



Industrial growth in Montana
by James B Cameron

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of DOCTOR OF PHILOSOPHY in Agricultural Economics
Montana State University
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Abstract:

An examination of the Montana economy reveals that the leading indicator of economic growth, per capita income, is increasing but at a rate below that found in the majority of states. The Montana economy needs an infusion to reverse this trend. Industrial growth is a sector that could give this infusion and stimulate economic growth. The research was directed at assessing the possibility of stimulating industrial growth in Montana.

The methodology used in the research was (1) to review location theory and then apply it to the characteristics found in Montana to determine if enough favorable location factors existed that would induce industry to locate in the State and (2) to make empirical studies among three different groups of industrial firms (firms now operating in Montana, firms that have operated within Montana, and out-of-state firms that have investigated industrial locations within Montana) to determine if additional locational problems existed that were not discovered in applying location theory to Montana. In addition, a sample of the Montana population was interviewed to determine the attitude of the population toward industrial growth.

From applying location theory and from the empirical studies, the indications were that Montana is not on the threshold of industrial development nor were there any indications that it is likely to be so in the near future. Some industrial growth should occur but it is not expected that this growth will be large.

The biggest stimulant to future industrial development in Montana will be in the processing of the State's natural and agricultural resources.

The biggest deterrent to industrial growth is the lack of markets, with cost of transportation and labor being other important deterrents.

The attitudes among those Montanans interviewed for this study indicated they were overwhelmingly in favor of trying to stimulate industrial growth and were willing to offer some concessions to industry in order to stimulate this growth.

Considering all factors relating to the industrial sector, it is unlikely that this area will grow substantially so as to stimulate any large growth in the Montana economy.

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of

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in

Agricultural Economics

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Notwithstanding the contributions made by others, the errors, if any, in this dissertation are mine alone and I assume full responsibility for any that exist.

CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
Problem Setting	1
Economic Growth	3
Per Capita Income	6
Population	7
Employment	14
Brain Drain	21
Purpose and Importance of Study	26
Hypothesis	29
Methodology	30
Limitations	32
II. GENERAL FACTORS INVOLVED IN THE LOCATION OF INDUSTRY	33
Introduction	33
Demand Factors	35
Cost Factors	41
Personal Factors	67
Governmental Factors	72
Summary	73
III. CHARACTERISTICS OF MONTANA AFFECTING INDUSTRY	74
Introduction	74
General Characteristics	74

CHAPTER	PAGE
Natural Resources	76
Labor	83
Transportation	88
Industrial	89
Taxes	96
Community Government	98
State Government	99
IV. DETERRENTS AND STIMULANTS TO INDUSTRIAL GROWTH	102
Introduction	102
Present Montana Industry	102
Demand	105
Cost Factors	110
Personal Factors	148
Governmental Factors	155
Summary	156
V. EMPIRICAL STUDIES	158
Firms Operating Within Montana	158
Firms Investigating Montana Locations	187
Firms No Longer Operating in Montana	194
Summary	195
VI. ATTITUDES TOWARD INDUSTRY	197
Importance of Attitude	197
Results of Questionnaire	198

CHAPTER	PAGE
Chi-Square Test for Homogeneity	213
Summary	214
VII. SUMMARY, CONCLUSION, AND RECOMMENDATIONS	216
Summary	216
Conclusion	220
Recommendations	223
APPENDIX	228
Appendix I	229
Appendix II	233
Appendix III	234
Appendix IV	235
LITERATURE CONSULTED	237

LIST OF TABLES

TABLE	PAGE
I. Per Capita Income, Montana and the United States, 1950-1965	8
II. Per Capita Income Indexes for Montana, Neighboring States, and the United States, 1955-1965	9
III. Percentage Change in Per Capita Incomes, Montana and Surrounding States, 1953-1964 and 1948-1964	10
IV. Montana and United States Population Comparisons, April 1, 1960 and July 1, 1964	12
V. Employment Changes in Montana by Major Divisions From 1950 to 1960 and Projected to 1975	15
VI. Average Employee Earnings in Montana by Divisions, 1960 and 1965	20
VII. Percentage of Employment by Division, Montana and the United States, April 1, 1960	22
VIII. Employment Location of 216 Graduating Seniors of Montana State University, June 1966	24
IX. Selected Statistical Characteristics, by State	77
X. Occupational Distribution of the Labor Force, Montana and United States, 1950 and 1960	84
XI. Age Distribution and Percentage Employed of the Montana Labor Force, 1960	85
XII. Characteristics of Civilian Labor Force in Montana, 1960	86
XIII. General Statistics for Standard Metropolitan Statistical Areas, Counties, and Selected Cities in Montana, 1963 and 1958	92
XIV. General Statistics by Industry Group in Montana, 1963 and 1958	93

TABLE	PAGE
XV. Size of Manufacturing Establishments in Montana by Number of Employees, 1958 and 1963	104
XVI. Index by State of Relative Growth in Value Added and Production Employment	114
XVII. Percentage Comparison of Per Hour Earnings for Production Workers Between Montana and Other Continental States, Selected Industrial Groups and All Industry, 1963	121
XVIII. Montana's Ranking of Hourly Earnings for Production Workers with Other Continental States, All Industry and For Selected Industrial Groups, 1963 and 1958	122
XIX. Comparison of Productivity Between Montana and Other Continental States for Selected Industrial Groups, 1963	124
XX. Productivity Ranking of Montana with Other Continental States for Selected Industrial Groups, 1963	125
XXI. Labor, Material, and Utilities as a Percentage of Total Value of Shipments by Industry Group, 1963	128
XXII. Four Digit Industry Groups with Utility Costs Exceeding Five Percent of Total Value of Shipments, 1963	130
XXIII. Tax Comparisons Between Montana and the Eight States That Showed the Largest Increase in Value Added to Manufactures in the Period 1947 to 1963	135
XXIV. Percentage of Returns on Industry Questionnaire	160
XXV. Summary of Responses on "Attitude Toward Industry" Questionnaire	199
XXVI. Responses on 633 Non-Student "Attitude Toward Industry" Questionnaire by Age and Sex	209
XXVII. Responses on 633 Non-Student "Attitude Toward Industry" Questionnaires by Occupation	212
XXVIII. Chi-Square Test of Homogeneity on Question 1 of "Attitude Toward Industry" Questionnaire	214

LIST OF FIGURES

FIGURE		PAGE
1.	Unemployment Rate, Montana and United States, January 1, 1960 to July 1, 1966	17
2.	Cost Curves - Two Competitors	42
3.	Transportation Cost	46
4.	Backhaul Transportation	50
5.	Average Annual Precipitation in Montana	78
6.	Railroads	89
7.	Airline Routes	90
8.	Maintained Highways	91

ABSTRACT

An examination of the Montana economy reveals that the leading indicator of economic growth, per capita income, is increasing but at a rate below that found in the majority of states. The Montana economy needs an infusion to reverse this trend. Industrial growth is a sector that could give this infusion and stimulate economic growth. The research was directed at assessing the possibility of stimulating industrial growth in Montana.

The methodology used in the research was (1) to review location theory and then apply it to the characteristics found in Montana to determine if enough favorable location factors existed that would induce industry to locate in the State and (2) to make empirical studies among three different groups of industrial firms (firms now operating in Montana, firms that have operated within Montana, and out-of-state firms that have investigated industrial locations within Montana) to determine if additional locational problems existed that were not discovered in applying location theory to Montana. In addition, a sample of the Montana population was interviewed to determine the attitude of the population toward industrial growth.

From applying location theory and from the empirical studies, the indications were that Montana is not on the threshold of industrial development nor were there any indications that it is likely to be so in the near future. Some industrial growth should occur but it is not expected that this growth will be large.

The biggest stimulant to future industrial development in Montana will be in the processing of the State's natural and agricultural resources. The biggest deterrent to industrial growth is the lack of markets, with cost of transportation and labor being other important deterrents.

The attitudes among those Montanans interviewed for this study indicated they were overwhelmingly in favor of trying to stimulate industrial growth and were willing to offer some concessions to industry in order to stimulate this growth.

Considering all factors relating to the industrial sector, it is unlikely that this area will grow substantially so as to stimulate any large growth in the Montana economy.

Industrialization appears to be a major and essential ingredient for substantial economic growth.

Wilbert E. Moore

Chapter I

INTRODUCTION

Problem Setting

In eleventh century Europe a group of churchmen hit upon an idea to enhance the value of church lands. Cities and towns had begun to develop so these churchmen conceived the idea of industrial development that would promote the church owned lands and make them more valuable. In twentieth century United States some of the people are still doing the same thing-- trying to enhance the wealth of an area through industrial development. But the means being used now are vastly different and far more expensive than those used by the eleventh century churchmen. In fact, trying to lure new industries¹ to establish in particular locations has become a business that employs thousands of people and spends millions of dollars.

¹Although there are several good definitions of industry available, the one selected was that used by Wilbert E. Moore, in The Impact of Industry, Prentice-Hall, 1965, page 4. Moore defined industry as "the fabrication of raw materials into intermediate components or finished products by primarily mechanical means dependent upon inanimate sources of power."

Even though the above definition is narrower than some others (especially that used by the federal government which includes not only industry, as defined above, but also construction, transportation, mineral extraction, and public utilities), it fits the subject matter discussed in this paper. As defined, industry is closely synonymous with manufacturing and the two are used interchangeably throughout this study.

As recently as 1963 it was estimated that this business was spending \$220 million a year.²

No longer is this a business where amateurs can have much success as there are too many professionals who have a greater knowledge of how the game is played. It has been estimated that there are 20,000 area development organizations throughout the United States³ and that about 500 new plants are either established or relocated in any given year.⁴ Thus the chance of success in landing one of these industrial plants by an area development organization is very small--about one in forty.

With such heavy odds against landing one of the new industrial plants, why don't some of these industrial development groups close up shop and forget the whole thing? The reason is simple--the potential gains exceed current costs. For example, a study done by the Economic Research Department of the Chamber of Commerce of the United States indicated the following: A new plant employing 100 workers would add 65 jobs outside the plant; it would support three more retail stores; it would boost bank deposits in the area by \$229 thousand; it would increase population by 359 people; it would add 100 more households, 97 more cars, and 91 more school children; it would add \$331 thousand to retail sales per year; and it would increase

²"The Rough-and-Tumble of Site Location," Dun's Review and Modern Industry, March, 1963, p. 97.

³"The Big Plant Site Scramble," Dun's Review and Modern Industry, March, 1964, p.105.

⁴James O. Henderson and Anne O. Krueger, National Growth and Economic Change in the Upper Midwest, University of Minnesota Press, 1965, p.110.

personal income by \$710 thousand.⁵ In addition another writer estimated that, on an average, industry makes a capital investment of \$20 thousand for each employee hired.⁶ One must keep in mind that these figures were derived several years ago and undoubtedly would be higher today. Yet they are impressive and give a good indication why the race for industry is on. Also, there is little doubt that industrialization will help economic growth and improve per capita income.

Economic Growth

Economic growth has been defined as the expansion of an area's capability to produce the goods and services that its people want. Since the productive capacity of an area depends upon the quantity and quality of its resources and the level of technology present, economic growth requires that these determinants be continually improved and expanded.

What is the significance of economic growth for the people of Montana? Essentially it is to increase the welfare or well-being of the people in the State absolutely as well as relatively to the other forty-nine states. This is done in two ways: it leads to growth in the quantity and quality of goods available for private consumption, and it provides the necessary resources for government to assume its ever-increasing responsibilities without adversely affecting private consumption standards. If economic

⁵"What New Industrial Jobs Mean to a Community," Chamber of Commerce of the United States, Washington, D.C., 1963.

⁶"Want New Industry," American City, April, 1959, p. 5.

growth did not occur in the total economy, then an expanding government could, in some instances, lead to lower personal consumption.

Although the material standard of living in this nation is the highest in the world, the citizens of Montana, like those in the rest of the country, have come to expect a continued upward movement. For this increase to take place, economic growth is an absolute necessity. That economic growth has occurred in the United States cannot be questioned, but neither can the statement that economic growth throughout the United States has not occurred uniformly. A competitive struggle exists among the states, each hoping to obtain more than its share of this economic growth. (An analysis of whether or not Montana has obtained its share of the economic growth that has occurred in the United States will be discussed later in this chapter.)

The processes by which economic growth takes place are the means by which an area expands its productive capacity. Basically, four factors are important in the process of economic growth. These are: (1) the quantity and quality of labor (including managerial abilities), (2) the quantity and quality of the natural resources, (3) the quantity and quality of capital, and (4) the level of technology within the society.

As for factors three and four, capital and technology, their importance as factors in the economic and industrial growth of Montana (or of any other state for that matter) have been assumed to be negligible. Most experts would agree that within the United States (and to some extent all of the free world) capital is now quite mobile. That is, it moves in

response to the opportunities and earnings from its employment. The United States system of financial institutions is highly developed and these institutions are continually searching for new ways to improve their services.

As for technology, this diffuses through our nation at a very rapid rate. Although there are pockets where research activities are more extensive, normally professional associations and literature will move the knowledge of any new technology at a fairly rapid rate. Montana certainly is not a leader in the development of technology and perhaps lags some in the adoption of new ideas. Aside from the national system of patents, there are no legal barriers present to prevent the transfer of innovations from state to state. It is felt that patent protection probably has little affect on the economic growth of Montana.

The other two factors of economic growth, natural resources and labor, are both important to Montana. Natural resource endowment is very definitely not the same in the different states and there is not much a state can do to change the natural resources that it has or does not have. However, something can be done about finding and utilizing those that do exist. In the booklet Natural Resources of Montana, this statement is made:

"Development of the state (Montana) has stemmed and will progress from the people of Montana, who know the value of wise conservation, careful management, and rational use of the resources Nature has given them. Montana has grown from a brawling, independent frontier territory into a State with a diversified economy. Its future is assured, because the basic resources are at hand for sustaining continued growth."⁷

⁷Natural Resources of Montana, U. S. Department of the Interior, Washington, D. C., 1964, p.67.

The quality of labor is more important in economic growth than quantity but both are necessary ingredients. India and China have large quantities of unskilled labor yet show a poor economic growth rate. On the other hand, an area may have an abundance of skilled (quality) labor and still show a low economic growth rate. Subsequent pages in the chapter will examine the quantity and quality of labor in Montana along with an assessment of their effect on economic growth.

Per Capita Income

If one is interested in economic growth because of its significance to the welfare of the citizens, then what is important is not just output but rather the right kind of output. Increased production means little to the average citizen unless he has a growing volume of goods and services at his disposal. Thus the measure of economic growth that is most meaningful is the level of output per person. Measured in dollars and cents this is labeled per capita income and is one of the standard methods for determining how well an area is doing.

A look at per capita income for Montana shows that a very undesirable change has taken place in recent years. Taylor studied this area and states that in the period 1938-1955 per capita income in Montana averaged about 1.5 percent above that for the whole United States, but since 1955 it has averaged 7.5 percent below the United States average. Taylor concluded from his study that "Montana is not sharing in the general economic growth of the country" and that "rather than being sluggish, the Montana

economy has been almost stagnant since 1955."⁸ Table I shows what is happening to per capita incomes in Montana and the United States, Table II shows the growth in per capita incomes in Montana, surrounding areas, and the United States. Both tables clearly indicate that the relative position of Montana is deteriorating. It is evident that something needs to be done to reverse this undesirable trend.

Table III shows that per capita income growth in Montana has been small compared with surrounding states. In fact, except for South Dakota, Montana had the lowest percentage increase in per capita income of all fifty states during the period 1948 through 1964.

The standard measurement for determining how well an area is doing, per capita income, is far from encouraging as far as Montana is concerned. Not only is growth in per capita income below average but our ranking among the fifty states is deteriorating, going from the top third in the early 1950's to the bottom half in the 1960's

Population

In the decade 1950-1960, the population of Montana grew from 591 thousand to 675 thousand people. This is an average percentage growth for each year of 1.33 percent as compared to the rate of growth of the entire United States of 1.70 percent per year. From April 1, 1960 (when

⁸ Maurice C. Taylor, "Income Trends in Montana," Bulletin 590, Montana Agricultural Experiment Station, Montana State University, Bozeman, Montana, (October, 1964) pp. 3-4.

TABLE I

PER CAPITA INCOME, MONTANA AND THE UNITED STATES, 1950-1965

<u>Year</u>	<u>Montana</u> (Dollars)	<u>United States</u> (Dollars)	<u>Montana as a</u> <u>Percent of U. S.</u> (Percent)	<u>Montana's Rank</u> <u>Among Fifty States</u> (Rank)
1950	1,622	1,496	108	13
51	1,760	1,652	107	17
52	1,786	1,733	103	18
53	1,779	1,804	99	21
54	1,729	1,785	97	22
55	1,852	1,876	99	19
56	1,892	1,975	96	21
57	1,944	2,045	95	21
58	2,059	2,068	100	19
59	2,010	2,161	93	26
60	2,037	2,215	92	27
61	1,973	2,264	87	31
62	2,272	2,368	96	24
63	2,265	2,455	92	28
64	2,255	2,579	87	32
65	2,438	2,746	89	29

SOURCE: Survey of Current Business, U. S. Department of Commerce, Washington, D. C., August, 1966, Table 2, p. 13.

TABLE II

PER CAPITA INCOME INDEXES FOR MONTANA, NEIGHBORING
STATES, AND THE UNITED STATES, 1955-1965
(1955=100)

<u>Year</u>	<u>Montana</u>	<u>Idaho</u>	<u>North Dakota</u>	<u>South Dakota</u>	<u>Utah</u>	<u>Wyoming</u>	<u>United States</u>
1955	100	100	100	100	100	100	100
56	102	108	104	105	105	104	105
57	105	112	107	124	110	111	109
58	111	117	123	129	113	115	110
59	109	122	111	114	119	120	115
60	110	120	124	138	121	122	118
61	107	124	109	137	126	124	121
62	123	132	156	155	133	128	126
63	122	133	145	148	136	130	131
64	122	138	144	145	140	131	137
65	132	156	165	171	145	138	146

SOURCE: Computed from data in "Survey of Current Business," U.S. Department of Commerce, Washington, D.C., August, 1966, Table 2, p.13.

TABLE III

PERCENTAGE CHANGE IN PER CAPITA INCOMES, MONTANA AND
SURROUNDING STATES, 1953-1964 and 1948-1964

<u>State</u>	<u>1953-1964</u> (Percent)	<u>1948-1964</u> (Percent)
Montana	27	41
Idaho	36	58
North Dakota	68	54
South Dakota	38	29
Utah	39	77
Wyoming	29	57

SOURCE: "Survey of Current Business," U.S. Department of Commerce, Washington, D. C., July, 1965, p. 11

the last census was taken) to July 1, 1965, the Census Bureau has estimated that the population of Montana increased by 31 thousand to a total population of 706 thousand. This is a 4.6 percent increase during this 5 year period as compared to an 8 percent increase for the entire United States.

What is the reason for the slow rate of population growth in Montana? One cannot attribute it to the birth rate as this exceeded the United States average, nor to the death rate as Montana's approximated the United States average. One factor does stand out and that is the number of out-migrations that the State experiences. During the 1950's, Montana experienced a net out-migration of approximately 25,000 people. From available information, most of those in this out-migration were in the younger and most productive age group (15 to 25 years of age) and the reason they left was because of better opportunities elsewhere. For example, Rixe and Ewasiuk state that 13 percent of the male out-migration was in the 20 to 24 age group and that 9 percent was in the 15 to 19 age group. They conclude: "These migrants represent a very great loss to the state. They are highly productive young men moving into another state's labor force."⁹

This situation does not seem to have changed since 1960. Table IV shows the composition and changes in the populations of Montana and the United States since 1960. Notice in this table that the 18 to 44 age

⁹Lloyd Rixe and W. J. Ewasiuk, "Montana's Population," Now, Montana State University, Bozeman, Montana, Winter, 1965, p.4.

TABLE IV

MONTANA AND UNITED STATES POPULATION COMPARISONS,
APRIL 1, 1960 AND JULY 1, 1964

<u>Age Group</u>	<u>Percentage of Total Population (4/1/60)</u>		<u>Percentage of Total Population (7/1/64)</u>		<u>Percentage Change in Population between 4/1/60 to 7/1/64</u>	
	<u>Montana (Percent)</u>	<u>United States (Percent)</u>	<u>Montana (Percent)</u>	<u>United States (Percent)</u>	<u>Montana (Percent)</u>	<u>United States (Percent)</u>
Under 5 yrs.	12.2	11.3	11.6	10.8	-2.4	1.8
5 to 17 yrs.	26.3	24.5	27.8	25.9	10.1	12.9
18 to 44 yrs.	33.2	34.9	32.0	33.9	0.5	3.8
45 to 64 yrs.	18.6	20.1	19.2	20.1	7.9	6.5
65 and Over	<u>9.7</u>	<u>9.2</u>	<u>9.4</u>	<u>9.3</u>	<u>1.1</u>	<u>7.8</u>
Total Population	100.0	100.0	100.0	100.0	4.1	6.7

SOURCE: Bureau of the Census, "Population Estimates," Series P-25, No. 333, March 30, 1966, Tables 1,3, and 4, pp. 6, 8, 9.

group in Montana increased by 0.5 percent although the whole United States increased 3.8 percent. Again Montana is experiencing very little growth in the most productive age group. Rixé and Ewasiuk drew the following conclusions from such trends:

"Present migration and population growth patterns in Montana do not offer much encouragement nor do they suggest a reversal of those trends. This points to a key problem. We have fewer people in the highly productive age groups supporting more and more people in the young and old age categories.

"You might well surmise that the productive age groups are going to be compelled to use more of their income to support schools, churches, welfare, recreational programs, and many other established and socially accepted, demanded, and desired institutions if Montana is to support these things entirely from state revenues. What happens if we don't? The quality and quantity of these programs and services will most likely suffer. More people will be induced to leave Montana for areas where services and programs are available in the quantity and of the quality desired and at a more attractive price. This out-migration will in effect place a still heavier burden on the remaining citizens. At the same time, it will decrease the inducement for in-migration.

"Montana's economic growth and development are closely and directly associated with the human resources of our state. Rural out-migration in response to agricultural adjustment has been taking place throughout the nation and will continue for the next few decades. This agricultural adjustment is of greater significance to Montana than to most of the nation because a high percentage of our population is rural. (See Table VIII for comparison.) Consequently, the urban areas of the state will have to grow faster than the national average to assimilate and offer employment opportunities for the displaced rural population.

"This urban growth must take place in areas other than those supporting agriculture because fewer local services are required by modern agriculture. It would seem that industrial development, coupled with expanded service centers, is needed if Montana's economy is to grow and expand."¹⁰

¹⁰ Ibid, p. 5. (Underlining and words in parentheses supplied.)

Apparently Rixe and Ewasiuk view past and current population trends in Montana as being undesirable and express the view that economic growth in Montana will have to come from industry. If the citizens of Montana feel it important to stop or slow down this out-migration, then suitable employment opportunities for these people must be created in the State.

Employment

What are the chances of finding suitable employment to prevent this out-migration? Perhaps an examination of employment in the State along with some projections that have been made can give some clues as to what the State may expect.

Table V shows the division breakdown in employment changes between 1950 and 1960 along with a projection made by Henderson and Krueger for the period 1960 to 1975. Although total employment increased in the decade of the 1950's, it was not sufficient to absorb the increase in population. Montana has had a participation rate¹¹ of between 35 and 40 percent. (In 1950 it was 38.9 percent, in 1960 it was 36.8 percent.) If one assumes a participation rate of roughly midway between the 1950 and 1960 figures (about 37.5 percent), then the increase in population of 84,000 between 1950 and 1960 should have added approximately 31,500 to the labor force. Yet Table V shows that Montana added approximately 6,000 to its labor force during this period. Three reasons probably account for this difference:

¹¹ Participation rate is computed by dividing total labor force by total population.

TABLE V

EMPLOYMENT CHANGES IN MONTANA BY MAJOR DIVISIONS
FROM 1950 to 1960 AND PROJECTED TO 1975

<u>Division</u>	<u>Change in Numbers Employed, 1950-1960</u>	<u>Projected Change in Numbers Employed, 1960-1975</u>
Agriculture	-14,550	-8,679
Mining and Oil	-3,484	-335
Manufacturing	1,887	2,678
Railroads	-4,900	-2,117
Transportation, Communication, and Utilities (except railroads)	1,618	2,501
Wholesale Trade	1,673	1,538
Retail Trade	2,407	5,368
Finance, Insurance, and Real Estate	3,149	2,604
Service and Miscellaneous	6,469	10,654
Construction	1,109	3,302
Federal Government	1,400	2,465
State and Local Government	<u>8,900</u>	<u>12,851</u>
Total Change	5,678	32,810

SOURCE: James O. Henderson and Anne O. Krueger, National Growth and Economic Change in the Upper Midwest, Table 1-3, page 12 and Table 2-1 page 22.

