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MINNESOTA'S ECONOMIC GROWTH IN RECESSION AND RECOVERY: PART II

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Abstract

This report presents statistical reference series for the study and projection of Minnesota's economic outlook in the 1980's, with special emphasis on four major sectors -- agriculture and agribusiness, manufacturing and services, mining and tourism, and government spending. The reference series serve as baseline forecasts for the assessment of Minnesota's job and income prospects in its major sectors. In Part I, two sets of baseline forecasts were presented, namely, short-term quarter-year and long-term five-year forecasts of industry employment and personal earnings and income. A description and an explanation of the underlying rationale of the baseline forecast series were included, also. In Part II, the earlier statistical series are updated and expanded with the inclusion of historical and projected series on state and local government revenues.

Summary and Conclusions

Minnesota industry has consistently outpaced U.S. industry in employment and income growth. In 1970, total nonagricultural wage and salary employment was nearly 1.3 million. It peaked at 1.5 million in 1974, dropped slightly in 1975, and then quickly regained these losses to reach its new peak of nearly 1.8 million in 1980. Net new jobs totaled 213 thousand in the 1970-74 period and 285 thousand in the 1975-80 period. Minnesota employment is expected to resume these trends by exceeding U.S. employment increases, once U.S. economic recovery begins. Corresponding increases are expected also in industry earnings and personal income payments.

- Largest employment increases are expected in Minnesota industry are services -- professional, personal, and business. Wage and salary jobs are expected to increase from 384 thousand in 1982 to 443 thousand in 1985 and 542 thousand in 1990 -- an increase of 158 thousand. Much of this increase is due to growth in medical, and social services, non-profit organizations, and business and personal services in the Minneapolis-St. Paul Metropolitan area.

- Employment in retail and wholesale trade is expected to grow from 427 thousand in 1982 to 470 thousand in 1985 and to 510 thousand in 1990 -- a net increase of 83 thousand. Eating and drinking places account for much of this growth, with a major concentration in the Minneapolis-St. Paul Metropolitan area, but with widely dispersed growth, also, in outstate service centers.

- Durable goods manufacturing employment (including stone, clay, and glass products as well as professional and scientific instruments) is expected to decline slightly from 206 thousand in 1982 to 193 thousand in 1983 and then to increase sharply to 228 thousand in 1985 and 273 thousand in 1990 -- an increase of more than 80 thousand from its low level in 1983. This group, which includes high technology industry, is also concentrated in the Minneapolis-St. Paul Metropolitan area.

- Finance, insurance, and real estate employment is expected to increase from 99 thousand in 1982 to 113 thousand in 1985 and 132 thousand in 1990 -- an increase of 38 thousand. Most of this increase is, again, localized in the Minneapolis-St. Paul Metropolitan area.

- Nondurable goods manufacturing employment,which includes food products as well as pulp and paper, petroleum, and rubber products, is expected to increase less sharply than durable goods manufacturing from 138 thousand in 1982 to 151 thousand in 1985 and 162 thousand in 1990 -- an increase of

nearly 24 thousand. This increase is attributed largely to the printing and publishing and the pulp and paper products industries.

- Construction employment is expected to increase from 63 thousand in 1982 to 71 thousand in 1985 and 85 thousand in 1990 -- an increase of 22 thousand, largely in residential and commercial development in the Minnesota heartland and the core metropolitan area.

- Transportation, communication, and utilities employment is expected to decline slightly from 94 thousand in 1982 to 91 thousand in 1983, and then slowly increase to 92 thousand in 1985 and 97 thousand in 1990.

- Farming is expected to decline in total employment in the 1980's, but at a rate less than the U.S. average because of the preference for small-to-medium size farms in areas where off-farm employment is readily available.

- Mining employment is expected to decline slightly in wage and salary employment from 10 thousand in 1982 to 8 thousand in 1983, then increase gradually with U.S. economic recovery, but declining, again, to 8 thousand in 1990 because of structural changes in the U.S. steel industry.

- Government employment, which declined from 257 thousand in 1981 to 247 thousand in 1982, is expected to remain at this level in 1983 and 1984, but then gradually increase to 250 thousand in the 1985-90 period.

Minnesota industry tracks U.S. industry in both recession and recovery. While U.S. nonagricultural employment declined nearly 1.5 million in 1981 and 1982, Minnesota employment declined by more than 100 thousand to roughly its 1977 level of less than 1.7 million. Thus, the 1980 and the 1981-82 recession reduced nonagricultural employment by 1.7 percent in the U.S. and 3.7 percent in Minnesota. By mid-1983, however, nonagricultural employment is expected to start its climb back to earlier peak levels, reaching 1.8 million in 1985 and 2.1 million in 1990.

Like other Midwest states, Minnesota's economy is closely linked to the U.S. and world economies. It absorbs the shock of recession by lowering levels of employment in basic industries. It also responds sharply to economic recovery. Employment losses of the recession downturn are regained in the early and middle periods of economic upturn. Thus, lagging industries, with only a few exceptions, become leading industries.

Leading Minnesota's economic recovery in the 1980's are retail trade, services, and manufacturing - first, nondurables and, later, durables.

- Lower levels of inflation and unemployment trigger a return of consumer confidence and a willingness to shift household income from paying old debts and even savings to buying big ticket items like housing, autos, kitchen appliances, and furniture. Spending on personal and professional services also goes up with economic recovery.

- Business spending on output-increasing and cost-reducing investment is triggered as the economy improves and industry output approaches its earlier peak levels. While capital goods-producing industries initially lag, consumer goods-producing industries in Minnesota's economic outlook is okay, they too eventually pick up the pace of economic recovery.

- Capital goods-producing industries, such as computers and office equipment, service and other industry machinery, communications equipment, and scientific and professional instruments, are becoming an increasingly important part of the economic base of Minnesota and its substate regions. The long-awaited shift in GNP to proportionately less consumer spending and proportionately more capital spending would strengthen these basic industries as sources of state economic growth.

Lagging sectors in the Minnesota economy are its metal mining and certain areas of manufacturing, such as textile products and apparel. Total production and employment are declining in these industries which suffer both cyclical sensitivities and structural change.

- In agriculture and agribusiness, as well as in lumber and wood products, and pulp and paper products, total employment is declining slightly, but output is increasing. Year-to-year improvements in output per worker outpace the growth in market demand. Both industry groups, however, depend heavily on general economic recovery. In addition, agricultural prospects are improved with a less inflated U.S. dollar in world trade and price stability in farm markets.

- Industry projections show lagging employment and income growth in Minnesota's traditional basic industries -- mining, forest products, agriculture and agribusiness, and certain areas of manufacturing. Above-average employment growth is expected in most manufacturing, including high technology products and other durable goods. Above-average growth is expected also in services -- financial, business, professional, and personal -- and in retail and wholesale trade.

Substate regions exhibiting more rapidly growing industry employment are within 100 miles of downtown Minneapolis and St. Paul. Besides the Twin Cities Metropolitan Council Region, this includes most of Southeastern and South Central

Minnesota, and East Central and Central Minnesota -- a total of 40 counties (in five substate planning regions). Total 1980 resident population in this Minnesota heartland was 2.9 million. Total employment was slightly more than 1.6 million.

- Beyond the Minnesota heartland lies much of the state's agricultural productivity and natural amenities. Wheat, corn, soybeans, beef cattle, and hogs are produced in the state's western counties on farms typically larger than the state average in acreage and earnings. Regional prosperity in these areas depends largely on farm production, income, and purchases. Here population is declining although total employment is increasing slightly.

- Natural amenities and associated values of rural life attract residents to Northern Minnesota counties. Population growth in these counties leads employment growth. In the 1980-82 period, for example, total population and labor force actually increased in Cook and Itasca Counties in Northeast Minnesota, while total employment declined. However, the northern counties are part of a declining region because of their declining basic employment, particularly in mining.

- Of primary importance to Minnesota's long-term economic viability is the growth of its core metropolitan-industrial region focused on the Twin Cities of Minneapolis-St. Paul. Here resides half of the state's population, more than half of its employment and income, major educational institutions, and most of its private research and development laboratories. It serves, also, as regional and national headquarters for many large businesses. Because of high social investment in past years, an extensive entrepreneurial, financial, and service infrastructure exists for the growing numbers of new businesses started in this area.

- Core metropolitan area business growth is represented in the increase in total nonfarm business establishments from 28.6 thousand in 1970 to 41.9 thousand in 1980. Statewide the total nonfarm business establishments increased from 64.9 thousand in 1970 to 85.5 thousand in 1980. Thus, much of the new business growth -- 65 percent in the 1970-80 period -- was concentrated in the seven county core metropolian area. Also, much of the new business generation is in the large, growing high technology industrial complex based on the manufacturing of computers and office equipment, communications equipment, scientific and professional instruments, engines and turbines, aerospace, ordnance and drugs, and related business services.

A distinguishing characteristic of a high technology-based urban-industrial complex is its capacity for generating new firms and, also, new products and processes, which, in part, are produced and sold by the new firms. Each product or process has its own cycle of development, production, promotion, and utilization, starting with the expectation of a high return on investment. In

later stages of the product or process cycle, success in cost-reducing efforts are critical for business survival. Thus, some businesses must seek low-cost sites outside the metropolitan area. These "spillover" effects of new product and process development are characteristic of high technology-based urban-industrial complexes, like the Minneapolis-St. Paul Metropolitan area. Nonetheless, the economic viability of such complexes is sustained by their ever-present capacity for generating new products, new proceses, and new firms.

The "spillover" effects of metropolitan-industrial growth have a two-fold impact on business expansion in Minnesota's heartland and in the North and the Northeast. Future industry expansion may occur outside the metropolitan core area, but in Minnesota. In addition, industry in the metropolitan core area may seek future production inputs from suppliers in the same outstate regions. Candidate regions for the two types of business expansion include Northeast and Northern Minnesota and Southeastern and South Central Minnesota.

MINNESOTA'S ECONOMIC GROWTH IN RECESSION AND RECOVERY: PART II

Wilbur R. Maki and Patricia Dalton

INTRODUCTION

The Minnesota economy is closely linked to the U.S. and world economies through its trade and financial linkages. Minnesota's economic base is its traditional natural resource-based, export-producing industry -- agriculture and food products manufacturing, forestry and forest products manufacturing, and mining -- and, also, its durable goods manufacturing and services. Each of these basic industries depends on sales to export markets, that is, on out-of-state shipments to non-resident buyers of its goods and services. When the U.S. and world economies prosper, so do Minnesota's basic industries and, eventually, the residentiary industries which cater to the needs of Minnesota's primary economic units -- its resident households, businesses, and governments.

General Economic Outlook

Minnesota's economic dependence on out-of-state markets points to the importance of the general economic outlook in accounting for Minnesota's economic prospects in the 1980's. The general economic outlook is represented, of course, by such common economic indicators as real GNP and industry employment. For these data, we turn to recent reports of the U.S. Bureau of Labor Statistics (BLS) on projections of the U.S. economy through 1990.

Two different sets of U.S. economic projections for the 1980's provide a range within which U.S. economic growth will most likely occur. The low-trend projection compares most closely to the 1973-80 period when real GNP increased 2.4

percent per year, while the high-trend projection compares most closely with the 1955-68 period when GNP grew at annual rate of 3.7 percent. The high-trend projection assume marked improvements in both inflation and productivity over the 1980-90 period.

The BLS projection series was prepared in 1981 just prior to the start of the 1981-82 recession. While the inflation-reducing effects of post-1980 U.S. monetary policies were not anticipated in the BLS projection series, they nonetheless compare closely with the most recently published Wharton and Data Resources control projections to 1985.

The low-trend projection series is extended from 1985 to 1990 on the assumption that a third recession in the 1980's is likely and, indeed, its occurrence must be taken into account in the preparation of the Minnesota baseline projection series to 1990. Thus, the low-trend U.S. projection series is used in the preparation of corresponding Minnesota projection series. It represents long-term moving averges rather than the exact levels of Minnesota industry employment which are consistent with the general business cycle.

Industry Employment

The BLS projections of the U.S. economy to 1990 also provide a detailed breakdown of industry employment, both wage and salary employment and total employment (which includes self-employed persons). Nonagricultural wage and salary employment, rather than total employment, is projected because of the earlier availability of this employment series. All agricultural employment and nonfarm self-employed persons are projected separately as the difference between total employment and nonagricultural employment.

Total nonagricultural wage and salary employment in Minnesota climbed

steadily, except for a small drop in the mid-1970's, from 1,292,700 in 1970 to 1,763,900 in 1980 -- an increase of 471,200 or 36.5 percent over its 1970 level. Because of the 1980 and 1981-82 recessions, nonagricultural wage and salary employment dropped to 1,697,600 in 1982 -- a decrease of 66,300, or 3.8 percent of its 1980 level. Projected 1983 employment would remain close to its 1982 level, but it would increase sharply in 1984 and 1985.

Year-to-year volatility in Minnesota nonagricultural employment levels can be attributed largely to the goods-producing industries -- mining, construction, and manufacturing. Because of the basic multiplier relationship, long-run economic growth is attributed largely to the services-producing industries -- the regulated industries (i.e., transportation, communications, and utilities); trade; finance, insurance, and real estate; other services; and government. The contribution of the two groups of industries to fluctuations in total nonagricultural wage and salary employment is summarized below:

Category	Actual 1980	Projected 1982	1983	1985	1990
		(in thousands of jobs)			
Goods-producing	466.5	417.1	403.2	460.9	530.4
Services-producing	1558.6	1541.9	1869.6	1670.4	1782.5
Total	2025.1	1959.0	1972.8	2131.3	2312.9

Because of the sharp decline in basic, i.e., goods-producing, industry employment in the 1980-82 period, total employment declined by more than 66 thousand. Not until 1984 would total employment in these industries reach their 1980 levels.

In this report, alternative economic scenarios of U.S. and Minnesota economic recovery are compared with existing U.S. and Minnesota projection series. These comparisons serve as a baseline for assessing future economic choices in major sectors of the Minnesota economy.

Economic Scenarios

In a January 1983 survey of the Minnesota Bankers Association, three U.S. economic scenarios were described, as represented in Table 1. Senior bank officers responding to this survey selected the one depicting slow business recovery and high unemployment as most likely. The average of all responses shows a 60 percent probability of occurrence for the slow recovery scenario. This compares with a 30 percent probability for the continuing recession scenario and 10 percent probability for rapid recovery as summarized in Table 1. Individual responses, however, varied widely around their mean values, especially for Scenarios 1 and 2. The findings thus provide:

- a concensus on slow, but steady growth in GNP;
- an alternative, less optimistic view of aborted recovery; and
- an alternative, less widely hald view of accelerated expansion.

U.S. economic recovery is expected to start in the third quarter, 1983. Respondents in Northeast Minnesota expect a later recovery than their counterparts elsewhere in the state, especially those located in Southern Minnesota. This group thus differs in its views of:

- U.S. economic scenarios; and, also,
- Minnesota industry recovery and expansion.

Minnesota economic recovery is expected to start about one quarter later than U.S. economic recovery. Again regional differences are evident in the survey results. Respondents in the Northeast and Northwest on the average expect a Minnesota recovery to start in 1984.

Industry differences also are noted in recovery expectations. The construction industry is viewed leading the industry turn-around. Except for the Northwest respondents, the construction industry turn-around is

Table 1. Probability of Occurrence of Three Scenarios for the 1983 U.S. Economy: MBA Outlook Survey

Economic Scenario	Change in Real GNP	Employment Rate	Probability
	(%)	(%)	(%)
1. Recession	negative	more than 10	30
2. Slow recovery	0-3	more than 10	60
3. Rapid recovery	more than 3	less than 8	10

expected in Quarter III, 1983. Manufacturing is also expected to turn-around in 1983, most likely in Quarter IV. Tourism, mining, and farming, are expected to start expanding in total business activity in late 1983 and 1984. Farming is the least likely, of the five industries, to experience economic recovery in 1983, according to the survey results.

Industry employment statistics show that Minnesota has gained in the U.S. after each recession ...

- especially in manufacturing and services, ... and in
- total industry employment.

Minnesota industry trends are represented by two employment series -- total civilian employment and nonagricultural wage and salary employment. The two series have differed by more than 300,000 since 1975. This is a larger difference than for the nation as a whole because of Minnesota's larger proportion of farm employment. Total civilian employment is now slightly more than 2 million while nonagricultural wage and salary employment is slightly less than 1.7 million.

The nonagricultural employment is further disaggregated into two categories -- goods-producing and services-producing, including government. Other employment -- the difference between nonagricultural wage and salary and total civilian employment -- includes farm and nonfarm proprietors, and farm and household wage and salary workers.

Cyclical vs. Structural Change

The MBA membership survey asked additional questions on capital spending and the extent to which the lack of full economic recovery in specific industries can be attributed to structural, rather than cyclical, factors. Structural changes include the changing competitive position and geographical location of the steel industry due to long-term changes in its cost structures and access to production inputs, and export markets. On both questions, member opinions varied widely, but without significant regional differences. Respondents believed capital spending would range from slight, if any, increases in mining and farming, to increases of 10 to 20 percent in construction, manufacturing, and tourism industries. Structural changes were viewed as accounting for roughly one-fourth of the less-than full recovery in 1983, except in mining where structural change was believed to account for nearly 40 percent of the less-than-full recovery.

Expected increases in capital spending generally correlate with expected industry recovery. Views on capital spending in the construction industry, however, are compounded by expected increases in construction activity and expansion of the industry itself. Similarly, perceived effects of structural changed are colored by the exceptionally lrge negative cyclical effects on Minnesota industry sales and employment over the current business cycle. For the U.S., non-residential capital spending is expected to increase four to six percent in the second half of 1983, which is much less than the expected increases reported in the MBA survey.Seventy percent of the U.S. unemployment is attributed to structural changes.

These survey results are generally consistent with the Minnesota baseline projection series presented in this report (Figure 1). This series was prepared

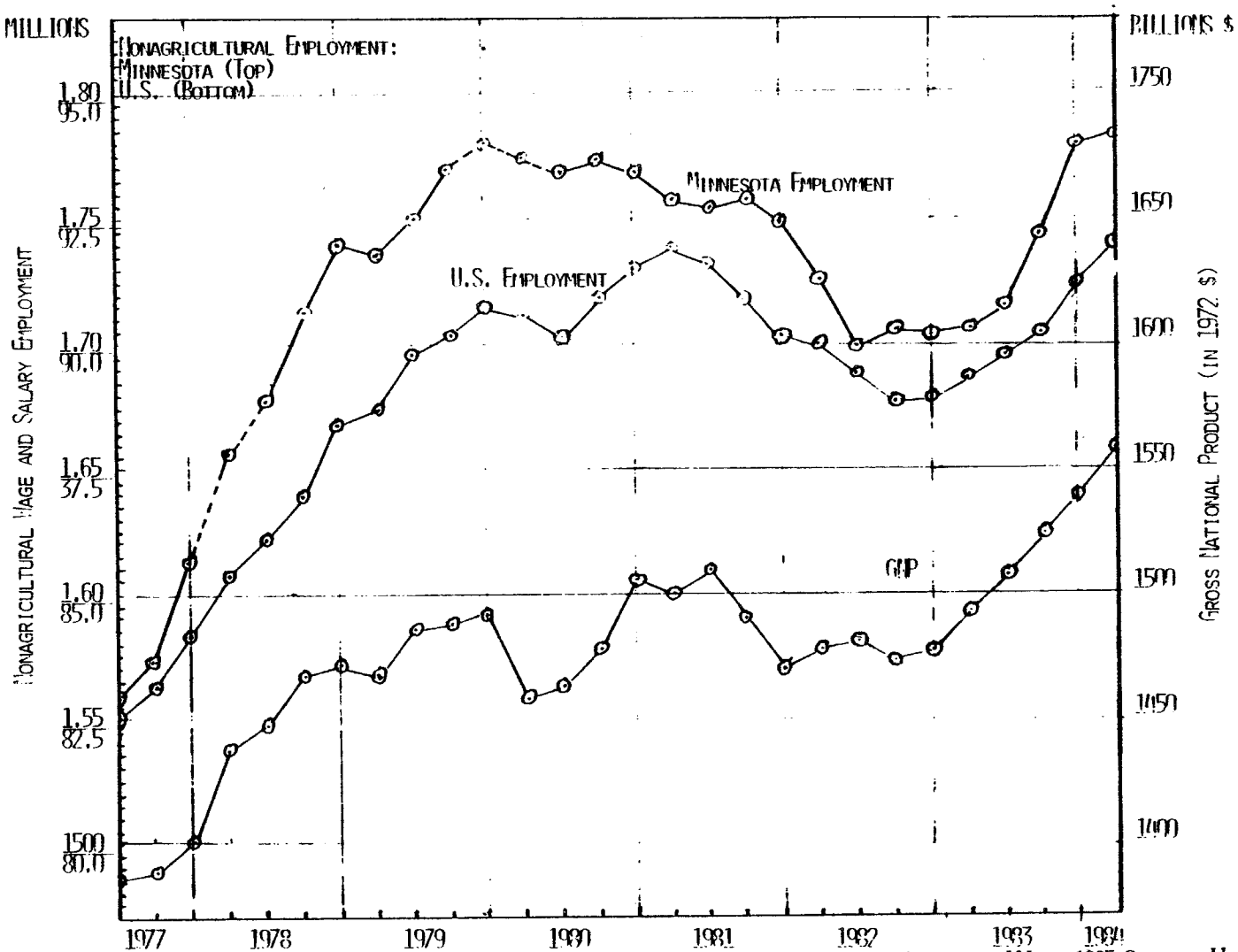

Figure 1. Relation of Minnesota and U.S. Employment to Real GNP, by Quarter-Year, 1977 Quarter III to 1985 Quarter II.

in conjunction with the evaluation of state revenue and related economic projections. This baseline series is linked to a U.S. forecast which is slightly, but only slightly, higher than the U.S. forecast used in the prepatation of the January 1983 Minnesota revenue forecasts.[1]

The baseline projections provide annual and quarterly measures of both economy-wide and industry-specific recovery. For example, nonagricultural wage and salary employment is projected to start the recovery phase of the current business cycle in Quarter II, 1983 (Figure 2). (For the alternative projection series used in forecasting Minnesota state revenues, the increase would occur somewhat later in the year for most industries). The construction industry is projected to turn around in Quarter III. Mining and manufacturing employment is also projected to turn around by Fall, 1983. The trade and services account for the early upturn in total employment in the baseline projection series.

The relation of Minnesota and U.S. employment trends to real GNP also is illustrated in Figure 2. Quarter-year changes in Minnesota employment typically lag corresponding changes in U.S. employment. Moreover, the above-average cyclical sensitivity of the Minnesota nonagricultural economy for the large decline in total Minnesota employment since Quarter I, 1980. Quarterly employment levels are not expected to reach their 1980 levels until 1984. Total U.S. employment, on the other hand, reached its peak levels in mid-1981.

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[1] The underlying assumptions of the Minnesota baseline projections are summarized in Appendix Table 1. These assumptions are comparable with those underlying the most likely economic scenario. For example, the 1983 U.S. unemployment rate is projected at 10.7 percent with growth in real GNP at 1.6 percent, which corresponds to scenario of modest economic recovery in 1983. The U.S. economic assumptions were used in the preparation of the Minnesota projections series.

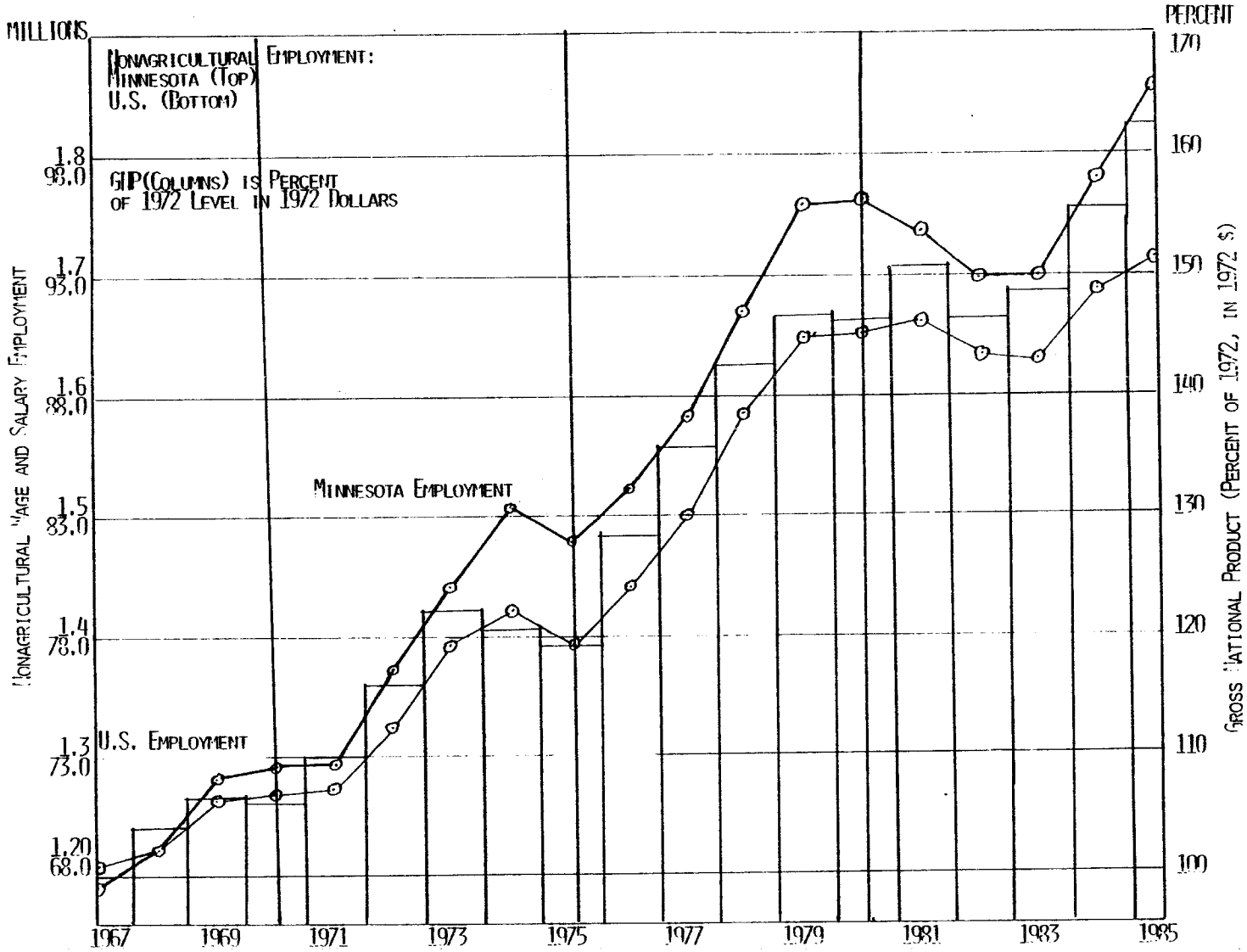

FIG. 2. RELATION OF MINNESOTA AND U.S. EMPLOYMENT TO REAL GIP, BY YEAR, 1967-1985.

The decline in total Minnesota employment since 1980 can be attributed largely to three industry groups -- durable goods manufacturing, construction, and mining. Even by mid-1984, the projected employment in the three industry groups would fall short of their peak levels by 16 to 45 percent.[2] However, the annual employment series show projected total employment levels in 1984 surpassing the peak 1980 levels in four of the nine industry groups, nmely, nondurable goods manufacturing; trade; finance, insurance, and real estate; and services.

Minnesota's above-average growth in job creation over the 12-year period from 1967 to 1979 period is shown in the gradually increasing Minneota total employment relative to corresponding U.S. employment levels. In contrast, the 1980-82 period is marked by a more rapid decline in Minnesota than U.S. employment. The period of recovery, starting in 1983, is perceived as being comparable to the early period of faster employment growth in Minnesota than in the U.S. Thus, despite lagging rates of growth in mining, construction, and manufacturing, total employment in Minnesota is expected to grow at above-average rates, once economic recovery starts. The lagging sectors are experiencing the consequences of structural, rather than simply changes in industry performance.

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[2] The quarterly baseline forecasts are presented in Appendix Table 2. This series shows a very slight upturn in total employment from 1982 to 1983. The projected increases in following years are larger than the projected increase in 1982.

Focusing on Key Sectors

To separate cyclical from structural forces shaping Minnesota futures and to show the importance of each, we focus on economic choices facing four areas of the Minnesota economy:

- Agriculture and related agribusiness industries in southern and western Minnesota;
- Manufacturing and services in the Twin Cities Metropolitan area;
- Mining and tourism in northern Minnesota; and
- Local (and, also, state) government spending in all areas of Minnesota.

Employment and economic activity in each of these four sectors has been affected by the general business cycle and, also, by structural change within each sector.

Agricultural income and investment has been severely affected in the past two years by low farm prices and high interest rates. Agriculture-related industries also have been affected by the general business cycle, but these industries, especially agricultural processing, are affected, in part, by structural changes in manufacturing.

Manufacturing and service industries in the Twin Cities Metropolitan area account for most of Minnesota's economic growth in the 1970's. They also account for its highly favorable growth prospects in the 1980's. Manufacturing, however, includes the cyclically sensitive industries contributing to the sharp decline in manufacturing employment in the period from 1980 to '92.

Mining and tourism suffer from seasonality in employment levels as well as being cyclically sensitive industries. They also face important structural changes affecting their potentials for profitable growth and development in northern Minnesota.

Finally, state and local government spending is being constrained by reduced levels of intergovernmental transfers, both federal and state. Tough choices lie ahead for Minnesota local governments particularly as they are confronted by

reduced revenues without commensurate across-the-board reductions in the demands for state and local government services.

Plan of approach is to relate changes in industry activity in each sector to (a) the general business cycle and (b) the long-term economic prospects facing each sector. Economic options in each sector will be viewed with reference to these changes and, also, public and private goals and objectives affecting future economic choices. Questions addressed are the following:

- What are the alternative economic futures for each sector and how are these futures affected by the general business cycle and the changing of the U.S. and the world economy?
- What economic options are available for strengthening the competitive position of private business enterprise in each sector?
- And, finally, what is the role of state and local government in affecting the level and location of capital spending in each sector?

AGRICULTURE AND AGRIBUSINESS

Agriculture and agriculture-related industries in Minnesota are still the most important basic industry group. Roughly a fourth to a third of the entire Minnesota economy is dependent on agriculture and agriculture-related industry as shown in Figure 3.[3] The agriculture dependency of the Minnesota economy was reduced sharply in the 1970's because of the rapid growth of cyclically-sensitive durable goods manufacturing, largely in Minneapolis-St. Paul Metropolitan area.

Cyclical and Structural Change

Agricultural product cycles are affected by the vagaries of weather, trade, and world economic conditions. Because of the importance of crop production in Minnesota, the sharp expansion in U.S. foreign agricultural trade in 1973 and 1977 resulted in correspondingly sharp increases in net farm income and, also, in farm employment, as shown in Table 2. Differential year-to-year changes in employment and earnings are presented for farm and food products manufacturing industries for the purpose of showing above-average and below-average rates of change in two sets of industry indictors. For example, during the 1967-1980 period, farm proprietorial employment in Minnesota <u>increased</u> relative to farm proprietorial employment in the U.S., as indicated by the positive differential change in Minnesota farm proprietorial employment. Wage and salary employment in farm production and agricultural services also increased relative to U.S. employment changes. However, wage and salary employment in food products manufacturing declined in the same period.

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[3] Appendix Table 3 provides the statistical series on basic employment in agriculture and food products manufacturing.

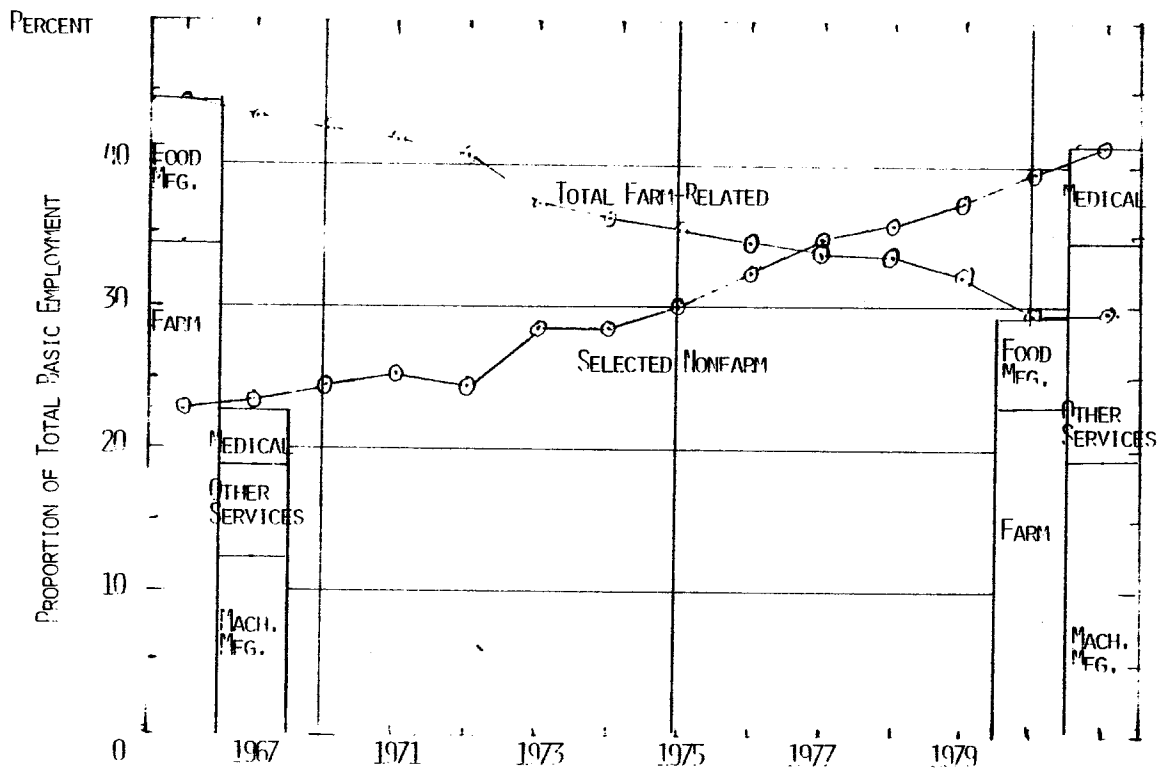

FIGURE 3. DISTRIBUTION OF BASIC EMPLOYMENT IN FARM-RELATED AND SELECTED NONFARM INDUSTRIES, MINNESOTA, 1967 AND 1980.

Table 2. Differential Year-to-Year Change in Employment and Earnings in Specified Agriculture-Related Industry, Minnesota, 1967-68 to 1977-80[1/]

Time Period	Employment[1/]				Total Earnings[2/]		
	Farm Proprietors	Wage and Salary					
		Farm	Agr. Services	Food Prod.	Farm	Agr. Services	Food Prod. Mfg.
	(thou.)	(thou.)	(thou.)	(thou.)	(mil.$)	(mil.$)	(mil.$)
1967-68	- .2	1.0	.1	- .3	22.3	- .2	- 2.7
1968-69	-1.0	-1.6	3/	.1	- 13.3	.2	5.8
1969-70	- .1	- .1	3/	-2.1	150.1	- .2	-16.8
1970-71	.8	3.2	.2	.3	- 99.7	-2.0	- 4.3
1971-72	- .4	- .8	.6	- .7	12.3	-4.3	-10.6
1972-73	.3	4.9	.2	- .7	678.5	- .3	-11.2
1973-74	1.0	1.7	.3	- .3	-268.1	3.0	- 1.0
1974-75	2.1	5.2	- .3	-1.4	-356.5	-1.8	-17.3
1975-76	- .1	-2.9	- .2	.2	-345.9	- .8	9.7
1976-77	1.4	-3.1	.5	.3	930.8	4.0	- .1
1977-78	1.0	2.1	.1	- .6	-513.8	-3.5	- 1.0
1978-79	.3	-7.1	- .7	- .6	-298.1	- .3	3.0
1979-80	.1	.3	.3	- .1	- 65.2	1.0	-28.9
Total	5.2	2.8	1.1	-5.9	-166.6	-5.2	-75.4

1/ Difference is actual employment or earnings less derived employment or earnings based on U.S. industry growth rate.

2/ Total earnings includes wages and salaries, other labor income, and proprietorial income.

3/ Employment of 50 or less.

Differential year-to-year changes in total earnings, i.e., wages and salaries, other labor income, and proprietorial income, differ from their employment series. These differences result from corresponding differences in the industry wage rate and earnings per worker trends, which, in turn, manifest structural changes in income sources of farm households, especially in rural areas within 100 miles of downtown Minneapolis and St. Paul. Many new off-farm job opportunities emerged outside the seven-county Minneapolis-St. Paul Metropolitan area in 1970's as manufacturing and, also, retail and service businesses sought low cost sites in close proximately to part-time and full-time employees and local markets.

Minnesota agriculture is unique in its interdependence with nonagricultural enterprise, both in rural areas and in the Twin Cities Metropolian area. An increasing proportion of all farm households derive a major portion of personal income from off-farm employment. Thus, small-to-medium size farm enterprises, even the below-average net income per farm, provide a level of living and quality of life sufficiently attractive to sustain a large and stable work force in agriculture. In addition, Minnesota agriculture and agriculture-related industry depends on the Twin Cities Metropolitan area for roughly one-fourth of its total value added. Structural changes are occurring also in food products manufacturing as illustrated earlier in Figure 3. This industry is more cyclically sensitive than farming, i.e., in this industry, year-to-year fluctuations in wage and salary employment are larger. In Minnesota, this industry has lagged its U.S. counterpart in regaining its former employment during the recovery phase of each business cycle. Thus, the projected 1985 and 1990 food products manufacturing employment levels are less than would be the case if average U.S. growth rate were to apply to current employment levels.

The 1983 MBA Outlook Survey respondents attribute 23 percent of agriculture's less-than-full recovery in 1983 to structural changes. This means that 23 percent

of the difference between actual and full employment levels. Farm households income levels have declined because of the reduced levels of off-farm employment as well as reduced levels of farm employment and, also, low farm prices. Thus, structural changes affecting the employment prospects of farm households include long-term shifts in nonagricultural industry location. In the 1970's these shifts were translated into sharp increases in off-farm employment.

Capital Spending

The expected 11 percent increase in the capital spending of farm operators reported in the MBA Outlook Survey is consistent with an early upturn in net farm income levels. Low farm prices and high farm expenses, however, would depress net farm income levels in 1983, which would, in turn delay an upturn in capital spending on farms.

Estimates of capital spending in Minnesota food products manufacturing are not readily available. An increase in capital spending in this industry would imply changes in supply-side factors affecting the profitability of private investment in food products manufacturing. Such an increase is unlikely with the expected lack of strong market demand in 1983 for Minnesota farm products. Like commodity-producing industries generally, capital spending is largely labor-reducing, which means stable or declining total employment. In Minnesota, this trend is confounded by growth in off-farm jobs for less-than-fully employed farm operators.

Few fiscal incentives exist which would increase capital spending in a cyclically-depressed industry like agriculture. Because of structural changes, this new capital spending may be redirected towards small-to-medium size enterprises which provide only a partial, although still large, contribution to

the total personal income of farm households.

Similarly, capital spending in food products manufacturing is, at best, neutral in its labor-reducing consequences because it is, also, output-increasing. While food products manufacturing employment is cyclically-sensitive in Minnesota, as in the U.S. generally, it has declined, relative to U.S. food products manufacturing employment,in the post-recovery period between the first stage of recovery and the start of the next downturn in industry employment.

MANUFACTURING AND SERVICES

Manufacturing and service industries account for a major portion of basic industry employment. As shown earlier in Figure 3, basic employment in machinery manufacturing and medical and other services increased from 23 percent to 42 percent of total employment. Most of this employment is concentrated in the Minneapolis-St. Paul metropolitan area. The employment increases, however, are dispersed as a result, in part, of population redistribution.

Cyclical and Structural Change

The steady, above-average growth of employment in manufacturing and services in the 1967-80 period is summarized in Table 3 for selected industries. Machinery manufacturing, that is nonelectrical machinery and instruments-related equipment, increased more rapidly in Minnesota than in the U.S., as shown by the net differential increase of 13.3 thousand in total employment in the two industry groups. Employment in services, including wholesale trade and eating and drinking places, also increased more rapidly in Minnesota than in the U.S. A net differential increase of 23.2 thousand is reported for this industry group in Table 3.

Differential increases in total earnings accompanied the differential increases in total wage and salary employment, except for medical services. The largest increases, relative to the employment increases, occurred in manufacturing, specifically, instruments and related equipment. The accumulative increases in total earnings manifest important structural changes in the Minnesota economy. Although total employment in these

Table 3. Differential Year-to-Year Change in Employment and Earnings in Specified Nonagricultural Industry, Minnesota, 1967-68 to 1979-80[1/]

Time Period	Employment									Earnings[2/]							
		Wage and Salary															
		Manufacturing			Trade		Services			Manufacturing			Trade		Services		
	Nonfarm Proprietors	Print & Publ	Non electr Mach	Instr & Related	Whole-sale	Eat & Drink	Med-ical	Social	Non-profit	Print & Publ	Non electr Mach	Instr & Related	Whole-sale	Eat & Drink	Med-ical	Social	Non-Profit
	(thou.)	(thou.)	(thou.)	(thou.)	(thou.)	(thou.)	(thou.)	(thou.)	(thou.)	(mil.$)	(mil.$)	(mil.$)	(mil.$)	(mil.$)	(mil.$)	(mil.$)	(mil.$)
1967-68	.3	.5	3.7	-1.3	- .3	1.6	.1	0	.9	2.0	37.8	-10.5	- .4	.1	-10.4	0	- 1.1
69	4.1	.2	2.2	-1.1	- .3	.5	.5	0	.5	5.9	31.3	-12.2	- 6.0	3.2	- 8.4	0	8.8
70	-1.2	3/	- 1.4	.6	.8	.4	- .1	0	1.1	2.1	- 3.1	11.6	4.7	2.9	- 3.3	0	3.4
71	-2.0	3/	3/	- .5	.7	.4	- .9	0	.2	.4	9.0	-12.2	7.1	- 1.1	- .2	0	1.6
72	-2.6	1.1	.4	- .6	.6	2.4	8.1	0	.9	10.7	- .7	- 3.3	- 33.8	- 7.5	13.8	0	- .2
73	4.4	.4	.4	-1.5	- .4	1.7	-1.7	0	- .1	5.0	18.8	-22.1	22.3	3.0	-12.1	0	2.3
74	.4	.2	- .3	.7	2.0	.9	- .8	0	3/	3.1	- 39.1	4.4	51.4	8.5	16.8	0	4.3
75	3/	1.1	- 1.6	.2	8.8	.2	-3.9	0	.8	18.9	- 3.1	15.8	99.8	- .4	-49.5	0	- 5.9
76	- .1	.2	- .1	1.0	-1.5	- 1.2	3/	-.1	.3	10.1	7.9	8.2	- 42.4	2.1	- 6.8	.6	2.7
77	.5	.9	1.9	- .3	-2.1	2.5	1.1	.6	.5	11.8	28.0	- 1.5	- 32.1	9.4	- 1.3	8.1	.8
78	- .3	.8	.5	.8	- .1	.3	-1.3	.2	.2	.4	- 2.5	17.6	.2	5.5	- 2.3	3.0	1.1
79	- .6	.9	5.1	1.2	.9	.8	1.1	-.5	3/	17.8	97.7	13.0	66.8	4.4	- .3	- 2.4	- 3.5
80	- .2	.2	2.3	1.4	-3.8	- .2	- .5	.1	.3	- .8	61.8	25.7	-133.3	4.1	3/	4.8	2.8
Total	2.7	6.4	12.1	1.2	5.3	10.3	1.7	.3	5.6	87.4	243.8	34.5	4.3	34.2	-64.0	14.1	17.1

1/ Difference is actual employment or earnings less derived employment or earnings based on U.S. industry growth rate.

2/ Total earnings includes wages and salaries, other labor income, and proprietorial income.

3/ Employment of 50 or less.

industries increased faster in Minnesota than in the U.S., the annual increases in earnings per worker roughly were nearly the same in the two areas.

Contrasting patterns of growth in employment and earnings per worker are shown in Figure 4. Of the two industries, metal mining (represented by the top set of numbers), accounts for less total employment and is declining. Employment in nonelectrical machinery manufacturing, while also cyclically-sensitive, accounts for an increasing level of total employment. Increases in earnings per worker, nonetheless, are smaller in nonelectrical machinery manufacturing than in mining.

Structural changes among basic industry groups are represented, finally, by total excess employment in Table 4. The declining importance of food and allied products manufacturing and the increasing importance of paper and allied products manufacturing, fabricated metals, nonelectrical machinery, and instruments and related equipment is clearly illustrated by the distribution of total excess employment among the individual industry groups. In addition, dependence on basic employment in eating and drinking places has increased steadily, while dependence on basic employment in other retail trade declined in recent years. Importance of basic employment in the medical, social, and nonprofit service industries also has increased.

Capital Spending

Capital spending by manufacturing businesses in Minnesota was expected to increase by 17 percent in 1983, according to the MBA Survey. Although manufacturing would lead Minnesota's economic recovery, along with construction, most manufacturing industries are not likely to reach their

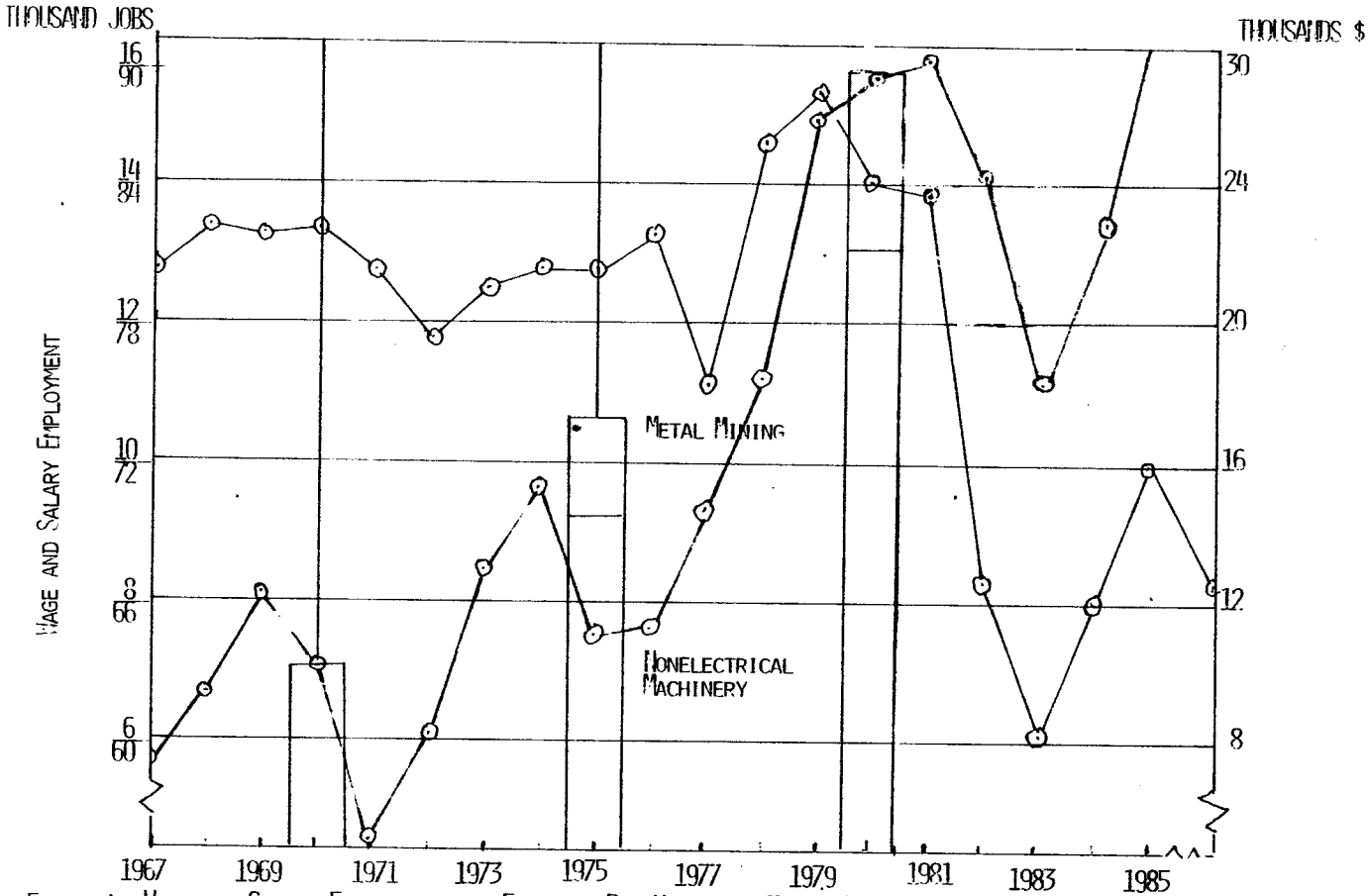

FIGURE 4. WAGE AND SALARY EMPLOYMENT AND EARNINGS PER WORKER IN METAL MINING (TOP) AND NONELECTRICAL MACHINERY (BOTTOM), MINNESOTA, 1967-1990.

Table 4. Proportion of Total Excess Employment in Specified Industry, Minnesota, 1967-1980.

			Nonagricultural														
				Wage and Salary													
	Agricultural					Manufacturing							Trade			Services	
Time Period	Proprie-tors	Wage & Salary	Proprie-tors	Con-struc-tion	Metal Mining	Food & Allied	Paper & Allied	Printing & Publ.	Fabr. Metal	Non-electr. Mach.	Instr. & Related	Trans-porta-tion	Whole-sale	Eating & Drinking	Other Retail	Medical & Social	Nonprofit & Museums
								(percent)									
1967	32.7	1.7	2.8	.4	4.6	10.0	6.4	1.3	0	9.2	4.0	4.8	3.8	1.4	5.3	4.4	.6
1968	31.2	1.9	2.4	.6	4.8	9.7	6.8	1.4	0	10.5	3.6	4.8	3.4	1.9	5.5	4.6	.8
1969	29.4	1.1	3.7	.6	4.6	9.5	7.2	1.4	.5	11.4	3.2	4.9	3.1	2.0	5.9	4.9	.9
1970	29.7	1.1	3.2	.2	4.8	8.8	7.5	1.4	0	10.8	3.4	4.1	3.6	2.2	6.5	5.2	1.4
1971	29.4	2.4	2.4	.4	4.6	8.8	7.3	1.4	0	9.9	3.0	3.5	3.9	2.5	5.3	5.4	1.5
1972	28.3	1.9	.6	0	4.2	8.2	7.4	1.7	0	10.3	2.9	3.9	3.6	3.2	6.8	8.8	1.6
1973	26.7	3.7	2.0	0	4.3	7.4	7.8	1.8	0	11.0	2.3	4.2	3.2	3.8	6.5	8.3	1.4
1974	26.2	4.6	1.8	0	4.3	7.1	8.2	1.8	0	11.3	2.7	4.1	3.8	4.2	6.7	8.2	1.3
1975	27.2	6.6	1.1	0	4.4	6.2	7.3	2.1	1.1	9.8	2.9	4.2	7.1	4.1	4.5	9.4	1.2
1976	26.7	5.8	1.2	0	4.6	6.4	7.1	2.2	.5	9.8	3.4	3.7	6.8	4.0	4.9	10.0	1.4
1977	26.0	4.0	1.3	0	3.6	6.4	6.8	2.5	1.0	10.7	3.6	3.9	5.9	5.1	4.9	10.8	1.5
1978	25.1	4.5	1.0	.4	4.8	6.0	6.8	2.8	1.1	11.2	4.0	3.0	5.8	5.2	4.8	10.4	1.5
1979	24.1	1.7	.4	.7	4.8	5.4	6.7	3.1	1.7	13.2	4.5	3.7	5.9	5.0	5.1	10.6	1.3
1980	24.0	1.8	.3	.3	4.3	5.3	6.5	3.2	1.9	14.0	5.1	3.9	4.6	5.5	5.1	10.9	1.4

1979 and 1980 peak employment levels until 1984 or 1985. Much of Minnesota's basic manufacturing industries is capital-goods producing and, hence, linked to capital spending levels in U.S. industries. For most manufacturing industries, an expected increase of 17 percent is high, given the large excess capacity in many individual manufacturing industries.

The 1983 MBA Survey cited earlier included a question on structural change in manufacturing industries. Based on this study, 27 percent of the less-than-full recovery is attributed to structural change in manufacturing. Projected 1983 manufacturing employment is nearly 12 thousand below its 1982 level and 41 thousand below its 1980 level. Thus, total manufacturing employment in Minnesota is expected to decline further, rather than increase, in 1983. Most, if not all, of the employment decline is cyclical. If full recovery were to require a net manufacturing employment increase of 41 thousand, then the positive cyclical response anticipated in the MBA Survey would account for 73 percent, or 30 thousand, of the total. The projected 25 thousand increase in total employment from 1983 to 1984 would be equivalent to 83 percent of full recovery, assuming a 27 percent allowance for structural changes in the 1983-84 period.

MINING AND TOURISM

Mining and tourism account for roughly half of the economic base of northern Minnesota. Both industries are cyclically sensitive, as demonstrated by their sharp employment losses since 1979. They also are experiencing structural changes as a result of long-term market shifts.

Cyclical and Structural Change

Steel mills have reduced taconite purchases to one-third of their 1979 levels. Economic recovery is unlikely to return more than half of the previous market decline. The 1980 and 1981-82 recessions also reduced consumer spending on tourism/recreation-related activities. Market demand has shifted from small resorts to large resort complexes both on Lake Superior's North Shore and in Duluth. Long term adjustments to structural change in the northeast Minnesota tourism/recreation industry are more promising than in the taconite industry because of differences in the degree of control asserted by local resource owners over the critical variables affecting the competitive position of these two industries in their respective markets.

Year-to-year changes in northeast Minnesota metal, i.e., taconite, mining employment were compared earlier in Figure 4 with corresponding changes in nonelectrical machinery manufacturing. The latter is concentrated in the Twin Cities metropolitan area. Also compared are the relative magnitudes of cyclical and structural changes in total employment in the two industries.

Except for a strike in 1977, taconite mining employment climbed gradually in the 1970's from nearly 12 thousand in 1970 to nearly 16 thousand in 1979 -- the peak year of taconite mining employment and production. While taconite mining employment is expected to rise, after its record low of less than six thousand in 1983, to over eight thousand in 1984 and over nine thousand in 1985. Average annual taconite mining employment is expected to drop below its 1985 level to near its 1984 level by 1990. Structural change would account for the long-term decline in taconite employment to roughly 60 percent, and even less, of its peak 1979 level.

Tourism and recreation activities also are cyclically-sensitive, like mining. Structural change is important in tourism-and-recreation-related industries, also, in accounting for long-term employment prospects.

To illustrate to the effects of tourism/recreation activities, survey data on Lake Superior-North Shore visitors were prepared on their total expenditures in 1981. These expenditures were related to individual tourism/recreation activities and related businesses in the seven-county Northeast Minnesota region. These results show a total 1981 visitor expenditures of $41 million generating $44 million of industry sales in Northeast Minnesota which provided over 1200 jobs and total annual payroll of $16 million. To create five thousand new jobs, more than $170 million of additional tourism/recreation expenditures would be needed if the North Shore visitor expenditure relationships were to apply, also, to future industry expansion elsewhere in the region. Existing facilities, both private and public, are unused in some areas, but fully used in others. Much careful matching of tourism/recreation market assessments with related facility requirements is necessary before a coordinated marketing and facility development strategy is available for

promoting Northeast tourism/recreation potentials. According to the 1983 MBA Survey results, 22 percent of the less-than-full recovery of the tourism/recreation industry can be attributed to structural change -- an important consideration in the matching of markets and facilities.

Capital Spending

Capital spending by tourism/recreation-related businesses is expected to increase by 12 percent in 1983, according to the MBA Survey results. The start of an economic recovery in this industry was not expected to occur until late 1983. Thus, a slow recovery in both tourism and mining implies a slow recovery in the region of their heaviest concentration, namely, Northeast Minnesota. Capital spending, and, hence, construction employment, would remain low in the northeast relative to other regions.

STATE AND LOCAL GOVERNMENT[4]

State and local government revenues and expenditures in Minnesota increased steadily in the 1970's. While total personal income increased by $24.8 billion -- from $14.9 billion in 1970 to $39.7 billion in 1980, state and local government revenues increased by $5.7 billion -- from $3.0 billion to $8.7 billion. Thus, state and local government revenues in Minnesota nearly tripled. Their proportion of total personal income also increased from 20 percent to 21.9 percent. In the same period, total state and local government revenues in the U.S. also increased nearly three fold. Their proportion of total personal income increased from 18.0 percent to 19.6 percent of total personal income. Growth in state and local government revenues in Minnesota thus exceeded corresponding U.S. growth in the 10-year period from 1970 to 1980. Average annual levels of total regional income, total state and local government revenues, and total population are presented in Table 5.1 for later comparisons.

Cyclical and Structural Change

Unlike Minnesota's basic industries, the government sector is characterized by structural, rather than cyclical, change. The structural change is represented by shifts in (1) revenue sources and (2) expenditure patterns. Per capita levels in constant dollars are used in the comparisons of Minnesota corresponding U.S. revenue sources and spending patterns.

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[4] Based on study of state and local government revenues and expenditures in Minnesota by Patricia Dalton et al., Staff Paper Series P83- , Department of Agricultural and Applied Economics, University of Minnesota, St. Paul, 1983.

Table 5.1. Total personal income, total state and local government revenues, and total population, Minnesota and U.S., 1970-1980.

Year	Minnesota			United States		
	Personal Income	State/Local[1/] Revenues	Population	Personal Income	State/Local Revenues	Population
	(mil. $)	(mil. $)	(thou.)	(bil. $)	(bil. $)	(million)
1970	14851	576.2	3815	803.9	23806	203.3
1971	15738	659.0	3852	861.9	26299	206.8
1972	17145	711.4	3867	944.9	29819	209.3
1973	20371	802.4	3885	1058.9	35177	211.4
1974	21581	947.3	3898	1162.2	39676	213.3
1975	23093	1024.1	3926	1259.4	43774	215.5
1976	25017	1113.6	3957	1386.8	47343	217.6
1977	28529	1275.8	3980	1533.8	52726	219.8
1978	31766	1449.4	4005	1717.8	62600	222.1
1979	36048	1865.1	4038	1939.5	75830	224.6
1980	39744	2113.5	4087	2162.9	88595	226.5

[1/] U.S. Bureau of the Census, Government Financing 1970-1971 (and later years), U.S. Government Printing Office, Washington, D.C.

Revenue Sources

Revenue sources for state and local governments are grouped into the two categories -- federal and own sources, as shown in Table 5.2. Minnesota's state and local governments acquire an above-average share of revenues from both sources (as represented by the larger per capita revenues for Minnesota than the U.S.).

State revenue sources show differences in per capita revenues between years and between Minnesota and the U.S. when disaggregated. The largest differences in revenue trends in Minnsota and the U.S. occur in sales and income taxes. Minnesota state government is increasingly dependent on these two tax sources as its principal tax base.

Relative year-to-year changes in revenue receipts from intergovernmental transfers and all other revenue sources of state governments in Minnesota are illustrated in Figure 5.1. Large year-to-year variability in the individual functional areas of federal revenue-sharing accounts for the large total positive and negative differential effects.[5] Generally, Minnesota state government experienced above-average growth in federal-revenue sharing, except for the 1976-77 and 1977-78 periods.

The substantial growth in tax, as compared with nontax, revenue sources persisted throughout the 10-year period. Both tax and nontax sources have been cyclically sensitive. Nontax revenues from federal sources accounted for an increasing share of total state revenues in much of the 1970's.

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[5] All positive differential effects (i.e., increases in yield of individual revenue sources relative to corresponding U.S. revenue sources) are summed and represented by the positive portion of the bar graph in Figure 5.1, while the negative differential effects are summed with totals represented by the negative portions of the same bar graph.

Table 5.2. Per capita state and local government revenues from specified source and personal income (in 1972 dollars), Minnesota and U.S. 1970, 1975, and 1980[1/]

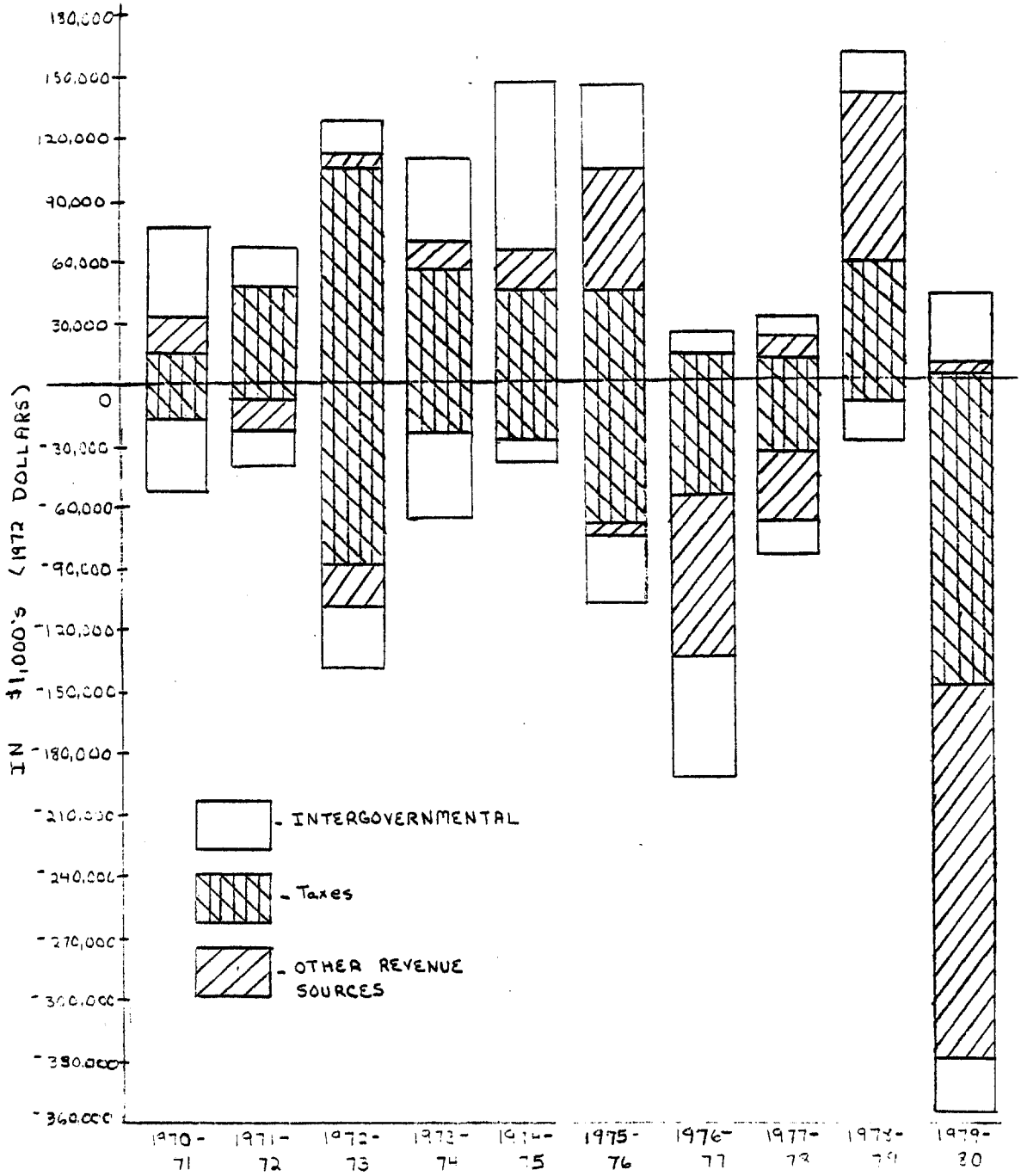
Revenue Source	Minnesota 1970	Minnesota 1975	Minnesota 1980	U.S. 1970	U.S. 1975	U.S. 1980
			(dollars)			
Federal Rev. Sharing	0	25	16	0	22	14
Other Fed. Revenue	144	194	243	146	277	211
Property Taxes	243	198	188	211	204	187
General Sales Taxes	331	84	98	318	115	139
Income Taxes		205	244		114	151
Other Taxes		153	143		129	133
Charges & Misc.[2/]	171	201	299	133	157	221
Total[3/]	890	1061	1231	807	917	1058
Personal Income	4209	4653	5426	4276	4634	5296

[1/] U.S. Bureau of the Census, Government Financing, 1970-71 (and later years) U.S. Government Printing Office, Washington, D.C.

[2/] Charges for services, sales of commodities, interest earnings, and others not listed.

[3/] Individual entries may not sum to totals because of rounding.

Figure 5.1. Relative yearly change in taxes, intergovernmental and other sources of revenue due to regional-share effect, state government, Minnesota, 1970-71 to 1979-80.



For local governments, federal and state revenue sharing increased from 46.9 percent to 50.7 percent of total Minnesota local revenues in the 10-year period from 1970 to 1980. For the U.S., the corresponding increases were from 37.5 percent to 43.3 percent. Property taxes, on the other hand, declined more rapidly in Minnesota than in the U.S., particularly in the 1970-75 period.

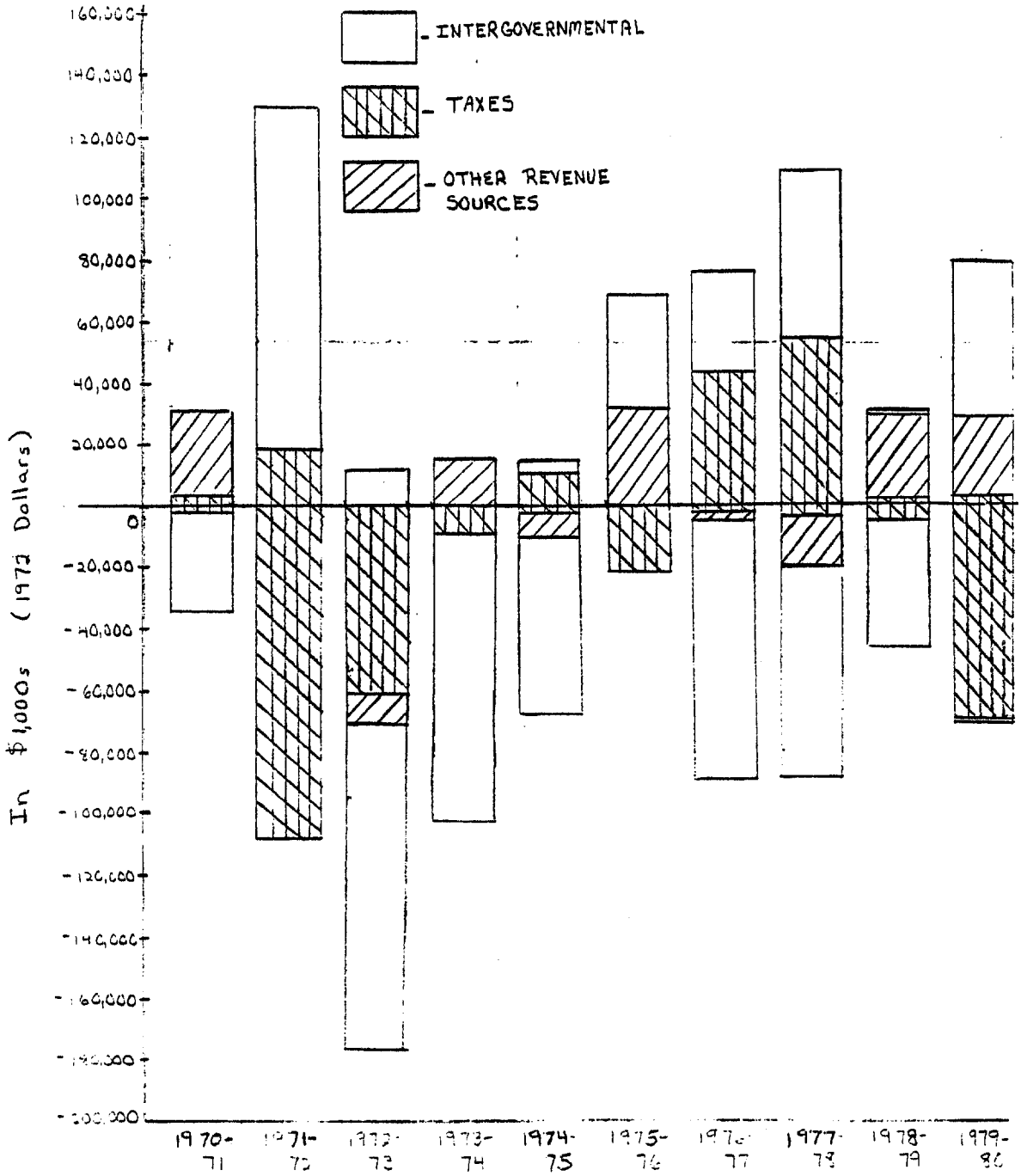
The rapid shift from local tax to nontax sources of local government revenues in Minnesota is illustrated in Figure 5.2. These increases of Minnesota local government nontax revenues exceeded corresponding local government revenues in the U.S. in 1971-72 and again in 1975-76 and 1979-80. State transfer payments account for practically all of the nontax revenue.

State transfer payments, which exceeded their proportionate share by $269 million in 1970, were $356 million above their proportionate share in 1972 but only $253 million above their proportionate share in 1975. Total local government revenues relative to total and excess transfer payments from state to local governments in the 1970-80 period were as follows:

Year	All Local Revenues	State Transfers	
		Total	Excess
	(million $)		
1970	2450	1097	269
1971	2550	953	256
1972	2574	860	356
1973	2687	789	313
1974	2635	764	272
1975	2618	775	253
1976	2713	774	269
1977	3053	801	307
1978	2799	777	234
1979	2915	776	227
1980	3112	752	276

Simply the above-average differential levels of state transfer payments to local governments, represented by the excess payments, thus accounted for more than eight percent of local government revenues in the 1970-80 period.

Figure 5.2. Relative yearly change in taxes, intergovernmental, and other sources of revenue due to regional-share, effect, local governments, Minnesota, 1970-71 to 1979-80.



Expenditure Patterns

Consolidated state and local government expenditures are summarized for 23 functional areas in Table 5.3. First, current expenditures in Minnesota are compared with corresponding expenditures in the U.S.

The largest expenditure category is clearly local schools. Notable in these comparisons is the virtually constant per capita level of expenditures (in 1972 dollars) for both local schools and higher education in Minnesota. While total per capita expenditures for all public education increased in Minnesota from $359 in 1970 to $377 in 1980, the corresponding increase in the U.S. was from $286 to $336.

The public welfare and health care areas account for the largest expenditure increases in Minnesota, but not in the U.S. Total per capita expenditures for the two areas increased from $140 to $420 in Minnesota and from $160 to $214 in the U.S. This increase of $280 accounts for two-thirds of the total increase in Minnesota per capita state and local government expenditures in the 1970-80 period.

Variances in the distribution of total state government expenditures among the 23 functional areas listed earlier are represented by total excess expenditures in Table 5.4. An excess expenditure is the portion of total expenditures in a functional area which is in excess of the level based on the corresponding U.S. distribution. For example, the total intergovernmental transfer from state to local governments in 1980 was $108.2 million above the reference level based on the U.S. percentage distribution of total state and local expenditures. (This compares with an excess transfer payment of $276 million relative to total local revenues). State transfer payments exceeded the U.S. reference levels for highways

Table 5.3. Per capita state and local government expenditures, Minnesota and U.S., 1970, 1975, and 1980.

Functional Area	Minnesota			United States		
	1970	1975	1980	1970	1975	1980
			(dollars)			
Current:						
Local Schools	260	257	264	206	219	233
Higher Education	90	104	99	66	76	87
Other Education	10	17	15	14	17	17
Public Welfare 5/	37	142	179	102	102	131
Health & Hos.	53	67	241	59	67	84
Highways	41	53	56	35	35	38
Police 5/	19	29	32	29	34	37
Fire 5/	8	9	12	13	14	16
Sewerage	6	10	15	5	7	11
Other Sanitary	3	4	5	8	8	9
Parks & Recreation 5/	13	22	48	12	14	23
Financial Aid 5/	12	15	19	13	14	18
General Cont. 5/	16	22	31	17	20	24
Interest On	32	38	55	28	37	43
Miscellaneous 2/ 5/	102	126	152	109	132	134
Capital:						
Local School	48	33	24	27	23	19
Higher Education	30	13	9	16	11	9
Other Education	3/	3	3/	2	2	1
Highways	80	67	68	66	51	48
Health & Hos.	5	5	6	6	7	6
Sewerage	13	24	22	10	14	17
Water Supply	8	5	9	7	8	9
Other Utility	3	3	6	8	11	19
TOTAL 4/	941	1068	1367	856	934	1042

1/ U.S. Bureau of the Census, Government Financing 1970-71 (and later years), U.S. Government Printing Office, Washington, D.C.

2/ Miscellaneous expenditures include libraries, veteran services, air and water transportation, housing and urban renewal, general public buildings, social insurance administration, all other and unallocable expenditures.

3/ 50 cents or less.

4/ Individual entries may not sum to total because of rounding.

5/ Breakdown between current and capital expenditures not available for these areas.

Table 5.4. Total excess expenditures of state governments by specified function, Minnesota 1970-1980

Function	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
					(million $)						
Intergovernment:											
Education	0	0	0	117.3	44.2	37.7	139.7	158.1	119.6	133.3	68.1
Highways	13.8	24.2	16.6	9.1	14.6	4.9	9.4	9.2	20.1	8.7	15.7
Public Welfare	65.8	115.6	125.0	130.4	95.9	42.4	0	0	1.1	15.4	24.4
Hospitals	0	0	0	0	0	.6	0	0	0	0	0
Current:											
Higher Education	83.7	99.6	115.9	71.2	71.7	60.8	96.9	47.6	29.7	40.7	35.4
Other Education	0	0	0	0	0	0	0	0	0	0	0
Highways	0	0	11.1	8.2	14.3	4.1	1.9	0	2.3	8.0	0
Public Welfare	0	0	0	0	0	0	0	0	0	0	0
Hospitals	7.7	8.2	0	0	0	0	0	0	0	0	0
Health	0	0	0	0	0	0	0	0	0	0	0
Police	0	0	0	0	0	0	0	0	0	0	0
Corrections	0	0	0	0	0	0	0	0	0	0	0
Nat. Resources	0	0	0	0	0	0	0	10.7	18.7	21.3	22.6
Interest On	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous	231.6	99.5	105.6	108.6	115.2	172.5	4.4	16.2	38.8	5.2	67.8
Capital:											
Higher Education	18.7	54.0	60.1	30.2	10.3	16.7	10.1	5.6	8.8	2.6	6.8
Other Education	0	0	0	0	0	0	0	0	0	0	0
Highways	0	0	0	0	0	0	0	0	0	0	0
Hospitals	0	0	0	0	0	0	0	0	0	1.1	1.2
Corrections	0	0	0	0	0	0	0	0	0	0	0
TOTAL GEN. EXP.	421.2	401.2	440.3	475.0	365.2	339.8	262.4	247.6	239.0	236.3	214.8

and public welfare, as well as local schools. Current expenditures exceeded the U.S. reference levels in the higher education, highways, natural resources, and miscellaneous functional areas. All other functional areas accounted for a less-than-proportionate share of total state government expenditures.

Year-to-year changes in the Minnesota state government expenditures, relative to corresponding state government expenditures in the U.S., are illustrated in Figure 5.3. Transfers to local governments are separated from all other current expenditures of Minnesota state government to show their large relative growth.

Large relative increases occurred in state government transfer payments to education, i.e., local schools, in 1971-72, 1972-73, 1974-75, 1975-76, and 1976-77, to highways in 1970-71, 1975-76, 1977-78, and 1979-80, and to public welfare in 1970-71, 1972-73, 1976-77, 1977-78, 1978-79, and 1979-80. Thus, the distribution of state transfer payments among functional areas in the 197-80 period varied sharply from the U.S. reference distribution.

Direct current expenditures of Minnesota state government also varied sharply from year-to-year relative to state government expenditures in the U.S. Generally positive differential changes occurred for other education, highways, public welfare, interest on state debt, and miscellaneous state expenditures, the largest positive differential change occurred (of $103 million) for public welfare for the 1974-75 period. On the other hand, generally negative differential changes occurred for higher education. In the 1976-77 period, for example, the change in state government expenditures for higher education was $49 million less than the change based on the corresponding U.S. growth rate.

Local government expenditures also varied sharply from the corresponding U.S. distribution. Local government expenditures for public welfare, highways, sewerage, parks and recreation, and interest on local debt attained above-average levels in eight of the 10 years in 1970-80 period, as shown in Table 5.5.

Figure 5.3. Relative yearly changes in current, capital, and transfer expenditures due to regional-share effect, state government, Minnesota, 1970-71 to 1979-80.

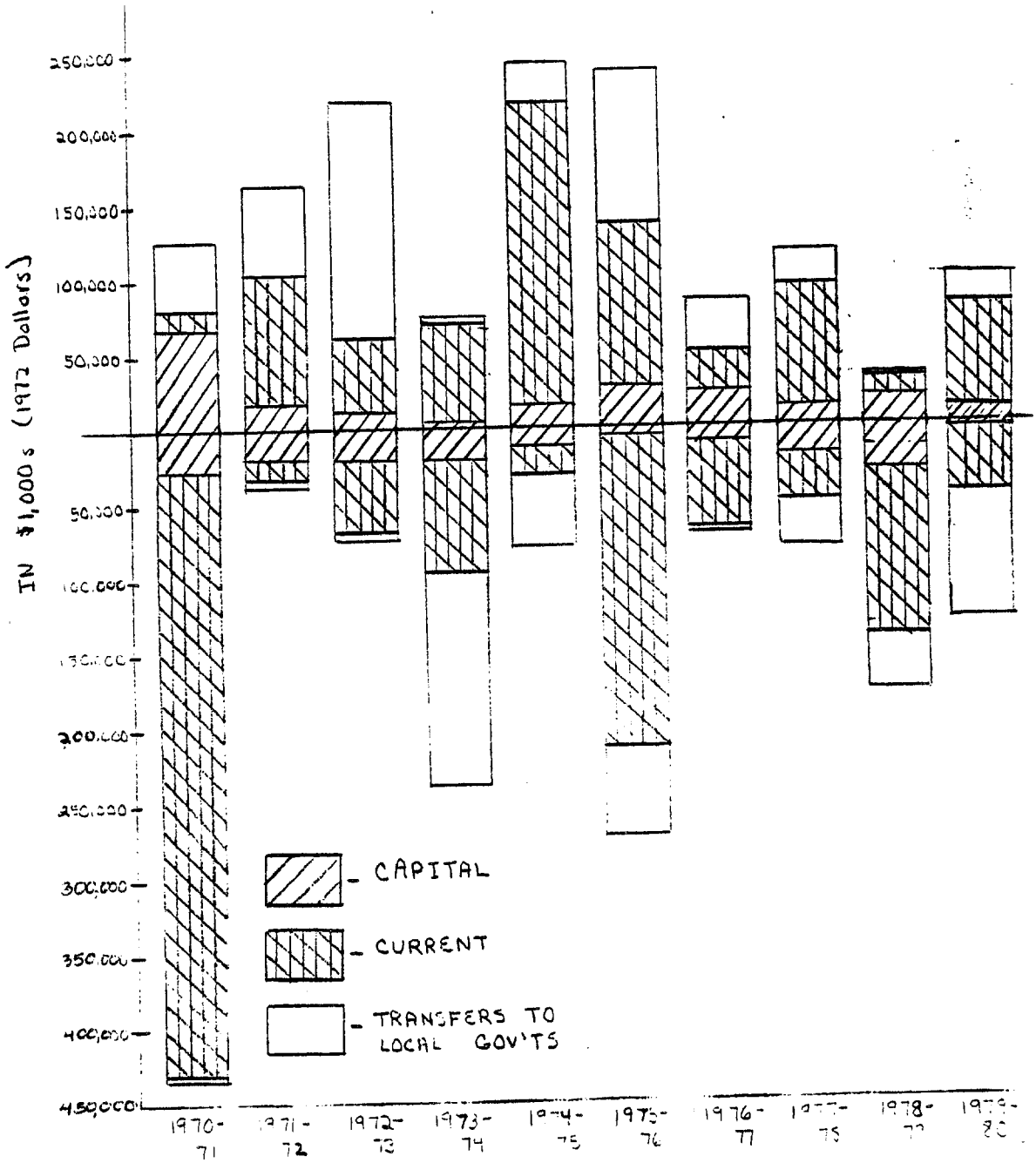


Table 5.5. Total excess expenditures of local governments, by specified function, Minnesota, 1970-1980

Function	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
					(million $)						
Current:											
Local Schools	39.1	20.9	28.0	0	0	.4	0	1.8	0	0	0
Higher Education	0	0	0	0	0	0	0	0	0	0	0
Other Education	0	0	0	0	0	0	0	0	0	0	0
Public Welfare	120.1	168.8	196.8	214.5	146.8	99.4	86.2	102.7	127.8	127.9	158.3
Health & Hospitals	0	0	0	0	0	0	2.0	0	0	0	15.9
Highways	25.9	37.9	30.5	30.9	31.6	34.9	30.5	41.1	49.9	51.1	46.9
Police	0	0	0	0	0	0	0	0	0	0	0
Fire Protection	0	0	0	0	0	0	0	0	0	0	0
Sewerage	0	17.7	1.8	0	.4	5.9	2.1	1.5	6.2	9.0	1.3
Other Sanitation	0	0	0	0	0	0	0	0	0	0	0
Parks & Recreation	0	0	0	4.3	7.8	24.0	13.6	7.7	12.1	38.7	22.6
Financial Aid	0	0	0	0	0	1.6	1.4	5.0	8.3	14.4	0
Gen. Control	0	0	0	0	0	0	1.2	0	5.0	.2	14.1
Interest	12.8	29.4	15.5	12.4	14.8	11.7	15.0	11.0	26.4	20.6	29.4
Miscellaneous	0	0	0	0	0	0	8.8	0	0	33.5	35.7
Capital:											
Local School	62.8	36.1	15.8	0	32.8	23.5	0	6.1	0	6.4	5.5
Higher Education	0	0	0	0	0	0	0	0	0	0	0
Other Education	0	0	0	0	0	0	0	0	0	0	0
Highways	46.6	37.6	44.3	67.1	51.4	59.9	61.1	66.6	60.8	70.4	66.3
Health & Hospitals	0	5.7	5.1	6.4	.3	.6	3.8	0	0	0	0
Sewerage	5.1	.4	27.8	5.8	8.0	29.1	33.7	7.2	9.9	0	3.8
Water Sup. Sy.	0	0	0	0	0	0	0	0	0	0	0
Other Utility	0	0	0	0	0	0	0	0	0	0	0
TOTAL GEN. EXPEND.	312.4	354.5	365.8	341.4	294.0	291.2	259.5	250.9	305.9	372.2	411.9

Below-average local governments expenditures were reported in at least eight of the 10 years for higher education, health and hospitals, police, fire protection, and other sanitation.

Year-to-year changes in local government expenditures relative to corresponding local government expenditures in the U.S., were generally positive for public welfare, health and hospitals, highways, police, fire protection, sewerage, other sanitation, parks and recreation, general control, and miscellaneous expenditures. Generally, negative year-to-year differential changes occurred for local schools. Thus, in the 1970-80 period, local governmental expenditures increased, relative to corresponding local government expenditures in the U.S., in all functional areas, except local schools. Public welfare expenditures, on the other hand, were the largest, relative to corresponding local government expenditures in the U.S.

Capital Spending

Capital spending by state and local governments in Minnesota increased from $165 per capita in 1970 to $254 per capita in 1980. However, in constant dollars, capital spending declined, as shown earlier in Table 5.3., from $187 per capita in 1970 to $144 per capita in 1980. It declined, also, as relative to total local government expenditures -- from 19.9 percent in 1970 to 10.5 percent in 1980.

Capital spending of state and local governments increased, also, in current dollars, but declined in constant dollars from $142 per capita in 1970 to $128 per capita in 1980. Relative to total local government expenditures the decline was from 16.6 to 12.3 percent -- a somewhat slower decline than in Minnesota. Thus, local government capital spending trends are outpaced by inflation, which means that spending in real terms has declined. The reduced spending has curtailed

constructing new public facilities as well as maintenance of existing facilities.

Capital spending for higher education as well as local schools, declined sharply (in real dollars) in both Minnesota and the U.S. Spending on highways in both state governments declined, but it increased for local governments, as shown in Table 5.6. Largest increases were reported by local governments for water supply, sewerage, and other public utilities.

Table 5.6. Per capita capital expenditures (in 1972 dollars) in specified functional areas, by level of government, Minnesota and U.S., 1970, 1975, and 1980.[1/]

Functional Area	State Government			Local Government		
	1970	1975	1980	1970	1975	1980
	(dollars)					
Minnesota:						
Local Schools	0	0	0	48	33	24
Higher Educ.	20	14	9	0	0	0
Other Educ.	2/	2/	2/	0	0	0
Highways	54	33	42	27	29	32
Health & Hosp.	1	1	3	4	5	3
Corrections	1	2/	2	0	0	0
Sewerage	0	0	0	13	24	22
Water Supply	0	0	0	8	5	9
Other Utility	0	0	0	3	3	6
Total	76	48	56	103	99	96
United States:						
Local Schools	0	0	0	26	23	19
Higher Educ.	73	8	6	3	2	3
Other Educ.	2	2	2	0	0	0
Highways	66	38	37	12	12	13
Health & Hosp.	2	2	2	3	4	5
Corrections	1	1	1	0	0	0
Sewerage	0	0	0	10	14	17
Water Supply	0	0	0	7	8	7
Other Utility	0	0	0	8	11	19
Total	74	51	48	69	74	83

1/ U.S. Bureau of the Census, Government Financing 1970-71 (and later years), U.S. Government Printing Office, Washington, D.C.

2/ Miscellaneous expenditures include libraries, veteran services, air and water transportation, housing and urban renewal, general public buildings, social insurance administration, all other and unallocable expenditures.

Appendix Table 1. Selected Economic Indicators, Minnesota and U.S., 1967-1985.

Year	Employment: Total MN	Employment: Civilian US	Employment: Nonagricultural[1] MN	Employment: Nonagricultural[1] US	Unemployment Rate MN	Unemployment Rate US	Annual Change: Real GNP	Annual Change: GNP Deflator	3-mo. T-Bill Rate	Real GNP 1972=100
	(thou.)	(thou.)	(thou.)	(thou.)	(%)	(%)	(%)	(%)	(%)	(%)
Estimated:										
1967	1473.8	79347	1191.9	68420	3.0	3.8	6.0	3.0	4.3	100.0
1968	1525.6	81307	1221.3	68837	3.1	3.6	4.6	4.4	5.3	104.4
1969	1585.3	83706	1281.5	71263	2.9	3.5	2.8	5.1	6.7	106.7
1970	1591.4	83888	1292.7	71552	4.2	4.9	-0.2	5.4	6.5	106.3
1971	1591.9	84093	1293.0	71788	4.4	5.9	3.4	5.0	4.3	109.9
1972	1667.1	86454	1373.0	74178	4.3	5.6	5.7	4.2	4.1	116.2
1973	1745.0	89935	1442.0	77670	4.5	4.9	5.8	5.7	7.0	122.6
1974	1789.6	92070	1507.1	79181	4.3	5.6	-0.6	8.7	7.9	120.8
1975	1793.9	90057	1479.0	77758	5.9	8.5	-1.1	9.3	5.8	119.3
1976	1835.2	92456	1521.8	80041	5.9	7.7	5.4	5.2	5.0	128.8
1977	1897.8	95727	1581.9	83045	5.1	7.1	5.5	5.8	5.3	135.9
1978	1995.2	100214	1671.7	87253	3.8	6.1	5.0	7.3	7.2	142.8
1979	2078.1	103542	1758.1	90405	4.2	5.8	2.8	8.5	10.0	146.8
1980	2087.9	103989	1763.9	90683	5.9	7.1	-0.4	9.0	11.5	146.3
1981	2055.5	100400	1736.6	91108	5.5	7.6	1.9	9.4	14.1	150.9
Projected:										
1982	2019.3	99500[2]	1697.6	89661		9.7	-1.3	6.1	10.5	146.5
1983	2036.0	100000[2]	1698.6	89579		10.7	1.6	5.3	8.5	148.8
1984	2117.5	103000[2]	1779.0	92443		9.6	4.5	5.7	8.7	155.7
1985	2193.1	106200[2]	1858.3	95648		8.5	4.3	6.0	8.9	162.6
1990	2396.3	116070[2]	2078.4	103555						

[1] Excludes farm and nonfarm proprietors; agricultural services, forestry, and fisheries; and farm and household wage and salary.

[2] Based on DRI control series adjusted to BLS projection series to 1990.

Appendix Table 2. Civilian Nonagricultural Employment in Specified Industry, Minnesota, 1978 Qtr. III to 1984, Qtr. II.[1/]

Industry No.	Title	Estimated 1978 Qtr. III	1978 Qtr. IV	1979 Qtr. I	1979 Qtr. II	1979 Qtr. III	1979 Qtr. IV	1980 Qtr. I	1980 Qtr. II	1980 Qtr. III	1980 Qtr. IV	1981 Qtr. I	1981 Qtr. II
		(1,000)											
1.	Mining	17.7	18.3	17.4	17.1	17.3	17.2	16.8	15.2	15.0	14.1	16.1	15.7
2.	Construction	78.5	81.9	86.4	84.3	88.1	89.1	91.8	77.8	74.6	73.2	74.2	62.3
3.	Mfg. Nondur.	143.0	144.5	146.7	146.0	144.1	146.3	149.5	148.3	145.4	144.0	146.1	146.6
4.	Mfg. Durables	216.3	220.8	228.0	226.2	230.9	234.4	241.3	229.1	222.9	222.5	221.8	223.6
5.	Tran., Comm., Util.	92.8	97.0	98.7	100.0	100.9	101.2	101.1	100.0	99.6	98.9	99.1	98.5
6.	Trade	423.9	432.8	438.5	436.4	435.9	444.8	456.3	448.5	447.5	448.3	436.6	434.2
7.	Fin., Ins., Real Estate	88.1	89.2	90.2	90.4	90.8	92.4	95.2	95.5	96.7	96.6	96.4	96.2
8.	Services	331.5	336.4	342.1	344.6	351.6	354.6	367.3	368.2	374.5	375.8	374.9	377.8
9.	Government	287.4	291.1	291.5	291.3	291.6	295.3	298.4	303.2	292.6	299.6	303.6	301.3
10.	TOTAL	1679.2	1712.0	1739.6	1736.3	1751.5	1775.3	1817.7	1785.8	1768.8	1773.0	1768.8	1756.2

Industry No.	Title	Estimated 1981 Qtr. III	1981 Qtr. IV	1982 Qtr. I	1982 Qtr. II	1982 Qtr. III	1982 Qtr. IV	Projected Baseline (1/83) 1983 Qtr. I	1983 Qtr. II	1983 Qtr. III	1983 Qtr. IV	1984 Qtr. I	1984 Qtr. II
1.	Mining	15.3	13.2	13.7	11.5	6.1	6.4	7.0	7.7	8.4	9.2	9.5	10.1
2.	Construction	63.1	66.0	67.6	63.6	62.2	66.6	66.4	64.7	65.3	67.6	69.5	69.8
3.	Mfg. Nondur.	146.3	146.1	141.1	139.6	139.0	138.2	138.1	139.2	140.3	142.1	145.1	148.2
4.	Mfg. Durables	222.8	219.9	211.6	209.6	205.4	200.5	196.5	194.2	194.6	196.8	200.3	201.5
5.	Tran., Comm., Util.	92.7	95.3	96.5	93.4	92.7	93.6	92.4	90.3	90.3	91.3	91.7	91.9
6.	Trade	435.5	435.7	437.5	431.6	428.3	428.2	430.8	432.3	434.5	441.0	446.3	452.6
7.	Fin., Ins., Real Estate	96.1	96.7	98.9	97.8	97.5	97.4	98.3	99.8	101.1	103.5	105.7	106.8
8.	Services	383.9	387.3	385.9	386.9	390.2	389.4	389.4	393.5	398.2	406.6	414.3	418.4
9.	Government	291.5	297.6	295.9	291.4	277.2	284.8	285.9	283.7	282.0	285.4	297.3	285.5
10.	TOTAL	1752.2	1757.8	1748.7	1725.4	1698.6	1705.1	1704.8	1705.4	1714.1	1743.5	1779.7	1784.8

[1/] Quarterly employment series are not adjusted to annual employment series, which are slightly lower because of underlying data difference.

Appendix Table 3. Civilian Nonagricultural Employment in Specified Industry, Minnesota, 1980-1985[1/]

Industry No.	Industry Title	Estimated 1980	Estimated 1981	Projected 1982	Projected 1983	Projected 1984	Projected 1985
				(number)			
1.	Mining	15778	15571	9684	7990	9690	10990
2.	Construction	77474	65789	63423	63042	66636	71300
	Mfg., Nondurables	145193	144600	137973	139129	150762	151037
3.	Food Products	48509	47868	46841	46513	47676	48057
4.	Tobacco	--	--	--	--	--	--
5.	Textile Prod.	3154	3083	2849	2937	3196	3381
6.	Apparel	5842	5549	4703	4487	4662	5030
7.	Paper Prods.	31700	31379	29030	29640	31803	33013
8.	Printing & Publ.	33661	33909	33933	34747	36902	38894
9.	Chemical Prod.	7431	7554	7233	7117	7438	7958
10.	Petroleum Prod.	1649	1839	1700	1717	1741	1774
11.	Rubber Prod.	10882	10883	10156	9770	10288	10504
12.	Leather Prod.	2366	2537	2276	2201	2289	2426
	Mfg., Durables:	228098	221126	205985	193064	206870	227603
13.	Lumber, Wood	11618	10663	9287	8990	9421	10166
14.	Furniture	3897	3938	3929	3819	3945	4126
15.	Stone, Clay, Glass	9150	8407	7678	7332	7853	8599
16.	Primary Metals	6811	6383	4927	4666	5412	6311
17.	Fabr. Metals	37439	36455	33331	31331	33399	35537
18.	Nonelectrical	88400	89409	84297	75614	82722	93476
19.	Electr. Mach.	27340	25871	23245	22408	23529	24587
20.	Trans. Equip.	7907	7523	7156	6855	7500	8512
21.	Contr. Instr.	28038	27363	25565	25603	20127	30055
22.	Misc. Mfg.	7500	7189	6571	6446	6962	7254
23.	Tran., Com., Util.	100075	97771	94165	90963	91964	91688
24.	Trade	444814	430290	427326	428180	451731	469800
25.	Fin., Ins., Real Est.	96958	97362	98877	103326	106736	112927
26.	Services	367485	376984	384009	396681	417705	442768
27.	Fed., Civ.	31794	31353	28962	29222	29982	30972
28.	State and Local	256241	257340	247200	246953	246953	249196
29.	Total Nonagr.	1763910	1738625	1697604	1698550	1780029	1859281
30.	Other[2/]	315453	317854	316122	314391	316271	320555
31.	Total, Civilian	2079363	2056479	2013726	2012941	2096300	2179836

[1/] Based on unpublished data from U.S. Department of Commerce, Regional Economic Information System and Data Resources, Inc., January 1983, Control Forecast Series.

[2/] Farm and nonfarm proprietors and farm wage and salary and household employment.