of production or delivery may be innovative.

TABLE 17

## ESTIMATED 1984 SALES, BY INDUSTRY

	Average 1984*	0- 50*	50- 100*	100- 200*	200- 600*	600- 1000*	1- 10#	10- 25#
All firms	\$ 980	11%	15%	18%	28%	10%	16%	2%
Agriculture	340	--	33	67	--	--	--	--
Construction	688	18	13	23	27	5	13	1
Manufacturing	1,125	7	11	22	27	12	18	2
Distributive services	1,252	8	13	10	31	11	27	1
Producer services	1,468	9	18	14	29	13	12	4
Retail	341	14	19	19	33	9	6	--
Consumer services	\$ 137	14%	19%	19%	33%	9%	6%	--%

NOTES: \* Thousand  
# Million



TABLE 18  
CHARACTERISTICS OF HIGH SALES NEW FIRMS

1984 Size (1)	1984 Sale (2)	1984 Exp. (2)	1st Sale	SIC	Description of Activities
12	5.0	N/A	1979	1521	General construction
42	5.0	0	1979	# 1542	General contractors: non-residential other than industrial or warehouse
5	13.0	0	1982	1542	General contractors: non-residential other than industrial or warehouse
7	18.0	N/A	1983	2065	Confectionery products
49	8.0	3.2	1982	2661	Building paper and board mills
93	7.0	0.7	1980	# 3412	Metal cans and shipping containers
12	6.0	5.7	1982	3652	Photographic records
96	7.0	6.5	1982	3823	Process control instruments
125	12.0	11.4	1983	3999	Manufacturing industries, n.e.c.*
18	5.0	0.0	1982	4722	Passenger transport & management
33	5.8	**	1983	4961	Steam supply
65	21.0	0	1982	5012	Wholesale: autos & other vehicles
20	5.0	4.2	1978	+ 5081	Wholesale: commercial machinery and equipment
6	5.0	N/A	1982	5084	Wholesale: industrial machinery and equipment
30	10.0	0	1983	5099	Wholesale: miscellaneous durable goods, not elsewhere classified
45	5.0	0.8	1981	5122	Wholesale: drugs, proprietary, & sundries
14	5.0	2.5	1979	5147	Wholesale: groceries, meat
29	25.0	22.5	1978	6145	Licensed small loan lenders
25	20.0	N/A	1979	6531	Real estate agents and managers
130	25.0	14.4	1979	7331	Direct mail advertising services
17	12.0	11.4	1983	7331	Direct mail advertising services

NOTES: (1) Number of employees.  
(2) Sales in millions.  
\* n.e.c. = not elsewhere classified.  
\*\* indicates less than 0.6%.  
+ indicates located in southern tier of greater Minnesota.  
# indicates located in midsection; all others in Twin Cities region.

## DOMESTIC AND INTERNATIONAL EXPORTS

A major issue of concern is the extent to which new firms may increase the Gross State Product by exporting goods and services outside the state and, perhaps, outside the United States. Table 19 indicates the extent to which the sales of new firms in different industries are within and without Minnesota.

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TABLE 19  
DOMESTIC AND INTERNATIONAL EXPORTS SALES, 1984

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	<u>Minn. Sales</u>	<u>Domestic Exports</u>	<u>Inter- national Exports</u>	<u>Total Exports</u>
Agriculture	100%	--%	--%	--%
Construction	96	4		
Manufacturing	44	53	3	56
Distributive services	81	19	*	19
Producer services	48	52	*	52
Retail	93	7	*	7
Consumer services	99%	1%	--%	1%

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\* Indicates less than 0.6%.

---

It is clear that only three industries provide a substantial volume of exports--manufacturing, distributive services, and producer services. Only one is involved in international exports--manufacturing.

### Aggregate Exports by Industry

The importance of exports to both the state of Minnesota and firms in these industries can be illustrated by considering

the average and absolute magnitude of exports reported for these industries for 1984. This is done in Table 20.

TABLE 20  
FIRM AVERAGE AND SAMPLE AGGREGATES EXPORTS, 1984

	<u>Minn. Sales</u>	<u>Domestic Exports</u>	<u>Inter- national Exports</u>	<u>Total Exports</u>
Average per firm (\$1,000)				
Manufacturing	\$438	\$532	\$33	\$565
Distributive services	1101	252	2	255
Producer services	682	740	6	746
Industry totals (millions)				
Manufacturing	38	46	3	49
Distributive services	105	24	*	24
Producer services	\$ 52	\$ 56	\$ 1	\$ 57

\* Indicates less than 0.6%.

It then appears that exports from new firms in all three industries provide a substantial contribution to the GSP, but in both relative and absolute terms the domestic exports of the producer service firms are the most substantial of all three industries.

#### Nature of High Export Sales New Firms

Again, this leads to interest in the character of firms with high relative exports. Those fifteen firms reporting 1984

exports in excess of \$2 million are presented in Table 21.

TABLE 21  
CHARACTERISTICS OF HIGH EXPORT SALES NEW FIRMS

1984 Size (1)	1984 Sale (2)	1984 Exp. (2)	1st Sale	SIC	Description of Activities
49	8.0	3.2	1983	2661	Building paper and board mills
3	2.5	2.5	1979	3465	Automotive stamping
18	2.8	2.5	1983	3629	Special industrial apparatus, n.e.c.*
12	6.0	5.7	1982	3652	Photographic records
96	7.0	6.5	1982	3823	Process control instrument
55	2.3	2.1	1982	3851	Ophthalmic goods
125	12.0	11.4	1983	3999	Manufacturing industries, n.e.c.*
20	5.0	4.2	1978	+ 5081	Wholesale: commercial machinery and equipment
19	2.9	2.8	1982	5081	Wholesale: commercial machinery and equipment
31	4.2	3.2	1978	5081	Wholesale: commercial machinery and equipment
14	5.0	2.5	1979	5147	Wholesale: groceries - meats
29	25.0	22.5	1978	6145	Licensed small loan lenders
130	25.0	10.0	1979	7331	Direct mail advertising services
17	12.0	11.4	1981	7331	Direct mail advertising services
19	4.0	3.6	1981	7372	Computer programming and software

NOTES: (1) Number of employees.

(2) Sales in millions.

\* n.e.c. = not elsewhere classified.

+ indicates located in southern tier of greater Minnesota; all other in Twin Cities region.

Once again, exports seem to be related to a variety of traditional goods and services; there is no "high technology" emphasis--very few technology focused firms of any kind. Equally significant, the majority of these high exporting firms do not have large numbers of employees.

## FINANCIAL PERFORMANCE

Four types of financial performance were requested--total firm assets, return on sales, estimated three year profit growth, and estimated return on equity for 1983. These were the least popular questions, answered by less than half of the responding firms--most items were answered by over 90 percent of the respondents. The major results are summarized, by industry, in Table 22.

TABLE 22  
SUMMARY OF REPORTED FINANCIAL PERFORMANCE

	Total Assets (\$1,000) 1983	Return on Sales 1983	Average 3 year Profit Growth 1980-83	Return on Equity 1983
Total responding	136	265	248	126
All industries	\$283	7.3%	30%	16%
Agriculture	12	2.0	9	10
Construction	61	8.1	37	17
Manufacturing	534	7.5	50	26
Distributive services	234	6.7	19	8
Producer services	397	7.7	26	25
Retail	105	7.0	25	9
Consumer services	\$ 27	6.0%	16%	12%

Despite the problems with lack of response to these questions, there are some interesting patterns. Variation in assets is as might be expected--except for the substantial investments in the producer services firms. Except for the one

agricultural firm, return on sales (net income after taxes divided by total receipts) show little variation by industry. Growth in profits (annual net income after taxes) is considerably higher in some industries, notably manufacturing and construction.

Perhaps most significant, return on stockholder equity is highest in the two industries with the greatest contribution to exports--manufacturing and producer services.

#### INTERRELATION AMONG CONTRIBUTIONS TO MINNESOTA

If the same firms that have high sales also provide new jobs and increase the Gross State Product through exports, then public policies should be directed toward assistance to these special--triple threat--firms. If, however, different firms are providing sales and exports from those providing new jobs, then the development of public policies becomes more complex. The extent to which these three measures of performance are related is, therefore, a critical issue.

The correlations among these measures for the 1984 data for the majority of the firms, almost all firms for some correlations are presented, by industry, in Table 23.

Several patterns are of some significance, reflecting patterns present in earlier analyses. The major one is that while sales, exports, and jobs are generally related, they are not inevitable. There is substantial variation by industry, with a high association found in manufacturing--the emphasis of most economic development programs. The relationship between sales and jobs is highest, however, in distributive services

(0.81)--suggesting less variation in labor input per unit sale in that industry. And the relationship between sales and exports is highest in manufacturing (0.87) and producer services (0.91)--suggesting that exports are a major issue for both these industries. This would be expected if domestic exports are, on average, half their sales, as illustrated in Table 19.

TABLE 23  
CORRELATIONS AMONG JOBS, SALES, AND EXPORTS:  
BY INDUSTRY

	<u>Number of Firms</u>	<u>1984 Sales with 1984 Jobs</u>	<u>1984 Sales with 1984 Exports</u>	<u>1984 Jobs with 1984 Exports</u>
All firms	414-489	0.46	0.74	0.35
Construction	91-100	0.41	0.17 NS	0.04 NS
Manufacturing	87- 99	0.50	0.87	0.54
Distributive services	94-113	0.81	0.25 #	0.32
Producer services	74- 90	0.44	0.91	0.31
Retail	49- 64	0.64	0.45	-0.04 NS
Consumer services	16- 20	0.50 #	-0.05 NS	0.64

NOTES: Except as noted, all correlations statistically significant beyond 0.001 with two-tailed test.  
# indicates significant between 0.01 and 0.05.  
NS indicates not significant at 0.10 level.

But perhaps most significant is the modest relationship between exports and jobs. Though statistically significant, the correlations for the most significant export industries-- manufacturing, distributive services, producer services--are from 0.3 to 0.5. This suggests that a substantial proportion of exporting firms do not have high employment and, conversely, a substantial number of high employment firms do not have high exports. A significant problem for developing public policies that will promote both employment and exports.



## CONTRIBUTIONS OF HIGH-TECH NEW FIRMS

In part because of the frequent mass media attention to dramatic success stories, e.g. Apple Computer, high technology new firms are often seen as a major contributor to economic growth. Many states, regions, and cities have focused on promoting high technology as a major solution to maintaining growth.

The average performance of the twenty-six high technology new firms in this sample are compared with other firms in the same industry in Table 24.

TABLE 24  
AVERAGE PERFORMANCE OF HIGH-TECH NEW FIRMS

	<u>Manufacturing</u>	<u>Distributive Services</u>	<u>Producer Services</u>
1984 Sales (\$1,000)			
Traditional	\$1,067	\$1,227	\$1,567
High-tech	2,208	1,482	679
1984 Exports (\$1,000)			
Traditional	486	181	1,567
High-tech	\$1,756	\$ 849	\$ 679
1984 Jobs			
Traditional	13.4	7.0	13.2
High-tech	57.4	11.6	5.2
Total Number of Firms			
Traditional	100	112	92
High-tech	5	11	10
Percentage high-tech	5%	10%	11%

The relative contribution, per firm, varies substantially with industry. Those high-tech firms in manufacturing and distributive services clearly provide more sales, exports, and jobs than the average traditional firm. In contrast, in producer services, high technology new firms seem to provide less sales, exports, and jobs than traditional firms.

A second, related issue is the relative importance of high technology new firms to the aggregate contributions in these industries. This is presented in Table 25.

TABLE 25  
PROPORTION OF TOTAL INDUSTRY CONTRIBUTIONS PROVIDED  
BY HIGH-TECH FIRMS

	<u>Manufacturing</u>	<u>Distributive Services</u>	<u>Producer Services</u>
1984 Sales (\$1,000)			
Industry total	\$111,423	\$141,470	\$132,187
Percentage high-tech	10%	12%	5%
1984 Exports (\$1,000)			
Industry total	49,085	23,833	56,589
Percentage high-tech	18	36	8
1984 Jobs			
Industry total	1,622	915	1,257
Percentage high-tech	18	14	4
Total number of firms			
Industry total	\$ 105	\$ 123	\$ 102
Percentage high-tech	5%	10%	11%

It is clear that while high technology new firms may be more successful in some industries and gain substantial

attention, they provide an important but not dominant part of the contributions to sales, exports, and jobs. The largest proportional contributions of high technology new firms are in exports in distributive services, but distributive service exports tend to be small compared to manufacturing and producer service firms. See Table 20.

The nature of the positions created by the high-tech firms in 1984 is compared to the pattern for all firms, presented in Table 15, in Table 26. There is clearly a greater use of skilled office and production workers and less use of the unskilled employees when compared to the entire sample of new firms. Those in manufacturing, perhaps because of their production requirements, also make less use of managerial and professional employees.

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TABLE 26  
NEW POSITIONS IN HIGH-TECH FIRMS:  
BY INDUSTRY

	All Firms (1)	Manufac- turing	Distributive Services	Producer Services
Managerial/ professional	45%	27%	48%	75%
Skilled: office, craftsmen, operatives	30	53	30	16
Unskilled: office, blue collar, other	26	20	21	9
	101%	100%	99%	100%

---

High technology new firms are an important, but not the only or most important, factor in new firm contributions to the state of Minnesota in 1984.

## CHAPTER 6

### ALTERNATE MODELS OF NEW FIRM GROWTH

Perhaps the simplest model of new firm growth is that all firms start small and if entrepreneurs work hard, are clever, or are lucky, some eventually grow into substantial establishments. Over time a very few will reach Fortune 500 status. Such a model assumes that all firms are initiated and managed with the single objective of growth; those that fail to grow have encountered substantial competition, reflect poor management, or are not satisfying a significant customer need.

The most basic factor, in this model, is firm age. Older firms are expected to provide greater contributions than new firms. Experience and developing a stable role in appropriate economic, commercial, and social systems is considered essential to growth. This suggests that any initial analysis should emphasize firm age--from zero to six years--as a major factor associated with variations in 1984 contributions. Older firms should contribute more.

#### AGE, START-UP STATUS, GROWTH RATES AND 1984 CONTRIBUTIONS

If firm age is a major factor related to firm contributions, then the relationship of age to sales, exports, and jobs should be--at the least--statistically significant. The initial analysis of all firms found that age was not significantly related to sales, exports, or jobs.<sup>18</sup> Some variation

was found by industry: modest but positive (non-significant) correlations in distributive services and consumer services; a statistically significant negative correlation (-0.2) in manufacturing. This lead to a more careful analysis based on the simplest variables.

Multiple regression analyses were completed utilizing three logically unrelated variables:<sup>19</sup>

- Start-up year sales, employment: Sales, employment reported for the first year the firm had any sales.
- Annual growth rate: Sales, employment for 1984 less start-up year sales, employment divided by the years since the first sales were made.
- Firm age: Number of years since the first sales were made.

Analysis was completed for the entire sample as well as for the six major industries. The results are presented in Table 27.

The results are organized to present two patterns. First, the predictive power of these three variables, reflected in the variation "explained" in these two dependent variables--sales and jobs for 1984--accounted for by these three factors--start-up status, growth rates, and age. As might be expected, a substantial percentage of the variation can be accounted for, from 34-60 percent, depending on the industry.

TABLE 27

ESTIMATED IMPACT OF START-UP STATUS, GROWTH RATES,  
AND AGE ON CURRENT CONTRIBUTIONS

	Number of Firms	Standardized Betas			Variance Explained*	
		Start Year Status	Annual Growth Rates	Age	With Age	Without Age
1984 SALES						
All firms	483	0.31	0.37	0.15	34%	32%
Construction	100	0.54	0.48	0.20	52	49
Manufacturing	97	0.33	0.40	0.12	35	24
Distributive services	118	0.24	0.40	0.25	34	29
Producer services	88	0.33	0.49	0.25	48	42
Retail	62	0.59	0.52	0.19	60	57
Consumer services	20	0.54	0.37	0.15	44	45
1984 JOBS						
All firms	487	0.47	0.38	0.17	48	46
Construction	103	0.51	0.47	0.12	71	70
Manufacturing	97	0.25	0.60	0.07	55	55
Distributive services	116	0.49	0.41	0.24	57	52
Producer services	87	0.54	0.33	0.19	55	52
Retail	62	0.79	0.07	0.07	61	61
Consumer services	20	0.62	0.54	0.25	86%	79%

NOTES: Dependent variables were transformed to LOG (Base 10) to create normal distribution, see Appendix A.

All regression estimates completed in sequential fashion, start year entered first, growth rates and age (or growth rate alone) entered at the second stage.

\* Regression predictions completed with and without age in the equation; all include start-up sales and growth rates. Adjusted (conservative) estimated variance explained shown.

Second, and perhaps even more critical, is the relative importance of these three variables in providing "predictions." The standardized weights used in the predictive equations are given in the body of Table 27. In all cases, the importance of age is substantially less than start-up year and growth rate. If standard criteria for retaining variables in predictive equations had been used, there are a number of industries where firm age would have been dropped from the list (short as it was) of independent variables.

The small impact of age on the predictions is also reflected in the differences in explained variance when firm age was included and excluded from the analysis. This is presented in the two right hand columns of Table 27. The largest improvement is 7 percent, the least -1 percent, and the average between 2-3 percent. Overall, the additional contribution to predictions from including age are negligible.

Several objectives could be raised regarding these efforts at prediction: calculation of the annual growth rates involved the dependent variables, reducing their independence; the number of years over which annual growth rates are calculated varies from one to five years; and it is not particularly useful, for policy purposes, to make predictions based on data from the final outcome (current sales, jobs, etc.).

For this reason, predictions of 1984 sales were made using only two variables. First year sales and the first year growth rates (second year sales less first year sales). Because complete sales histories were not available for those who



participated in phone interviews, only about two-thirds of the sample is represented in this analysis.<sup>20</sup> The results are presented in Table 28.

TABLE 28  
ESTIMATED IMPACT OF START-UP STATUS AND FIRST  
YEAR GROWTH ON 1984 SALES

	Number of Firms	Standardized Betas		Variance Explained	Variance Explained Using Average Growth*	
		Start Year Status	First Year Growth		With Age	Without Age
All Firms	367	0.32	0.31	29%	34%	32%
Construction	76	0.48	0.48	52	52	49
Manufacturing	76	0.36	0.37	38	35	34
Distributive services	92	0.20	0.39	28	34	29
Producer services	62	0.41	0.39	37	48	42
Retail	51	0.44	0.44	46	60	57
Consumer services	9	0.79	0.00	50%	44%	45%

NOTES: All regression estimates completed sequentially, start year ages were entered first, then first year growth.

\* Variance explained from Table 27.

Two patterns are evident from this analysis. First, the predictive potential is good, almost 30 percent of the variance can be explained for the entire sample, over 50 percent for some industries. There is little question that start-up status and initial growth rates are major predictors of contributions to Gross State Product and, presumably, employment.

Second, there are substantial variations by industry. The explained variance is highest in construction, retail, and consumer services. In these industries the initial business plan seems to have a major impact on the future of the firm. In contrast, other industries appear more affected by age, the conduct of the business, or external events--such as fluctuations in economic or industry competitiveness. For these industries (manufacturing, distributive services, and producer services) predictability is somewhat lower.

It is quite clear, given the low correlations and the result of the regression analysis, that age--or those factors associated with age, such as experience, reputation, and contacts--do not have a dominant relationship to the contributions made by all new firms. The ability to make accurate predictions of relative contributions up to four years after start-up based on information on the first two years performance is surprisingly high. The variation across industries suggests other factors have a selective impact.

#### RECONCEPTUALIZING NEW FIRM GROWTH

One alternative to assuming that all new firms start on an equal footing and those lucky, led by conscientious managers, or older tend to grow is to consider new firms as of two types.

- High potential new firms: Those firms initiated and managed to reach substantial size as quickly as possible. Either because initial size or growth rates are high.

- Low or modest potential new firms: Those firms that become viable, smaller enterprises with more modest contributions. Modest size may reflect a modest start, low growth rates, or both.

If this is a useful way to think about new firms, a classification based on these characteristics, start-up sales and growth rates, should be associated with their contributions and lead to a useful interpretation of development patterns.

Since there is a modest relationship between 1984 sales and employment--suggesting they reflect separate processes--these have been separated for the following analysis.

Based on the patterns found in the entire sample, all firms were classified on the basis of two dichotomized dimensions: start-up status and annual growth rates. The criteria were as follows:<sup>21</sup>

	<u>Start-up Status</u>		<u>Growth Rates</u>	
	<u>Low</u>	<u>Hi</u>	<u>Low</u>	<u>Hi</u>
		More		More
	Up to	than	Up to	than
Sales (\$1,000)	\$250	\$250	\$100/yr	\$100/yr
Employment (jobs)	9	9	2/yr	2/yr

The result was four categories of new firms for each type of contribution. The percentage of new firms and the average start-up and growth status of those in each category is presented in Table 29. There is no question that the four types of firms are quite different with respect to their

initial status or growth rates--for both sales and employment.

The lack of significance of age is reflected in the average age for firms in each category. In every case the youngest firms are in the high performance group--those firms with the highest initial status (sales or employment) and highest growth rates (sales or employment).

TABLE 29  
 CLASSIFICATION OF NEW FIRMS BY START-UP AND GROWTH  
 STATUS RELATED SALES AND JOBS

	Percent of New Firms	Start-up Year Average	Annual Growth Average	Average 1984 Contribu- tions	Time Since Start-up (years)
<b>Sales (\$1,000)</b>					
Low start-up Low growth	61%	\$ 65	\$ 31	\$ 166	3.3
Low start-up High growth	15	98	614	1,158	2.9
High start-up Low growth	8	672	27	720	2.9
High start-up High growth	<u>16</u> 100%	\$1,309	\$1,691	\$4,123	2.8
<b>Employment</b>					
Low start-up Low growth	63%	3.2	0.2	3.9	3.2
Low start-up High growth	24	4.4	3.7	14.6	3.1
High start-up Low growth	6	19.4	-0.8	18.0	3.3
High start-up High growth	<u>6</u> 99%	29.4	12.4	55.9	2.9

Further, the difference in the recent contributions to sales and employment of firms in these four categories is substantial, with the high performing firms providing substantially higher contributions than any other category. There

is clearly some additional factor(s) associated with the joint occurrence of high start-up status and high growth rates that enhances contributions. These high potential new firms provide contributions that are orders of magnitude greater than all others--annual sales are twenty-five times those of the low potential category, up to fourteen times as many new jobs.

Modest potential new firms dominate the sample; they are three out of five new firms.<sup>22</sup> It is quite likely that those starting these firms were seeking a comfortable occupational context--autonomy and independence, not wealth and fame. Differences among industries may illuminate this difference.

#### INDUSTRY VARIATION AND HIGH POTENTIAL NEW FIRMS

If there is substantial variation among new firms in their potential for contributions, it is reasonable to ask what factors may be related to such differences. Industry, found to be a critical variable in other analyses, is an obvious candidate. The proportion of new firms in each potential category for each industry is presented in Table 30.

There are clear differences related to industries. Those with high potential for sales contributions are found in distributive services; they are relatively rare in retail and consumer services. New firms with a high potential for creating new jobs are found in manufacturing and producer services; they are relatively rare in consumer services, distributive services, and retail.

TABLE 30  
 START-UP, GROWTH STATUS, AND CONTRIBUTIONS  
 AS RELATED TO INDUSTRY

	<u>Percentage Of New Firms</u>				<u>1984 Performance</u>			
	Start-up status: <u>Low</u>	<u>Low</u>	<u>High</u>	<u>High</u>	<u>Low</u>	<u>Low</u>	<u>High</u>	<u>High</u>
Growth status:	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
1984 SALES (\$10,000)								
All firms	62%	15%	8%	16%	\$17	\$116	\$72	\$412
Construction	72	10	6	12	16	190	115	263
Manufacturing	55	22	7	16	19	112	57	462
Distributive services	44	18	11	27	17	98	72	338
Producer services	64	17	3	16	18	102	72	733
Retail	71	10	13	6	15	100	54	116
Consumer services	95	--	5	--	\$11	\$ --	\$ 70	\$ --
1984 JOBS								
All firms	63	24	6	6	3.9	14.6	18.0	55.9
Construction	74	18	3	5	3.9	14.2	14.0	35.8
Manufacturing	42	38	8	12	4.1	17.5	12.3	57.5
Distributive services	66	25	6	3	3.6	12.5	16.0	42.7
Producer services	57	30	4	9	3.9	14.6	18.8	65.9
Retail	75	8	14	3	3.9	9.8	26.6	76.5
Consumer services	85%	10%	5%	--%	3.5	11.0	10.0	--

The industries with the greatest proportion of low potential new firms--construction, retail, and consumer services--are the same industries where the ability to predict current contributions in sales on the basis of start-up status and first year growth was the highest, seen in Table 28. A

larger proportion of modest, stable firms seems to increase predictability.

The differences in contributions (sales, jobs) provided by high and low potential new firms is also presented in Table 30. These differences are similar to those presented in Table 29 and are substantial. In almost every industry high potential new firms provide ten to twenty times the sales and jobs of those with low potential.

#### SALES POTENTIAL AND EXPORTS

Out of state exports are highly related to sales, but their importance suggests considering the relationship of sales potential to 1984 export patterns. The average export sales for 1984 for firms in each sales potential category, by industry, is presented in Table 31.

It is striking how export sales are concentrated among those with the highest sales potential; there is a substantial showing among those with high growth, not among those with only high start-up status. Export sales among those with the lowest potential, even in export oriented industries (manufacturing, producer services and distributive services) are modest or nil.

Given the substantial size of domestic exports--\$2.5 million for high sales potential manufacturing and \$4 million for high sales potential producer services--it would appear that exports are a significant factor for high performance new firms. In fact, for both industries exports are over half (53 percent, 54 percent) of the sales of high sales potential new firms.



TABLE 31  
SALES POTENTIAL AND EXPORTS, BY INDUSTRY

	SALES POTENTIAL				1984 EXPORTS			
	Percentage Of New Firms				(In \$10,000)			
Start-up status:	Low	Low	High	High	Low	Low	High	High
Growth status:	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
All firms	62%	15%	8%	16%	\$ 2	\$ 44	\$ 9	\$140
Construction	72	10	6	12	*	4	0	138
Manufacturing	55	22	7	16	4	50	33	245
Distributive services	44	18	11	27	4	57	10	38
Producer services	64	17	3	16	4	50	0	398
Retail	71	10	13	6	1	23	--	--
Consumer services	95%	--%	5%	--%	\$ 1	\$ --	\$ *	\$ --

\* Indicates less than 0.6%.

#### INTERRELATION BETWEEN SALES, JOB PERFORMANCE

Exploring the consistency between the two bases for potential is relatively straightforward. The simple cross-tabulation is presented in Table 32. Approximately three of five new firms (62 percent) have the same relative position on both sales and job potential dimensions.

Those that do not have the same potential on both sales and jobs contributions suggest that sales are more independent of the two. In the column that represents high job potential, two-thirds are in the highest sales potential category. But in the row that represents high sales potential, only one of four are with high employment potential.

TABLE 32  
 INTERRELATION BETWEEN SALES AND JOB  
 POTENTIAL NEW FIRMS\*

		<u>Job Creation Potential</u>					
Start-up status:		Low	Low	High	High	Row	
Growth status:		<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Totals</u>	
<b>SALES CREATION POTENTIAL</b>							
	<u>Start-up Status</u>	<u>Growth Status</u>					
	Low	Low	48%	10%	2%	1%	61%
	Low	High	6	8	1	1	16
	High	Low	4	1	2	*	7
	High	High	5	6	1	4	16
Column Totals			63%	25%	6%	6%	100%

\* Number of firms = 482.

In short, firms with many new jobs will have high sales; those with high sales will not necessarily employ a large number.

**SALES, EMPLOYMENT POTENTIAL AND LOCATION**

The location in Minnesota of firms varying in sales and employment potential is presented in Table 33. As might be expected, those firms with higher potential for contributions tend to be located in the major urban area, the Minneapolis - St. Paul region. Four of five of the highest potential new firms are located in this area. The midsection of the state is

the next most favored region. The northern tier is least attractive for high potential new firms.

TABLE 33  
SALES, EMPLOYMENT POTENTIAL AND LOCATION

	<u>All Firms</u>	Start-up status: Growth status:	<u>Potential Classification</u>			
			<u>Low</u>	<u>Low High</u>	<u>High Low</u>	<u>High High</u>
<b>Sales</b>						
Mpls-St. Paul	68%		64%	82%	65%	77%
Northern tier	6		9	1	--	3
Mid-section	14		14	11	22	16
Southern tier	11		14	6	14	5
	99		101	100	101	101
<b>Employment</b>						
Mpls-St. Paul	68		63	79	66	80
Norther tier	6		7	5	6	--
Mid-section	14		16	8	22	17
Southern tier	11		13	8	6	3
	100%		99%	100%	100%	100%

**CONCLUSION**

The major conclusion from this analysis is that it is not useful to consider all new firms as identical at the initiation stage. It would appear that the majority of new firms--approximately two-thirds--are started with the intent and expectation they will remain small. But a smaller number start on a larger scale, grow rapidly, or both. The most dramatic of these new firms--with high start-up status and high growth

rates--quickly move into a different category than the typical new firm. High potential new firms are soon providing substantially higher levels of sales, jobs, and exports--by factors of 10-20--than low potential new firms.

These patterns would seem to have several significant policy implications:

- Public policies designed to assist new firms as a way of developing Gross State Products, exports, and new jobs would be more cost effective if directed toward high potential new firms. High start-up status and rapid growth should be evident in a short time after initiation, within two years for most industries.
- Private investments--from banks, venture capitalists, etc.--may be funneled toward those new firms with the interest and expectation of high growth rates.
- Those seeking new career opportunities may be guided toward the high potential new firms--where job expansion, and possibilities for promotion, are more likely to occur.

While more analysis to identify the distinctive patterns related to high potential new firms is needed, they appear to favor the major urban areas.<sup>23</sup>

## CHAPTER 7

### START-UP PROBLEMS AND CURRENT EFFECTIVENESS

Problems encountered in initiating these new firms were identified by the responses to thirty-five items related to major start-up issues. They were presented in four major categories: products and markets; technology and scheduling; management and organizational; and financial.<sup>24</sup> For each the respondent was asked to indicate if the issue was "major," "minor," or "never a problem." "Does not apply" was available if relevant.

After a general comment on the nature of the start-up problems, the relation to 1984 sales and employment is reviewed.

#### GENERAL REACTION TO ALL ITEMS

The general reaction to these items by those in the firms is indicated in Table 34. Approximately one-fifth of the items did not apply, one in six was considered a major problem, two in five a minor problem, and two in five never a problem.

Firms in one industry, manufacturing, were distinctive in both the low number of inapplicable start-up problems and the above average number of major problems, almost one-fourth of all potential problems were considered major.

TABLE 34

GENERAL REACTION TO START-UP PROBLEM ITEMS  
BY INDUSTRY

	<u>Does Not Apply</u>	<u>Major Problem</u>	<u>Minor Problem</u>	<u>Never a Problem</u>
All firms	21%	17%	42%	41%
Agriculture	3	12	32	56
Construction	20	14	41	45
Manufacturing	14	23	43	34
Distributive services	17	17	42	41
Producer services	17	16	44	40
Retail	20	14	40	46
Consumer services	23%	16%	47%	37%

## REACTIONS TO SPECIFIC ITEMS

Reactions to specific items reflected substantial variation, as presented in Table 35. The most frequently mentioned major problem was finding qualified employees, mentioned as a major problem in 31 percent of the firms and as a minor problem for 33 percent. Almost two-thirds of all firms considered this a problem. Many of the other major problems dealt with financial matters. Among the least frequently mentioned problems were selecting a board of directors, not even considered applicable by two-thirds of the new firms.

While it is possible to determine some patterns in the relative significance of potential start-up problems, it is more useful to use analytical techniques to determine the extent to which there are regularities in the responses to the items.

TABLE 35

## START-UP PROBLEMS REPORTED BY SIGNIFICANCE

Which of the following problems have been important?	<u>Does Not Apply</u>	<u>Never a Problem</u>	<u>Minor Problem</u>	<u>Major Problem</u>
Finding qualified employees	13%	23%	33%	31%
Securing adequate financing	7	31	33	29
Obtaining equity financing	26	23	24	27
Managing capital/cash flow	4	23	47	26
Obtaining debt financing	10	33	32	24
Analyzing competition, competitors	6	25	50	20
Effective selling techniques	8	25	47	20
Selecting personnel	11	28	41	20
Finding competitive advantages	10	29	40	20
Collecting accounts receivable	8	24	49	19
Motivating/compensating personnel	15	23	44	18
Delivering on time/within budget	15	28	41	16
Finding new, follow-on product/service	16	29	39	16
-11- Writing ad copy, selecting media	19	25	39	16
Pricing products/services	7	31	47	15
Understanding industry trends	12	26	47	15
Finding qualified technical, professional staff	37	27	22	15
Writing a business plan	27	33	31	14
Using, updating the business plan	22	31	34	13
Measuring performance against plans	16	32	41	12
Understanding, assessing customer needs	6	45	37	12
Setting goals, priorities for personnel	15	34	40	11
Choosing accounting and control systems	13	44	32	10
Locating technical and professional expertise	28	35	27	10
Finding qualified managers, executives	46	26	18	10
Coordinating tasks of personnel, units	19	32	40	9
Lack of understanding to implement goals	20	40	32	9
Lack of clarity in goals/plans	19	40	33	8
Selecting an accountant	12	51	28	8
Subcontracting work	41	26	26	8
Providing customer service/ follow-up	12	46	35	7
Lack of after sale support to customers	18	47	28	7
Staff resistance to new processes or products/services	31	40	24	5
Selecting a lawyer	22	57	17	3
Selecting board of directors	66%	27%	5%	1%

## MAJOR START-UP PROBLEM DIMENSIONS

Analysis of the patterns of responses to the thirty-six start-up problems suggested they could be summarized as four major factors or dimensions. The items were combined to create four summary measures as indicated in Table 36. Based on the content of these items, they have been labeled as follows:<sup>25</sup>

- Personnel (SPD01): Items related to locating, selecting, and motivating personnel and employees.
- Focus, organizational (SPD02): Items related to developing and implementing strategic plans.
- Marketing (SPD03): Items related to the assessment of markets and competition as well as developing a marketing campaign.
- Financial backing (SPD04): Items related to obtaining financing, whether it is debt or equity.

The estimated reliabilities (Chronbach's Alpha) for these dimensions was from 0.82 to 0.90, presented in Appendix D. This suggests the scales developed from the factor analysis are internally consistent.



TABLE 36

## START-UP PROBLEMS AND THE FOUR MAJOR FACTORS

<u>Specific Items</u>	<u>Major Dimensions</u>			
	<u>Person- nel</u>	<u>Focus, Organiz- ational</u>	<u>Market- ing</u>	<u>Finan- cial Backing</u>
A01 Industry trends			1	
A02 Analyzing competition			1	
A03 New products			1	
A04 After sale support			1	
A05 Assessing customer needs			1	
A06 Effective selling techniques			1	
A07 Selecting ad media			1	
A08 Customer follow-up			1	
A09 Pricing products			1	
B01 Competitive advantage			1	
B02 Delivery on time			1	
B03 Subcontracting work*				
B04 Locating expertise	1			
C01 Selecting board of directors	1			
C02 Selecting lawyer				1
C03 Selecting accountant				1
C04 Selecting personnel	1			
C05 Motivating personnel	1			
C06 Coordinating tasts	.5	.5		
C07 Writing business plan		1		
C08 Updating business plan		1		
C09 Setting goals		1		
C10 Measuring performance		1		
C11 Staff resistance	.5	.5		
C12 Implementing goals		1		
C13 Clarity of goals		1		
C14 Finding employees	1			
C15 Finding technical staff	1			
C16 Finding managers	1			
D01 Obtaining equity financing				1
D02 Debt financing				1
D03 Accounting controls				1
D04 Managing cash flow				1
D05 Collecting receivables			.5	.5
D06 Securing financing				1

\* Indicates not included in any dimension.

The general patterns related to these dimensions by all firms and for those in different industries are indicated in Table 37. There is clearly a difference among the major dimensions in the extent to which they are considered significant, with marketing and financial backing considered more serious as problems than internal organization and personnel issues (finding, motivating, and coordinating). The low average response to all personal issues is in contrast to the high rating given to the location of personnel as the single most prevalent start-up problem.

TABLE 37  
START-UP PROBLEM DIMENSIONS RELATED TO INDUSTRY

Average response to relevant items	Personnel	Focus, Organizational	Marketing	Financial Backing
All firms	1.25	1.36	1.61	1.55
Construction	1.13	1.15	1.53	1.48
Manufacturing	1.46	1.58	1.74	1.70
Distributive services	1.20	1.30	1.68	1.60
Producer services	1.30	1.49	1.54	1.51
Retail	1.16	1.36	1.54	1.43
Consumer services	1.17	1.04	1.54	1.40
Statistical sign (ANOVA)	.015	.0007	.03	.046

There are also substantial differences between firms in different industries; there are statistically significant differences between industries for all four dimensions.<sup>26</sup> Most important, perhaps, are manufacturing firms, which report more

serious problems than firms in other industries on all four dimensions. In contrast, those in the consumer services, and to some extent construction, tend to be low on several dimensions; such as problems related to personnel, organizing, and, for consumer services, financial backing. Producer services tend to be high on organizing problems; distributive service firms tend to be high on marketing problems.

#### START-UP PROBLEMS AND PERFORMANCE

The relative significance of the four start-up problem dimensions on the 1984 sales and employment of the new firms was explored with a stepwise multiple regression. The results provide some indication of the importance of the different dimensions, as indicated in Table 38.

The major result is the systematic, universal, and significant importance of one start-up dimension--personnel. The more problems reported at start-up with personnel problems, the more sales and employment provided in 1984.

Unfortunately, it is difficult to interpret this result because critical information is missing. Because they were not asked, respondents did not indicate whether or not the start-up problems were solved. The reports of problems may indicate that the management was alert to this category of problems and eventually solved or overcame the difficulty. Those requiring more employees, for example, may have had more of a personnel problem because they needed to hire more people.

TABLES 38

ESTIMATED IMPACT OF START-UP PROBLEMS ON  
CURRENT SALES, EMPLOYMENT

1984 SALES	Number of Firms	Standardized Betas				Variance Explained
		Person- nel	Focus, Organiz- ational	Market- ing	Finan- cial Backing	
All firms	358	.38	--	--	--	14%
Construction	68	.50	--	--	--	24
Manufacturing	75	.44	-.23	--	--	15
Distributive services	89	.44	--	--	--	19
Producer services	68	--	--	--	--	--
Retail	46	.64	-.41	--	--	27
Consumer services	10	.69	--	--	--	42
1984 EMPLOYMENT						
All firms	379	.57	--	-.11	--	28
Construction	74	.62	--	-.24	--	27
Manufacturing	78	.49	--	--	--	23
Distributive services	92	.39	.25	--	--	32
Producer services	69	.48	--	--	--	22
Retail	52	.55	--	-.40	--	27
Consumer services	12	.94	--	--	-.36	80%

NOTE: All explained variances significant at the .05 level or better.

Other start-up dimensions have an impact in selecting industries. Manufacturing and retail firms with fewer problems with focus and organization have better 1984 sales; distributive service firms with focus and organizational problem have higher 1984 employment levels. Fewer marketing problems are associated with more 1984 employment, particularly in construc-

tion and retail firms. An absence of financial problems is related to greater 1984 employment in consumer service firms.

The explained variance produced by this analysis is not very large, and most start-up dimensions do not have a general impact. The additional contribution of adding the only major start-up dimension--personnel--was estimated by forcing multiple regression analysis with four major variables--start-up status, growth, age, and the personnel start-up dimension. The results, estimates of standardized betas and explained variance, are presented in Table 39.

Including the start-up problem dimensions makes a significant contribution to the explained variance for the sample. For the entire sample this is an improvement of 9 percent for 1984 sales and 13 percent for 1984 employment. The fact that personnel is the major start-up problem mentioned is not surprising; it should increase the prediction of employment contributions the most.

Contributions to explained variance vary across industries, and are the least in retail in consumer services--those industries dominated by small firms with little growth where major contributors are an unusual event--creating very skewed distributions of dependent variables.

TABLE 39

ADDITIONAL CONTRIBUTION TO EXPLAINED VARIANCE FROM  
 ADDING START-UP PROBLEM TO MULTIPLE REGRESSION EQUATION

1984 SALES	Number of Firms	Standardized Betas				Variance Explained	
		Start-up Status	Growth Rate	Age	Person- nel	With SUP	Without SUP*
All firms	358	.26	.37	.12	.29	42%	34%
Construction	69	.48	.41	.11	.31	60	52
Manufacturing	74	.33	.40	.23	.35	47	35
Distributive services	90	.22	.34	.20	.31	43	34
Producer services	67	.35	.47	.21	.11	46	48
Retail	46	.54	.49	.22	.15	61	60
Consumer services	10	.39	.16	-.11	.52	35 &	44
1984 EMPLOYMENT							
All firms	363	.42	.33	.16	.35	61	48
Construction	72	.45	.43	.08	.20	74	71
Manufacturing	75	.25	.54	.17	.36	68	55
Distributive services	92	.44	.31	.19	.30	63	57
Producer services	66	.48	.29	.17	.32	63	55
Retail	46	.70	.09	.15	.20	60	61
Consumer services	10	.21	.30	-.19	.67	82 #	86%

NOTES: \* From Table 27 in Chapter 6.

& Statistically significant at .21 level, all others .0000.

# Statistically significant at .01 level, all others .0000.

All variables forced to enter the calculations.

## CHAPTER 8

### CURRENT STATUS AND CURRENT EFFECTIVENESS

An assessment of the current status of the new firms was obtained by asking the respondent the extent to which the firm or the principal executives could be characterized on twenty-five aspects, initially presented in three sets related to planning, organization, and coordination; marketing knowledge and strategy; and financial management.<sup>27</sup> For each item the respondent characterized the firm as "very much," "quite a bit," "somewhat," "little," "none," or "cannot evaluate." Almost 400 of the new firms representing all the industries, regions of the state, and "age" were characterized by these descriptions. Following a discussion of the general reaction to these items, their relationship to measures of performance are reviewed.

#### GENERAL REACTION TO ALL CURRENT STATUS ITEMS

Most of these items were considered applicable by those responding for the new firms. Only 4 percent of all items were indicated as "cannot evaluate." As indicated in Table 40, this was relatively uniform for all industries. In addition, there was little difference among industries in the use of the response alternatives; one-fourth were indicated as "very much" characteristic of the new firm, one-third as "quite-a-bit," one-fourth as "somewhat," and one-sixth split between "little" and "none."

TABLE 40  
GENERAL REACTION TO STATUS ITEMS BY INDUSTRY

	Can Not Evaluate	Presence in the New Firm				
		Very Much	Quite A Bit	Somewhat	Little	None
All firms	4%	28%	33%	23%	12%	5%
Agriculture	0	52	18	20	10	0
Construction	5	26	33	24	11	16
Manufacturing	2	29	30	25	11	5
Distributive services	4	29	32	23	10	6
Producer services	6	30	36	21	9	4
Retail	7	24	37	24	10	5
Consumer services	6%	37%	33%	17%	6%	6%

#### STATUS ON SPECIFIC ITEMS

There was, however, considerable variation among the specific items (presented in Table 41). At one extreme two-thirds indicated their firm provided quality products or services and the other third indicated "quite-a-bit." Clearly those managing these new firms are proud of the efforts to serve customers and clients. At the other extreme 40 percent claim they rarely or never use, modify, or update (formal) plans, and another 25 percent consider this as only somewhat true of their firm.



TABLE 41

## CURRENT STATUS EVALUATIONS, RANK ORDER BY CONFIDENCE

At the present time, to what degree do company management, you and other top executives.....	Can Not Evaluate	Very Much	Quite A Bit	Somewhat	Little	None
Provide quality products/services	3%	66%	29%	3%	*%	1%
Have close customer contacts	*	53	33	11	2	*
Display high levels of energy and motivation	*	52	37	9	1	--
Have a willingness to take necessary risks	1	42	38	17	2	*
Clearly know industry/market	*	39	46	11	2	*
Have technical experience in key areas	3	37	43	13	4	1
Have a clear market niche for products/services	3	36	40	18	3	1
Work together as cohesive team	6	36	38	17	3	1
Face immediate future with certainty about survival	3	33	32	17	9	5
Have products/services with clear competitive advantage	3	32	33	22	8	1
Produce products/services on time and within budget	9	30	40	16	4	*
Have sufficiently well-rounded business experience	1	24	37	31	7	1
Aggressively sell products/services	3	24	37	24	13	3
Have sound financial controls	1	20	34	28	12	5
Generate adequate cash from sales	3	19	33	29	15	2
Communicate goals/priorities to all company personnel	9	17	31	25	12	5
Accurately forecast cash needs	4	15	31	34	13	3
Have a sound cash flow position	4	15	31	34	13	3
Set goals/priorities and follow-up to ensure attainment	2	14	24	30	17	12
Have strong support from investors	18	14	22	14	13	18
Have formal business and marketing plans	2	14	14	25	21	24
Accurately forecast operational results	5	13	29	33	12	8
Demonstrated ability to reach markets with sales promotions	10	13	29	28	15	6
Have an active product program	24	12	16	25	15	8
Regularly use/modify/update plans	6%	11%	18%	25%	21%	19%

\* Indicates less than 0.6%.

It is however, awkward to try to determine patterns of relationships among the responses to these items through simple inspection. Fortunately, well established analytical techniques are available to determine regularities in responses to different items. That is, the extent to which responses to one item may be used to predict responses to other items.

#### MAJOR CURRENT STATUS DIMENSIONS

Analysis of the patterns of responses to the twenty-five items related to the current status of the firm suggested that they could be summarized as four major factors, or dimensions.<sup>28</sup> Based on the content of these items, they have been labeled as follows:

- Strategy implementation (CSD01): Items related to the development or implementation of a formal business plan designed to achieve strategic objectives of the firm.
- Financial management (CSD02): Internal, to the firm, coordination and management of the cash resources.
- Strategic focus (CSD03): The confidence and commitment to pursue strategic objectives.
- Marketing (CSD04): Confidence in the knowledge of and response, in terms of meeting market needs, of the firm's major markets.

The estimated reliabilities (Chronbach's Alpha) for these dimensions varied from 0.81-0.88, see Appendix D. Again, this suggests a coherence among the items selected from a factor analysis for each dimension.

The items included in the summary measure for each

dimension are indicated in Table 42.

TABLE 42  
CURRENT STATUS ITEMS AND THE FOUR MAJOR FACTORS

<u>Specific items</u>	<u>Major Dimensions</u>			
	<u>Strategy Implemen- tation</u>	<u>Finan- cial Manage- ment</u>	<u>Strategic Focus</u>	<u>Market- ing</u>
A01 Know industry and market			1	
A02 Technical expertise			1	
A03 Business experience			1	
A04 Will take necessary risks			1	
A05 Energy and motivation			1	
A06 Close customer contacts			1	
A07 Formal business plan	1			
A08 Regularly use plan	1			
A09 Set and follow goals	1			
A10 Accurately forecast results	1			
A11 Communicate goals	.5		.5	
A12 Work as a team			1	
B01 Clear market niche				1
B02 Provide quality products				1
B03 Ability to reach markets				1
B04 Sell aggressively				1
B05 Clear competitive advantage				1
B06 Produce on time				1
B07 Active product development				1
C01 Financial controls		1		
C02 Adequate cash flow		1		
C03 Forecast cash flow		1		
C04 Sound cash flow condition		1		
C05 Support from outside financial group*		1		
C06 Certainty about survival		1		

\* Indicates not clearly related to any major factor.

The average response on each of these dimensions for all firms and for firms in each industry is indicated in Table 43. In this case, the maximum value of "5" would indicate that the firm is "very much" represented by the items in this dimension, a value of "3" would indicate an average value of "somewhat." Variation across firms in the different industries is presented, as is the statistical significance of differences among industries.

TABLE 43  
CURRENT STATUS ON MAJOR DIMENSIONS AS  
RELATED TO INDUSTRY

Average responses to relevant items	Strategy Implemen- tation	Finan- cial Manage- ment	Strategic Focus	Market- ing
All firms	4.13	3.12	3.85	3.38
Construction	4.09	3.08	3.69	3.42
Manufacturing	4.16	3.19	3.88	3.25
Distributive services	4.13	3.05	3.94	3.36
Producer services	4.21	3.24	3.86	3.53
Retail	4.02	2.99	3.84	3.26
Consumer services	4.12	3.28	4.18	3.69
Statistical sign (ANOVA)	0.39	0.67	0.06	0.29

The extent to which the different dimensions receive attention in the new firms varies significantly. New firms give "quite-a-bit" of emphasis to strategic implementation and strategic focus. Less, or "somewhat," attention is directed toward financial management or marketing. There is no sta-

tistically significant variation in this pattern for new firms in different industries; current management emphasis is similar regardless of product or service provided.

These patterns of emphasis suggest that the day-to-day management of new firms focuses on the problems of the moment--the immediate delivery of quality goods and services. On the other hand, problems of marketing or financial management are given less attention. It is not clear whether this is because they are solved, unimportant, or neglected.

#### CURRENT STATUS AND 1984 PERFORMANCE

Again, a stepwise multiple regression was utilized to explore the possible relationships of current status on 1984 performance--sales and employment. The general results, standardized beta weights and explained variance, are presented in Table 44. As a basis of comparison, the variance explained by only the current status dimensions is presented next to the variance explained by an equation including start-up status, growth rates, age, and personnel start-up problems.

Even though the relationship of all four status dimensions with contributions is statistically significant, the lack of any systematic pattern precludes any general statements. That is to say, no one dimension is more significant than any other.

TABLE 44  
ESTIMATED IMPACT OF CURRENT STATUS DIMENSIONS  
ON 1984 SALES, EMPLOYMENT

1984 SALES	Number of Firms	Standardized Betas				Variance Explained	
		Strategic Focus	Strategic Implemen- tation	Market- ing	Finan- cial	CSD Only (1)	Full Eq'n (2)
All firms	352	.27	--	--	.18	14%	48%
Construction	64	.29	--	--	--	7	61
Manufacturing	77	--	.27	--	.27	18	54
Distributive services	86	--	.24	--	--	5	43
Producer services	66	.51	--	--	--	25	61
Retail	47	--	--	--	.44	17	64
Consumer services	10	.64	--	.50	--	88	68
1984 EMPLOYMENT							
All firms	369	.34	--	--	--	11	65
Construction	69	.27	--	--	--	6	74
Manufacturing	79	--	--	.31	--	8	67
Distributive services	89	.31	--	--	--	9	68
Producer services	68	.49	--	--	--	23	67
Retail	50	--	--	--	.31	8	62
Consumer services	12	--	.82	--	--	64%	84%

NOTES: All explained variances significant at the .05 level or better.

(1) Variance accounted for by four current status dimensions.

(2) Variance accounted for by start-up status, growth, age, personnel start-up dimension, and all significant current status dimensions.

Comparison with the variance explained by the full equation suggests that the current status measures are not the major influences in most industries. Indeed, since they are measured concurrently with the performance--the direction of causality is more ambiguous. High levels of current performance may allow some of the activities represented by the measures--planning, organization, management of cash flow, etc.--to take place.

Clearly, in relation to the consistent, dominant role of solving personnel start-up problems--the relationship of current status measures to performance is somewhat ambiguous.

CHAPTER 9

OVERVIEW: TYPE OF FIRM, START-UP PROBLEMS,  
CURRENT STATUS, AND CONTRIBUTIONS

The most important finding related to the conception of the emergence of new firms is the clear advantage of separating them into two types. As presented in Chapter 6, new firms were classified into four types. This was based on start-up year contributions and growth rates. Because of the low correlation between sales and employment this was done twice for all firms--once for sales and once for employment. A summary of the types and relationship to impact on 1984 contributions is presented in Table 45.

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TABLE 45  
START-UP STATUS, GROWTH TYPOLOGY AND  
1984 CONTRIBUTIONS

<u>Start-up Status</u>	<u>Growth Rate</u>	<u>1984 Sales</u>		<u>1984 Employment</u>	
		<u>Percent of Firms</u>	<u>Average (\$1,000)</u>	<u>Percent of Firms</u>	<u>Average</u>
Low	Low	61%	\$ 166	63%	3.9
High	Low	8	720	6	18.0
Low	High	15	1,158	24	14.6
High	High	16%	\$4,123	6%	55.9

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NOTE: Taken from Table 29.

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Two important issues related to the character of new firms



involve the nature of the industry in which they operate--in terms of the proportion of low and high potential new firms--and the relationship of firm potential to the types of start-up problems and characteristics of the current status of new firms.

#### INDUSTRY CHARACTERISTICS AND PREDICTING NEW FIRM CONTRIBUTIONS

There are several factors that can affect the current contributions of a new firm:

- Initial strategy and orientation
- Age-related characteristics: experience, reputation, etc.
- Problems associated with start-up
- Current status of the firm

One way to consider the relative impact of these different factors is to organize the multiple regression analysis reviewed in the previous chapters in such a way as to emphasize the improvement in predictability (variance explained) as different factors are added to the predictive equation. This is presented in Table 46. It also includes the character of the different industry sectors in terms of the percentage of firms classified as low start-up/low growth.

As mentioned before, the most critical pattern is the importance of start-up status and growth rates. This is the major factor affecting predictability of 1984 contributions. The relative impact of industry characteristics, start-up problems, and current status are presented in Table 47.

TABLE 46

## SUMMARY OF FACTORS AFFECTING PREDICTABILITY OF 1984 CONTRIBUTIONS

	<u>Variance Explained if Equation Includes:</u>							
	Percent- age				Start-up/ Growth	Explained Variance Increased With:		
	Low Start-up/ Low Growth (1)	Start-up/ Growth	Start-up/ Growth/ Age	Start-up/ Growth/ Age/ Person- nel	Person- nel/ Current Status	Age	Person- nel	Current Status
1984 SALES								
All firms	62%	32%	34%	43%	48%	2%	9%	5%
Construction	72	49	52	62	62	3	10	0
Manufacturing	55	34	35	46	51	1	9	5
Distributive services	44	29	34	42	42	5	8	0
Producer services	64	42	48	46	59	6	-2	13
Retail	71	57	60	57	66	3	-3	13
Consumer services	95	45	44	42	67	-1	-2	15
1984 EMPLOYMENT								
All firms	63	46	48	61	64	2	3	3
Construction	74	70	71	74	75	1	3	1
Manufacturing	42	55	55	68	67	0	13	-1
Distributive services	66	52	57	66	67	5	9	1
Producer services	57	52	55	63	68	3	8	5
Retail	75	61	61	57	61	0	-4	4
Consumer services	85%	79%	86%	84%	99%	7%	-2%	15%

NOTE: (1) Percentage of all firms in sample classified as low start-up status/low growth, see Chapter 6.

TABLE 47  
 OVERVIEW OF SECONDARY FACTORS AFFECTING  
 1984 CONTRIBUTIONS

	Percentage <u>Low Start-up</u> <u>Low Growth</u>	Total Variance <u>Explained</u>	Contributions Provided by:		
			<u>Age</u>	<u>Start-up</u> <u>Problems</u>	<u>Current</u> <u>Status</u>
<b>1984 SALES</b>					
Distributive services	44%	42%	5%	8%	0%
Manufacturing	55	51	1	9	5
Producer services	64	59	6	-2	13
Retail	71	66	3	-3	13
Construction	72	62	3	10	0
Consumer services	95	67	-1	-2	15
<b>1984 EMPLOYMENT</b>					
Manufacturing	42	67	0	13	-1
Producer services	57	68	3	8	5
Distributive services	66	67	5	9	1
Construction	74	75	1	3	1
Retail	75	61	0	-4	4
Consumer services	85%	99%	7%	-2%	15%

Perhaps the most important pattern in this analysis is the clear relationship between the nature of the firms in the different industries and the capacity for predicting 1984 contributions. This pattern is very strong in terms of 1984 sales, somewhat less pronounced for 1984 employment. Simply put, the greater the percentage of low potential new firms in an industry, the higher the capacity for making predictions about performance of firms in that industry. The converse is also true, the greater the percentage of new firms with

moderate to high potential (high start-year performance, high growth rates, or both) the poorer the capacity for making predictions.

Fundamentally, this pattern is an outgrowth of the importance of the initial focus and orientation of the new firm on sales.

The relationship is much less apparent in relation to 1984 employment, in part because there is so little variation in the explained variance among the different industries.

Such an analysis, emphasizing differences among industries, helps to illuminate the relative impact of other factors--start-up problems and current status. Most obvious is the relationship found in predicting 1984 employment contributions--the greater the percentage of low potential firms, the less the impact of start-up problems (entirely personnel-related) on current employment. In those industries with more high potential new firms, the occurrence of start-up problems is related to more jobs created. The causal process is probably the converse--as potential is realized, they have more problems hiring the appropriate people. Low sales and growth minimize personnel problems.

The current status of the new firm appears to have a systematic impact on 1984 sales in only a few selected industries--producer services, retail, and consumer services.<sup>29</sup> What is striking is the lack of contribution to predictability of start-up problems for these same industries. It may be that current sales in these industries are more responsive to the current economic conditions, markets and

competition--current status dimensions may reflect the capacity for dealing with these matters.

At least one major policy issue emerges from this discussion. For high potential new firms and industries with a high proportion of high potential new firms assistance in solving personnel problems (locating, selecting, training, etc.) may contribute to current sales and, in turn, employment.

NEW FIRM POTENTIAL, START-UP PROBLEMS,  
AND CURRENT STATUS

Firm potential is clearly the major factor affecting current sales and employment. Another strategy for exploring the nature of firms with different levels of potential is to consider the variation in start-up problems and current status of firms with different types of potential. The average responses on the eight dimensions (four start-up, four current status) of the firms in the different sales, employment potential categories is presented in Table 48.

A number of the relationships are quite striking in their consistency. All but three comparisons are statistically significant. Unfortunately, as with other analysis of this type, the measures of statistical significance indicate only that the differences are greater than expected by chance, not which differences are significant. Inspection and judgement are needed to establish that.

TABLE 48  
 START-UP PROBLEMS, CURRENT STATUS,  
 AND PERFORMANCE POTENTIAL

	<u>Sales Potential</u>				<u>Employment Potential</u>			
	Low	Low	High	High	Low	Low	High	High
Start-up status:	Low	High	Low	High	Low	High	Low	High
Growth status:	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
Start-up problem dimension (1)								
Personnel	1.0	1.6	1.6	1.7***	1.1	1.5	1.5	1.5***
Organizational	1.2	1.6	1.6	1.6***	1.3	1.5	1.5	1.5*
Marketing	1.6	1.7	1.6	1.7*	1.6	1.8	1.7	1.7**
Financial Backing	1.5	1.7	1.5	1.6**	1.5	1.8	1.6	1.6***
Current status dimensions (2)								
Strategic Focus	4.1	4.2	4.1	4.4**	4.1	4.2	4.2	4.3**
Strategic Implementat'n	3.0	3.3	3.1	3.5**	3.0	3.2	3.2	3.4*
Marketing	3.8	3.9	3.9	3.9	3.8	4.0	3.9	4.0
Financial Management	3.3	3.4	3.4	3.7	3.3	3.3	3.7	3.7**

NOTES: Statistical significance based on analysis of variance:

\*\*\* .0000 or greater

\*\* .01 to .0000

\* .05 to .01

(1) A higher number means more serious start-up problems.

(2) A higher number means a dimension gets more attention.

Some of the more striking patterns associated with start-up problems are:

- Those firms with the lowest potential (low/low) for jobs or sales report the fewest start-up problems in every category. Perhaps the simpler, smaller new firms had less trouble getting established.
- Those firms with low start-up sales but high growth rates report the most start-up problems with marketing and financial backing.

Those firms, then, initiated by those with modest aspirations, report the least problems at start-up. Others started with higher aspirations report more problems. In particular, those that have modest initial sales but experienced high growth reported more problems obtaining financial backing.

The most critical patterns associated with the current status of the new firms are:

- Those firms with the highest potential (high/high) report the most positive current status in every category. As many of these relate to explicit planning and organizing, they may be required to realize the value of high potential and guide more complex firms.
- Conversely, those with the least potential (low/low) report the least positive assessment for their current status dimensions. This may reflect the absence of explicit planning and or organization, less important for smaller firms with fewer employees.
- Marketing, as an aspect of the current status of these

new firms, shows the least variation of any dimension across firms with varying potential. This may reflect the high confidence of the entrepreneurs in their knowledge of and responsiveness to their customers.

There is a consistent relationship between reports on the current status of the firm and its potential--higher potential is associated with more attention to major issues. The causal relationship is not clear. More business may lead to attention to more issues; those that attend to more issues may grow faster. The association between "good management" and high potential is relatively strong.

Curiously, there is no relationship between marketing and potential; managers from all firms reflect considerable confidence in their knowledge of and ability to service their customers and clients. Those running new businesses are universally confident of their marketing.

In sum, all this evidence is consistent with the conception of new low potential firms as initiated to provide their owners with a comfortable occupational context. One with a minimum of start-up problems and little need for formal, explicit planning or coordination. New firms initiated for (apparently) more ambitious projects report more start-up problems and the presence of a more formalized, coordinated set of management activities.

#### CONCLUSION

Additional analysis supports the conception of considering two types of new firms: modest and high potential. This is



the single most important factor related to sales and employment. The impact of start-up problems and aspects of their current status tend to vary among different industries and increase in importance in industries with a high percentage of high potential new firms.

## CHAPTER 10

### NEW FIRM CONTRIBUTIONS TO MINNESOTA

What contributions do new firms make to Minnesota? Despite the small size of this representative sample, it is possible to make gross estimates of the contributions of new firms. Following a discussion of the steps required to make these estimates, a comparison with available data for the state will be reviewed.

#### STEPS IN EXTRAPOLATION

Firms in the sample, whose contributions are known, are to be used to estimate the contributions of the population of new firms--whose contributions to sales, exports, and new employment are not known. There are four stages where there has been a reduction in firms from the population to the sample. The procedures for correcting for these problems are indicated. They are:

1. The difference between the entire population of new firms that emerged for a given year and their representation in the Dun's Marketing Identifier (DMI) data set is the single biggest problem. This difference is reduced as firms get older. That is, the probability that a firm is included in the DMI data set increases as it ages. Consequently, new firms in the most volatile industries are least likely to become part of the data set and the industry will be "underrepresented."

- Estimates of this loss have been developed for five industry categories and will be used in the following estimates.<sup>30</sup>

2. Of the firms in the DMI data set with year starts of 1979 (5,500) and 1982 (3,200) only a portion were included in the sample; 1,000 from each year.

- This involves a simple multiplication to expand the sample to the DMI numbers, by 5.5 for 1979 and 3.2 for 1982.

3. Because of the high percentage of firms in retail trade and consumer services, only about 40 percent of these firms in the DMI data set were chosen for the survey.

- This involves multiplication of the estimates from the respondents by the proportion taken from the DMI file, approximately 2.75.

4. Approximately one-fourth of the firms contacted for the survey did not provide any data.

- This involves a multiplication of approximately 1.33 to account for nonrespondents.

The first three of these four corrections have been made in producing estimates of sales, exports, and employment for firms with a DMI year start of 1979 and 1982. The result is provided in Table 49; the details in Appendix E. If a correction for the nonresponding firms had been included, the estimates would have been a third higher. If all firms established in the past six years were included in these estimates--not just for 1979 and 1982, these estimates would be even greater.

TABLE 49  
1984 CONTRIBUTIONS OF NEW FIRMS TO JOBS,  
GROSS STATE PRODUCT, AND EXPORTS

	<u>1984 Jobs</u>		<u>1984 GSP</u> <u>(millions)</u>		<u>1984 Exports</u> <u>(millions)</u>	
Agriculture	180	*%	\$ 14	*%	\$ --	--%
Manufacturing (1)	12000	19	828	15	393	22
Other industrial (2)	8138	13	700	13	33	2
Trade (3)	11751	19	1198	22	342	20
Services (4)	30539	49	2761	50	980	56
Total	62608	100%	\$ 5501	100%	\$ 1748	100%

- NOTES: (1) Manufacturing, durables and nondurables.  
 (2) Includes construction; mining; and transportation, communication, and utilities.  
 (3) Wholesale and retail trade.  
 (4) Producer and consumer services, typically referred to as finance, insurance, and real estate and services.  
 \* Indicates less than 0.6%.

These industry classifications, not used in the previous analysis, are necessary, for they are the only classifications provided with estimates of the DMI "loss" from the population by the age of firms.

COMPARISON WITH OTHER ESTIMATES FOR MINNESOTA

The most direct comparison regarding employment would be

to the analysis done of all firms reporting employees to the Minnesota Department of Economic Security for the first time in 1977.<sup>31</sup> The number of firms and jobs for which unemployment insurance was paid is as follows:

1977	7,105 firms	30,947 paid employees
1978	6,608	34,370
1979	5,868	37,431
1980	5,279	37,625

While the number of firms declines by about 10 percent a year, the total number of employees increased each year. After three years (the average age of the firms in the 1984 new firm sample) they were providing about 37,000 jobs. This is 20 percent more than 31,000 per start-up year estimated from the 1984 new firm sample.

The two estimates are within the same order of magnitude. The current sample estimate may be conservative.

Estimates of employment by industry sector are provided by the Minnesota Department of Finance on a regular basis. They are used to summarize the net change in employment, by industry, for the period 1980-1984 in Table 50.

The estimate of 60,000 1984 jobs provided by firms established in 1979 or 1982 can be compared to two features of the state estimate.

- First, it is approximately 4 percent of the total jobs estimated for the state.
- Second, it is greater than the estimated net increase of 50,000 jobs in all private, non-farm industries.

Firms initiated in 1979 and 1982 were estimated to

contribute almost \$6 billion, in current dollars, to the Gross State Product (GSP) and \$2 billion to exports. Current estimates of Minnesota's Gross State Product are about \$50 billion.<sup>32</sup> These new firms are therefore estimated to account for about 12 percent of the 1984 Gross State Product.

TABLE 50  
ESTIMATED NET CHANGES IN MINNESOTA EMPLOYMENT  
1980-1984: BY INDUSTRY

(All figures in 1,000s)	<u>1980</u>	<u>1984</u>	<u>Increase 1984-1980</u>	<u>Decrease 1984-1980</u>
Durable manufacturing	225.8	221.0		4.8
Non-durable manufacturing	145.5	146.2	.7	
Construction	76.9	70.4		6.5
Mining	15.6	9.3		6.3
Finance, insurance, and real estate	94.8	105.2	10.4	
Transportation, communication, and utilities	99.1	96.1		3.0
Services	369.7	413.4	43.7	
Trade	442.9	456.5	13.6	
Total	1,470.3	1,518.1	68.4	20.6
Net Non-farm Private Sector Increase			47.8	

NOTE: From Minnesota Quarterly Financial Report, Minnesota Department of Finance, January 1985, page A-6.

## COMMENTARY: COMPARISON OF ESTIMATES

These estimates of the contributions of new firms to the economy of Minnesota may seem high, especially those related to sales and exports. What might account for an overestimate?

- Perhaps most important are the assumptions regarding firms that are not part of the DMI data set. It is likely that the "missing firms" may be somewhat smaller in both employment and sales volume than those in the DMI files.
- Second, the corrections factors used to estimate the size of the total population from the existing set of new firms were based on a national data base. It may be that a larger percentage of all new firms is in the Minnesota DMI files, in which case the number of "missing firms" would be overestimated.
- Third, information on financial performance was obtained for 1984 during June 1984, in midyear. It may be that optimistic businesspersons provided optimistic estimates for their current year.
- Fourth, it may be that financial data was seen as sensitive and confidential by some respondents. Rather than omit information, they just provided an inflated figure to hide their true situation.

On the other hand, there are reasons to suspect that these numbers are not unduly inflated.

- First, the distribution of firms across industries in the 1984 new firm sample is comparable to the firms entered in the files of the Minnesota Department of

Economic Security.

- Second, the estimates of jobs provided based on the 1984 new firm survey are less, 80 percent, than those estimated from counts of firms reporting their unemployment insurance for the first time.
- Third, no correction was made for nonrespondents in the survey. This may lead to an underestimate of one-third. But, these may be smaller firms so it is probably less.
- Fourth, some research suggests that the DMI fails to include a much larger number of new firms than many have expected, 95 percent may be missed in some industries, such as retail and consumer services.<sup>33</sup>

It seems likely that the estimates with regards to jobs may be more accurate than those regarding sales and exports. The major rationale for the study of new firms is based on the assumption that there is substantial volatility or churning among new firms. The contributions of new firms to the job pool may be offset by an equal loss in jobs from firm failures. Without a more careful longitudinal analysis of a representative sample of new firms, it will be impossible to determine the exact sources and losses of jobs.

It is not unreasonable, given this analysis, to expect new firms to provide 10, 20, or 30 percent of jobs filled in any given year.

The financial estimates are more problematic. But while they may be excessive, they are in the right order of magnitude, they are probably not off by more than a factor of 5--contributions to the Gross State Product of a billion and



exports of several hundred million does not seem unreasonable.

#### CONCLUSION

It was estimated that new Minnesota firms started in 1979 and 1982 provided 60,000 jobs, \$6 billion in sales, and \$2 billion in exports in 1984. The estimate of jobs provided seems to have an appropriate order of magnitude when compared to estimates of total employment for the state. It could be accounted for by substantial volatility among small and new businesses.

Considering the size of the sample and the problems in identifying the population of new firms for selection of a sample, these comparisons suggest that the results warrant confidence. Substantial confidence may be placed in comparisons of firms and industries within the sample.

The problems with the DMI data set coupled with the lack of information about the volatility of new firms in many industries suggests an additional project, using a different source of data to represent the population of new firms, a larger sample, and a longitudinal design, would be justified. It could--at modest cost--considerably improve knowledge about contributions of new firms to the economy of Minnesota.

## CHAPTER 11

### SUMMARY AND POLICY IMPLICATIONS

Three major issues conclude this report: a summary of the major findings, a review of the policy implications--for both the public and private sector, and a commentary on issues worthy of additional research.

#### MAJOR FINDINGS

The most important implications from this research are:

- The majority of new firms, perhaps two-thirds, start small, do not grow, and occupy a stable, modest economic role. A small proportion, perhaps one in ten, start strong, grow fast and quickly become a major factor in the state economy.
- It is possible to distinguish between these two types of new firms soon after start-up, defined as the first sales--within twenty-four months in most cases.
- The new firms, at least those started in the late 1970s and early 1980s, reflect all parts of the economy--there are no obvious areas, or industries, of specialization. This is dramatically related to the modest, though important, role of high-tech new firms.
- There is a modest relationship between exports (highly related to sales) and the provision of new jobs.
- The major, universal start-up problem is related to locating and motivating personnel.
- New firms are initiated by established residents. The

principals started the firm in Minnesota because they were personally established in Minnesota.

- Virtually all jobs provided by new firms were taken by Minnesota citizens.

#### MAJOR POLICY IMPLICATIONS

A number of these general patterns have substantial implications for policies that may promote the development of new firms.<sup>34</sup>

- Policies to encourage new firms should not exclude or discourage a broad base of diverse firms in diverse industries. It may be effective to encourage specialized areas, such as new or high technology based firms, but new firms making substantial contributions are developing in a number of industries.
- Most policies should emphasize establishment of new firms by Minnesota citizens. It is unlikely that attempts to lure new ventures to Minnesota will have a major impact.<sup>35</sup>
- Efforts to promote out of state exports should give equal emphasis to firms in manufacturing and producer (business) services. International exports are a minor activity for most new manufacturing firms, nonexistent for new firms in all other industries.
- Assistance in solving a variety of personnel-related problems, particularly locating qualified personnel, may be of value to new firms.
- Most new firms draw on a broad range of skills and

abilities among new employees--there is little reason to give exclusive interest to a narrow range of specialties.

- Consulting assistance related to basic problems of focusing, planning, organizing, and managing resources (particularly cash flow) in new firms may be of some assistance. These could be in the form of two-day weekend conferences or four one-night-a-week programs.
- The Dun's Marketing Identifier files may be a suitable source for locating firms that may benefit from government assistance programs. It is likely that most high potential new firms will be included in the DMI files.
- Financial assistance provided to new firms by either the public or private sector need not accept unusual levels of risk for more than twenty-four months after the first sales. Within two years the nature of growth in both sales and employment may be well established.

#### RECOMMENDATIONS FOR STATE GOVERNMENT REPORTING

- Most data on establishments and employment are analyzed and provided by the state government utilizing a traditional SIC (Standard Industry Classification) scheme that obscures the new development and impact of producer (business) services. It would be elementary to provide the information on contributions to Gross State Product, exports, and employment in alternative forms. If that is not possible in enough detail (two-digit SIC

codes) to allow others to develop a service-based classification scheme.<sup>36</sup>

- The data gathered by the state unemployment insurance office is the most complete information on firms and their employees available. Without comprising the confidentiality of firms reporting to this agency, this data could be used to provide an annual report on the number of new firms reporting to the agency for the first time, the number of employees, Standard Industry Classification (SIC), and zip codes. Summaries utilizing a two-digit SIC and three-digit zip code would provide substantial detail and avoid disclosing the identities of most firms (higher levels of aggregation could be used if this is a major problem).

Both activities could provide a continuing record of the industries where new firms and new jobs are emerging--providing the best possible guide to expanding areas of the economy. A continuous, current window on the future.

#### UNRESOLVED ISSUES FOR ADDITIONAL RESEARCH

The previous analysis and recommendations should be considered tentative; they are based on a small pilot study with a sample of 551 new firms. A number of issues justify additional research on this topic.

- Additional information should be gathered from the new firms:
  - as more details on the skills and capacities sought from new employees (particularly those both scarce

- and critical);
- estimates of the value added to goods and services by the firm;
  - the extent to which the firm spends money outside the state (and for what);
  - details on the nature and sources of external financing (particularly any reports of experience with venture capital firms);<sup>37</sup> and
  - the eventual disposition of start-up problems (solved, ignored, etc.).
- A larger sample, say 2,000-2,500, would provide greater confidence in the basic descriptive data and extrapolation to the entire population of new firms.
  - A longitudinal study would increase confidence in descriptions of the developmental patterns in sales, exports, and employment. Retrospective histories provided by key respondents may be accurate, but confidence is usually greater if personal reports focus on the current situation.
  - Alternative sampling procedures should be explored. Either another source--such as state unemployment insurance records--or a different listing from Dun's Marketing Institute (such as a random sample of new firms initiated over the past five or six years).
  - Larger samples should be collected from firms in new, volatile, or promising industries--such as high technology or producer services. Particularly those with exceptional promise for providing jobs and exports.

#### FOOTNOTES

1. It should be noted that after the project was underway, the substantial problems associated with extrapolating from the DMI files on firms back to the total population were discovered. There are biases in the way firms are incorporated into and dropped from the DMI data set; a bias that varies across industry sector. This will receive more attention in Chapter 10.
2. The complete questionnaire is provided in Appendix A.
3. This success was achieved by following, as carefully as possible, the procedures developed by and described by Don A. Dillman, Mail and Telephone Surveys: The Total Design Method, N.Y.: Wiley, 1978.
4. Tazuell, John, "Survival of Minnesota New Businesses: 1977-1980," Review of Labor and Economic Conditions, Minnesota Department of Economic Security. August 1982, 9(2):10-17.
5. This is discussed in the next chapter in more detail.
6. This problem receives more attention in an earlier report: Reynolds, Paul D., Steven West, Michael D. Finch, "Estimating New Firms and New Jobs: Considerations in Using the Dun and Bradstreet Files," mimeo, Center for Urban and Regional Affairs, University of Minnesota, October 1984.
7. This industry classification procedure is not the standard two-digit code found in most analyses. The variation to emphasize producer services was adopted from other analyses of economic change, reviewed in Thierry J. Noyelle and Thomas M. Stanback, The Economic Transformation of American Cities, Totowa, N.J.: Rowan and Allanheld, 1984, page 9. This was based, in turn, on J. Singlemann, From Agriculture to Services, Beverly Hills, CA: Sage Publications, 1979. This service-based classification provides substantial benefits in the analysis to follow.
8. The technological sophistication of the companies was evaluated by their SIC designations and written statements regarding their major product or service line. For example, firms were designated high-tech if they were involved in: a) the manufacture of new or innovative products in computers, medical devices or pharmaceuticals; b) the sale or servicing of computers or data processing equipment and software; or c) the application of computer technology in the fields of engineering, design, or

business services.

9. County Business Patterns, 1981.
10. For this discussion, zip code regions adjoining Minneapolis and St. Paul (550, 551, 553, 554) will be considered the urban area, those bordering Canada (556, 557, 558, 566, 567) will be considered the northern tier, those bordering Iowa (559, 560, 561) the southern tier, and the remainder (562, 563, 564, 565) the midsection.
11. County Business Patterns.
12. Unfortunately, no specific question was asked about a fourth major event in the start-up of a new firm, "When were the first employees hired?"
13. Preliminary analysis suggested no significant relationship between the start-up window and the major measures of contributions, 1984 sales and jobs.
14. Before correcting for sampling in retail and consumer services it is 5,509, after correction it is 6,998.
15. Both variables have been corrected to provide estimates for the full DMI sample of autonomous, ongoing, new firms.
16. Unfortunately, it was not possible for the respondents to indicate the number of salespersons recently hired. It is assumed they are included with the "other" category.
17. This may have been greater if "headquarters" establishments had not been excluded from the list received from the DMI file used to sample new firms.
18. The correlations were, respectively, 0.00, 0.00, and 0.04.
19. Start-up year sales correlated 0.47 with annual sales growth rates, -0.12 with age; annual sales growth rate and age correlated -0.15. Start-up year employment correlated 0.37 with annual employment growth rate, -0.09 with age; annual employment growth rate correlated -0.12 with age.
20. It cannot be completed for employment because only start-up year and 1984 employment were obtained.
21. The cutting points were subjective, but as all distributions were very skewed with a substantial tail at the high end, the division was made above the mean where the frequency distribution dropped dramatically. There is little reason to think the following analysis is sensitive to the precise cutting point.
22. This would be greater, two of three, if a correction was made for the undersampling of retail and consumer service new firms from the DMI sample.



23. The relationship of start-up problems and current status to different types of new firms will be pursued in Chapter 9.
24. These were modifications of a set of items developed by William Rudelius for a recent study of new computer software firms.
25. These dimensions, like those related to current status, show some intercorrelation, with Pearson correlations of 0.4-0.5. However, there is little systematic intercorrelation between the two sets of four dimensions; the Pearson correlations are around zero. See Appendix D.
26. Unfortunately, the use of ANOVA only indicates there are statistically significant differences, not the industries that are distinctly different.
27. This list was also a modification of one developed by Wm. Rudelius for a study of new software firms.
28. This involved a standard factor analysis eventually restricting the number of factors to four, based on both the communalities associated with less or more than four factors and a reasonable interpretation of the combination of items to create the factors.
29. The small number of firms representing consumer services should lead to considerable caution in accepting the estimates from the multiple regression analyses.
30. Birch, David L. and Susan MacCracken. "The Small Business Share of Job Creation: Lessons Learned from the Use of a Longitudinal File," Cambridge, MA: MIT Program on Neighborhood and Regional Change, mimeo, March 1983.
31. Tauzell, John, "Survival of Minnesota New Businesses: 1977-1980," Review of Labor and Economic Conditions, Minnesota Department of Economic Security, August 1982, 9(2):10-18.
32. Private non-farm Gross State Product estimated at \$46,074 in millions of current dollars for 1982. Minnesota Department of Finance, 29 September 1983.
33. Birely, Sue, "Finding the New Firm," Academy of Management Proceedings, 44th Annual Meetings, August 1984, pp. 64-68.
34. This section has benefited considerably from a discussion session sponsored by the University of Minnesota's Center for Urban and Regional Affairs, that included Thomas Anding, William Craig, William Rudelius, Thomas Scott, and Preston Townley. Their contributions are appreciated.
35. Attracting plants and subsidiaries of established firms

that are expanding is a separate issue unrelated to this research on new firms.

36. This may be the major reason the increasing contributions of producer services to jobs and exports has been obscured; hidden behind a generic "service" classification dominated by consumer service firms.
37. A recent report suggests that the largest fifteen venture capital firms in Minnesota supported a total of sixty-five new firms in 1984, Nina Shepherd, "Financing in Familiar Territory," Minnesota Business Journal, March 1985, pg. 23. It is not clear where the other 6,935 new firms initiated in 1984 obtained external financing.

MINNESOTA NEW FIRM STUDY

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UNIVERSITY OF MINNESOTA

APPENDIX A  
MINNESOTA NEW FIRM QUESTIONNAIRE

- This should be completed by a person that:
- Is active in the management of the firm.
  - Had a major responsibility for starting the firm.

Comments or suggestions are welcome. Write them anywhere or on the last page.

I - PRODUCTS/SERVICES

A. What is the major product or service provided by your firm?

B. What would you say is special about your products or services that gives you an advantage over your competitors?

C. In terms of your current sales, what are your principal products, product lines, or services:

DESCRIPTION OF SERVICE, PRODUCT, OR PRODUCT LINE	SALES MIX -- Percentage of 1983 Firm Income:	DOMESTIC EXPORTS - Percentage of Sales Outside Minnesota
1) _____	_____ %	_____ %
2) _____	_____ %	_____ %
3) _____	_____ %	_____ %
4) _____	_____ %	_____ %
5) _____	_____ %	_____ %
All Others	_____ %	_____ %
TOTAL (should equal)	100 %	

II - CHOICE OF LOCATION

A. When the business was started, was any location considered beside Minnesota?

Why start up in Minnesota?

B. Are you considering moving to another state?

Why?

C. Is your firm considering expanding in another state (outside Minnesota)?

Why?

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III - INVENTORY OF OPERATING ISSUES

Which of the following problems have been important?

For each item, please indicate:  
 o Current status.  
 o Year first recognized.

[Please circle responses and write in the year.]

A. PRODUCTS AND MARKETS

	PROBLEM SEVERITY	YEAR
	Does Not Apply	PROBLEM
	: : Never a Problem	FIRST
	: : : Minor Problem	RECOG-
	: : : Major	NIZED
	: : : Problem	
	: : : :	
1) Understanding industry trends	0 1 2 3	_____
2) Analyzing competition, competitors	0 1 2 3	_____
3) Finding new or follow on products/services	0 1 2 3	_____
4) Lack of after-sale support to customers/clients	0 1 2 3	_____
5) Understanding and assessing customer needs	0 1 2 3	_____
6) Effective selling techniques	0 1 2 3	_____
7) Writing advertising copy, selecting media	0 1 2 3	_____
8) Providing customer service/follow-up	0 1 2 3	_____
9) Pricing products/services	0 1 2 3	_____
Other Product/Service or Market (please list):		
10) _____	0 1 2 3	_____
11) _____	0 1 2 3	_____

B. TECHNOLOGY/SCHEDULING

1) Finding competitive advantages	0 1 2 3	_____
2) Delivering on time, within budget	0 1 2 3	_____
3) Subcontracting work	0 1 2 3	_____
4) Locating technological, professional expertise	0 1 2 3	_____
Other Technology/Scheduling (please list):		
5) _____	0 1 2 3	_____
6) _____	0 1 2 3	_____

[Please circle your responses and write in the year.]

PROBLEM SEVERITY  
 Does Not Apply  
 : : Never a Problem  
 : : : Minor Problem  
 : : : Major  
 : : : Problem  
 : : : :  
 YEAR  
 PROBLEM  
 FIRST  
 RECOG  
 NIZED

C. MANAGEMENT/ORGANIZATIONAL

1) Selecting your Board of Directors	0 1 2 3	_____
2) Selecting a lawyer	0 1 2 3	_____
3) Selecting an accountant	0 1 2 3	_____
4) Selecting personnel	0 1 2 3	_____
5) Motivating/compensating personnel	0 1 2 3	_____
6) Coordinating tasks among personal/work units	0 1 2 3	_____
7) Writing a business plan	0 1 2 3	_____
8) Using/updating the business plan	0 1 2 3	_____
9) Setting goals/priorities for personnel	0 1 2 3	_____
10) Measuring performance against plans	0 1 2 3	_____
11) Staff resistance to new processes or products	0 1 2 3	_____
12) Lack understanding on how to implement goals	0 1 2 3	_____
13) Lack of clarity of goals/plans	0 1 2 3	_____
14) Finding qualified employees	0 1 2 3	_____
15) Finding qualified technical, professional staff	0 1 2 3	_____
16) Finding qualified managers executives	0 1 2 3	_____
Other Management/Organizational (please list):		
17) _____	0 1 2 3	_____
18) _____	0 1 2 3	_____

[Please circle your responses and write in the year.]

PROBLEM SEVERITY	YEAR
Does Not Apply	PROBLEM
: Never a Problem	FIRST
: : Minor Problem	RECOG-
: : : Major	NIZED
: : : Problem	
: : : :	

D. FINANCIAL

- |  |         |       |
|--|---------|-------|
| 1) Obtaining equity funding                        | 0 1 2 3 | _____ |
| 2) Obtaining debt financing/banking relationships  | 0 1 2 3 | _____ |
| 3) Choosing an accounting and control system       | 0 1 2 3 | _____ |
| 4) Managing capital/cash flow                      | 0 1 2 3 | _____ |
| 5) Collecting accounts receivable                  | 0 1 2 3 | _____ |
| 6) Securing adequate financing to operate the firm | 0 1 2 3 | _____ |
| Other Financial (please list):                     |         |       |
| 7) _____   | 0 1 2 3 | _____ |

- 
- 1) When did major investments of time and resources devoted to the development of this company first start? \_\_\_\_\_ (mth) \_\_\_\_\_ (yr)
  - 2) When did the firm receive its first major outside funding, such as the first major bank loan, private placement of stock, public offering of stock, etc? \_\_\_\_\_ (mth) \_\_\_\_\_ (yr)
  - 3) Before receiving major outside funding, or until now if there has not yet been outside funding, how much had been invested in the new company (including salaries foregone)? \$ \_\_\_\_\_
  - 4) About how much of these "pre-outside financing" funds came from each of the following sources:
 

a) Personal Savings	_____	\$
b) Relatives and other kin	_____	\$
c) Friends	_____	\$
d) Salaries foregone by entrepreneurs	_____	\$
e) Credit from suppliers	_____	\$
f) Other (please list):	_____	\$
_____	_____	\$
_____	_____	\$
- Total should equal 100 \$

IV - ASSESSMENT OF YOUR FIRM

Circle One Number for Each Item

- |  |               |   |   |   |   |                  |
|--|---------------|---|---|---|---|------------------|
| A. AT THE PRESENT TIME, TO WHAT DEGREE DO COMPANY MANAGEMENT, YOU AND OTHER TOP EXECUTIVES . . . | VERY MUCH     |   |   |   |   |                  |
|  | : QUITE A BIT |   |   |   |   |                  |
|  | : : SOMEWHAT  |   |   |   |   |                  |
|  | : : : LITTLE  |   |   |   |   |                  |
|  | : : : : MORE  |   |   |   |   |                  |
|  |               |   |   |   |   | CAN NOT EVALUATE |
| 1) Clearly know your industry and market?  | 1             | 2 | 3 | 4 | 5 | 9                |
| 2) Have technical experience in key areas?   | 1             | 2 | 3 | 4 | 5 | 9                |
| 3) Have sufficiently well-rounded business experience?   | 1             | 2 | 3 | 4 | 5 | 9                |
| 4) Have willingness to take necessary risks?   | 1             | 2 | 3 | 4 | 5 | 9                |
| 5) Display high levels of energy and motivation?   | 1             | 2 | 3 | 4 | 5 | 9                |
| 6) Have close customer contacts?   | 1             | 2 | 3 | 4 | 5 | 9                |
| 7) Have formal written business and marketing plans?   | 1             | 2 | 3 | 4 | 5 | 9                |
| 8) Regularly use, modify, and update plans?  | 1             | 2 | 3 | 4 | 5 | 9                |
| 9) Set goals, priorities and follow up to ensure they are attained?                              | 1             | 2 | 3 | 4 | 5 | 9                |
| 10) Accurately forecast operational results?   | 1             | 2 | 3 | 4 | 5 | 9                |
| 11) Communicate goals and priorities to all company personnel?                                   | 1             | 2 | 3 | 4 | 5 | 9                |
| 12) Work together as a cohesive team?  | 1             | 2 | 3 | 4 | 5 | 9                |

Circle One Number for Each Item

	VERY MUCH	QUITE A BIT	SOMEWHAT	LITTLE	NONE	CAN NOT EVALUATE
R. IN TERMS OF PRODUCTS AND MARKETING, HOW MUCH DOES YOUR COMPANY . . .						
1) Have a clear market niche for its products and services?	1	2	3	4	5	9
2) Provide quality products and services?	1	2	3	4	5	9
3) Demonstrate ability to reach markets through its marketing/advertising activities?	1	2	3	4	5	9
4) Aggressively sell its products and services?	1	2	3	4	5	9
5) Have products or services that have a clear competitive advantage?	1	2	3	4	5	9
6) Produce its products/services on time and within budget?	1	2	3	4	5	9
7) Have an active program of new product development?	1	2	3	4	5	9
C. IN TERMS OF FINANCE AND BUDGETS, HOW MUCH DOES YOUR COMPANY . . .						
1) Have a sound financial control system?	1	2	3	4	5	9
2) Generate adequate cash flows from sales?	1	2	3	4	5	9
3) Accurately forecast cash flow requirements?	1	2	3	4	5	9
4) Have a sound cash flow position?	1	2	3	4	5	9
5) Have strong support from the financial community of investors?	1	2	3	4	5	9
6) Face the next few years with certainty about its ability to survive?	1	2	3	4	5	9

V - EMPLOYMENT POLICY

A. Have you ever had any employees? (Circle one) No SKIP TO THE NEXT PAGE  
Yes FILL OUT THIS PAGE

- B. Have there been occasions when, for company interests, your firm reduced its workforce by more than 10 percent?
- |  |   |                   |
|--|---|-------------------|
| 1) Never reduced workforce more than 10% | 1 | [Circle only one] |
| 2) Just once                             | 2 |                   |
| 3) Two or three times                    | 3 |                   |
| 4) Four or five times                    | 4 |                   |
| 5) Six or seven times                    | 5 |                   |
| 6) More than seven workforce reductions  | 6 |                   |

- C. What is the largest workforce reduction your company has made?
- |                                |   |                   |
|--------------------------------|---|-------------------|
| 1) Never reduced workforce     | 1 | [Circle only one] |
| 2) Less than 10%               | 2 |                   |
| 3) Between 10% and 25%         | 3 |                   |
| 4) More than 25% less than 50% | 4 |                   |
| 5) Between 50% and 75%         | 5 |                   |
| 6) Over 75%                    | 6 |                   |

D. Please respond to the following statements regarding your company's employment policies.

	CIRCLE ONE NUMBER FOR EACH.				
	STRONGLY DISAGREE	DISAGREE	BALANCED	AGREE	STRONGLY AGREE
1) The decision to hire workers is made only after we are convinced we can offer secure employment.	1	2	3	4	5
2) Flexibility of employment is very important, even if it means that we use temporary or part-time workers.	1	2	3	4	5
3) In this company full-time employment is like being part of a family, once hired job security is guaranteed.	1	2	3	4	5
4) It is better to be safe than sorry in hiring, consequently we screen workers very carefully.	1	2	3	4	5
5) The success of the firm is everything. Workers and jobs are definitely a secondary concern.	1	2	3	4	5
6) We maximize the "fit" between person and job, even if it means a certain amount of worker turnover.	1	2	3	4	5

VI - SALES, FINANCIAL HISTORY

A. When did the firm receive its first income? \_\_\_\_\_ (mth) \_\_\_\_\_ (yr)

D. Please provide a sales, asset history for the company:  
(Approximate figures are acceptable. These will be STRICTLY CONFIDENTIAL.)

	ANNUAL TOTAL SALES	Percentage of Sales to Customers			YEAR-END TOTAL NET ASSET VALUE
		WITHIN Minnesota	EXPORTED to rest of U.S.	EXPORTED outside the U.S.	
1984 (Expected)	\$ _____	_____ %	_____ %	_____ %	\$ _____
1981	\$ _____	_____ %	_____ %	_____ %	\$ _____
1982	\$ _____	_____ %	_____ %	_____ %	\$ _____
1981	\$ _____	_____ %	_____ %	_____ %	\$ _____
1980	\$ _____	_____ %	_____ %	_____ %	\$ _____
1979	\$ _____	_____ %	_____ %	_____ %	\$ _____
1978	\$ _____	_____ %	_____ %	_____ %	\$ _____
Pre 1977 (Average)	\$ _____	_____ %	_____ %	_____ %	\$ _____

C. Our return on sales (net income after taxes divided by our company's total receipts) has been:

[CIRCLE ONE NUMBER FOR EVERY RELEVANT YEAR]

	1975	1976	1977	1978	1979	1980	1981	1982	1983
We suffered a net loss	0	0	0	0	0	0	0	0	0
0 - 4%	1	1	1	1	1	1	1	1	1
5 - 8	2	2	2	2	2	2	2	2	2
8 - 12	3	3	3	3	3	3	3	3	3
12 - 16	4	4	4	4	4	4	4	4	4
More than 16%	5	5	5	5	5	5	5	5	5
Confidential	7	7	7	7	7	7	7	7	7
Don't know	8	8	8	8	8	8	8	8	8

D. In the last three years (or since starting the business if less than three years old) our average annual growth in profits (net income after taxes) has been about: \_\_\_\_\_ %

E. Last fiscal year our return on stockholder equity was about: \_\_\_\_\_ %

VII - OPERATING STRUCTURE, CENSUS OF EMPLOYEES

A. For each job category, please indicate:  
 • the total involved when the firm started,  
 • the total now with the firm,  
 • the number now part-time (less than 35 hours per week), and  
 • how many of those now involved moved to Minnesota for this opportunity.

	Number Involved after 1st year	Number Involved in 1984	Number Part-time (-35 h/w) For this Job year	Number that Moved to MN
1. Executives/Administrators/ Supervisors	_____	_____	_____	_____
2. Staff Professionals (Engineers, Accountants, Lawyers, Researchers)	_____	_____	_____	_____
3. Office Workers: Skilled	_____	_____	_____	_____
4. Office Workers: Unskilled	_____	_____	_____	_____
5. Skilled Craftsman	_____	_____	_____	_____
6. Operatives	_____	_____	_____	_____
7. Unskilled blue collar	_____	_____	_____	_____
8. Other	_____	_____	_____	_____
TOTAL FOR FIRM	_____	_____	_____	_____

B. How many, by job category, work in the following functional areas?

	Executives/ Adm'tors/ Supervisors	Staff Profess'ls	Office W'krs Skilled & Unskilled	Craftsmen/ Operatives/ Unskilled
[For split responsibilities please use fractions.]				
1) Product Development/ R&D/Engineering	_____	_____	_____	_____
2) Product Manufacturing/ Service Delivery	_____	_____	_____	_____
3) Finance/Administration/ Planning	_____	_____	_____	_____
4) Marketing/Sales	_____	_____	_____	_____
5) Personnel/Employee Relations	_____	_____	_____	_____
6) Other	_____	_____	_____	_____
TOTAL FOR FIRM	_____	_____	_____	_____



COMMENTS

Do you have any further comments on the problems of establishing a new firm in Minnesota? Suggestions on comments on the questionnaire?

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If you would like a copy of the summary of the findings on this project, please write "copy of results requested" on the back of the return envelope and print your name and address below it.

WHEN YOU HAVE COMPLETED THE QUESTIONNAIRE,  
PLEASE MAIL IT BACK IN THE STAMPED, ADDRESSED ENVELOPE.

If no envelope is available, please return to:

Minnesota New Firm Study; Center for Urban and Regional Affairs (CURA);  
University of Minnesota; 1927 South 5th Street; Minneapolis, MN 55454

• Thank You •

APPENDIX B

SPECIALITIES OF SAMPLE FIRM BY INDUSTRY SECTOR

AGRICULTURAL NEW FIRMS BY EMPHASIS

<u>Num- ber</u>	<u>SIC Code</u>	<u>Speciality</u>
1	213	Production or feeding of hogs
2	781	Landscaping and horticultural services

CONSTRUCTION NEW FIRMS BY EMPHASIS

<u>Num- ber</u>	<u>SIC Code</u>	<u>Speciality</u>
1	1081	Metal mining services
31	1521	General contractor: single family homes
3	1522	General contractor: residential other than single family homes
1	1531	Operative builders of single family homes
1	1541	General contractors: industrial and warehouse
3	1542	General contractors: non-residential other than industrial or warehouse
3	1611	Highway and street contractors, excepted elevated highway
1	1622	Bridge, tunnel, and elevated highway construction
1	1623	General construction of pipelines, communication, and power lines
2	1629	Heavy construction, n.e.c.*
14	1711	Plumbing, heating and air conditioning contractor
2	1721	Painting, paperhanging, and decorating contractor
17	1731	Electrical work
3	1741	Masonry and other stonework contractor
4	1742	Plastering, drywall, and insulation contractor
4	1751	Carpentering
3	1761	Roofing and sheet metal contractor
1	1771	Concrete work
2	1791	Structural steel erection
5	1794	Excavating and foundation work
2	1796	Installing building equipment, n.e.c.*
5	1799	Special trade contractors, n.e.c.*

\* n.e.c. = not elsewhere classified.

MANUFACTURING NEW FIRMS BY EMPHASIS

<u>Num- ber</u>	<u>SIC Code</u>	<u>Speciality</u>
2	2011	Meat packing plants
1	2038	Fruits and vegetables: frozen specialities
2	2065	Confectionery products
2	2261	Finishing goods, cotton textiles
1	2262	Finishers of broad woven fabrics of man-made fibers and silk
1	2386	Manufacturing of leather and sheep-lined clothing
1	2393	Manufacturing of textile bags
2	2434	Manufacture of wood kitchen cabinets
1	2439	Manufacture of structural wood members, n.e.c.*
1	2499	Manufacture of miscellaneous wood products, n.e.c.*
3	2511	Manufacturing of wood household furniture
2	2521	Manufacturing of wood office furniture
1	2645	Manufacturing of die cut paper and board
1	2661	Building paper and board mills
2	2721	Periodicals: publishing, publishing and printing
1	2731	Book publishing
1	2741	Miscellaneous publishing, n.e.c.*
6	2751	Commercial printing, letter-press
8	2752	Commercial printing, lithographic
1	2771	Greeting card publishing
2	2791	Typesetting
1	2831	Biological products
1	2834	Pharmaceuticals preparation
1	2841	Soap and other detergents
1	2875	Agriculture fertilizer, mixing only
3	3079	Miscellaneous plastic products
2	3231	Products of purchased glass
1	3269	Pottery products, n.e.c.*
1	3272	Concrete products, n.e.c.*
1	3273	Ready-mixed concrete
1	3296	Mineral wool
1	3362	Brass, bronze, and copper foundries
1	3398	Metal heat treating

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\* n.e.c. = not elsewhere classified.

1	3412	Metal shipping barrels, drums, kegs, and pails
1	3423	Hand and edge tools, n.e.c.*
2	3444	Sheet metal work
1	3451	Screw machine products
1	3465	Automotive stampings
1	3479	Metal coatings and allied services
1	3484	Ordnance: small arms
1	3499	Fabricated metal products, n.e.c.*
1	3533	Oil field machinery
1	3535	Conveyors and conveying equipment
1	3541	Machine tools, metal cutting type
2	3544	Special dies, tools, jigs, and fixtures
1	3549	Metal working machinery, n.e.c.*
1	3559	Special industry machinery, n.e.c.*
1	3567	Industrial furnaces, ovens
1	3569	General industrial machinery, n.e.c.*
1	3581	Automatic merchandising machines
1	3585	Refrigeration and heating equipment
8	3599	Machinery, except electrical, n.e.c.*
1	3629	Special industrial apparatus, n.e.c.*
1	3652	Photographic records
2	3662	Radio and TV communication equipment
1	3679	Electronic components, n.e.c.*
1	3694	Engine electrical equipment
2	3713	Truck and bus bodies
1	3714	Motor vehicle parts and accessories
2	3823	Process control instruments
3	3841	Surgical and medical instruments
2	3843	Dental equipment and supplies
1	3851	Ophthalmic goods
1	3994	Morticians goods
1	3995	Burial caskets
1	3999	Manufacturing industries, n.e.c.*

DISTRIBUTIVE SERVICE NEW FIRMS BY EMPHASIS

<u>Num-</u> <u>ber</u>	<u>SIC</u> <u>Code</u>	<u>Speciality</u>
3	4212	Local trucking and draying, without storage
4	4213	Trucking, except local
1	4221	Farm products, warehousing and storage
3	4722	Passenger transportation and management
1	4899	Communication services, n.e.c.*

\* n.e.c. = not classified elsewhere.

2	4953	Refuse services
1	4961	Steam supply
1	5012	Wholesale: automobiles and other vehicles
6	5013	Wholesale: automobile parts and supplies
2	5023	Wholesale: home furnishings
2	5041	Wholesale: sporting and recreational goods
3	5051	Wholesale: metals service centers and offices
1	5052	Wholesale: coal and other materials and ores
5	5063	Wholesale: electrical apparatus and equipment
1	5065	Wholesale: electronic parts and equipment
4	5072	Wholesale: hardware
2	5074	Wholesale: plumbing and hydronic heating supplies
4	5075	Wholesale: warm air heating and air conditioning
1	5078	Wholesale: refrigeration equipment and supplies
15	5081	Wholesale: commercial machines and equipment
7	5083	Wholesale: farm machinery and equipment
5	5084	Wholesale: industrial machinery and equipment
1	5085	Wholesale: Industrial supplies
1	5086	Wholesale: machinery-professional equipment and supplies
1	5087	Wholesale: service establishment equipment
1	5088	Wholesale: transportation equipment and supplies
10	5099	Wholesale: miscellaneous durable goods, n.e.c.*
1	5111	Wholesale: printing and writing paper
3	5112	Wholesale: stationery supplies
1	5113	Wholesale: industrial and personal service paper
1	5122	Wholesale: drugs, proprietaries, and sundries
1	5133	Wholesale: piece goods
1	5136	Wholesale: men's clothing and furnishings
1	5141	Wholesale: groceries - general line
1	5147	Wholesale: groceries - meat and meat products
2	5149	Wholesale: groceries and related products, n.e.c.*
2	5153	Wholesale: grain
1	5154	Wholesale: livestock
3	5171	Wholesale: petroleum bulk stations and terminals
7	5191	Wholesale: farm supplies
10	5199	Wholesale: miscellaneous non-durable goods

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\* n.e.c. = not elsewhere classified.

PRODUCER SERVICE NEW FIRMS BY EMPHASIS

<u>Num- ber</u>	<u>SIC Code</u>	<u>Speciality</u>
1	6022	State banks, members of Federal Reserve System
1	6145	Licensed small loan lenders
1	6162	Mortgage bankers and loan correspondents
2	6281	Services allied with exchange of securities or commodities
1	6361	Title insurance
2	6411	Insurance agents, brokers and service
4	6512	Operators of non-residential buildings
7	6513	Operators of apartment buildings
1	6514	Operators of dwellings not apartment buildings
3	6531	Real estate agents and managers
3	6552	Subdividers and developers, n.e.c.*
1	6793	Commodity trading companies
1	6799	Investors, n.e.c.*
8	7311	Advertising agencies
3	7331	Direct mail advertising services
6	7333	Commercial photography and art
4	7349	Building maintenance services, n.e.c.*
2	7361	Employment agencies
3	7372	Computer programming and software
1	7374	Data processing services
3	7379	Computer related services, n.e.c.*
2	7391	Research and development laboratories
14	7392	Management and public relations
1	7393	Detective and protective services
1	7394	Equipment rental and leasing
14	7399	Business services, n.e.c.*
1	8111	Legal services
2	8351	Child day care services
1	8361	Residential care social services
6	8911	Engineering and architectural services
2	8931	Accounting, auditing, and bookkeeping

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\* n.e.c. = not elsewhere classified.

RETAIL NEW FIRMS BY EMPHASIS

<u>Num- ber</u>	<u>SIC Code</u>	<u>Speciality</u>
3	5211	Lumber and other building materials
2	5231	Paint, glass and wallpaper
6	5251	Hardware stores
1	5261	Retail nurseries and garden stores
1	5311	Department stores
1	5399	Miscellaneous general merchandise
2	5411	Grocery stores
1	5441	Candy, nut, and confectionery store
1	5511	New and used car dealer
1	5521	Used car dealer
2	5531	Auto and home supply store
3	5541	Gasoline service stations
1	5611	Men and boy's clothing and accessories
5	5621	Women's ready to wear
2	5641	Children's and infants' wear
2	5651	Family clothing
1	5661	Shoe store
1	5699	Miscellaneous apparel and accessories
1	5712	Furniture stores
3	5719	Miscellaneous home furnishings
2	5732	Radio and TV stores
1	5735	Music store: instruments, sheet music, etc.
14	5812	Eating places
5	5813	Drinking places
1	5912	Drug and proprietary
1	5931	Used merchandise stores
5	5941	Sports goods and bicycle shops
1	5944	Jewelry shops
1	5946	Camera and photographic supply store
6	5947	Gift, novelty, and souvenir shops
2	5949	Sewing, needlework, and piece good retail
1	5962	Non-store retail, merchandising machine opera- tions
5	5999	Miscellaneous retail stores, n.e.c.*

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\* n.e.c. = not elsewhere classified.

CONSUMER SERVICE NEW FIRMS BY EMPHASIS

<u>Num- ber</u>	<u>SIC Code</u>	<u>Speciality</u>
1	7011	Hotels, tourist courts, and motels
1	7211	Power laundries, family and commercial
1	7531	Top and body auto repair shops
6	7538	General automotive repair shops
1	7539	Automotive repair shops, n.e.c.*
2	7622	Radio and TV repair shops
2	7629	Electrical repair shops, n.e.c.*
6	7699	Repair shops, n.e.c.*
1	7993	Coin operated amusement devices
1	7997	Membership sports and recreation clubs
2	7999	Amusement and recreation, n.e.c.*

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\* n.e.c. = not elsewhere classified.



APPENDIX C  
 TRANSFORMATION OF DEPENDENT VARIABLES FOR  
 MULTIPLE REGRESSION

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		<u>Raw Data</u>	<u>Log (10)</u>
1984 sales (\$1,000)	Mode (most common value)	100.00	2.00
	Median (middle value)	250.00	2.30
	Mean (geometric average)	980.00	2.45
	Kurtosis ("peakedness")*	45.80	0.40
	Skewness ("asymmetry")#	6.23	0.22
1984 exports (\$1,000)	Mode	0.00	1.80
	Median	0.00	2.18
	Mean	318.00	2.15
	Kurtosis	115.00	0.02
	Skewness	9.70	-0.15
1984 jobs	Mode	2.00	0.30
	Median	5.45	0.70
	Mean	10.10	0.74
	Kurtosis	26.09	0.20
	Skewness	4.69	0.44

---

NOTES: \* Zero if equivalent to a normal distribution.  
 # Zero if symmetrical, as is the normal distribution.

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Appendix D

ESTIMATED RELIABILITIES AND INTERCORRELATIONS FOR  
STARTUP AND CURRENT STATUS DIMENSIONS

	STARTUP PROBLEMS				CURRENT STATUS			
	Personnel	Focus & Organiza- tion	Market- ing	Financial	Strategic Focus	Strategic Implemen- tation	Market- ing	Financial
Estimated Reliability	0.85	0.90	0.85	0.82	0.86	0.88	0.81	0.86
STARTUP PROBLEMS								
Personnel	1.00							
Focus, Organ'ional	0.56	1.00						
Marketing	0.39	0.42	1.00					
Financial	0.39	0.38	0.39	1.00				
CURRENT STATUS								
Strategic Focus	0.16	0.04	-0.04	0.06	1.00			
Strategic Implem'n	0.18	0.14	0.03	0.12	0.57	1.00		
Marketing	0.02	-0.06	-0.17	-0.08	0.51	0.37	1.00	
Financial	0.01	0.15	-0.15	-0.33	0.43	0.39	0.43	1.00

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Appendix E  
 DETAILS OF EXTRAPOLATION FROM SAMPLE DATA TO  
 POPULATION OF NEW FIRMS

Industry	DMI	Year Start								
	1979 Sample Firms (1)	Corr. Factor (2)	Full DMI Est.	Corr. Factor (3)	Expand to Popula- tion	1982 Sample firms (1)	Corr. Factor (2)	Full DMI Est.	Corr. Factor (3)	Expand to Popula- tion
<b>EMPLOYMENT</b>										
Agricul.	8.30	5.50	45.65	2.40	109.56	5.00	3.20	16.00	4.40	70.40
Manuf.	788.80	5.50	4338.40	1.60	6941.44	832.10	3.20	2662.72	1.90	5059.17
Oth. Ind.	633.50	5.50	3484.25	1.70	5923.23	300.90	3.20	962.88	2.30	2214.62
Trade	1147.30	5.50	6310.15	1.50	9465.23	420.00	3.20	1344.00	1.70	2284.80
Service	1452.10	5.50	7986.55	2.80	22362.34	521.40	3.20	1668.48	4.90	8175.55
Subtotal					44801.79					17804.54
<b>SALES (\$1,000)</b>										
Agricul.	1.00	5.50	5.50	2.40	13.20	.10	3.20	.32	4.40	1.41
Manuf.	39.80	5.50	218.90	1.60	352.24	78.70	3.20	251.84	1.90	478.50
Oth. Ind.	50.50	5.50	277.75	1.70	472.18	31.00	3.20	99.20	2.30	288.16
Trade	112.20	5.50	617.10	1.50	925.65	50.00	3.20	160.00	1.70	272.00
Service	103.40	5.50	568.70	2.80	1592.36	74.50	3.20	238.40	4.90	1168.16
Subtotal					\$ 3003.39					\$ 2148.22
Total 1984 Sales										\$ 5151.61
<b>EXPORTS (\$1,000)</b>										
Agricul.	.00	5.50	.00	2.40	.00	.00	3.20	.00	4.40	.00
Manuf.	14.60	5.50	80.30	1.60	128.48	43.50	3.20	139.20	1.90	264.48
Oth. Ind.	3.10	5.50	17.05	1.70	28.99	.50	3.20	1.60	2.30	3.68
Trade	37.80	5.50	207.90	1.50	311.85	5.50	3.20	17.60	1.70	29.92
Service	60.90	5.50	334.95	2.80	937.86	2.70	3.20	8.64	4.90	42.34
Subtotal					\$ 1407.18					\$ 340.42
Total 1984 Exports										\$ 1747.59

- NOTES: (1) Based on new file sample with corrections for undersampling of retail and consumer services.  
 (2) DMI provided a random sample of 1,000 1979 year start firms from 5,500; 1,000 1982 year start from 3,200 in their files.  
 (3) Based on estimates provided in Table 7 of David Birch and Susan MacCracken, "The Small Business Share of Job Creation: Lessons Learned from the Use of a Longitudinal File," Mimeo, 1984.