Characteristics of New or Expanding, Export-Oriented Firms in the Upper Great Plains

F. Larry Leistritz and Brenda L. Ekstrom

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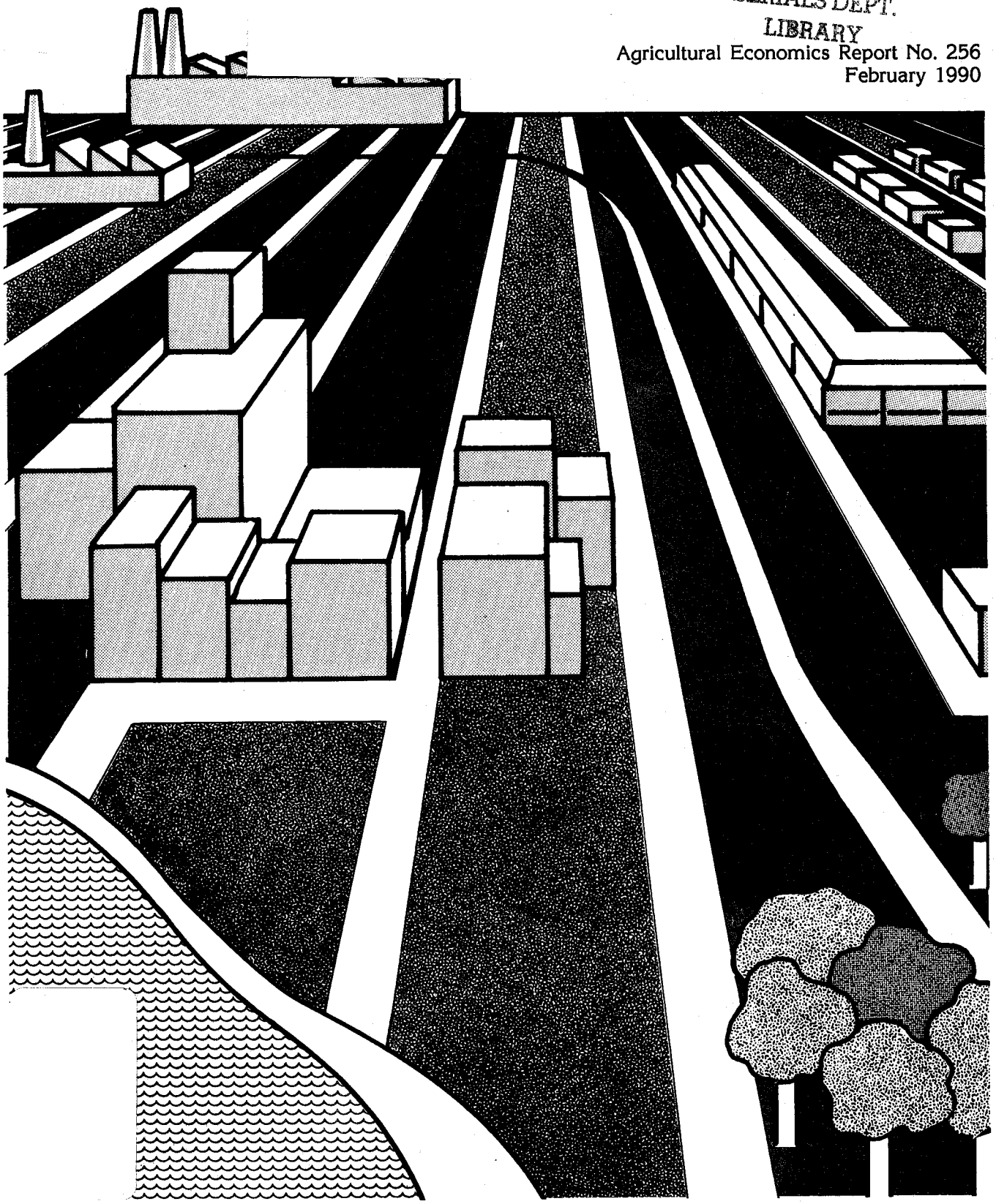

Department of Agricultural Economics ❧ Agricultural Experiment Station
North Dakota State University ❧ Fargo, ND 58105-5636

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Highlights

The purpose of this study was to identify new or growing export-oriented businesses and industries in the Upper Midwest and to determine both their economic contribution and factors critical to their location decisions. Only firms that (1) sell more than 10 percent of their product or service to out-of-state markets, and (2) either began operations since 1977 or expanded their work force by 10 percent or more since that time were included in the analysis. A total of 314 firms met these requirements and constitute the data base of this study. A mailed questionnaire was used to obtain information about each firm's current operations, its history, and the factors that were important in location, relocation, or expansion decisions.

Manufacturing firms made up more than 78 percent of the qualifying respondents. Total annual sales averaged about $8.5 million for all firms, $7 million for durable manufacturers, and $6.1 million for nondurable manufacturers. Median values, which may be more representative of the typical firm, were considerably smaller and ranged from $1.5 to $1.9 million for these three groups. About 65 percent of sales for all firms were made to out-of-state markets. Most of the respondents (56 percent) perceived no barriers to expanding out-of-state sales. Others stated that the expense of marketing and the difficulty of raising capital for expansion barred them from marketing more of their product out of state.

The average firm reported annual expenditures within the state of $3.8 million or 55 percent of its total outlays. Branch plants had a lower percentage of in-state purchases than other facilities (50 percent vs. 57 percent), but their total in-state expenditures per plant were much greater ($5.3 million vs. $3.4 million).

The firms included in the survey had created a total of 11,133 jobs in the last ten years, an average of 39 per firm. Of this total, expansion of existing firms accounted for 45 percent of the jobs, firms that relocated or opened new branches were responsible for about 33 percent, and new firms were credited with almost 23 percent. As a group, branch plants (including some that had been operating for more than ten years) accounted for 38 percent of the total employment growth in the last ten years. Among existing firms that had expanded, those with fewer than 20 employees ten years ago had accounted for only 26 percent of the total jobs created by this group.

Of the firms included in the study, about 25 percent had relocated to their present site. About 68 percent of these had moved from an out-of-state location, and 59 percent had relocated the entire company. Minnesota was the most frequent origin of relocating firms, and South Dakota the most frequent destination.

The ratings of different factors that might be important in making location decisions were generally similar among all types of firms. Work attitudes and labor productivity, the absence of a union, and existence of right to work laws were generally rated more highly than wage levels. Labor availability was viewed as a very important factor by about one-third of

the firms, and executive and professional personnel were often reported to be both hard to find locally and difficult to attract to the area. Motor freight service was substantially the most important transportation dimension. Proximity to customers was viewed by expanding firms as more important than close proximity to suppliers or to others in the industry, whereas new and relocating firms rated proximity to suppliers and raw materials as most important. About half of both groups of firms viewed the availability and cost of electricity as very important or critical to location decisions. Other utilities were less important.

Among the quality of life factors, personal tax burdens (all taxes combined) and the quality of schools were the most highly rated items. The overall state and local tax burden on business was rated as very important or critical by about two-thirds of the firms. Among individual taxes, most concern was expressed about worker's compensation and unemployment insurance followed by corporate income taxes and local property taxes.

Incentive and assistance programs, available land and buildings, and state business and regulatory climate also influence location decisions. Within this general category of factors, survey respondents gave the highest rating to the overall community attitude toward business development. The cost of property, the availability of local financing, and development incentives were identified as very important or critical factors by about half of the firms. Availability of suitable buildings was a very important or critical factor for the new and relocating firms. State incentives and the state regulatory climate also were important to many firms. When asked whether they would choose this community again, almost 78 percent responded affirmatively.

Firms that had begun operations since 1977 indicated about 30 percent of their start-up capital came from personal funds and almost 30 percent came from commercial loans. Only 37 percent of the commercial loans were from local institutions. The typical (median) firm reported that about $140,000 in initial capital was required to start their business.

Firms surveyed expected substantial growth in sales and employment. The typical firm planned for a 35-percent increase in sales and 23-percent growth in employment in the next five years. About 57 percent expected to expand their physical facilities during this period.

Most respondents viewed state and local government as neutral. Firms located in South Dakota had the most favorable attitude toward both state and local government. When asked how the situation could be improved, respondents indicated a need for greater awareness of the needs of existing businesses and for fairness in the use of financial incentives.

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The development of rational policy aimed at revitalizing rural America must recognize the changing economic structure of the country as a whole and how these changes influence potential sources of economic growth for rural areas. Recent analyses clearly indicate that the industries that have traditionally been the mainstays of the rural economy (e.g., agriculture, forestry, mining, and manufacturing) may not be major sources of future employment growth (Pulver 1988; Ekstrom and Leistritz 1988). Indeed, if the United States is to be competitive in an increasingly international economy, these industries will feel pressure to become even more efficient, which is likely to lead to even less employment in these sectors in the future. Rural areas seeking economic growth or revitalization will have to consider a wider range of export-oriented activities than the manufacturing branch plants that have been the focus of most previous economic development programs.

The need for economic revitalization is evident in many parts of rural America, but perhaps nowhere is that need more apparent than in the Upper Midwestern states. Because their economies are heavily dependent on agriculture and natural resources (e.g., mining), these states have experienced a severe economic downturn in the 1980s. Although the need for economic development is broadly accepted, state policymakers and local leaders often lack a clear understanding of which factors are most important in influencing firms' decisions to locate in one area rather than another. Indeed, information available to these decision makers is often contradictory and confusing. For example, some observers indicate that the key factors in location decisions are such traditional items as low state and local tax rates, low wage rates, and availability of nonunion labor (see, for example, Grant Thornton and Company 1988), but others contend that a "new economy" has emerged in the 1980s and that the conditions important to economic development have changed as well (The Corporation for Enterprise Development 1988). In fact, state and local leaders as well as concerned citizens have recently been confronted with the perplexing phenomenon that many states whose business climates were ranked most highly by one of the two major rating organizations received very low ratings from the other group (compare Grant Thornton and Company 1988 with The Corporation for Enterprise Development 1988).

Not only is there disagreement about the factors that are critical for economic development success in the 1980s, but there is also considerable controversy regarding the types of businesses that are responsible for most of the job creation that has occurred in recent years. Some analysts indicate that small independent businesses account for a very high percentage of job creation nationwide (Birch 1987, Birch 1979); therefore, the most promising avenue to a brighter economic future may be for states and communities to take measures to foster the creation of new firms and the retention and expansion of existing ones. Others, however, report that in nonmetropolitan areas small local firms created less than one-third of the new jobs during the period 1976-80 and that they were an unreliable employment source because many failed within the first five years (Miller 1985). Branch plants of large corporations created more than half of the new jobs in rural areas during this period, suggesting that branch

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*The authors are, respectively, professor and research associate, Department of Agricultural Economics, North Dakota State University, Fargo.

plant recruitment may still be a valuable economic development tool. (More recent work by the same author, however, indicates that during 1980-86 local independent firms survived better and grew faster than corporate affiliates in nonmetropolitan areas [Miller 1989].) A recent analysis of Midwestern counties that have been relatively successful in achieving economic growth in the 1980s indicates that both views may have a degree of validity (John et al. 1988). The study found that successful communities had combined traditional industrial recruitment with efforts to encourage new businesses.

Yet another important question concerns the economic contribution of different types of new industries. What is the local multiplier effect of different types of new industries? Without this information it is difficult for state and local leaders to determine the desirability of development alternatives or to make informed judgements about proposed incentive programs.

Objectives

The purpose of this study was to identify the types of new export-oriented businesses and industries that have provided additional employment opportunities in nonmetropolitan areas of the Upper Midwest in recent years and to determine the factors that have been pivotal in their location decisions. Specific objectives include

1. identifying firms that export a substantial portion of their products or services from the local area and that have accounted for significant employment growth during the last ten years;

2. determining what factors business proprietors and executives regard as central to their selection of a given region, state, and community as the site for their activities; and

3. determining the economic contributions of firms of different types in terms of numbers of jobs created and expenditures made within the regional economy.

The focus of this study was on nonmetropolitan areas and metropolitan areas of less than 250,000 population in North Dakota, South Dakota, and Nebraska. Omaha, Nebraska, was the only city excluded from this study. These states have the highest percentages of farm-dependent counties in the nation (Figure 1), and their rural areas have experienced significant economic problems during the 1980s as a result of slumps in agriculture, mining, and other resource-dependent activities.

Procedures

Two phases of data collection and analysis were undertaken to accomplish the objectives of the project. The first phase was to identify firms to survey. Identifying export-oriented firms that also had accounted for significant employment growth required information from a variety of sources. A survey of state departments of economic development and local economic development organizations and chambers of commerce in Nebraska, North Dakota, and South Dakota was conducted to identify new export-oriented firms that had accounted for substantial job creation. This survey was supplemented by a content analysis of newsletters

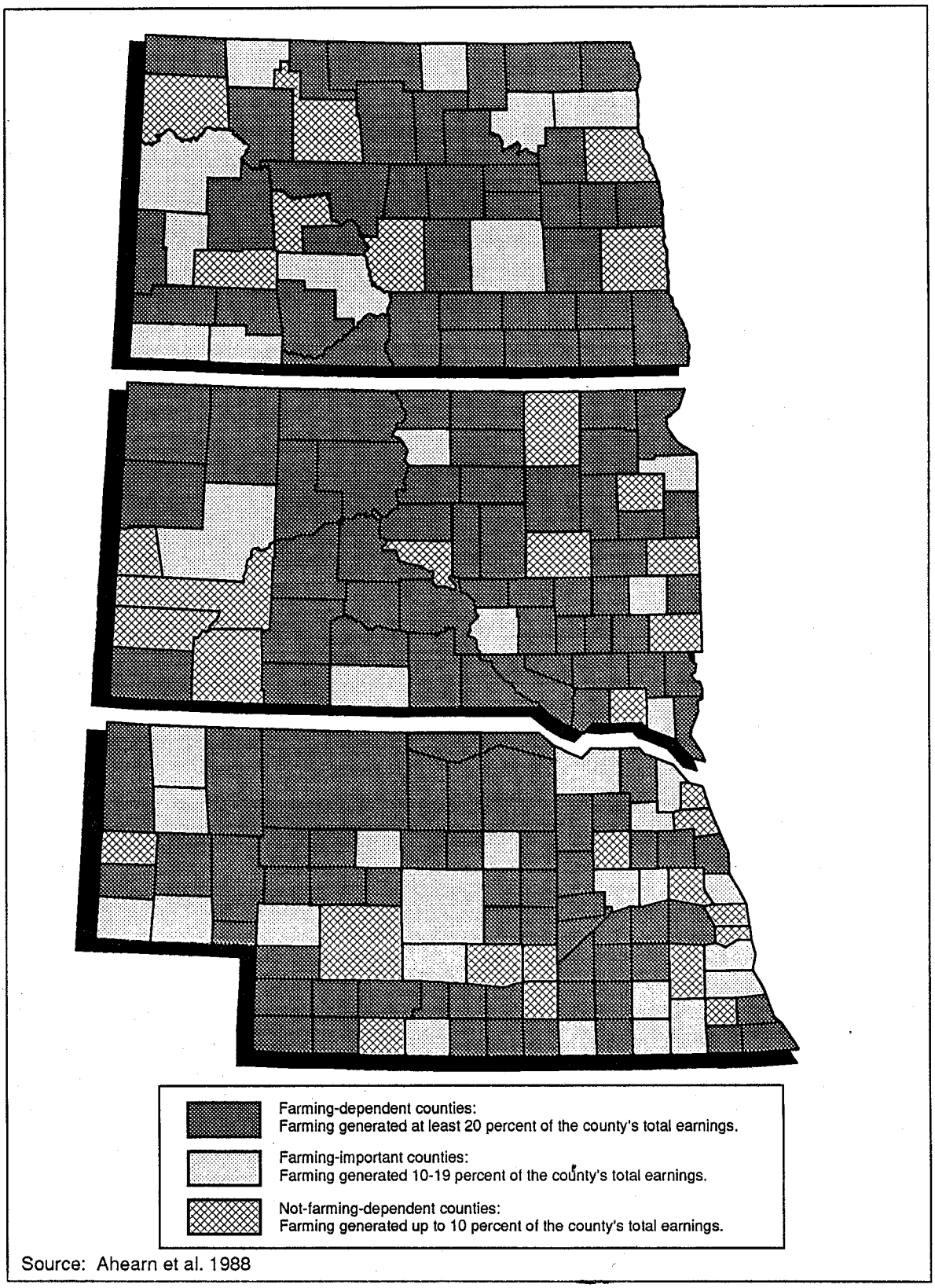


Figure 1. Agriculture-dependent counties in North Dakota, South Dakota, and Nebraska.

published by the state economic development offices of the respective states. In addition, the project team conducted a mail survey of firms listed in each state's Directory of Manufacturers. The short (postcard) questionnaire was designed to identify new or expanding firms. Throughout this phase of the study, the project team attempted to identify export-oriented service enterprises (e.g., business services, telemarketing, tourist-oriented businesses) as well as those engaged in more traditional manufacturing.

The second phase involved developing a comprehensive questionnaire (available upon request) that was mailed to officials responsible for making key location decisions for each firm. Initial telephone contacts identified the individual to whom the questionnaire should be sent and allowed our callers to explain the purpose and potential benefits of the study. Questionnaires were mailed to 921 firms in the three states. Of these, 534 (or 58 percent) returned questionnaires. However, in order to be included in the study, firms were required (1) to have sold more than 10 percent of their product or service to out-of-state markets and (2) to have begun operations or expanded their work force by more than 10 percent since 1977. When firms that failed to meet one or both of these criteria were excluded, a total of 314 firms remained. These firms constitute the data base for this analysis.

Results

Key findings from the survey are presented in the sections that follow. Results are presented for all firms and in many cases by major firm types, by relocation status of the facility, by expected employment growth of the facility, or by whether the facility is a branch or an independent entity.

General Characteristics

Some general attributes of the facilities are summarized in Table 1. The respondent facilities were relatively evenly distributed among the three states. Although some have indicated that service industries may have a growing role in rural economic development (Gillis 1987; Porterfield and Cox 1989), manufacturing firms dominated the sample, comprising more than 78 percent of the qualifying respondents.

Of the respondents, about 58 percent had begun operation at their present site (relocation or new start up) since 1977, and the remaining 42 percent had been in operation at their site prior to 1977 but had expanded their work force by at least 10 percent since that time. About 28 percent of the firms had begun operations since 1980, and another 26 percent had started during the period 1971-80 (Figure 2). When asked when they had begun operations at the current site, however, nearly half (49 percent) indicated that this had occurred since 1980, and another 28 percent had begun operations at the current site during the 1970s (Figure 3).

Local ownership predominated for these firms. On average, 69 percent of the businesses' equity was held within the local area (Figure 4).

TABLE 1. SELECTED CHARACTERISTICS OF RESPONDENT FACILITIES, UPPER MIDWEST STATES, 1989

Item	Value
	(percent)
State where facility is located:	
Nebraska	30.9
North Dakota	39.8
South Dakota	29.3
Primary product or service:	
Mining/construction[a]	2.3
Agri-products/sales[b]	8.3
Manufacturing, nondurable[c]	28.6
Manufacturing, durable[d]	50.3
Miscellaneous sales[e]	3.2
Miscellaneous services[f]	5.7
Total Annual Sales:	
Mean	$8,539,000
Median	$1,750,000
Distribution:	*(percent)*
$100,000 or less	5.7
$100,001 to 500,000	20.1
$500,001 to 1,000,000	13.3
$1,000,001 to 5,000,000	30.8
$5,000,001 to 10,000,000	11.8
$10,000,001 to 50,000,000	15.1
$50,000,001 or more	3.2
Percentage of expenditures to labor:	
Mean	27.8
Median	25.0
Distribution:	
20 percent or less	40.3
21 to 30	26.4
31 to 40	17.5
41 to 50	8.8
More than 50	7.0
Percentage of remaining expenditures made in state:	
Mean	38.2
Median	30.0
Distribution:	
10 percent or less	24.2
11 to 25	20.8
26 to 50	26.4
50 to 75	13.4
76 or more	15.2

[a]Gold processing, construction/repairs.
[b]Handling sales, grain/pellets, animal supplies, live animals, plants, food sales, grain dealers.
[c]Food processing, clothing products, wood products, furniture products, paper products, printing, film developing.
[d]Chemical products, rubber/plastic, concrete/stone, steel/metal products, farm equipment parts, electrical products, transport equipment, precision instruments, sporting equipment, tools--hydraulic, miscellaneous parts.
[e]Sales, hardware, auto supply, clothing, sporting.
[f]Vehicle repair, miscellaneous repairs, telemarketing, weld/machine service, miscellaneous service, truck services.

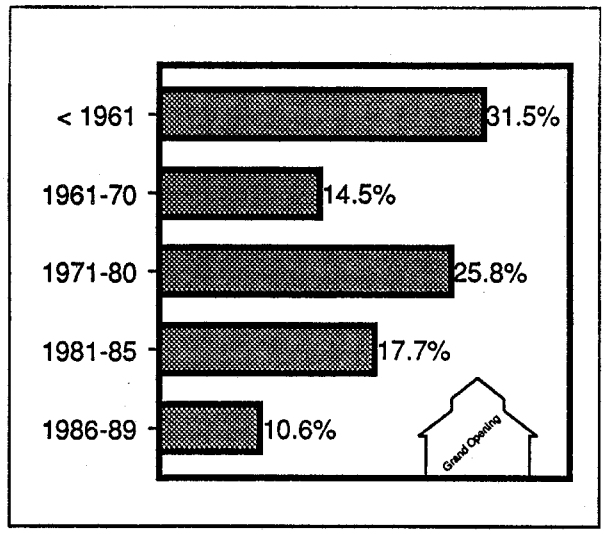


Figure 2. Year when company began operations, Upper Midwest firms (percent of respondents).

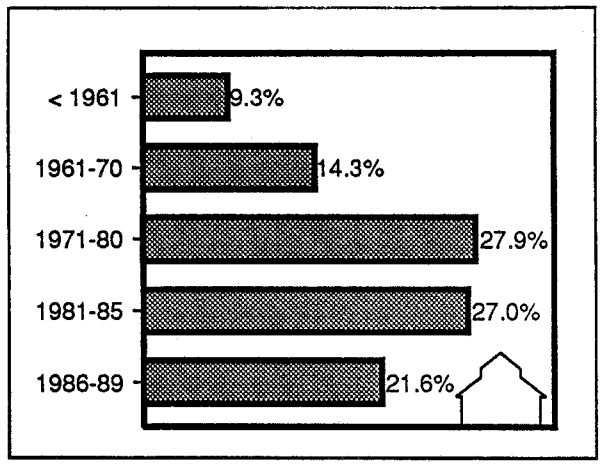


Figure 3. Year when company began operations at present site.

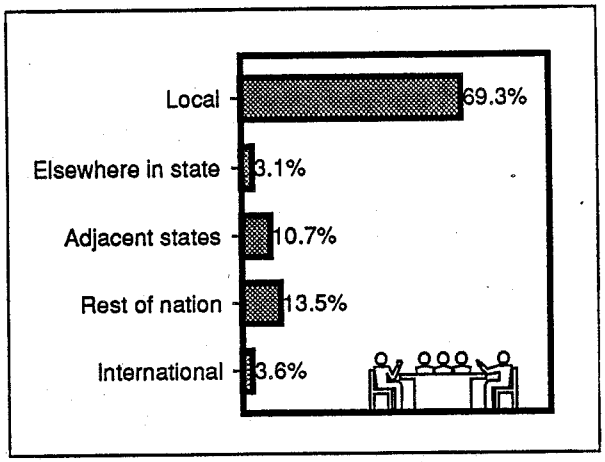


Figure 4. Location of ownership of Upper Midwest firms, 1989.

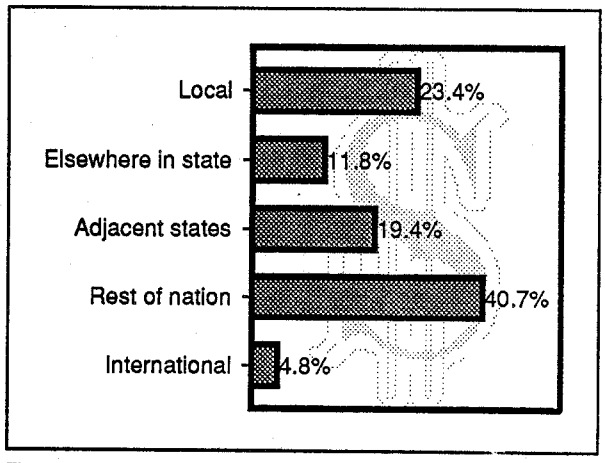


Figure 5. Destination of sales of Upper Midwest firms, 1989.

The firms had an average of about $8.5 million in total sales in their most recent accounting year (the median or midpoint value was $1.75 million). About 65 percent of these sales were made outside the state (Figure 5). When asked how they had developed their out-of-state markets, almost 73 percent indicated that they themselves had initiated contact with out-of-state customers (Figure 2). About 25 percent indicated that they had developed their out-of-state market prior to locating in the area, and about 24 percent indicated that referrals from local contacts had been important in developing their out-of-state business. These findings are similar to those of Porterfield and Cox (1989) with respect to export-oriented service firms.

The respondents were also asked about barriers they perceived to expanding their out-of-state sales. More than 56 percent indicated that there were no real barriers (Figure 6). Among those who reported constraints, the expense of marketing and difficulty financing expansion were the problems most frequently reported, followed by the fact that external markets were already well served by competitors.

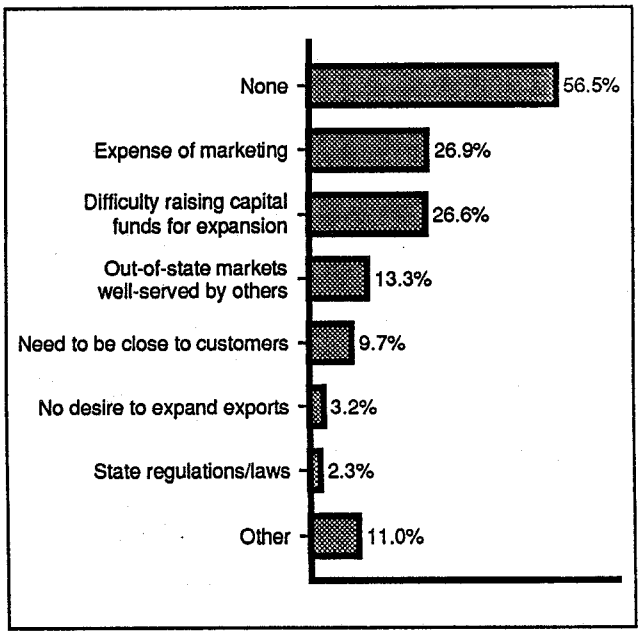


Figure 6. Perceived barriers to expanding out-of-state markets, Upper Midwest firms, 1989.

The respondent firms reported that on average about 28 percent of their total expenditures were made for labor. Of their remaining expenditures, about 38 percent were made within the state. When expenditures for labor were added to the other in-state outlays, the average firm had a total of about $3.8 million in payments within the state. When branch plants were compared to other facilities, branch plants were found to have a lower percentage of in-state purchases (50 percent of total expenditures vs. 57 percent), but their total in-state expenditures per plant were much greater ($5.3 million vs. $3.4 million).

When expenditure patterns are compared by the firm's age and location status, new firms (i.e., those that had begun operations since 1977) were found to have the highest percentage of in-state purchases (58 percent of their total sales) followed closely by existing firms that had expanded (57 percent). Firms that had relocated from out of state and out-of-state firms that had opened new branches in the state had the lowest percentage of expenditures in state (49 percent), but their in-state expenditures per firm were second only to those of the existing firms ($3.5 million vs. $5.1 million).

Comparison of in-state expenditures between the durable and nondurable manufacturing firms revealed that nondurable manufacturers made a much higher percentage of their expenditures within the state (63 percent vs. 50 percent). A likely explanation is that this group included a number of food processors that purchased substantial amounts of raw material within the state.

Attributes of the two groups of manufacturing firms are compared with those of all firms in Appendix Table 1. Also shown in this table are attributes of firms that projected employment growth of 20 percent or greater in the next five years and, conversely, those that expected less than 20 percent growth. The firms projecting rapid growth tended to be dominated by new or relocated enterprises; more than 43 percent had begun operations at their present location since 1980. The high-growth firms also had a higher percentage of local ownership (78 percent vs. 62 percent) and a higher percentage of out-of-state sales (70 percent vs. 57 percent). The high-growth firms tended to be smaller, however, with total sales averaging $7.3 million compared to $9.0 million. High-growth firms made a slightly higher percentage of their expenditures to labor, but the percentage of their other expenditures that were made in state was substantially less. These characteristics are also depicted in Figure 7.

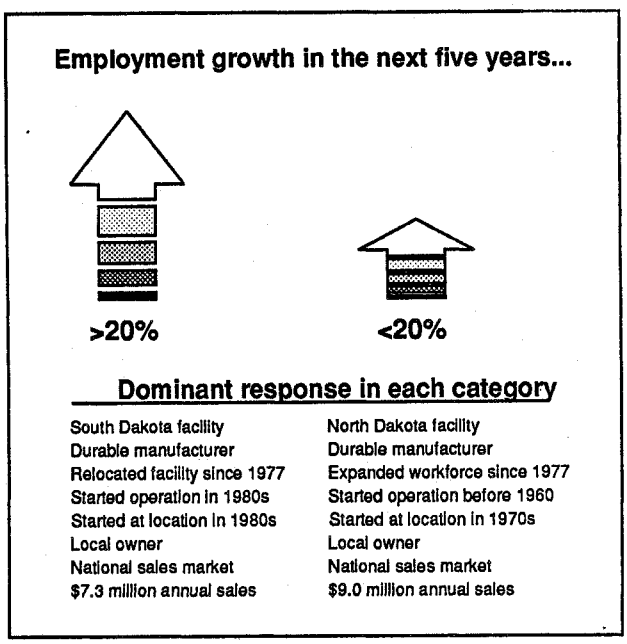


Figure 7. Characteristics of the majority of high- and low-growth-employment firms, Upper Midwest, 1989.

Another comparison was made between the characteristics of high technology manufacturers and other manufacturing firms (see Appendix Table 2). Of 236 manufacturing firms in the study, 41 (or about 17 percent) were classified as high-tech firms. (High-tech firms were classified using the definition developed by Smith and Barkley [1988].) The frequency of these firms was similar among the three states, and the high-tech firms tended to have higher sales volumes. The percentage of their total expenditures that was made to labor averaged higher than those of other manufacturers, but the percentage of their other expenditures made in state was lower. The high-tech firms had a somewhat smaller percentage of their equity (but still a majority) held locally, and they made a higher percentage of their sales outside the state and region. The high-tech firms had substantially larger work forces than the other manufacturers, they had experienced more rapid past growth in employment, and they anticipated more rapid future growth in employment and sales.

Employment

The average firm reported 57 full-time employees (Table 2). A few firms with large work forces affected the average substantially, however; the median value was 17.5. The firms surveyed had experienced substantial employment growth over the past few years. The average firm reported an 80-percent increase in full-time employees in the last five years and a 246-percent increase in the last ten years. Part-time employment also increased, on average, during this period with the percentage changes being similar to those for full-time employment.

TABLE 2. PREVIOUS AND CURRENT WORK FORCE CHARACTERISTICS OF RESPONDENT FACILITIES, UPPER MIDWEST STATES, 1989

Item	Value	Item	Value
Number currently employed full-time:	*(number)*	Percent change in full-time employment in last 5 years:[a]	*(number)*
Mean	57.3	Mean	+79.7
Median	17.5	Median	+50.0
Distribution:	*(percent)*		
0-5	17.8	Percent change in full-time employment in last 10 years:[a]	*(percent)*
6-10	16.8	Mean	+245.5
11-20	19.1	Median	+115.5
21-50	20.7		
51-100	11.0	Percent change in part-time employment in last 5 years:[a]	
More than 100	14.6	Mean	+83.1
Number currently employed part-time:	*(number)*	Median	+41.7
Mean	5.3		
Median	1.0	Percent change in part-time employment in last 10 years:[a]	
Distribution:	*(percent)*	Mean	+232.8
0-5	83.0	Median	+100.0
6-10	5.6		
11-50	9.8		
More than 50	1.6		

[a]Applies only to those firms that were in business five or ten years ago, respectively.

Operators and fabricators were the largest occupational category, followed by laborers and precision production crafts (Table 3). Women made up 31 percent of the work force. Nondurable manufacturers and firms that projected higher-than-average growth rates had a slightly smaller-than-average work force. Appendix Table 3 depicts the male-female composition of the work force for durable and nondurable manufacturers and for high- and low-employment-growth firms.

When the work force composition of branch plants was compared to that for other facilities, branches were found to have substantially smaller percentages of executive and managerial personnel and sales representatives but a much higher percentage of operators and fabricators (Table 4). This is consistent with the findings of Barkley et al. (1988) and Smith and Barkley (1988) who found that nonmetropolitan branch plants in the Western states had higher percentages of their employment in the less-skilled occupational categories.

When the work force composition of high-tech plants was compared to that of other manufacturers, high-tech plants were found to have higher percentages of professional specialties and other (not elsewhere classified) occupations; other manufacturers had higher percentages of executive or managerial personnel (Appendix Table 3). Women made up a much higher percentage of the work forces of the high-tech plants (44 percent vs. 29 percent).

TABLE 3. OCCUPATIONAL COMPOSITION OF WORK FORCE BY FIRM TYPE, UPPER MIDWEST STATES, 1989

Occupational Category	All Firms: Average Number Employed in 1988				Manufacturing Firms				Firms By Expected Employment Growth			
					Nondurable		Durable		High[a]		Low[b]	
	Men	Women	Total	Percent	No.	%	No.	%	No.	%	No.	%
Executive, administrative, or managerial	4.4	1.7	6.1	10.3	5.7	13.3	5.9	9.9	4.7	10.0	5.9	9.8
Professional specialty (i.e., engineers, scientists, computer programmers, accountants, architects, physicians, etc.)	2.5	0.9	3.4	5.7	1.8	4.2	2.9	4.9	3.3	7.0	2.6	4.3
Sales Representatives	2.6	0.4	3.0	5.1	2.1	4.9	3.5	5.9	2.2	4.7	3.7	6.2
Clerical workers (i.e., secretaries, typists, stenographers, word processor specialists).	0.9	3.7	4.6	7.8	3.1	7.2	4.2	7.0	3.0	6.4	4.4	7.3
Precision production craft, and repair (i.e., mechanics, repairers, machinists and metal craftsmen, construction craftsmen, etc.)	6.9	1.3	8.2	13.8	3.3	7.7	7.2	12.1	9.8	20.9	6.0	10.0
Operators, fabricator (i.e., machine operators, assemblers, inspectors, truck drivers, material handlers)	16.2	7.4	23.6	39.9	16.9	39.5	26.0	43.7	14.8	31.6	28.3	47.2
Laborers	5.9	2.9	8.8	14.9	9.3	21.8	8.1	13.6	7.8	16.6	8.4	14.0
Other: Not elsewhere categorized	1.2	0.3	1.5	2.5	0.6	1.4	1.7	2.9	1.3	2.8	0.7	1.2
Total	40.6	18.6	59.2	100.0	42.8	100.0	59.5	100.0	46.9	100.0	60.0	100.0

[a]Firms with expected employment growth in next five years of greater than 20 percent.
[b]Firms with expected employment growth in next five years of less than 20 percent.

TABLE 4. CHARACTERISTICS OF EMPLOYEES, BRANCHES VERSUS OTHER FACILITIES, UPPER MIDWEST STATES, 1989

Occupational Category	Branch Facilities: Average Number Employed in 1988 Men	Branch Facilities: Average Number Employed in 1988 Women	Branch Facilities: Percent of Work Force	Other Facilities: Average Number Employed in 1988 Men	Other Facilities: Average Number Employed in 1988 Women	Other Facilities: Percent of Work Force
Executive, administrative, or managerial	4.7	2.5	8.2	3.8	1.4	11.1
Professional specialty (i.e., engineers, scientists, computer programmers, accountants, architects, physicians, etc.)	3.0	1.2	4.8	1.9	0.7	5.5
Sales Representatives	1.2	0.3	1.7	3.0	0.4	7.2
Clerical workers (i.e., secretaries, typists, stenographers, word processor specialists).	1.7	5.3	8.0	0.7	3.0	7.9
Precision production craft, and repair (i.e., mechanics, repairers, machinists and metal craftsmen, construction craftsmen, etc.)	7.4	1.0	9.6	6.4	1.4	16.6
Operators, fabricators (i.e., machine operators, assemblers, inspectors, truck drivers, material handlers)	26.0	20.0	52.6	11.7	3.9	33.3
Laborers	7.0	4.7	13.4	5.2	2.4	16.2
Other: Not elsewhere categorized	1.2	0.3	1.7	0.8	0.2	2.1
Total	52.2	35.3	100.0	33.5	13.4	100.0

Survey respondents also were asked about their minimum requirements and recruiting efforts for new employees. Some postsecondary education was typically required for executive and professional positions, but a high school diploma was often deemed sufficient for clerical workers and operators or fabricators (Table 5). Prior work experience was most often required for sales representatives, operators or fabricators, and executives. The respondents believed it was most difficult to locally recruit qualified employees for professional, executive, and sales positions. About half the respondents reported it was also difficult to attract executive and professional candidates to their geographical area.

TABLE 5. CHARACTERISTICS OF EMPLOYEES, ALL RESPONDENT FACILITIES, UPPER MIDWEST STATES, 1989

Occupational Category	Minimum Requirements for New Employees: Prior work experience	Some high school	High school diploma	Some college/ tech. training	College degree or more	Prior work only	No requirements	Difficulty Finding Employees Locally: Mean Score[a]	Difficulty Finding Employees Locally: DIFF[b]	Difficulty Attracting Employees to Area: Mean Score[a]	Difficulty Attracting Employees to Area: DIFF[b]
	percent yes								*(percent)*		*(percent)*
Executive, administrative, or managerial	51.6	1.4	16.0	36.9	36.2	7.3	2.1	3.5	52.9	3.4	49.2
Professional specialty (i.e., engineers, scientists, computer programmers, accountants, architects, physicians, etc.)	39.4	0	7.3	35.2	50.9	6.1	0.6	3.5	55.0	3.3	47.6
Sales Representatives	61.1	2.3	24.0	41.1	10.9	19.4	2.3	3.2	39.6	3.2	33.1
Clerical workers (i.e., secretaries, typists, stenographers, word processor specialists)	42.9	3.4	48.7	36.1	1.7	5.0	5.0	2.3	38.2	2.6	17.6
Precision production craft, and repair (i.e., mechanics, repairers, machinists and metal craftsmen, construction craftsmen, etc.)	50.5	4.2	28.0	42.1	2.3	14.5	8.9	3.2	40.9	3.2	36.3
Operators, fabricators (i.e., machine operators, assemblers, inspectors, truck drivers, material handlers)	52.0	18.9	44.4	9.9	1.3	19.7	10.8	2.6	17.2	2.7	18.8
Laborers	41.0	21.9	37.1	1.7	--[c]	20.8	18.5	2.2	34.8	2.4	11.2
Other: Not elsewhere classified	59.3	11.1	33.3	25.9	7.4	18.5	3.7	2.5	28.6	2.8	28.0

[a]Based on a scale from 1 (very easy) to 5 (very difficult).
[b]DIFF=Percent difficult or very difficult.
[c]This choice was not listed for laborers.

When the requirements for new employees were compared between high-tech manufacturers and others, the high-tech firms were more likely to require post-high school education for executive positions and professional specialties but less likely to require such training for clerical workers (Appendix Table 4). The requirements for other job categories were quite similar.

The survey findings also shed some light on a major current issue in rural development policy--the role of different types of firms in generating new jobs. Of the firms that answered the employment questions, 72 had relocated or opened a new branch at the present site, 97 were new firms that had begun operations since 1977, and 118 were firms that had been in operation at the site prior to 1977 but had expanded their employment by 10 percent or more since that time (Table 6). These firms had accounted for a total employment growth of 6,899 jobs in the last five years and 11,133 jobs in the last ten years. Considering the jobs created over the past ten years, expansions of existing firms accounted for 45 percent of the total, and new firms were responsible for almost 23 percent (Table 6). The relocating firms, however, also accounted for a substantial percentage of the new jobs (33 percent), and out-of-state relocations generated the largest number of jobs per facility. Branch plants accounted for 38 percent of the total employment growth over the past ten years (36 percent in the last five years).

TABLE 6. NET EMPLOYMENT CHANGE OVER THE LAST FIVE AND TEN YEARS BY FIRM TYPE, UPPER MIDWEST STATES, 1989

Type of Firms:	Number of Firms	Net Employment Change				
		Last 5 Years		Last 10 Years		
		No.	% of Total	No.	% of Total	Avg. Jobs Created Per Firm
Relocated in state	23	375	5.4	535	4.8	23.3
Relocated from out-of-state	49	1,939	28.1	3,107	27.9	63.4
New firms since 1977	97	1,647	23.8	2,534	22.8	26.1
Existing firm that expanded work force by at least 10%	118	2,938	42.6	4,957	44.5	42.0
Had 20 or fewer employees 10 yrs. ago	70	-	-	1,281	25.8	18.3
Had more than 20 employees 10 yrs. ago	47	-	-	3,676	74.2	78.2
Total	287	6,899	100.0	11,133	100.0	38.8

Some authors have indicated that small firms (often defined as having 20 or fewer employees) and new, start-up firms have been creating most of the new jobs in the American economy in recent years (Birch 1987). This relationship did not hold true within this sample of export-oriented firms. Firms that had been in existence ten years prior to the survey and had fewer than 20 employees at that time had created 1,281 jobs (26 percent of the total or 18.3 jobs per firm), but those with more than 20 employees had created 3,676 jobs (74 percent of the total or 78.2 jobs per firm). If all new firms are grouped together with the small existing firms that had fewer than 20 employees ten years ago, then this group created 44 percent of the total jobs created by all firms over the past ten years.

Location of Business

The respondents also provided information about the present location of their business and reasons for locating or relocating there. About 28 percent of the firms were located in industrial parks (Table 7). About 25 percent of all firms had relocated; 68 percent of these moved from an out-of-state location. Minnesota was the state of origin for most relocating firms, and about two-thirds of these moved to South Dakota versus North Dakota (Figure 8). The communities where these firms had previously been located varied greatly in size; 12.5 percent came from communities with less than 1,000 people, nearly 30 percent came from communities with a population between 1,000 and 10,000 people, and only 9.4 percent from cities with more than 500,000 people. When asked why they had chosen their present location, favorable prices for land and buildings was the reason most often given (Table 7). Other factors often mentioned were lower labor costs, labor quality, and a more favorable location relative to markets and supplies.

TABLE 7. LOCATION CHARACTERISTICS OF UPPER MIDWESTERN BUSINESSES, 1989

Item	Value	Item	Value
Is business located in an industrial park?	*(percent)*	Relocation of:	*(percent)*
Yes	27.8	Entire company	59.0
No	72.2	Individual operation	41.0
		Population of town that firm was previously located in:	
Attributes liked about industrial park:		Less than 1,000	12.5
Overall planning of area	40.3	1,000 to 10,000	29.7
Easy access/good location	34.7	10,001 to 25,000	14.1
		25,001 to 50,000	15.6
Features that should be changed:		50,001 to 500,000	18.7
No changes needed	28.6	More than 500,000	9.4
Heavy traffic	20.4		
Attract more businesses	20.4	Reason for relocating (first answer given):	
		Affordable land and/or buildings	23.4
Percent that had relocated:	25.2	Labor quality	10.4
From within state (8.0%)		Better location	15.6
From different state (17.2%)		More efficient operation	11.7
State from which firm relocated:		Reason for relocating (second answer given):	
Minnesota	56.9	Lower labor cost	15.8
Iowa	7.8	Transportation problems	10.5
California	3.9	Better tax situation	14.0
Michigan	3.9	Good business climate	10.5

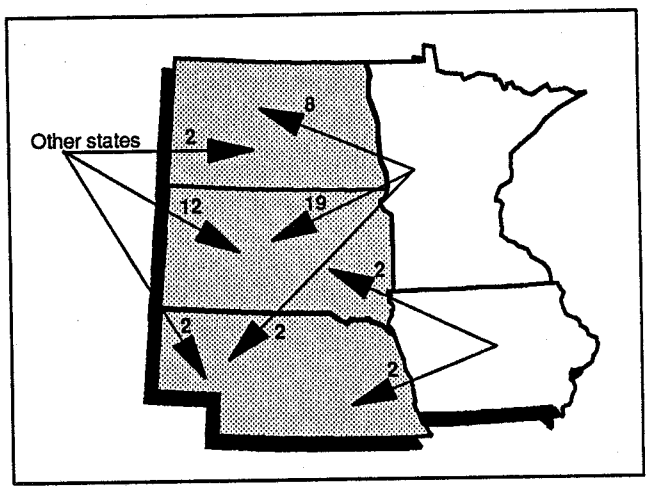


Figure 8. Origin and destination states of relocating firms, 1989.

The firms were also asked what is the minimum size of community that companies in their industry consider in choosing a location. The median population cited was 10,000, and responses did not differ substantially by firm type (Table 8).

Firms were asked to rate a number of factors in terms of their influence on the company's decision to locate or relocate. Among labor-related factors, work attitudes and labor productivity were more important than wage levels (Table 9). The absence of a union and existence of right-to-work laws were seen as positive factors both by new and relocating firms and by expanding companies. Labor availability did not appear to be as serious an issue as productivity. New and relocating firms were most concerned about availability of professional personnel, whereas expanding firms regarded availability of skilled industrial or technical personnel as more important.

TABLE 8. MINIMUM SIZE OF COMMUNITY CONSIDERED WHEN LOCATING, DURABLE VERSUS NONDURABLE MANUFACTURERS, HIGH-GROWTH VERSUS LOW-GROWTH FIRMS, UPPER MIDWEST STATES, 1989

Item	All Firms	Manufacturing Firms		Firms by Expected Employment Growth	
		Nondurable	Durable	High[a]	Low[b]
Mean	35,484	33,698	32,308	41,149	32,731
Median	10,000	8,500	10,000	10,000	10,000
Distribution:					
1,000 or less	16.7	16.2	17.4	11.2	19.6
1,001 to 2,500	10.2	11.8	8.7	13.1	6.5
2,501 to 5,000	18.9	20.6	19.1	17.8	20.6
5,001 to 10,000	10.6	5.9	10.4	8.4	12.2
10,001 to 25,000	18.5	19.1	21.7	18.7	19.6
25,001 to 50,000	11.4	13.2	8.7	14.9	9.3
50,001 to 100,000	11.1	8.8	12.2	13.1	9.4
More than 100,000	2.6	4.4	1.7	2.8	2.8

[a]Firms with expected employment growth in next five years of greater than 20%.
[b]Firms with expected employment growth in next five years of less than 20%.

Among the transportation dimensions included in the survey, motor freight service was seen as substantially the most important (Table 9). More than half of the new and relocating firms and almost half of the expanding firms rated motor freight service as critical or very important to their location decision.

TABLE 9. RATING OF LABOR AND TRANSPORTATION AS LOCATION FACTORS BY NEW OR RELOCATING FIRMS AND BY EXPANDING FIRMS, UPPER MIDWEST STATES, 1989

Factor	Rating by New or Relocating Firms: Mean Score[a]	Rating by New or Relocating Firms: % Rating Factor as Critical or Very Important	Rating by Expanding Firms[b]: Mean Score[a]	Rating by Expanding Firms[b]: % Rating Factor as Critical or Very Important
Labor				
Wage levels	3.0	26.7	3.0	20.2
Labor productivity	2.4	59.9	2.4	57.0
Work attitudes	2.3	60.0	2.3	60.8
Right to work laws	2.8	39.8	2.8	42.4
Presence of union	4.0	15.4	4.2	10.6
Absence of union	2.8	47.9	2.8	48.3
Labor Availability				
Professional (requiring a 4-year degree)	4.0	9.5	3.8	12.3
Sales	3.6	20.6	3.3	26.7
Skilled industrial or technical[c]	3.1	30.6	3.0	34.8
Clerical	3.4	12.9	3.3	17.8
Unskilled	3.4	19.3	3.4	18.6
Transportation				
Interstate highway access[c]	3.0	36.3	3.3	31.9
Distance from your location to Interstate:				
Mean	26.1	--	25.4	--
Distribution (percent):				
10 miles or less	56.3	--	55.0	--
11-30 miles	17.9	--	16.0	--
31-100 miles	20.5	--	24.0	--
more than 100 miles	5.3	--	5.0	--
Motor freight service	2.6	52.5	2.6	47.1
Rail	4.4	9.6	4.3	11.5
Is your town on a:				
Mainline (percent)	54.0	--	61.4	--
Branchline (percent)	20.1	--	20.5	--
No rail service (percent)	25.9	--	18.2	--
Scheduled air service	3.5	20.6	3.5	22.4
Distance from your location to nearest scheduled service:				
Mean	32.1	--	39.6	--
Distribution (percent):				
10 miles or less	47.7	--	45.5	--
11 to 30 miles	15.7	--	6.0	--
31 to 100 miles	31.4	--	42.4	--
More than 100 miles	5.2	--	6.1	--

[a]Based on a scale from 1 (critical) to 5 (unimportant).
[b]These firms located to their present site prior to 1977, but expanded their work force by more than 10% after 1977.
[c]The two groups (new or relocating firms versus expanding firms) are significantly different at the .05 level using the Tukey test.

Note: Shading highlights most highly rated factors.

Proximity to customers was viewed by expanding firms as more important than proximity to suppliers or others in the industry (Table 10), but most did not regard it as a critical factor. New and relocating firms rated the two factors as almost equal in importance, with a slightly higher rating to proximity to suppliers. Utilities likewise were not deemed critical by most respondents except for electricity. More than half of both groups of firms viewed availability of electricity as critical or very important, and nearly half also saw the cost of electricity as an important factor in location decisions.

TABLE 10. RATING OF MARKETS, UTILITIES, QUALITY OF LIFE, AND HIGHER EDUCATION AS LOCATION FACTORS BY NEW OR RELOCATING FIRMS AND BY EXPANDING FIRMS, UPPER MIDWEST STATES, 1989

Factor	Rating by New or Relocating Firms		Rating by Expanding Firms[b]	
	Mean Score[a]	% Rating Factor as Critical or Very Important	Mean Score[a]	% Rating Factor as Critical or Very Important
Markets				
Close proximity to customers	3.4	24.4	3.2	33.9
Close proximity to suppliers/ raw materials	3.3	25.6	3.4	21.7
Close proximity to others in the industry	4.1	6.5	4.2	6.8
Utilities				
Water supply	3.2	25.0	3.3	17.2
Waste treatment facilities	3.7	15.2	3.7	12.4
Availability of natural gas	3.6	19.3	3.5	20.7
Cost of natural gas	3.5	22.1	3.4	27.5
Availability of electricity	2.4	50.9	2.5	51.2
Cost of electricity	2.6	47.4	2.6	47.5
Telecommunication costs	3.1	27.5	3.1	25.8
Telecommunication capacity	3.3	21.6	3.2	25.2
Quality of Life				
Climate (weather)	3.6	11.7	3.6	8.2
Diversity of businesses	3.5	14.6	3.3	15.8
Close proximity to recreational opportunities	3.5	15.2	3.5	13.9
Close proximity to cultural opportunities	3.8	9.4	3.7	10.8
Quality of medical facilities	3.0	33.9	3.0	34.4
Quality of housing	2.9	32.7	3.0	24.0
Cost of housing	2.9	32.2	2.9	28.7
Quality of schools	2.7	45.3	2.7	45.5
Personal tax burdens (all taxes combined)	2.5	53.8	2.5	55.4
Higher Education				
Vocational-Technical schools:				
-close proximity of schools	3.5	18.8	3.4	19.8
-programs offered	3.4	21.4	3.3	22.0
Colleges & Universities:				
-close proximity of schools	3.7	13.5	3.6	13.2
-programs/degrees offered	3.6	15.9	3.6	11.6

[a]Based on a scale from 1 (critical) to 5 (unimportant).
[b]These firms located to their present site prior to 1977, but expanded their work force by more than 10% after 1977.

Note: Shading highlights most highly rated factors.

Some observers have indicated that quality-of-life factors are playing an increasingly important role in location decisions (for example, see Pulver 1988). The respondents attached considerable importance to personal tax burdens (all taxes combined) and the quality of schools. The quality of medical facilities and the quality and cost of housing were also seen as very important or critical by a substantial percentage of respondents, but such factors as climate and proximity to recreational and cultural opportunities were not highly rated (Table 10). Similarly, although many have pointed to the increasing importance of higher education institutions as a catalyst for economic development (The Corporation for Enterprise Development 1988; Blair and Premus 1987), only a small percentage of these firms felt that proximity to a college or university was very important or critical to their location decision. This is not to say that businesses do not need research and development assistance from higher education institutions, but that physical proximity to these institutions may not be critical.

State and local taxes were of concern to many of the respondents (Table 11). Of the new or relocating firms, 67 percent viewed the overall tax burden as a very important or critical factor, while 60 percent of the expanding firms held this view. Worker's compensation and unemployment insurance were both regarded as very important by both groups of firms. Local property taxes and state personal income taxes also were viewed as important, but particularly by new or relocating firms. These findings generally support those of Bartik (1985) who concluded that state taxes *do* have a significant effect on business location, contradicting the conventional wisdom in the economic literature (see, for example, Carlton 1983, and Schmenner 1982).

In response to questions about incentives and infrastructure, the respondents viewed the overall community attitude toward business development as the most important factor affecting their decision. Availability of local financing and the cost of property were important factors for both groups of firms. The availability of suitable buildings was of concern to new and relocating firms, but of much less concern for expanding ones. Improvements in the state regulatory climate were also cited as an important concern for new and relocating firms.

A comparison of all these location factors can also be found in Appendix Tables 5 to 7. These tables compare durable manufacturers, nondurable manufacturers, and all other firms. Durable manufacturing firms generally considered factors related to wage levels and labor productivity to be more important than did firms in the other two groups (Appendix Table 5). More than two-thirds of the durable manufacturing firms rated labor productivity and work attitudes as very important. Availability of skilled industrial or technical workers was also a concern to many firms in this group. Access to interstate highways and motor freight service were of greater concern to the manufacturing firms than to establishments of other types, but these latter firms rated rail service more important than did manufacturers.

Close proximity to customers was less important to manufacturers than to other firms, but firms in the "other" category felt it more important to be close to others in the industry (Appendix Table 6). The availability and cost of electricity were of greatest concern to durable manufacturers. The cost of housing, quality of schools, and personal tax burdens were of greater interest to durable manufacturers than to other firms. Durable manufacturers also considered higher education institutions to be somewhat more important.

TABLE 11. RATING OF TAXES, INCENTIVES, AND INFRASTRUCTURE AS LOCATION FACTORS BY NEW OR RELOCATING FIRMS AND BY EXPANDING FIRMS, UPPER MIDWEST STATES, 1989

Factor	Rating by New or Relocating Firms		Rating by Expanding Firms[b]	
	Mean Score[a]	% Rating Factor as Critical or Very Important	Mean Score[a]	% Rating Factor as Critical or Very Important
State and Local Taxes				
State corporate income taxes	2.4	56.2	2.7	44.6
State personal income taxes	2.7	46.7	2.8	39.7
State sales tax	3.0	28.2	3.0	32.8
Sales tax exemption on manufacturing equipment	2.8	41.7	2.8	40.0
Unemployment insurance rate	2.3	55.9	2.6	50.4
State property taxes	2.6	47.3	2.7	44.5
Local property taxes[c]	2.5	51.2	2.8	38.3
Worker's Compensation	2.3	58.8	2.5	50.8
City sales tax	3.2	29.0	3.1	30.0
Overall tax burden on business	2.1	66.5	2.3	59.5
Incentives and Infrastructure				
Community attitude toward business development	2.2	63.3	2.4	55.0
Developable land available	2.7	42.5	2.8	42.5
Buildings available[c]	2.6	51.2	3.1	27.7
Cost of property[c]	2.3	55.4	2.6	48.3
Cost of construction	2.6	46.2	2.6	45.4
Environmental regulations	2.8	42.4	2.8	40.7
Availability of local financing	2.5	56.0	2.7	49.2
Availability of *local* financial and developmental incentives	2.6	50.0	2.8	46.2
Availability of *state* financial and developmental incentives	2.7	46.5	3.0	41.0
Improved state regulatory climate	2.7	46.4	2.9	37.1
Incentives for venture capital formation	3.2	28.9	3.4	26.5
Streamlined process for obtaining govt. permits	3.3	26.2	3.4	19.7
State assistance in labor-training programs	3.2	32.5	3.4	18.3

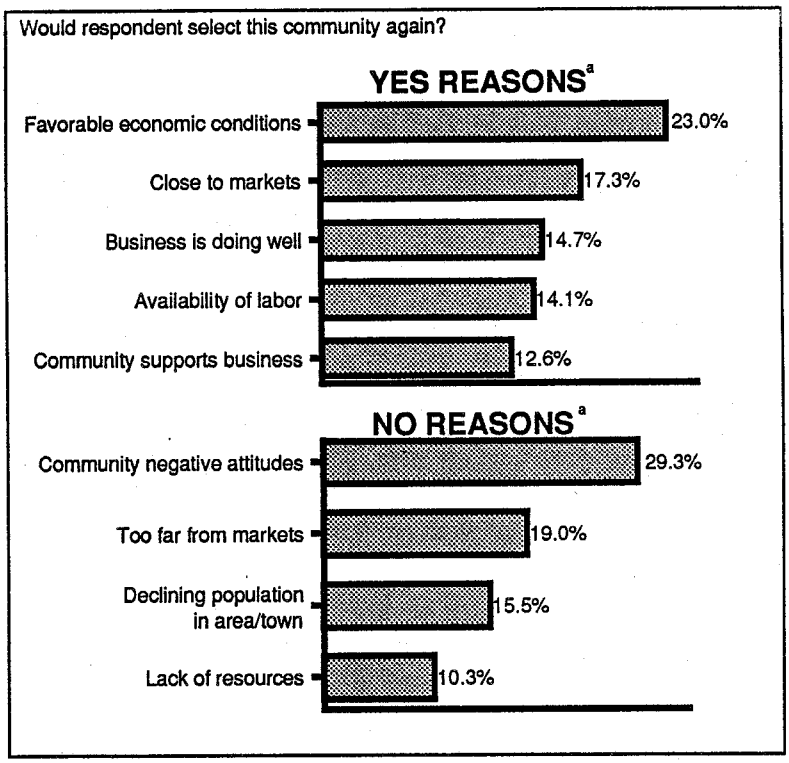
[a]Based on a scale from 1 (critical) to 5 (unimportant).
[b]These firms located to their present site prior to 1977, but expanded their plant size or work force by more than 10% after 1977.
[c]The two groups (new or relocating firms versus expanding firms) are significantly different at the .05 level using the Tukey test.

Note: Shading highlights most highly rated factors.

State and local tax rates generally were more important to manufacturing firms than to other types of industries (Appendix Table 7). All groups of firms were about equally concerned about the community attitude toward business, but the manufacturers were more likely than other firms to view as important the availability of buildings, the availability of local financing, the state's regulatory climate, and state assistance in training workers.

The questions associated with choice of a location were also analyzed with respect to high-tech and other manufacturing firms. The only significant differences in ratings were for the availability of professional personnel, programs and degrees offered by area colleges (high-tech firms rated these higher), proximity to suppliers, local property taxes, and city sales taxes (high-tech firms rated these lower) (see Appendix Tables 8-10).

Respondents were also asked whether they would select their present community again. Almost 78 percent responded affirmatively. Reasons most frequently cited among those who would choose the community again were favorable economic conditions and proximity to markets (Figure 9). For those who would not choose their community again, reasons most frequently mentioned were the community's negative attitude and being located too far from markets.



a Includes only responses mentioned by 10 percent or more of respondents.

Figure 9. Reasons for and against selecting the same community for their business, Upper Midwest firms, 1989.

When the firms were queried concerning the most important reason for originally locating at their site, the largest percentage stated that the community was their hometown (Figure 10). Favorable local business climate was the next most frequently cited reason, followed by having an interest in an existing business in the community. When branch plants were considered, however, the local business climate and available work force were the reasons most frequently cited. Business climate was also most important to firms that relocated from out of state, followed by location and available work force.

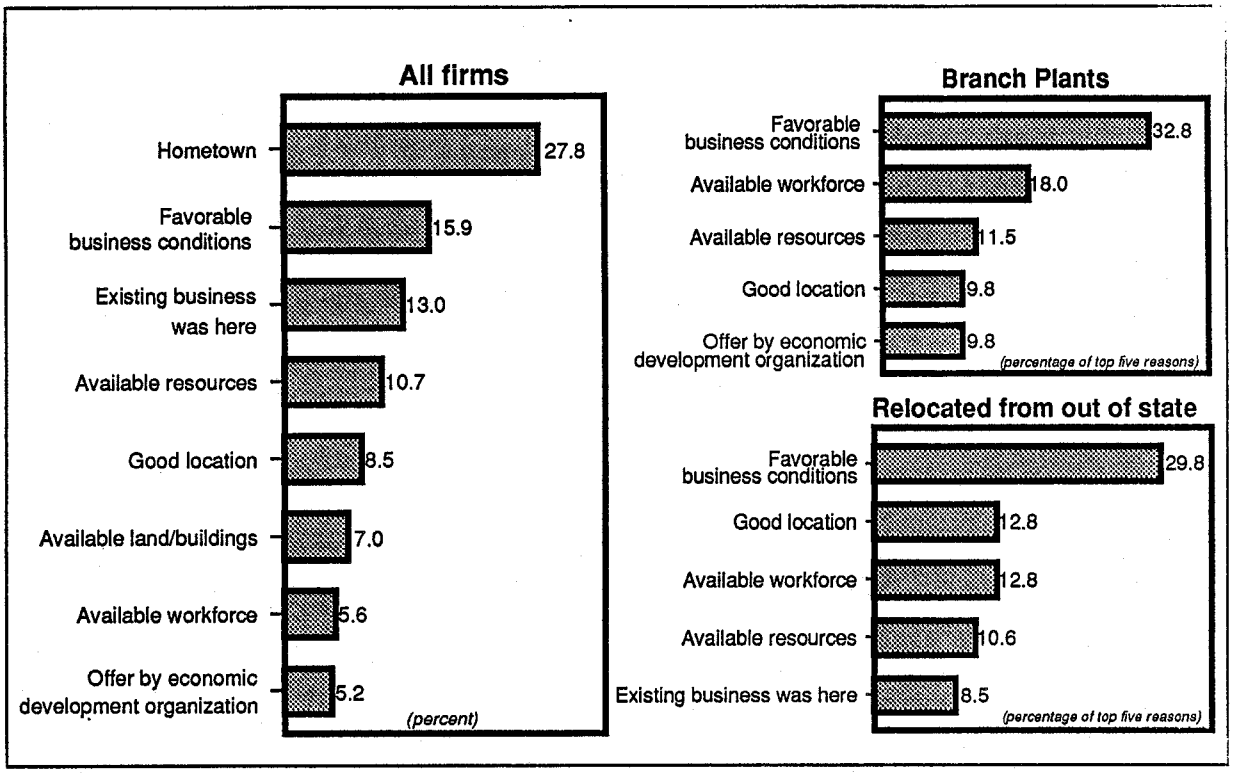


Figure 10. Reasons firms originally located at site, Upper Midwest firms, 1989.

Start-up Capital

Capital is generally regarded as a major constraint, some would suggest *the* major constraint, to economic development in rural areas (Daniels and Crockett 1988). Many recent state and local development initiatives have focused on making capital more accessible to rural entrepreneurs. Of the firms represented in this survey, 144 had begun operations since 1977 and provided information about their initial financing. These firms reported an average of $1.6 million in total start-up capital; the median value was $140,000 (Table 12). More than 84 percent reported that their start-up capital was $1 million or less; nearly 30 percent stated it was less than $50,000.

Personal funds and commercial loans were the sources of financing reported most frequently (Table 13). More than 72 percent of the respondents reported using personal funds as a source of financing, and about 30 percent of their total funding came from this source. Commercial loans were received by 55 percent of the respondents, and only 6.0 percent of the respondents reported that they had applied for a commercial loan but had not received one. (The reader should recognize, however, that some respondents may have applied for commercial loans from more than one source.) Only 37 percent of commercial loans received were from local sources. Small Business Administration loans and financing from a variety of government programs each were reported by about 19 percent of the respondents, respectively, and personal loans from family and friends were also used by 18.1 percent. Credit from suppliers and sale of corporate stock were other sources reported.

TABLE 12. INITIAL FINANCING OF RESPONDENT FACILITIES, UPPER MIDWEST STATES, 1989

Item	Value
Total start-up capital:	
Mean	$1,639,810
Median	$140,000
Distribution:	*(percent)*
$10,000 or less	7.6
$10,001 to 50,000	20.6
$50,001 to 100,000	15.3
100,001 to 250,000	16.8
250,001 to 500,000	16.0
500,001 to 1,000,000	7.7
$1,000,001 to 10,000,000	12.9
More than $10,000,000	3.1

Note: This table includes only those facilities that began operating after 1977.

TABLE 13. SOURCES OF START-UP CAPITAL FOR BUSINESSES THAT BEGAN OPERATIONS AFTER 1977, UPPER MIDWEST STATES

Sources	Percent of Respondents Who: Applied	Qualified (% of those who applied)	Received	% of Total Funding	% Received Locally
Personal funds	--	--	71.5[a]	30.2	--
Personal loans from family and friends	--	--	18.1[a]	4.7	10.7
Commercial loans (commercial banks, S & Ls, credit unions, finance companies)	58.3	94.0	54.8	29.7	36.6
Small Business Admin. loan	20.1	96.6	19.4	9.1	12.2
Commercial investors (venture capital firms, insurance companies)	4.9	42.9	2.1	0.7	0.0
Supplier or dealer credit	12.5	94.1	11.8	2.3	2.2
Government programs (Industrial Revenue Bonds, Urban Development Action Grant, Economic Development Administration, state and city loans.)	20.8	100.0	20.8	7.5	7.6
Sale of corporate stock	11.8	94.1	11.1	4.6	1.9
Other sources[b]	11.3	100.0	11.3	8.4	5.1

[a]Reflects percent of respondents who reported using this source.
[b]Includes loans from the previous owner and monies from the parent company.

Sources of start-up capital are reported in Table 14 by sales class (volume) of the firms. As expected, personal funds and personal loans generally became less important as sales increased, but government programs, commercial investors, and sales of stock became more important.

TABLE 14. TOTAL START-UP CAPITAL AND PERCENT OF START-UP FUNDING FROM VARIOUS SOURCES FOR BUSINESSES THAT BEGAN OPERATING AFTER 1977, BY SALES CLASS, UPPER MIDWEST STATES

Item	Sales Class				
	Less than $500,000	$500,000 to $1,000,000	$1,000,000 to $5,000,000	Over $5,000,000	All Firms
	(thousand dollars)				
Average total start-up capital	177	162	447	898	1,640
	(percent)				
Personal funds	34.1	37.1	32.3	15.8	30.2
Personal loans from family and friends	8.3	2.3	4.8	1.9	4.7
Commercial loans (commercial bank, S & Ls, credit unions, finance companies)	31.6	27.9	30.5	24.5	29.7
Small Business Admin. loan	6.7	14.5	13.5	5.5	9.1
Commercial investors (venture capital firms, insurance companies)	0.0	0.0	0.0	3.7	0.7
Supplier or dealer credit	2.2	4.0	3.9	0.4	2.3
Government programs (Industrial Revenue Bonds, Urban Development Action Grant, Economic Development Administration, state and city loans.)	8.4	5.0	1.7	13.2	7.5
Sale of corporate stock	4.0	2.4	6.1	7.0	4.6
Other sources[a]	3.5	10.8	4.2	19.6	8.4
Total	100.0	100.0	100.0	100.0	100.0
N =	45	24	33	26	144

[a]Includes loans from the previous owner and monies from the parent company.

Outlook

The firms surveyed expected substantial future growth in sales and employment. The typical (median) firm expected a 35-percent increase in sales over the next five years and 70 percent in ten years (Table 15). The median firm also expected its employment to grow by 23 percent in five years and 38 percent in ten years. About 11 percent of the firms planned to relocate within the next five years (46 percent of these would relocate out-of-state), and more than 57 percent plan to expand their physical facilities. On the other hand, 38.4 percent reported no intention to relocate or expand.

TABLE 15. EXPECTED CHANGE IN SALES AND EMPLOYMENT IN THE NEXT FIVE AND TEN YEARS FOR UPPER MIDWESTERN FIRMS, 1989

Item	Value	Item	Value
	(percent)		*(percent)*
Expected change in sales in next 5 years:		Expected change in employment in next 5 years:	
Mean	+98.1	Mean	+63.4
Median	+35.0	Median	+23.0
Distribution:		Distribution:	
Negative or 0	1.3	0 - negative	6.4
0.01 to 10.0	11.5	0.01 to 10	25.5
10.01 to 20.0	14.5	10.01 to 20	16.2
20.01 to 30.0	21.5	20.01 to 30	12.2
30.01 to 40.0	3.7	30.01 to 50	12.2
40.01 to 50.0	13.5	50.01 to 100	16.3
50.01 to 100	17.2	More than 100	11.2
More than 100	16.8		
Expected change in sales in next 10 years:		Expected change in employment in next 10 years:	
Mean	+165.8	Mean	+90.6
Median	+70.0	Median	+37.5

Economic Development Policy

Survey respondents were asked to rate the supportiveness of state and local government with respect to their business needs (Table 16). Most respondents rated both state and local governments as neutral; about 15 percent rated state and local government as somewhat unsupportive or unsupportive (Figure 11). When asked how the situation could be improved, respondents indicated a need for greater awareness of the needs of existing businesses and for fairness in the use of financial incentives.

TABLE 16. RESPONDENTS' VIEWS ON ECONOMIC DEVELOPMENT POLICIES OF LOCAL AND STATE GOVERNMENTS, 1989

Item	Value	Item	Value
	(number)		*(percent)*
How supportive is local government?		Quality work force,	
Mean score[a]	2.5	all states	28.3
		North Dakota	26.1
	(percent)	Nebraska	34.7
Areas for improvement of local government support:		South Dakota	25.7
Work more with business	34.0		
Support existing businesses	10.4	Major shortcomings of state:	
Fair taxes/incentives	12.3		
		Need more business-government	
	(number)	cooperation, all states	43.3
How supportive is state government?		North Dakota	46.0
Mean score[a]	2.5	Nebraska	43.1
		South Dakota	38.8
	(percent)		
Areas for improvement of state government support:		Taxes too high, all states	22.2
Work more with business	21.3	North Dakota	18.4
Fair taxes/incentives	18.9	Nebraska	29.3
		South Dakota	20.4
Top strengths of state:			
		Need increased education/training,	
Reasonable taxes, all states	35.8	all states	17.5
North Dakota	31.7	North Dakota	16.1
Nebraska	32.6	Nebraska	17.2
South Dakota	44.0	South Dakota	20.4

[a]Based on a scale from 1 (supportive) to 5 (unsupportive).

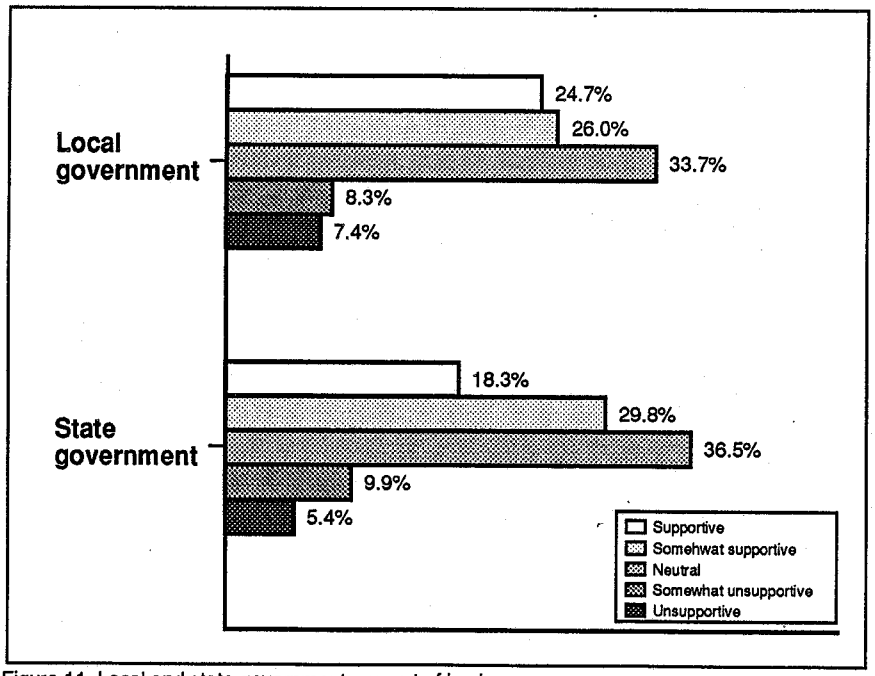


Figure 11. Local and state government support of businesses.

When asked about the top strengths of their state from a business perspective, the respondents most often noted reasonable taxes and quality work force. Among the three states, firms in South Dakota felt most strongly about having reasonable taxes, and Nebraska firms listed quality work force more often than other responses. In identifying shortcomings, they most frequently cited the need for more cooperation between business and government and for lower taxes. Again, among three states, North Dakota firms felt most strongly about the need for more cooperation between business and government, and Nebraska firms were more likely to mention high taxes.

The ratings given to state and local government are summarized in Figure 12. While differences in average rankings are slight, firms located in South Dakota seem to have a somewhat more favorable attitude toward state and local government than their counterparts in the other states.

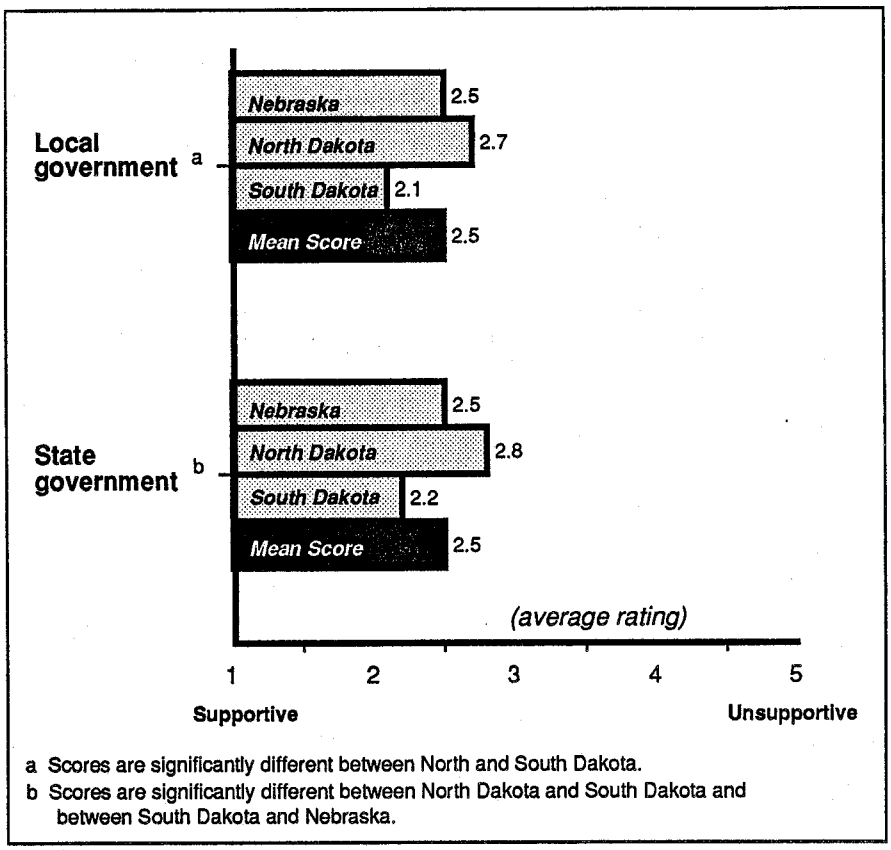


Figure 12. Average rating of local and state government support of businesses by state.

The businesses were asked whether research and development assistance would be useful, and about 47 percent replied that it would be (Table 17). Marketing and product development were the areas in which research and development help was most often desired. Few businesses saw research and development as a major bottleneck, because more than 80 percent of those that indicated a need for research and development assistance also reported that they had experienced no problems in obtaining this help.

TABLE 17. RESPONDENTS' VIEWS ON RESEARCH AND DEVELOPMENT ASSISTANCE

Item	Value
	(percent)
Need for research and development assistance:	
Yes	46.7
No	53.3
Needed areas of research and development assistance:	
Marketing products	25.9
Product development	25.9
Engineering	12.5
Have had difficulty obtaining research and development assistance:	
Yes	19.7[a]
No	80.3[a]

[a]Percentage of those responding that they could use R & D assistance.

Conclusions and Implications

The decade of the 1980s has been economically difficult for the Upper Great Plains states. The need for economic growth and diversification is now broadly accepted by state policymakers and local leaders, but these decision makers lack a clear understanding of which factors are most important in influencing economic growth patterns. Indeed, the information available to decision makers has often been contradictory and confusing. The findings of this study offer some insights regarding these crucial questions as they relate to the Upper Great Plains region.

Of the firms meeting the criteria for inclusion in this study, more than three-fourths were manufacturers. Thus, despite the growing role of the service sectors in the national economy, manufacturers as a group still appear to constitute rural communities' best possibility for diversifying their economic base. While manufacturing firms throughout the United States have been subject to increased international competition in recent years, the firms represented in this study offer striking evidence that a variety of manufacturing concerns can succeed in nonmetropolitan settings in the Upper Midwest.

The firms included in this study had created a total of 11,133 jobs, or about 39 jobs per firm, in the last ten years. Expansion of existing firms accounted for about 45 percent of the total, firms that relocated or opened new branches were responsible for about 33 percent, and new firms were credited with almost 23 percent. The high percentage of new jobs created by existing firms suggests that communities should focus first on efforts to support and assist existing employers. (Examples of such programs include the Business Retention and Expansion Program conducted by the NDSU Center for Rural Revitalization and the program of technical assistance and technology transfer recently initiated by the NDSU Institute for Business and Industry Development.) At the same time, the substantial percentages of jobs created by relocating firms and new start-up operations indicate that recruitment and support for local entrepreneurs are areas that should not be neglected. Generally, these findings support those of

John et al. (1988), who reported that successful communities usually combined active recruitment with efforts to support local business.

The economic contribution of different types of firms is an issue of concern to state and local officials, especially when decisions must be made regarding assistance or incentive programs. The percentage of a firm's expenditures that are made to in-state suppliers (including payments of wages and salaries), as well as the absolute amount of those expenditures, provides an indication of the economic contribution of different types of firms. The evidence from this survey, however, does not provide clear-cut guidelines for decision makers. New firms ranked highest in the percentage of in-state expenditures, but relocating firms and new branches had higher levels of such expenditures on a per establishment basis. Existing firms that expanded rated high in both the percentage and absolute amount of in-state purchases. For decision makers, these findings suggest that programs to identify potential in-state suppliers may be fruitful, and that firms applying for assistance or incentive programs should be queried concerning their plans to involve in-state suppliers and subcontractors.

State and local leaders in the Upper Midwest region, as in other parts of the country, are continually required to balance needs for revenue to support education and other public services with the desire to avoid tax increases. The findings of this study offer few new insights about this issue except to confirm that both tax burden and quality of services, particularly education, are seen as important by a substantial percentage of the firms surveyed.

Capital to finance both new start-ups and expansion of existing enterprises is often seen as a major constraint to economic development. Results of this survey indicate that personal funds and commercial loans were the most frequent sources of start-up capital. This finding, together with the fact that more than one-fourth of the firms surveyed reported difficulty in obtaining capital for expansion, suggests that structural gaps may exist in rural capital markets. In particular, some observers report that new and expanding firms often face shortages of equity or long-term debt capital (Daniels and Crockett 1988). Some recent state and local development initiatives have focused on making capital more available to entrepreneurs. Our findings indicate that these initiatives are probably appropriate, although careful evaluation of individual proposals will be essential.

Overall, the results of this study offer some reasons for optimism concerning the economic future of the Upper Great Plains states. The firms included in this study have succeeded in competing effectively in regional and national markets, and their outlook generally is for further expansion of sales and employment. Representing not only a broad spectrum of manufacturing, but also a variety of traded services, these firms clearly demonstrate that the region has a variety of potential sources of economic growth and diversification. State policies and programs aimed at supporting expansion by existing enterprises, as well as nurturing new start-up enterprises and selectively recruiting firms seeking branch or relocation sites, could pay substantial dividends in the years ahead.

Appendix

APPENDIX TABLE 1. SELECTED CHARACTERISTICS OF RESPONDENT FACILITIES, UPPER MIDWEST STATES, 1989

Item	All Firms	Manufacturing Firms		Firms By Expected Employment Growth	
		Nondurable	Durable	High[a]	Low[b]
N =	314	89	147	151	136
	(percent)				
State where facility is located:					
Nebraska	30.9	31.5	29.9	30.4	32.4
North Dakota	39.8	43.8	40.8	33.8	41.9
South Dakota	29.3	24.7	29.3	35.8	25.7
Primary product or service:					
Mining/construction[c]	2.3			3.4	3.0
Ag products/sales[d]	8.3			4.8	8.9
Manufacturing, nondurable[e]	28.6	100.0		22.8	38.5
Manufacturing, durable[f]	50.3		100.0	58.6	42.2
Misc. sales[g]	3.2			1.4	5.2
Misc. services[h]	5.7			9.0	2.2
Relocated or began since 1977	58.2	51.2	60.8	72.3	43.2
Expanded since 1977	41.8	48.8	39.2	27.7	56.8
Year when company began operations:					
1960 or before	31.5	32.6	27.5	18.5	42.9
1961 - 1970	14.4	13.9	16.2	13.7	14.3
1971 - 1975	9.8	9.3	8.4	8.2	12.0
1976 - 1980	16.1	15.1	19.0	16.4	16.5
1981 - 1985	17.7	12.8	19.7	26.0	10.5
1986 - 1989	10.5	16.3	9.2	17.1	3.8

[a]Firms with expected employment growth in next five years of greater than 20 percent.
[b]Firms with expected employment growth in next five years of less than 20 percent.
[c]Gold processing, construction/repairs.
[d]Handling sales, grain/pellets, animal supplies, live animals, plants, food sales, grain dealers.
[e]Food processing, clothing products, wood products, furniture products, paper products, printing, film developing.
[f]Chemical products, rubber/plastic, concrete/stone, steel/metal products, farm equipment parts, electrical products, transport equipment, precision instruments, sporting equipment, tools--hydraulic, miscellaneous parts.
[g]Sales, hardware, auto supply, clothing, sporting.
[h]Vehicle repair, miscellaneous repairs, telemarketing, weld/machine service, miscellaneous service, truck services, personal services.

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APPENDIX TABLE 1. SELECTED CHARACTERISTICS OF RESPONDENT FACILITIES, UPPER MIDWEST STATES, 1989 (CONTINUED)

Item	All Firms	Firms By Expected Manufacturing Firms		Employment Growth	
		Nondurable	Durable	High[a]	Low[b]
	(percent)				
Year when company began operations at present location:					
1960 or before	9.3	4.6	6.8	4.7	11.1
1961 - 1970	14.2	18.4	14.3	8.7	18.5
1971 - 1975	9.3	11.5	9.5	9.3	10.4
1976 - 1980	18.6	17.2	21.1	11.3	27.4
1981 - 1985	27.1	24.1	27.2	32.7	23.0
1986 - 1989	21.5	24.1	21.1	33.3	9.6
Percentage of ownership:					
Locally	69.3	74.4	67.7	78.2	61.5
Elsewhere in state	3.1	4.1	1.6	3.3	3.1
Adjacent states	10.7	6.3	12.4	8.3	12.8
Rest of nation	13.5	11.2	15.6	8.8	17.7
International	3.6	4.0	2.7	1.4	5.1
Percentage of sales:					
Local	23.4	31.0	20.1	20.1	29.0
Elsewhere in state	11.8	12.6	10.7	9.5	14.4
Adjacent states	19.4	20.0	17.2	17.6	21.0
Rest of nation	40.6	34.0	46.1	46.5	33.6
International	4.8	2.4	5.8	6.3	2.0

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APPENDIX TABLE 1. SELECTED CHARACTERISTICS OF RESPONDENT FACILITIES, UPPER MIDWEST STATES, 1989 (CONTINUED)

Item	All Firms	Manufacturing Firms		Firms By Expected Employment Growth	
		Nondurable	Durable	High[a]	Low[b]
			($000s)		
Total annual sales:					
Mean	8,539	7,049	6,101	8,966	7,344
Median	1,750	1,500	1,875	1,000	2,936
Distribution:			*percent*		
$100,00 or less	5.7	10.3	3.7	8.3	4.1
$100,001 to $500,000	20.1	19.2	19.4	26.5	13.8
$500,001 to $1,000,000	13.3	12.8	16.4	17.4	11.4
$1,000,001 to $5,000,000	30.8	33.3	32.8	28.0	34.2
$5,000,001 to $10,000,000	11.8	14.1	10.5	9.1	14.6
$10,000,001 to $50,000,000	15.1	6.4	16.4	9.9	19.5
$50,000,001 or more	3.2	3.9	0.8	0.8	2.4
Percentage of expenditures to labor:					
Mean	27.8	28.6	29.1	29.9	25.5
Median	25.0	30.0	25.0	27.0	25.0
Distribution:					
20 percent or less	40.3	32.9	39.4	35.0	45.3
21 to 30	26.4	30.4	28.8	24.8	29.0
31 to 40	17.5	22.8	18.9	21.2	15.4
41 to 50	8.8	7.6	6.1	10.2	6.0
More than 50 percent	7.0	6.3	6.8	8.8	4.3
Percentage of remaining expenditures made in state:					
Mean	38.2	47.9	29.1	35.4	41.2
Median	30.0	50.0	25.0	30.0	35.0
Distribution:					
10 percent or less	24.2	13.9	31.8	28.3	18.6
11 to 25	20.8	20.2	24.0	19.6	23.9
26 to 50	26.4	24.1	27.9	28.3	23.9
50 to 75	13.4	19.0	10.1	10.9	16.8
76 percent or more	15.2	22.8	6.1	13.0	16.8

APPENDIX TABLE 2. SELECTED CHARACTERISTICS OF HIGH TECHNOLOGY MANUFACTURING AND OTHER MANUFACTURING FACILITIES, UPPER MIDWEST STATES, 1989

Item	High Technology Manufacturing[a]	Other Manufacturing	All Manufacturing
N =	41	195	236
State where facility is located (%):			
Nebraska	29.3	30.8	30.5
North Dakota	43.9	41.5	41.9
South Dakota	26.8	27.7	27.5
Total annual sales:			
Mean ($)	7,448,722	6,245,436	6,449,768
Median ($)	3,800,000	1,425,000	1,500,000
Distribution (%):			
$100,000 or less	5.6	6.3	6.1
$100,001 to $500,000	13.9	20.5	19.3
$500,001 to $1,000,000	11.1	15.9	15.1
$1,000,001 to $5,000,000	36.1	32.4	33.0
$5,000,0001 to $10,000,000	5.6	13.1	11.8
$10,000,001 to $50,000,000	27.8	9.7	12.7
$50,000,001 or more	0.0	2.3	1.9
Total	100.0	100.0	100.0
Percentage of expenditures to labor:			
Mean	31.3	27.5	28.2
Median	25.5	25.0	25.0
Distribution:			
20% or less	36.8	37.0	37.0
21% to 30%	36.8	27.7	29.4
31% to 40%	5.3	23.7	20.4
41% to 50%	5.3	6.9	6.6
More than 50%	15.8	4.6	6.6
Percentage of remaining expenditures made in state:			
Mean	20.1	39.6	36.2
Median	11.5	35.0	30.0
Distribution:			
10% or less	47.2	20.3	25.0
11% to 25%	27.8	21.5	22.6
26% to 50%	13.9	29.1	26.4
50% to 75%	8.3	14.5	13.5
76% or more	2.8	14.5	12.5
Year when company began operations at present location:			
1960 or before	2.4	6.7	6.0
1961 - 1970	22.0	14.5	15.8
1971 - 1975	2.4	11.9	10.3
1976 - 1980	19.5	19.7	19.7
1981 - 1985	26.8	25.9	26.1
1986 - 1989	26.8	21.2	22.2
Year when company began operations:			
1960 or before	30.0	29.3	29.4
1961 - 1970	22.5	13.8	15.4
1971 - 1975	7.5	9.0	8.8
1976 - 1980	10.0	19.1	17.5
1981 - 1985	20.0	16.5	17.1
1986 - 1989	10.0	12.2	11.8
Percentage of ownership:			
Locally	59.0	72.5	70.2
Elsewhere in state	1.3	2.8	2.5
Adjacent states	8.2	10.5	10.1
Rest of nation	31.5	10.3	14.0
International	0.0	3.4	3.2

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APPENDIX TABLE 2. SELECTED CHARACTERISTICS OF HIGH TECHNOLOGY MANUFACTURING AND OTHER MANUFACTURING FACILITIES, UPPER MIDWEST STATES, 1989 (CONTINUED)

Item	High Technology Manufacturing[a]	Other Manufacturing	All Manufacturing
Percentage of sales:			
Local	19.2	25.3	24.2
Elsewhere in state	9.3	11.9	11.4
Adjacent states	15.3	18.9	18.2
Rest of nation	48.1	40.2	41.5
International	7.6	3.9	4.5
Number currently employed full-time:			
Mean	94.1	42.4	51.6
Median	37.0	16.0	17.5
Distribution:			
0-5	17.1	16.2	16.4
6-10	7.3	19.4	17.2
11-20	22.0	20.9	21.1
21-50	12.2	23.0	21.1
51-100	14.6	8.9	9.9
More than 100	26.8	11.5	14.2
Number currently employed part-time:			
Mean	5.6	3.6	4.0
Median	1.0	2.0	1.0
Distribution:			
0-5	75.6	84.7	83.0
6-10	7.3	5.8	6.1
11-50	14.6	8.5	9.6
More than 50	2.4	1.1	1.3
Percent change in full-time employment in last 5 years:			
Mean	88.8	79.7	81.1
Median	58.3	50.0	50.0
Percent change in part-time employment in last 5 years:			
Mean	125.0	48.8	58.6
Median	100.0	0.0	20.0
Expected growth in employment, next 5 years:			
Mean	91.7	61.2	66.4
Median	25.0	22.5	25.0
Distribution:			
0 or negative	2.6	5.9	5.3
1% - 10%	17.9	29.3	27.3
11% - 25%	30.8	22.3	23.8
26% - 75%	17.9	20.7	20.3
76% - 100%	30.8	21.8	23.3
Expected growth in sales, next 5 years:			
Mean	117.3	102.6	105.2
Median	50.0	40.0	40.0
Distribution:			
0 or negative	0.0	1.1	0.9
1% - 10%	2.5	10.6	9.2
11% - 25%	25.0	26.5	26.2
26% - 75%	40.0	29.6	31.4
76% or more	32.5	32.3	32.3
Net total employment change in last 10 years:			
Total	2,420	5,535	7,955
Mean	60.5	29.3	34.7

[a]High technology manufacturing firms were classified using the definition developed by Smith and Barkley (1988).

APPENDIX TABLE 3. OCCUPATIONAL COMPOSITION OF WORK FORCE BY FIRM TYPE, UPPER MIDWEST STATES, 1989

Occupational Category	Manufacturing Firms: High Tech Men	High Tech Women	High Tech Total	High Tech %	Manufacturing Firms: Other Men	Other Women	Other Total	Other %	All Manufacturing Firms: Average Number Employed in 1988 Men	Women	Total	%
	(no.)	(no.)	(no.)		(no.)	(no.)	(no.)		(no.)	(no.)	(no.)	
Executive, administrative, or managerial	5.0	1.8	6.8	7.3	3.8	1.8	5.6	12.5	4.0	1.8	5.8	10.9
Professional specialty (i.e., engineers, scientists, computer programmers, accountants, architects, physicians, etc.)	5.1	1.0	6.1	6.5	1.3	0.4	1.7	3.8	2.0	0.5	2.5	4.7
Sales representatives	4.1	0.7	4.8	5.1	2.2	0.4	2.6	5.8	2.5	0.4	2.9	5.5
Clerical workers (i.e., secretaries, typists, stenographers, word processor specialists)	1.4	5.2	6.6	7.1	0.5	2.7	3.2	7.2	0.7	3.1	3.8	7.2
Precision production craft, and repair (i.e., mechanics, repairers, machinists and metal craftsmen, construction craftsmen, etc.)	6.9	3.1	10.0	10.7	4.5	0.3	4.8	10.7	4.9	0.8	5.7	10.8
Operators, fabricator (i.e., machine operators, assemblers, inspectors, truck drivers, material handlers)	17.4	22.8	40.2	43.0	14.2	4.6	18.8	42.1	14.8	7.7	22.5	42.4
Laborers	9.0	5.7	14.7	15.7	4.8	2.6	7.4	16.6	5.5	3.1	8.6	16.2
Other: Not elsewhere categorized	3.2	1.0	4.2	4.5	0.5	0.1	0.6	1.3	1.0	0.2	1.2	2.3
Total	52.1	41.3	93.4	100.0	31.8	12.9	44.7	100.0	35.4	17.6	53.0	100.0

APPENDIX TABLE 4. CHARACTERISTICS OF EMPLOYEES, HIGH TECHNOLOGY MANUFACTURING FACILITIES, UPPER MIDWEST STATES, 1989

Occupational Category	Minimum Requirements for New Employees							Difficulty Finding Employees Locally		Difficulty Attracting Employees to Area	
	Prior Work Experience	Some High School	High School Diploma	Some College/ Tech. Training	College Degree Or More	Prior Work Only	No Requirements	Mean Score[a]	DIFF[b]	Mean Score[a]	DIFF[b]
Executive, administrative, or managerial	56.4	0.0	7.7	43.6	48.7	0.0	0.0	3.4	50.0	3.3	47.1
Professional specialty (i.e., engineers, scientists, computer programmers, accountants, architects, physicians, etc.)	44.4	0.0	3.7	29.6	59.3	7.4	0.0	3.5	50.0	3.3	44.0
Sales representatives	50.0	0.0	25.0	33.3	20.8	16.7	4.2	3.3	50.0	3.3	40.0
Clerical workers (i.e., secretaries, typists stenographers, word processor specialists)	48.5	6.1	57.6	24.2	0.0	3.0	9.1	2.3	6.7	2.6	14.8
Precision production craft, and repair (i.e., mechanics, repairers, machinists and metal craftsmen, construction craftsmen, etc.)	44.4	7.4	25.9	55.6	3.7	7.4	0.0	3.1	32.0	3.1	21.7
Operators, fabricator (i.e., machine operators, assemblers, inspectors, truck drivers, material handlers)	46.7	26.7	43.3	3.3	0.0	16.7	10.0	2.7	13.8	2.9	25.0
Laborers	30.0	40.0	40.0	0.0	0.0	15.0	5.0	2.2	5.9	2.2	6.7
Other: Not elsewhere categorized	75.0	25.0	25.0	50.0	0.0	0.0	0.0	2.0	25.0	2.8	25.0

[a]Based on a scale from 1 (very easy) to 5 (very difficult).
[b]DIFF = Percent difficult or very difficult.

APPENDIX TABLE 5. RATING OF LABOR AND TRANSPORTATION AS A LOCATION FACTOR BY NONDURABLE MANUFACTURING, DURABLE MANUFACTURING, AND OTHER FIRMS, UPPER MIDWEST STATES, 1989

Factor	Rating by Nondurable Manufacturing Firms		Rating by Durable Manufacturing Firms		Rating By Other Firms	
	Mean Score[a]	% Rating Factor as Critical or Very Important	Mean Score[a]	% Rating Factor as Critical or Very Important	Mean Score[a]	% Rating Factor as Critical or Very Important
Labor						
Wage Levels[c]	3.0	23.5	2.9	29.6	3.2	14.0
Labor productivity[b]	2.6	48.8	2.2	68.5	2.5	52.6
Work attitudes[b]	2.5	55.3	2.1	67.4	2.4	52.6
Right to work laws[b,c]	3.0	38.1	2.6	48.6	3.2	26.8
Presence of union	4.2	13.7	4.0	15.4	4.3	8.0
Absence of union[b,c]	2.7	42.2	2.5	58.3	3.4	31.6
Labor Availability						
Professional (requiring a 4-year degree)[b,c]	4.0	9.5	3.7	10.2	4.1	14.8
Sales	3.5	22.4	3.4	26.7	3.5	18.2
Skilled industrial or technical[b,c]	3.3	23.5	2.9	40.1	3.3	21.4
Clerical	3.3	16.3	3.4	14.2	3.4	14.0
Unskilled	3.4	20.9	3.3	20.6	3.6	10.9
Transportation						
Interstate highway access[c]	3.2	39.3	2.9	38.4	3.4	17.2
Distance from your location to interstate:						
Mean	22.3		26.2		28.0	
Distribution (percent):						
10 miles or less		58.6		58.3		49.0
11-30 miles		15.7		15.7		20.5
31-100 miles		20.0		20.5		26.5
more than 100 miles		5.7		5.5		4.0
Motor freight service[b,c]	2.8	41.0	2.2	66.2	3.1	25.5
Rail[c]	4.3	11.8	4.6	7.0	4.0	18.8
Is your town on a:						
Mainline (percent)		56.9		61.9		57.8
Branchline (percent)		20.8		20.4		15.6
No rail service (percent)		22.2		17.7		26.7
Scheduled air service						
Distance from your location to nearest scheduled service:						
Mean	38.5	20.7	33.5	21.6	40.8	18.9
Distribution (percent):						
10 miles or less		37.7		50.4		52.1
11 to 30 miles		18.8		9.3		8.3
31 to 100 miles		33.4		37.2		35.4
More than 100 miles		10.1		3.1		4.2

[a]Based on a scale from 1 (critical) to 5 (unimportant).
[b]Mean scores are significantly different between nondurable and durable manufacturing firms using $\alpha = 0.05$.
[c]Mean scores are significantly different between durable manufacturing and other firms using $\alpha = 0.05$.

APPENDIX TABLE 6. RATING OF MARKETS, UTILITIES, QUALITY OF LIFE, AND HIGHER EDUCATION AS A LOCATION FACTOR BY NONDURABLE MANUFACTURING, DURABLE MANUFACTURING, AND OTHER FIRMS, UPPER MIDWEST STATES, 1989

Factor	Rating by Nondurable Manufacturing Firms		Rating by Durable Manufacturing Firms		Rating By Other Firms	
	Mean Score[a]	% Rating Factor as Critical or Very Important	Mean Score[a]	% Rating Factor as Critical or Very Important	Mean Score[a]	% Rating Factor as Critical or Very Important
Markets						
Close proximity to customers[b]	3.1	34.9	3.5	23.2	3.1	32.8
Close proximity to supplies/ raw materials	3.2	34.1	3.5	16.3	3.2	28.8
Close proximity to others in the industry[c,d]	4.3	4.8	4.3	5.7	3.7	12.5
Utilities						
Water supply	3.2	27.9	3.3	19.6	3.2	20.3
Waste treatment facilities	3.7	16.5	3.6	12.7	3.6	15.3
Availability of natural gas	3.7	23.5	3.5	21.1	3.6	11.9
Cost of natural gas	3.6	23.3	3.3	28.4	3.6	16.9
Availability of electricity[d]	2.5	47.6	2.3	58.7	2.7	35.6
Cost of electricity[d]	2.7	41.2	2.4	57.3	2.8	32.2
Telecommunication costs	3.2	25.0	3.0	29.6	3.2	20.3
Telecommunication capacity	3.4	24.1	3.2	25.4	3.3	16.9
Quality of Life						
Climate (weather)	3.7	8.1	3.6	10.5	3.6	8.8
Diversity of businesses	3.4	20.0	3.5	12.1	3.4	12.1
Close proximity to recreational opportunities	3.5	11.8	3.5	16.1	3.6	15.5
Close proximity to cultural opportunities	3.7	10.8	3.8	11.3	3.8	5.2
Quality of medical facilities	3.0	32.9	3.0	37.1	3.1	25.9
Quality of housing	2.9	28.2	2.9	33.8	3.2	19.0
Cost of housing[d]	2.9	31.8	2.9	34.3	3.2	17.2
Quality of schools[d]	2.7	45.2	2.6	52.4	2.9	28.1
Personal tax burdens (all taxes combined)[d]	2.4	57.6	2.4	59.9	2.8	36.2
Higher Education						
Vocational-Technical schools:						
-close proximity of schools[b,d]	3.6	12.9	3.3	21.8	3.6	19.3
-programs offered[b]	3.6	15.5	3.2	24.5	3.5	21.4
Colleges & Universities:						
-close proximity of schools	3.7	12.9	3.5	14.8	3.8	8.8
-programs/degrees offered[b,d]	3.8	12.9	3.5	15.5	3.8	10.5

[a]Based on a scale from 1 (critical) to 5 (unimportant).
[b]Mean scores are significantly different between nondurable and durable manufacturing firms using $\alpha = 0.05$.
[c]Mean scores are significantly different between nondurable manufacturing and other firms using $\alpha = 0.05$.
[d]Mean scores are significantly different between durable manufacturing and other firms using $\alpha = 0.05$.

APPENDIX TABLE 7. RATING OF TAXES, INCENTIVES, AND INFRASTRUCTURE AS LOCATION FACTORS BY NONDURABLE MANUFACTURING, DURABLE MANUFACTURING, AND OTHER FIRMS, UPPER MIDWEST STATES, 1989

Factor	Rating by Nondurable Manufacturing Firms		Rating by Durable Manufacturing Firms		Rating By Other Firms	
	Mean Score[a]	% Rating Factor as Critical or Very Important	Mean Score[a]	% Rating Factor as Critical or Very Important	Mean Score[a]	% Rating Factor as Critical or Very Important
State and Local Taxes						
State corporate income taxes	2.4	50.0	2.5	55.9	2.8	41.1
State personal income taxes[b]	2.5	46.4	2.7	46.9	3.0	32.1
State sales tax[b]	2.9	32.1	3.0	33.1	3.4	17.9
Sales tax exemption on manufacturing equipment[b,c]	2.8	42.9	2.7	46.5	3.3	21.8
Unemployment insurance rate[b,c]	2.4	54.8	2.3	59.4	2.8	36.8
State property taxes[b]	2.5	47.6	2.6	50.7	2.9	31.6
Local property taxes	2.5	45.2	2.6	52.1	2.8	31.6
Worker's compensation[b,c]	2.3	56.0	2.3	62.0	2.7	40.4
City sales tax	3.1	29.8	3.1	34.5	3.4	14.3
Overall tax burden on business[c]	2.2	64.3	2.1	70.6	2.5	43.9
Incentives and Infrastructure						
Community attitude toward business development	2.2	60.7	2.3	61.7	2.3	59.6
Developable land available	2.9	36.6	2.6	45.8	2.8	44.6
Buildings available[b,c]	2.7	40.5	2.8	44.7	3.2	35.1
Cost of property	2.3	54.2	2.4	56.3	2.6	41.1
Cost of construction	2.6	47.6	2.6	44.7	2.6	48.2
Environmental regulations	2.8	41.0	2.8	44.7	2.9	33.3
Availability of local financing[b,c]	2.5	59.8	2.5	53.6	3.0	40.4
Availability of local financial and developmental incentives	2.6	50.6	2.7	48.6	2.8	45.6
Availability of state financial and developmental incentives	2.7	45.8	2.8	45.7	3.1	38.6
Improved state regulatory climate[b]	2.7	44.4	2.8	45.0	3.1	29.6
Incentives for venture capital formation	3.2	31.7	3.2	28.1	3.5	20.0
Streamlined process for obtaining govt. permits	3.4	20.5	3.3	25.0	3.6	20.0
State assistance in labor-training program[b]	3.2	30.1	3.3	28.8	3.6	14.5

[a]Based on a scale from 1 (critical) to 5 (unimportant).
[b]Mean scores are significantly different between nondurable manufacturing and other firms using $\alpha = 0.05$.
[c]Mean scores are significantly different between durable manufacturing and other firms using $\alpha = 0.05$.

APPENDIX TABLE 8. RATING OF LABOR AND TRANSPORTATION AS LOCATION FACTORS BY HIGH TECHNOLOGY AND OTHER MANUFACTURING FIRMS, UPPER MIDWEST STATES, 1989

Factor	High Technology Manufacturing Firms		Other Manufacturing Firms	
	Mean Score[a]	% Rating Factor as Critical or Very Important	Mean Score[a]	% Rating Factor as Critical or Very Important
Labor				
Wage levels	2.9	35.9	2.9	25.5
Labor productivity	2.2	72.5	2.4	58.7
Work attitudes	2.2	69.2	2.3	61.5
Right to work laws	2.6	46.2	2.7	44.3
Presence of union	4.2	8.8	4.0	16.0
Absence of union	2.6	56.8	2.6	51.4
Labor Availability				
Professional (requiring a 4-year degree)[a]	3.5	15.8	3.9	8.7
Sales	3.5	29.7	3.4	24.0
Skilled industrial or technical	3.0	45.9	3.1	31.4
Clerical	3.5	15.4	3.4	14.9
Unskilled	3.2	25.6	3.4	19.7
Transportation				
Interstate highway access	3.1	33.3	3.0	39.9
Distance from your location to interstate:				
Mean	22.6		25.2	
Distribution (percent):				
10 miles or less	70.6			55.8
11-30 miles	2.9			18.4
31-100 miles	23.6			19.7
more than 100 miles	2.9			6.1
Motor freight service	2.6	57.5	2.4	57.1
Rail	4.6		4.4	
Is your town on a:				
Mainline (percent)	58.1			
Branchline (percent)	19.4			
No rail service (percent)	22.6			
Scheduled air service	3.3	5.6	3.5	19.8
Distance from your location to nearest scheduled service:				
Mean	43.0		33.5	
Distribution (percent):				
10 miles or less	55.6			43.8
11 to 30 miles	5.6			14.2
31 to 100 miles	30.6			37.1
More than 100 miles	8.4			4.9

[a]Based on a scale from 1 (critical) to 5 (unimportant)
[b]The two groups are significantly different at the .05 level using the Tukey test.

APPENDIX TABLE 9. RATING OF MARKETS, UTILITIES, QUALITY OF LIFE, AND HIGHER EDUCATION AS LOCATION FACTORS BY HIGH TECHNOLOGY AND OTHER MANUFACTURING FIRMS, UPPER MIDWEST STATES, 1989

Factor	High Technology Manufacturing Firms		Other Manufacturing Firms	
	Mean Score[a]	% Rating Factor as Critical or Very Important	Mean Score[a]	% Rating Factor as Critical or Very Important
Markets				
Close proximity to customers	3.6	20.5	3.3	29.1
Close proximity to suppliers/ raw materials[b]	4.0	2.6	3.3	27.3
Close proximity to others in the industry	4.5	2.6	4.2	5.9
Utilities				
Water supply	3.2	27.5	3.3	21.7
Waste treatment facilities	3.7	20.5	3.7	12.8
Availability of natural gas	3.6	23.1	3.5	21.8
Cost of natural gas	3.5	25.6	3.4	26.6
Availability of electricity	2.2	65.0	2.4	52.4
Cost of electricity	2.5	60.0	2.6	49.5
Telecommunication costs	3.0	33.3	3.1	26.7
Telecommunication capacity	3.3	25.6	3.2	24.7
Quality of Life				
Climate (weather)	3.5	15.0	3.7	8.5
Diversity of businesses	3.4	20.5	3.5	13.9
Close proximity to recreational opportunities	3.3	22.5	3.5	12.8
Close proximity to cultural opportunities	3.5	17.9	3.8	9.7
Quality of medical facilities	2.9	42.5	3.0	34.0
Quality of housing	3.0	37.5	2.9	30.5
Cost of housing	2.9	37.5	2.9	32.4
Quality of schools	2.8	45.0	2.6	50.8
Personal tax burdens (all taxes combined)	2.7	57.5	2.4	59.4
Higher Education				
Vocational-Technical schools:				
-close proximity of schools	3.2	17.5	3.5	18.7
-programs offered	3.2	20.0	3.4	21.3
Colleges & Universities:				
-close proximity of schools	3.4	17.5	3.6	13.4
-programs/degrees offered[b]	3.3	20.0	3.7	13.4

[a]Based on a scale from 1 (critical) to 5 (unimportant)
[b]The two groups are significantly different at the .05 level using the Tukey test.

APPENDIX TABLE 10. RATING OF TAXES, INCENTIVES, AND INFRASTRUCTURE AS LOCATION FACTORS BY HIGH TECHNOLOGY AND OTHER MANUFACTURING FIRMS, UPPER MIDWEST STATES, 1989

Factor	High Technology Manufacturing Firms		Other Manufacturing Firms	
	Mean Score[a]	% Rating Factor as Critical or Very Important	Mean Score[a]	% Rating Factor as Critical or Very Important
State and Local Taxes				
State corporate income taxes	2.6	55.0	2.4	53.5
State personal income taxes	2.9	42.5	2.6	47.6
State sales tax	3.3	28.2	2.9	33.7
Sales tax exemption on manufacturing equipment	3.1	38.5	2.7	46.5
Unemployment insurance rate	2.5	55.0	2.3	58.3
State property taxes	2.7	47.4	2.5	50.0
Local property taxes[b]	2.9	43.6	2.5	50.8
Worker's compensation	2.4	61.5	2.3	59.4
City sales tax[b]	3.5	20.5	3.0	35.3
Overall tax burden on business	2.4	57.5	2.1	70.6
Incentives and Infrastructure				
Community attitude toward business development	2.3	57.9	2.3	62.0
Developable land available	2.6	43.6	2.8	42.2
Buildings available	2.7	55.3	2.8	40.6
Cost of property	2.5	53.8	2.3	55.9
Cost of construction	2.8	36.8	2.6	47.6
Environmental regulations	3.1	34.2	2.7	45.2
Availability of local financing	2.7	50.0	2.5	57.1
Availability of local financial and developmental incentives	2.7	46.2	2.6	50.0
Availability of state financial and developmental incentives	2.8	47.4	2.7	45.4
Improved state regulatory climate	3.0	34.2	2.7	47.0
Incentives for venture capital formation	3.3	23.7	3.2	30.6
Streamlined process for obtaining government permits	3.4	26.3	3.3	22.7
State assistance in labor-training programs	3.5	29.7	3.2	29.2

[a]Based on a scale from 1 (critical) to 5 (unimportant)
[b]The two groups are significantly different at the .05 level using the Tukey test.

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