Agricultural Economics Miscellaneous Report No. 107 August 1987

A PROFILE OF NORTH DAKOTA'S MANUFACTURING SECTOR WORK FORCE

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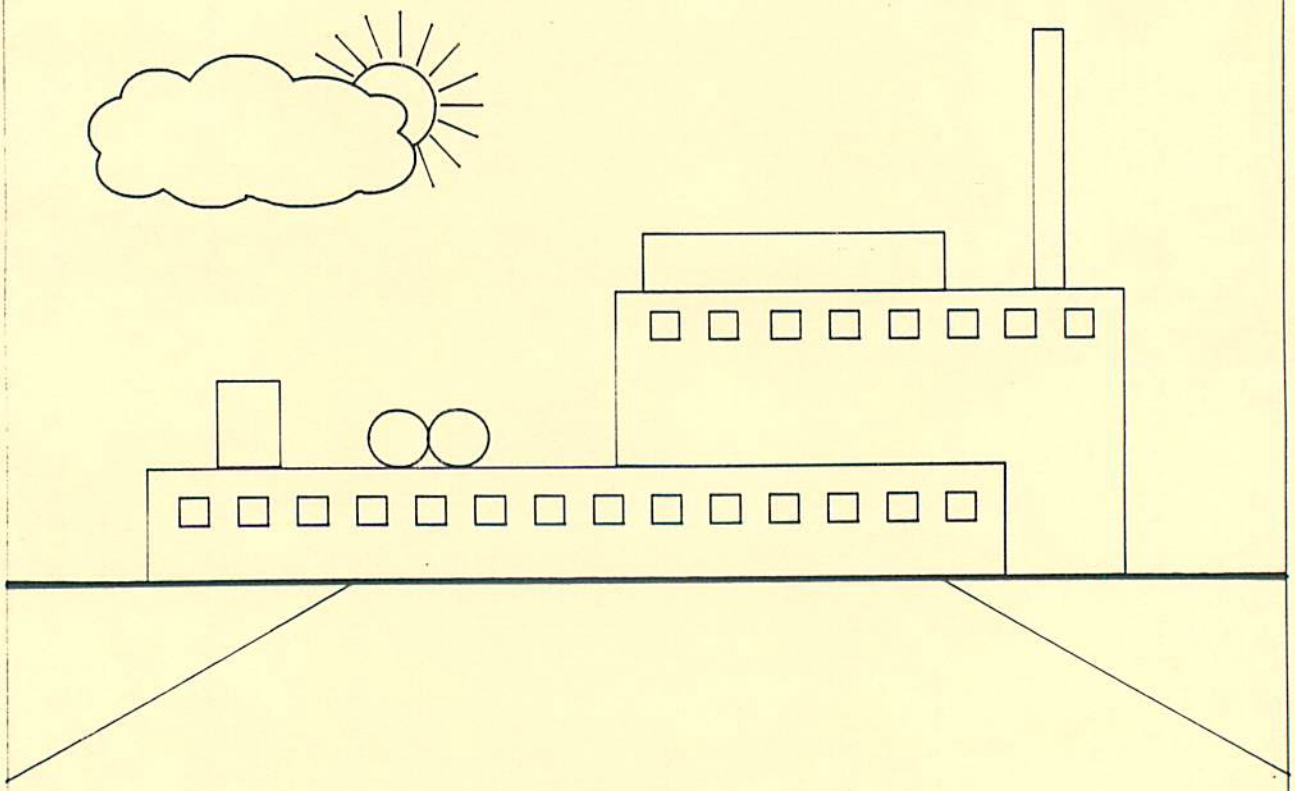

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Acknowledgements

Conducting the survey to collect the data necessary to develop a worker profile for the manufacturing industry can be accomplished only through the concentrated efforts of a number of people and organizations. First, our thanks go to the participating manufacturing firms for administering the questionnaires and to the workers for taking time to complete them. Our appreciation also is expressed to the Northwest Area Foundation, which through the Freedom of Enterprise Foundation provided financial support for the effort, and to Mr. Karl Stauber and Mr. Edward Dunn of those organizations, respectively, for their encouragement throughout the course of the study.

Our thanks next go to our colleagues in the Department of Agricultural Economics for their excellent reviews and insights throughout the course of this study. Ms. Brenda Ekstrom prepared the cover, and Ms. Mary Altepeter typed this manuscript.

As always, our gratefulness to these individuals does not implicate them for any remaining errors or omissions.

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Highlights

The manufacturing sector provides a potential source of growth for the North Dakota economy. Employment in this sector has experienced modest growth (from 10,200 to 14,800 workers during the 1972 to 1982 period) in recent years but could be a possible source of additional jobs in the future. Because manufacturing in the state has been overshadowed by agriculture and energy, very little is known about the characteristics of workers in this sector. The purpose of this study was to develop worker profiles for the manufacturing sector, which can be useful to determine if training programs, labor supplies, etc., would be adequate if the industry were to expand.

The manufacturing work force in North Dakota was dominated by males (71 percent), and a high portion of the workers were married (71 percent). Over 62 percent of the work force was 35 years of age or younger, and the mean age was 35.1 years. Workers in this industry were relatively well educated with only 3.4 percent completing only an eight grade education. Over 50 percent of the workers had completed 9 to 12 years of education, and over 44 percent had received post high school training. Over 64 percent of the workers owned their own home, and almost 58 percent had resided at their home six or more years.

Most (80.8 percent) manufacturing sector employees were paid on an hourly wage basis, and the mean wage rate was $7.71 per hour. Average length of time at their present job was 6.4 years for the manufacturing workers. Workers commuted (one way) an average of 11.0 miles. Of the manufacturing workers that were married, over 68 percent of their spouses also were working.

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Introduction

North Dakota is not viewed as a highly industrialized state but rather one rich in natural resources. Agriculture and energy have dominated the state's economic base and have comprised over 60 percent of the total for the 1981 to 1985 period (Coon 1987). Recent downturns in the agriculture and energy sectors have resulted in corresponding declines in the state's economy and, thus, emphasized the need for diversification in the state's economic base. The manufacturing sector provides one of the few opportunities for a more diversified economy because the remainder of the state's economic base activities rely on agriculture, energy, federal government outlays, or tourism for their means of support. Other sectors of the state's economy essentially arise to serve and support the basic economic sectors. For a complete discussion of the state's economic base, see Coon et al. (1985) and Coon, Leistritz, and Hertsgaard (1986).

The manufacturing sector comprised 8 percent of the state's economic base for the 1981 to 1985 period and is one of the few sectors that increased its share of the state's economic base during the 1958 to 1985 period (Coon 1987). Growth in the manufacturing sector has been a result of an increased number of firms engaged in that type of activity. A 28.7 percent increase in the number of establishments occurred between 1967 and 1982 (Table 1), and the number of larger firms (those with 20 or more employees) increased by over 54 percent during that same period. Total payrolls in manufacturing increased by 490 percent, and the value of products shipped increased by 575 percent in that period (Table 1). Total North Dakota employment in the manufacturing sector was 14,800 in 1982, and the total value added by manufacturers was over $650 million for the same year (Table 2). Earnings by the manufacturing industry in the state amounted to $333 million in 1985, a significant increase from the $89 million earned in 1972 (Table 3). These figures provide an indication of the growth that has occurred in the manufacturing sector of the state's economy, although much of this sector's expansion has been over-shadowed by the agriculture and energy sectors.

The manufacturing sector offers an opportunity for expansion and diversification of the state's economy. However, very little is known about the characteristics of the manufacturing sector's labor force. In response to this lack of adequate information, a worker profile questionnaire was developed and administered to persons working in this sector. Data obtained from this survey will be used to develop worker profiles for the industry. Traditionally, worker profiles have provided insight into the characteristics of employees (i.e., education, age, etc.) attracted to specific industries.

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TABLE 1. ESTABLISHMENTS, PAYROLL, AND VALUE OF SHIPMENTS FOR THE MANUFACTURING INDUSTRIES IN NORTH DAKOTA, SELECTED YEARS 1967 THROUGH 1982

Item	1967	1972	1977	1982
All establishments (number)	456	482	571	587
Establishments with 20 or more employees (number)	92	117	145	142
Payroll (million dollars)	41.6	78.6	162.3	245.6
Value of shipments (million dollars)	365.4	593.9	1,312.9	2,465.0

SOURCE: United States Department of Commerce (1980).

This information could be extremely helpful if the state's manufacturing industry were to expand, because it provides an indication of whether existing labor supplies would be adequate to staff new developments in North Dakota. In addition, the study results will help to identify the types of training programs that could be most helpful in preparing North Dakota workers for industrial jobs.

Survey Technique

A two-page questionnaire was developed to obtain information from workers in the manufacturing industry. A questionnaire is presented in Appendix A. Because of the length of the questionnaire, a large amount of detailed data was not collected, but rather only the basic socioeconomic information required to develop worker profiles was assembled. This procedure

TABLE 2. NUMBER OF MANUFACTURING EMPLOYEES AND VALUE ADDED BY MANUFACTURING INDUSTRIES IN NORTH DAKOTA, SELECTED YEARS 1972 THROUGH 1982

Item	1972	1977	1982
All employees (number)	10,200	13,800	14,800
Value added by manufacture (million dollars)	200.7	473.3	652.1

SOURCE: United States Department of Commerce (1980); United States Department of Commerce (1985).

TABLE 3. EARNINGS BY MANUFACTURING INDUSTRIES IN NORTH DAKOTA, 1972 THROUGH 1985

Year	Earnings By Manufacturing Industry
	---million dollars----
1972	89
1973	109
1974	139
1975	185
1976	199
1977	198
1978	221
1979	253
1980	262
1981	279
1982	289
1983	298
1984	320
1985	333

SOURCE: Bureau of Economic Analysis (1972-1985).

is consistent with that used to develop worker profiles for the North Dakota petroleum industry (Chase and Leistritz 1983) and the energy industry of the western United States (Halstead and Leistritz 1983; Wieland, Leistritz, and Murdock 1977).

The questionnaires were not administered to a sample of all manufacturing workers, but rather to all the workers at a sample of manufacturing firms. A comprehensive list of manufacturing workers was virtually impossible to obtain, whereas a directory of all firms involved in manufacturing activities was available (Torkelson and Forsythe 1983). This directory identified firms by SIC code, number of employees, and location. A sample of firms was drawn to represent all geographic locations, size of firms, and products manufactured. The procedure to administer the questionnaires was as follows: the sample of firms was drawn; the selected firms were contacted to determine their willingness to participate in the survey (several firms were unable to participate because either the management or the union had nonsolicitation rules, which prohibited surveys, of the workers); the questionnaires were mailed to the firms and distributed; workers were asked to complete the form, put it in an envelope, and leave it with a company representative who mailed the completed questionnaires back to the researchers. Each individual response, as well as the collective responses from a firm, remained confidential using this procedure. A total of 740 usable questionnaires was returned, but a response rate was impossible to estimate precisely because only gross estimates of the number of employees

were obtained when the firms were initially contacted. A very high percentage of the questionnaires given to the workers was returned for those firms willing or able to participate.

Manufacturing firms were first contacted in January 1986, and most of the questionnaires were returned by May of that year. Data were analyzed using the North Dakota State University computer and the Statistical Analysis System (SAS) software. To provide a more concise report and to maintain confidentiality, much data were classified (i.e., grouped) for the analysis. Results from the survey are presented in the section that follows.

Characteristics of Manufacturing Sector Workers

The characteristics of the manufacturing sector workers who responded to the survey are presented in this section. Demographic and work characteristics are presented to provide an overview of the industry's work force. Also, selected characteristics pertaining to the worker's previous employment will be presented, along with selected characteristics regarding employment by the spouses of the manufacturing workers. Several selected variables are further analyzed by crosstabbing them with other variables to determine more specific traits and tendencies about this group.

Selected demographic characteristics of the manufacturing work force are presented in Table 4. Males dominated the work force and comprised 71.3 percent of the sample compared to 28.7 percent female. The workers also were relatively young; the mean age was 35.1 years, and over 62 percent of the labor force was 35 years of age or less. A large portion of the workers (71.2 percent) were married, and the mean number of dependents (including the worker's spouse) was 1.9 persons. The mean number of children for those with them was 1.4. A large portion of the children were less than 4 years old (35 percent) and 5 to 12 years old (37 percent), and only 28 percent were 13 years of age or older. This large portion of children in the preteen age groups corresponds closely with the large number of workers that were in their mid-30s or younger.

Only 3.4 percent of the workers had completed only 8 years or less of formal schooling. Over 50 percent of the group had completed 9 to 12 years of education, and 44.3 percent had some post-high school training. This high proportion of personnel with post-high school education provides a good indication that many of the workers would be employed (or qualified to be employed) in skilled, technical, or managerial positions. These data indicate the need for training by persons competing in the job market for employment in North Dakota's manufacturing sector. Also, it appears that this sector provides jobs for the state's trained people, although the survey did not obtain any information regarding underemployment of the work force.

A large share of the workers owned their own home (64.2 percent) compared to 35.8 percent who rented their living quarters. Average length of time these people have lived at their current residence was 11.2 years. Almost 58 percent of the group had resided in their current home more than 6 years compared to only 10.5 percent who had occupied their home for less than

TABLE 4. SELECTED DEMOGRAPHIC CHARACTERISTICS FOR NORTH DAKOTA MANUFACTURING SECTOR WORKERS

Item	Units	Value	N
Worker age:			
Average age	years	35.1	703
Distribution			
25 years or less	percent	17.7	
26-35 years	percent	44.8	
36-45 years	percent	18.9	
46 or more years	percent	18.6	
Sex:			
Male	percent	71.3	740
Female	percent	28.7	
Marital status:			
Married	percent	71.2	729
Unmarried	percent	28.8	
Number of dependents: (including spouse)			
Average number	number	1.9	727
Distribution			
1 or less	percent	41.8	
2	percent	20.8	
3	percent	23.4	
4 or more	percent	14.0	
Education:			
Distribution			
8 years or less	percent	3.4	725
9-12 years	percent	52.3	
13-14 years	percent	31.2	
15-16 years	percent	8.1	
more than 16 years	percent	5.0	
Residence:			
Own	percent	64.2	712
Rent	percent	35.8	
Years lived at current residence:			
Average years	years	11.2	732
Distribution			
1 year or less	percent	10.5	
2-5 years	percent	31.6	
6-10 years	percent	21.9	
11-25 years	percent	23.6	
26 or more years	percent	12.4	

Note: N denotes the number of respondents to each question.

1 year. This would imply that the manufacturing industry in North Dakota has attracted workers that were longtime residents of the local area and had remained employed in that area for a rather long period. Because of recent downturns in the agricultural sectors of the economy, manufacturing workers were questioned as to their involvement in farming during the past five years. Only 13.7 percent of the respondents had been involved in farming during the past few years, and 7.9 percent of the group were currently active in farming. This would indicate that only 5.8 percent of the respondents had quit farming during the past five years. The survey did not obtain information regarding the respondents' farming status (i.e., full-time, part-time, or one who has a full-time job and farms part-time).

Selected employment characteristics for the manufacturing work force are presented in Table 5. The largest portion of the respondents (over 46 percent) categorized their occupation as laborer. Skilled, clerical, and technical jobs were listed by 12.2, 11.3, and 9.8 percent, respectively, of the respondents, while only 5.6 percent of the workers indicated they were in a management position. Average length of time on the job for manufacturing workers was 6.4 years with a nearly equal distribution for 1 year or less (24.2 percent), 2 to 5 years (27.0 percent), 6 to 10 years (27.0 percent), and 11 or more years (21.8 percent) associated with their present job.

The amount of time these workers have remained at their present job would tend to indicate a stable work force with a high degree of job loyalty. A high proportion (80.8 percent) of the workers were paid on an hourly basis, and the remaining 19.2 percent were paid an annual salary. A large share of the salaried workers (73.2 percent) were earning over $20,000 per year; the high percentage of salaried workers earning larger incomes would tend to indicate that technical and management workers are salaried employees. Hourly wage rate workers earned an average of $7.71 per hour with an almost equal portion of the workers receiving wages between $5.01 and $7.00 per hour (32.9 percent) and $7.01 and $10.00 per hour (36.0 percent).

Workers in the manufacturing industry traveled an average (one way) distance to work of 11.0 miles. A majority of the workers (57.0 percent) traveled less than 6 miles to work (one way), while 30.6 percent commuted 6 or more but less than 26 miles to their jobs, and only 12.4 percent worked 26 or more miles from their residence.

Additional insight about the manufacturing sector work force can be obtained from crosstab analysis. Crosstab analysis is a technique where the responses to one question are grouped and then subdivided by the group responses to another question. For example, educational levels could be crosstabbed by sex (male and female) to determine the number (and percent) of men and women in each education category. Numerous crosstabs were performed for the manufacturing worker survey and are presented in the text and in Appendix B of this report.

Analysis of length of time at the present job by sex is presented in Table 6. A higher percentage of females (30.4) had worked at their present job one year or less than males (21.6), and a greater portion of males (28.2 percent) than females (23.2 percent) had worked 2 to 5 years at their current

TABLE 5. SELECTED EMPLOYMENT CHARACTERISTICS FOR NORTH DAKOTA MANUFACTURING SECTOR WORKERS

Item	Units	Value	N
Occupation:			
Distribution			736
Laborer	percent	46.3	
Clerical worker	percent	11.3	
Technical worker	percent	9.8	
Management	percent	5.6	
Skilled worker	percent	12.2	
Other	percent	14.8	
Time in current job:			
Average length	years	6.4	734
Distribution			
1 year or less	percent	24.2	
2-5 years	percent	27.0	
6-10 years	percent	27.0	
11 or more years	percent	21.8	
Payment method:			
Annual salary	percent	19.2	740
Hourly wage rate	percent	80.8	
Annual salary:			
Distribution			142
$15,000 or less	percent	13.4	
$15,001 - $20,000	percent	13.4	
$20,001 - $30,000	percent	40.1	
$30,001 or more	percent	33.1	
Hourly wage rate:			
Average rate	dollars	7.71	598
Distribuiton			
$5.00 or less	percent	14.6	
$5.01 - $7.00	percent	32.9	
$7.01 - $10.00	percent	36.0	
$10.01 or more	percent	16.5	
Distance traveled to work (one way):			
Average distance	miles	11.0	734
Distribution			
Up to 1 mile	percent	14.2	
1.1 - 5.9 miles	percent	42.8	
6.0 - 15.9 miles	percent	18.9	
16.0 - 25.9 miles	percent	11.7	
26.0 or more miles	percent	12.4	

Note: N denotes the number of respondents to each question.

TABLE 6. LENGTH OF TIME AT PRESENT JOB BY SEX FOR MANUFACTURING SECTOR WORKERS

Length of Time at Job	Male		Female		Row Total and Percent	
	N	%	N	%	N	%
1 year or less	111	21.6	63	30.4	174	24.1
2-5 years	145	28.2	48	23.2	193	26.7
6-10 years	144	27.9	54	26.1	198	27.4
11 or more years	115	22.3	42	20.3	157	21.8
Total	515	100.0	207	100.0	722	100.0
Column percent of total (N = 722)		71.3		28.7		

job. Nearly indentical percentages of males (50.2 percent) and females (46.4 percent) had remained at the present job six or more years.

Distance traveled to work (one way) showed a greater percent of males commuting 1 mile or less and 26 or more miles, while a greater percent of women lived 2 to 5 miles and 16 to 25 miles from their job (Table 7). Nearly equal proportions of men and women lived 6 to 15 miles from their employment.

A higher share of the males (15.6 percent) than females (6.9 percent) had completed college or post-graduate levels of education (Table 8). The largest share of the workers had completed only high school; nearly equal percentages of males and females fell into this category (51.0 and 55.1 percent, respectively).

The largest share of both married and unmarried manufacturing sector workers lived in single-family dwellings (73.2 and 49.0 percent, respectively) (Table 9). However, 31.1 percent of the unmarried workers lived in apartments compared to only 10.1 percent of the married work force. Nearly equal percentages of the married and unmarried workers lived in mobile homes (12.0 percent and 11.2 percent, respectively). Other types of housing accounted for a very small portion of the total for each marital status.

Distance traveled (one way) to work was crosstabbed by length of time at the present job, and results are presented in Table 10. Of persons on their present job one year or less, the largest percentage (29.3) lived one mile or less from work, followed by 25 or more miles (20.9 percent), and 2 to 5 miles (20.4 percent). Employees who had been on the job one year or less had a much higher percentage who traveled one mile or less to work than any

TABLE 7. DISTANCE TRAVELED ONE WAY TO WORK BY SEX FOR MANUFACTURING SECTOR WORKERS

Miles (one way) To Work	Male		Female		Row Total and Percent	
	N	%	N	%	N	%
1 mile or less	80	15.5	21	10.2	101	14.0
2 to 5 miles	220	42.6	91	44.0	311	43.0
6 to 15 miles	99	19.2	38	18.4	137	18.9
10 to 25 miles	49	9.5	35	16.8	84	11.6
26 or more miles	68	13.2	22	10.6	90	12.5
Total	516	100.0	207	100.0	723	100.0
Column percent of total (N = 723)		71.4		28.6		

TABLE 8. EDUCATION BY SEX FOR MANUFACTURING SECTOR WORKERS

Education	Male		Female		Row Total and Percent	
	N	%	N	%	N	%
8 years or less	19	3.7	6	2.9	25	3.4
9 to 12 years	264	51.0	113	55.1	377	52.1
13 to 14 years	154	29.7	72	35.1	226	31.3
15 to 16 years	47	9.1	12	5.9	59	8.2
More than 16 years	34	6.5	2	1.0	36	5.0
Total	518	100.0	205	100.0	723	100.0
Column percent of total (N = 723)		71.6		28.4		

TABLE 9. TYPE OF RESIDENCE BY MARITAL STATUS FOR MANUFACTURING SECTOR WORKERS

Residence	Married N	Married %	Unmarried N	Unmarried %	Row Total and Percent N	Row Total and Percent %
Single-family home	377	73.2	101	49.0	478	66.3
Apartment	52	10.1	64	31.1	116	16.1
Townhouse/condo	13	2.5	5	2.4	18	2.5
Mobile home	62	12.0	23	11.2	85	11.8
Sleeping room	1	0.2	4	1.9	5	0.7
Other	10	2.0	9	4.4	19	2.6
Total	515	100.0	206	100.0	721	100.0
Column percent of total (N = 721)		71.4		28.6		

other length of employment group. The same was true for the commuting distance in excess of 25 miles. This would indicate that many newer employees are retaining their residence and driving to their work rather than relocating immediately upon changing jobs. Most persons who have worked two or more years at their job lived two to five miles from work. Interestingly, the portion of the total workers in the 2 to 5 mile category increased with length of time on the job. This indicates that the longer workers are at the same job, the more likely they are to move closer to their employment location. About 20 percent of the workers who had worked 2 or more years at their job lived within 6 to 15 miles of their work.

Selected characteristics pertaining to the worker's prior job are presented in Table 11. The largest portion (20.3 percent) of the workers listed their previous occupation as laborer, closely followed (19.0 percent) by skilled worker. The third largest group (11.2 percent) was unemployed prior to their present job. Manufacturing firms had employed the largest portion (20.4 percent) of workers prior to their current job. Service sector jobs, retail, farm, and construction firms also had employed a relatively large share of workers (13.0, 10.3, 10.0, 8.5 percent of the total, respectively). A total of 13.2 percent of the workers responding to this question indicated they had no former employer (i.e., unemployed or self-employed).

Selected characteristics relating to the manufacturing worker's spouse are presented in Table 12. Of the workers that were married, 68.4 percent had

TABLE 10. DISTANCE TRAVELED ONE WAY TO WORK BY LENGTH OF TIME AT PRESENT JOB FOR MANUFACTURING SECTOR WORKERS

Miles (one way) To Work	1 Year or Less		2 to 5 Years		6 to 10 Years		11 or More Years		Row Total and Percent	
	N	%	N	%	N	%	N	%	N	%
1 mile or less	52	29.3	32	16.4	10	5.1	8	5.0	102	14.0
2 to 5 miles	36	20.4	79	40.5	104	53.1	94	58.8	313	43.0
6 to 15 miles	28	15.8	39	20.0	39	19.9	32	20.0	138	19.0
16 to 25 miles	24	13.6	28	14.4	21	10.7	13	8.1	86	11.8
26 or more miles	37	20.9	17	8.7	22	11.2	13	8.1	89	12.2
Total	177	100.0	195	100.0	196	100.0	160	100.0	728	100.0
Column percent of total (N = 728)		24.3		26.8		26.9		22.0		

TABLE 11. SELECTED CHARACTERISTICS RELATING TO PREVIOUS EMPLOYMENT FOR NORTH NORTH DAKOTA MANUFACTURING SECTOR WORKERS

Item	Units	Value	N
Previous Occupation:			
Laborer	percent	20.3	735
Farmer/farm laborer	percent	10.0	
Military service	percent	3.2	
Construction worker	percent	5.9	
Clerical worker	percent	8.7	
Salesperson	percent	5.7	
Truck Driver	percent	5.7	
Skilled worker	percent	19.0	
Other	percent	10.3	
Unemployed	percent	11.2	
Type of firm previous employed by:			
Manufacturing	percent	20.4	740
Construction	percent	8.5	
Retail	percent	10.3	
Farm	percent	10.0	
Military	percent	4.1	
Service	percent	13.0	
Engineering	percent	3.9	
Other	percent	16.6	
No former employer	percent	13.2	
Previous residence:			
Fargo	percent	5.6	692
Grand Forks	percent	12.1	
Hillsboro	percent	3.2	
Wahpeton	percent	5.9	
Williston	percent	3.0	
Other North Dakota towns	percent	33.4	
Minnesota	percent	23.3	
South Dakota	percent	1.7	
Iowa	percent	1.3	
Montana	percent	1.3	
California	percent	1.2	
Other states	percent	8.0	

Note: N denotes the number of respondents to each question.

spouses currently employed. The largest share were employed as laborers (19.7 percent), followed by clerical (18.6 percent), service (17.7 percent), and sales jobs (12.9 percent). Spouses of manufacturing sector workers had been at their present job for a relatively long period of time; 24.3 percent had

TABLE 12. SELECTED CHARACTERISTICS RELATING TO THE SPOUSE OF NORTH DAKOTA MANUFACTURING SECTOR WORKERS

Item	Units	Value	N
Does spouse work:			
Yes	percent	68.4	513
No	percent	31.6	
Type of employment for spouse:			
Distribution			
Clerical	percent	18.6	350
Services	percent	17.7	
Labor	percent	19.7	
Sales	percent	12.9	
Teaching	percent	6.3	
Manager	percent	5.1	
Engineer	percent	3.7	
Other	percent	16.0	
Time at present job for spouse:			
Average length	years	7.3	350
Distribution			
1 year or less	percent	16.0	
2-5 years	percent	32.6	
6-10 years	percent	27.1	
11 or more years	percent	24.3	

Note: N denotes the number of respondents to each question.

worked for 11 or more years, 27.1 percent for 6 to 10 years, and 32.6 percent had worked at the same job for 2 to 5 years. Only 16.0 percent of the worker's spouses had been at their present job for 1 year or less. The trend of the worker's spouses to remain at their job for long periods is very similar to that of the manufacturing workers themselves.

Summary

The need for diversification in the North Dakota economy has become evident in recent years with the impact that downturns in the agriculture and energy sectors have had on the state's economy. Manufacturing is one potential source for economic growth in the state, and information obtained from a work force survey can provide a great deal of insight about workers currently employed in this sector. Therefore, a survey was conducted to provide information for developing a worker profile of the North Dakota manufacturing sector. A total of 740 usable questionnaires were returned from persons working for firms that produced a wide range of products.

The North Dakota manufacturing work force is dominated by males (71 percent), and a high portion of the workers are married (71 percent). Average age for workers in this sector is 35.1 years, and over 62 percent of the work force is 35 years of age or younger. This group was relatively well educated. Only 3.4 percent had completed 8 years or less of school, over 50 percent had completed 9 to 12 years of education, and 44.3 percent had received post-high school training. Over 64 percent of the workers owned their place of residence, and almost 58 percent had lived in their current residence 6 or more years.

The majority (80.8 percent) of manufacturing workers were paid an hourly wage, and the mean wage rate was $7.71 per hour. Average length of time at their present job was 6.4 years, and workers were almost equally distributed among the four categories: 1 year or less, 2 to 5 years, 6 to 10 years, and 11 or more years. Manufacturing sector workers commute (one way) an average of 11.0 miles to work and 57 percent lived 5 miles or less from their source of employment. Of the manufacturing sector workers that were married, over 68 percent of their spouses also were working.

The manufacturing industry provides jobs for many North Dakota residents. These workers typically are male, young, and fairly well educated. These workers tend to stay at their job for a rather long period of time and to commute short distances to work. Characteristics of the North Dakota manufacturing sector work force provide an indication of the type of worker hired by that industry and the type of person attracted to employment in that sector.

Appendix A

Manufacturing Worker Questionnaire

MANUFACTURING WORKERS SURVEY
Employee Questionnaire

This survey is being conducted by North Dakota State University in order to establish a worker profile for persons employed by North Dakota manufacturing firms. All answers are strictly confidential--do not write your name on this survey. Please fill out this form and return it to your employer. Your cooperation is appreciated.

1. What is your occupation (job title)? _____

2. What product(s) does your company manufacture? _____

_____

3. How long have you worked at this job? _____years

4. Are you paid on an annual salary or an hourly wage basis?

_____annual salary _____hourly wage

If you are paid on an annual salary basis, what is your salary?

_____0-$4,999 _____$10,000-14,999 _____$20,000-29,999
_____$5,000-9,999 _____$15,000-19,999 _____$30,000+

If you are paid on an hourly wage basis, what is your:

_____hourly wage rate _____weeks worked per year

5. Did you farm or work full-time on a farm during the past five years?

_____yes _____no

6. Do you farm part-time at the present time? _____yes _____no

(if yes, how many acres do you farm? _____acres)

7. In what city do you work (or nearest city if located in rural area)?

_____(city, state)

8. In what city do you live (or nearest city if you live in a rural residence)?

_____(city, state)

9. How long have you lived there? _____years

10. How many miles do you travel to work? _____miles one way

11. Where did you live before you moved to your current residence?

_____(city, state)

12. What was your occupation before you took your present job (job title)?

_____

13. What type of company were you employed by before your present job?

_____

14. What was the location of the company you were employed at before your present job? _____(city, state)

15. Sex: _____Male _____Female

16. Age: _____years

17. Education (years in school): _____8 years or less
_____9-12 years
_____13-14 years
_____15-16 years
_____more than 16 years

18. Marital status: _____married _____single/divorced/separated

19. Number of persons (spouse and children) living at your local place of residence? _____

20. Number of children: _____0-4 years
_____5-12 years
_____13-18 years
_____over 18 years

21. Do you own or rent your home? _____own _____rent

22. Do you live in:

_____single family home
_____apartment
_____townhouse/condominium
_____mobile home
_____sleeping room
_____other

23. What is your wife's/husband's occupation? _____

24. What type of business does she/he work for? _____

25. How long has she/he worked at that job? _____years

26. In what city does your wife/husband work? _____

27. In what city do you make the majority of your retail purchases?

_____

THANK YOU FOR YOUR HELP!!

Appendix B

Crosstab Analysis Results

APPENDIX TABLE 1. DISTANCE TRAVELED ONE WAY TO WORK BY MARITAL STATUS FOR MAUFACTURING SECTOR WORKERS

Miles (one way) To Work	Married		Unmarried		Row Total and Percent	
	N	%	N	%	N	%
1 mile or less	58	11.3	43	20.6	101	14.0
2 to 5 miles	233	45.2	78	37.3	311	43.0
6 to 15 miles	109	21.2	28	13.4	137	18.9
16 to 25 miles	59	11.4	25	12.0	84	11.6
26 or more miles	56	10.9	35	16.7	91	12.5
Total	515	100.0	209	100.0	724	100.0
Column percent of total (N = 724)		71.1		28.9		

APPENDIX TABLE 2. EDUCATION BY ANNUAL SALARY OR HOURLY WAGE PAYMENT FOR MANUFACTURING SECTOR WORKERS

Education	Annual Salary		Hourly Wage		Row Total and Percent	
	N	%	N	%	N	%
8 years or less	1	0.7	24	4.1	25	3.4
9 to 12 years	40	28.6	339	58.0	379	52.3
13 to 14 years	48	34.3	178	30.4	226	31.2
15 to 16 years	25	17.8	34	5.8	59	8.1
More than 16 years	26	18.6	10	1.7	36	5.0
Total	140	100.0	585	100.0	725	100.0
Column percent of total (N = 725)		19.3		80.7		

APPENDIX TABLE 3. HOURLY WAGE RATE BY SEX FOR MANUFACTURING SECTOR WORKERS

Hourly Wage Rate	Male		Female		Row Total and Percent	
	N	%	N	%	N	%
$5.00 or less	36	9.3	43	27.2	79	14.5
$5.01 to $7.00	113	29.1	65	41.1	178	32.6
$7.01 to $10.00	157	40.5	41	26.0	198	36.2
$10.01 or more	82	21.1	9	5.7	91	16.7
Total	388	100.0	158	100.0	546	100.0
Column percent of total (N = 546)		71.1		28.9		

APPENDIX TABLE 4. DISTANCE TRAVELED ONE WAY TO WORK BY HOURLY WAGE RATE FOR MANUFACTURING SECTOR WORKERS

Miles (one way) To Work	$5.00 or less		$5.01-$7.00		$7.01-$10.00		$10.01 or more		Row Total and Percent	
	N	%	N	%	N	%	N	%	N	%
1 mile or less	19	23.5	25	13.8	28	14.1	3	3.3	75	13.6
2 to 5 miles	14	17.3	56	31.0	103	51.8	49	53.3	222	40.2
6 to 15 miles	13	16.0	36	19.9	42	21.1	16	17.4	107	19.3
16 to 25 miles	11	13.6	33	18.2	17	8.5	11	11.9	72	13.0
26 or more miles	24	29.6	31	17.1	9	4.5	13	14.1	77	13.9
Total	81	100.0	181	100.0	199	100.0	92	100.0	553	100.0
Column percent of total (N = 553)		14.7		32.7		36.0		16.6		

APPENDIX TABLE 5. DISTANCE TRAVELED ONE WAY TO WORK BY AGE FOR MANUFACTURING SECTOR WORKERS

Miles (one way) To Work	25 or less		26 to 30		31 to 35		36 to 45		46 or More		Row Total and Percent	
	N	%	N	%	N	%	N	%	N	%	N	%
1 mile or less	31	25.0	27	16.2	14	9.7	16	12.1	11	8.4	99	14.2
2 to 5 miles	36	29.0	75	44.9	70	48.2	57	43.2	59	45.0	297	42.5
6 to 15 miles	13	10.5	30	17.9	37	25.5	25	18.9	30	22.9	135	19.3
16 to 25 miles	19	15.3	20	12.0	10	6.9	16	12.1	15	11.5	80	11.4
26 or more miles	25	20.2	15	9.0	14	9.7	18	13.7	16	12.2	88	12.6
Total	124	100.0	167	100.0	145	100.0	132	100.0	131	100.0	699	100.0
Column percent of total (N = 699)		17.8		23.9		20.7		18.9		18.7		

APPENDIX TABLE 6. DISTANCE TRAVELED ONE WAY TO WORK BY PRIMARY LOCATION OF RETAIL PURCHASES FOR MANUFACTURING SECTOR WORKERS

Miles (one way) To Work	Same City as Employment City		Different City From Employment City		Row Total and Percent	
	N	%	N	%	N	%
1 mile or less	60	14.7	35	12.3	95	13.7
2 to 5 miles	232	57.0	70	24.6	302	43.7
6 to 15 miles	74	18.2	59	20.7	133	19.2
16 to 25 miles	26	6.4	52	18.2	78	11.3
26 or more miles	15	3.7	69	24.2	84	12.1
Total	407	100.0	285	100.0	692	100.0
Column percent of total (N = 692)		58.8		41.2		

APPENDIX TABLE 7. PRIMARY LOCATION OF RETAIL PURCHASES BY SEX FOR MANUFACTURING SECTOR WORKERS

Majority of Retail Purchases	Male		Female		Row Total and Percent	
	N	%	N	%	N	%
Same city as employment city	307	61.0	102	53.1	409	58.8
Different city from employment city	196	39.0	90	46.9	286	41.2
Total	503	100.0	192	100.0	695	100.0
Column percent of total (N = 695)		72.4		27.6		

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