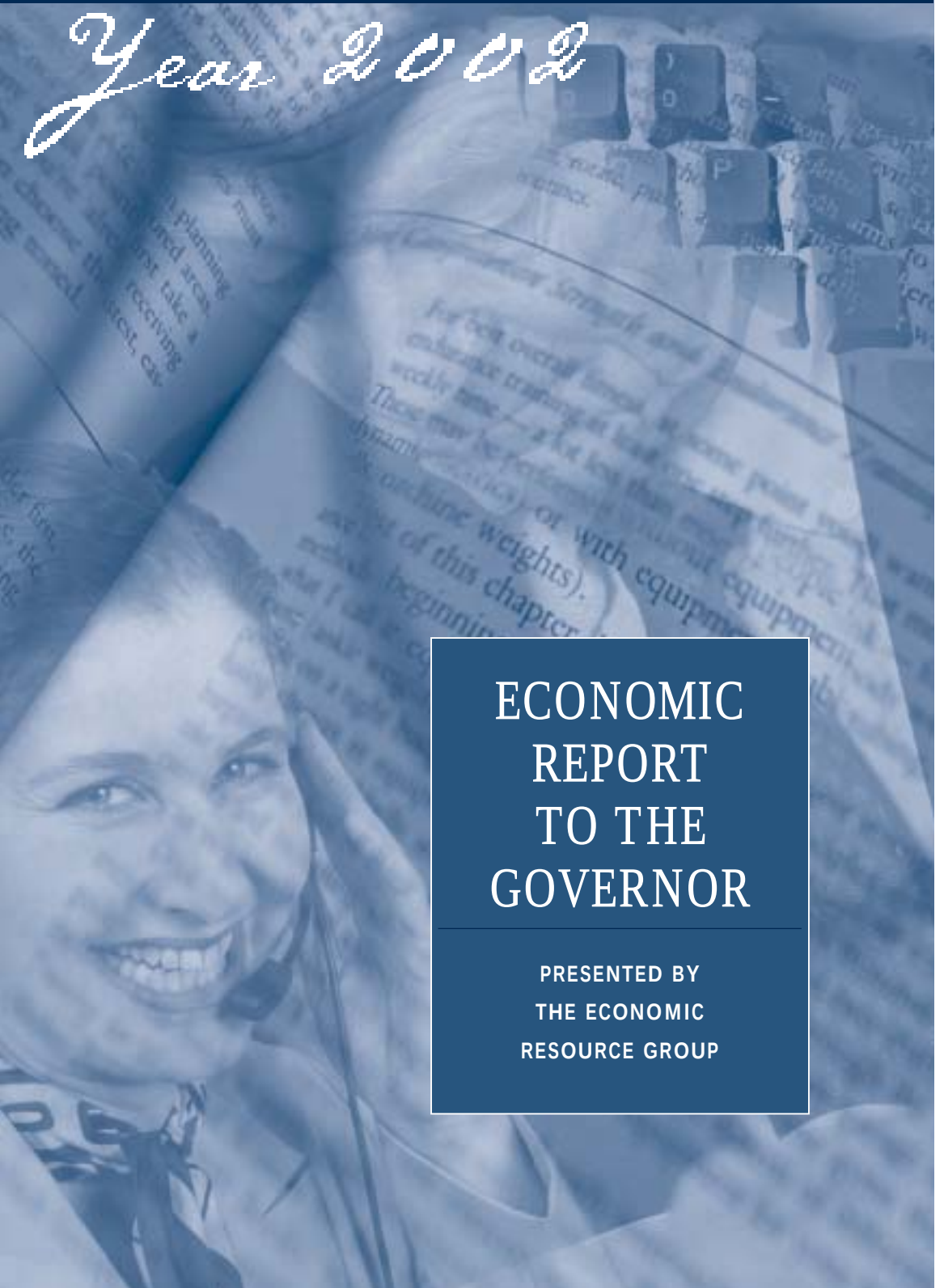
ISSUES IMPORTANT TO THE MINNESOTA ECONOMY

Year 2002



ECONOMIC REPORT TO THE GOVERNOR

PRESENTED BY
THE ECONOMIC
RESOURCE GROUP

PRODUCTIVITY AND THE MINNESOTA ECONOMY

Year 2002

ECONOMIC REPORT TO THE GOVERNOR

PRESENTED BY THE ECONOMIC RESOURCE GROUP

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MESSAGE FROM THE ECONOMIC RESOURCE GROUP

The *2002 Economic Report to the Governor* is the 10th in a series of reports on issues of importance to the Minnesota economy. The reports are produced by the Economic Resource Group, an organization of state research managers formed in 1985 for the purpose of improving economic analysis through interagency cooperation.

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The first seven editions of the *Economic Report to the Governor*, 1986 through 1992, were published annually. Subsequent editions were published in 1994 and 1998. We are proud to add this 2002 edition of the *Economic Report to the Governor* to our ongoing work of informing public policy debate and decision making through economic research and information.

Producing a publication of this size and scope requires the effort of many individuals including, of course, the authors and Gene Knaff, Metropolitan Council, compiler of the Historical Economic Statistics section. Judith Trent of Economic Security providing editing and production coordination.
This edition available on the web at: http://www.minnstats.state.mn.us

INTRODUCTION TO THE 2001 ECONOMIC REPORT TO THE GOVERNOR

BY THOMAS STINSON, MINNESOTA STATE ECONOMIST

INTRODUCTION

Some may find it strange that this *Economic Report to the Governor* focuses on a longer-term issue at a time when the U.S. economy is in recession and the outlook for the "new economy's" high technology and telecommunications sectors has been cut back dramatically. Currently, the media's attention is riveted on what the economic statistic of the day reveals about the economic outlook. Stories covering the continuing policy debate over whether there is a need for further stimulus, and the form any stimulus should take are also common.

Unfortunately, those highly visible, short-term issues are the items for which economic theory provides the least guidance. Perhaps more important, despite what we might hope, even if the future path of the economy were known, there is little that can be done to change the short-term outcome. Occasionally, public action may help accelerate a recovery, but natural forces coming from within the market economy are always the key to stopping the decline and returning to growth.

This report takes a longer view of the economy and examines productivity, a topic where economic theory provides strong guidance for future action. And, unlike national short-term economic fluctuations, this is an area where state policy can make a difference in the future standard of living for Minnesotans.

Productivity's relation to long-term economic growth is clear. Economists note there are only two ways a state's economy can grow – because more people are working, or because each individual produces more. But, only when the value of each worker's output increases – either because more units are made or because a higher-valued product is produced – is it possible for employers to pay higher wages. In the long run in a full-employment economy like Minnesota's, increases in output per worker are clearly preferable since they allow the standard of living for individual households to improve. The productivity issue is particularly important to Minnesota's future since,

as noted in the *1998 Economic Report to the Governor*, slow growth in the labor force is likely to limit our economy's growth during the next two decades. Without productivity increases, economic growth and the standard of living in Minnesota will lag.

Minnesota's economy faced a major challenge in the 1960s. We needed to make a transition from a largely resource-based economy to a more diversified manufacturing and service economy. With our standard of living growing more slowly than the U.S. average, our economy needed to become more dependent on the production of high-valued output, or we risked being left behind the rest of the nation. We successfully met that challenge. In 1960, per capita personal income in Minnesota was less than 95 percent of the national average, and Minnesota ranked 24th among all states in per capita personal income. In 2000, Minnesota personal income exceeded the U.S. average by more than 8.5 percent, and we ranked 9th among states. Much of that success is due to the foresight of state policymakers who, 40 and 50 years ago, recognized the importance of a well-educated, productive workforce and acted to ensure that that workforce be available in the future in Minnesota.

Now, new challenges have emerged, and our economy will need to be transformed once again if our standard of living is to continue to improve at the rate to which we are accustomed. We have made the transition from a resource-based economy to a modern, well-diversified economy, but that will not be sufficient to guarantee an acceptable growth rate in the future. Indeed, just to keep up with the rest of the nation will require responses to the changes in markets and in the global economy that are already well underway.

Minnesota must once again begin making plans to deal with another transformation of its economy. The challenges posed by the increasingly interdependent global economy and the aging of the workforce are so fundamental that our success in dealing with them will be as important to the health of Minnesota's economy in 2030 and 2040 as the transition to a more diversified economy was to our economic strength entering the 21st century. To be successful in this environment, we must emphasize programs which will enhance productivity across the entire state economy.

This report's five chapters examine various aspects of the productivity issue and its impact on Minnesota. Each begins by noting the significant national increase in productivity in the mid 1990s, and then investigates particular Minnesota implications.

The first paper, by Thu-Mai Ho-Kim, Minnesota Department of Trade and Economic Development, compares productivity growth rates in Minnesota with

those for the nation as a whole, and finds Minnesota's overall rate of productivity growth to have been stronger than the national growth rate. However, productivity levels in Minnesota remained below national levels in several major industries. Ho-Kim notes that while economists agree that there are three sources of productivity growth – capital deepening (the use of more capital per worker), changes in the labor force (an increase in human capital), and multi-factor productivity (changes in output which cannot be explained by increases in capital or labor) – the data necessary to make that disaggregation are not available at the state level. Without such data, it is impossible to identify the sources of productivity growth in Minnesota.

A consistent theme runs throughout this report. If Minnesota's economy is to successfully meet the current challenges. . . it will be necessary to focus on initiatives to increase the productivity of the existing workforce.

The papers that follow each examine a factor contributing to productivity in more detail.

Steve Hine and Dave Senf, Minnesota Department of Economic Security, present a more in-depth analysis of the effect of changes in the composition of Minnesota's labor force on productivity. They find that relatively large shifts in employment toward high-productivity industries and occupations and the state's relatively highly-educated population are likely to have made a major contribution to the increase in productivity in Minnesota. The occupations which have seen the greatest productivity increases and which are expected to continue to see large productivity increases are dominated by those requiring specialized training and skills. Hine and Senf note that "increased reliance on a skilled and educated workforce will present challenges to our education and training system." They also point out that prosperity associated with productivity growth has not been shared by all.

Next, Richard Gebhart, Minnesota Department of Revenue, examines the impact of tax policy on productivity. Tax law changes, particularly changes which reduce business tax bills, are often justified as being good for the economy. Many argue that shaping the tax system to provide additional incentive for business investment and capital accumulation can enhance the productivity of a state's economy. Gebhart notes that researchers are not in agreement about the effectiveness of tax policy in stimulating productivity growth. He finds that under current law, tax provisions offer a total of nearly $500 million to encourage business investment and improve productivity, but that the incentives are mixed in their impact, resulting in effective tax rates that vary by major industry class, with effective tax rates ranging from 1.1 percent for

durable goods manufacturers to 2.8 percent for the transportation, communication and utility sector. For the single year examined, there appeared to be a rough negative correlation between effective tax rate and productivity growth.

Then, David Anderson, Gerard McCullough, and James West, University of Minnesota, Center for Transportation Studies, examine the contribution public infrastructure, specifically roadways, have made to productivity in Minnesota. Noting that some have argued that a decline in public infrastructure investment was a major factor contributing to the decline in U.S. productivity in the 1970s and 1980s, the authors attempt to determine the contribution of roadway investment to productivity growth. This is a particularly important issue in Minnesota since our per capita investment in roadways exceeds the national average.

The authors find that Minnesota receives a high rate of return on its investment in roadway capital. While acknowledging the potential problems associated with the estimated rate of return, Anderson, McCullough and West believe their findings show that investments in roadway capital contribute to productivity growth in Minnesota. The authors also note that their results do not mean that all new investment in roadways will lead to productivity gains. Returns to particular projects will differ and only by investing in the best projects available can the high return be maintained.

The final paper returns to the effect of changes in the composition of the labor force on productivity growth. Ron Dreyer, Minnesota State Colleges and Universities, notes that changing work opportunities and requirements will mean that the stock of human capital will need to be updated more frequently than in the past. This means that Minnesota will need to emphasize the opportunity for individuals already in the labor force to expand their skills. Results from a number of studies appear to document that employers as well as employees benefit from education and training programs.

The projected tight labor markets for Minnesota which are expected to continue on into the future will only heighten the need for such programs.

A consistent theme runs throughout this report. If Minnesota's economy is to successfully meet the current challenges of global competition and an aging workforce, it will be necessary to focus on initiatives to increase the productivity of the existing workforce. We cannot expect that the rest of the world will continue to use outdated technology; so, to keep ahead, we will need to keep pushing the technology envelope, developing new processes, new capital equipment and new products to retain our position in the world's economy.

The pressures from global competition will yield a large and growing role for high technology and new products in our state's future. But high technology industries comprise less than 10 percent of Minnesota's economy. That means focusing on high tech will not be enough. We will need to make better use of productivity-enhancing technology throughout our entire economy. That will require a more technologically sophisticated workforce throughout the state; ensuring that this type of workforce exists is one of the most important challenges facing our generation of public policymakers.

The productivity issue is long-term, and, unfortunately, long-term issues are often put to one side. . .

Clearly, our elementary and secondary education system will play a major role in upgrading the skills of those entering the labor market – as will the post-secondary institutions. But, those contributions, while important, are unlikely to be enough. Technology is changing faster than ever; that means that more incumbent worker training than ever before will be necessary to ensure that those already at work share fully in the economic gains which will accompany productivity increases in Minnesota.

The productivity issue is long-term, and, unfortunately, long-term issues are often put to one side as policymakers search for solutions to the more immediate problems facing the state. That short-term focus, while understandable, can be costly, for the need to increase the productivity of our workforce will not disappear. The sooner we find ways to enhance the productivity of our workforce, the sooner those benefits will be translated into further improvements in Minnesota's standard of living.

MINNESOTA: RECENT TRENDS IN PRODUCTIVITY

BY THU-MAI HO-KIM

RECENT TRENDS

BRIEF DESCRIPTION: *This chapter defines productivity and the rationale for focusing on productivity improvements as mechanisms for driving the state economy. It also assesses the strengths and looks at the challenges inherent in the state's industrial mix and environment for innovation. The author compares state with national trends and describes three sources of long-term productivity growth in the U.S.: capital intensity, shifts in labor composition, and multi-factor productivity.*

The author finds that the state's real growth rates in output per job matched or exceeded those of the nation for most sectors – except manufacturing – between 1990 and 1999. The chapter reveals that output per job in Minnesota's large services sector lagged that of the U.S. by 9.0 percent in 1999.

The chapter concludes with several recommendations; to achieve sustained growth and improved competitiveness, Minnesota will need to:

- *Focus on upgrading skills to ensure workers have what they need to take over positions vacated by retiring workers and to fill newer, high-skill job openings. Well-trained workers are particularly critical as businesses intensify their investment in information technology and develop innovative approaches to production.*
- *Remain adaptable and recognize shifts in technology so businesses can develop cutting-edge strategies, implement innovative applications and attract talented workers. By focusing on the transfer of inventions from the research environment to a commercial context, Minnesota will capture market share and gain "first-to-market" competitive advantages.*
- *Take advantage of global opportunities as trade barriers are removed and commerce expands internationally. Minnesota must aim for increased production efficiencies resulting from motivated workers at the forefront of their industries, continued research and development of new materials, products and services, and improved labor force skill.*

Why Productivity?

Like many economic terms, productivity is a straightforward concept that means increasing output while maintaining or decreasing inputs. In short – working smarter. Put more eloquently, productivity measures how efficiently raw materials are converted into final products.

With increased productivity, businesses generate relatively more output from the same inputs, resulting in increased competitiveness, more productive workers and increased wages. Although capital investment, technology and process improvements also affect productivity, workers are generally the largest single source of production value. How have Minnesota workers been performing?

Minnesota's economy surged in the 1990s, averaging 4.1 percent annual growth during the decade. Gross state product (GSP) in Minnesota – a measure of overall output generated within the state – expanded by 43 percent between 1990 and 1999 to $173 billion. In comparison, overall U.S. gross domestic product (GDP) grew by 35 percent over the same period. Minnesota benefited from this economic performance as per capita personal income grew to $32,101 in 2000, a real increase of 22 percent between 1990 and 2000. Minnesotans also gained relative to the rest of the nation during the 1990s; U.S. per capita personal income increased by only 15 percent during the 1990s to $29,676 in 2000.

Minnesota's economic output grew during the 1990s; employment expanded, and worker productivity increased. However, a workforce shortage threatens to curtail further growth. Between 1990 and 2000, Minnesota employment increased by 25 percent even though the labor force expanded by only 15 percent. As a result, the labor market was extremely tight during the late 1990s, and this led to record-low unemployment. With slowing growth in the labor supply and limited opportunities in Minnesota for increasing labor participation rates, work hours and multiple job-holding, productivity growth will have to accelerate to ensure continued above-average economic growth.

This chapter will examine the current economic environment and labor market in Minnesota and will review the importance of productivity growth for the state's future economic expansion. The chapter will also assess how the state's industrial mix and environment for innovation affect productivity.

An Overview of Productivity Data

Labor productivity measurements involve the ratio of labor units (workers, jobs or hours) to output. Output is measured in various ways, but the most common measures of aggregate output are gross state product (GSP) for a state and gross domestic product (GDP) for the nation. At the industry level, output may be measured by sales, revenue or shipments per worker. In the manufacturing sector, the ratio of value-added[i] to production hour is a frequently used measure of productivity because it separates activity in the physical production process from other business activities. One limitation of these industry-level ratios is that they also respond to market conditions.

But all productivity measures currently used have limitations. The statistical and practical difficulties in collecting appropriate input and output statistics for measuring productivity – especially for service-producing industries – are significant. For example, although efforts have been made to maintain consistent coverage of output and labor input estimates, statistical discrepancies are often present.

On the practical side, where hours of work are used as a measure of labor input, hours are subject to a greater margin of error for non-production (vs. production) workers, unpaid family workers, the self-employed, and management occupations. Market conditions and the composition of the product or service provided affect productivity comparisons. What's more, accounting systems may not always clearly reflect improvements in product and service quality, or the value of time or services related to the product such as delivery, technical support or warranty.[ii] Moreover, statistics for some newer and highly productive or innovative industries may still not be well captured by current methods.

Because these limitations influence productivity measures (and thus competitiveness comparisons), productivity measures should be viewed with caution. Nevertheless, they are the best currently available and do provide some insight into productivity trends and issues that are important for Minnesota to consider.

Long-Term National Productivity Trends

Short-term data on labor productivity growth measure changes in production resulting from changes in the number of hours worked (output per hour). Usually published on a quarterly basis by the Bureau of Labor Statistics (BLS), this data series does not account for changes in technology and capital, or trends in educational attainment and work experience.

A more complex analysis of labor productivity examines the three sources of long-term productivity growth: 1) increased investment in and use of capital and technology ("capital intensity"); 2) shifts in educational attainment, gender and work experience of the labor force ("shifts in labor composition"); and 3) multi-factor productivity (MFP) growth. (See Table 1.)

MFP growth adjusts labor input to account for changes in hours worked and shifts in education and work experience in the labor force. Data used to measure these components of productivity growth are available on a less timely and less detailed basis than the labor productivity ratios described earlier.

The first source of long-term productivity growth comes from workers using technology or equipment that makes them more productive; an example would be switching from manual typewriters to computer processors. The second source of productivity growth results from a general change in the labor force relative to education, gender and work experience over time; this could include a greater share of workers holding high school or college degrees, higher average age (and experience) of the workforce, or increased labor force participation by women.

The third source of long-term productivity growth, MFP growth, estimates the changes in output that cannot be explained by changes in labor and capital inputs and is based on complex analysis, uses less timely data and is available only at the national level. MFP growth may arise from new technology, economies of scale, improved workflow, and better management practices. In-depth economic research generally emphasizes MFP as the key to sustainable long-term growth.

Between 1948 and 1973, labor productivity increased on average by 2.9 percent each year, with MFP growth contributing almost two-thirds of labor productivity growth. Labor productivity slowed during the 1970s and 1980s, increasing at half the rate of the previous two decades. Between 1990 and 1995, labor productivity regained some strength, expanding by 1.6 percent annually; this growth was due to equal contributions from MFP growth, changes in labor composition, and increased capital services per worker.

Between 1995 and 1999, labor productivity gains measured 2.4 percent per year, due mainly to a resurgence in MFP and increased capital intensity – primarily in information technology investments. During this period, the impact of information technology on labor productivity increased – contributing about one-third of labor productivity gains – as investment was reallocated from other forms of capital investment.[iii]

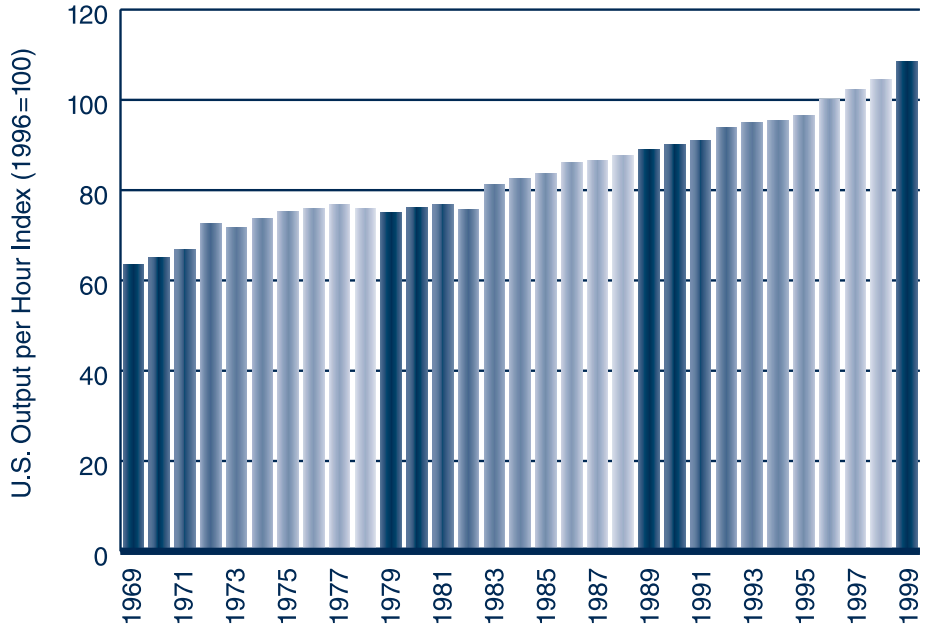
TABLE 1 SOURCES OF LONG-TERM U.S. PRODUCTIVITY GROWTH IN PRIVATE NONFARM BUSINESS,* 1948-1999

Average annual growth (percent per year)

	1948-73	1973-79	1979-90	1990-95	1995-99
Labor productivity: Output per Hour	2.9%	1.2%	1.4%	1.6%	2.4%
Contribution of capital intensity (capital per labor hour)	0.8%	0.7%	0.8%	0.5%	1.0%
contribution of information processing/software	0.1%	0.3%	0.5%	0.4%	0.9%
contribution of all other capital	0.7%	0.5%	0.3%	0.1%	0.1%
Contribution of labor composition	0.2%	0.0%	0.3%	0.4%	0.3%
Multi-factor productivity	1.9%	0.4%	0.3%	0.6%	1.1%

Note: The sum of multi-factor productivity and the contributions of capital intensity and labor composition may not equal labor productivity due to independent rounding. Contribution of capital intensity is the growth rate in capital services per hour times capital's share of current dollar costs. Contribution of information and processing software is the growth rate of information processing equipment and software times its share of total costs. Contribution of labor composition (the growth rate of labor input less the growth rate of the hours of all persons) is the growth rate of labor composition times labor's share of current dollar costs. Multi-factor productivity is the growth in output per unit of combined labor and capital input. Within the growth accounting framework, a 1.0 percent change in any of these components indicates that, for example, increased use of capital or worker skills had the same effect on output and productivity growth as a 1.0 percent change in hours worked.
*Excluding government enterprises.
Source: Multifactor Productivity Trends, 1999. http://stats.bls.gov/news.release/prod3.nr0.htm
U.S. Bureau of Labor Statistics, May 2001.

Figure 1: U.S. Labor Productivity Index, Nonfarm Business



Source: Multi-Factor Productivity Trends, 1999, Bureau of Labor Statistics, 2001.

More recently, national labor productivity of private sector nonfarm businesses grew by 2.5 percent between 1998 and 1999, the 17th consecutive year of growth. MFP grew for the eighth consecutive year, by 0.6 percent. (See Figure 1.)

Many studies have claimed that a "productivity paradox" exists because productivity gains were not apparent in the data despite years of investment in the information technology sector. However, the latest data reflect recent BLS revisions that include the impact of information processing equipment and computer software and suggest that these investments are beginning to yield productivity dividends. Businesses are adapting their operations to new technologies, and the production impacts are probably just appearing. Positive impacts from investment in worker training and education may take even longer before becoming apparent in the data.

As the state economy shifts toward a knowledge-based economy, Minnesota will become dependent on high-skilled, service-oriented sectors to lead in productivity gains.

A comparison between labor productivity for the private nonfarm sector and the manufacturing sector shows the growing relative improvement in the productivity of the nation's manufacturers. Productivity growth rates for manufacturers were generally lower than the overall private nonfarm sector between 1948 and 1990. Beginning in the 1990s, however, labor productivity in manufacturing surged and grew twice as fast as the private nonfarm sector (40 percent vs. 19 percent) between 1990 and 1999.

MFP growth also had a greater impact on manufacturing than on private nonfarm businesses. The MFP index for private nonfarm business exceeded the MFP index for manufacturing throughout most of the period from 1948 to 1999. MFP growth in manufacturing intensified during the 1990s, growing by 17 percent, compared to MFP growth in private nonfarm business of 8.0 percent.

After losing ground to other major manufacturing countries during the 1970s and 1980s, the U.S. manufacturing sector rebounded strongly in the 1990s, increasing productivity faster than all other countries except Sweden. (See Table 2.)

Productivity Trends in Minnesota

Indices of labor productivity and multi-factor productivity are not available on a state-level basis. Less complex measures of labor productivity ratios such as output per hours worked or per worker are the only labor productivity measures available at the state

level. The measure for output (generally GSP) can be further refined by examining output across sectors. GSP is a broad measure of output defined as the value of goods and services produced by labor and property located in Minnesota net of the value of raw materials or intermediate goods purchased from other states or countries. Like GDP, GSP is estimated and subject to statistical discrepancies.

In 1999, Minnesota's output per job was $52,428, ranking 28th highest among all states. U.S. output per job of $56,846 during the 1990s exceeded Minnesota output per job by an average of 10 percent. However, between 1990 and 1999, Minnesota's output per job grew by 18 percent (real), exceeding the U.S. real growth in output per job of 15 percent.[iv]

TABLE 2 OUTPUT PER HOUR IN THE MANUFACTURING SECTOR, 1990-1999 COMPARISON BETWEEN THE UNITED STATES AND OTHER MAJOR MARKETS

	Mfg Output per Hour 1999 (Index 1992=100)	Total Pct Change 1990-1999	Average Annual Growth 1990-1999
Sweden	139.5	47%	4.4%
United States	134.8	39%	3.7%
France	128.9	38%	3.6%
Germany (unified)	128.5	30%	2.9%
Belgium	124.5	29%	2.8%
Japan	124.1	30%	3.0%
Canada	115.2	20%	2.1%
Italy	112.9	22%	2.2%
United Kingdom	109.2	24%	2.4%
Norway	103.9	8%	0.8%

Note: Foreign currency values were converted to the U.S. dollar based on the 1999 exchange rate by the U.S. Bureau of Labor Statistics. The major European currencies (in France, Germany and the United Kingdom) fell in value relative to the U.S. dollar by between 9.0 percent and 11 percent over the period between 1990 and 1999, while the Canadian dollar fell by 21.5 percent. The exception was the Japanese yen, which rose by 27.6 percent relative to the U.S. dollar. These calculations are based on the productivity index produced by the BLS, and hence may differ from those based on data from the Bureau of Economic Analysis.
Source: International Comparisons of Manufacturing Productivity and Unit Labor Cost Trends, April 2001, http://stats.bls.gov/news.release/prod4.toc.htm, U.S. Bureau of Labor Statistics.
Calculations of total percent change by author.

Minnesota's three largest sectors by GSP in 1999 were services (21 percent of GSP, 31 percent of employment); finance, insurance and real estate [FIRE] (18 percent of GSP, 8.0 percent of employment); and manufacturing (18 percent of GSP, 14 percent of employment). By comparison, retail trade contributed 9.0 percent of GSP but accounted for 17 percent of employment.[v]

Minnesota's real growth rates in output per job matched or exceeded those of the nation for most sectors – except, notably, manufacturing – between 1990 and 1999. However, state output per job continued to lag national output per job in the state's three largest output-generating sectors by between 8.0 and 12 percent. (See Table 3.)

TABLE 3 MINNESOTA'S GROSS STATE PRODUCT (GSP) PER JOB BY SECTOR, 1999

	Output per Job, 1999		Output per Job Real Growth,1990-1999	
Industry	Minnesota	United States	Minnesota	United States
FIRE*	$127,184	$138,079	23.0%	11.7%
Agriculture, forestry, fisheries	102,806	61,239	-33.9%	-9.7%
Mining	92,044	142,945	166.6%	53.7%
Wholesale trade	86,088	86,177	64.9%	61.4%
Transportation & utilities	84,053	97,819	16.6%	18.1%
Manufacturing	68,826	77,953	24.5%	42.0%
Construction	51,698	44,992	2.1%	-2.5%
Government	45,687	49,258	3.5%	3.5%
Services	34,952	38,455	3.2%	-2.5%
Retail trade	29,705	31,823	33.8%	29.0%
Total**	$52,428	$56,846	17.8%	14.7%

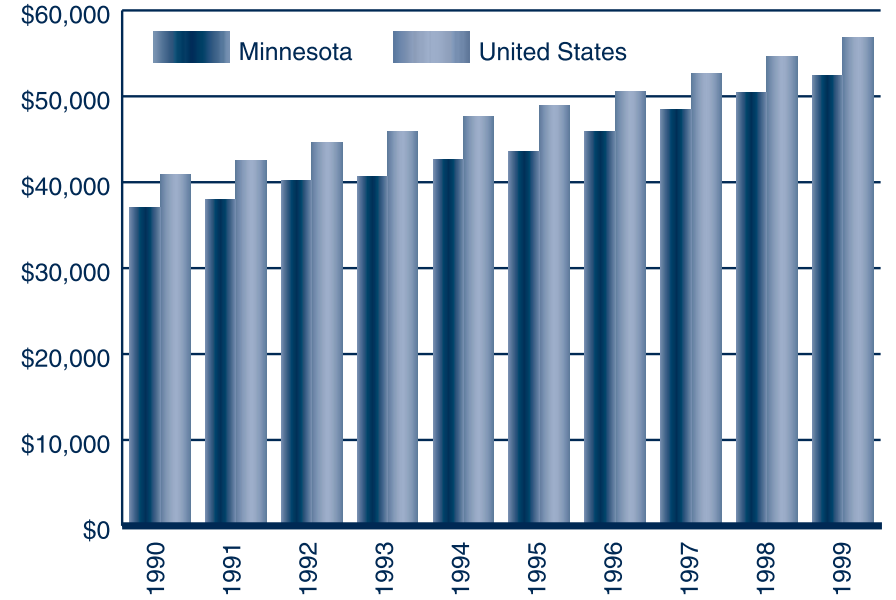
*Finance, Insurance and Real Estate.
**Total sum of employment differs from total of each sector's employment due to suppression of some data at the industry level. Employment is tabulated by employer and, hence, workers with multiple jobs are counted more than once. Full-time and part-time employees are included.
Data Source: Bureau of Economic Analysis (Current dollar GSP and Real Chained-1996-dollar GSP for Growth Rates, Employment), www.bea.doc.gov. Calculations by author.

The services sector, the state's largest sector by most measures, comprises services such as business services, health services, hotels and lodging, amusement and recreation, and social services. This sector is one of several categorized as service-producing (vs. goods-producing). Between 1990 and 1999, output per job in the services sector (based on GSP data) increased to $34,952 in Minnesota, growing by 3.2 percent (adjusted for inflation) compared to a decline of 2.5 percent for the nation. However, output per job in 1999 in the U.S. service sector was valued at $38,455, surpassing the value in Minnesota by 9.0 percent.[vi]

As the state economy shifts toward a knowledge-based economy, Minnesota will become dependent on high-skilled, service-oriented sectors to lead in productivity gains. High-tech services – such as communications, computer-related services, engineering, other professional, and research services – have shown especially high growth in employment over the past decade. Employment in high-tech services in Minnesota doubled to about 68,000 people over the 1990s, mainly due to growth in computer-related services.

Minnesota's FIRE sector also experienced rapid growth during the last decade. Between 1990 and 1999, output per worker in Minnesota increased by 23 percent (to $127,184 in 1999) due to improved information technologies and the expansion of brokerage and securities firms. Although state productivity growth surpassed U.S.

Figure 2: Output per Job



Source: U.S. Bureau of Economic Analysis, www.bea.doc.gov.

productivity growth in these industries, the gap between Minnesota and U.S. output per FIRE worker was more than $10,900 in 1999.

In Minnesota's manufacturing sector, productivity has fluctuated over the past two decades due, in part, to major changes in industry composition. Output per worker reached $68,826 in 1999, resulting in a real growth rate of 24 percent since 1990. U.S. manufacturing productivity per worker rose to $77,953 in 1999, representing growth of 42 percent over the same period.

Productivity by Industry in Minnesota

Other measures are sometimes used to analyze industry productivity. One such productivity measure for non-manufacturing industries is the ratio of sales per employee. While sales per employee often reflect market conditions and are not entirely indicative of the workers' actual contribution, this ratio does provide some suggestion of the value of a worker's produced goods or services.

Value-added per production hour is a more specialized indicator of the productivity of workers involved in the manufacturing production process. Due to data limitations and the ongoing conversion to North American Industrial Classification System

(NAICS) definitions, the most recent data available are from 1997 and are not comparable to data released from previous years. Although the data provide relative measures of productivity across manufacturing industries, measures are affected by product mix in any given industry.

Non-Manufacturing Industries

Revenues per worker in many non-manufacturing industries in Minnesota have tended to be lower than U.S. revenues per worker, except in wholesale and construction industries. (See Table 4.) However, a more detailed examination of some industries reveals some state strengths.

Within information industries, Minnesota's sales per employee are significantly lower than the national level due to high U.S. productivity in motion picture and sound recording, and, to a lesser extent, in publishing industries. However, Minnesota's sales per employee in computer-related information services ($117,982) are very close to sales per employee at the national level ($119,986).

TABLE 4 PRODUCTIVITY IN SELECTED NON-MANUFACTURING INDUSTRIES, 1997

NAICS Code	Industry	Revenues per Worker	
		Minnesota	United States
22	Utilities	$336,321	$580,353
52	Finance and insurance*	220,602	262,153
51	Information	164,138	203,255
53	Real estate and rental and leasing	128,809	141,495
54	Professional, scientific, and technical services	108,001	111,034
48-49	Transportation and warehousing	105,236	108,959
81	Other services (except public administration)	71,947	80,770
61	Educational services	63,249	63,659
62	Healthcare and social assistance	56,416	65,262
71	Arts, entertainment, and recreation	52,030	65,956
56	Administrative and support and waste management and remediation services	39,125	40,027
72	Accommodation and foodservices	33,062	37,074
	All non-manufacturing industries	$159,934	$163,362

*State revenues for Insurance Carriers (NAICS 524) were not available, so U.S. data for NAICS 52 were adjusted to exclude NAICS 524 as well. Data Source: U.S. Department of Commerce, U.S. Census Bureau, 2001. Calculations by author.

Another of Minnesota's strengths lies in professional, scientific and technical services. Minnesota's sales per employee ranked 16th among all states at $108,001, which is also comparable to the national figure. Specifically, management, scientific, and technical consulting services (NAICS 5416) had sales of $139,476 per worker, well above the national figure of $124,066.

Manufacturing Industries

Average productivity for production workers in Minnesota manufacturing industries in 1999 was $76.69 of value-added per production hour – less than the U.S. average of $80.16 per hour – for a ranking of 25th among the states. (See Table 5.) The states were led by New Mexico (at $235.48 per hour due to computer and electronics manufacturing), Arizona ($138.07 per hour due mainly to computer and electronics, as well as chemical products manufacturing) and Louisiana ($103.15 per hour based mainly on petroleum and coal, but also chemical products manufacturing).

TABLE 5 PRODUCTIVITY IN MANUFACTURING INDUSTRIES, 1999

NAICS Code	Industry	Production Hours (thousands)	Value-Added (thousands)	Value-Added per Hour	
				MINNESOTA	UNITED STATES
324	Petroleum & coal products manufacturing	3,093	$827,986	$267.70	$271.65
325	Chemical manufacturing	9,019	1,664,989	$184.61	$218.12
312	Beverage & tobacco product manufacturing	1,588	235,846	$148.52	$376.78
336	Transportation equipment manufacturing	24,569	2,852,416	$116.10	$94.03
334	Computer & electronic product manufacturing	57,334	6,324,091	$110.30	$158.43
335	Electrical equipment appliance & component manufacturing	17,682	1,454,646	$82.27	$69.15
311	Food manufacturing	69,192	5,551,362	$80.23	$75.76
322	Paper manufacturing	24,277	1,901,212	$78.31	$80.70
333	Machinery manufacturing	51,555	3,918,363	$76.00	$74.82
327	Nonmetallic mineral product manufacturing	21,105	1,581,028	$74.91	$64.89
339	Miscellaneous manufacturing	28,926	1,987,222	$68.70	$68.06
332	Fabricated metal product manufacturing	67,299	4,396,421	$65.33	$51.32
323	Printing & related support activities	52,342	2,842,287	$54.30	$51.82
326	Plastics & rubber products manufacturing	30,785	1,659,536	$53.91	$53.12
337	Furniture & related product manufacturing	18,299	936,185	$51.16	$39.69
331	Primary metal manufacturing	11,592	574,634	$49.57	$67.74
321	Wood product manufacturing	26,273	1,288,897	$49.06	$37.99
316	Leather & allied product manufacturing	2,720	114,120	$41.96	$38.42
314	Textile product mills	2,596	83,438	$32.14	$36.94
315	Apparel manufacturing	4,169	75,429	$18.09	$35.25
313	Textile mills	N/A	N/A	N/A	$36.15
	Total	525,528	$40,301,585	$76.69	$80.16

Data Source: 1999 Annual Survey of Manufacturers (March 2001). U.S. Dept. of Commerce. Calculations by author.

Computer and electronics products, food processing products, fabricated metal products, machinery, transportation equipment and printing products generated the most value-added (in terms of total value) in Minnesota's economy in 1999. However, Minnesota's workers were most productive in petroleum products, chemical products, beverages, transportation equipment and computer and electronics manufacturing.

Although Minnesota's productivity exceeded the national figure for many industries, the nation posted higher productivity in computer and electronics products, Minnesota's largest manufacturing industry by employment.

The ratio of total production value, or "shipments," per employee (all types of workers) provides a complementary indicator of productivity. For all manufacturing industries, shipments per employee were valued at $210,352 in 1999, about 13 percent lower than U.S. shipments per worker. Workers in the food processing industry – one of Minnesota's most productive – shipped $348,160 per employee in 1999. Shipments per employee in the state's processed foods industry (excluding beverages) were 21 percent higher than that sector nationally. Minnesota's productivity was more than 9.0 percent higher than U.S. productivity in food processing (excluding beverages), electrical equipment, furniture, wood and transportation equipment. On the other hand, U.S. productivity was more than 30 percent higher than Minnesota's in computer and electronics, chemicals, primary metals, textile product mills and apparel products.

Factors that Impact Productivity Growth

Although productivity measurements can have limitations, factors contributing to improved productivity are more easily described. Increased educational attainment and on-the-job training, expanded investment in private and public capital, and greater emphasis on research and development leading to innovation and new technologies are factors that contribute to productivity growth.

Education and Training

Enhanced labor skills today contribute an increasing share of productivity growth. Skills are derived both from formal education and from on-the-job experience and training. Because employers will not pay a wage higher than the worker's value to production, and workers will not work for less than a wage that could be earned elsewhere, wages are used as an indicator of relative skill level and educational attainment.

The 1998 BLS National Compensation Survey reported that knowledge earned the highest premium and reflected the greatest increase in premium at ascending levels. In particular, increased labor skills, one of the factors of labor composition (see Table 1), was the major contributor to productivity growth and included upgrading of skills for particular occupations, or overall shifts in employment toward industries requiring higher skills.[vii]

A 1996 study by the U.S. Department of Labor found that raising the educational levels of employees by one year yielded productivity gains of about 8.5 percent in the manufacturing sector and 13 percent in the non-manufacturing sector. Additional computer training and other formal off-site training, especially in non-manufacturing industries, as well as other workplace practices also yielded productivity gains.[viii]

Private Capital Investment

Investment in information technology is ever more important as a means of increasing output and productivity. Investments have been driven by expansion of capital investments in information technology and software (from 9.8 percent between 1948 and 1973 to 17.5 percent between 1995 and 1999) and a decline in investment in other types of capital (from 4.8 percent between 1948 and 1973 to 4.1 percent between 1995 and 1999) including other capital equipment, land, inventory and residential rental structures.[ix]

Producers of computers and semi-conductors have seen the largest gains in productivity. Their efficiency improvements have spilled over into the economy as a whole, resulting in information technologies contributing to more than one-third of recent gains in productivity (see Table 1). The Internet has dramatically improved market efficiency for businesses by providing easy access to information for buyers and sellers. By horizontally and vertically integrating their daily business transactions on the Internet, users have gained savings from fewer transactions, lower transaction costs (in value and time) and lower inventory requirements.[x]

Financial support for research and development activities in unproven technologies and services is an ongoing challenge but a critical function of private investment. For this reason, venture capital investors have a role in supporting long-term, high-risk, but potentially productivity-enhancing projects initiated by innovative firms with potential.

Public Capital Investment: Highways & Streets and Water & Sewer Systems

Government is another important source of capital investment. Highways and streets, and water and sewer systems are the two largest components of public capital investments. Public capital stock represents one-third of total capital stock, with the remainder being private capital. Most public capital investments are made by state and local governments and represent 86 percent of nonmilitary public capital. The remainder is capital investment by the federal government.[xi]

Studies of the impact of increased public capital investment (particularly infrastructure) on labor productivity and output have produced mixed results, varying from virtually no impacts to positive impacts depending on sectors examined, the type of public capital investment, methodology, data range and level of data aggregation.

Research and Development

Investment in research and development (R&D) in new technologies or new applications of existing technologies takes place both in private industry and in public organizations such as universities and government and is a catalyst for productivity growth and economic growth.

While technical support services maintain competitiveness and protect market share, basic industrial research and product and process improvement build long-term competitive advantage.[xii] Society gains when research benefits spill over to other industries, when knowledge in society accumulates, and when interaction between public and private researchers generates further advances.[xiii] Basic research by public organizations fuels more advanced research, improvements and new applications by private industry.

About $3.6 billion in R&D activities occurred in Minnesota in 1997 (the most recent data available), of which 86 percent was performed by industry. Academic institutions' R&D activities were valued at $363 million for the same year.

Comparisons can be made to the national economy, as well as to international economies, by controlling for economic size through the ratio of total R&D expenditures to gross state (or domestic) product. In 1997, Minnesota invested 2.4 percent of its GSP in R&D activities, slightly less than the 2.6 percent U.S. expenditure rate. While Japan invested a greater share of output in R&D than either the United States or Minnesota, Minnesota's R&D rate exceeded those of the world's other major economies.[xiv] (See Table 6.)

TABLE 6 TOTAL R&D EXPENDITURES AS A SHARE OF OUTPUT, 1997

Country	Japan	United States	Minnesota	Germany	France	U.K.	Canada	Italy
R&D as a share of GDP (or GSP)	2.9%	2.6%	2.4%	2.3%	2.2%	1.9%	1.6%	1.1%

Data Sources: National Science Foundation, Division of Science Resources Studies, National Patterns of R&D Resources: 1999 Data Update by Steven Payson (Arlington, VA, 2000). Tables 6 and 8, U.S. Bureau of Economic Analysis (Minnesota GSP). Calculation for Minnesota by author.

Patent statistics are another indicator of innovation and technical change. The major type, utility patents, are those that are issued for inventions of new versions or improvements of processes, machines, manufacturing methods, or compositions of products – all key to productivity growth.

Minnesota was a high-performing inventor state in 2000, receiving 2,716 utility patents and ranking 10th among all states. Over the decade, utility patents to inventors (both firms and individuals) from Minnesota grew by 101 percent, compared to a growth rate of 77 percent for all U.S. (resident) inventors. Most of the recent patents granted for Minnesota inventions were in high-tech classification areas, such as medicine (surgery, prosthesis, optics), information and data processing, chemicals, and synthetic resins and natural rubbers.

Conclusion: Challenges for Minnesota

National labor productivity trends indicate that multi-factor productivity (MFP) has become the most crucial source of long-term productivity growth, accounting for more than half of labor productivity gains between 1995 and 1999. In other words, long-term productivity growth arises from factors such as business practices, quality control measures and optimal use of technology. Following MFP, the next most important source of productivity growth is the increased use of information technology and software capital per hour by workers. Pivotal to these sources of growth are well-trained and high-skilled workers to implement and use new technology and to improve operations and management of business processes.

The state must continue making strategic investments in human capital, financial capital, and physical capital as well as promoting opportunities for technology spillovers. . .

Although Minnesota's overall rate of productivity growth over the past decade was stronger than the national growth rate, state productivity levels remained below national levels in several major industries, particularly manufacturing. Improving productivity growth is critical to Minnesota's economic success in light of the challenges of slowing labor force growth, an aging working-age population, and continued strong demand for high-skilled workers.

While the economic environment in Minnesota appears to foster productivity growth, further research will be needed to determine the reasons for the continued divergence in state and national productivity levels. Perhaps the difference arises from the existing mix or clusters of industries in the state, or from current policies and business regulations that may encourage some industries more than others.

To achieve sustained economic growth and improve competitiveness in the future, Minnesota will need to:

- Focus on upgrading skills to ensure workers have what they need to take over positions vacated by retiring workers and to fill newer, high-skill job openings. Minnesota's companies and employees will have to take advantage of programs and partnerships between educational institutions and industry to help workers continuously improve their skills. Well-trained workers are particularly critical as businesses intensify their investment in information technology and develop new and innovative approaches to production. The state economy will be enriched by productivity gains, and workers will benefit through higher wages.

- Remain adaptable and recognize shifts in technology so businesses can develop cutting-edge strategies, implement innovative applications and attract talented workers. By focusing on the transfer of new inventions from the research environment to the commercial marketplace, Minnesota will capture market share and gain "first-to-market" competitive advantages. The state must continue making strategic investments in human capital, financial capital, and physical capital as well as promoting opportunities for technology spillovers, becoming involved with leading educational and research institutions, and building networks of suppliers and customers.

- Capitalize on global opportunities as trade barriers are removed and commerce expands internationally. To compete in international markets and to maintain its competitive edge, Minnesota must aim for increased production efficiencies resulting from motivated workers at the forefront of their industries, continued research and development of new materials, products and services, and improved labor force skills through training and education for workers.

ENDNOTES

[i] The value-added measure attempts to avoid counting the value of intermediate inputs (possibly produced in other industries or geographic areas) more than once and attempts to estimate the actual contributions of producers to final goods in a specific industry and geographic area. This notion is used in defining gross state product and gross domestic product as well.

[ii] "No Nonsense Guide to Measuring Productivity." W. Bruce Chew. *Harvard Business Review*, January-February 1998, pgs. 110-118.

[iii] "Multifactor Productivity Trends," 1999. www.bls.gov/news.release/prod3.t08.htm

[iv] Although GSP is generally considered the state counterpart for the nation's GDP, statistical discrepancies, revision schedules and the exclusion of selected military components located abroad by GSP may affect comparability. See "Gross State Product by Industry, 1977-98," *Survey of Current Business*, October 2000.

[v] Employment data in this section are from the U.S. Bureau of Economic Analysis (BEA). These data account for employment based on employers, so that a person holding jobs with multiple employers is counted more than once. As both data series originate from BEA, the sector definitions used in tabulating employment are consistent with those used to calculate Gross State Product (GSP). In contrast, employment data from the Current Employment Statistics might have distorted the calculations of GSP per worker due to some differences in sector definitions and counting multiple-job holders only once.

[vi] Sources: U.S. Bureau of Economic Analysis (GSP, Employment).

[vii] *Report on the American Workforce*, Chapter 2: The Many Facets of Skills, Bureau of Labor Statistics, 1999. www.bls.gov/opub/rtaw/rtawhome.htm

[viii] "Generating Productivity Growth: A Review of the Role of Workplace Practices and Computers," U.S. Department of Labor, 1996. Discussion of: Black, Sandra E. and Lynch, Lisa M. (1996b). "How to Compete: The Impact of Workplace Practices and Information Technology on Productivity," working paper, U.S. Department of Labor, Office of the Chief Economist.

[ix] "Multifactor Productivity Trends," 1999, U.S. Department of Commerce. Bureau of Labor Statistics, www.bls.gov/news.release/prod3.t08.htm, Table 8.

[x] www.ecommercetimes.com. *E-commerce times*, "U.S. B2B to Reach $6 Trillion by 2005," 6/27/00, by Chet Dembeck. "B2B E-Commerce: The Quiet Giant" 1/4/00 (contains est. of $1.3 Trillion, 2003), by Paul A. Greenberg.

[xi] Munnell, Alicia, "Infrastructure Investment and Economic Growth," *Journal of Economic Perspectives*, Vol. 6, no. 4, 1992.

[xii] Bean, Alden, "Why some R&D Organizations are More Productive than Others," *Research-Technology Management*, Vol. 38, January/February 1995.

[xiii] *Industry, Technology and the Global Marketplace*, Chapter 7, National Science Foundation.

[xiv] Payson, Steven. *National Patterns of R&D Resources: 1999 Data Update*. National Science Foundation, Division of Science Resources Studies, 2000. www.nsf.gov/sbe/srs/nsf00306/start.htm#tables.

LABOR PRODUCTIVITY AND WAGE GROWTH IN MINNESOTA

Evidence on Productivity and Educational Attainment

BY STEVE HINE AND DAVE SENF

WAGE GROWTH

BRIEF DESCRIPTION: *This chapter evaluates the Minnesota economy by considering the behavior of statewide labor productivity and wages over the past 10 years. Fairly strong evidence is found to support the claim that, in many industries, these growth rates increased as of the mid-1990s. There is also some evidence that wage growth is lagging the change in productivity growth.*

The authors empirically associate growth in productivity with various occupations. The analysis indicates that occupations requiring more advanced skills and educational preparation – particularly those involving computer technology – have been among those experiencing the most rapid growth in productivity, while those oriented towards the provision of services have been experiencing the slowest growth.

The authors conclude that Minnesota's economy managed to outperform the national economy during the 1990s. This they attribute to some unique characteristics of the state economy and its workforce including: relatively large shifts in employment toward high-productivity industries and occupations, particularly those with a heavy IT component and a relatively highly-educated population.

Introduction: Labor Productivity and Wage Growth

The paramount objective of economic policy is to raise peoples' standard of living. It is well known that, in the long term, this improvement in well being is brought about almost exclusively by increases in the productivity of an economy's labor force. These increases in productivity, in turn, can stem from increases in capital per worker – either human capital or physical capital – or from technological advances.

In the period between World War II and about 1973, the average annual rate of growth in labor productivity approached 3.0 percent. However, between 1973 and 1990, this rate of growth dropped significantly and averaged less than 1.0 percent. This was of concern as it was matched by stagnation in the growth of real wages received by workers. Evidence suggests that the slowdown in productivity was largely the result of a decrease in technological progress rather than a decreasing rate of

capital accumulation. (Other explanations include measurement error and shifts in the demographic and industrial structure of the economy.)

Over the last few years, data suggest that productivity has re-gained a faster growth rate trend. After increasing on average by 1.4 percent annually between 1980 and 1995, labor productivity in the U.S. has accelerated in recent years, increasing on average by 2.4 percent per year between 1996 and 2000.[i] This change coincides with the advent and adoption of innovations in computers, communications, and information technology— leading to the widespread belief that we have entered a "New Economy" with the potential for sustaining rapid growth rates in productivity and, ultimately, standards of living. The recent rise in labor productivity has been cited by many as the leading factor in sustaining the historic 10-year expansion (that ended in March 2001). Higher labor productivity has also kept price inflation low while at the same time boosting real wages and improving standards of living.

This study evaluates this potential for the Minnesota economy by considering the behavior of statewide labor productivity and wages over the past 10 years. Fairly strong evidence is found to support the claim that, in many industries, these growth rates have indeed increased as of the mid-1990s. There is also some evidence that wage growth is lagging the change in productivity growth.

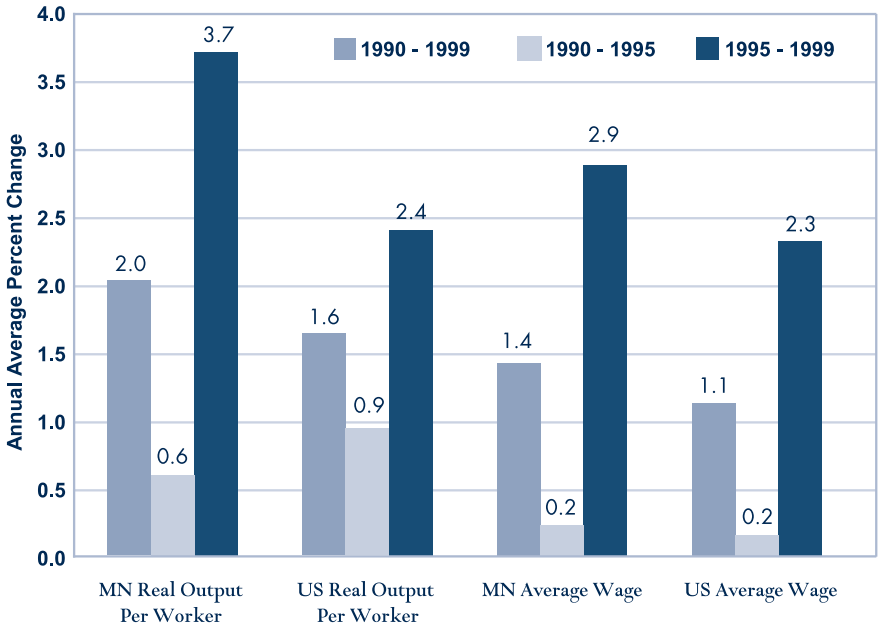
We go on to empirically relate growth in productivity to various occupations. Technological progress is likely to have different impacts on the various occupations depending on the tasks associated with those occupations. An analysis of this type will tell us which types of work and skills are contributing most, and benefiting most, from the changes associated with the New Economy. The analysis indicates that occupations requiring more advanced skills and educational preparation, particularly those involving computer technology, have been among those experiencing the most rapid growth in productivity, while occupations oriented towards the provision of services have been experiencing the slowest growth.

Finally, we analyze the relationship between occupational productivity growth and a measure of educational attainment associated with the various occupations. The issue of the significance of the knowledge premium is an important one for policy-making and future workforce development.

Productivity and Wage Growth: Comparisons across Time and with the Nation

The national economy, as well as Minnesota's economy, experienced an increase in labor productivity during the 1990s, as shown in Figure 1. Since direct measures

Figure 1: Change In Real Output Per Worker and Real Wages



Source: BEA GSP and Total Employment Data.

of labor productivity are available only at the national level, proxy productivity measures for both the state and the nation are shown in Figure 1. The proxy productivity measure, real output per worker, is calculated as the ratio of real Gross State Product (GSP) in 1996 dollars to the annual average total full- and part-time employment estimates from the Bureau of Economic Analysis (BEA). Average annual growth of real output per worker is calculated for the periods 1990 to 1999, 1990 to 1995, and 1995 to 1999.[ii]

Over the complete time period of 1990 to 1999, Minnesota's labor productivity increase was above the nation's as a whole, with annual average growth rates of 2.0 percent and 1.6 percent, respectively. However, a slightly different picture emerges when the decade is broken into sub-periods. During the first part of the decade – from 1990 to 1995 – which included the eight-month recession from July 1990 to March 1991, Minnesota's productivity growth increased on average by 0.6 percent compared to 0.9 percent nationally. From 1995 to 1999, Minnesota's productivity growth jumped to 3.7 percent per year, exceeding the U.S. 2.4 percent average over the same period. Thus, while Minnesota began the decade lagging slightly behind the nation in productivity growth, it ended the decade with productivity growth more than a full percentage point faster than the nation.

Real wage growth, calculated as the annual percentage change in inflation-adjusted BEA salary and wage disbursements divided by BEA salary and wage employment, exhibited similar behavior over time: slower growth early in the decade with much faster growth in the latter period. Minnesota's real wage growth increased from an annual average 0.2 percent to 2.9, with the growth rate during 1995 to 1999 exceeding the national growth rate by 0.6 percentage points; this came after Minnesota had matched national real wage gains from 1990 to 1995.

A similar analysis of major industrial sectors indicates comparable tendencies as those found for overall GSP. In all nine industrial divisions presented in Table 1, the productivity of labor in Minnesota was higher in the latter part of the decade than in the first half. The same pattern applies to the national productivity rates, with the exception of transportation and communications, and public utilities (TCPU) and finance, insurance and real estate (FIRE) divisions, where the national rates were lower in the second half of the decade than during the first half.

Real wage growth exhibited the tendency to increase over the decade— while still lagging productivity growth— in manufacturing, TCPU, wholesale trade, and retail trade. However, wage growth exceeded productivity growth in agriculture services, construction, FIRE, services, and government.

Occupational Trends within Industries

The shift away from goods-producing industries to services-producing industries has been a trend in Minnesota for some time. Since the employment shift has been largely into the health and business services industries, the demand for workers with computer skills, interpersonal and teamwork skills, and problem-solving skills has outpaced the demand for lesser-skilled workers. This shift has, therefore, led to an increase in the demand for employees with more education and training, creating the "education premium." Commonly defined as the difference between wages of college graduates and those without a college degree, the premium has increased sharply over the last two decades. College graduates were earning 68 percent more per week than those who had not completed high school in 1979. Twenty years later, college graduates were making 149 percent more than workers without a high school education.[iii]

The increase in demand for a higher-skilled workforce is fueled not only by shifts in industry mix but also by changes in the staffing or occupational patterns across industries. For example, in the printing industry, paste-up workers and typesetting and composing machine operators and tenders are declining in numbers while desktop

TABLE 1 PRODUCTIVITY AND WAGE GROWTH BY INDUSTRIAL DIVISION

	Minnesota 1990-1999	U.S. 1990-1999	Minnesota 1990-1995	U.S. 1990-1995	Minnesota 1995-1999	U.S. 1995-1999
	OUTPUT PER WORKER		OUTPUT PER WORKER		OUTPUT PER WORKER	
All Industries	2.0%	1.6	0.6	0.9	3.7	2.4
Ag. services, forestry, fishing	-1.7	-0.9	-3.9	-2.2	1.5	0.8
Construction	0.2	-0.3	-0.69	-0.6	1.3	0.2
Manufacturing	2.7	4.7	0.5	3.9	5.4	4.7
Transportation and public utilities	1.8	2.0	1.7	2.4	1.9	1.3
Wholesale trade	7.2	6.8	3.8	3.7	9.7	9.1
Retail trade	3.8	3.2	1.0	0.9	6.8	5.9
Finance, insurance, and real estate	2.6	1.3	2.3	1.6	2.6	0.8
Services	0.4	-0.3	-0.4	-0.8	1.3	0.4
Government	0.4	0.4	0.0	0.1	0.9	0.8

	Minnesota 1990-1999	U.S. 1990-1999	Minnesota 1990-1995	U.S. 1990-1995	Minnesota 1995-1999	U.S. 1995-1999
	WAGE GROWTH		WAGE GROWTH		WAGE GROWTH	
All Industries	1.4%	1.1	0.2	0.2	2.9	2.3
Ag. services, forestry, fishing	0.7	0.7	-0.9	-0.7	2.9	2.6
Construction	0.2	-0.3	-0.69	-0.6	1.3	0.2
Manufacturing	0.9	1.4	-0.2	0.4	2.3	2.5
Transportation and public utilities	0.5	0.8	-0.9	-0.2	2.3	2.1
Wholesale trade	2.1	1.7	1.0	0.5	3.4	3.1
Retail trade	2.1	0.8	0.3	-0.3	4.2	2.2
Finance, insurance, and real estate	3.3	3.6	2.2	2.0	4.2	5.1
Services	2.0	1.3	0.9	0.3	3.3	2.5
Government	0.5	0.7	0.1	0.5	1.1	0.9

publishing specialists are climbing. The shift in the state's occupational mix during the 1990s is shown in Table 2, which compares the occupational distribution of Minnesota employment in 1990 and 1999.[iv] Shifting industry employment (slower growth in goods-producing industries and faster growth in services-producing industries) combined with changing staffing patterns within industries has shifted occupational employment toward more managerial and professional occupations and away from lower-skilled occupations such as clerical workers and farm laborers.

The executive, administrative and managerial occupations grew very rapidly in Minnesota during the 1990s, moving this well-paying occupational group from the fourth largest in 1990 to the second largest in 1999. Occupations in the other high-paying occupational group, professional specialties, also grew rapidly in Minnesota, adding to its share of total occupations.

Most of the jobs created by the rapid investment in information technology – such as computer analyst and computer support specialists – are included in the professional specialty category. Almost 80 percent of the 335,000 net increase in employment in Minnesota between 1990 and 1999 occurred either in executive, administrative and managerial or professional specialty occupations.

TABLE 2 SHIFTS IN OCCUPATIONAL MIX, 1990-1999, MINNESOTA vs. U.S.

*2000 U.S. Median weekly earnings	Minnesota Percent of Employment		U.S. Percent of Employment	
Executive, Administrative and Managerial ($840)*	11.8	15.2	12.6	14.7
Professional Specialty ($832)	14.3	17.6	13.4	15.6
Technicians and Related Support ($648)	3.7	4.0	3.3	3.3
Sales Occupations ($550)	11.6	11.4	12.0	12.1
Administrative Support including Clerical ($469)	16.2	13.1	15.8	13.8
Service Occupations ($355)	13.3	12.0	13.4	13.4
Production, Craft, and Repair ($613)	10.5	10.5	11.6	10.9
Machine Operators, Assemblers and Inspectors ($436)	5.5	5.5	6.8	5.5
Transportation and Material Moving Occupations ($540)	3.5	3.5	4.1	4.1
Handlers, Equipment Cleaners, Helpers and Laborers ($378)	4.1	3.5	4.1	3.9
Farmers, Forestry, and Fishing Occupations ($334)	5.5	3.5	2.9	2.6

Source: Geographic Profile of Employment and Unemployment, 1990 and 1999, U.S. Departmentof Labor, Bureau of Labor Statistics.

Occupations that decreased in importance in Minnesota during the 1990s tended to be lower-paying occupations that require less education and training. Employment in lower-skilled, lower-paying occupations – such as handlers, equipment cleaners, helpers, and laborers, and many of those in the farming, forestry and fishing occupations – decreased by 36,000 between 1990 and 1999. Farming, forestry and fishing jobs and clerical and administrative support occupations experienced the largest drops in employment share over the last decade.

At the national level, improved business practices and more productive use of information technology (IT) are seen as leading contributors to the boost in productivity growth. Industries that are heavy users of IT have been improving productivity at a much faster rate than industries that are less information-technology intensive. This situation appears to hold true in Minnesota. Industries in Minnesota where information technology occupations make up a higher percent of total industry employment have had higher gains in annual worker productivity between 1995 and 1999 than industries that use proportionally fewer IT workers (as shown in Figure 2).

The top 14 industries (as shown in Chart 1) in terms of percent of workforce in information technology jobs boosted average productivity growth from 1.6 percent between 1990 and 1995 to 8.3 percent from 1995 to 1999. The bottom 14 industries in terms of percent of workforce in information technology jobs also increased average annual productivity between the two time periods, but the improvement was much smaller – increasing to a 2.5 percent annual average in the latter period from 2.1 percent per year in the earlier period. (See Figure 2 for illustration of percent increases.)

Chart 1

High-IT Intensive Industries

Industrial Machinery and Equipment	Electronic Components and Accessories
Communications	Instruments and Related Products
Paper and Allied Products	Banking
Printing and Publishing	Chemicals and Allied Products
Insurance Carriers	Electric, Gas & Sanitary Services
Nondepository Institutions	Business Services
Security and Commodity Brokers	Holding and Other Investment Offices

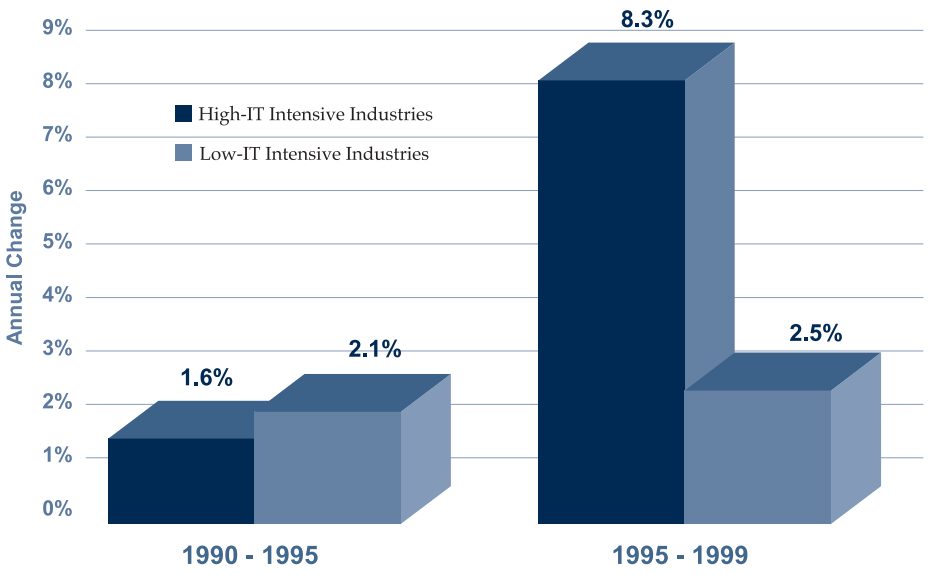
Low-IT Intensive Industries

Stone, Clay and Glass Products	Food and Kindred Products
Metal Mining	Apparel and Other Textile Products
Leather and Leather Products	Other Mining
Hotels and Other Lodging Places	Personal Services
Social Services	Auto Repair, Services and Parking
Amusement and Recreation Services	Private Household
Agricultural Services	Rubber and Misc. Plastics Products

Overall, the change in the state's occupational mix during the 1990s can be characterized as exhibiting above-average employment growth in higher-paying occupations, average growth in occupations with average pay, and slow growth or decline in occupations at the low end of the pay scale. These shifts in occupations are a primary explanation for the state's average real wage gain being higher than the nation's during the 1990s (as discussed above in reference to Figure 1). The state's economy has been generating employment in higher-skilled and higher-paying jobs faster than the U.S. economy. The New Economy in Minnesota may not be as visible as in Austin or the Silicon Valley, but it does exist in the state and is playing an important role in keeping Minnesota's businesses competitive.

Minnesotans have responded to the expanding demand for a more educated and more highly-trained workforce during the 1990s by upgrading their skills and educational attainment. Minnesotans continue to graduate from high school and college at rates above the national average. According to Current Population Survey (CPS) data, as of 2000, 90.8 percent of Minnesotans 25 years or older had graduated from high school compared to 84.1 percent nationally. Nationally, 25.6 percent of people 25 years or older have four or more years of college compared to 31.2 percent in

Figure 2: Average Annual Productivity Change in the 1990s
High-IT Intensive Industries vs. Low-IT Intensive Industries



Source: Calculations based on BEA GSP data and BEA employment and wage and salary data.

Minnesota. According to the March 2000 CPS, the Twin Cities metro area trailed only San Jose, Washington D.C., Boston, San Francisco and Denver in the percent of population 25 years old and over with college degrees.

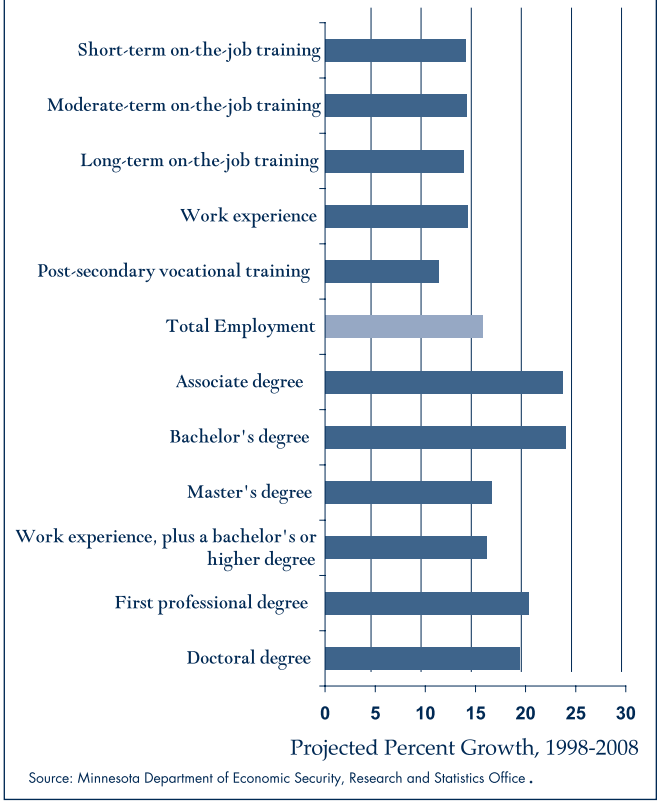
The state's increase in college-educated share of the population suggests that not only are Minnesotans graduating from college at a higher rate, but also that a significant proportion of the state's net in-migration during the 1990s consisted of people with college degrees. The in-migration of college-educated workers to the state during the 1990s is consistent with the state's tight labor markets during the 1990s and with the high creation of jobs requiring college degrees. Minnesota doesn't appear to be having a brain drain (as some have claimed is a problem in Iowa and Wisconsin).[V]

Minnesotans will have to continue to add education and training to their resumes in order to meet the expected future demand for more highly-skilled workers. Between 1998 and 2008, jobs requiring a college degree are projected to expand faster than any other occupational group when occupations are classified by required education and training. High demand is expected for computer systems analysts, computer engineers, secondary and elementary teachers, and various management support jobs. Jobs requiring a college degree are projected to increase by 24 percent between 1998 and

2008, in contrast to overall employment, which is projected to increase by 16 percent.

Occupations requiring some post-secondary education, from an associate degree to a doctoral degree, are also expected to grow faster than overall employment. Jobs requiring high school graduation or less and some sort of on-the-job training or work experience are expected to grow more slowly than overall employment, as shown in Figure 3.

Figure 3: Projected Employment Growth, 1998-2008
Grouped by Education and Training Requirements



Source: Minnesota Department of Economic Security, Research and Statistics Office .

Future employment growth in Minnesota will occur in industries that manage to continue to increase productivity, thereby staying competitive with their domestic and international rivals. Increased productivity will only come about by investing in new technology that, in turn, will require workers with higher skills and more education and training.

Occupational Productivity

Although the description of total and industry-level productivity and wages provides useful aggregate and cross-sectional information on this aspect of the economy's performance, it is also important to discern such trends across various occupations, regardless of the industry in which they are categorized. While changes in industrial composition (the trend away from manufacturing and into services is one such shift that has attracted much attention) are important elements of our evolving economy, so are the shifts occurring across occupations. The rapidly-increasing demand for employees with technical skills, especially computer skills, is an example of a shift across occupational groups. Indeed, from a policymaking perspective, especially with

regard to workforce development policy, this type of information is critical.

The calculation of the behavior of labor productivity by occupation is of crucial importance to the understanding of recent trends in overall labor productivity. As was shown, Minnesota has fared very well relative to the nation in terms of aggregate output (real GSP) per worker. This is certainly due in large part to the industrial shifts within the state toward certain industries characterized by higher rates of output per worker. We have also seen that employment growth by occupational groups has favored those groups that are similarly characterized by higher productivity. But it remains to be seen whether a worker within a particular occupation has become more or less productive over time, shifts across industries and/or occupations notwithstanding. The following section of this study derives and evaluates measures of occupational productivity growth, and in so doing, identifies those that are experiencing the most rapid increases. These productivity growth rates are then compared to real wage growth and educational attainment measures.

This is a difficult analysis to conduct as measures of output by occupation are not available from existing data sources. Longer-term trends in productivity have been inferred from the behavior of real wages paid to occupational groupings, but this presumes that productivity changes are compensated for in the form of real wage changes. In the shorter term, this may not hold to the extent that labor is not paid a rate proportional to its rate of productivity on a period-by-period basis. So, for the purpose of deriving measures of any short-run variation in occupational productivity, we must attempt to attribute changes in available measures of output to the various occupational categories.

The approach followed in this study employs the following steps. First, output in an industry is allocated to occupations within an industry based on each occupation's share of total industry employment. Total occupational output is then calculated by summing each occupation's output across industries. Occupational output values are calculated for 1995 and 1998 using 104 occupational categories across 48 industries.[vi]

A word of warning in the form of an interpretation of these calculations is due here. It is certainly not the case that all employees, regardless of occupation or work performed, contribute equally to a business's level of production. However, the measure ultimately derived has the property of attributing a larger increase in "productivity" to those occupational categories that are increasing their share of employment in growing industries and/or are decreasing their share in declining industries. While one could easily envision a situation in which an increasingly productive occupation could have the misfortune of becoming more important to a declining industry, such an

occurrence would be very difficult to identify in the data even with direct and accurate measures of occupational output. In addition, our procedure assumes that occupational changes in productivity are constant across all industries. This also is not likely to hold in reality, but, again, direct measurement of such a variable would be done across all industries (or at least across large industrial divisions) and thus would presume the same independence of productivity from industry.

With these caveats in mind, then, the measure derived here is based on the hypothesis that an industry in which a given occupation is (a) becoming a larger share of employment, and (b) becoming more productive, is also likely to be an industry that is experiencing an increase in its level of output (or at least in its share of an economy's output, which in a growing economy like Minnesota's, is the same thing). As we can measure industrial output and occupational share of employment in an industry, this hypothesis is the basis for our derivation of the numbers used as a proxy for productivity changes. We don't necessarily believe that the numeric quantity we derive measures either the average (output per worker) or marginal (additional output produced by one more worker) productivity of labor, but we do anticipate that our measure will move in the same direction as these conceptual but immeasurable variables. Thus, we can use the results to identify occupational trends in productivity, which are becoming more (or less) productive, and to identify some relative rankings of occupations.[vii]

Among the top 10 percent of occupations ranked by productivity growth are, in order, mathematical scientists; banking, security, finance, and credit occupations; service managers and supervisors; precision metal occupations (primarily machinists); engineers (this category includes computer engineers); and computer scientists.[viii] The gain in productivity per worker ranged from roughly $150,000 to $50,000 for these occupations.

Mathematical scientists, an occupational category that includes operations analysts, statisticians, actuaries, and financial analysts, has grown significantly overall, but particularly in the FIRE industry. FIRE has been a rapidly-growing industry in Minnesota during the latter half of the decade, and thus this growth is largely attributed to the productivity of occupations growing within the industry— specifically and largely mathematical scientists. A similar explanation holds for the high productivity associated with the banking, security, finance, and credit occupations. Precision metal occupations have grown significantly within the industrial machinery industry, another rapidly-growing sector. Service managers appear primarily because of their increasing importance to the booming retail trade sector.

At the other end of the occupational productivity range are many of the lower-skilled and/or service-oriented occupations that do not have the same capability to benefit by productivity-augmenting technological advances. Occupations that appear in the lower 10 percent, and exhibit decreases in their productivity by our measure, include rail transportation workers; precision food occupations (e.g. butchers and bakers, but not candlestick makers); secretaries; recording clerks; court and municipal clerks; precision woodworkers; lodging and travel occupations; and cleaning and building service occupations.[ix] The decrease in productivity per worker for these occupations ranged from -$40,000 to -$10,000. Again, these occupations appear here because their employment share is growing (decreasing) in declining (expanding) industries, not because a given worker employed in one of these occupations is producing less than he or she used to. Secretaries, for example, have seen an increase in employment that was particularly pronounced in food manufacturing, which declined in output during the 1995 to 1998 interval.

Having derived a measure of occupational productivity, we look at the interesting question of whether such shifts have translated into real wage changes. The Occupational Employment Statistics' (OES) mean and median wage estimates, deflated by the Consumer Price Index, for 1995 and 1998 were used to measure the change in occupational wages, and these were then correlated with occupational productivity measures. While we find that the simple correlation coefficient was positive and statistically significant, it was somewhat low. Depending on the measure of wages and output used, the correlation ranged between about 10 percent and 14 percent. While the correlation was of the expected sign, a possible explanation for its small value is that, as we have stated above, productivity appears to have started to increase about 1995. Given possible rigidities in labor markets and in wage rates in particular, the expected wage increases may only occur after some time has passed, and thus they may not yet appear in our data. Another possibility is that since the OES wage estimates do not include some elements in workers' compensation packages (e.g. the value of medical benefits) that may have increased in value, the true correlation between employee compensation and productivity is higher than our data suggest.

Conclusions

The striking performance of the national economy over recent years – rapid real GDP growth, low unemployment, and low inflation among the key indicators of this performance – has been nothing short of remarkable. Underlying the historic accomplishments of this New Economy has been a recent and dramatic improvement

in the rate of growth in our nation's labor productivity. After languishing throughout the decades of the 1970s and 1980s, this rate has regained, and perhaps surpassed, that observed during the quarter century following World War II.

The purpose of this study has been to evaluate the extent to which labor productivity in Minnesota has experienced the same trends as the nation's. We have found that, in many regards, Minnesota's economy has managed to outperform the national economy during the 1990s. This is attributable to some unique characteristics prevalent in the state economy and its workforce – relatively large shifts in employment toward high-productivity industries and occupations, particularly those with a high-IT component, and a relatively highly-educated population among them. Overall, and in many industrial sectors, Minnesota's productivity growth began the decade lagging the nation but ended it higher than that of the nation. Furthermore, employment projections suggest that the relatively strong performance of Minnesota's own New Economy is likely to continue.

Despite the profound changes that have been occurring in the economy at the state and national level, there is no justification for complacency regarding public policy, especially those policies involving workforce and labor market conditions. Recent indications of a slowing down in the economic expansion remind us that the business cycle is not a thing of the past. Persistently tight labor markets may well continue to portend eventual inflation, and a slackening in labor market conditions may still bring an eventual upturn in unemployment. Increased reliance on a skilled and educated workforce will present challenges to our state's education and training system, and the rapid structural shifts associated with the New Economy will continue to displace and make redundant workers in declining sectors of the economy. What's more, the widespread prosperity resulting from the recent historic economic expansion has not been shared equally by all subgroups of our workforce and population.

Nonetheless, the nation, and Minnesota in particular, seem well-positioned to sustain the economic performance that has marked the past decade. It will require diligent and sensible policymaking, among other things, but we should be optimistic that our state will continue to accomplish that paramount goal of policy: raising Minnesotans' standards of living.

– The authors thank Curt Theis, Mustapha Hammida, and Rachel Hillman for their assistance.

ENDNOTES

[i] Bureau of Labor Statistics data available online at www.bls.gov/bls/productivity.htm

[ii] Official labor productivity statistics compiled by the U.S. Bureau of Labor Statistics show similar productivity trends. See page 32 of the *2001 Economic Report of the President*, w3.access.gpo.gov/usbudget

[iii] 2000 *Economic Report of the President*, pg. 136, w3.access.gpo.gov/usbudget

[iv] Occupational data from *Geographic Profile of Employment and Unemployment*, 1990 and 1999, U.S. Department of Labor, Bureau of Labor Statistics.

[v] See "Iowa's Brain Drain: A Special Report," *The Des Moines Register*, 4/13/2000, and "Wisconsin Unplugged," *The Milwaukee Journal Sentinel*, 6/24/2000.

[vi] Mathematically, output in industry *j* during period *t*, denoted $(output)_{j,t}$, is attributed to employees in that industry equally in proportion to the share of occupational employment within that industry. Specifically, if $(occupational\ employment)_{i,j,t}$ denotes employment in occupation i in industry *j* during period *t*, similarly

$(employment)_{j,t}$ denotes total employment in industry *j* during *t*, then industry *j* output attributed to occupation *i* is given by:

$$(occupational\ output)_{i,j,t} = (output)_{j,t} * ((occupational\ employment)_{i,j,t} / (employment)_{j,t})$$

Here, $(output)_{j,t}$ is real GSP by industry from the October 2000 revised data produced by the Bureau of Economic Analysis, $(employment)_{j,t}$ is the Current Employment Statistics estimate of employment by industry, and $(occupational\ employment)_{i,j,t}$ is derived from the occupational staffing patterns produced by the Occupational Employment Statistics program. Values here and throughout the analysis are calculated for 1995 and 1998.

In the next step, the value of statewide GSP attributed to the 104 occupational categories used here are then found by aggregating these occupational output figures across the 48 industries for which values are calculated. In other words, occupation group *i*'s cross-industry output during *t* is defined as:

$$(occupational\ output)_{i,t} = \sum_j (occupational\ output)_{i,j,t}$$

Finally, our proxy for the change in occupational productivity is derived by calculating the change that occurs in our measure of occupational output between 1995 and 1998; hence:

$$(occupational\ productivity\ change)_i = (occupational\ output)_{i,98} - (occupational\ output)_{i,95}$$

[vii] The classification system and occupational titles used here are based on the 1980 SOC coding system as is presented in the *1998 Minnesota Salary Survey* published by MDES.

[viii] Other occupational categories appeared toward the top of the ranking, but this was found to be a result of anomalies in the data. For example, librarians were highly ranked, but an OES coding change between 1995 and 1998 increased the estimated employment of librarians in the public administration (government) sector, an industry that was increasing in output.

[ix] Many of the occupational categories exhibiting declining productivity were in the so-called "residual" or "all other" categories. Many of these appeared because greater effort by the OES program to code workers to a specific occupation rather than to take the easy "all other" way out resulted in a decrease in estimated employment in the residual categories.

PRODUCTIVITY AND TAX POLICY: SOME MINNESOTA OBSERVATIONS

BY RICHARD GEBHART

TAX POLICY

BRIEF DESCRIPTION: *A great deal of Minnesota tax policy has been directed toward improving the competitive nature of the state's business climate relative to other states. This chapter provides some insight into how Minnesota's tax policy interacts with its businesses and into the incentives that exist in state tax law.*

Minnesota has developed a general system of taxation that has resulted in effective tax rates that vary by industry. The variation is caused, in part, by the focusing of expenditures in certain business categories and also by the interaction of Minnesota's general tax system in different ways within each sector.

Based on a one-year snapshot, it generally appears that industries with high rates of productivity growth tend to have low effective tax rates in Minnesota. However, as in any research that focuses on short time periods, concrete conclusions would require additional research.

Introduction

The role of productivity in maintaining Minnesota's competitive position – raising the standard of living for its citizens and insuring available revenue for financing government – are fundamental to the state's well-being. The need to understand the degree of influence exerted by tax policy is greater now than ever before. As the nation and Minnesota enter an era some call a "New Economy," the role of productivity is key to economic advancement. Recent productivity gains reported for the nation have far exceeded recent historic norms, allowing the U.S. economy to grow at a rate that has been sustainable while not creating inflationary imbalances. How much of this rapid productivity growth is structural as opposed to cyclical is currently unknown. However, as we enter a sustained period of labor force constraint, productivity takes on even greater importance in fostering economic growth.

Importance of State Tax Policy

A great deal has been written about the link between tax policy and changes in taxpayer behavior, especially relative to business investment strategies, capital accumulation, and the resulting changes in productivity. Since productivity (generally defined as the change in the real value of an industry's output per hour of labor) is influenced by both capital and labor investment, tax policy has received its share of attention as a tool for achieving increased productivity – a fundamental requirement for raising living standards.

A review of the literature on the subject reveals that researchers have drawn different conclusions on this matter. Most of the research has focused on the impact of federal taxes because of the relatively larger role they play in the overall tax burden. However, state and local taxes have not gone unnoticed in this debate, and a great deal of state tax policy has been directed toward improving the competitive nature of the state's relative business climate by encouraging behaviors designed to improve productivity. While this paper does not answer the age-old question regarding the ability of or the degree to which state tax policy can influence investment decisions, it provides some insight into how Minnesota's tax policy interacts with its businesses and the incentives that exist in state tax law.

Minnesota's Tax System

Minnesota has about 45 separate state and local taxes which will raise an estimated $18 billion in 2001 to finance the operations of state and local government. These taxes fall directly on both individuals and business. The bulk of the taxes are the subject of a biennial report on tax incidence that is required by the Legislature.[i] Based on the most recent estimate, approximate percentage splits among the groups are 64 percent from individuals, 33 percent from business and 3.0 percent that is borne by people who are not residents of Minnesota. Thus, over $5.9 billion dollars of tax is imposed directly on Minnesota business per year. Because Minnesota, like all states, has made efforts to improve the competitive environment for its business, there are a number of tax expenditures[ii] that are in law designed to promote investment. The following table lists the 15 largest tax expenditures that are ongoing in our state and local tax system which are designed to encourage investment, thereby directly or indirectly contributing to productivity increases.

As Table 1 shows, the State of Minnesota has enacted a variety of tax preferences aimed at influencing investment decisions by businesses. The range of dollars associated with the exemptions is wide, with the sales tax exemption for capital

TABLE 1 MAJOR TAX EXPENDITURES DIRECTED AT PRODUCTIVITY IMPROVEMENTS ($ MILLIONS)

Individual Income Tax	**FY 2001**
Depreciation	$71.2
Cash Accounting and Expensing for Ag.	13.5
Expensing Depreciable Business Prop.	2.4
5-Year Amort. of Bus. Or and Startup Costs	1.7
Expensing of Multiperiod Ag. Prod. Costs	1.3
Additional 7	2.4
Subtotal Individual Income Tax	$92.5
Corporate Franchise Tax	
Depreciation	$96.7
Dividend Received Deduction	75.0
Research and Development Credit	16.5
Expensing of Research & Development Costs	9.8
Expensing Depreciable Business Prop.	2.4
Additional 9	3.6
Subtotal Corporate Franchise Tax	$204.0
Sales and Use Tax	
Capital Equipment	$150.7
Farm Machinery	18.8
Airflight Equipment	10.3
Textbooks Required for School Use	6.9
Accessory Tools	6.9
Additional 5	6.0
Subtotal Sales and Use Tax	$199.6

Total 36 separate expenditures for $496 million

Source: Tax Expenditure Budget, February 2000, Tax Research Division, Minnesota Department of Revenue, available at www.taxes.state.mn.us

equipment, at over $150 million per year, being the single largest item. Together, the tax expenditures total approximately $500 million annually, with virtually the entire amount directed to business. The result is that the expenditures listed in Table 1 provide an incentive for Minnesota business by reducing their total direct tax burden by approximately 8.0 percent. It is worth noting that the items in Table 1 have enactment dates falling in every decade since the 1930s – when the income tax was made law – showing clearly that this type of tax policy tool has been considered important by elected officials of every era and party affiliation.

Minnesota Productivity Trends

Specific data on productivity are not regularly produced by the U.S. Bureau of Labor Statistics (BLS) for individual states. This makes direct comparisons of state and industry level productivity trends with national productivity trends impossible. However, using data on gross state output and the concept of full-time equivalent workers, it is possible to construct a measure of productivity that is comparable for

Minnesota and the nation. In this measure, productivity is defined as the rate of change in real gross state product divided by the rate of change in full-time equivalent workers. While, for methodological reasons, this measure differs from the most common U.S. measure, it is useful for comparison purposes and, over a multiple-year period, yields results that correlate with the official U.S. measure.

The following table contains the 1994 to 1998 average rate of productivity change for Minnesota and the U.S. by major industrial category. As the table shows, in total, the average annual rates of growth in Minnesota and the U.S. were 1.9 percent and 1.7 percent, respectively. The traditional measure published by BLS for the U.S. for the same time period was 2.0 percent annually.

TABLE 2 U.S. vs. MINNESOTA PRODUCTIVITY AVERAGE ANNUAL CHANGE 1994-98

	U.S.		Minnesota	
Derived Productivity Growth	Average Change	Productivity Rank	Average Change	Productivity Rank
Durable Manufacturing	5.66%	1	6.35%	1
Wholesale Trade	3.37%	2	3.32%	2
Nondurable Manufacturing	2.24%	3	1.13%	5
Mining	1.54%	4	-2.15%	9
Retail Trade	1.48%	5	1.34%	3
Services	0.81%	6	1.15%	4
Trans. & Public Utility	0.75%	7	0.34%	6
Fin. & Ins. & Real Estate	-0.25%	8	-0.47%	7
Construction	-1.53%	9	-1.23%	8
Agri. & For. & Fish Serv.	-2.20%	10	-2.67%	10
Total	1.68%		1.91%	

Source: Regional Economic Models, Inc. Productivity is defined as the rate of change in real gross state product divided by the rate of change in full-time equivalent workers.

While Minnesota appears to be slightly ahead of the nation in productivity overall for the period 1994 to 1998, there are differences by industry sectors. Table 2 lists those industries that outperformed the U.S. and those that appear to have lagged the nation over the most recent five-year period for which data are available. The ranking of state industries by productivity growth resembles the U.S. rankings for the same industries. For four of the five sectors in Minnesota that increased their productivity by more than 1.0 percent per year there is a fairly close correlation between rankings for the nation and Minnesota. The exception, nondurable manufacturing, appears to have fallen behind in its rates of productivity gain compared to its U. S. counterpart. The remaining sectors, durable manufacturing, wholesale trade, services, and retail trade, closely parallel the performance of the nation.

One industry in the state eked out productivity gains that, while greater than zero, were less than 1.0 percent annually. Here again, the industry – transportation/public utilities – was similar to the nation. Three industries showed declining productivity, with the rankings for Minnesota and the U. S. again quite close.

Given the similarity between changes in the U.S. and Minnesota, it appears that Minnesota is neither gaining nor falling behind in the all-important area of productivity. Over the last five years, Minnesota seems to have maintained its competitive position relative to national productivity gains.

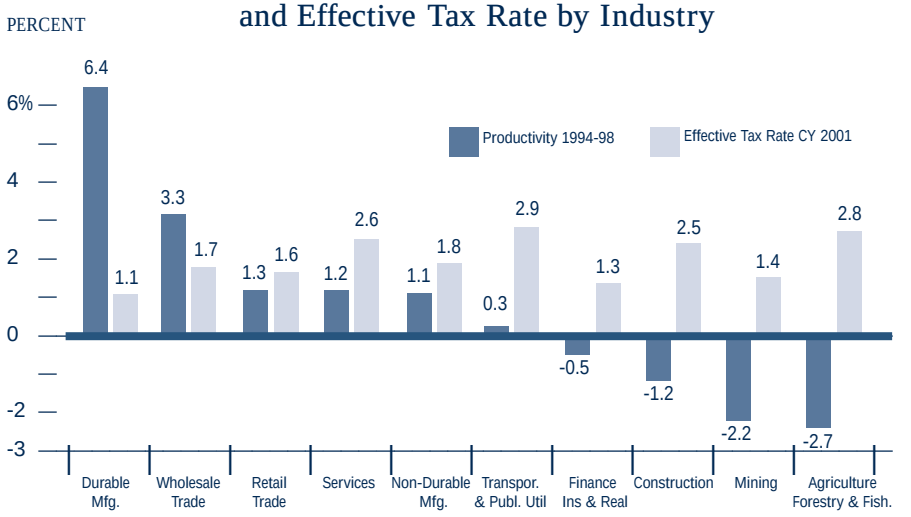
Minnesota's Effective Tax Rates

Another way to examine Minnesota's productivity is to compute effective tax rates for each industrial sector. An effective tax rate is similar in many respects to a gross receipts tax. This method attempts to eliminate the variations in the amount of tax each industry pays due to the different bases that separate taxes utilize. For instance, the corporate income tax uses profits as the base of its taxation, property taxes levied use some form of valuation as the tax base starting point, and sales tax is tied to a transaction price. By aggregating the directly-levied portion of each Minnesota tax and dividing by that industry's total output, an effective tax rate can be calculated. These tax rates can then be directly compared across industries to see where relative burdens are high or low.

Minnesota's rates of productivity gain over the last five years appear to track well with growth at the national level. The role effective tax rates play in helping the state keep pace with its competitors also appears to be related.

Figure 1 shows the effective tax rates for each of Minnesota's 10 major industrial sectors. The rates reflect estimates of the total burden imposed by 12 separate taxes. The dozen tax categories are: corporate franchise, general sales, motor vehicle sales, insurance premiums, motor vehicle registration, mortgage and deed, and, finally, five classes of property tax. The five property taxes are commercial, industrial, farm, rental and utility. The rates shown here are estimates for calendar year 2001, which was selected to reflect the results of the 2000 legislative session. While providing only a one-year snapshot, a comparison can, nevertheless, shed some light on what, if any, discernable relationship exists between productivity and effective tax rates. Figure 1 shows rates of productivity change in Minnesota's industries with their corresponding effective tax rates.

Figure 1: Minnesota Productivity and Effective Tax Rate by Industry



Source: Author's effective tax rate calculations based on estimated total tax burden by industry, November 2000 forecast, divided by estimated gross output by sector from Regional Economic Models, Inc. Productivity is defined as the rate of change in real gross state product divided by the rate of change in full-time equivalent workers.

Based on this one-year snapshot, it generally appears that industries with high rates of productivity growth tend to have low effective tax rates in Minnesota. While there are exceptions and because productivity growth is influenced by many factors, any link between tax rates and productivity growth must be considered preliminary. A literature search revealed little information on state-level research, partially because of the lack of consistent data over time. Additional research is needed to track the tax rate/productivity growth relationship over a number of years to see if a consistent trend is established. Research on trends in other states might also shed light on the relationship between a state's tax policy and productivity.

Summary

Minnesota, like other states, has enacted tax expenditures designed to keep the state healthy and competitive by encouraging investments aimed at enhancing productivity. It has also developed a general system of taxation that has resulted in effective tax rates that vary by industry. The variation is caused, in part, by the focusing of expenditures in certain business categories and also by the interaction of Minnesota's general tax system in different ways within each sector.

Minnesota's rates of productivity gain over the last five years appear to track well with growth at the national level. The role effective tax rates play in helping the state keep pace with its competitors also appears to be related. However, as in any research that focuses on short time periods, conclusions should be drawn with care. Data gathered over time would provide greater insights.

Minnesota's place in the increasingly competitive U.S. and world arena will largely be governed by how its productivity stacks up. The role of state tax policy needs to be continually reevaluated to make it a more effective tool for achieving higher living standards for Minnesota citizens. Michael Boskin wrote that "productivity growth is not something that falls like manna from heaven, totally independent of economic conditions or economic policy. It heavily reflects fiscal policy, monetary and regulatory policies and trade regimes."[iii] How Minnesota manages its state tax policy will help shape our state's future and fundamentally impact its citizens' living standards in the years to come.

ENDNOTES

[i] 1999 Tax Incidence Report, Minnesota Department of Revenue; available at www.taxes.state.mn.us

[ii] A tax expenditure is generally defined as a tax preference that "spends" state revenue via the tax system by not collecting revenues from a target group or select behavior.

[iii] Michael Boskin, "Tax Policy and Economic Growth: Lessons from the 1980s," *The Journal of Economic Perspectives: A Journal of the American Economic Association*, Vol. 2, Issue 4, Fall 1988, pp. 71-97.

ON THE PRODUCTIVITY OF MINNESOTA'S ROADWAY CAPITAL

BY DAVID ANDERSON, GERARD McCULLOUGH, AND JAMES WEST

ROADWAY CAPITAL

BRIEF DESCRIPTION: *Traditional methods of assessing the significance of investments in roads examine the costs or the use of roads, and not the benefits derived from them. This paper attempts to infer the benefits of road infrastructure by examining the relationship between the value of the infrastructure and the output of the state's economy. The authors discuss the extent to which investments in roadway capital – that is, all state, federal or local streets and highways – contribute to productivity increases.*

The adequacy of public capital investments has been a subject of interest to economists and policymakers, and the debate has not been resolved. Most studies agree that public capital can have important effects on productivity but disagree over the magnitude of these effects. One of this chapter's main conclusions is that the return on investments in roads is high. The authors' findings do not, however, set out an optimum level of roadway investment. They find that investments in individual road projects must create economic benefits in excess of cost in order to assure that expenditures on roadways continue to create productivity gains.

Introduction

Over the long run, increases in productivity drive economic growth and improvements in living standards. Investments in both public and private capital contribute to increased productivity. This paper attempts to determine how much our investments in Minnesota roadway capital contribute to productivity increases. Roadway capital includes all public (state, federal or local) streets and highways. It does not include capital for other types of transportation such as aeronautics, rail, or transit.

Roadway capital is a major component of public capital, both in terms of impact on productivity and magnitude of expenditures. The role of roadway capital seems especially important in Minnesota because the per capita investment in streets and highways is significantly higher than the national average. Per capita spending on construction and maintenance in Minnesota was 58 percent higher than the national average from 1992 to 1996.

Since the early 1990s, the adequacy of public capital investments has been a subject of interest to economists and policymakers. We do not believe this debate has been resolved. Most studies agree that public capital can have important effects on productivity but disagree over the magnitude of these effects. One of our main conclusions is that the return on investments in roads is high. This suggests that investments in public capital, and investments in roadway capital, in particular, may produce significant economic payoffs. Our findings do not, however, determine an optimum level of roadway investment.

This paper focuses on the benefits of roadway capital through its effects on the productivity of Minnesota firms. Economic theory says that investments in individual road projects must create economic benefits in excess of cost in order to assure that expenditures on roadways continue to create productivity gains. Traditional methods of assessing the significance of investments in roads examine the costs or the use of roads, and not the benefits derived from them. Measures of costs include the size of construction and maintenance expenditure or the cost of replacing roads. Measures of use include vehicle-miles traveled or ton-miles of freight hauled. Quantifying the economic benefits derived from roads is more difficult because benefits must be inferred from macroeconomic effects or from choices made by individual firms.

The main goal of this paper, then, is to infer the benefits of road infrastructure by examining the relationship between the value of the road infrastructure and the output of the state's economy. The following section provides background on the debate over the adequacy of public investment in infrastructure; then, we present the economic model used in our study; later we discuss our results and, finally, conclusions.

Research on Public Capital Investment

For many years the stock of public capital has been identified as an important contributor to total output. However, it was not until a series of articles by Aschauer (1989a, 1989b) that public capital investment was brought into prominence as a political and economic issue. He argued that a decline in investment in public infrastructure was a major factor contributing to an observed decrease in productivity growth in the U.S. He pointed to previous studies that showed a positive relationship between public capital stock and output. Aschauer examined the impact that public sector capital has on private sector productivity by assuming that economic output was a function of labor, the stock of public capital, and the stock of private capital. He inferred the mathematical form of the function by examining data on output, labor, and public and private capital from different states over time. He found each additional dollar of

public capital investment would lead to an increase in output of more than two dollars. He also concluded that greater investment leads to a larger rate of return to private capital investment. This suggests that increasing public capital investment not only increases output but also makes other capital more efficient.

Munnell (1992) strengthened Aschauer's results by examining a variety of potential causes for the slowdown in productivity growth such as changes in energy prices or a decline in growth of spending on research and development. After identifying the main theories to explain the slowdown in productivity growth, Munnell examined relevant trends and concluded that the decline in public capital is the sole explanation for the decline in productivity. She recommended increased government spending on new capital as well as maintenance and repair of the existing capital stock.

Since these findings, public capital productivity has come under close scrutiny. Holtz-Eakin (1994) offered a strong critique of previous work and pointed to several difficulties that occur when analyzing public capital productivity. He argued that it is necessary to use more disaggregated data to find the relationship between public capital stock and private sector productivity. Holtz-Eakin pointed out a potential pitfall in using state data: more prosperous states (with higher productivity) are likely to spend more on public capital. This guarantees that researchers will find a high correlation between productivity and public capital, but it does not necessarily imply that higher public capital causes higher productivity. After adjusting for these state-specific effects, Holtz-Eakin estimated state-level data and found no correlation between public sector capital and private sector productivity.

Recent research continues to refine previous work. Nadiri and Mamuneas (1996) conducted a comprehensive study of the contribution of roadway capital to U.S. productivity in which they addressed many of the previous critiques. They examined questions similar to Aschauer's and Munnell's and also estimated the contribution of roadway capital to productivity within specific industries. Their study found high returns from roadway investment. Bedi and Gillen (1999) examined the benefits of Ontario's roadway capital. They estimated the economic benefits to firms in Ontario and extended previous work by also estimating the value that Ontario consumers place on roadway capital.

Gramlich (1994) provided an excellent overview of debates on the effects of public capital investments on productivity. He acknowledged the importance of public capital and provided data showing the levels of public infrastructure capital by type in 1991. A version of a table from Gramlich, updated to year 2000 prices and shown in Table 1, demonstrated that roadway capital makes up the largest portion of all

public infrastructure capital. However, Gramlich identified a number of technical problems with estimating the productivity of roadway capital.[i] He believed that researchers should focus on whether government policies on investment should be changed. He argued that if public investment were really as profitable as studies indicate, then businesses would encourage increased taxation to fund public capital investment, which would then lead to higher profits at a much lower cost. He concluded that setting up institutional structures that allow for state and local governments to determine their own levels of capital stock would help to limit any underinvestment in public capital that might otherwise occur. Lastly, he asserted that more attention needs to be given to studies that examine the productivity benefits of individual projects, and less to studies that examine aggregate productivity benefits.

An Econometric Model of Production in Minnesota

Our approach to estimating the productivity of roadway capital is similar to the studies discussed here,[ii] and the caveats expressed by Holtz-Eakin and Gramlich apply. Effects on productivity are measured by examining the relationship between labor, private capital, roadway infrastructure, and state output. The relationship between these variables is summed up by a production function, which describes the precise relationship between output, labor, private capital, and roadway capital.[iii]

TABLE 1 U.S PUBLIC CAPITAL IN 1991 FROM GRAMLICH

(Billions of Year 2000 Dollars Based on the Price Deflator for Private Fixed Investment)

Type of Capital	Federal	State and Local	Total
Streets & Highways	18.8	788.9	807.7
Water & Sewer	0.0	329.3	329.3
Education	1.3	355.2	356.6
Conservation	59.8	40.0	199.8
Other Nonmilitary	90.5	645.8	736.3
Military	572.9	0.0	572.9
Total	843.3	2159.3	3002.6

By examining the way the levels of the inputs (i.e., labor, private capital, and roadway capital) change over time and the effects of these changes on output, the contribution of each input to productivity can be estimated. Most importantly, we can obtain coefficients that estimate the percent that output would change if there were an increase of 1.0 percent in a particular input. It should be noted that these are marginal values so they only apply for small changes in an input. A large increase in one input – a 50

or 60 percent increase – might not result in the same proportionate increase.

To obtain results we need to know state output, labor, private capital, and roadway capital for a number of periods. We use data for each year from 1957 to 1996. Our measure of output is gross state product (GSP). Our measure of the labor input is labor-hours of work. Our measure of both private and roadway capital is "replacement value," which is the cost in current dollars of purchasing the capital, adjusting for the condition of the capital. Condition is accounted for by the depreciation rate; this depreciation rate determines the portion by which the capital's function decreases each year due to wear and tear.

GSP is a measure of the total value of all production in the state. Collected by the Bureau of Economic Analysis (BEA), data on gross state product are only available from 1977 to 1996, so it is necessary to adjust another series to expand the data for the length of the study. To accomplish this, personal income data for the state are used. Over the years where the data overlap, the two series are highly correlated,[iv] and this makes personal income an obvious choice for appending the data series.

Data for the labor force in Minnesota are taken from the Minnesota Department of Economic Security's Current Employment Statistics. The series for number of people employed each year is multiplied by the average number of hours worked in a year to come up with the number of labor hours in the state for each year.

The data collection for the capital series was a much more involved process. Data for private capital are estimated by the BEA at the national level and are not available for individual states. Previous studies have used a method of estimating the share of the capital stock that is attributable to each state based on proxy ratios in each of the sectors. For example, the capital stock in the agriculture sector can be distributed for each state based on its share of the total value of land, buildings, and equipment (obtained from the United States Department of Agriculture Census of Agriculture). This procedure, which is similar to the one used by Costa, Ellson & Martin (1987), is employed here. Ratios of Minnesota's share of national values are based on a number of different sources that approximate Minnesota's share of capital.

Because our study focuses on the impact of roads on the economy, it is crucial to use accurate measures of the stock of roadway capital. Fortunately, state-specific investment numbers are available for roadway capital. We use these numbers to obtain our estimate of the replacement value of Minnesota's roads. (As noted above, the replacement value of a piece of capital is a measure of the cost of the capital; it is defined as the cost in current dollars of purchasing the capital, adjusting for the condition of the capital.) The first step is to estimate the depreciation rate for

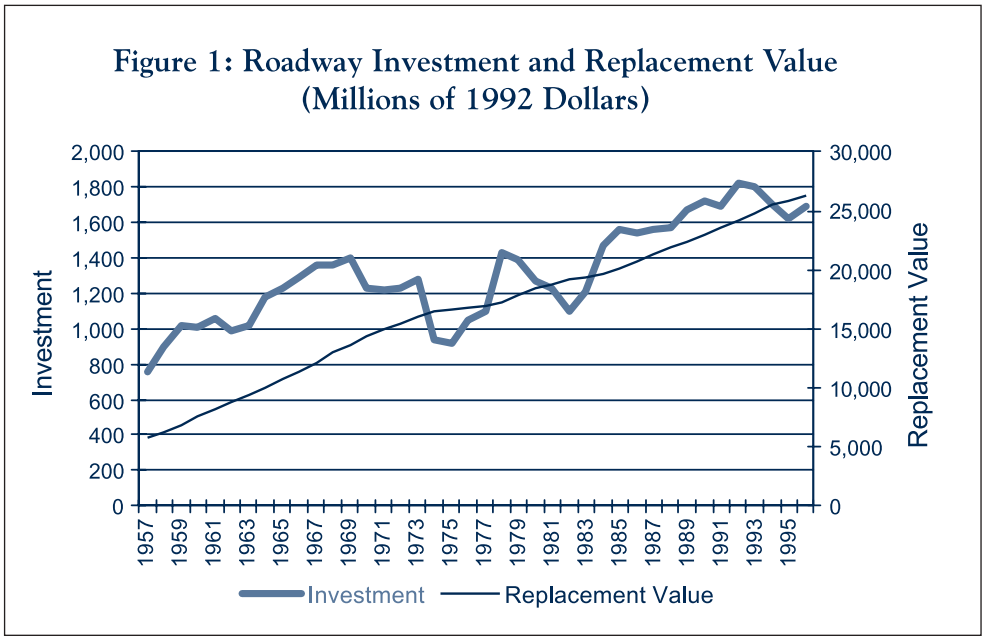
roadway capital. Our estimate is based on Fraumeni's estimate of the productive roadway capital stock for the U.S. and Federal Highway Administration (FHWA) data on yearly U.S. capital and maintenance expenditures. The second step is to determine how much roadway capital was accumulated in Minnesota and the U.S. from 1957 to 1996. This is accomplished by using our estimate of depreciation and the FHWA's data on U.S. and Minnesota investment. Our third step is to determine the amount of roadway capital in Minnesota in 1996. This is done by assuming the ratio of Minnesota to U.S. road capital at the end of 1996 was equal to the ratio of capital accumulated from 1957 to 1996.[v] The fourth step is to work backwards from 1996 to obtain estimates of Minnesota's roadway capital stock for previous years. This is accomplished by using our estimate of the rate of depreciation and the FHWA data on statewide construction and maintenance spending.

Findings

The replacement value of the stock of roadway capital[vi] in Minnesota is useful for understanding the role of roads in Minnesota's economy. It gives us one measure of the value of roads. It also provides information about whether or not maintenance expenditures are high enough to keep the quality of roads and bridges from deteriorating. Figure 1 shows the replacement value of – and investment in – Minnesota roads from 1957 to 1996. The rate of capital accumulation was approximately 4.0 percent per year for the last 40 years, with a slight slowdown occurring in the 1970s. The ratio of capital to the gross state product has also been approximately constant. Except for rising rather rapidly from 16 percent in 1958 to 21 percent in 1963, the ratio has changed little. It rose slowly to 24 percent in the early 1970s and then declined to 22 percent in the early 1980s. From 1984 to 1997 it was between 20 and 22 percent. These results are consistent with Bedi and Gillen's findings for roadways in Ontario.

The productivity of roadway capital in Minnesota appears to be very high. Our main finding is that a 1.0 percent increase in the amount of roadway capital will lead to a significant increase in the value of goods and services produced in the state.

The replacement value of roadway capital[vii] is used to estimate the effects of roadway capital investment on productivity; that is, we estimate how an increase in roadway capital affects economic output. The coefficients for the inputs in the production function are similar to those found in other studies. Roadway capital has a coefficient of 0.26, meaning that a 1.0 percent increase in the amount of roadway



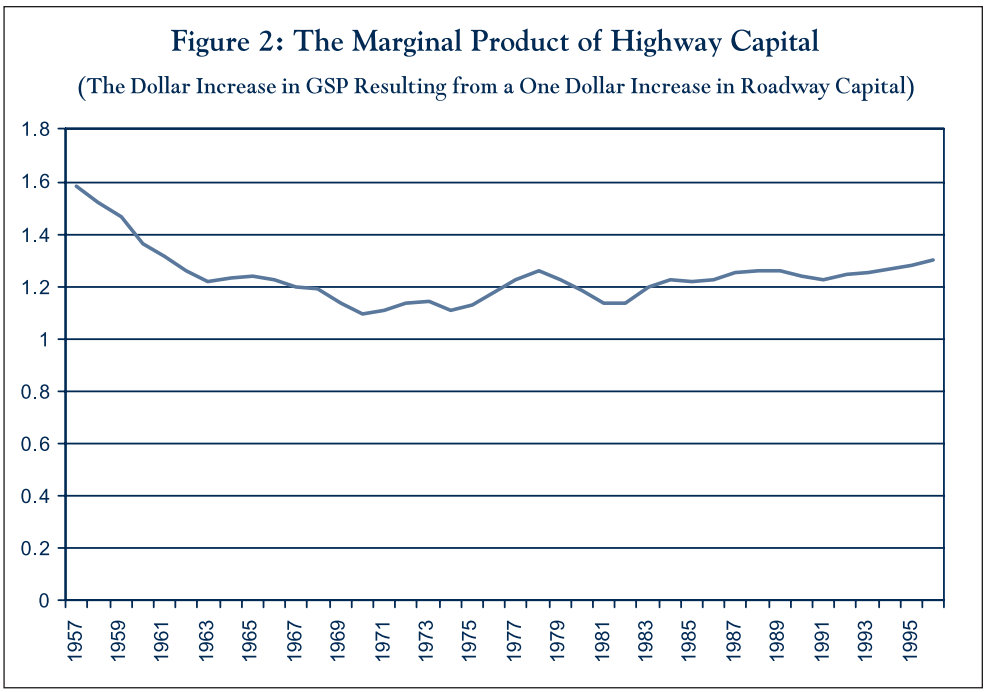
capital would be expected to bring about a 0.26 percent increase in GSP. This means that if the level of roadway capital were kept 1.0 percent higher than its current level, and all other variables were held constant, then GSP would be 0.26 percent higher every year. Because roadway capital depreciates so slowly, an investment of one dollar in roads would lead to an overall increase in the value of future GSP of approximately 10 dollars, given reasonable assumptions about the relative values people place on current and future consumption. We also find that labor has a coefficient of 0.81 and private capital a coefficient of 0.08. This means a 1.0 percent increase in labor or private capital would be expected to increase GSP by 0.81 percent or 0.08 percent, respectively. The values of the coefficients are shown in Table 2. These findings, while consistent with other studies of the productivity of roadway capital, are somewhat startling because the return on an investment in roadway capital is so high. We do believe that our findings provide evidence that investments in roadway capital contribute to economic productivity, but we also believe that it would be quite surprising if the historic returns really have been as high as indicated. The discrepancy is probably due to the limitations of this type of research. Gramlich (1994), discussed in the "Research" section of this paper, mentions a number of these limitations.

TABLE 2 ESTIMATES OF PARAMETERS

	Coefficient	Standard Error	t-Statistic
Intercept	4.41	0.27	16.23
Labor	0.81	0.09	9.56
Private Capital	0.08	0.05	1.66
Highway Capital	0.26	0.03	8.75

Our parameter estimates can be used to approximate the marginal product of roadway capital in each year of the sample. This value is defined as the amount that one additional unit of capital would add to output and is shown in Figure 2. We find that the marginal product of roadway capital fell in the early years of our sample, from about 1.6 in 1957 to about 1.2 in the mid-1960s. Since then, the marginal product of capital has remained nearly constant. This is not surprising given the evolution of the system of roads in Minnesota.

As Minnesota's roadway system, and especially the interstate highway system, was built, early improvements made the greatest contribution to the productivity of the economy. As the system of roads matured, additions to the system contributed less to the overall productivity of the economy. The decline in the marginal productivity of roadway capital coincides with the increase in roadway capital stock noted earlier.



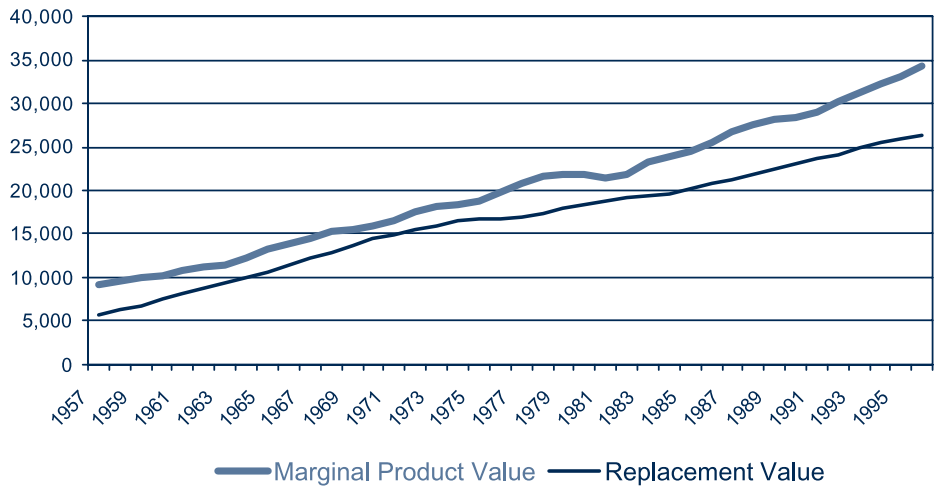
Starting in the early 1990s, there have been small annual increases in the marginal product of roadway capital. This may be a reflection of increasing economic activity, a sign of an increase in the demand for transportation, or a sign of a relatively low amount of roadway capital.

Some perspective on the value of roadway capital can be gained by examining its "marginal product value." Marginal product value is a measure of the total value of the roadway system to producers. It equals the amount that producers would pay for roads if roads were paid for as they would be in a competitive environment. The resulting series is shown in Figure 3. Note that this value is consistently higher than the replacement value of roads for the years examined, and the difference has been growing in recent years.

Conclusions

The productivity of roadway capital in Minnesota appears to be very high. Our main finding is that a 1.0 percent increase in the amount of roadway capital will lead to a significant increase in the value of goods and services produced in the state. While there are no other studies of the value of Minnesota's roadway capital, this finding is consistent with the findings of researchers studying the productivity of roadway capital in other regions of the country.

Figure 3: Measures of the Value of Minnesota's Highway Capital (Millions of 1992 Dollars)



We should emphasize again that, given the data limitations and caveats that apply to this and similar studies, we do not offer these results as final or definitive conclusions. Instead, the results are offered as a basis for discussion – providing evidence that roadway capital in Minnesota contributes significantly to productivity growth.

It should also be noted that our findings do not necessarily mean that all new investments in roads will lead to gains in productivity. Differences in returns across projects mean that evaluating individual projects is critical, and only by investing in the best projects available can high returns be maintained.

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ENDNOTES

[i] These include difficulties (i) measuring public and private capital, (ii) determining the correct way to specify returns to scale in the production function, (iii) determining the effect of common trends in the data, (iv) accounting for missing variables, (v) interpreting causality, and (vi) adjusting for differences across states.

[ii] See especially Aschauer (1989a), Munnell (1990), and Bedi & Gillen (1999).

[iii] Specifically, we assume that Output = f(Labor, Private Capital, Roadway Capital), where f is the production function. We use a Cobb-Douglas production function, which is common for this type of analysis, and allow for increasing or decreasing returns. We assume that $Y = AL^a (PK)^b (RK)^d$ (where Y is output, L is labor, PK is private capital, RK is roadway capital, and A, a, b, and d are free parameters. Note that we do not assume constant returns to scale (i.e., an equal proportional increase in each input will *not* necessarily lead to a proportionate increase in output). Technically, this means that we do not restrict the sum $a + b + d$ to equal one.

[iv] The correlation coefficient was over 0.999.

[v] This is similar to the approach used by Munnell. We estimate that 98.4 percent of the value of U.S. roadway capital has been accumulated since 1957, so using the ratio seems reasonable.

[vi] That is, the cost of replacing Minnesota's roads, adjusting for their condition.

[vii] The coefficients for labor and highway capital were statistically significant; that is, given the assumptions of our model, it is highly unlikely that their values are zero.

CONTRIBUTIONS OF EDUCATION AND TRAINING TO ECONOMIC PRODUCTIVITY

BY RON DREYER, PH.D.

EDUCATION AND TRAINING

BRIEF DESCRIPTION: *This chapter looks at two issues important to human capital investment and productivity. First, the author finds that there must be evidence that education and training investments improve worker productivity. Second, the author concludes that curricular linkages between employers' knowledge, skill and ability expectations and instructional content must be identified.*

The author reaches three conclusions: ■ Education and training increase productivity and provide a demonstrated return on investment. Though sometimes difficult to measure, many studies have been able to document a return to employers from their education and training programs. ■ Wages increase with increased education. For every year completed, the average 2- and 4-year college student earns roughly 5.0 percent more than a high school graduate. This advantage continues for master's, doctoral and professional degrees. The 21st-century workplace requires improved approaches to aligning curriculum with employers' needs. ■ Rapid changes in our work environment have contributed to an increased need for training and tighter links between employers' requirements and the education and training that providers offer.

> *"In order to have a world class company and workforce, corporate America must create and foster an environment where there is continuous learning, training, alignment of strategic goals, and knowledge-sharing through the company. In doing so, it helps to create and prepare workers to assume more responsibilities and solve problems themselves. They need this to remain competitive in the industry."*
>
> – Michael A. Johnston, Chairman, Merrill Lynch Credit Corporation, 1997
> Malcolm Baldrige National Quality Award Winner

Introduction

We work and individuals and society benefit from our work. Wages are paid in exchange for time spent producing goods and services. Our wages allow us to choose the goods and services we wish to consume. Our desire to consume influences that which is produced. This model could be more elaborate, but even this simple view of individuals and society allows us to conclude that increased productivity during our time spent working would yield increased benefits to both individuals and society. As this paper will illustrate, human capital investments through education and training are significant catalysts for increased productivity.

Changing work opportunities and requirements demand increasing levels of technology, integration and adaptability. But the implication is not that people must learn faster. Rather, individuals must learn more frequently for greater portions of their careers and what they learn must have increasing relevance to their economic production roles.

Increased productivity through enhanced learning can also help alleviate workforce shortages. Shortages will not be resolved by merely a change in the supply of available workers through, for example, increased migration. Prospects are also limited for expanding the number of hours worked by existing members of the labor force. Rather, the significant opportunity for Minnesota is to upgrade worker skills by expanding education and training opportunities, particularly for workers already in the labor force.

There are two important issues relative to human capital investment and productivity. First, there must be evidence that education and training investments improve worker productivity. Individuals, employers and government will be less willing to invest in education and training if it does not contribute to economic productivity. Second, it is necessary to identify curricular linkages between employers' knowledge, skill and ability expectations and instructional content delivered through education and training. These linking mechanisms represent market processes through which employees' capabilities become aligned with employer requirements.

Human Capital Investment

What do we mean by human capital? Human capital (Gordon, 2000) is "the sum total of individual intelligence built upon the acquisition of skills, training, and educational experience over a lifetime." In human capital theory, wages are a common proxy for skill level. Economists assume employers pay employees the value that they can

produce and that employees will not work for less than the wage rate they could earn elsewhere (Weinstein et al., 1999). Investment in human capital consists of the training and education that can enhance worker productivity.

Various sources and studies ascribe different meanings to the interrelated terms education and training. Interpretation of U.S. Department of Labor descriptions (Weinstein) implies that education is for literacy and numerical skills and is designed for prospective workers. Training, on the other hand, is for workers on the job. Others (Lazar et al., 1998) describe education as dealing with thoughts and feelings, teaching the 'why,' enabling people to apply their competence today and in the future, focusing on people, and teaching them to make choices. In contrast, training deals with action, teaching the 'how,' providing competence, focusing on procedures and teaching people to follow prescriptions.

The Scope of Today's Education and Training Enterprise in Minnesota and the Nation

Collectively, state and federal governments, employers and individuals make an increasingly large investment in education and training. Minnesota's postsecondary providers include a network of public and private institutions and employer-provided training. The state boasts an extensive training system for its labor force of 2,744,264, 2,686,915 of whom were employed in 2000 (Office of Fiscal Policy Analysis).[i] Minnesota's education and training enterprise is a multi-billion dollar activity. Employers take advantage of these opportunities and, in addition, provide their own training. Minnesota has 36 public higher education institutions that enrolled over 205,000 students in the fall of 1998. For the same year, there were 136 private higher education institutions that enrolled over 76,000 students in degree or credit-based programs (Djurovich, 2000).

Minnesota has many other training providers. The state's Covered Employment & Wages (ES-202) Program, administered in cooperation with the Bureau of Labor Statistics (BLS), includes over 640 reporting units classified as educational services.[ii] In total, Minnesota reported 54,361 graduates of higher education institutions for the 1996 to 1997 academic year (Higher Education Services Office, HESO 2000b). Of this total, 22,225 or 40.9 percent earned less than a baccalaureate, 23,028 (42.3 percent) were baccalaureates or post-baccalaureate, and 9,108 (16.8 percent) were graduate degrees.[iii] From the Minnesota State Colleges and Universities (MnSCU), there were 28,791 graduates available for employment during the 1997 to 1998 school year (Schoenecker, 2000). Of these graduates, 95 percent were employed, and 88 percent were working in a job that the graduate rated as related to their program of study (Schoenecker, 2000).

In Minnesota, the 1999 legislature appropriated over $2.6 billion in general funds for higher education for the biennium. According to the Office of Fiscal Policy Analysis (2000), these funds were appropriated to the HESO ($310.4 million), MnSCU ($1,115.8 million), the University of Minnesota ($1,186 million), and the Mayo Medical School ($3,183 million). Additional funds were appropriated to other agencies to assist workers with employment and training.

Since statistics about employer-provided education and training are not readily available for Minnesota, it is useful to look at national data and draw reasonable conclusions regarding state numbers. At an estimated $1.08 billion dollars annually, Minnesota businesses contribute significant resources to formal education and training. This number is extrapolated based on the fact that Minnesota's workforce is 2.0 percent of the national workforce, and U.S. employers spent $54 billion on formal training in 2000 (Lee, 2000).

According to Kwang, Kim, Collins, Stowe and Chandler (Stuart, 1999), nearly one-half of work-related training and education courses taken by adults in the U.S. are provided by business and industry. National surveys indicate that 80 percent of employers provide formal training though variation occurs by industry and size of firm. Using a telephone survey administered by the U.S. Bureau of the Census to a sample of private establishments with more than 20 employees, Lynch and Black (1996) found that smaller employers are less likely to provide formal training. Employers who have large physical capital investments or who hire workers with higher educational levels are more likely to provide formal training. Virtually all employers provide informal training.

National estimates of total employer expenditures on training do vary. According to one estimate, employers spend about 1.0 percent of payroll costs on formal training. This amounts to $30 to $40 billion annually (Committee for Economic Development, "American Workers and Economic Change," 1996 as cited in Stuart, 1999). One source estimates that U.S. employers spend $55 to $88 billion on formal training per year; inclusion of informal training would more than double this figure (Lynch, 1997).

More recently, in a national survey of 1,347 organizations, the journal *Training* found that U.S. organizations budgeted $54 billion for formal training of which $7 billion (13 percent) was set aside for training products and services from outside suppliers as opposed to off-the-shelf materials.[iv] At $34.7 billion or 64 percent, training staff salaries accounted for the largest share of 2000 training budgets (Lee, 2000).

Employer-provided training in the United States is clearly on the rise according to a 1999 survey of 750 organizations that participate in the American Society for

Training and Development (ASTD). Leading-edge companies[v] have improved training investments and practices faster than average organizations. In 1997, as a percent of payroll, leading-edge companies spent 4.39 percent of payroll on training. This is up from 3.93 percent in 1996. Training expenditures for these companies were $1,956 per employee with training being provided to 83.4 percent of employees.

Of the formal training provided by employers, about one-third of the training hours are delivered to one-half of training participants to learn general skills. Topics include communications, quality, safety, orientation and basic skills. Job-related skills training accounts for two-thirds of total hours of training (U.S. Department of Labor, 1996a).

A BLS survey of firms having more that 50 employees showed that workers received an average of 44.5 hours of training during May to October of 1995. Of these hours, 70 percent consisted of informal training.[vi] In this survey, only 17 percent of those who received formal training in the preceding 12 months indicated that they had taken courses at educational institutions (U.S. Department of Labor, 1996b).

The frequency of training provided for employees and the number of employees trained varies by size of firm. Large employers provide more formal training for employees. Employers with 500 or more employees provided training 98 percent of the time, medium-sized employers 94 percent and employers with 50 to 90 employees trained 91 percent of the time. Mid- and large-sized employers provided training to a larger portion of employees (71 and 73 percent, respectively) compared to small employers where 61.6 percent of employees received formal training. Employees' annual hours of formal and informal training also increased with employer size. For small, medium and large employers, formal hours of training were 8.2, 13.5 and 16.6 (BLS, *Monthly Labor Review*, 1998a).

Some types of training are more common than others. In their national survey, Lynch and Black found health and safety, new procedures, and new worker orientation were provided by over 70 percent of establishments. Less than 55 percent of establishments provided teamwork or problem solving, computer literacy, EEO or diversity/sensitivity training. Only 21.1 percent provided literacy/numeracy training (Lynch & Black). By comparison, Lee found specific training offered by at least 70 percent of organizations to include new-employee orientation, leadership, sexual harassment, new-equipment operation, performance evaluation, performance appraisals, team-building, safety, problem-solving/decision-making, train-the-trainer, product knowledge, public speaking and hiring. Diversity training was provided by 59 percent of organizations, remedial math by 35 percent, English as a second language by 30 percent and remedial reading by 28 percent (Lee, 1999).

Productivity and Returns on Human Capital Investment

Education and training are investments, and wages are an outcome influenced by this investment. Though economists use these increased wages as a proxy for increased productivity, employers need more direct evidence to help them target limited education and training resources and assess the effectiveness of various programs. This section of the paper describes productivity returns that employers receive from investments in education and training. Then, using the economic perspective of wages to assess productivity, labor market outcomes are presented.

Measurement of corporate human capital investment has been inconsistent. Also, human capital investments have tended to be viewed as expenditure, not investment. Despite this, there has been increasing pressure to demonstrate return on investment (ROI).

Studies that report ROI are often not comparable, and few standards exist. There are different training methods, content, employee characteristics, industries, durations, and methods of assessing returns. Even the definition of ROI can be open to interpretation; DPT Consulting defines ROI as any economic returns, monetary and nonmonetary, that accrue through an investment in the human resources development area. Nonmonetary returns include employee retention rate, customer satisfaction, and employee job satisfaction. DPT treats these nonmonetary returns, which often defy fiscal measurement, as discrete variables in their regression formula (DPT Consulting Group, 2000).

Determining training's ROI is also difficult because training is imbedded within the many variables that contribute to improved organizational performance (DPT Consulting Group, 2000). Time and resources to assess ROI are inadequate (Plott, 1997). Further, single courses may not be significant, and multiple human resource development programs may impact a business at the same time (Wang, 2000).

There is no uniform approach to measuring ROI. Criticized by financial theorists, common approaches center on an accounting model developed by the DuPont Company in 1919. A contemporary alternative developed by Stewart and Stern assesses economic value-added by measuring a wide range of financial performance indicators. Other models forecast financial benefits and payback period (DPT, 2000). Gordon (2000) proposes a nine-step process that is applicable to assessing ROI for any education and training intervention. DPT uses an economic model based on an input-process-output analytical framework(DPT, 2000).

According to Gordon, Phillips reviewed 18 organizations and found they demonstrat-

ed high or even extremely high (2,000 percent) returns on training investments. Gordon reviewed seven additional studies from companies such as Nabisco and Rubbermaid. These, too, showed positive returns. Motorola, according to Gordon, invests close to $100 million in workforce education and reports a return on investment of $3.00 in product sales for each education dollar invested. In another study of Motorola, Gordon cites a $30 yield for every $1 invested.

Many business trainers use Donald L. Kirkpatrick's four levels of evaluation to categorize their assessment approaches. Level 1 assesses trainee reactions. Level 2 seeks to determine what trainees learned. The objective of Level 3 is to measure behavior change on the job. Finally, Level 4 focuses on demonstrating an improvement in the company's business results (Geber, 1995). Each level gets progressively more difficult to assess.

Evidence is also mounting that education and training contribute to worker productivity with wage increases used as a proxy for productivity in some cases. A variety of studies point to this conclusion.

In a study that focused on the economic impact of MnSCU, Anton & Associates found that the increased productivity of Minnesota workers was the most important effect of MnSCU on the state's economy. The net per dollar spending effect on increased productivity of the workforce was $3.66. This equates to an annual $1.5 billion contribution to the Minnesota economy or about 2.0 percent of the total wages paid in the state. Because direct measurement was not feasible, the study used graduates' increased earnings attributable to their training at MnSCU institutions (Anton & Associates, 1998).

It's well known that knowledge, abilities, know-how, skills, and experience contribute to productivity. Four studies by Delaney and Huselid; Huselid; Huselid; and Huselid and Jackson as cited in Gee (Gee & Nystrom, 1999) and Weinstein (1999) positively linked firm performance with human resource practices that enhance human capital. On average, for private businesses in the 1990s, labor productivity grew by 1.3 percent per year through 1997, and increasing skill levels accounted for 0.41 percentage points of that growth (BLS, *Monthly Labor Review*, 1999b). Similarly, Michael Paulsen (1996) concludes that increased investment in higher education would further raise the growth rate of workforce productivity.

According to an ASTD survey, leading-edge firms reported better performance on such measures as sales, overall profitability, and the quality of products and services following training (Bassi & Van Buren, 1999). One study (Lynch & Black, 1996) found that current training lowers productivity, but past training raises current

productivity. Higher productivity was associated with higher off-the-job training. In nonmanufacturing firms, computer skill development had a significant and positive impact on productivity.

According to Bergman (Bergman, 1995), programs that build basic workplace skills resulted in more employees using reading and writing on the job, higher employee participation in meetings, employees asking more questions and making more suggestions, and improvement in attendance and safety. Through an evaluation of a hospital workplace literacy project, Lazar, Bean and Van Horn (1998) found positive relationships between basic skill areas and improved job performance, attitude, and self-esteem. A Business Council Effective Literacy brief (1993) found similar relationships between basic skills and productivity in its review of nine studies. For example, a company in Tennessee reported a 95 percent drop in costs resulting from worker mistakes and a doubling of worker productivity after the company provided education and training. A study by ASTD found that over one-half of the productivity increases occurring in the U.S. between 1929 and 1989 were due to learning on the job and that productivity was 30 percent higher when employees were given formal workplace training. The Manufacturing Literacy Program and Motorola's university training courses resulted in a 500 percent productivity rate increase, a 30:1 reduction in manufacturing cycle time, a 4:1 reduction in defects per unit, and a 2.5:1 reduction in inventory.

Based on a sample of 40 publicly traded firms in a variety of industries, Bassi and McMurrer (1998) showed relationships between training expenditure levels and several measures of fiscal performance. They divided the 40 companies into two groups according to their training expenditure – the top half (average of $900 per person) and the bottom half (average of $275 per person). Firms with higher per employee training expenditures had higher net sales per employee, higher market-to-book ratio and higher gross profits per employee.

Findings from a nationally representative survey documented the contribution that workers' average level of education makes to the productivity of individual establishments. Administered by the U.S. Bureau of the Census, the survey queried approximately 3,000 establishments employing 20 or more workers. Productivity is more strongly associated with years of employee schooling than with capital stock. A 10 percent increase in the average education of all workers within an establishment is associated with an 8.6 percent increase in output when averaged across all industries. This effect is estimated at 11 percent in the nonmanufacturing sector (The National Center on the Educational Quality of the Workforce, 1995).

Black and Lynch (1997) found that establishments with higher levels of education have higher productivity. Increasing the average educational level of workers in a firm by one year raises productivity as much as 8.0 percent in manufacturing and 13 percent in non-manufacturing. Lynch (1997) also cites 10 studies that illustrate the positive impact of private sector training. Impacts include rates of return associated with an additional year of training that run from 4.4 to 11 percent and productivity rising 19 percent over three years in firms that train.

In a national survey, Lynch and Black (1996) found significant positive effects on productivity associated with investments in human capital. This was true for both manufacturing and non-manufacturing sectors. Interestingly, employers in non-manufacturing sectors who utilized academic grades in their recruitment of new workers experienced higher productivity than competitors. Zemsky, Shapiro, Gelhard and Iannozzi (1995) found similar results when employers considered school measures such as grades or teacher recommendations. These employers were also shown to have lower recruiting costs and a smaller proportion of employees with less than one year of tenure.

Wages, a traditional indicator of economic productivity, are related to levels of education. The following studies indicate the nature and strength of this relationship.

Data from the National Longitudinal Study of High School Class of 1972 show that workers who have one to three years of college earn 15 percent more than high school graduates. For every year of credits completed, the average 2-year and 4-year college student earns roughly 5.0 percent more than a high school graduate (Kane & Rouse, 1993). Leigh and Gill's 1997 research sought to determine if this holds true for experienced adult workers who return to school. They found that for both associate of arts degrees and non-degree programs, the returns are positive and of the same magnitude.

Over the last 30 years, men and women with college educations have earned increasingly higher wages than those with only high school diplomas. Compared to high school graduates, college-educated men earned 36 percent more in 1970 and 62 percent more in 1997. Even more dramatic, college-educated women earned 23 percent more than high school graduates in 1970 and 65 percent more in 1997 (Weinstein et al., 1999). The median weekly earnings of women aged 25 years and older without high school diplomas were $283, or 40 percent of the $707 median weekly earnings of female college graduates (BLS, *Monthly Labor Review,* 1999a).

Barron (1999) cites nine studies that conclude that training is positively associated with wage growth. According to Stuart (1999), college graduates earn 77 percent

more than individuals with a high school degree. Lynch (1997) found the gap to be widening. In 1979, males (females) with a college degree earned 49 (44) percent more than full-time workers with a high school degree. This difference increased to 89 (73) percent in 1995.

See Table 1 for estimated median and mean annual earnings associated with various levels of education.

TABLE 1 EDUCATIONAL ATTAINMENT AND EARNINGS

	Median Annual Earnings (BLS, *Monthly Labor Review* 1998b)	Mean Annual Earnings (Newburger & Curry, 2000)
Not a High School Graduate		$16,053
High School Graduate	$23,317	23,594
Some College/Associate Degree	N/A	27,566
Bachelor's Degree	36,155	43,782
Master's/Advanced Degree	46,269	63,473
Ph.D.	60,827	N/A
Professional	71,868	N/A

Of course, we should remember that certain legitimate barriers can exist which may limit education and training opportunities. For some firms, training can contribute to employee turnover when skills are easily transferable. And training costs are high – especially for smaller firms. Employees themselves may not have the time, information or money needed to acquire additional training outside of work (Stuart & Dahm, 1999).

Links Between Education and Employment

There is no doubt that skill requirements are changing. Technology and globalization will accelerate this change. For example, tools used by drafters have shifted from dividers, protractors and triangles to calculators, handbooks, and computers that enable computer-aided drafting. As U.S. multinational corporations have relocated low-skilled jobs to foreign countries, there has been a corresponding demand for higher-skilled workers to coordinate foreign production. The expansion and contraction of various industries also affects the inventory of needed employee capabilities.

Greater worker autonomy will be essential in the new workplace. For example, rather than relying on inspections at the end of a production cycle, quality standards requiring worker decisions will be built into the production process (Doyle, 1996). The 21st century model of knowledge-based organizations will require that individuals create, capture and leverage knowledge for competitive advantage. Teamwork,

technology and continuous learning will be the norm. Agility in learning and adapting will be the most important workforce attribute (Plott, 1997).

Employment education and training curriculum needs to be continuously updated in response to this environment of change. Grubb, Dickinson, Giordano, and Kaplan (1992) conclude that many of the traditional mechanisms that connect employers and education providers – including advisory committees, placement offices, student follow-up, contract education, and student demand – work poorly. The authors suggest that reform is needed to strengthen these linking mechanisms, promote the idea of standards and actively involve employers in identifying work requirements and skill standards.

The need for better connections between business and education also reflects the thoughts of a 1999 forum sponsored by the American Council on Education and the National Alliance of Business. At the event, leaders acknowledged that the whole of human knowledge doubles every five years and that academia could no longer focus primarily on the acquisition of information. The summary report reflected an urgent need for students to acquire flexible skills and attributes such as leadership, teamwork, problem solving, time management, self management, adaptability, analytic thinking, global consciousness, and basic communication. The report lists 41 strategies to improve upon curricular areas and partnership-building between business and education (Irwin, 1999).

There are other kinds of mechanisms that can link education with business needs. These include grant programs such as the Minnesota Job Skills Partnership, which acts as a catalyst between business and education to develop cooperative training projects that provide training for new jobs or retrain existing employees. Grants are limited to $400,000 and require a one-to-one match. Projects last an average of 12 to 36 months (Minnesota Department of Trade and Economic Development, 2000).

Another means of linking business needs to education planning would be joint ventures such as Minnesota's Targeted Industry Partnerships initiative. Other ways can include analyzed job tasks and skill taxonomies such as cognitive, affective, psychomotor capabilities; apprenticeships, career and consumer information; leveraged equipment allocations; distance learning; and unbundled curriculum.

The development of skill standards has attracted wide interest. Skill standards are the elemental language that describes what workers must know and perform on the job. As a language, these skill specifications express the needs of employers, shape curriculum prepared by education and training providers, and inform students and workers about what needs to be learned. Further, skill standards offer a transportable framework that is benchmarked against the best in class and serve as a basis for

accountability (Plott, 1997). In 1994, the Congress created the National Skills Standard Board (NSSB, 2000). The NSSB is charged with building a voluntary national system of skill standards, assessment, and certification systems to enhance the ability of the U. S. workforce to compete effectively in a global economy. These skills are being identified by industry in full partnership with labor, civil rights and community-based organizations. The standards will be based on top performance work and will be portable across industry sectors. Nationally and in Minnesota, many complementary and collaborative efforts are underway to develop and deploy skill standards. Some of these are described in Minnesota's Resource Guide for Voluntary Skill Standards (Girtz, 1999).

A more recent effort based on defined skills links education training provider capabilities with employer needs through use of the Internet. This approach, developed by SkillsNET Corporation, allows employers to define, inventory, share and update skill needs and access education training providers (Brown, 2000). SkillsNET products and services incorporate a nationally developed knowledge-skill-ability taxonomy included with a system called O*NET, an occupational information system sponsored by the U.S. Department of Labor's Employment and Training Administration, that identifies and describes key components of modern occupations.

Looking Forward

The escalation of requirements toward more advanced employee knowledge and skills is likely to continue. Recent trends, described by Bassi, Cheney, and Lewis (1998), point toward continued change. Bassi et al. see a growing effort to:

- manage knowledge;
- integrate learning and communications functions;
- generate interest in leadership development and coaching;
- intensify requirements that career development become an integral part of employment; revolutionize work and learning through the Internet, intelligent tutoring systems, learning objects and voice recognition;
- consolidate suppliers; and
- develop an electronic marketplace where buyers and sellers can meet virtually.

The Minnesota Department of Economic Security's *Job Outlook to 2008* indicates that the gradual shift to more professional and technical occupations is expected to continue over the first decade of the 21st century. One-third of the projected job growth between 1998 and 2008 is expected to occur in professional, paraprofessional or technical occupations (Senf, 2000).

Describing a high performance workplace of the 21st century, Gordon sees the optimal business strategy as being flexible, customized and decentralized. Already in evidence today, this environment requires work teams, on-line quality control, authority delegated to workers, advancement by certified skills, a multi-skilled workforce, and education for everyone – including career education (Gordon, 2000). However, the implication is not an unending upward spiral of advanced degrees. Rather, according to Gordon, economists and labor experts think 70 percent of future jobs will not require a four-year college education.

As a society, our commitment to education and training is growing. In the 1950s, 60 percent of the workforce was unskilled. By 1997, less than 20 percent was unskilled. During the period from 1990 to 1994, more than 57 percent of businesses reported that they provided more formal education than previously, while only 2.0 percent reported providing less. Similarly, unions are increasing their commitment through joint union-management training initiatives. Enrollments of part-time students at community colleges increased nationwide by 21 percent from 1980 to 1995, and this indicates a direct response to needs of an older, employed student population (Stuart & Dahm, 1999). These indicators of workplace change foretell a challenging agenda for the education and training enterprise.

Summary

So, where does this leave us? This paper has emphasized three major points.

- Education and training increase productivity and provide a demonstrated return on investment.
  Though sometimes difficult to measure, many studies have been able to document a return to employers from their education and training programs. Businesses are increasing their commitment to training, and more firms now view training as a key investment rather than an expense.
- Wages increase with increased education.
  It is undisputed that there is a positive linkage between wages and increased knowledge, skills and abilities. For every year completed, the average 2- and 4-year college student earns roughly 5.0 percent more than a high school graduate. The earnings advantage continues for master's, doctoral and professional degrees.
- The 21st-century workplace requires improved approaches to aligning curriculum with employers' needs.
  Rapid changes in the work environment have contributed to an increased need for training and tighter links between employers' requirements and the education and training that providers offer. Skill standards, customized training and certification all hold promise.

The upgrading of worker skills is far from finished. More than 90 million Americans perform at low levels of literacy. The New Economy will pose increasing challenges for these individuals unless education and training can be used to improve their workplace skills.

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ENDNOTES

[i] These 1999 numbers are through November. Statistics will be slightly higher after seasonal adjustment.

[ii] Minnesota's Covered Employment and Wages (ES-202) Program, run by the Minnesota Department of Economic Security jointly with the Bureau of Labor Statistics, collects employment and wage data on 97 percent of Minnesota's nonfarm employment. Reported were universities and professional schools (N=45), junior colleges and technical institutes (N=9), data processing schools (N=68), business secretarial schools (N= 11), vocational schools (N=41) and other schools (N=over 465).

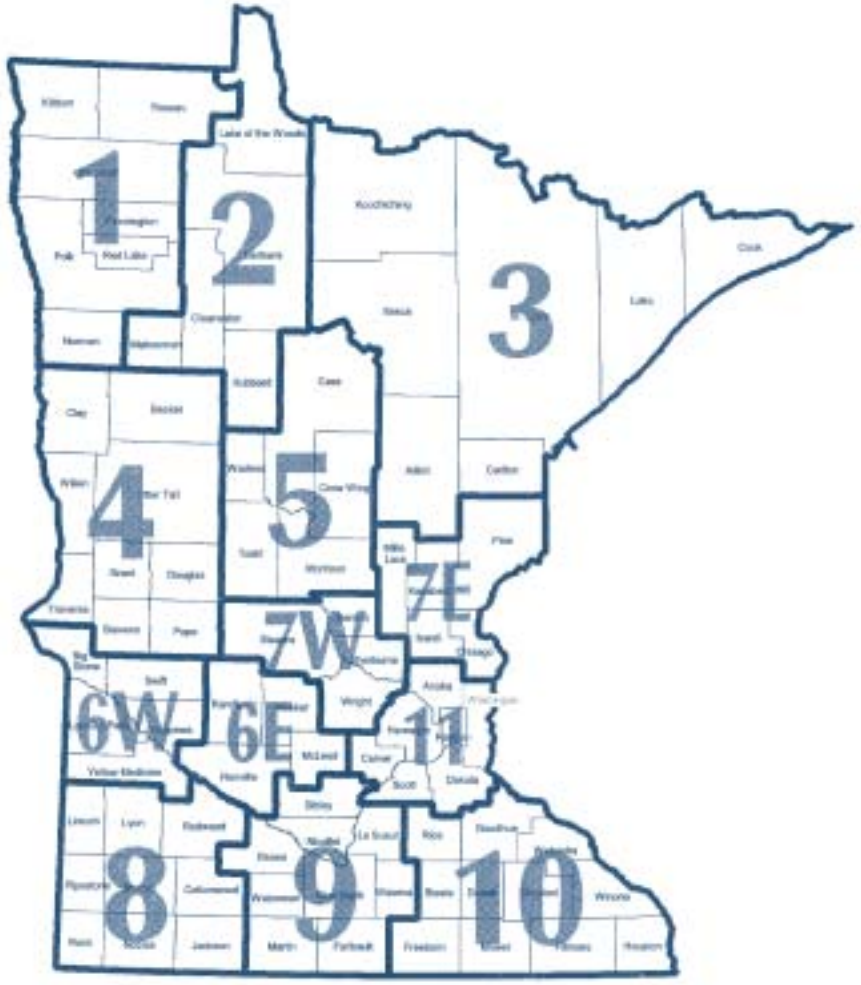
[iii] These data do not include short-term training provided by higher education institutions.

[iv] Outside training products and services include seminars and conferences ($4.4 billion or 7.0 percent), hardware ($4.1 billion or 7.0 percent), off-the-shelf materials ($2.3 billion or 4.0 percent), custom materials ($2.1 billion or 3.0 percent), outside services ($2.2 billion or 4.0 percent) and facilities and overhead ($4.5 billion or 7.0 percent).

[v] Out of 500 companies, 32 were designated "leading-edge" based on the amount of training and the types of human performance practices they promoted.

[vi] For this survey, informal training is unstructured and includes a co-worker or supervisor showing the worker how to use a job-related piece of equipment. In contrast, formal training is planned in advance with a structured format and defined curriculum. Formal training may include classes, seminars and audiovisual presentations.

Economic Development Regions of Minnesota



Historical Economic Statistics

This section updates the historical statistics on the Minnesota economy initiated in the *1989 Economic Report to the Governor.* It is modeled after the appendix to the *U.S. Economic Report of the President* and, like its counterpart, serves as a reference to economic information from a variety of sources. Each table includes notes that briefly describe the data and offer an information contact (with a web address if appropriate).

Most of the data in this section are produced on an annual basis, primarily by various state and federal agencies. This section attempts to compile this information in one place and make it available in a consistent format. The reader should find the tables easy to use; they are set up to contain yearly time series by topic with each table covering no more than two pages. The tables start with 1970 (even though information may be available further back in time), or the earliest date of compilation, and end with the latest year of data available at the printing deadline.

Emphasis is on information for the entire state though, in a few of the major categories, substate regional data are presented. Readers not familiar with economic development regions can refer to a map on page 73. In many cases, more geographic detail is available. Interested readers should check the underlying note before contacting the listed agency.

Please note that all money values are given in current dollars. We have deliberately decided not to deflate these to constant dollar amounts for two reasons: first, our intention is to provide the data as "raw" as possible without alteration; second, we do not want to use a particular deflator when the reader may have reason to use another. Those wishing to convert the figures to constant dollars should contact a source that compiles national price indexes. Some suggestions are: *Economic Report of the President*, *Survey of Current Business*, *Monthly Labor Review*, or *Statistical Abstract of the United States*. These sources are also excellent for making comparisons between the United States and other countries. In any event, we urge that the local system of price indexing not be used.

This section was designed and produced by members from Economic Resource Group agencies. Gene Knaff (Metropolitan Council) coordinated the project. Other team members who contributed were Oriane Casale (Economic Security), Debbie Conley (Metropolitan Council), Thu-Mai Ho-Kim (Trade and Economic Development), Pat Meagher (Finance), Rod Hoheisel (Revenue), and Barbara Ronningen (Planning/ Demography).

Tables are available on the Internet (www.minnstats.org) under Publications (Economic Report to the Governor). They will be updated annually, even in years when the entire Economic Report is not published.

Order of Tables

TABLE 1 POPULATION BY ECONOMIC DEVELOPMENT REGION

Year	Minnesota	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6E
1970	3,806,103	94,579	54,594	329,603	185,417	113,624	97,736
1980	4,075,970	97,225	63,140	343,344	202,585	131,266	107,415
1981	4,099,048	97,133	65,758	345,411	206,561	132,419	109,189
1982	4,133,334	96,436	66,803	343,134	207,922	132,423	110,566
1983	4,145,667	95,895	66,825	335,391	208,548	133,702	110,096
1984	4,161,464	96,217	67,560	331,891	210,360	133,830	110,626
1985	4,192,973	95,614	67,901	324,845	209,647	133,896	110,778
1986	4,214,013	94,909	67,723	320,875	208,563	134,240	110,617
1987	4,245,870	94,193	67,930	317,121	208,344	133,911	110,837
1988	4,306,550	94,513	68,230	315,750	209,518	134,901	111,606
1989	INA	INA	INA	INA	INA	INA	INA
1990	4,375,665	90,181	66,752	311,342	197,295	132,161	109,310
1991	4,416,292	89,968	67,150	310,324	197,595	133,189	109,603
1992	4,469,450	90,162	68,175	312,805	198,753	134,725	110,790
1993	4,515,118	90,114	68,585	312,599	199,700	135,861	111,459
1994	4,570,355	90,545	69,584	314,366	202,137	137,627	112,440
1995	4,626,514	90,991	70,675	315,800	204,470	140,030	113,917
1996	4,682,748	91,283	71,565	317,199	206,195	142,036	114,775
1997	4,735,830	91,252	72,516	318,714	207,377	143,761	115,377
1998	4,782,264	89,628	72,970	319,805	208,005	145,548	116,055
1999	4,919,479	88,472	76,161	322,073	210,059	152,100	115,899

Year	Region 6W	Region 7E	Region 7W	Region 8	Region 9	Region 10	Region **1
1970	61,914	76,351	173,518	141,532	218,077	384,546	1,874,612
1976	62,100	90,600	202,200	140,700	218,600	398,900	1,924,100
1977	61,600	91,900	207,400	140,500	219,700	401,300	1,931,500
1978	61,700	94,800	213,700	140,700	220,000	403,100	1,954,300
1979	61,100	97,500	218,400	140,400	220,600	406,200	1,975,100
1980	59,822	99,779	221,937	137,039	221,980	404,565	1,985,873
1981	59,691	101,979	227,165	137,342	221,062	405,728	1,989,610
1982	59,242	103,021	231,489	136,322	222,888	407,258	2,015,830
1983	59,230	104,020	235,706	135,812	223,337	409,389	2,027,716
1984	59,232	105,196	237,388	135,807	222,767	411,334	2,039,256
1985	58,519	106,640	239,920	134,546	222,836	412,790	2,075,041
1986	57,578	107,168	243,477	132,556	220,914	412,952	2,102,441
1987	56,540	108,115	247,409	131,187	220,205	414,846	2,135,232
1988	56,106	110,244	253,037	131,266	221,036	418,162	2,182,181
1989	INA	INA	INA	INA	INA	INA	INA
1990	50,845	109,178	260,164	123,359	216,321	420,094	2,288,663
1991	50,527	110,949	265,311	122,831	216,707	423,606	2,318,532
1992	50,316	112,991	269,909	123,057	217,409	428,237	2,352,121
1993	50,148	115,094	274,810	123,154	217,613	432,256	2,383,725
1994	50,358	117,751	282,235	123,777	218,821	435,507	2,415,207
1995	50,534	120,805	288,834	124,097	220,389	437,005	2,448,967
1996	50,571	123,729	295,985	124,554	221,985	440,013	2,482,858
1997	50,539	126,800	303,806	124,698	222,882	442,989	2,515,119
1998	50,376	129,458	311,283	124,182	223,478	447,123	2,544,353
1999	50,011	136,244	321,795	121,717	222,790	460,102	2,642,056

INA = Information not available

Data description: The population estimates for the state and its regions are as of April 1 of the estimate year. For 1980 and 1990, the numbers are the U.S. Census data. This information is available on diskette from the Office of the State Demographer. The Office of the State Demographer is required by law to annually estimate population and number of households in each of the state's 87 counties and in every city and township outside the seven county Twin Cities metropolitan area for the determination of local government aid and levy limits. This data will only be available for selected years after 1988. Population and household estimates for cities and townships within the Twin Cities metropolitan area are independently produced by the Metropolitan Council. **Additional information:** A discussion of these estimates and the trends they represent is published in the Population Notes series available from the Office of the State Demographer.

State agency contacts:
Minnesota Planning Data Center
Office of the State Demographer (651) 296-2557 Metropolitan Council (651) 602-1140
http://www.mnplan.state.mn.us/demography http:// www.metrocouncil.org

TABLE 2 HOUSEHOLDS BY ECONOMIC DEVELOPMENT REGION

Year	Minnesota	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6E
1980	1,445,222	34,119	21,201	123,859	70,598	45,457	37,738
1981	INA	INA	INA	INA	INA	INA	INA
1982	INA	INA	INA	INA	INA	INA	INA
1983	1,508,382	34,882	22,460	122,231	75,638	48,076	39,944
1984	1,518,629	34,993	23,318	120,822	76,433	48,347	40,291
1985	1,537,921	34,881	23,575	118,907	76,326	48,514	40,466
1986	1,554,135	34,843	23,740	117,970	76,245	48,755	40,552
1987	1,575,968	34,923	23,974	116,853	76,593	49,005	40,942
1988	1,618,501	35,264	24,179	117,089	77,395	49,661	41,415
1989	INA	INA	INA	INA	INA	INA	INA
1990	1,647,974	33,930	24,096	122,229	73,460	49,472	40,554
1991	1,668,494	33,974	24,413	122,632	73,876	50,081	40,827
1992	1,688,050	34,041	24,806	123,321	74,434	50,700	41,359
1993	1,710,266	34,105	25,066	123,959	75,109	51,261	41,693
1994	1,735,535	34,377	25,472	124,743	76,172	52,069	42,187
1995	1,761,702	34,669	25,997	125,702	77,369	53,161	42,861
1996	1,786,249	34,923	26,434	126,563	78,311	54,136	43,290
1997	1,809,628	35,092	26,862	127,604	79,171	55,001	43,705
1998	1,832,191	34,674	27,195	128,157	79,737	55,890	44,176
1999	1,859,127	34,790	28,974	132,152	81,728	59,727	44,754

Year	Region 6W	Region 7E	Region 7W	Region 8	Region 9	Region 10	Region 11
1980	22,026	33,382	67,785	49,928	77,756	140,884	721,444
1981	INA	INA	INA	INA	INA	INA	INA
1982	INA	INA	INA	INA	INA	INA	INA
1983	22,871	35,617	74,638	50,450	80,483	146,168	754,924
1984	23,106	36,121	75,369	50,885	80,754	147,895	760,295
1985	22,892	36,790	76,587	50,528	80,546	148,928	778,981
1986	22,649	37,155	78,246	50,085	80,227	149,567	794,101
1987	22,466	37,715	80,332	49,928	80,428	151,176	811,633
1988	22,396	38,633	82,811	50,158	81,036	152,988	845,476
1989	INA	INA	INA	INA	INA	INA	INA
1990	20,088	38,602	87,476	47,224	79,947	155,422	875,474
1991	19,997	39,445	89,807	47,182	80,459	157,594	888,207
1992	19,942	40,180	91,578	47,401	80,914	159,690	899,684
1993	19,893	41,016	93,501	47,618	81,337	161,600	914,108
1994	19,957	42,045	96,086	47,932	81,938	163,178	929,379
1995	19,993	43,278	98,590	48,212	82,657	164,186	945,027
1996	20,050	44,466	101,300	48,562	83,372	165,821	959,021
1997	20,147	45,733	104,391	48,745	83,935	167,604	971,638
1998	20,068	46,790	107,175	48,717	84,405	169,861	985,346
1999	19,846	50,026	113,715	48,088	85,109	174,764	1,021,454

INA = Information not available.

Data description: Estimates of the number of households for the state and its regions are as of April 1 of the estimate year. For 1980 and 1990, the numbers are the U.S. Census data. This information is available on diskette from the Office of the State Demographer. The Office of the State Demographer is required by law to annually estimate population and number of households in each of the state's 87 counties and in every city and township outside the seven county Twin Cities metropolitan area for the determination of local government aid and levy limits. This data will only be available for selected years after 1988. Although estimates of population and the number of households for cities and townships within the Twin Cities metropolitan area are included in this publication, these estimates are independently produced by the Metropolitan Council **Additional information:** A discussion of these estimates and the trends they represent is published in the Population Notes series available from the Office of the State Demographer.

State agency contacts:
Minnesota Planning Data Center
Office of the State Demographer (651) 296-2557 Metropolitan Council (651) 602-1140
http://www.mnplan.state.mn.us/demography http:// www.metrocouncil.org

TABLE 3 RESIDENT POPULATION BY AGE GROUP (THOUSANDS)

Year	Total	Under 5	5-14	15-17	18-24	25-34	35-44	45-64	65+
1980	4,076	307	630	235	558	677	449	740	480
1981	4,112	318	613	219	560	711	462	739	492
1982	4,133	325	607	208	562	718	488	736	500
1983	4,145	328	601	197	540	730	508	733	508
1984	4,162	326	597	194	524	743	529	735	515
1985	4,190	326	593	194	507	759	551	739	520
1986	4,213	324	590	195	487	772	576	743	527
1987	4,244	322	598	190	470	780	601	749	534
1988	4,307	325	614	181	461	793	625	769	540
1989	INA	INA	INA	INA	INA	INA	INA	INA	INA

Change in age group description

Year	Total	Under 5	5-14	15-19	20-24	25-34	35-44	45-64	65+
1990	4,387	342	662	298	316	777	671	773	548
1991	4,428	337	677	293	314	769	702	783	554
1992	4,472	336	691	297	309	753	716	810	560
1993	4,524	332	702	306	305	739	739	836	566
1994	4,567	326	708	318	299	723	759	862	570
1995	4,607	319	710	332	294	708	779	890	574
1996	4,649	316	710	345	289	694	796	921	577
1997	4,686	316	712	358	292	671	805	954	578
1998	4,726	319	716	370	298	647	809	984	584
1999	4,919	330	731	374	322	673	824	1071	594

INA = Information not available.

Data description: The annual estimate of population by age comes from the U.S. Bureau of the Census' Current Population Reports Series P-25.

State agency contact:
Minnesota Planning
Office of the State Demographer (651) 296-2557
http://www.mnplan.state.mn.us/demography

TABLE 4 TOTAL EARNED INCOME BY INDUSTRY (THOUSANDS)

Year	Earnings by place of work	Farm	Total Nonfarm	Total private	Ag services, forestry fisheries	Mining	Con-struction	Manu-facturing
1970	12,426,662	918,596	14,544,478	9,645,577	53,651	154,322	878,260	2,964,687
1975	18,918,887	1,301,720	23,102,338	14,514,668	79,543	290,249	1,200,976	4,176,218
1980	31,829,792	921,146	41,236,315	26,157,722	124,165	555,947	2,092,694	7,679,166
1981	34,293,471	978,116	45,567,954	28,116,511	130,571	621,212	1,932,972	8,309,804
1982	35,549,932	796,362	48,749,874	29,159,979	137,279	448,196	1,853,394	8,730,091
1983	37,184,931	67,942	52,089,901	31,198,048	153,560	335,521	2,019,325	9,250,473
1984	43,055,393	1,362,958	57,903,845	35,230,171	177,290	393,516	2,478,181	10,445,159
1985	46,019,736	1,228,478	61,923,881	37,806,821	185,914	389,152	2,723,308	11,094,316
1986	48,814,576	1,519,940	65,264,290	39,866,524	187,311	257,667	3,069,829	11,513,609
1987	52,882,381	1,982,236	69,587,995	42,974,860	257,429	264,299	3,340,531	12,246,813
1988	56,092,624	1,141,135	74,437,028	46,476,927	257,701	336,651	3,346,851	13,346,036
1989	60,565,853	1,970,797	80,306,241	49,633,238	265,624	349,753	3,543,547	13,866,477
1990	64,362,740	1,867,015	85,928,470	52,709,524	300,761	383,377	3,681,385	14,354,686
1991	66,220,230	1,070,918	89,642,872	54,852,234	313,186	380,235	3,548,614	14,825,645
1992	71,956,315	1,158,353	95,866,528	59,989,777	339,007	380,688	3,898,966	15,959,948
1993	73,757,231	71,554	99,715,551	62,505,620	383,834	372,639	4,051,350	16,435,909
1994	79,052,112	1,163,171	105,988,381	66,177,793	357,594	402,201	4,364,650	17,330,538
1995	82,439,492	610,292	112,606,563	69,704,049	367,263	421,349	4,486,960	17,888,644
1996	89,159,292	1,851,920	120,227,660	74,647,305	377,423	434,767	4,927,331	18,675,862
1997	93,597,677	863,832	128,156,925	79,691,019	410,397	434,615	5,230,674	18,675,862
1998	101,632,143	1,279,651	138,025,714	86,774,192	(D)	(D)	5,911.535	20,377.880
1999	108.000,367	1,081,332	145,728,870	92,837,496	511,284	422,016	6,701,592	21.171.412

Year	Transpor-tation and public utilities	Retail trade	Finance insurance and real estate	Services	Total govern-ment	Federal civilian	Military	State and local
1970	913,662	1,442,430	607,980	1,754,755	1,862,489	321,037	67,462	1,473,990
1975	1,477,043	1,994,064	905,801	2,777,278	3,102,499	517,564	84,756	2500179
1980	2,547,795	3,312,641	1,757,099	5,481,106	4,750,924	810,533	116,786	3,823,605
1981	2,750,731	3,549,924	1,941,295	6,121,803	5,198,844	898,068	128,310	4172466
1982	2,813,545	3,682,020	1,995,672	6,673,039	5,593,591	925,596	130,017	4,537,978
1983	2,953,711	4,000,023	2,307,891	7,350,280	5,918,941	988,619	152,111	4,778,211
1984	3,295,264	4,416,407	2,505,605	8,332,995	6,462,264	1,010,257	192,925	5,259,082
1985	3,443,510	4,781,289	2,702,823	9,170,380	6,984,437	1,082,407	226,588	5,675,442
1986	3,538,511	4,882,041	3,022,259	9,938,011	7,428,112	1,109,596	232,813	6,085,703
1987	3,724,085	5,062,931	3,487,782	10,876,101	7,925,285	1,189,666	245,712	6,489,907
1988	3,811,517	5,436,186	3,766,170	12,063,667	8,474,562	1,291,914	252,855	6,929,793
1989	4,130,671	5,663,318	3,954,853	13,490,706	8,961,818	1,359,881	255,821	7,346,116
1990	4,330,780	5,870,399	4,344,844	14,841,327	9,786,201	1,487,360	276,646	8,022,195
1991	4,554,083	6,001,123	4,689,822	15,708,560	10,297,078	1,596,772	273,112	8,427,194
1992	4,765,189	6,365,109	5,428,700	17,608,448	10,808,185	1,708,477	286,735	8,812,973
1993	4,838,261	6,734,196	6,019,085	18,254,330	11,180,057	1,733,708	272,234	9,174,115
1994	5,058,248	7,156,134	6,235,771	19,372,019	11,711,148	1,808,813	279,928	9,622,407
1995	5,301,234	7,519,315	6,623,681	20,754,247	12,125,151	1,817,893	273,475	10,033,783
1996	5,564,924	7,814,600	7,287,719	22,575,492	12,660,067	1,909,634	289,567	10,460,866
1997	6,037,370	8,382,518	7,894,757	24,620,216	13,042,826	1,943,777	289,250	10,809,799
1998	6,500,774	9,232,122	9,010,380	26,873,999	13,578,300	1,978,043	292,132	11,308,125
1999	6,875,343	10,050,572	9,538,083	26,961,422	14,081,539	2,026,868	303,491	11,751,180

(D) Not shown in order to avoid the disclosure of confidential information; estimates are included in higher level totals

Data description: The data used in this table comes from the Bureau of Economic Analysis, a branch of the U.S. Department of Commerce. The BEA prepares estimates of personal income for states and counties using a wide variety of administrative records, mostly from government files. Social Security records, federal income tax records and U.S. Department of Labor unemployment records are among the most important sources, but estimates are based on nearly 400 different items. Summaries of this data are published in the monthly Survey of Current Business. **Additional information:** Income figures are revised as more complete data becomes available. A more recent figure published for a given year may vary slightly from a figure published a few years earlier.

State agency contact: Minnesota Planning, Office of the State Demographer (651) 296-2557
http://www.mnplan.state.mn.us/demography

TABLE 5 MINNESOTA INCOME BY SOURCE AND PER CAPITA PERSONAL INCOME

Year	Total personal income (thousands)	Earnings by place of residence (thousands)	Dividends, interest & rent (thousands)	Transfer payments (thousands)	Per capita personal income
1970	15,463,074	11,978,774	2,118,043	1,366,257	4,053
1975	24,404,058	18,080,372	3,444,885	2,878,801	6,216
1980	42,157,461	30,242,072	7,062,479	4,852,910	10,320
1981	46,546,070	32,410,846	8,580,734	5,554,490	11,320
1982	49,546,236	33,519,659	9,779,503	6,247,074	11,992
1983	52,157,843	34,992,352	10,434,641	6,730,850	12,594
1984	59,266,803	40,549,816	11,717,547	6,999,440	14,255
1985	63,152,359	43,176,293	12,443,720	7,532,346	15,093
1986	66,784,230	45,713,284	13,168,790	7,902,156	15,881
1987	71,570,231	49,501,235	13,836,661	8,232,335	16,899
1988	75,578,163	52,238,586	14,637,939	8,701,638	17,592
1989	82,277,038	56,421,800	16,534,639	9,320,599	18,966
1990	87,795,485	59,932,768	17,763,835	10,098,882	20,011
1991	90,713,790	61,523,995	18,219,042	10,970,753	20,489
1992	97,024,881	66,927,254	18,098,640	11,998,987	21,698
1993	99,787,105	68,488,488	18,558,682	12,739,935	22,068
1994	107,151,552	73,369,405	20,417,377	13,364,770	23,467
1995	113,216,855	76,423,294	22,676,050	14,117,511	24,583
1996	122,079,580	82,742,184	24,689,398	14,647,998	26,267
1997	129,079,905	86,979,901	27,102,422	14,997,582	27,536
1998	138,306,857	94,118,716	28,760,452	15,427,689	29,263

Data description: The data used in this table comes from the Bureau of Economic Analysis (BEA), a branch of the U.S. Department of Commerce. The BEA prepares estimates of personal income for states and counties using a wide variety of administrative records, mostly from government files. Social Security records, federal income tax records and U.S. Department of Labor unemployment records are among the most important sources, but estimates are based on nearly 400 different items. Summaries of this data are published in the monthly Survey of Current Business. **Additional information:** Income figures are revised as more complete data becomes available. A more recent figure published for a given year may vary slightly from a figure published a few years earlier.

State agency contact:
Minnesota Planning
Office of the State Demographer (651) 296-2557
http://www.mnplan.state.mn.us/demography

TABLE 6 LABOR FORCE, EMPLOYED, UNEMPLOYED AND THE UNEMPLOYMENT RATE

Year	Labor force	Employed	Unemployed	Unemployment rate
1970	1,625,000	1,557,000	68,000	4.2%
1971	1,665,000	1,592,000	73,000	4.4
1972	1,703,000	1,630,000	73,000	4.3
1973	1,766,000	1,686,000	80,000	4.5
1974	1,768,000	1,691,000	77,000	4.4
1975	1,790,000	1,684,000	106,000	5.9
1976	1,849,000	1,740,000	109,000	5.9
1977	1,909,000	1,811,000	98,000	5.1
1978	1,979,000	1,903,000	76,000	3.8
1979	2,039,000	1,954,000	85,000	4.2
1980	2,110,000	1,985,000	125,000	5.9
1981	2,154,000	2,035,000	119,000	5.5
1982	2,168,000	1,998,000	170,000	7.8
1983	2,176,000	1,998,000	178,000	8.2
1984	2,227,000	2,086,000	141,000	6.3
1985	2,224,000	2,091,000	133,000	6.0
1986	2,230,000	2,111,000	119,000	5.3
1987	2,261,000	2,139,000	122,000	5.4
1988	2,327,000	2,233,000	94,000	4.0
1989	2,343,000	2,241,000	102,000	4.4
1990	2,386,000	2,269,000	117,000	4.9
1991	2,414,000	2,290,000	124,000	5.1
1992	2,415,000	2,289,000	126,000	5.2
1993	2,476,000	2,349,000	127,000	5.1
1994	2,577,000	2,474,000	103,000	4.0
1995	2,595,000	2,499,000	96,000	3.7
1996	2,603,000	2,500,000	104,000	4.0
1997	2,623,000	2,538,000	85,000	3.3
1998	2,680,000	2,612,000	68,000	2.5
1999	2,699,000	2,623,000	75,000	2.8
2000	2,739,000	2,649,000	90,000	3.3

Data description: This series is from the Local Area Unemployment Statistics program, using Minnesota data from the Current Population Survey administered monthly to 1,310 households (pre-2001: 800 households) in Minnesota. Employment measures employed individuals by place of residence, not jobs by place of work (presented in Table 11), and includes all self-employed and agricultural workers in addition to nonagricultural wage and salary employment. Unemployed refers to individuals looking for work but who are not currently employed. Labor force is the sum of employed and unemployed individuals.
Additional information: All four items in the series are available monthly at more detailed geographic levels: for counties, metro-politan statistical areas and cities with a population of more than 25,000. The method used to derive both the monthly local and statewide estimates is a computational one (not directly drawn from the survey) and hence reliability is lost in the process. Annual averages are available in March of each year.

State agency contact:
Research and Statistics Office
Minnesota Department of Economic Security (651) 296-6545
http://www.mnwfc.org/lmi/

TABLE 7 UNEMPLOYMENT RATE AND LABOR FORCE PARTICIPATION RATE BY DEMOGRAPHIC CHARACTERISTIC

	Unemployment rate				Labor force participation rate			
Year	Total	Male	Female	Teens	Total	Male	Female	Teens
1974	4.3%	4.1%	4.7%	INA	65.3%	81.8%	49.4%	INA
1975	5.9	5.5	6.6	13.2%	64.9	80.6	49.8	64.1%
1976	5.9	4.9	7.4	10.4	65.8	81.4	50.7	67.1
1977	5.1	4.6	5.8	11.1	66.7	80.4	53.2	68.2
1978	3.8	3.1	4.8	9.8	68.1	80.9	55.6	69.7
1979	4.2	4.1	4.2	13.1	69.0	81.2	57.2	70.6
1980	5.7	6.1	5.1	11.7	69.6	80.6	59.1	71.9
1981	5.5	5.8	5.2	13.7	70.7	81.2	60.8	71.0
1982	7.8	8.3	7.3	14.3	70.6	80.8	60.9	68.6
1983	8.2	9.2	6.9	17.1	70.5	79.9	61.6	65.6
1984	6.3	7.3	5.1	11.8	71.7	80.9	62.7	69.3
1985	6.0	6.4	5.5	12.5	71.2	79.8	62.9	70.2
1986	5.3	5.3	5.3	12.8	70.5	80.2	61.4	70.2
1987	5.4	5.9	4.8	12.0	70.7	79.9	62.1	74.2
1988	4.0	3.7	4.4	10.2	71.8	81.1	63.0	72.7
1989	4.3	4.6	4.0	11.1	71.7	81.0	62.7	67.9
1990	4.8	5.4	4.2	9.0	73.0	81.9	64.8	67.2
1991	5.1	6.1	4.0	10.4	73.2	80.5	66.6	69.3
1992	5.1	5.9	4.3	12.1	72.6	80.2	65.7	67.2
1993	5.1	6.1	3.9	10.9	73.6	81.0	66.7	71.9
1994	4.0	4.6	3.4	10.8	75.6	81.6	69.8	73.4
1995	3.7	4.3	3.0	10.5	75.3	81.3	69.6	75.3
1996	4.0	4.8	3.1	11.8	74.7	80.9	68.7	75.1
1997	3.3	3.7	2.7	10.4	74.5	81.1	67.9	70.4
1998	2.5	2.8	2.2	9.5	75.4	80.8	70.1	67.0
1999	2.8	2.9	2.7	9.1	75.1	80.4	69.9	67.9

INA = Information not available.

Data description: Both the unemployment rate and the labor force participation rate for Minnesota are derived from the National Current Population Survey, administered monthly to 1,310 households in Minnesota. The unemployment rate refers to individuals not currently employed but looking for work as a share of the total labor force. This measure includes those who may not be receiving unemployment benefits, but does not capture discouraged workers—people who are neither working nor actively seeking employment. The labor force participation rate is based on the population 16 years of age and older. The unemployment rate in this table may not match the rate published in Table 6 because these estimates are not revised annually as are the Local Area Unemployment Statistics (LAUS) estimates and because the methods used to derive the rates are different. **Additional information:** These data are available annually for the state of Minnesota and the Minneapolis-St. Paul metropolitan statistical area. New figures are released each May and are published, along with other states and metropolitan areas, in Geographic Profile of Employment and Unemployment, available from the U.S. Department of Labor, Bureau of Labor Statistics (BLS).Although these estimates meet BLS standards for publication, the estimates are subject to sampling error.

State agency contact:
Research and Statistics Office
Minnesota Department of Economic Security (651) 296-6545
http://www.mnwfc.org/lmi/

TABLE 8 FULL- & PART-TIME STATUS OF THE LABOR FORCE (THOUSANDS)

Year	Full-time labor force				Part-time labor force	
	Total labor force	Employed on full-time schedules	Employed part-time for economic reasons	Unemployed looking for full-time work	Employed voluntarily part-time	Unemployed looking for part-time work
1975	1,799	1,302	58	84	332	23
1976	1,865	1,345	59	83	351	27
1977	1,917	1,380	57	69	383	28
1978	1,993	1,487	52	51	378	25
1979	2,064	1,535	57	61	386	25
1980	2,116	1,510	79	91	407	29
1981	2,142	1,519	93	88	412	30
1982	2,166	1,485	125	138	386	32
1983	2,173	1,501	132	140	363	37
1984	2,229	1,574	121	110	393	31
1985	2,234	1,567	114	98	419	36
1986	2,213	1,589	128	86	378	32
1987	2,259	1,638	111	92	388	30
1988	2,327	1,691	108	66	434	28
1989	2,344	1,710	114	74	418	28
1990	2,404	1,766	109	92	413	24
1991	2,430	1,780	117	97	410	26
1992	2,429	1,795	113	101	397	23
1993	2,467	1,818	115	98	409	27
1994	2,565	1,864	103	78	495	25
1995	2,589	1,938	90	72	465	24
1996	2,608	1,929	72	76	503	28
1997	2,625	1,965	77	62	497	24
1998	2,682	2,012	62	INA	540	INA

INA = Information not available.

Data description: Information on the number of full- and part-timers in the Minnesota labor force comes from the national Current Population Survey, administered monthly to 800 households in Minnesota. Full-time workers are those who usually work 35 hours or more, and part-time workers are those who usually work less than 35 hours per week. Note that both persons who usually work full- or part-time and who worked fewer than 35 hours per week for economic reasons (slack work, production cutbacks, inability to find full-time work, etc.) are included in the full-time labor force under the column "Employed part-time for economic reasons." Total labor force figures in this table may not match those of Table 6, as these estimates are not revised. **Additional information:** These data are available annually for the state of Minnesota and the Minneapolis-St. Paul metropolitan statistical area. New figures are released each May and are published, along with other states and metropolitan areas, in Geographic Profile of Employment and Unemployment, available from the U.S. Department of Labor, Bureau of Labor Statistics (BLS). Although these estimates meet BLS standards for publication, the estimates are subject to sampling error.

State agency contact:
Research and Statistics Office
Minnesota Department of Economic Security (651) 296-6545
http://www.mnwfc.org/lmi/

TABLE 9 UNEMPLOYED PEOPLE BY DURATION AND REASON (ANNUAL AVERAGE, IN THOUSANDS)

Year	Duration					Reason			
	Total	Less than 5 weeks	5-14 weeks	15-26 weeks	27 weeks & over	Job losers	Job leavers	Re-entrants	New entrants
1976	110	INA	INA	14	15	46	19	31	14
1977	98	42	32	12	11	39	15	30	12
1978	76	41	20	8	7	26	12	27	12
1979	86	46	28	8	4	36	11	27	12
1980	120	54	40	17	9	64	11	35	10
1981	118	56	35	13	14	56	15	35	13
1982	169	59	57	26	28	90	17	42	21
1983	178	61	45	30	41	106	12	42	18
1984	141	50	43	19	29	76	16	34	15
1985	133	59	38	14	22	61	14	43	16
1986	118	54	34	15	15	61	11	33	13
1987	122	50	41	16	15	66	14	32	10
1988	94	42	30	16	6	40	12	30	11
1989	102	51	31	10	10	41	17	35	10
1990	116	50	36	19	11	61	20	28	8
1991	124	53	44	14	12	73	16	26	9
1992	125	50	36	20	19	63	19	31	12
1993	125	47	39	20	20	67	18	32	9
1994	103	46	32	16	9	55	14	30	4
1995	96	40	32	11	13	52	13	25	5
1996	104	46	32	16	10	48	17	34	5
1997	86	41	31	15	13	49	10	35	6
1998	The data for 1998 from many states, Minnesota included, did not meet federal standards for reliability and are not available.								

Data description: Unemployment by duration and reason for unemployment is available from the national Current Population Survey, administered monthly to 800 households in Minnesota. "Unemployed people" refers to those individuals looking for work who are not currently employed. This measure counts those who may not be receiving reemployment benefits, but does not capture discouraged workers – people who are neither working nor actively seeking employment. There may be slight discrepancies between the numbers in this table and Table 6 due to rounding differences and nonrevision of the survey data. **Additional information:** All four items in the series are available monthly at more detailed geographic levels: for counties, metropolitan statistical areas and cities with a population of more than 25,000. The method used to derive both the monthly local and statewide estimates is a computational one (not directly drawn from the survey) and hence reliability is lost in the process. Annual averages are available in March of each year.

State agency contact:
Research and Statistics Office
Minnesota Department of Economic Security (651) 296-6545
http://www.mnwfc.org/lmi/

TABLE 10 REEMPLOYMENT INSURANCE PROGRAMS, SELECTED DATA

Year	Covered employ-ment*	Average weekly wage*	Year-end fund balance (millions)	Net benefits paid** (millions)	Average weekly benefit amount	Average number weeks paid	Average weekly insured unem-ployment	Average weekly initial claims	Insured unem-ployment rate**
1970	984,206	$138.03	$117.7	$53.1	$48.93	12.0	26,069	3,401	2.6%
1975	1,379,411	182.92	-34.7	$180.6	68.66	14.9	60,117	5,419	4.4
1976	1,425,154	196.94	-103.6	$174.5	79.99	14.8	49,720	4,603	3.6
1977	1,499,926	208.17	-88.5	$164.6	86.05	15.1	42,165	4,241	2.9
1978	1,597,798	225.36	-10.8	$137.0	95.17	13.7	31,178	3,493	2.0
1979	1,677,163	243.19	67.5	$150.7	103.63	13.1	32,249	3,918	2.0
1980	1,678,650	265.48	-20.2	$282.2	116.09	15.3	50,599	6,080	3.0
1981	1,669,776	289.29	-90.8	$279.2	123.84	14.8	47,706	5,675	2.9
1982	1,618,355	312.81	-299.9	$432.1	134.44	16.5	67,668	7,286	4.1
1983	1,630,218	328.36	-351.9	$333.9	137.28	17.0	51,320	5,618	3.2
1984	1,733,448	344.48	-210.4	$252.7	141.99	14.0	38,476	4,917	2.3
1985	1,778,107	359.53	-95.2	$322.8	150.91	14.4	45,609	5,509	2.6
1986	1,803,194	375.33	45.7	$346.4	163.50	15.6	44,597	5,042	2.5
1987	1,869,627	390.61	145.3	$309.9	170.69	14.9	38,320	4,582	2.1
1988	1,929,824	411.02	263.7	$301.4	175.73	15.1	35,736	4,290	1.9
1989	1,987,506	424.07	338.4	$321.2	179.83	14.5	37,475	4,614	1.9
1990	2,026,127	442.52	393.3	$362.2	184.18	14.8	40,975	4,663	2.0
1991	2,034,941	458.25	303.6	$436.0	188.33	15.6	47,968	5,296	2.4
1992	2,082,140	483.61	235.4	$409.2	192.13	16.0	44,231	4,563	2.1
1993	2,137,995	494.39	262.8	$377.7	203.27	15.5	39,061	4,047	1.8
1994	2,207,114	508.24	362.0	$373.6	210.96	15.4	37,086	3,901	1.7
1995	2,280,104	526.16	454.6	$364.4	219.94	14.3	35,553	4,082	1.5
1996	2,366,865	555.22	509.4	$374.9	223.20	14.3	36,056	4,194	1.6
1997	2,426,689	581.26	563.0	$367.2	229.96	14.6	33,997	4,024	1.4
1998	2,494,293	617.21	688.0	$351.1	242.54	13.6	31,194	3,853	1.3
1999	2,551,947	643.97	688.0	$369.3	262.64	14.0	29,944	3,729	1.2

* Excluding federal government
** Entire series has been updated using new methodology.

Data description: The information on Minnesota's reemployment insurance programs, administered by the Department of Economic Security, is from two series of administrative reemployment insurance reports. Data on covered employment and average weekly wage are from the Covered Employment and Wages (ES-202) file, a virtual census of employers subject to Minnesota's reemployment insurance law. The other seven data series are gathered from the reemployment insurance programs. Excluded from coverage are the self-employed, railroad workers, some workers in religious organizations and some commissioned salespersons. The data in this table, both covered employment and reemployment insurance program data, also exclude federal government covered employment. The average weekly wage is total wages paid divided by employment divided by 52. All workers are included regardless of hours worked per week or number of weeks worked. The insured unemployment rate refers to the ratio of persons claiming weeks of unemployment to total covered employment. **Additional information:** The frequency of data availability varies from series to series. The first two series are available at substate and industry detail with a six-month lag. These are published annually in Minnesota Annual Covered Employment and Wages and quarterly on the MDES web site. Annual data are expected by August of each year. The other data are compiled from monthly reports with annual data available each February. Reliability of all these series is high as information is collected from all employers and benefit recipients rather than from a sample.

State agency contact:
Research and Statistics Office (651) 296-6545
Minnesota Department of Economic Security
http://www.mnwfc.org/lmi/

TABLE 11 COVERED EMPLOYMENT BY ECONOMIC DEVELOPMENT REGION, ANNUAL AVERAGES

Year	Minnesota	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6E	Region 6W
1980	1,710,266	26,240	15,896	116,511	52,370	32,669	36,508	15,443
1981	1,700,979	25,004	16,186	114,361	51,972	32,499	36,173	15,394
1982	1,648,765	24,404	15,978	103,686	50,164	31,056	35,364	14,728
1983	1,660,715	24,121	16,178	99,562	50,337	31,239	34,996	14,713
1984	1,763,658	24,963	16,702	104,210	52,580	33,229	36,775	14,968
1985	1,809,037	25,754	17,326	103,398	53,215	33,957	37,387	14,490
1986	1,835,687	26,297	16,981	103,118	53,660	34,449	37,545	14,273
1987	1,900,751	27,192	17,522	104,002	55,391	35,397	39,172	14,265
1988	1,963,921	27,959	18,366	107,751	56,908	37,397	40,840	14,243
1989	2,021,678	28,823	18,882	112,548	58,786	39,078	41,447	14,580
1990	2,061,505	29,967	19,698	116,623	60,923	40,296	43,214	15,081
1991	2,069,197	30,187	20,440	118,114	62,370	41,753	44,812	15,241
1992	2,116,161	30,813	21,496	120,609	63,487	43,123	45,743	15,492
1993	2,172,081	31,734	22,654	121,268	64,828	45,600	46,740	16,425
1994	2,241,114	33,405	24,033	124,058	68,145	47,520	47,634	16,365
1995	2,314,051	34,697	25,073	127,529	70,282	49,450	49,172	17,186
1996	2,366,865	35,555	25,391	130,807	72,712	50,957	50,891	17,766
1997	2,426,689	35,509	26,975	133,475	74,007	52,276	52,035	18,355
1998	2,494,293	35,795	27,465	136,157	76,304	54,439	52,717	18,611
1999	2,551,947	35,905	28,294	138,215	77,862	56,144	52,475	18,273

Year	Region 7E	Region 7W	Region 8	Region 9	Region10	Region 11	Unallocated
1980	23,461	63,845	39,335	75,654	149,698	1,039,778	22,910
1981	23,712	64,810	36,418	75,260	147,387	1,038,859	20,967
1982	22,880	64,192	36,694	73,293	144,660	1,011,759	19,637
1983	23,517	65,632	37,635	72,736	146,364	1,023,806	19,879
1984	25,554	70,460	38,941	75,343	154,693	1,095,760	19,480
1985	26,105	73,493	38,086	75,772	156,192	1,133,167	20,713
1986	26,443	77,957	37,184	75,327	155,805	1,154,100	22,549
1987	27,751	81,053	37,670	75,688	161,242	1,199,322	24,558
1988	29,023	85,798	39,416	77,868	168,125	1,235,537	24,059
1989	29,973	90,805	40,541	80,514	174,693	1,265,338	25,037
1990	30,785	93,540	42,310	83,492	179,052	1,282,444	23,457
1991	30,921	96,514	43,745	96,514	182,746	1,275,980	21,596
1992	33,243	99,639	45,397	85,995	187,366	1,301,220	22,538
1993	35,144	103,911	47,310	87,076	191,838	1,335,502	22,051
1994	36,565	109,002	48,936	91,314	193,399	1,379,040	21,698
1995	37,148	115,233	49,953	93,745	197,407	1,423,719	23,458
1996	38,449	118,474	51,184	94,938	201,676	1,452,316	25,999
1997	39,361	120,871	51,808	96,898	208,357	1,472,168	29,040
1998	40,317	126,084	52,081	99,669	215,982	1,526,375	32,337
1999	41,825	132,238	52,197	101,998	220,551	1,563,937	32,069

Data description: The information on Minnesota employment by region is from the Covered Employment and Wages (ES-202) program, a virtual census of employers subject to Reemployment Insurance law. This represents 97 to 99 percent of civilian employment but excludes the self-employed, railroad workers, some workers in religious organizations and some commissioned salespersons. Employment is by place of work meaning that the employment figure is a count of the number of jobs, not the number of individuals who are working. **Additional information:** Covered employment figures are available at substate and industry detail with a six-month lag. These are published annually in Minnesota Covered Employment and Wages and quarterly on the MDES web site. Reliability is high as information is collected from all employers rather than from a sample.

State agency contact:
Research and Statistics Office (651) 296-6545
Minnesota Department of Economic Security
http://www.mnwfc.org/lmi/

TABLE 12 EMPLOYEES ON NONAGRICULTURAL PAYROLLS BY MAJOR INDUSTRY, ANNUAL AVERAGES

Year	Total	Mining	Con-struction	Manufacturing			TCPU		
				Total	Durable goods	Non-durable goods	Total	Trans-por-tation	Com-munication & public utilities
1972	1,357,130	13,742	61,528	310,186	174,654	135,532	86,345	56,735	29,610
1973	1,436,082	14,600	66,161	331,179	190,955	140,225	90,351	60,086	30,265
1974	1,480,939	14,698	65,232	340,649	198,830	141,819	91,437	61,184	30,254
1975	1,474,396	14,279	63,563	312,965	180,112	132,853	89,129	58,406	30,723
1976	1,520,893	14,991	65,420	321,657	185,658	135,999	89,856	58,745	31,111
1977	1,597,293	12,881	68,718	339,287	199,226	140,061	92,427	60,572	31,855
1978	1,689,273	16,371	78,960	360,403	216,306	144,097	94,232	61,410	32,821
1979	1,766,966	17,253	83,199	381,610	234,002	147,608	100,299	66,201	34,098
1980	1,770,205	15,625	76,464	371,163	225,688	145,476	99,092	64,633	34,460
1981	1,761,323	15,643	67,738	363,951	219,576	144,375	97,408	62,932	34,477
1982	1,707,295	9,460	59,868	346,751	206,570	140,181	93,079	58,835	34,244
1983	1,718,286	8,443	60,435	346,155	205,541	140,615	92,712	59,253	33,459
1984	1,819,837	9,371	67,605	373,806	226,428	147,379	96,894	62,157	34,737
1985	1,865,505	8,336	71,310	375,362	226,412	148,951	98,353	63,969	34,383
1986	1,893,918	6,510	74,970	368,710	218,742	149,968	98,022	64,655	33,367
1987	1,962,518	5,991	80,073	376,434	222,434	154,000	99,863	66,535	33,328
1988	2,027,981	7,164	77,779	394,059	234,506	159,553	101,697	67,487	34,211
1989	2,086,751	7,653	79,061	399,784	234,990	164,794	105,214	70,699	34,515
1990	2,129,520	8,058	79,465	400,833	231,528	169,304	109,532	74,817	34,715
1991	2,136,739	7,872	76,130	395,205	225,266	169,940	109,838	75,236	34,601
1992	2,184,964	7,706	77,283	397,100	225,034	172,066	109,841	75,167	34,674
1993	2,242,655	7,471	78,278	406,413	231,405	175,008	110,091	75,843	34,248
1994	2,310,379	7,555	81,102	414,689	236,097	178,592	113,608	79,630	33,978
1995	2,378,604	7,803	83,948	425,864	243,241	182,623	117,647	83,418	34,229
1996	2,433,376	7,891	88,911	429,613	247,032	182,581	120,384	85,351	35,033
1997	2,490,713	7,920	93,647	434,935	255,077	179,858	123,911	88,012	35,899
1998	2,555,059	8,057	101,793	441,210	260,834	180,376	127,495	90,994	36,502
1999	2,608,540	7,364	112,139	439,495	260,308	179,187	130,523	93,444	37,079

TABLE 12 CONTINUED ON NEXT PAGE

TABLE 12 CONT'D EMPLOYEES ON NONAGRICULTURAL PAYROLLS BY MAJOR INDUSTRY, ANNUAL AVERAGES

	Trade					Government			
Year	Total	Wholesale	Retail	Finance insurance real estate	Services	Total	Federal	State	Local
1972	332,375	92,175	240,199	67,198	239,625	246,132	30,600	56,745	158,787
1973	352,084	96,662	255,422	71,828	253,243	256,635	29,906	57,573	169,156
1974	364,820	101,793	263,027	73,456	266,816	263,829	30,705	59,628	173,496
1975	369,849	104,476	265,373	75,418	277,753	271,440	31,143	61,847	178,451
1976	383,524	106,209	277,315	77,897	291,503	276,046	30,631	63,387	182,029
1977	403,498	107,869	295,629	82,197	311,969	286,317	30,543	66,861	188,913
1978	426,910	113,814	313,097	86,339	333,280	292,779	31,410	68,409	192,960
1979	443,117	118,649	324,469	91,491	354,397	295,599	31,301	69,940	194,359
1980	442,833	116,836	325,997	94,762	369,716	300,550	32,590	71,992	195,968
1981	439,936	116,214	323,722	97,822	379,869	298,956	31,248	71,955	195,754
1982	429,460	112,037	317,423	98,237	380,822	289,619	30,518	70,448	188,653
1983	430,305	109,427	320,878	101,168	392,432	286,636	30,375	71,786	184,475
1984	455,791	115,613	340,179	106,085	416,559	293,726	30,700	72,821	190,205
1985	465,605	116,328	349,277	110,297	435,057	301,185	31,678	74,216	195,292
1986	470,506	118,038	352,468	114,964	452,334	307,903	32,414	75,680	199,810
1987	489,323	120,852	368,471	119,122	477,891	313,821	33,218	76,984	203,619
1988	505,308	123,633	381,675	119,590	501,574	320,811	34,096	78,818	207,897
1989	514,313	126,100	388,213	120,990	531,045	328,691	34,170	80,683	213,837
1990	519,483	127,459	392,024	125,218	549,197	337,735	35,119	82,801	219,815
1991	518,125	128,218	389,907	126,921	560,840	341,808	34,254	82,716	224,839
1992	524,547	128,276	396,271	130,201	592,179	346,105	34,318	82,143	229,645
1993	539,018	130,853	408,165	135,921	613,408	352,054	33,944	83,208	234,902
1994	558,839	136,497	422,342	139,900	635,188	359,498	33,997	84,032	241,469
1995	579,483	142,313	437,170	138,879	647,126	377,854	34,013	86,887	256,955
1996	591,456	148,046	443,411	143,320	672,251	379,551	34,141	88,704	256,706
1997	600,576	151,054	449,522	147,386	702,720	379,619	34,064	85,436	260,119
1998	610,935	152,879	458,056	155,871	728,404	381,293	33,409	85,146	262,737
1999	619,329	153,053	466,276	160,310	751,875	387,505	33,435	87,123	266,947

Data description: This table represents the most timely and reliable measure of nonagricultural employment in the state of Minnesota. The source of these data is the Current Employment Statistics survey, a federal-state cooperative program consistent across all states. The survey now encompasses approximately 6,200 Minnesota employers who report monthly. The 1972 to 1998 data in this table is benchmarked against annual average ES-202 data (see Table 11 for description) so past years reflect actual counts of employment. The 1999 data is benchmarked against first quarter ES-202 data and will be rebenchmarked against annual average ES-202 data at the end of the year. Employment is by place of work meaning that the employment figure is a count of the number of jobs, not the number of individuals who are working. The survey excludes the self-employed and agricultural workers. **Additional information:** Employment for the state and its four metropolitan statistical areas is available monthly with about a one-month lag. For each area, employment is categorized by industry with detail dependent on the size of the industry. Current information and comparisons to month-ago and year-ago figures are published in the Minnesota Employment Review. Longer time series of the data and/or greater industry and geographic detail are also available on the MDES web site, in numerous publications and on diskette from the listed contact.

State agency contact:
Research and Statistics Office (651) 296-6545
Minnesota Department of Economic Security
http://www.mnwfc.org/lmi/

TABLE 13 EMPLOYMENT IN SELECTED MANUFACTURING INDUSTRIES, ANNUAL AVERAGES

Year	All mfg.	Food and kindred products	Lumber and wood products	Paper and allied products	Printing and publishing	Rubber plastics & leather products	Fabricated metal products	Industrial machinery computer equipment	Electrical and electronic equipment	Instru-ments & related products
	SIC 20-39	SIC 20	SIC 24	SIC 26	SIC 27	SIC 30-31	SIC 34	SIC 35	SIC 36	SIC 38
1974	340,649	50,129	10,389	33,034	26,383	12,168	33,782	72,322		*18,446
1975	312,965	47,942	9,349	30,574	26,274	10,169	31,253	64,694		*17,721
1976	321,657	48,908	10,420	30,504	26,930	11,723	30,921	66,044		*19,645
1977	339,287	49,939	11,615	30,944	28,896	12,081	32,955	69,587		*21,555
1978	360,403	50,186	12,823	31,648	31,140	12,718	35,542	77,796		*23,594
1979	381,610	49,437	12,920	33,384	33,086	13,909	39,013	87,088		*26,082
1980	371,163	48,777	10,814	32,646	33,542	13,101	37,567	87,661		*27,679
1981	363,951	47,703	10,714	32,464	34,708	12,483	35,796	86,830		*27,321
1982	346,751	46,586	9,493	32,370	35,337	11,528	33,471	82,467		*26,213
1983	346,155	45,755	11,126	32,398	36,254	11,970	32,692	81,356		*26,245
1984	373,806	45,546	12,222	33,328	40,277	13,515	34,640	91,590		*28,462
1985	375,362	44,519	12,576	33,231	42,420	13,829	34,227	89,363		*29,832
1986	368,710	45,340	13,554	32,426	43,180	13,937	33,018	81,273		*30,431
1987	376,434	45,403	15,401	32,722	45,533	14,868	33,194	80,660		*30,004
1988	394,059	46,791	17,013	32,995	47,684	16,063	34,818	85,459	28,337	31,544
1989	399,784	48,057	16,998	33,476	50,102	16,386	35,196	82,896	29,072	32,327
1990	400,833	49,480	16,852	33,850	52,000	17,031	34,826	77,695	30,452	33,464
1991	395,205	50,620	16,502	33,569	51,691	16,899	33,375	74,109	30,850	34,174
1992	397,100	51,243	17,346	33,410	51,844	18,126	31,571	73,581	30,321	34,475
1993	406,413	51,700	18,321	33,364	53,201	18,808	31,836	75,415	30,462	34,439
1994	414,689	51,944	19,417	33,311	54,494	20,436	32,299	74,847	30,867	35,102
1995	425,864	53,331	19,727	33,225	55,574	21,579	34,732	75,213	31,205	36,894
1996	429,613	54,467	19,687	31,457	55,537	21,739	35,147	74,575	33,243	38,917
1997	434,935	53,813	20,758	30,254	53,846	22,124	36,526	77,410	34,412	40,525
1998	441,210	51,939	20,758	30,677	55,688	22,284	37,315	80,141	34,597	41,075
1999	439,495	52,929	21,565	29,761	55,071	21,642	36,645	78,840	34,535	40,977

* Break in series beginning in 1988 because of new coding. Comparable data not available before 1988.

Data description: This table represents the most timely and reliable measure of manufacturing employment in the state of Minnesota. The source of these data is the Current Employment Statistics survey, a federal-state cooperative program consistent across all states. The survey now encompasses approximately 6,200 Minnesota employers who report monthly. The 1972 to 1998 data in this table is benchmarked against annual average ES-202 data (see Table 11 for description) so past years reflect actual counts of manufacturing employment. The 1999 data is benchmarked against first quarter ES-202 data and will be rebench-marked against annual average ES-202 data at the end of the year. Employment is by place of work meaning that the employment figure is a count of the number of jobs, not the number of individuals who are working. The survey excludes the self-employed and agricultural workers. "All manufacturing" contains more industries than those depicted in this table.
Additional information: Manufacturing employment for the state and its four metropolitan statistical areas is available monthly with a one-month lag. Detail is available dependent on the size of the industry in each area. Current information and comparisons to month-ago and year-ago figures are published in the Minnesota Employment Review. Longer time series of the data and/or greater industry and geographic detail are also available on the MDES web site, in numerous publications and on diskette from the listed contact.

State agency contact:
Research and Statistics Office (651) 296-6545
Minnesota Department of Economic Security
http://www.mnwfc.org/lmi/

TABLE 14 EMPLOYMENT BY ESTABLISHMENT SIZE CLASS

Year	Total covered *employment	Number of employees							
		1-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000+
1975	1,370,315	168,964	124,589	181,551	165,208	193,886	139,238	112,738	284,051
1976	1,394,539	169,455	126,143	187,080	171,531	203,719	142,809	115,025	278,777
1977	1,475,429	184,648	135,478	198,960	183,275	223,797	144,049	122,363	282,859
1978	1,569,654	192,676	145,756	213,719	193,580	245,119	157,739	128,914	292,151
1979	1,659,718	200,447	154,552	225,341	199,692	259,173	170,592	136,273	313,648
1980	1,694,001	206,551	157,529	229,352	204,571	263,174	175,397	136,600	320,827
1981	1,678,468	212,032	160,629	231,247	201,343	252,668	164,567	140,182	315,800
1982	1,641,987	213,753	156,203	229,315	196,561	248,557	165,327	131,957	300,314
1983	1,600,325	217,080	154,642	227,885	193,475	247,760	157,712	128,537	273,234
1984	1,703,604	227,816	164,261	244,936	203,470	275,087	172,546	133,255	282,533
1985	1,767,274	233,702	171,101	260,332	221,580	294,034	182,002	129,680	274,843
1986	1,785,788	237,357	176,036	263,497	234,749	290,327	182,004	143,513	258,305
1987	1,851,485	241,392	183,346	274,406	238,677	307,611	185,493	144,099	276,461
1988	1,909,485	245,467	189,758	283,862	252,043	317,305	185,457	158,171	277,422
1989	1,971,489	245,829	193,672	291,679	251,561	328,169	196,258	162,925	301,396
1990	2,023,522	252,765	199,961	305,680	270,171	334,082	196,197	165,460	299,206
1991	2,028,956	259,856	204,554	316,538	268,790	342,027	199,828	158,835	278,528
1992	2,064,841	267,413	212,318	314,462	272,429	352,945	208,035	157,580	279,659
1993	2,128,942	272,137	216,116	322,298	282,307	362,406	222,881	166,040	284,757
1994	2,188,647	280,129	221,935	333,121	291,929	382,519	227,640	197,056	284,318
1995	2,264,427	279,821	225,416	341,270	302,713	403,675	242,172	176,046	293,314
1996	2,321,933	282,206	228,705	352,101	314,455	415,324	251,084	182,497	295,561
1997	2,363,439	280,942	233,008	358,735	323,891	425,994	260,114	192,563	288,192
1998	2,437,870	290,062	239,141	366,833	331,662	444,219	265,643	197,221	303,089
1999	2,487,681	288,720	242,553	373,102	339,794	451,805	286,825	197,964	309,922

*March employment used.

Data description: The information on Minnesota employment by establishment size class is from the Covered Employment and Wages (ES-202) program, a virtual census of employers in the state subject to Reemployment Insurance law. This represents 97 to 99 percent of civilian employment and excludes the self-employed, railroad workers, some workers in religious organizations and some commissioned salespersons. Since employment is by place of work this series counts the number of jobs not the number of individuals who are working. "Establishment" refers to a specific location of a business rather than total employment within the firm. Employment changes over time may therefore be the result of changes in the number of locations rather than a change in the number of companies within a size class. **Additional information:** Covered employment by establishment size class is computed once annually using March employment figures. Reliability is high, as the information is collected from all employers and is not subject to sampling error.

State agency contacts:
Research and Statistics Office (651) 296-6545
Minnesota Department of Economic Security
http://www.mnwfc.org/lmi/

TABLE 15 EMPLOYMENT BY OCCUPATION (THOUSANDS)

Year	All occupations	Professional & technical	Executive administrative & managerial	Sales	Administrative support	Service occupations	Production craft & repair	Machine operators & assemblers	Transportation & material moving	Handlers & laborers	Farming forestry & fishing
1974	1,706	246	171	102	292	241	213	186	56	72	130
1975	1,692	249	168	107	283	239	225	161	52	66	146
1976	1,755	277	184	118	295	258	207	142	60	77	139
1977	1,820	288	198	118	297	289	220	142	71	80	115
1978	1,917	305	211	140	316	295	220	167	75	84	105
1979	1,978	305	198	138	348	297	235	176	83	81	117
1980	1,996	316	213	126	355	322	229	158	68	71	138
1981	2,024	352	221	147	357	306	219	169	61	78	114
1982	1,997	366	218	142	349	302	228	142	65	75	111
					Change in definition						
1983*	1,997	329	202	220	310	320	224	115	72	82	123
1984	2,088	339	213	227	318	339	245	119	79	82	127
1985	2,101	323	233	244	322	319	219	112	90	88	151
1986	2,095	336	225	226	334	299	216	129	78	91	161
1987	2,137	336	233	216	346	316	220	139	75	92	162
1988	2,233	372	230	252	353	328	223	136	85	94	154
1989	2,241	408	229	267	368	291	226	139	90	92	131
1990	2,288	412	269	266	370	304	239	126	81	93	127
1991	2,307	385	290	271	375	315	229	127	80	94	141
1992	2,306	369	271	271	383	320	236	145	76	98	137
1993	2,341	369	304	261	381	351	238	138	89	92	117
1994	2,462	428	310	286	409	357	224	133	108	94	116
1995	2,493	443	304	297	407	342	227	149	94	94	136
1996	2,505	441	338	323	361	325	251	138	108	85	133
1997	2,539	441	394	305	335	343	289	123	99	92	117
1998	2,613	INA	429	285	339	337	280	150	INA	INA	103

INA = information not available.
*Change in occupational definitions beginning in this year.

Data description: Minnesota employment by occupation is available from two sources. This table uses data from the Current Population Survey, administered monthly to 800 households in Minnesota. More detail on occupational employment is also available from the Occupational Employment Statistics (OES) survey. This survey of employers (as opposed to households) is broader in coverage but is conducted on a three-year schedule. **Additional information:** These data are available annually for the state of Minnesota and the Minneapolis-St. Paul metropolitan statistical area. New figures are released each May and are published, along with other states and metropolitan areas, in *Geographic Profile of Employment and Unemployment*, available from the U.S. Department of Labor, Bureau of Labor Statistics (BLS). Although these estimates meet BLS standards for publication, the estimates are subject to sampling error. Summary data from the OES survey is published in the Revised Minnesota Salary Survey, and available on the MDES web site.

State agency contact:
Research and Statistics Office (651) 296-6545
Minnesota Department of Economic Security
http://www.mnwfc.org/lmi/

TABLE 16 HOURS AND EARNINGS IN SELECT INDUSTRIES, ANNUAL AVERAGES

	Average weekly hours			Average hourly earnings		
Year	Manufac-turing	Con-struction	Retail trade	Manufac-turing	Con-struction	Retail trade
1972	40.7	36.6	31.2	$4.00	$7.29	$3.10
1973	41.0	37.4	30.8	4.22	7.54	3.24
1974	39.9	37.2	30.3	4.67	7.99	3.56
1975	39.2	36.8	30.0	5.10	8.68	3.81
1976	39.8	38.4	29.4	5.53	9.37	4.05
1977	40.0	37.0	28.6	5.97	9.78	4.25
1978	40.2	37.2	28.9	6.44	10.32	4.56
1979	40.0	37.4	28.2	6.93	11.10	4.86
1980	39.4	37.1	27.4	7.61	11.76	5.28
1981	39.4	36.3	27.5	8.40	12.87	5.63
1982	39.1	36.4	26.9	9.11	14.29	5.96
1983	39.7	37.3	28.1	9.55	14.68	6.35
1984	40.3	38.0	28.1	9.75	15.08	6.48
1985	40.3	38.2	27.8	10.05	15.40	6.61
1986	40.6	38.2	27.6	10.20	14.94	6.61
1987	40.8	39.3	26.8	10.37	15.34	6.51
1988	40.8	38.5	26.6	10.59	15.58	6.55
1989	40.5	38.9	26.7	10.95	16.17	6.84
1990	40.3	39.5	26.9	11.23	16.67	7.00
1991	40.4	39.2	26.7	11.52	17.10	7.45
1992	40.8	39.5	26.4	11.92	17.69	7.84
1993	41.1	39.0	26.5	12.23	18.21	8.10
1994	41.9	39.4	26.8	13.37	20.42	9.09
1995	41.5	39.9	27.3	12.79	19.20	8.55
1996	41.4	40.5	27.0	13.16	19.49	8.88
1997	41.5	39.6	27.1	13.63	19.81	9.31
1998	41.3	39.5	26.8	13.92	20.41	9.62
1999	41.2	39.9	26.8	14.35	21.60	10.20

Data description: Data on hours and earnings is from the Current Employment Statistics survey, a federal program conducted at the state level. In Minnesota, the survey now encompasses approximately 6,200 employers who report monthly. Tabulations are made for particular industries and industry groups, not overall hours and earnings. These figures include only production workers (in the case of manufacturing) or nonsupervisory workers (in other cases). **Additional information:** Hours and earnings are available for the state of Minnesota and the Minneapolis-St. Paul metropolitan statistical area on a monthly basis, published in the Minnesota Employment Review and on the MDES web site. Detail by specific industry is provided. In addition, annual average time series appear in the following publications: Employment, Hours, and Earnings, Minnesota, and Employment, Hours, and Earnings, Minneapolis-St. Paul Area.

State agency contact:
Research and Statistics Office (651) 296-6545
Minnesota Department of Economic Security
http://www.mnwfc.org/lmi/

TABLE 17 AVERAGE WEEKLY WAGES – MAJOR INDUSTRIES, ANNUAL AVERAGES

Year	All Covered industries	Mining	Con-struction	Manu-factur-ing	Transpor-tation & utilities	Trade	Finance, insurance, real estate	Services	Govern-ment
1972	$152.14	$211.39	$215.10	$181.48	$191.50	$118.44	$159.20	$110.55	$192.35
1973	160.36	222.43	224.33	192.24	205.76	124.07	163.74	116.47	203.12
1974	170.92	239.50	240.26	204.81	220.71	136.49	174.79	126.51	181.45
1975	184.72	286.85	260.70	227.03	235.48	145.07	187.10	134.90	201.20
1976	200.00	313.74	283.08	247.88	262.20	153.97	200.50	144.06	215.10
1977	209.92	319.78	286.26	263.87	280.24	161.34	215.79	154.94	228.81
1978	227.24	376.54	308.48	285.00	318.28	173.57	237.04	166.28	245.83
1979	247.14	427.23	338.04	308.42	331.58	190.68	254.38	188.72	259.94
1980	267.37	462.34	369.35	340.62	366.01	202.56	283.67	204.28	280.93
1981	291.73	529.66	393.77	377.22	404.99	218.27	308.44	226.26	306.80
1982	315.04	516.46	421.42	412.68	427.50	231.09	335.12	249.02	344.13
1983	331.13	484.63	428.31	435.21	454.65	238.85	367.89	263.45	365.71
1984	346.94	530.42	446.75	455.57	468.98	250.76	384.38	275.35	385.10
1985	361.85	558.90	457.06	477.68	486.62	258.14	415.29	290.29	400.88
1986	377.38	574.79	481.43	503.90	494.48	267.45	446.43	303.86	415.56
1987	393.23	602.43	507.74	521.66	517.12	276.50	474.95	321.99	432.70
1988	413.00	617.36	518.63	549.81	537.36	283.97	502.24	339.96	449.37
1989	426.17	648.50	541.71	558.93	569.03	303.46	516.35	356.60	465.62
1990	444.83	683.65	564.56	578.63	577.47	313.29	547.00	378.45	492.37
1991	461.12	710.39	568.02	598.12	596.48	323.50	575.00	395.30	512.09
1992	486.92	728.12	588.86	637.31	630.39	343.87	641.80	415.67	531.23
1993	494.39	729.06	595.08	640.65	626.46	350.31	671.59	424.82	539.26
1994	508.24	783.45	613.26	660.71	626.39	365.42	677.98	438.40	553.27
1995	526.16	825.48	642.25	679.58	648.86	377.84	718.33	460.36	566.07
1996	555.22	880.13	676.46	716.69	674.03	401.45	777.74	486.09	592.88
1997	581.26	887.89	709.76	754.32	715.32	421.38	827.63	512.77	597.66
1998	617.21	913.86	750.11	787.48	764.18	453.29	896.85	547.06	625.07
1999	643.97	912.60	789.20	821.15	788.30	479.89	922.68	575.61	640.63

Data description: The information on Minnesota wages by industry is from the Covered Employment and Wages (ES-202) program, a virtual census of employers subject to Reemployment Insurance law. This represents 97 to 99 percent of civilian employment but excludes the self-employed, railroad workers, some workers in religious organizations and some commissioned salespersons. Average weekly wages is derived from establishments' quarterly reports of payroll and employment. No allowance is made for number of hours worked per week or weeks worked during the quarter. Changes in these variables may affect the time series.
Additional information: Wages are available at substate and industry detail on a quarterly basis. These are published quarterly and annually on the MDES web site with a six-month lag. Reliability is high, as the information is collected from all employers and therefore is not subject to sampling error.

State agency contact:
Research and Statistics Office (651) 296-6545
Minnesota Department of Economic Security
http://www.mnwfc.org/lmi/

TABLE 18 MEDIAN MONTHLY SALARIES FOR SELECTED OCCUPATIONS

Year	Account-ant (entry)	Comp. progr. (exper.)	Typist (exper.)	Recep-tionist	Assembler (excluding electronic)	Inspector	Welder	Janitor	Delivery person
1970	$650	$1,030	$409	$400	$508	$513	$607	$485	$669
1971	728	INA	449	416	546	583	643	532	738
1972	728	1104	474	433	583	608	693	570	760
1973	775	1123	485	450	614	647	695	586	854
1974	834	1170	490	475	652	662	740	630	780
1975	900	1308	555	511	711	737	854	690	960
1976	949	1270	592	546	783	823	939	707	825
1977	997	1325	657	589	778	883	1023	804	967
1978	1028	1461	720	633	851	938	1100	840	867
1979	1127	1635	775	679	1009	1083	1206	884	1033
1980	1350	1583	850	740	1068	1187	1336	945	1083
1981	1400	1778	910	800	1102	1215	1479	1040	1243
1982	1542	1925	1000	885	1248	1466	1583	1090	1170
1983	1665	2042	1075	936	1387	1470	1661	1190	1156
1984	1729	2083	1193	975	1295	1427	1733	1257	1356
1985	1720	2315	1216	997	1284	1511	1717	1319	1116
1986	1990	2525	1229	1031	1395	1499	1667	1280	1215
1987	1834	2469	1272	1067	1283	1560	1863	1215	1137
1988	1882	2675	1421	1109	1437	1560	1868	1231	1213
1989	1926	2751	1475	1161	1492	1687	1777	1300	1239
Change in definitions									
	(All levels)								
Year	Acct./ auditor	Comp. progr.†	Typist†	Recpt./ info. clerk	Assembler (excluding electronic)	Inspector	Welder/ cutter	Janitor	Lt. truck driver (incl. del. person)
1990	2,416	2,661	1,475	1,198	1,430	1,703	1,820	1,283	1,473
1991	INA	INA	INA	INA	INA	INA	INA	INA	INA
1992	2,609	2,557	1,885	1,300	1,517	1,959	1,950	1,397	1,560
1993	INA	INA	INA	INA	INA	INA	INA	INA	INA
1994	2,832	2,739	1,895	1,409	1,548	1,868	2,056	1,468	1,638
1995	INA	INA	INA	INA	INA	INA	INA	INA	INA
Change in survey methodology									
1996**	2,820	3,784	1,952	1,517	2,323	2,159	2,155	1,310	1,667
1997	2,964	3,604	2,007	1,553	1,775	2,097	2,181	1,390	1,721
1998	3,028	3,811	1,981	1,630	1,806	2,081	2,253	1,428	1,762

INA = Information not available.

† In 1996, "Computer programmer" and "Systems analyst" were combined. This causes wages to look higher in 1996. In 1997 and 1998 Systems analyst was again separate from Computer programmer.
‡ Starting in 1992, "Typist" includes word processors.
* In 1996, "Inspector" changed: "All other inspectors" were included in the group, previously defined as only "Precision inspectors" and "Production inspectors".
**This sample design is considerably different from previous salary surveys, so historical comparisons should be done with caution.

Data description: Earnings data for approximately 400 specific occupations is from the Minnesota Salary Survey. The results, based on the responses of more than 5,500 employers, are tabulated annually. No attempt is made to calculate a Minnesota average salary level because the list of occupations is not all-inclusive. Hourly wages are also available. **Additional information:** Current information is published in the Revised Minnesota Salary Survey. For some occupations, metropolitan area data is available.

State agency contact:
Research and Statistics Office (651) 296-6545 Minnesota Department of Economic Security
http://www.mnwfc.org/lmi/

TABLE 19 MINIMUM WAGES BY EMPLOYEE CLASS

Year	Dates	Adults[1] Fed covered	Adults[1] State covered	Minors[2] Fed covered	Minors[2] State covered	Tipped employees (lowest rate after tip credit) Adults	Minors[2]	Maximum tip credit
1976	1/1-9/30	NA	$1.80	NA	$1.62	$1.35	$1.22	25%
1976	10/1-12/31	NA	2.10	NA	1.89	1.58	1.42	25
1977	1/1-9/14	NA	2.10	NA	1.89	1.58	1.42	25
1977	9/15-12/31	NA	2.30	NA	2.07	1.84	1.66	20
1978	All	NA	2.30	NA	2.07	1.84	1.66	20
1979	All	NA	2.30	NA	2.07	1.84	1.66	20
1980	All	NA	2.90	NA	2.61	2.43	2.09	20
1981	All	NA	3.10	NA	2.79	2.48	2.23	20
1982	All	NA	3.35	NA	3.02	2.68	2.42	20
1983	All	NA	3.35	NA	3.02	2.68	2.42	20
1984	All	NA	3.35	NA	3.02	2.68	2.42	20
1985	All	NA	3.35	NA	3.02	2.85	2.57	15
1986	All	NA	3.35	NA	3.02	3.01	2.72	10
1987	All	NA	3.35	NA	3.02	3.18	2.87	5
1988	All	$3.55	3.50	$3.20	3.15	3.35	3.02	NA
1989	All	3.85	3.65	3.47	3.29	NA	NA	NA
1990	All	3.95	3.80	3.56	3.42	NA	NA	NA

Change in definitions

Year	Dates	Adults and Minors[2] Businesses earning $362,500 or more	Adults and Minors[2] Businesses earning less than $362,500	Tipped employees
1991	All	$4.25	$4.00	No longer applies.
1992	All	4.25	4.00	
1993	All	4.25	4.00	
1994	All	4.25	4.00	
1995	All	4.25	4.00	
1996[3]	All	4.25	4.00	
1997	9/1 – 12/31	5.15	4.00	
1998	All	5.15	4.90	
1999	All	5.15	4.90	

NA = Not applicable.
[1] 18 years and over.
[2] As of 1991, there is no lower rate for minors (employees under 18 years old).
[3] As of 10/01/96, employers earning more than $500,000 or who are engaged in interstate commerce paid a minimum wage of $4.75 (employees under 20 years old may be paid $4.25 for the first 90 days of employment).

Data Description: Minimum wages are set by law at both the federal and state levels. This table is included in this report as a reference on how the legal levels for the largest classes of workers have changed over time. Employees must be paid a minimum rate, which is higher for large businesses. **Additional information:** A brief description of definitions and legal requirements is presented in the brochure A Guide to Minnesota's Minimum Wage Laws. Further information can be found in M.S. 177.21-177.35. The history of minimum wage laws is not published.

State agency contact:
Labor Standard Division (651) 284-5005
Minnesota Department of Labor and Industry
http://www.doli.state.mn.us

TABLE 20 CONSUMER PRICE INDEXES, MINNEAPOLIS-ST. PAUL MSA*

Year	All items	Food & beverages	Housing	Apparel & upkeep	Transpor-tation	Medical care	Enter-tainment	Other
1978	63.6	74.8	59.3	81.3	62.5	61.2	71.1	64.9
1979	70.8	80.9	66.3	85.5	71.8	66.2	75.1	69.3
1980	78.9	87.6	74.0	90.8	83.7	73.7	81.3	75.3
1981	88.6	92.7	85.9	94.7	93.6	80.3	93.1	83.2
1982	97.4	96.6	98.7	99.7	97.5	90.0	97.2	91.7
1983	99.5	99.5	99.3	101.5	99.3	100.3	100.2	100.7
1984	103.1	104.0	102.0	98.8	103.2	109.7	102.6	107.6
1985	107.0	106.5	105.8	106.2	106.1	117.0	106.6	114.5
1986	108.4	109.4	107.9	107.0	100.5	126.8	111.8	120.9
1987	111.6	113.9	109.5	109.7	102.9	133.7	116.6	128.9
1988	117.2	120.0	112.1	126.6	107.3	140.8	133.7	137.3
1989	122.0	126.6	115.8	121.5	114.8	149.1	138.1	143.9
1990	127.0	134.6	118.5	130.5	118.5	161.5	140.5	153.0
1991	130.4	141.5	120.6	130.9	119.4	171.8	141.6	164.0
1992	135.0	144.8	124.9	141.7	121.7	182.4	145.6	171.7
1993	139.2	147.2	128.1	141.5	126.9	193.8	149.0	184.0
1994	143.6	149.1	129.6	148.1	134.2	205.4	151.8	199.1
1995	147.0	152.4	132.7	143.6	138.6	209.9	157.2	207.3
1996	151.9	158.8	138.0	143.1	141.9	215.5	165.1	213.1

Change in Definitions

Year	All items	Food & beverages	Housing	Apparel	Transpor-tation	Medical care	Recreation	Other goods & services
1997	155.4	163.5	140.8	145.6	144.0	218.8	100.0	222.3
1998	158.3	166.6	144.2	144.2	141.9	229.6	101.2	234.2
1999	163.3	172.1	149.2	139.3	148.6	241.1	103.3	257.7

INA = Information not available.
*1982-1984 = 100

Data description: The Consumer Price Index (CPI), computed by the U.S. Bureau of Labor Statistics, is a measure of the average change over time in the prices paid by urban consumers for a fixed marketbasket of goods. It is not a cost-of-living index, and it does not compare the differences in costs between areas. Because only price changes in urban areas are measured, there is no index for Minnesota, but only for the Minneapolis-St. Paul metropolitan area. The national index is computed monthly, while the Minneapolis-St. Paul index is published only twice per year. Two measures of the CPI are available. The CPI-W is based on expenditures of households who generate a majority of income from clerical or wage occupations or about 32 percent of the total United States population. The CPI-U, shown in this table, is based on the expenditures of about 87 percent of the United States population or almost all residents of urban areas. The local indexes are much less reliable than the national index. In deflating to constant dollars, the U.S. data should be used. **Additional information:** Data on both local and national figures are available from the listed contacts.

State agency contacts:
Research and Statistics Office (651) 296-6545
Minnesota Department of Economic Security
http://www.mnwfc.org/lmi/

Contact for methodology and historical information on components:
U. S. Bureau of Labor Statistics (312) 353-1880
Chicago Regional Office
http://www.bls.gov/cpi/

TABLE 21 HEALTHCARE COSTS OF MINNESOTA HMOS

Year	Total enrollment	Commercial enrollment	Average cost per inpatient-day	Average cost per inpatient-discharge	Average cost per enrollee-month
1970	39,853	INA	INA	INA	INA
1971	46,570	INA	INA	INA	INA
1972	58,580	INA	INA	INA	INA
1973	74,167	INA	INA	INA	INA
1974	95,371	INA	INA	INA	INA
1975	124,168	INA	INA	INA	INA
1976	164,893	INA	INA	INA	INA
1977	212,738	INA	INA	INA	INA
1978	258,625	INA	$231	$1,228	$27.64
1979	333,795	INA	250	1237	29.54
1980	451,827	$451,105	275	1386	33.37
1981	529,114	520,580	338	1550	37.45
1982	570,557	552,637	398	1706	42.54
1983	672,011	637,998	475	1947	46.50
1984	847,117	778,294	598	2392	54.82
1985	979,389	849,783	657	2779	58.86
1986	1,135,654	956,704	690	2596	59.60
1987	1,216,534	1,027,423	701	2967	61.54
1988	1,115,780	961,276	851	3530	70.01
1989	1,113,501	959,923	995	4015	79.03
1990	1,166,537	969,499	930	4199	88.91
1991	1,193,802	942,311	975	4046	99.88
1992	1,206,491	971,680	1107	4423	108.54
1993	1,172,975	923,592	1019	4492	116.28
1994	1,159,766	789,339	INA	INA	119.61
1995	1,232,757	959,870	INA	INA	130.13
1996	1,396,129	1,016,276	INA	INA	119.71
1997	1,389,586	990,999	INA	INA	123.96

INA = Information not available.

Data description: All Minnesota health maintenance organizations (HMOs) are required to submit annual reports to the commissioner of health. Costs are for commercial enrollees. "Commercial enrollment" excludes Medicare and Medicaid enrollees. Averages are weighted to reflect the varied enrollments of HMOs. **Additional information:** This and other information on patient visits is available for individual HMOs. Similar information is also available on hospitals.

State agency contact:
Health Policy & Systems Compliance Division (612) 282-5601
Minnesota Department of Health
http://www.health.state.mn.us/divs/hpsc/hep/hepintro.htm

TABLE 22 NEW BUSINESS INCORPORATIONS & BUSINESS FAILURES RECORD

Year	New business incorporations (No. of employees)	New business incorporations (No. of firms)	Business failures (No. of firms)
1970	4,130	INA	INA
1971	4,324	INA	INA
1972	4,773	INA	INA
1973	5,090	INA	INA
1974	5,214	INA	INA
1975	5,359	INA	224
1976	5,877	INA	247
1977	6,518	INA	206
1978	7,119	INA	181
1979	7,512	INA	212
1980	6,998	INA	280
1981	7,293	INA	343
1982	7,443	INA	430
1983	8,202	INA	452
1984	9,119	INA	599
1985	9,209	3,521	506
1986	9,691	3,555	639
1987	9,396	3,134	685
1988	9,519	2,557	536
1989	9,398	2,419	INA
1990	9,678	2,209	529
1991	9,608	2,129	1,583
1992	10,041	2,348	1,523
1993	10,845	2,395	918
1994	11,429	2,496	722
1995	12,203	2,258	903
1996	12,632	2,286	596
1997	14,974	2,336	1,183
1998	12,036	2,111	INA
1999	13,251	2,085	INA

INA = Information not available.

Data description: New business incorporation and business failure statistics are from the Dun and Bradstreet Marketing Services, Dun and Bradstreet Corp. Business failure statistics include businesses that ceased operations following assignment or bankruptcy; ceased operations with losses to creditors after such actions as foreclosure or attachment; voluntarily withdrew leaving unpaid debts; were involved in court actions such as receivership, reorganization or arrangement; or voluntarily compromised with creditors. **Additional information:** The Dun and Bradstreet Corp. provides monthly, quarterly and year-to-date information on new business incorporations and business failures. The statistical series also includes a breakdown by industry sector.

State agency contact:
Information and Analysis Division
Analysis and Evaluation Office
Minnesota Department of Trade and Economic Development (651) 297-2335
http://www.dted.state.mn.us

TABLE 23 RETAIL SALES VOLUME (THOUSANDS) AND NUMBER OF ESTABLISHMENTS

	Total		Lumber/hardware		Gen'l merchandise		Food		Automotive	
Year	Sales	Number	Sales	Number	Sales	Number	Sales	Number	Sales	Number
1980	19,238,953	49,621	1,864,471	3,753	2,443,441	1,203	2,965,055	3,455	5,140,211	6,228
1981	20,114,516	52,647	1,797,691	3,802	2,715,072	1,208	3,212,761	3,481	4,911,084	6,217
1982	20,800,579	54,081	1,768,478	3,874	2,792,906	1,044	3,544,091	3,745	5,184,942	6,172
1983	23,149,778	57,161	2,042,592	3,858	3,137,098	1,112	3,827,911	3,969	5,830,517	6,133
1984	25,933,941	59,220	2,195,888	3,885	3,535,346	1,045	4,139,767	3,942	6,649,424	6,191
1985	26,727,268	59,877	2,226,252	3,781	3,597,248	1,021	4,366,360	3,949	6,982,188	6,103
1986	27,263,291	59,879	2,304,244	3,753	3,365,109	1,013	4,380,669	3,889	6,836,667	5,932
1987	29,340,933	59,810	2,694,731	3,538	3,552,864	991	4,642,841	3,952	7,101,274	5,846
1988	31,547,891	59,590	2,619,725	3,335	3,751,180	981	4,956,911	3,858	7,671,442	5,687
1989	33,736,945	61,198	2,773,685	3,242	3,894,980	963	5,402,337	4,234	8,143,813	5,573
1990	35,361,893	62,246	2,931,615	3,186	4,025,255	931	5,800,910	4,060	8,147,419	5,362
1991	37,918,999	63,685	2,883,362	3,278	4,081,760	966	7,903,339	4,132	8,295,659	5,297
1992	38,630,147	64,373	3,064,162	3,255	4,661,262	1,017	6,229,399	4,134	8,874,895	4,957
1993	40,456,948	64,560	3,174,860	3,224	4,848,085	1,004	6,307,211	4,162	9,536,225	4,964
1994	42,924,557	64,466	3,519,241	3,129	5,372,553	1,018	6,046,454	3,919	10,026,939	4,904
1995	45,722,880	64,419	3,551,457	3,063	5,886,552	909	6,151,162	3,679	10,857,581	4,824
1996	47,691,756	65,070	3,982,176	3,003	5,873,119	854	6,946,162	3,513	11,658,534	4,742
1997	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
1998	54,266,961	65,105	4,749,497	2,942	7,109,068	835	7,445,008	3,416	12,510,315	4,494

	Clothing		Home furnishings		Eating & drinking		Miscellaneous	
Year	Sales	Number	Sales	Number	Sales	Number	Sales	Number
1980	570,866	2,042	962,665	4,860	1,667,736	7,783	3,624,508	20,297
1981	612,569	2,109	1,061,285	5,028	1,819,247	8,003	3,984,806	22,799
1982	636,157	2,166	998,620	5,127	1,876,725	8,185	3,998,661	23,768
1983	715,717	2,341	975,125	5,243	2,013,779	8,185	4,607,040	26,320
1984	790,458	2,467	1,101,945	5,292	2,192,024	8,405	5,329,080	27,993
1985	833,383	2,638	1,128,498	5,071	2,267,768	8,658	5,325,571	28,656
1986	884,820	2,557	1,200,901	4,988	2,360,406	8,630	5,930,445	29,117
1987	984,376	2,599	1,455,001	4,956	2,506,789	8,663	6,403,056	29,262
1988	1,057,875	2,487	1,819,208	4,956	2,617,359	8,256	7,054,191	30,030
1989	1,213,667	2,668	1,791,735	5,082	2,683,310	8,441	7,833,417	30,995
1990	1,237,528	2,676	1,752,292	5,084	2,764,986	8,502	8,701,889	32,445
1991	1,206,230	2,724	1,706,582	4,950	2,874,515	8,767	8,967,551	33,571
1992	1,399,150	3,000	2,203,672	4,908	3,182,302	9,084	9,015,305	34,018
1993	1,434,966	2,914	2,193,867	5,007	3,422,605	9,189	9,539,129	34,096
1994	1,371,428	2,809	2,301,531	5,108	3,655,508	9,289	10,630,9033	4,290
1995	1,438,349	2,637	2,730,388	5,257	3,843,055	9,329	11,264,336	34,721
1996	1,466,057	2,493	3,198,323	5,486	3,957,123	8,989	10,610,262	35,960
1997	INA	INA	INA	INA	INA	INA	INA	INA
1998	1,572,570	2,292	4,119,032	5,605	4,483,949	9,141	12,277,521	36,380

INA: data not available

Data description: Retail sales data is compiled from Minnesota sales and use tax returns filed with the Department of Revenue. Industry codes are based on 1987 Standard Industrial Classification codes. Each establishment is assigned a code based on its principal business activity and all of its sales are included in that category. "Retail sales" includes all sales, taxable and nontaxable, made by establishments whose primary business is retailing. It does not include sales made by manufacturers, wholesalers or other nonretailers, even though some of these sales may be at retail. **Additional information:** Annual retail sales data is available for all counties and for selected cities in Minnesota.

State agency contact:
Tax Research Division (651) 296-3425
Minnesota Department of Revenue
www.taxes.state.mn.us/reports/sut.html

TABLE 24 GROSS STATE PRODUCT BY INDUSTRY SECTOR (MILLIONS)

Year	GSP	Farm	Ag services forestry, fisheries	Mining	Construction	Manufacturing: Durable goods	Manufacturing: Non-durable goods	Transportation & public utilities
1977	$35,690	$2,593	$118	$464	$1,778	$4,522	$3,008	$3,330
1978	40,542	2,816	145	702	2,122	5,234	3,367	3,609
1979	45,801	2,896	167	976	2,375	5,947	3,937	4,007
1980	49,049	2,739	174	998	2,361	6,293	4,139	4,421
1981	53,743	3,134	194	956	2,125	6,807	4,771	4,940
1982	55,789	3,002	207	584	2,014	6,944	5,179	5,112
1983	59,568	1,772	232	532	2,204	7,880	5,530	5,682
1984	68,235	3,249	254	581	2,673	9,207	6,019	6,200
1985	72,248	2,933	254	435	2,984	9,291	6,804	6,308
1986	75,982	2,755	256	352	3,495	9,329	7,168	6,407
1987	81,493	2,815	325	308	3,910	10,458	7,494	6,778
1988	87,555	2,113	304	512	3,881	11,324	8,823	7,397
1989	95,418	3,499	322	532	4,064	11,882	9,510	7,845
1990	99,751	3,546	394	675	4,199	11,662	10,032	7,954
1991	103,301	2,872	423	611	4,030	11,410	10,376	8,593
1992	110,662	2,712	467	632	4,666	12,252	10,112	8,857
1993	114,637	1,318	483	540	4,854	12,602	9,854	9,305
1994	124,617	2,730	502	592	5,286	13,845	10,764	9,820
1995	131,358	2,387	520	687	5,699	14,816	11,007	10,362
1996	140,930	3,774	541	663	6,342	15,107	11,686	10,876
1997	149,394	3,059	572	679	6,693	16,369	11,901	11,485
1998	161,392	2,674	586	688	7,565	17,282	11,800	12,477

Year	Wholesale trade	Retail trade	Finance, insurance & real estate	Services	Total	Manufacturing: Federal civilian	Manufacturing: Federal military	State & local
1977	$3,131	$3,443	$5,265	$4,276	$3,762	$623	$100	$3,039
1978	3,558	3,888	6,140	4,871	4,089	691	109	3,289
1979	4,187	4,280	6,978	5,590	4,463	764	119	3,580
1980	4,300	4,457	7,739	6,492	4,935	812	126	3,997
1981	4,681	4,896	8,380	7,300	5,559	1,034	139	4,386
1982	4,722	5,249	8,895	7,974	5,909	987	143	4,779
1983	4,763	5,858	9,972	8,816	6,329	1,037	166	5,126
1984	5,604	6,617	11,032	9,863	6,935	1,125	181	5,629
1985	5,819	6,972	12,070	10,899	7,476	1,226	200	6,050
1986	6,054	7,339	13,020	11,821	7,986	1,279	216	6,491
1987	6,279	7,750	13,879	12,893	8,604	1,523	230	6,851
1988	6,983	8,357	14,655	14,131	9,076	1,430	242	7,404
1989	7,494	8,936	15,915	15,681	9,739	1,677	250	7,812
1990	7,721	9,089	16,573	17,198	10,707	1,925	277	8,505
1991	8,173	9,434	17,894	18,156	11,329	2,004	281	9,044
1992	8,444	9,648	18,915	21,064	12,892	2,272	309	10,311
1993	8,957	10,374	21,041	22,018	13,290	2,281	292	10,716
1994	10,176	11,210	21,914	23,647	14,131	2,331	306	11,494
1995	10,517	11,671	23,429	25,541	14,721	2,403	296	12,022
1996	11,791	12,225	25,110	27,601	15,275	2,537	310	12,428
1997	12,568	13,004	27,515	29,839	15,710	2,581	310	12,818
1998	13,571	14,842	29,723	33,357	16,794	2,920	448	13,426

Data description: This data series comes from Survey of Current Business. The Bureau of Economic Analysis (BEA), U.S. Dept. of Commerce, developed the methodology for the annual estimates of gross state product by component and by industry. Gross State Product (GSP) is the gross market value of the goods and services attributable to labor and property located in a state. The BEA prepared GSP estimates for 61 industries. For each industry, GSP is composed of four components: compensation of employees; proprietor's income with inventory valuation adjustment and capital consumption allowances; indirect business tax and nontax liability; and others, mainly capital-related charges. **Additional information:** BEA estimates of GSP are available in both current and constant dollars.

State agency contacts:
Information and Analysis Division (651) 297-2335 Analysis and Evaluation Office
Minnesota Department of Trade and Economic Development
http://www.dted.state.mn.us

TABLE 25 VALUE OF SHIPMENTS IN SELECTED MFG. INDUSTRIES (MILLIONS)

Year	All manu-facturing	Food and kindred products	Lumber and wood products	Paper and allied products	Printing and publishing	Rubber and plastics products
	SIC 20-39	SIC 20	SIC 24	SIC 26	SIC 27	SIC 30
1970	$10,963	$3,714	$175	$773	$521	INA
1971	11,222	3,947	223	803	566	INA
1972	12,901	4,295	349	886	596	217
1973	15,279	4,937	435	1,058	667	276
1974	18,222	5,929	513	1,137	745	297
1975	18,646	6,090	494	1,222	842	407
1976	20,440	6,560	646	1,321	928	331
1977	23,021	6,806	844	1,105	1,152	480
1978	25,837	7,318	993	1,231	1,325	571
1979	INA	INA	INA	INA	INA	INA
1980	INA	INA	INA	INA	INA	INA
1981	INA	INA	INA	INA	INA	INA
1982	35,321	9,307	882	1,700	1,939	901
1983	37,434	9,685	1,124	1,777	2,080	1,042
1984	42,760	9,581	1,378	1,665	2,431	1,292
1985	42,532	9,549	1,380	2,276	2,757	1,336
1986	42,790	10,079	1,688	2,366	2,806	1,361
1987	47,757	10,563	2,216	2,610	3,440	1,321
1988	52,938	11,165	2,249	3,105	3,811	1,584
1989	53,564	11,351	2,307	3,196	4,030	1,570
1990	55,244	12,195	2,296	3,298	4,504	1,629
1991	53,303	11,785	2,267	3,296	4,449	1,638
1992	57,302	12,770	2,610	3,478	4,764	1,839
1993	60,767	13,560	2,895	3,601	5,108	2,085
1994	64,635	14,209	3,257	3,741	5,495	2,204
1995	69,436	14,434	3,196	4,636	6,269	2,523
1996	73,273	15,906	3,223	4,224	7,061	2,661
1997	78,725	15,651	2,963	4,200	6,893	2,913

TABLE 25 CONTINUED ON NEXT PAGE

TABLE 25 CONT'D VALUE OF SHIPMENTS IN SELECTED MFG. INDUSTRIES (MILLIONS)

Year	Stone, clay and glass products SIC 32	Fabricated metal products SIC 34	Comp. and non-electrical mach. SIC 35	Electric and electronic equipment SIC 36	Transport. equipment SIC 37	Instruments and rel. products SIC 38
1970	$186	$550	$1,717	$606	$563	$282
1971	210	590	1,619	501	619	287
1972	254	1,084	2,058	613	637	330
1973	248	1,176	2,698	844	637	388
1974	407	1,417	3,076	978	633	426
1975	448	1,427	2,874	1,107	682	407
1976	516	1,427	3,051	1,213	836	508
1977	854	1,560	3,598	1,499	1,016	640
1978	903	1,835	4,444	1,657	995	801
1979	INA	INA	INA	INA	INA	INA
1980	INA	INA	INA	INA	INA	INA
1981	INA	INA	INA	INA	INA	INA
1982	1,290	2,389	6,396	2,016	1,282	1,489
1983	1,603	2,587	7,076	2,099	1,542	1,429
1984	1,861	2,969	8,863	3,078	2,284	1,626
1985	1,775	3,068	8,418	2,623	2,089	1,678
1986	1,492	3,053	8,401	2,343	2,576	1,795
1987	1,739	3,837	8,637	2,562	2,973	2,288
1988	1,838	4,332	10,261	3,017	3,102	2,428
1989	1,529	4,417	9,517	3,233	3,193	2,697
1990	1,723	4,395	8,760	3,189	3,033	2,952
1991	1,704	4,247	7,538	3,422	2,492	3,267
1992	1,714	4,559	7,927	4,304	2,633	3,270
1993	1,605	4,252	8,233	4,454	3,866	3,778
1994	2,016	4,191	8,759	5,332	4,066	3,614
1995	1,999	4,419	10,219	5,473	4,094	3,862
1996	2,164	4,749	10,053	5,922	3,887	4,209
1997	2,272	5,786	11,981	5,567	D	5,637

INA = Information not available.
D = The data has been suppressed to avoid disclosure of individual firm data.

Data description: Information on value of shipments can be obtained from the Census of Manufactures and the Annual Survey of Manufactures, Geographic Area Statistics. The latter is published in each of the four years between the census periods. Industry data shown is for the two-digit industries as defined in the Standard Industrial Classification manual. The data provided is only for those Minnesota industries that constitute a larger share of the total value of shipments. "Value of shipments" is the received or receivable net selling value, freight on board (f.o.b.) plant, after discounts and allowances and excluding freight charges and excise taxes. However, where the products of an industry are customarily delivered by the manufacturing establishments (e.g., bakery products, soft drinks), the value of shipments is based on the delivered price of the goods rather than on the f.o.b. plant price. **Additional information:** The data series is also available at the four-digit industry level for the U.S. and at the three-digit level for the state prior to 1997.

State agency contact:
Information and Analysis Division (651) 297-2335
Analysis and Evaluation Office
Minnesota Department of Trade and Economic Development
http://www.dted.state.mn.us

TABLE 26 VALUE-ADDED BY MANUFACTURE IN SELECTED MANUFACTURING INDUSTRIES (MILLIONS)

Year	All manu-facturing SIC 20-39	Food and kindred products SIC 20	Lumber and wood products SIC 24	Paper and allied products SIC 26	Printing and publishing SIC 27	Rubber and plastics products SIC 30
1970	$4,757.80	$828.40	$75.70	$428.50	$356.70	INA
1971	4827.20	892.50	104.20	448.20	393.90	INA
1972	5523.80	923.30	143.50	511.10	402.20	$128.20
1973	6704.10	1072.40	178.20	604.80	466.00	162.60
1974	7640.20	1192.90	189.20	586.70	499.90	184.00
1975	7386.90	1257.00	204.80	595.80	542.10	223.20
1976	8473.00	1513.50	292.30	633.60	574.30	180.60
1977	9605.20	1465.80	333.40	570.10	751.60	244.00
1978	10908.10	1621.00	420.90	649.70	855.60	291.30
1979	INA	INA	INA	INA	INA	INA
1980	INA	INA	INA	INA	INA	INA
1981	INA	INA	INA	INA	INA	INA
1982	15366.90	2391.90	382.00	769.80	1222.50	473.00
1983	16563.90	2655.00	523.10	779.00	1324.40	548.10
1984	19267.40	2498.00	573.80	786.50	1515.80	642.80
1985	19397.00	2576.00	643.10	1207.80	1807.10	700.90
1986	19759.30	2774.10	810.40	1283.70	1886.40	726.10
1987	23310.90	3294.60	1047.00	1351.30	2215.20	669.00
1988	25196.90	3260.70	976.90	1620.10	2417.40	807.60
1989	25221.70	3486.50	1024.00	1606.30	2518.00	781.60
1990	25804.40	3683.20	1025.40	1611.00	2845.70	818.40
1991	22041.50	3607.70	1048.00	1609.40	2827.40	869.00
1992	27324.70	4221.70	1209.40	1602.80	3116.40	997.40
1993	28522.40	4662.50	1398.50	1648.30	3277.40	1104.70
1994	31448.90	4842.30	1646.70	1711.50	3577.80	1184.00
1995	32548.50	4710.20	1522.70	2147.20	3942.70	1308.40
1996	34716.20	5023.40	1436.10	1956.30	4472.90	1423.70

TABLE 26 CONTINUED ON NEXT PAGE

TABLE 26 CONT'D VALUE-ADDED BY MANUFACTURE IN SELECTED MANUFACTURING INDUSTRIES (MILLIONS)

Year	Stone, clay and glass products SIC 32	Fabricated metal products SIC 34	Comp. and non-electrical mach. SIC 35	Electric and electronic equipment SIC 36	Transport. equipment SIC 37	Instruments and rel. products SIC 38
1970	$104.00	$256.00	$1,006.30	$350.60	$194.70	$181.90
1971	114.90	280.10	1015.20	271.60	188.20	187.00
1972	131.60	578.50	1140.40	354.90	221.70	225.90
1973	135.00	649.90	1544.20	502.40	228.10	259.70
1974	203.60	783.70	1865.30	546.00	196.40	279.70
1975	232.70	753.60	1525.10	600.10	190.40	271.30
1976	257.50	749.70	1721.20	681.10	263.10	367.80
1977	482.00	842.80	2058.90	869.80	278.20	415.70
1978	423.30	984.40	2539.00	968.00	316.00	501.00
1979	INA	INA	INA	INA	INA	INA
1980	INA	INA	INA	INA	INA	INA
1981	INA	INA	INA	INA	INA	INA
1982	609.00	1292.70	3567.40	1119.50	496.10	965.70
1983	753.70	1428.70	3991.20	1152.40	498.90	1005.90
1984	882.90	1568.50	5263.40	1865.50	684.40	1129.10
1985	849.20	1626.30	4629.60	1579.70	879.50	1122.60
1986	666.40	1684.40	4621.30	1420.20	1039.80	1213.00
1987	868.30	2041.80	5305.50	1477.50	1071.30	1656.20
1988	2875.40	2176.60	5959.00	1746.70	1192.70	1677.50
1989	755.30	2433.70	5129.70	1750.80	1305.90	1900.70
1990	858.40	2423.90	4459.60	1778.40	1164.70	2091.50
1991	949.80	2339.20	3262.80	1807.00	1294.50	2379.90
1992	988.60	2792.60	3502.60	2467.70	1011.80	2263.50
1993	592.10	2425.40	3697.40	2402.20	1406.40	2681.50
1994	1169.40	2493.80	4523.20	2896.70	1615.90	2501.60
1995	1130.00	2452.50	4774.70	3045.50	1660.80	2604.70
1996	1245.50	2594.90	4946.10	3341.20	1784.90	2905.20

INA = Information not available.

Data description: Information on value-added by manufacture can be obtained from the Census of Manufactures and the Annual Survey of Manufactures, Geographic Area Statistics. The latter is published in each of the four years between the census periods. Industry data shown is for the two-digit industries as defined in the Standard Industrial Classification manual. The data provided is only for those Minnesota industries that constitute a larger share of the total value added. Value added by manufacture is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity and contract work from the value of shipments for products manufactured plus receipts for services rendered. The result of this calculation is then adjusted by the addition of value added by merchandising operations (that is, the difference between the sales value and cost of merchandise sold without further manufacturing, processing or assembly) plus the net change in finished goods and work-in-process inventories between the beginning and end of the year. Value added avoids the duplication in the value of shipments figure that results from the use of products of some establishments as materials by others. **Additional information:** The data series is also available at the four-digit industry level for the U.S. and at the three-digit level for the state.

State agency contact:
Information and Analysis Division (651) 297-2335
Analysis and Evaluation Office
Minnesota Department of Trade and Economic Development
http://www.dted.state.mn.us

TABLE 27 NEW CAPITAL EXPENDITURES IN SELECTED MANUFACTURING INDUSTRIES (MILLIONS)

Year	All manu-facturing SIC 20-39	Food and kindred products SIC 20	Lumber and wood products SIC 24	Paper and allied products SIC 26	Printing and publishing SIC 27	Rubber and plastics products SIC 30
1970	$316.4	$57.7	$4.7	$35.9	$21.2	INA
1971	271.1	59.8	15.0	22.3	20.2	INA
1972	305.5	50.3	10.7	33.9	22.8	$14.4
1973	330.5	55.8	12.8	41.7	25.3	17.1
1974	488.7	78.3	20.0	70.4	17.6	13.7
1975	487.6	106.5	16.0	65.8	34.5	33.4
1976	494.9	104.7	24.5	35.1	41.7	21.3
1977	576.4	113.5	22.9	37.5	54.1	18.1
1978	788.2	135.4	37.7	66.4	60.1	22.5
1979	INA	INA	INA	INA	INA	INA
1980	INA	INA	INA	INA	INA	INA
1981	INA	INA	INA	INA	INA	INA
1982	1195.5	255.4	23.5	94.5	92.4	43.2
1983	1069.4	154.1	22.3	81.2	83.7	37.3
1984	1549.3	170.4	38.5	67.0	109.2	73.2
1985	1487.8	185.0	59.3	87.0	120.9	86.2
1986	1305.2	173.2	57.3	244.9	96.1	67.0
1987	1764.7	205.3	D	394.8	207.1	D
1988	1709.1	213.1	D	27.1	210.7	D
1989	2013.9	211.0	D	571.3	192.6	D
1990	1827.4	268.1	D	235.0	210.2	D
1991	1843.9	289.0	D	226.3	239.6	D
1992	2127.5	287.5	55.1	212.7	234.3	87.6
1993	2199.3	240.5	60.5	194.6	156.8	104.6
1994	2194.2	358.2	110.1	109.1	256.8	124.8
1995	2765.6	451.0	115.8	294.4	324.0	132.9
1996	2846.7	431.1	53.5	338.5	323.5	142.3

TABLE 27 CONTINUED ON NEXT PAGE

TABLE 27 CONT'D NEW CAPITAL EXPENDITURES IN SELECTED MANUFACTURING INDUSTRIES (MILLIONS)

Year	Stone, clay and glass products SIC 32	Fabricated metal products SIC 34	Comp. and non-electrical mach. SIC 35	Electric and electronic equipment SIC 36	Transport. equipment SIC 37	Instruments and rel. products SIC 38
1970	$11.2	$22.3	$52.9	$12.1	$6.8	$8.5
1971	6.7	13.0	51.9	9.4	8.3	8.5
1972	10.6	23.2	48.9	16.3	14.6	8.2
1973	5.0	28.6	50.6	23.5	6.6	10.0
1974	22.8	41.0	96.5	25.0	17.9	11.4
1975	32.0	28.8	69.6	26.0	9.1	10.7
1976	24.3	43.8	65.5	47.4	9.9	8.5
1977	24.0	77.0	100.9	40.9	12.5	13.2
1978	45.2	65.8	169.2	50.1	23.5	19.3
1979	INA	INA	INA	INA	INA	INA
1980	INA	INA	INA	INA	INA	INA
1981	INA	INA	INA	INA	INA	INA
1982	26.4	70.4	287.6	96.0	16.2	64.2
1983	31.0	72.5	240.5	85.2	23.7	73.1
1984	68.0	103.3	419.5	147.0	171.4	67.3
1985	48.5	85.3	384.1	114.6	85.4	70.5
1986	37.1	91.3	241.6	87.2	27.3	67.2
1987	54.8	144.7	301.2	86.1	45.3	84.6
1988	63.2	80.6	245.9	107.3	22.8	95.5
1989	53.8	114.6	278.9	109.6	44.6	124.6
1990	64.7	115.0	244.3	123.8	74.5	155.8
1991	49.5	99.7	194.7	148.8	40.1	133.9
1992	60.8	91.8	303.5	173.1	60.3	155.6
1993	59.0	74.6	381.8	171.2	48.6	202.5
1994	63.2	138.0	392.6	182.5	71.4	138.4
1995	68.6	131.2	518.6	224.4	105.1	159.6
1996	79.8	176.3	597.5	212.5	64.9	185.5

INA = Information not available.
D = The data has been suppressed to avoid disclosure of data from individual companies.

Data description: Information on new capital expenditures can be obtained from the Census of Manufactures and the Annual Survey of Manufactures, Geographic Area Statistics. The latter is published in each of the four years between the census periods. Industry data shown is for the two-digit industries as defined in the Standard Industrial Classification manual. The data provided is only for those Minnesota industries that constitute a larger share of the total new capital expenditures. The totals for new expenditures exclude that portion of expenditures for facilities and equipment leased from non-manufacturing concerns, new facilities owned by the federal government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and organizations. Expenditures for used plant and equipment, expenditures for land, and cost of maintenance and repairs charged as current operating expenses are also omitted. **Additional information:** The data series is also available at the four-digit industry level for the U.S. and at the three-digit level for the state.

State agency contact:
Information and Analysis Division (651) 297-2335
Analysis and Evaluation Office
Minnesota Department of Trade and Economic Development
http://www.dted.state.mn.us

TABLE 28 ROAD, RAIL AND AIRBORNE TRANSPORTATION ACTIVITY

Year	Total motor vehicle registrations (thousands)	Estimated total driver licenses (thousands)	Vehicle miles of travel- all roads (billions)	Truck vehicle miles of travel- all roads (millions)	State trunk highway constr. expend. (millions)	Miles of rail line	Enplaned passengers (thousands)	Air cargo (metric tons)
1975	2,525	2,417	25.5	845	137.4	7,225	INA	INA
1976	2,768	2,572	27.0	INA	126.5	7,130	INA	INA
1977	2,813	2,598	28.1	INA	148.4	6,968	3,969	122,458
1978	2,915	2,235	28.8	1,058	165.4	6,797	4,431	113,269
1979	3,026	2,286	27.9	INA	258.3	6,737	5,263	129,777
1980	3,091	2,336	28.5	1,147	194.0	6,218	4,938	107,762
1981	3,152	2,383	28.7	INA	192.3	6,011	4,262	109,467
1982	3,183	2,397	29.2	1,135	244.5	5,867	4,730	106,752
1983	3,239	2,374	31.1	INA	262.2	5,641	4,728	117,316
1984	2,968	2,397	31.8	1,231	358.5	5,512	4,875	139,859
1985	3,385	2,473	32.7	INA	390.8	5,286	7,723	144,925
1986	3,087	2,456	33.8	1,143	304.9	5,227	8,613	195,971
1987	3,172	2,471	35.2	1,177	379.6	5,091	9,083	246,240
1988	3,210	2,473	36.4	INA	443.3	5,072	8,831	246,561
1989	3,283	2,429	37.6	1,239	437.4	5,044	9,183	236,786
1990	3,509	2,529	38.8	1,277	390.3	4,922	9,592	266,230
1991	3,273	2,546	39.3	INA	373.8	4,786	9,653	271,652
1992	3,484	2,625	41.2	1,310	373.0	4,798	10,100	301,447
1993	3,716	2,637	42.2	INA	343.4	4,812	11,350	320,887
1994	4,057	2,706	43.3	1,535	338.8	4,788	11,911	377,534
1995	3,882	2,761	44.1	1,552	348.4	4,753	12,918	364,947
1996	3,861	2,830	44.5	1,564	385.1	4,753	13,775	361,662
1997	3,927	2,956	48.4	1,617	419.9	4,752	14,756	379,117
1998	4,178	3,193	49.6*	1,557*	445.8	4,606	14,549	366,000
1999	4,010	3,237	50.5	1,612	502.6	4,606	16,108	366,100

INA = Information not available.
*New methodology for estimation implemented in 1998.

Data description: The first four columns of information come from the U.S. Department of Transportation. The others are collected by the Minnesota Department of Transportation in various program areas. "Truck vehicle miles of travel on rural trunk highways" comes from vehicle class counts, "State trunk highway construction expenditures" is compiled in the trunk highway fund revenue and expenditure model, and "Miles of rail line" stems from annual reports of railroad companies. Enplaned passengers are the originations and connections for Minnesota airports, provided by the Federal Aviation Administration (FAA). Air cargo includes air freight, express and mail for Minneapolis/St. Paul International Airport. Mail represents about one-third of the total. Data for air cargo provided by the Metropolitan Airports Commission (MAC). **Additional information:**
The U.S. Department of Transportation data is published in Highway Statistics, a Federal Highway Administration publication.

State agency contact:

Minnesota Department of Transportation	(651) 297-5122
Office of Investment Management	(651) 296-6194
Office of Freight, Railroads and Waterways	(651) 296-1618
Office of Management Data Services	(651) 296-6846
Office of Aeronautics	(651) 296-9869

TABLE 29 VALUE OF TOTAL MANUFACTURED EXPORTS BY INDUSTRY (THOUSANDS)

Year	All manufacturing SIC 20-39	Food and kindred products SIC 20	Textile mill products SIC 22	Lumber and wood products SIC 24	Paper and allied products SIC 26	Printing and publishing SIC 27	Chemicals and allied products SIC 28	Rubber and plastics products SIC 30
1987	$3,850,064	$247,131	$6,975	$17,384	$96,602	$40,536	$128,378	$103,229
1988	4,664,027	242,505	10,306	25,382	152,055	42,622	174,645	140,046
1989	5,010,510	248,615	34,001	30,719	253,671	52,918	208,123	149,379
1990	5,861,987	295,117	42,141	40,669	227,924	53,334	233,449	217,475
1991	5,975,635	312,498	41,386	38,012	233,215	64,416	248,777	223,142
1992	6,663,526	446,889	45,221	40,733	231,149	58,361	241,336	252,710
1993	6,912,230	521,901	36,974	48,637	234,095	52,759	256,361	182,983
1994	7,299,551	574,007	19,660	52,485	144,021	64,103	211,161	209,195
1995	8,218,545	560,854	20,835	67,505	116,300	69,257	212,490	228,548
1996	8,908,367	584,749	21,530	86,983	140,351	64,262	259,893	250,547
1997	9,528,376	697,476	24,230	105,271	160,716	77,828	304,194	284,761
1998	9,075,980	743,768	21,034	84,425	157,961	69,617	291,576	282,970
1999	9,165,390	720,428	24,321	92,761	182,999	61,608	308,849	288,932

Year	Stone, clay and glass products SIC 32	Fabricated metal products SIC 34	Computers and non-electrical machinery SIC 35	Electric and electronic equip. SIC 36	Transportation equipment SIC 37	Instruments and rel. products SIC 38	Miscellaneous manufacturing SIC 39
1987	$36,851	$110,397	$1,910,399	$361,018	$282,451	$392,174	$62,888
1988	49,770	120,781	2,359,249	372,013	201,073	644,528	74,518
1989	64,812	129,464	2,315,287	404,527	309,984	700,704	26,388
1990	99,921	184,017	2,287,393	600,482	592,845	820,543	50,312
1991	99,305	191,654	2,267,250	646,308	527,957	905,219	69,680
1992	113,896	185,806	2,418,865	786,834	682,068	961,458	82,245
1993	155,694	349,978	2,174,665	871,682	760,986	1,015,430	94,755
1994	200,530	322,998	2,140,562	942,096	1,088,678	1,052,137	107,139
1995	298,181	452,648	2,366,898	1,044,238	1,217,401	1,226,777	147,524
1996	247,541	493,227	2,643,903	1,076,872	1,205,053	1,490,984	141,407
1997	385,092	563,658	3,123,295	1,094,003	775,923	1,527,466	147,726
1998	303,344	432,115	3,065,480	1,180,719	717,911	1,370,698	124,006
1999	267,665	452,921	3,187,109	1,218,895	658,929	1,417,199	119,037

Data description: Data on exports by state is collected by the U.S. Department of Commerce from the Shipper's Export Declaration (SED) form. This data is adjusted by the Massachusetts Institute of Social and Economic Research (MISER) at the University of Massachusetts at Amherst. These adjustments include distributing unallocated exports (i.e., transactions missing SIC codes or state-of-origin data). **Additional information:** MISER also provides state export data by weight, transportation mode and location of exporter.

State agency contact:
Information and Analysis Division (651) 297-2335
Analysis and Evaluation Office
Minnesota Department of Trade and Economic Development
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TABLE 30 TOP MARKETS FOR MINNESOTA MANUFACTURED EXPORTS (THOUSANDS)

Year	Canada	Japan	China (incl. Hong Kong)	United Kingdom	Germany	Ireland (except N. Ireland)
1987	$1,031,458	$483,973	$108,351	$310,799	$304,840	$10,257
1988	989,924	679,888	171,561	329,003	326,555	28,032
1989	1,018,983	823,745	181,974	323,239	298,345	30,871
1990	1,466,807	836,550	120,042	438,728	371,079	50,092
1991	1,364,517	752,750	157,134	398,154	425,400	40,290
1992	1,546,247	848,938	192,354	474,931	398,973	53,550
1993	1,774,953	798,954	207,433	392,338	357,155	63,993
1994	2,228,856	693,550	228,228	402,905	370,712	58,697
1995	2,388,222	792,219	313,015	436,518	431,047	82,193
1996	2,447,672	1,001,356	322,530	454,593	510,317	139,300
1997	2,362,569	1,027,069	381,883	508,263	504,942	172,414
1998	2,218,975	742,946	491,801	537,863	742,946	258,358
1999	2,186,818	724,949	589,837	561,277	551,260	417,096

Year	France	Singapore	Netherlands	Philippines	Rest of the world	Total
1987	$182,110	$37,943	$199,092	$5,056	$1,176,185	$3,850,064
1988	192,733	61,180	225,733	11,445	1,647,972	4,664,026
1989	195,837	82,128	318,107	13,015	1,724,266	5,010,510
1990	236,689	88,463	367,512	18,831	1,867,194	5,861,987
1991	296,247	105,900	367,657	18,718	2,048,868	5,975,635
1992	232,343	159,709	423,140	22,344	2,310,997	6,663,526
1993	199,225	193,093	477,169	28,945	2,418,972	6,912,230
1994	197,734	233,118	414,645	34,351	2,436,755	7,299,551
1995	223,835	295,233	385,610	40,617	2,830,048	8,218,557
1996	234,080	337,141	395,384	94,425	2,971,569	8,908,367
1997	291,339	351,745	434,652	138,133	3,355,367	9,528,376
1998	333,738	365,017	332,082	236,506	2,815,748	9,075,980
1999	363,013	307,308	307,025	301,738	2,855,069	9,165,390

Data description: Data on exports by state is collected by the U.S. Department of Commerce from the Shipper's Export Declaration (SED) form. This data is adjusted by the Massachusetts Institute of Social and Economic Research (MISER) at the University of Massachusetts at Amherst. These adjustments include distributing unallocated exports (i.e., transactions missing SIC codes or state-of-origin data). **Additional information:** MISER also provides state export data by weight, transportation mode, and location of exporter.

State agency contact:
Information and Analysis Division (651) 297-2335
Analysis and Evaluation Office
Minnesota Department of Trade and Economic Development
http://www.dted.state.mn.us

TABLE 31 GROSS BOOK VALUE OF PROPERTY, PLANT & EQUIPMENT OF AFFILIATES IN MINNESOTA BY COUNTRY (MILLIONS)

Year	Total	Europe				
		France	Germany	Netherlands	United Kingdom	Switzerland
1980	$586	$85	$124	$52	$176	$105
1981	698	91	171	53	198	123
1982	837	106	212	58	276	97
1983	881	113	230	65	268	117
1984	975	113	259	83	303	124
1985	1,178	121	295	87	406	137
1986	1,523	105	275	214	521	136
1987	1,413	117	211	150	525	148
1988	1,848	172	254	223	725	198
1989	2,440	242	420	229	1,006	200
1990	2,556	275	479	215	1,025	296
1991	2,795	342	533	219	1,104	305
1992	3,120	412	610	269	1,143	317
1993	3,210	412	701	258	1,131	294
1994	3,682	426	646	785	1,254	211
1995	3,713	395	697	816	1,199	259
1996	4,743	858	959	938	1,299	294
1997[1]	4,640	800	978	993	1,207	276

Year	Canada	Japan	Latin America	Middle East	Rest of the world	All Countries
1980	$1,864	$11	*	D	D	$2,470
1981	2,167	D	*	D	D	2,902
1982	2,536	16	*	D	D	3,450
1983	2,684	19	*	D	D	3,748
1984	2,544	D	$1	D	D	4,001
1985	2,636	D	3	D	*	4,294
1986	2,433	D	2	D	$15	4,442
1987	2,395	D	D	D	D	4,344
1988	3,052	426	11	D	D	5,540
1989	2,929	776	62	D	D	11,516
1990	2,573	1,092	62	D	D	11,972
1991	2,464	1,168	69	D	D	12,703
1992	2,641	1,174	70	D	D	8,310
1993	2,668	953	78	$169	D	8,229
1994	2,780	1,018	111	D	D	8,427
1995	2,977	1,097	104	D	D	8,688
1996	3,808	841	225	D	D	9,858
1997[1]	3,335	924	167	117	789	9,972

*Value less than $500,000.
[1] Preliminary data.
D = The data has been suppressed to avoid disclosure of individual firm data.

Data description: The table presents data covering the financial structure and operations of nonbank United States affiliates of foreign direct investors by country. The data series comes from Foreign Direct Investment in the United States: Operations of U.S. Affiliates of Foreign Companies, U.S. Department of Commerce, Bureau of Economic Analysis. Foreign direct investment in the United States means the ownership or control, directly or indirectly, by one foreign person of 10 percent or more of the voting securities of an incorporated U.S. business enterprise or an equivalent interest in an unincorporated U.S. business enterprise, including a branch. **Additional information:** Publications and diskettes may be obtained from Economic and Statistical Analysis Division, Bureau of Economic Analysis, U.S. Department of Commerce.

State agency contact:
Information and Analysis Division (651) 297-2335
Analysis and Evaluation Office
Minnesota Department of Trade and Economic Development
http://www.dted.state.mn.us

TABLE 32 GROSS BOOK VALUE OF PROPERTY, PLANT & EQUIPMENT OF AFFILIATES IN MINNESOTA

Year	All industries	Petroleum	Manufacturing: Total	Food & kindred products	Chemicals & allied products	Primary & fabricated metals	Machinery	Others	Information[2]
1980	$2,470	D	$590	$43	$48	D	$143	D	INA
1981	2,902	$463	681	41	D	D	139	$420	INA
1982	3,450	541	719	38	D	D	117	434	INA
1983	3,748	549	779	D	103	D	159	436	INA
1984	4,001	554	1,140	D	116	D	226	442	INA
1985	4,294	562	1,223	D	149	D	233	464	INA
1986	4,442	616	1,395	D	139	D	277	589	INA
1987	4,334	651	1,434	60	137	D	350	D	INA
1988	5,540	666	1,848	D	181	D	437	775	INA
1989	11,519	714	2,874	314	277	$739	390	1,154	INA
1990	11,972	976	3,229	324	359	1,031	404	1,111	INA
1991	12,703	900	3,411	326	386	1,046	439	1,214	INA
1992	8,310	974	3,545	INA	INA	INA	INA	INA	INA
1993	8,229	960	3,344	INA	INA	INA	INA	INA	INA
1994	8,427	998	3,588	INA	INA	INA	INA	INA	INA
1995	8,688	1,023	3,581	INA	INA	INA	INA	INA	INA
1996	9,858	1,043	4,284	INA	INA	INA	INA	INA	INA
1997[1]	9,972	INA	3,581	INA	INA	INA	INA	INA	1,172

Year	Wholesale trade	Retail trade	Finance except banking[3]	Insurance	Real estate	Services industry[4]	Professional services[5]	Other industries[6]
1980	$72	$70	$5	D	$342	INA	INA	$218
1981	85	84	D	D	465	INA	INA	D
1982	119	78	8	$24	745	INA	INA	1,216
1983	118	43	D	D	896	INA	INA	1,328
1984	130	80	D	D	696	INA	INA	1,369
1985	104	73	D	D	757	INA	INA	1,517
1986	116	262	D	D	911	INA	INA	D
1987	116	62	3	69	993	$154	INA	860
1988	130	59	3	62	1,071	178	INA	1,523
1989	146	86	4	65	1,455	245	INA	5,927
1990	276	163	7	85	1,319	273	INA	5,823
1991	269	191	10	180	1,117	268	INA	6,357
1992	343	166	17	199	1,185	358	INA	1,522
1993	439	170	13	224	1,174	380	INA	1,525
1994	467	79	32	232	1,160	356	INA	1,515
1995	499	89	37	229	1,169	314	INA	1,746
1996	485	129	59	180	1,168	367	INA	2,143
1997[1]	591	96	200	INA	1,009	INA	100	3,222

INA= Information not available. D= Data has been suppressed to avoid disclosure of individual firm data.

[1] Preliminary data. [2] Information was a new industry introduced in 1997, comprising publishing information & data processing, broadcasting & telecommunications, and motion pictures. [3] Starting in 1997, Finance (except depository institutions) and Insurance are combined. [4] Services industry was included with Other industries prior to 1987. [5] Starting in 1997, data on Professional, Scientific and Technical Services were provided, with all other services (excluding information services) included in Other Industries. [6] Before 1997, Other industries includes transportation, mining, utilities and construction. After 1997, Other industries also includes petroleum and services not included in Professional services and Information services.

Data description: Data covers financial structure and operations of nonbank U.S. affiliates of foreign direct investors by industry. The data series comes from Foreign Direct Investment in the U.S.: Operations of U.S. Affiliates of Foreign Companies, U.S. Dept.of Commerce, Bureau of Economic Analysis. An affiliate is a business enterprise located in one country that is directly or indirectly owned or controlled by a person of another country to the extent of 10 percent or more of its voting securities for an incorporated business or enterprise or an equivalent interest for an unincorporated business enterprise, including a branch. A U.S. affiliate is an affiliate located in the U.S. in which a foreign person has a direct investment. **Additional information:** Publications and diskettes may be obtained from Economic and Statistical Analysis Division, Bureau of Economic Analysis, U.S. Dept. of Commerce.

State agency contact:
Information and Analysis Division (651) 297-2335
Analysis and Evaluation Office
Minnesota Department of Trade and Economic Development
http://www.dted.state.mn.us

TABLE 33 EMPLOYMENT OF AFFILIATES BY COUNTRY

Year	Europe					
	Total	France	Germany	Netherlands	United Kingdom	Switzerland
1980	15,694	1,699	3,770	1,313	5,761	2,585
1981	16,315	1,317	3,645	1,230	4,955	4,045
1982	18,304	1,706	4,102	1,399	7,615	2,234
1983	18,652	1,579	4,736	1,422	6,695	2,822
1984	21,370	1,892	5,105	2,195	7,855	3,017
1985	21,662	1,801	4,250	2,059	8,713	2,753
1986	24,152	1,483	2,999	2,442	9,705	2,633
1987	26,000	2,200	2,800	4,400	9,200	2,800
1988	33,500	2,800	4,600	5,500	12,700	3,300
1989	48,000	3,800	6,700	5,900	22,400	4,700
1990	54,500	3,600	12,000	5,400	21,500	6,400
1991	57,200	3,900	12,700	5,100	23,800	6,100
1992	52,900	3,800	12,500	5,300	19,000	5,700
1993	48,600	3,800	12,900	4,000	17,000	5,300
1994	58,900	4,300	7,700	21,300	17,600	3,500
1995	59,000	4,000	7,500	21,800	16,100	4,000
1996	64,900	5,300	9,100	22,500	19,200	3,600
1997*	71,800	8,700	9,400	24,600	19,500	4,100

Year	Canada	Japan	Latin America	Middle East	Rest of the World	All Countries
1980	14,260	378	46	D	D	30,874
1981	15,185	720	50	D	D	33,048
1982	13,527	624	45	125	D	33,117
1983	9,852	875	119	179	D	30,272
1984	11,883	1,272	99	228	D	35,456
1985	12,032	1,218	141	258	D	35,712
1986	12,720	1,023	369	D	D	39,050
1987	9,900	2,300	700	D	1,200	40,200
1988	12,000	3,000	600	100	2,200	51,400
1989	9,400	3,400	2,700	100	18,300	81,900
1990	10,000	4,600	800	D	D	89,800
1991	10,300	4,800	800	100	20,400	94,500
1992	9,800	4,900	F	200	21,500	92,300
1993	10,200	4,200	700	200	20,700	84,600
1994	10,200	3,800	800	200	4,000	77,900
1995	12,200	3,600	700	200	4,100	79,800
1996	18,200	2,700	900	400	2,700	89,800
1997*	17,200	2,800	800	400	3,600	96,600

D = The data has been suppressed to avoid disclosure of individual firm data.
F = 500 to 999 employees.
* Preliminary data.

Data description: The table presents data covering the employment of affiliates by country. The data series comes from Foreign Direct Investment in the United States: Operations of U.S. Affiliates of Foreign Companies, U.S. Department of Commerce, Bureau of Economic Analysis. Foreign direct investment in the United States means the ownership or control, directly or indirectly, by one foreign person of 10 percent or more of the voting securities of an incorporated U.S. business enterprise or an equivalent interest in an unincorporated U.S. business enterprise, including a branch. **Additional information:** Publications and diskettes may be obtained from Economic and Statistical Analysis Division, Bureau of Economic Analysis, U.S. Department of Commerce.

State agency contact:
Information and Analysis Division (651) 297-2335
Analysis and Evaluation Office
Minnesota Department of Trade and Economic Development
http://www.dted.state.mn.us

TABLE 34 EMPLOYMENT OF AFFILIATES BY INDUSTRY

Year	All Industries	Petroleum	Manufacturing						Information[2]
			Total	Food & kindred products	Chemicals & allied products	Primary & fabricated metals	Machinery	Others	
1981	33,048	249	16,281	1,339	2,934	149	5,438	6,421	INA
1982	33,117	254	16,741	1,716	2,822	D	4,824	D	INA
1983	30,272	224	17,449	D	3,140	D	4,956	6,294	INA
1984	35,456	218	18,913	2,110	3,511	923	6,464	5,905	INA
1985	35,712	202	19,268	1,944	4,060	1,152	6,332	5,780	INA
1986	47,982	298	20,147	1,873	2,903	1,167	7,161	7,043	INA
1987	40,200	500	21,700	1,500	3,400	1,200	8,300	7,300	INA
1988	51,400	1,100	28,600	4,400	3,400	1,500	11,700	7,600	INA
1989	81,900	1,100	39,700	10,400	5,400	3,300	10,200	10,500	INA
1990	89,800	1,300	40,300	10,000	7,000	4,200	9,100	10,100	INA
1991	94,500	1,300	41,400	11,300	6,300	4,400	9,100	10,300	INA
1992	92,300	1,200	40,800	INA	INA	INA	INA	INA	INA
1993	84,600	900	35,400	INA	INA	INA	INA	INA	INA
1994	77,900	300	36,500	INA	INA	INA	INA	INA	INA
1995	79,800	200	38,100	INA	INA	INA	INA	INA	INA
1996	89,800	200	48,000	INA	INA	INA	INA	INA	INA
1997[1]	96,600	INA	39,200	INA	INA	INA	INA	INA	8,500

Year	Wholesale trade	Retail trade	Banking[3]	Finance except banking	Insurance	Real estate	Services industry[1]	Other industries[6]
1981	2,115	4,088	46	D	897	INA	INA	D
1982	2,150	4,337	160	950	749	INA	INA	2,145
1983	2,267	2,469	151	749	638	INA	INA	977
1984	3,052	3,002	156	1,443	677	INA	INA	1,783
1985	1,898	2,840	206	1,455	652	INA	INA	1,228
1986	2,359	4,990	213	1,792	342	INA	INA	425
1987	3,100	3,600	500	1,900	500	4,400	INA	4,100
1988	2,900	3,600	600	1,900	500	6,500	INA	5,800
1989	3,300	6,200	600	1,900	600	8,200	INA	20,400
1990	8,500	6,600	300	2,400	600	8,100	INA	21,700
1991	8,900	7,500	300	2,600	500	8,500	INA	23,400
1992	8,800	6,300	400	2,600	500	8,300	INA	23,500
1993	9,100	6,000	300	2,400	500	7,100	INA	22,900
1994	4,000	3,800	300	2,700	500	6,800	INA	23,100
1995	3,300	4,000	300	2,800	500	6,100	INA	24,500
1996	3,400	4,300	300	2,900	400	5,800	INA	24,300
1997[1]	3,900	2,800	3,400	INA	500	INA	800	37,500

INA = Information not available.
D = The data has been suppressed to avoid disclosure of individual firm data.
[1] Preliminary data. [2] Information was a new industry introduced in 1997, comprising publishing information and data processing, broadcasting and telecommunications, and motion pictures. [3] Starting in 1997, Finance (except depository institutions) and Insurance are combined. [4] The Services industry was included with Other industries prior to 1987. [5] Starting in 1997, data on Professional, Scientific and Technical Services were provided, with all other services (excluding information services) included in Other Industries. [6] Before 1997, Other industries includes transportation, mining, utilities and construction. After 1997, Other industries also includes petroleum and services not included in Professional services and Information services.

Data description: Data covers the employment of affiliates by industry. The data series comes from Foreign Direct Investment in the U.S.: Operations of U.S. Affiliates of Foreign Companies, U.S. Department of Commerce, Bureau of Economic Analysis. An affiliate is a business enterprise located in one country that is directly or indirectly owned or controlled by a person of another country to the extent of 10 percent or more of its voting securities for an incorporated business or enterprise or an equivalent interest for an unincorporated business enterprise, including a branch. A U.S. affiliate means an affiliate located in the United States in which a foreign person has a direct investment. **Additional information:** Publications and diskettes may be obtained from Economic and Statistical Analysis Division, Bureau of Economic Analysis, U.S. Department of Commerce

State agency contact:
Information and Analysis Division, Analysis and Evaluation Office (651) 297-2335
Minnesota Department of Trade and Economic Development
http://www.dted.state.mn.us

TABLE 35 FARM INCOME AND EXPENSES (MILLIONS)

Year	Total net farm income	Receipts from marketings	Govt. paymts.	Other income[1]	Non-money income[2]	Inventory change	Production expenses
1993	$161.5	$6,429.8	$823.3	$264.8	$356.3	-$783.3	$6,929.4
1994	1447.4	6460.1	622.3	277.8	378.3	1146.5	7437.5
1995	919.3	7211.6	467.8	312.1	399.2	-61.4	7409.8
1996	2262.4	8809.6	349.3	347.3	416.3	178.1	7838.2
1997	953.8	7997.8	417.0	483.5	438.2	11.9	8394.6
1998	1260.4	7679.9	762.4	414.8	457.5	238.9	8293.2

[1] Includes income from custom work, machine hire, recreation and sale of forest products.
[2] Includes value of home consumption and rental value of housing

Data description: Agricultural statistics are compiled and published throughout the year by the Minnesota Agricultural Statistics Service, a joint venture by the State of Minnesota and the U.S. Department of Agriculture. Each year a summary of these statistics is published in Minnesota Agricultural Statistics. **Additional information:** Data for earlier years is available. Considerable additional information is available concerning prices and production volumes of individual crop and livestock products statewide and in individual counties.

State agency contact:
Minnesota Agricultural Statistics Service (651) 296-2230

TABLE 36 FARM NUMBER, NET INCOME, ASSETS AND DEBT

Year	Number of farms (thousands)	Total net farm income (millions)	Net income per farm[1]
1993	86	161.5	1,878
1994	85	1447.4	17,129
1995	83	919.3	11,076
1996	82	2262.4	27,590
1997	81	953.8	11,775
1998	80	1260.4	15,755

Note: Data is for farms having annual sales of agricultural products of $1,000 or more.
[1] Includes value of home consumption and rental value of housing.

Data description: Agricultural statistics are compiled and published throughout the year by the Minnesota Agricultural Statistics Service, a joint venture by the State of Minnesota and the U.S. Department of Agriculture. Each year a summary of these statistics is published in Minnesota Agricultural Statistics. **Additional information:** Data for earlier years is available. Considerable additional information is available concerning prices and production volumes of individual crop and livestock products statewide and in individual counties.

State agency contact:
Minnesota Agricultural Statistics Service (651) 296-2230

TABLE 37 MINERAL PRODUCTION - VALUE AND QUANTITY

Year	Value (thousands)						Quantity (thousand tons)			
	Total	Iron ore	Sand & gravel	Crushed stone	Dimension stone	Other[1]	Iron ore	Sand & gravel	Crushed stone	Dimension stone
1972	$659,669	$601,869	$33,454	$9,358	$6,960	$8,028	50,595	36,792	5,719	38
1973	852,785	782,197	39,438	12,026	8,385	10,739	62,614	37,935	7,520	60
1974	1,026,366	949,678	42,370	14,201	7,841	12,277	59,422	36,720	8,266	35
1975	1,097,088	1,015,272	45,214	13,244	10,058	13,300	49,167	33,398	6,854	43
1976	1,218,030	1,137,733	44,503	15,948	9,819	10,027	47,874	33,486	7,567	37
1977	875,603	782,627	59,629	16,991	8,133	8,223	30,245	30,713	7,831	33
1978	1,724,731	1,627,099	54,970	20,730	9,356	12,576	56,473	31,080	9,666	35
1979	2,067,990	1,965,710	55,427	22,175	11,543	13,135	59,682	30,939	9,751	38
1980	1,782,010	1,686,839	49,180	21,731	14,189	10,071	45,472	25,110	8,606	44
1981	2,154,761	2,062,118	49,770	18,438	14,298	10,137	50,176	23,200	6,995	41
1982	1,110,126	1,021,056	44,222	20,900	11,940	12,008	23,175	20,276	7,100	40
1983	1,455,030	1,342,455	53,000	25,320	11,365	22,890	30,699	24,600	8,580	28
1984	1,676,247	1,561,516	49,087	25,800	13,369	26,475	35,602	22,612	8,900	40
1985	1,547,958	1,430,353	55,500	22,601	13,598	24,181	34,977	25,000	7,756	37
1986	1,127,627	1,017,261	53,116	26,300	10,507	20,443	28,779	24,055	8,300	28
1987	1,142,749	1,012,788	67,400	29,246	12,967	20,348	33,654	25,200	8,995	41
1988	1,267,499	1,134,539	72,678	28,200	13,000	19,082	40,735	33,769	8,300	45
1989	1,376,237	1,233,909	82,600	30,218	16,031	22,022	41,044	33,700	8,760	45
1990	1,469,922	1,308,920	77,502	31,900	20,836	27,746	45,139	33,869	9,100	60
1991	1,288,885	1,157,920	58,800	30,624	13,962	25,607	42,966	24,500	8,378	46
1992	1,363,986	1,180,563	98,673	39,500	11,436	30,317	42,348	34,114	9,525	33
1993	1,300,000	1,130,000	85,400	37,700	11,800	35,100	42,500	30,500	9,420	34
1994	1,340,000	1,160,000	90,000	47,100	NA	NA	43,300	29,500	10,900	17
1995	1,530,000	1,330,000	99,400	47,400	11,100	42,100	47,000	31,900	11,300	27
1996	1,540,000	1,330,000	107,000	59,000	10,700	33,300	46,800	31,800	12,100	25
1997	1,680,000	1,430,000	127,000	75,000	17,900	30,100	47,900	34,500	14,600	33
1998	1,740,000	1,470,000	154,000	71,500	18,800	25,700	47,200	39,400	13,600	48
1999[2]	1,580,000	1,300,000	170,000	67,500	19,200	23,300	42,000	42,600	12,500	45

[1] Includes clays, peat, lime, industrial sands, etc.
[2] Preliminary data.

Data description: The U.S. Geological Survey (USGS) annually collects data from mineral establishments through 144 different surveys. The Minerals Yearbook summarizes on a calendar-year basis the significant economic and technical developments in the mineral industries. Prior to 1995, the information in the Minerals Yearbook was collected and published by the U.S. Bureau of Mines.

Local contact:
Minerals Division (651) 296-4807
MN Dept. of Natural Resources
http://www.dnr.state.mn.us/minerals
http://minerals.er.usgs.gov/minerals

USGS Survey:
Minerals Information
984 National Center
Reston, VA 20192

TABLE 38 RECEIPTS OF PETROLEUM PRODUCTS (THOUSAND GALLONS)

Fiscal Year	Fuel oil	Gasoline	Special fuel
1973	1,331,482	2,170,739	321,086
1974	1,297,370	2,120,897	369,719
1975	1,260,086	2,110,267	361,348
1976	1,200,092	2,131,003	380,661
1977	1,373,843	2,221,868	398,186
1978	1,283,360	2,284,101	419,317
1979	1,475,445	2,359,675	456,077
1980	1,209,201	2,165,513	474,862
1981	1,058,836	2,020,250	468,756
1982	1,038,419	1,971,775	479,013
1983	972,396	1,912,533	533,143
1984	1,063,294	2,079,796	579,169
1985	1,089,019	2,141,786	622,529
1986	1,092,647	2,182,448	630,177
1987	1,108,501	2,214,132	660,901
1988	1,178,090	2,364,906	658,408
1989	1,217,139	2,366,905	689,696
1990	1,239,177	2,359,027	704,939
1991	1,214,656	2,299,676	707,295
1992	1,105,367	2,462,403	653,981
1993	1,049,627	2,446,921	758,786
1994	1,145,551	2,597,225	772,043
1995	1,080,601	2,462,723	808,101
1996	1,218,177	2,449,934	876,407
1997	1,273,525	2,440,788	919,243
1998	1,335,588	2,494,868	948,225
1999	1,375,692	2,614,041	966,269
2000	1,532,740	2,719,048	1,107,338

Data description: Petroleum data is compiled from tax returns filed with the Department of Revenue by distributors and bulk storage operators. Figures listed represent gallons received in the state before any adjustments. Diesel fuel used for operating motor vehicles is included in special fuels. Heating fuel is not included. **Additional information:** Data are available monthly.

State agency contact:
Tax Research Division (651) 296-3425
Minnesota Department of Revenue
http://www.taxes.state.mn.us

TABLE 39 ENERGY CONSUMPTION BY FUEL TYPE (TRILLION BTU[1])

Year	Total energy used	Total primary energy used	Natural gas	Coal	Nuclear	Total petro-leum	Total fuel oil[2]	LPG	Gaso-line	Hydro	Net import export of elec-tricity[3]
1970	1086.8	1045.6	334.6	180.0	0.0	517.3	205.3	33.6	278.5	9.2	41.2
1971	1135.7	1066.9	342.8	155.8	15.2	539.3	215.4	35.6	288.5	10.1	68.8
1972	1182.4	37.7	345.1	161.7	38.8	578.2	239.8	39.2	299.2	10.8	44.7
1973	1207.2	1157.3	353.8	180.9	35.7	572.2	231.5	36.8	304.2	10.9	49.9
1974	1177.6	1123.3	339.4	188.7	47.6	533.1	208.1	34.5	290.6	9.4	54.2
1975	1187.3	1157.7	316.6	191.7	106.4	523.1	95.5	34.1	293.7	9.4	29.6
1976	1223.1	1205.0	299.5	222.0	108.1	554.2	219.4	32.5	302.2	6.0	18.2
1977	1194.2	1222.4	268.9	260.6	121.8	544.5	205.7	30.5	308.4	6.9	-28.2
1978	1266.3	1248.4	279.5	251.2	126.5	556.2	214.8	26.9	14.8	11.7	17.9
1979	1302.4	1246.4	298.4	228.0	125.5	555.9	216.3	31.3	08.4	9.9	55.9
1980	1208.4	1160.5	282.6	248.4	109.4	476.3	173.3	28.3	274.3	8.3	47.8
1981	1153.9	1105.5	266.7	253.5	111.1	427.4	143.8	21.7	262.0	10.0	48.4
1982	1165.2	1087.0	263.0	218.0	111.2	445.5	153.7	27.1	264.8	11.0	78.2
1983	1148.8	1066.2	239.5	217.4	128.2	427.5	151.3	27.2	248.9	12.4	82.6
1984	1174.8	1052.4	255.0	234.2	90.9	419.9	157.1	17.9	246.4	10.8	122.3
break in time series											
1985	1258.6	1180.6	258.5	226.1	125.1	479.3	162.5	19.3	238.0	38.0	78.0
1986	1249.9	1194.1	244.5	201.4	119.4	492.0	165.5	22.9	240.7	83.0	55.8
1987	1256.6	1183.2	239.8	256.0	124.5	481.1	146.0	19.8	247.2	29.2	73.4
1988	1360.8	1265.1	285.8	303.6	132.0	498.3	153.1	20.5	256.6	-10.2	95.7
1989	1372.5	1293.9	301.7	323.0	117.2	495.7	144.9	22.4	255.3	0.1	78.6
1990	1366.9	1309.6	291.7	324.3	129.6	496.3	142.7	21.6	251.1	19.5	57.3
1991	1412.3	1351.8	318.3	300.6	129.5	513.8	158.4	23.8	255.4	31.6	60.5
1992	1425.3	1397.6	312.2	300.1	119.2	544.7	171.0	29.0	261.2	50.1	27.7
1993	1488.6	1480.1	331.5	324.7	128.0	565.7	184.1	32.2	269.7	65.6	8.5
1994	1533.5	1531.1	327.4	332.1	130.5	592.5	200.3	34.3	274.8	69.6	2.4
1995	1631.9	1623.9	357.7	337.2	141.1	613.1	203.7	35.4	283.2	72.9	8.0
1996	1676	1654.5	375.1	345.5	128.5	636.1	208.3	43.4	286.2	77.8	21.5
1997	1675.3	1645.1	360.5	341.2	114.9	637.6	210.7	37.1	290.6	75	30.2
1998	2306.9	2264.1	331.8	349.6	123.7	634.6	209.7	26.8	302.8	70.9	42.8
1999	1675.3	1631.9	346.3	336	141.5	661	214	31.5	312.1	58.5	43.4

[1] Btu figures are based on unrounded physical unit numbers.
[2] Total fuel oil represents the sum of distillate, jet, and residual fuel oils.
[3] Net import or export of electricity is the difference between the amount of energy in electricity sold within a state (including associated losses) and the energy input at the electric utilities within the state. A positive number indicates that more electricity came into the state than went out of the state during the year; conversely, a negative number indicates that more electricity went out of the state than came in.

Data description: The data series for this table is prepared by the Energy Division of the Minnesota Department of Commerce. The data comes from the Energy Division's computerized state energy data collection and information system, Regional Energy Information System.The data in this table is from the State Energy Data Report 1999, Energy Information Administration, U.S. Department of Energy (www.eia.doe.gov).

State agency contact:
Energy Information Center (651) 296-5175 (800) 657-3710 outstate
Minnesota Department of Commerce
http://www.commerce.state.mn.us

TABLE 40 RESIDENTIAL AND TRANSPORTATION ENERGY PRICES

Year	Residential				Transportation	
	Natural gas (per Mcf)	Electricity (¢ per kWh)	Distillate (per gal)	LPG (per gal)	Retail diesel (per gal)[1]	Retail gasoline (per gal)[1]
1970	$1.09	$0.025	$0.18	$0.18	$0.17	$0.37
1971	1.18	0.026	0.18	0.18	0.18	0.37
1972	1.23	0.027	0.18	0.19	0.17	0.37
1973	1.30	0.027	0.22	0.33	0.22	0.39
1974	1.41	0.030	0.35	0.31	0.35	0.54
1975	1.57	0.034	0.35	0.37	0.37	0.58
1976	1.74	0.036	0.39	0.41	0.40	0.61
1977	2.14	0.039	0.44	0.41	0.46	0.65
1978	2.41	0.042	0.48	0.42	0.46	0.63
1979	2.88	0.043	0.72	0.52	0.70	0.88
1980	3.24	0.055	1.00	0.64	0.99	1.20
1981	4.11	0.059	1.18	0.64	1.16	1.32
1982	4.94	0.063	1.15	0.79	1.12	1.31
1983	5.77	0.066	1.09	0.75	1.19	1.19
1984	5.98	0.064	1.10	0.75	1.20	1.17
1985	5.78	0.065	1.08	0.67	1.20	1.22
1986	5.28	0.066	0.84	0.65	0.94	0.93
1987	4.58	0.066	0.79	0.64	0.99	0.96
1988	4.61	0.068	0.78	0.61	1.00	0.98
1989	4.54	0.067	0.87	0.88	1.09	1.09
1990	4.61	0.068	1.07	0.72	1.27	1.20
1991	4.47	0.069	0.97	0.64	1.15	1.16
1992	4.81	0.070	0.87	0.72	1.13	1.14
1993	5.25	0.071	0.88	0.71	1.14	1.16
1994	5.12	0.072	0.85	0.74	1.15	1.18
1995	4.74	0.072	0.85	0.74	1.14	1.17
1996	5.36	0.071	0.97	0.92	1.28	1.30
1997	5.66	0.072	0.96	0.88	1.26	1.30
1998[P]	5.48	0.73	0.74	0.75	0.64	1.10
1999[P]	5.56	0.74	0.77	0.79	0.72	1.19
2000[P]	7.78	0.74	1.15	1.04	1.07	1.54

[1] Prices are net of state and federal motor fuel taxes.
[P] Preliminary data.

Data description: The data series for this table is prepared by the Energy Division of the Minnesota Department of Commerce. The data comes from the Energy Division's computerized state energy data collection and information system, Regional Energy Information System (REIS). The REIS includes energy data collected by the Energy Division directly from energy suppliers, as well as data collected in other state departments such as the Minnesota Department of Revenue's Petroleum Taxation Division. It also includes energy data specific to Minnesota collected by the U.S. Department of Energy and the Department of Commerce, Bureau of the Census. **Additional information:** Prices are expressed in nominal terms. "Residential" refers to private households, including apartment units and farm households. "Transportation" represents all vehicles for moving people and commodities, as well as the pipeline transmission of natural gas. Farm tractors are excluded.

State agency contact:
Energy Information Center (651) 296-5175 (800) 657-3710 (outstate)
Minnesota Department of Commerce
http://www.commerce.state.mn.us

TABLE 41 INDUSTRIAL AND COMMERCIAL ENERGY PRICES

	Industrial				Commercial				
Year	Natural gas (per Mcf)	Distillates (per gal)	Coal (per ton)	Electricity (¢ per kWh)	Natural gas (per Mcf)	Distillate fuel oil (per gal)	Residual fuel oil (per gal)	Electricity (per kWh)	LPG (per gal)
1970	$0.42	$0.12	$9.01	$0.01	$0.69	$0.15	$0.09	$0.03	$0.11
1971	0.45	0.11	12.76	0.02	0.76	0.15	0.13	0.03	0.12
1972	0.48	0.11	10.48	0.02	0.83	0.15	0.12	0.03	0.12
1973	0.54	0.15	12.14	0.02	0.85	0.19	0.13	0.03	0.12
1974	0.64	0.29	20.00	0.02	0.98	0.32	0.28	0.03	0.22
1975	0.84	0.33	25.20	0.02	1.16	0.32	0.30	0.04	0.23
1976	1.13	0.34	26.32	.03	1.41	0.36	0.26	0.04	0.26
1977	1.13	0.38	27.34	.03	1.73	0.41	0.31	0.04	0.29
1978	1.24	0.41	27.76	.03	2.03	0.43	0.31	0.04	0.33
1979	1.46	0.56	22.87	.03	2.60	0.66	0.40	0.04	0.31
1980	2.51	0.79	30.17	.04	2.89	0.92	0.67	0.04	0.43
1981	3.20	0.89	34.39	.04	3.66	1.10	0.83	0.05	0.48
1982	4.08	1.01	36.03	.05	4.53	1.05	0.69	0.05	0.51
1983	4.36	0.92	38.55	.05	5.15	0.92	0.55	0.06	0.57
1984	4.29	0.93	40.08	.04	5.37	0.90	0.67	0.06	0.55
1985	4.04	0.88	42.77	.04	5.18	0.87	0.61	0.06	0.76
1986	3.42	0.59	40.60	.04	4.62	0.55	0.43	0.06	0.76
1987	2.55	0.64	37.40	.04	3.89	0.61	0.36	0.06	0.57
1988	2.79	0.60	35.24	.04	4.00	0.53	0.35	0.06	0.71
1989	2.86	0.67	36.51	.04	3.98	0.64	0.36	0.06	0.66
1990	2.96	0.90	36.63	.04	3.96	0.77	0.37	0.06	0.86
1991	2.75	0.74	35.81	.04	3.77	0.69	0.32	0.06	0.76
1992	3.02	0.76	35.58	.04	4.06	0.69	0.27	0.06	0.55
1993	3.17	0.72	35.66	.04	4.47	0.66	0.33	0.06	0.80
1994	2.84	0.72	34.40	.04	4.31	0.61	0.33	0.06	0.71
1995	2.42	0.72	34.48	.04	3.93	0.61	0.36	0.06	0.71
1996	2.92	0.88	28.85	.04	4.55	0.76	0.45	0.06	0.81
1997	3.22	0.83	31.03	.04	4.71	0.74	0.46	0.06	0.86
1998[p]	2.88	0.62	29.70	.04	4.39	0.55	0.29	0.06	0.67
1999[p]	2.96	0.67	30.81	.05	4.44	0.61	0.39	0.06	0.71
2000[p]	4.48	1.03	30.35	.05	6.05	0.94	0.55	0.06	0.96

Data description: The data series for this table is prepared by the Energy Division of the Minnesota Department of Commerce. The data comes from the Energy Division's computerized state energy data collection and information system, Regional Energy Information System (REIS). The REIS includes energy data collected by the Energy Division directly from energy suppliers, as well as data collected in other state departments such as the Minnesota Department of Revenue's Petroleum Taxation Division. It also includes energy data specific to Minnesota collected by the U.S. Department of Energy and the Department of Commerce, Bureau of the Census. **Additional information:** Prices are expressed in nominal terms. "Commercial" refers to nonmanufacturing business establishments such as motels, restaurants, wholesale and retail stores, service enterprises, and health and educational institutions, as well as federal, state and local government. "Industrial" refers to the manufacturing, con-struction, mining, fishing and forestry establishments.

State agency contact:
Energy Information Center (651) 296-5175 (800) 657-3710 outstate
Minnesota Department of Commerce
http://www.commerce.state.mn.us

TABLE 42 OUTSTANDING LOANS AND DEMAND DEPOSITS IN THE NINTH REDERAL RESERVE DISTRICT (MILLIONS)

Year	Commercial and industrial loans	Farm loans	Real estate loans	Demand deposits
1970	$843.8	$12.3	$329.5	$914.5
1971	919.1	14.2	325.3	954.5
1972	1116.7	14.8	392.2	1004.3
1973	1394.9	22.5	461.5	1070.4
1974	1529.6	22.4	499.0	1109.7
1975	1302.2	19.1	560.5	1111.7
1976	1233.0	23.4	608.3	1167.9
1977	1445.2	28.0	699.8	1252.2
1978	1733.6	44.2	801.6	1387.8
1979	1966.8	74.5	831.4	1370.5
1980	2250.2	81.6	939.0	1458.1
1981	2535.7	85.2	1051.1	1447.4
1982	3133.7	96.9	1102.1	1471.8
1983	3833.2	90.6	1105.0	1632.1
1984	4329.1	86.7	1165.5	1634.5
1985	5009.1	46.7	1290.9	1754.5
1986	5310.4	23.1	1316.2	1913.0
1987	5266.0	4.6	1513.2	2072.8
1988	7108.3	8.1	2589.7	2574.4
1989	7152.4	11.8	2719.3	2424.6
1990	7323.7	14.0	2751.5	2497.9
1991	6790.9	36.6	4740.7	3050.8
1992	5897.7	62.5	7107.9	3794.3
1993	5903.3	95.8	9297.0	5186.1
1994	6422.0	30.3	7966.8	5938.9
1995	7220.8	35.0	7823.3	5710.5

Data description: The source of the data in this table is the Federal Reserve Bank of Minneapolis. The entries represent the average weekly loans outstanding or demand deposits at large banks in the Ninth Federal Reserve District (Minnesota, North Dakota, South Dakota, Montana and parts of Wisconsin, Michigan and Iowa). Effective January 1988, "large banks" are those that have domestic assets of at least $3 billion. **Additional information:** Information is no longer available for the Ninth Federal Reserve District. More recently, information on assets and loans of Minnesota banks is available from the Federal Reserve Bank of Minneapolis (http://www.minneapolisfed.org/economy/bankdir/bankdir.html).

State agency contact:
Tax Research Division (651) 296-3425
Minnesota Department of Revenue
http://www.taxes.state.mn.us

TABLE 43 MEDIAN HOUSING PRICES, SALES AND MORTGAGES

Year	Median housing prices		Number of sales		Conventional mortgages	
	All MSA counties	All non-MSA counties	All MSAs	All non-MSAs	Effective rate	Average purchase price (thousands)
1970	INA	INA	INA	INA	8.01%	$32.7
1971	INA	INA	INA	INA	7.81	32.8
1972	INA	INA	INA	INA	7.69	33.8
1973	INA	INA	INA	INA	7.85	36.7
1974	INA	INA	INA	INA	8.13	40.1
1975	$34,400	$23,000	27,430	9,943	8.15	50.2
1976	36,900	26,500	33,398	13,954	8.58	50.9
1977	42,300	31,000	42,577	15,949	8.93	54.8
1978	47,790	35,000	47,787	17,205	9.46	64.4
1979	57,350	37,600	44,525	15,463	10.40	73.7
1980	62,000	38,500	30,222	11,011	12.08	80.4
1981	65,500	39,750	26,018	10,182	14.17	90.6
1982	67,000	40,000	20,946	8,366	14.27	92.7
1983	67,750	41,000	28,412	10,808	12.53	94.2
1984	68,500	40,480	33,075	10,953	12.04	100.7
1985	70,000	40,000	36,484	11,091	11.18	116.8
1986	73,000	41,000	47,866	12,716	8.43	96.8
1987	74,900	40,000	40,169	12,491	8.85	139.0
1988	76,000	40,000	37,179	13,497	8.40	138.9
1989	78,000	42,000	35,372	13,689	9.94	148.0
1990	79,900	43,000	35,223	13,762	9.91	133.5
1991	82,500	45,500	34,929	13,078	9.55	117.4
1992	85,000	48,000	42,386	14,820	8.48	124.7
1993	88,000	50,580	47,011	15,150	7.32	134.3
1994	89,000	51,000	42,668	15,585	7.76	140.8
1995	93,000	60,000	38,934	16,224	7.98	138.7
1996	99,000	61,900	46,663	15,489	7.79	145.5
1997	106,000	65,400	44,688	15,709	7.67	161.6
1998	116,500	72,300	54,798	16,622	7.79	124.8
1999	127,000	77,000	41,414	13,212	7.25	185.3

INA = Information not available.

Data description: Median housing prices are computed from real estate values collected by county assessors. Values are reported on Certificates of Real Estate Value submitted to the Minnesota Department of Revenue whenever residential property is sold or transferred. Mortgage information is based on a sample of conventional home mortgage loans closed in the Twin Cities metropolitan area. The data is developed and published by the Federal Housing Finance Board. **Additional information:** Median housing prices and sales are computed for each metropolitan statistical area (MSA) and county, and for selected cities. The data is updated annually. The most recent year's data always includes only nine months. That data is then revised the following year. The mortgage information is updated monthly with a lag of one month. Median housing price information is available from the Minnesota Housing Finance Agency. Mortgage information is available from the Minnesota Department of Revenue.

State agency contacts:

Research Division (651) 296-9952
Minnesota Housing Finance Agency
http://www.mhfa.state.mn.us

Tax Research Division (651) 296-3425
Minnesota Department of Revenue
http://www.taxes.state.mn.us

TABLE 44 HOUSING UNITS AUTHORIZED

Year	Total units	Public contract	New private-unit permits		
			Total	1 unit	2+ units
1971	29,664	57	29,607	12,669	16,938
1972	34,216	335	33,881	17,756	16,125
1973	20,342	110	20,232	13,720	6,512
1974	18,704	352	18,352	13,117	5,235
1975	17,397	0	17,397	13,249	4,148
1976	24,218	0	24,218	18,206	6,012
1977	36,718	250	36,468	24,794	11,674
1978	35,962	0	35,962	26,533	9,429
1979	28,999	52	28,947	20,322	8,625
1980	21,037	13	21,024	13,707	7,317
1981	16,789	157	16,632	11,362	5,270
1982	17,593	135	17,458	11,123	6,335
1983	24,754	0	24,754	16,200	8,554
1984	26,599	0	26,599	15,869	10,730
1985	28,920	0	28,920	17,419	11,501
1986	33,980	0	33,980	21,583	12,397
1987	34,749	0	34,749	22,127	12,622
1988	28,380	0	28,380	19,237	9,143
1989	25,127	0	25,127	18,298	6,829
1990	23,251	0	23,251	18,589	4,663
1991	21,774	0	21,774	18,358	3,414
1992	25,622	0	25,622	22,153	3,469
1993	26,209	0	26,209	22,130	4,079
1994	26,074	0	26,074	21,048	5,026
1995	25,668	0	25,668	20,699	4,969
1996	26,117	0	26,331	21,181	4,975
1997	25,594	0	25,594	20,439	5,155
1998	30,509	0	30,509	23,680	6,829
1999	32,763	0	32,763	25,945	8,313

Data description: Housing units authorized by building permits or public contract are reported to the Bureau of the Census by local building permit officials. **Additional information:** Data is updated monthly. The information was formerly published by state and metropolitan area in the Bureau of the Census C-40 series Housing Units Authorized by Building Permits. It is available on the Internet (www.census.gov).

State agency contact:
Tax Research Division (651) 296-3425
Minnesota Department of Revenue
http://www.taxes.state.mn.us

TABLE 45 CONSTRUCTION CONTRACT AWARDS AND CONSTRUCTION AUTHORIZED

Year	Construction contract awards (millions)				Private nonresidential construction (millions)
	Total	Residential	Nonresidential	Nonbuilding	
1970	$1,096,383	$391,663	$432,056	$272,664	INA
1971	1,335,425	512,372	434,120	388,933	INA
1972	1,344,924	602,651	433,980	308,293	INA
1973	1,788,073	781,433	645,037	361,603	INA
1974	2,053,644	633,651	629,926	740,068	$32.99
1975	1,665,021	569,107	606,308	488,606	22.10
1976	1,981,205	897,816	677,255	405,170	24.51
1977	2,578,656	1,333,650	678,891	561,929	36.19
1978	3,187,625	1,710,453	896,726	583,288	54.38
1979	3,298,718	1,478,941	1,036,746	776,294	63.06
1980	2,744,318	1,144,817	933,127	658,925	56.02
1981	2,712,882	1,195,400	909,800	591,800	54.50
1982	2,985,300	1,201,000	955,000	553,300	73.96
1983	4,201,500	1,569,800	960,500	1,671,500	80.25
1984	3,754,700	1,698,800	1,272,100	783,800	107.48
1985	4,239,200	1,993,000	1,373,600	872,500	116.49
1986	4,669,800	2,455,500	1,279,160	804,800	139.63
1987	5,000,100	2,507,200	1,528,200	954,800	INA
1988	4,622,900	2,291,400	1,658,100	902,100	INA
1989	5,056,100	2,160,100	1,815,800	997,900	INA
1990	4,880,500	2,239,200	1,855,400	836,900	INA
1991	4,482,800	2,242,000	1,495,900	666,100	INA
1992	5,300,000	2,724,500	1,537,800	998,300	INA
1993	5,135,700	2,724,800	1,494,400	905,400	INA
1994	5,495,300	2,596,400	2,018,500	879,700	INA
1995	5,379,800	2,274,500	1,907,400	1,106,800	INA
1996	5,410,700	2,721,000	1,720,600	969,000	INA
1997	6,270,600	2,619,400	2,245,000	1,407,700	INA
1998	7,615,000	3,351,000	3,082,900	1,180,900	INA
1999	7,617,200	3,620,600	3,041,400	1,691,300	INA

INA = Information not available.

Data description: Construction contract award information is obtained from F.W. Dodge McGraw Hill Information Services Company. Authorized construction data is found in Construction Review, published bimonthly by the U.S. Department of Commerce, International Trade Administration.
Additional information: Data is available monthly on construction contract awards and authorized construction.

State agency contacts:
Tax Research Division (651) 296-3425
Minnesota Department of Revenue
http://www.taxes.state.mn.us

TABLE 46 MARKET VALUE OF REAL PROPERTY BY PROPERTY TYPE (THOUSANDS)

Assessment year	Total real property	Agricultural: Farm	Agricultural: Timber	Agricultural: Seasonal rec. residential	Nonagricultural: Residential	Nonagricultural: Apartments
1975	35,763,309	7,204,669	8,339	621,913	17,996,179	1,908,965
1980	90,485,939	26,422,088	23,327	1,970,388	44,838,182	3,716,100
1981	103,331,242	30,797,647	29,729	2,349,970	50,427,888	4,232,674
1982	113,238,393	34,172,312	120,176	2,592,991	54,637,427	4,722,035
1983	118,297,106	35,588,551	259,660	2,719,348	56,511,582	4,917,466
1984	120,668,207	34,244,001	275,175	2,931,273	59,020,795	5,108,689
1985	121,217,292	30,633,105	268,943	3,111,635	61,220,786	5,446,365
1986	119,726,714	25,077,534	267,707	3,210,276	62,935,816	5,954,133
1987	121,569,192	20,491,742	271,367	3,335,072	66,493,164	6,460,736
1988	128,658,534	19,927,756	274,418	3,496,013	71,536,885	6,918,909
1989	135,675,707	20,678,183	290,501	3,617,443	76,018,911	7,236,501
1990	143,606,465	22,372,367	293,933	3,796,656	80,455,864	7,485,467
1991	149,150,448	23,937,743	297,912	3,974,328	84,009,471	7,542,494
1992	153,992,608	24,645,088	285,184	4,209,678	88,819,916	7,373,712
1993	159,008,719	25,347,351	294,223	4,326,741	93,783,517	7,152,944
1994	166,739,642	26,091,748	317,966	4,594,990	100,298,222	7,138,358
1995	177,163,788	27,359,507	333,425	4,944,310	108,136,445	7,255,675
1996	189,035,434	28,765,635	359,900	5,335,225	115,925,106	7,567,190
1997	202,875,383	30,310,404	387,234	5,773,264	124,992,080	7,971,442
1998	219,034,139	32,370,416	455,015	6,330,529	134,561,077	8,688,210
1999	237,387,125	34,255,717	492,002	6,843,224	146,155,030	9,570,800

Nonagricultural, continued

Assessment year	Vacant land*	Seasonal rec. commercial	Commercial land & bldgs.	Industrial land & bldgs.	Public utility	Other**
1975	360,861	61,642	4,292,864	1,828,890	1,391,156	87,833
1980	986,764	143,734	7,233,512	3,034,683	2,037,161	79,999
1981	1,101,394	159,903	8,409,866	3,390,007	2,099,121	333,044
1982	1,193,803	172,952	9,391,546	3,767,085	2,109,955	358,110
1983	1,210,452	181,056	10,305,294	4,102,153	2,170,149	331,394
1984	1,211,439	185,010	11,032,134	4,242,537	2,178,098	239,056
1985	1,196,248	179,946	12,193,555	4,527,821	2,195,301	243,587
1986	1,237,634	193,041	13,278,038	4,926,766	2,366,688	279,081
1987	1,306,105	198,635	14,765,626	5,360,553	2,616,340	269,851
1988	1,336,262	205,365	16,224,421	5,675,454	2,789,667	273,384
1989	1,443,211	205,507	17,289,905	5,757,537	2,855,395	282,613
1990	1,501,029	212,956	18,371,812	5,984,871	2,860,318	271,192
1991	1,455,205	214,735	18,378,447	6,181,068	2,873,438	285,606
1992	0	225,313	18,909,594	6,314,363	2,927,654	281,705
1993	0	252,542	18,345,908	6,187,768	3,021,635	295,820
1994	0	276,088	18,298,569	6,346,566	3,066,751	310,121
1995	0	299,927	18,632,376	6,804,666	3,077,764	319,297
1996	INA	332,037	20,143,018	7,300,221	2,986,985	320,118
1997	INA	423,471	21,803,529	7,856,589	2,994,810	362,558
1998	INA	474,078	24,137,548	8,512,088	3,086,046	429,131
1999	INA	525,413	26,590,891	9,304,248	3,188,880	460,918

*Beginning in 1992, vacant land has been reclassified to the highest and best use permitted under local zoning ordinances (M.S. 273.11, subd.14).

**Includes railroads, minerals, parking ramps, refineries and other miscellaneous real estate.

Data description: Market value data is compiled by the Dept. of Revenue from property tax information provided by local units of government. Property value listed is value as of Jan. 2 of each year. **Additional information:** County detail is published annually in Property Taxes Levied in Minnesota, MN Dept. of Revenue. Market values of certain taxable personal property are also available.

State agency contact:
Property Tax Division (651) 296-2286
Minnesota Department of Revenue
http://www.taxes.state.mn.us

TABLE 47 AVERAGE ESTIMATED VALUE/ACRE OF FARMLAND BY DISTRICT

Year	State average	South-west	South Central	South-east	West Central	Central	East Central	North-west	North Central	North-east
1973	$338	$470		$498	$261		$230	$187		$112
1974	482	713		667	400		301	267		143
1975	607	890		782	532		341	426		166
1976	774	1168		1000	672		409	510		221
1977	908	1413		1204	788		475	535		294
1978	1023	1523		1380	893		574	615		353
1979	1191	1703		1678	983		676	757		360
1980	1280	1907		1737	1074		721	803		438
1981	1472	2226		1941	1262		841	937		453
1982	1358	2053		1727	1149		740	925		410
1983	1240	1766		1578	1141		781	816		425
1984	1100	1563		1323	988		792	750		398
1985	802	1081		1016	766		539	562		296
1986	616	809		708	589		473	468		288
1987	584	775		688	532		422	472		254
1988	653	920		782	570		442	505		218
1989	721	1073		944	643		410	450		249
1990	892	1189		1137	721		542	643		258
1991	853	1233		1099	712		497	509		230
1992	912	1319		1172	795		517	563		248

- Break in series

Minnesota land sales: median sales price per acre of farmland by district

1990	$705	$932	$1,151	$800	$569	$798	$504	$463	$203	*
1991	740	959	1157	874	596	834	753	438	212	*
1992	782	1061	1237	933	659	864	672	456	248	*
1993	844	1081	1320	1033	673	949	766	522	221	$214
1994	855	1094	1377	1107	707	985	767	443	254	*
1995	884	1114	1361	1119	719	1067	784	496	250	*
1996	936	1089	1467	1184	769	1086	1086	485	32	*
1997	1039	1169	1616	1354	842	1297	1180	490	300	*
1998	1113	1266	1819	1517	860	1329	1428	486	*	*
1999	1196	1330	1835	1604	954	1493	1571	511	*	*
2000	1222	1315	1794	1721	962	1549	1738	492	*	*

*Too few sales.

Data description: In the past, information on Minnesota's farmland was collected through a questionnaire asking for both an estimate of land values and actual sales. The new series, with data beginning in 1990, is built from recorded property transfers. The new series reports recorded sales prices for all land parcels classified as "agricultural" for property tax purposes and greater than 35 acres, as well as building values. The new series uses districts defined by the National Agricultural Statistics Service.
Additional information: The land values survey was first conducted in 1953, but estimates are available back to 1910. The data is updated annually (available the succeeding April).

State agency contact:
Department of Applied Economics (612) 625-1222
University of Minnesota
http://www.apecon.agri.umn.edu

TABLE 48 STATE OF MINNESOTA CONSOLIDATED FUND STATEMENT BY MAJOR CATEGORY (THOUSANDS)

Fiscal Year	Resources: Total resources available	Resources: Total receipts	Resources: Interfund transfers/ transactions	Resources: Adjusted balance forward in	Expenditures: Total expenditures	Expenditures: Interfund transfers/ transactions	Expenditures: Balance forward out
1981	$6,083,868	$5,217,814	$571,085	$294,969	$5,321,664	$540,517	$221,687
1982	6,433,984	5,593,186	617,483	223,315	6,169,877	607,728	-343,621
1983	6,601,995	6,189,598	630,929	-218,532	5,558,276	590,669	453,050
1984	8,615,466	7,431,390	705,677	478,399	7,182,787	735,218	697,461
1985	9,537,302	7,757,958	933,358	845,986	7,587,042	867,874	1,082,386
1986	9,353,614	7,482,938	769,256	1,101,420	7,680,372	709,979	963,263
1987	10,144,133	8,322,696	830,627	990,810	8,174,456	812,941	1,156,736
1988	11,182,349	9,092,774	909,133	1,180,442	8,716,032	891,490	1,574,827
1989	12,057,454	9,291,441	1,187,701	1,578,312	9,111,701	1,155,681	1,790,072
1990	13,149,527	10,070,389	1,239,952	1,839,186	10,049,734	1,229,730	1,870,063
1991	12,149,654	10,176,223	40,487	1,932,944	10,609,591	-36,607	1,576,670
1992	12,570,128	10,985,482	-23,969	1,608,615	11,136,982	-31,379	1,464,525
1993	13,497,526	11,956,897	-25,152	1,565,781	11,630,947	57,925	1,924,504
1994	14,882,157	12,876,701	6,960	1,998,496	12,767,943	-31,253	2,145,467
1995	15,824,737	13,626,164	-10,384	2,208,957	13,550,274	-60,560	2,335,023
1996	17,137,146	14,560,335	73,447	2,503,364	14,142,850	48,149	2,946,147
1997	18,735,372	15,715,616	66,935	2,952,821	15,007,129	32,463	3,695,780
1998	20,341,864	16,528,884	67,797	3,745,183	15,612,637	358,638	4,370,589
1999	20,695,361	16,252,159	62,890	4,380,312	17,318,545	263,361	3,113,455
2000	20,895,053	17,707,289	63,767	3,123,997	18,033,379	80,484	2,781,190
2001	21,332,236	18,475,608	65,287	2,791,341	18,536,409	53,135	2,742,692

Fiscal Year	Funds: General fund	Funds: Special revenue funds	Funds: Expendable trust funds	Funds: Nonoperating debt service fund
1981	$3,483,101	$1,547,270	$174,445	$116,848
1982	4,341,340	1,515,379	188,214	124,944
1983	3,583,958	1,619,918	214,211	140,189
1984	4,559,883	2,090,234	390,929	141,741
1985	4,802,174	2,215,974	283,141	285,753
1986	4,859,854	2,379,273	221,936	219,309
1987	5,018,670	2,478,806	265,219	411,761
1988	5,294,509	2,755,562	314,381	351,580
1989	5,677,798	2,975,360	285,636	172,907
1990	6,317,661	3,165,681	344,452	221,940
1991	6,657,502	3,343,980	365,095	243,014
1992	6,883,259	3,625,372	376,862	251,489
1993	7,030,436	3,893,229	445,627	261,655
1994	7,826,222	4,281,949	402,047	257,725
1995	8,295,360	4,528,036	470,835	256,043
1996	8,724,714	4,614,448	528,287	275,401
1997	9,157,183	5,033,773	528,215	287,958
1998	9,488,243	5,363,601	465,741	295,052
1999	10,438,343	5,976,219	555,584	348,399
2000	11,065,850	6,069,626	557,703	340,200
2001	11,444,213	6,117,454	580,830	393,912

Note: Data for fiscal years 1999-2001 are estimates.

Data description: The consolidated fund statement summarizes budget data included in the General Fund, Special Revenue Funds, Expendable Trust and the Debt Service Fund. Data describing these funds is critical information for financial decisions considered in developing the governor's budget recommendations and related legislation. The General Fund accounts for all financial resources except those legally required to be accounted for in another fund. Special Revenue Funds account for the proceeds of specific revenue sources (other than expendable trusts or major capital projects) that are legally restricted to expenditure for specific purposes. Expendable Trust Funds account for funds controlled through legal trust agreements and/or by state law whose resources, including principal and interest, may be expended. The Debt Service Fund accounts for accumulation of resources and the payment of most general obligation bond principal and interest. **Additional information:** Detailed reports are available for the separate funds. In addition, a comprehensive financial report is available that follows generally accepted accounting principles for governmental units established by the Governmental Accounting Standards Board.

State agency contact:
Minnesota Department of Finance (651) 296-5900
http://www.finance.state.mn.us

TABLE 49 STATE OF MINNESOTA GENERAL FUND RESOURCES (THOUSANDS)

Fiscal Year	Total general fund	Nondedicated revenue				
		Total	Net individual income tax	Sales tax	Corporation income & bank excise tax	Motor vehicle sales tax
1980	$3,330,335	$3,232,634	$1,195,432	$650,138	$381,217	$88,771
1981	3,255,569	3,218,384	1,361,397	686,483	330,016	87,227
1982	3,557,768	3,495,459	1,519,632	875,831	325,167	103,888
1983	3,546,853	3,462,157	1,938,726	993,504	254,272	123,903
1984	4,716,146	4,499,543	2,130,172	1,252,496	305,878	179,190
1985	5,166,433	4,936,499	2,053,498	1,347,426	380,378	197,213
1986	4,953,595	4,709,758	1,771,684	1,360,638	368,545	207,769
1987	5,422,615	5,183,565	2,155,762	1,470,363	426,454	225,617
1988	6,117,128	5,854,689	2,464,824	1,678,538	410,994	236,280
1989	6,617,829	6,339,814	2,376,008	1,774,714	485,711	249,923
1990	7,246,560	6,953,807	2,742,239	1,871,170	478,901	257,058
1991	7,492,305	7,371,767	2,972,983	1,965,209	457,934	236,720
1992	7,613,917	7,530,631	3,144,636	2,193,451	420,278	270,356
1993	8,202,407	8,069,094	3,471,374	2,384,748	509,534	296,284
1994	9,040,016	8,906,584	3,539,994	2,522,271	551,822	332,994
1995	9,623,779	9,448,302	3,753,268	2,722,596	665,757	347,523
1996	10,421,467	10,008,003	4,135,332	2,901,268	701,735	381,219
1997	11,545,628	11,181,461	4,768,390	3,012,746	680,898	401,751
1998	12,739,462	12,253,128	4,746,569	3,251,685	752,061	444,976
1999	12,636,550	12,163,920	5,138,580	2,164,627	781,820	461,500
2000	12,753,498	12,392,912	5,018,190	3,600,459	701,860	454,800
2001	13,117,690	12,771,119	5,509,955	3,739,518	692,430	461,400

Fiscal Year	Nondedicated revenue, continued		Other revenue			
	Other nondedicated revenue	Balance forward from previous fiscal year	Total	Dedicated	Transfers	Miscel-laneous
1980	$658,346	$258,731	$97,701	$26,576	$56,325	$14,800
1981	632,350	120,911	37,185	35,633	26,084	-24,532
1982	672,822	-1,880	62,309	40,118	9,703	12,488
1983	749,844	-598,091	84,695	45,980	28,051	10,664
1984	560,096	71,712	216,603	190,189	10,749	15,665
1985	583,466	374,519	229,934	198,246	8,569	23,119
1986	462,578	538,544	243,838	207,021	22,259	14,558
1987	535,147	370,222	239,050	211,108	10,722	17,220
1988	586,569	477,484	262,439	230,621	15,015	16,800
1989	603,722	849,736	278,015	228,082	30,211	19,722
1990	658,779	945,660	292,753	243,016	24,271	25,466
1991	854,075	884,846	120,538	34,649	52,888	33,001
1992	947,034	554,876	83,286	34,492	33,061	15,733
1993	958,490	448,664	133,313	43,040	33,422	56,851
1994	1,083,068	876,435	133,432	60,981	42,771	29,680
1995	1,055,624	903,534	175,477	80,134	61,915	33,428
1996	867,950	1,020,499	413,464	136,988	267,955	8,521
1997	974,399	1,343,277	364,167	139,517	215,149	9,501
1998	1,063,117	1,994,720	486,334	205,815	254,069	26,450
1999	1,090,177	2,527,216	472,630	139,237	323,293	10,100
2000	1,099,884	1,517,719	360,586	132,167	218,319	10,100
2001	1,116,533	1,251,283	346,571	120,193	216,278	10,100

Note: Data for fiscal years 1999-2001 are estimates.

Data description: The General Fund accounts for all financial resources except those legally required to be accounted for in another fund (see notes to Table 50). Revenues for the general fund exclude higher education tuition from dedicated receipts.
Additional information: Detailed reports are available for the General Fund. In addition, a comprehensive financial report is available that follows generally accepted accounting principles for governmental units established by the Governmental Accounting Standards Board.

State agency contact: Minnesota Department of Finance (651) 296-5900
http://www.finance.state.mn.us

TABLE 50 STATE OF MN GENERAL FUND EXPENDITURES (THOUSANDS)

Fiscal Year	Total general fund expenditures & transfers	Major expenditures from nondedicated revenues: Education aids	Post-secondary education	Property tax aids and credits	Health-care	Family support	Debt Srvc. & short-term borrowing repayment
1980	$3,182,850	$1,026,635	$456,833	$544,980	$266,352	$63,860	$88,932
1985	4,429,643	1,156,446	650,364	890,518	349,537	178,356	146,764
1986	4,376,351	1,255,911	692,962	935,547	349,631	150,848	119,720
1987	4,734,024	1,349,745	780,949	1,024,745	388,732	141,473	107,835
1988	5,036,773	1,485,737	825,776	1,051,163	407,671	134,265	133,002
1989	5,444,086	1,587,154	853,772	1,082,395	498,015	151,044	123,429
1990	6,118,698	1,682,616	933,310	1,228,901	595,725	162,573	189,295
1991	6,937,429	2,096,763	985,554	1,270,996	835,997	190,279	182,954
1992	7,165,253	2,171,943	978,593	1,042,061	1,056,662	300,484	200,452
1993	7,325,972	2,118,177	972,975	1,108,469	1,139,337	291,202	194,497
1994	8,136,482	2,587,184	1,015,898	1,195,328	1,298,528	291,717	207,000
1995	8,603,280	2,750,718	1,050,555	1,190,927	1,427,149	251,095	201,071
1996	9,078,190	3,204,629	1,062,146	1,212,586	1,383,280	249,423	197,589
1997	9,550,909	3,327,865	1,077,882	1,201,294	1,462,253	254,137	241,826
1998	10,212,246	3,329,573	1,162,895	1,216,250	1,509,239	261,134	245,637
1999	10,980,862	3,689,211	1,265,319	1,390,745	1,581,708	250,916	291,439
2000	11,811,167	3,979,398	1,295,172	1,581,689	1,777,768	225,083	263,205
2001	12,829,146	4,302,735	1,346,250	1,730,708	1,975,105	205,696	315,476

Fiscal Year	Major expenditures from nondedicated revenues: Other major local assistance	State-operated institutions	State-agencies	Legislature, judicial, constitutional officers	Capital projects	Transportation projects	Motor vehicle tab fee replacement*
1980	$159,937	$163,952	$363,150	$48,217	$0		
1985	260,762	249,927	468,106	78,862	0		
1986	174,466	249,732	367,683	79,849	0		
1987	191,565	259,037	402,911	87,032	0		
1988	253,226	263,282	395,871	86,780	0		
1989	316,731	280,086	451,197	100,263	0		
1990	317,963	326,088	563,109	119,118	0		
1991	225,166	364,587	586,156	164,328	0		
1992	261,265	378,661	567,517	173,123	0		
1993	267,535	389,730	600,175	200,835	0		
1994	284,164	376,983	622,178	196,521	0		
1995	351,266	406,212	670,788	223,365	0		
1996	387,979	397,610	665,318	226,286	0		
1997	426,642	428,488	769,685	242,245	0		
1998	480,880	425,412	875,853	249,042	300,031		
1999	513,543	451,142	933,239	269,161	200,659		
2000	560,207	472,030	1,080,521	295,094	152,222		
2001	608,683	491,055	938,845	288,261	25,000	332,300	149,804

*Motor vehicle tab fee reduction revenue replacement.
Note: Data for fiscal years 1999-2001 are estimates.

Data description: The General Fund accounts for all financial resources except those legally required to be accounted for in another fund (see notes to Table 48). General fund expenditures exclude higher education tuition from dedicated expenditures.
Additional information: Detailed reports are available for the General Fund. In addition, a comprehensive financial report is available that follows generally accepted accounting principles for governmental units established by the Governmental Accounting Standards Board.

State agency contact:
Minnesota Department of Finance (651) 296-5900
http://www.finance.state.mn.us

TABLE 50 CONTINUED ON NEXT PAGE

TABLE 50 CONT'D STATE OF MINNESOTA GENERAL FUND EXPENDITURES (THOUSANDS)

Fiscal Year	Dedicated expenditures	Nonexpenditure items					
		Budget reserve cash flow account	Property tax reserve account	Other dedicated reserves	Appropriation carried forward	Unrestricted budget balance	Cancellation estimates
1980	$26,576	$0			$102,883	$18,027	$0
1985	198,246	375,000			56,079	57,464	0
1986	207,021	0			103,471	266,750	0
1987	211,108	250,000			58,956	168,527	0
1988	230,621	265,000			66,889	517,845	0
1989	228,082	550,000			35,802	359,858	0
1990	243,016	550,000			73,963	260,883	0
1991	34,649	400,000			41,913	112,963	0
1992	34,492	400,000			88,148	-39,484	0
1993	43,040	360,000			53,728	462,707	0
1994	60,981	500,000			186,960	216,574	0
1995	80,134	500,000			75,865	444,634	0
1996	91,344	570,000		$76,689	200,288	496,300	0
1997	118,592	583,500		206,495	37,669	1,167,056	0
1998	156,300	863,200	550,802	126,801	306,405	680,008	0
1999	143,780	972,000	327,961	139,346	103,105	378,367	0
2000	141,118	972,000		144,690	0	416,542	-12,340
2001	141,228	972,000		145,272	0	8,734	-22,000

Note: Data for fiscal years 1999-2001 are estimates.

TABLE 51 STATE OF MINNESOTA SPECIAL REVENUE AND EXPENDABLE TRUST FUNDS (THOUSANDS)

Fiscal Year	Total special revenue funds	Federal	Highway user tax distri-bution	Trunk highway	Special revenue	Workers compen-sation special	Game and fish	Environ-mental	State airports
1981	$1,547,208	$1,053,180	$7,397	$390,821	$26,571	$15,477	$20,951	$0.00	$9,899
1982	1,515,380	1,056,891	5,919	342,970	37,089	16,353	24,178	0	6,038
1983	1,619,909	1,117,919	6,649	362,444	44,259	34,165	27,670	0	8,204
1984	2,090,235	1,302,676	7,191	613,652	70,868	42,399	31,184	961	8,462
1985	2,215,975	1,370,825	7,626	646,290	80,161	51,051	30,628	1,410	10,065
1986	2,379,274	1,494,798	12,961	601,112	87,748	77,418	33,675	6,019	11,426
1987	2,478,806	1,498,639	10,408	680,112	104,624	71,998	34,512	7,159	9,635
1988	2,755,562	1,605,808	10,192	756,692	158,490	100,123	38,459	9,435	10,151
1989	2,975,360	1,699,303	10,658	769,422	218,980	114,633	41,022	11,361	14,121
1990	3,165,681	1,880,116	11,880	781,881	212,537	113,254	44,649	28,119	12,248
1991	3,343,980	2,010,228	12,667	755,877	249,545	128,061	46,656	36,352	15,060
1992	3,625,513	2,248,404	12,392	788,722	248,646	130,176	51,265	63,443	16,079
1993	3,893,229	2,513,895	12,564	751,149	272,778	125,993	52,402	62,224	18,506
1994	4,281,949	2,829,046	11,723	724,441	328,710	106,525	48,829	28,278	15,904
1995	4,528,036	2,882,515	12,754	800,653	356,580	157,993	51,832	25,388	18,361
1996	4,614,448	2,951,430	12,261	813,976	384,412	108,677	50,309	22,309	18,651
1997	5,033,773	3,138,786	13,158	954,323	392,754	107,031	55,747	25,078	15,697
1998	5,363,601	3,411,049	15,237	941,695	426,579	134,622	53,376	22,383	20,022
1999	5,976,219	3,751,078	16,256	1,048,934	504,362	135,366	60,483	30,663	20,819
2000	6,069,626	3,924,257	17,782	1,058,129	364,721	114,547	62,586	31,084	21,089
2001	6,117,454	3,958,152	18,286	1,059,414	359,660	112,241	64,594	30,808	21,129

Note: Data for fiscal years 1999-2001 are estimates.

Data description: The data for this table comes from the consolidated budgetary fund statements. Special Revenue Funds account for the proceeds of specific revenue sources (other than expendable trusts or major capital projects) that are legally restricted to expenditure for specific purposes. The funds and sources are:
■ The Federal Fund receives and disburses federal government grants and reimbursements and is administered in accordance with grant agreements between the state and federal agencies. ■ The Highway User Tax Distribution Fund receives revenue from taxes on motor vehicles and motor fuels for transfer to various transportation-related funds. ■ The Trunk Highway Fund is supported by revenues from the Highway User Tax Distribution Fund and federal grants to provide planning, design, construction and maintenance of the state trunk highway system. ■ Special Revenue includes numerous smaller accounts whose revenues are dedicated to a variety of specific purposes. ■ The Workers Compensation Fund receives assessments from all insurers for administration of the state workers compensation program including enforcement, reimbursement of benefits and payments. ■ The Game and Fish Fund receives revenues from license fees and fines related to hunting and fishing that are spent for related purposes. ■ The Environmental Fund accounts for activities that monitor and control environmental problems, using taxes and fees from activities and industries contributing to environmental problems. ■ The State Airports Fund uses revenue from aviation-related taxes and fees to provide technical and financial assistance to municipal airports and to promote aviation safety, planning and regulation. ■ The Iron Range Resources and Rehabilitation Fund receives revenues from taconite taxes, which are used to promote economic development in northeastern Minnesota. ■ The Health Care Access Fund receives taxes on health service providers and premiums for programs to lower health care costs, to reform health insurance and to broaden insurance coverage. ■ Expendable Trust Funds account for funds controlled through legal trust agreements and/or by state law, whose resources, including principal and interest, may be expended. ■ The Endowment School Fund receives revenue from the investments of the Permanent School Fund and distributes it to school districts. The County State-aid Highway Fund receives 30.75 percent of the revenue received by the Highway User Tax Distribution Fund, primarily for distribution to counties for improvement of county roads. ■ The Municipal State-aid Street Fund receives 8.95 percent of the revenue received by the Highway User Tax Distribution Fund, primarily for distribution to municipalities for improvement of streets. ■ The Northeast Minnesota Economic Protection Fund receives distributions from taconite production taxes, to be held in trust or expended only in economic emergency for the purposes of rehabilitation and diversification of industry in the area largely dependent on the taconite mining industry.

Additional information: Detailed reports are available for the separate funds. In addition, a comprehensive financial report is available that follows generally accepted accounting principles for governmental units established by the Governmental Accounting Standards Board.

State agency contact: Minnesota Department of Finance (651) 296-5900
http://www.finance.state.mn.us

TABLE 51 CONTINUED ON NEXT PAGE

TABLE 51 CONT'D STATE OF MINNESOTA SPECIAL REVENUE AND EXPENDABLE TRUST FUNDS (THOUSANDS)

Fiscal Year	Total special revenue funds	Federal	Highway user tax distri-bution	Trunk highway	Special revenue	Workers compen-sation special	Game and fish	Environ-mental	State airports
1981	$22,912	$0	$0	$174,446	$21,022	$109,337	$39,515	$0	$4,572
1982	25,942	0	0	188,215	23,510	117,858	41,078	0	5,769
1983	18,599	0	0	214,209	25,217	135,515	39,759	6,950	6,768
1984	12,842	0	0	390,928	24,606	212,791	104,490	7,802	41,239
1985	17,532	0	387	283,141	26,213	178,863	58,135	10,959	8,971
1986	11,816	0	45,875	221,936	26,642	137,863	43,347	6,066	8,018
1987	12,432	0	51,971	265,219	29,647	180,797	44,902	2,331	7,542
1988	8,490	0	63,214	314,381	29,200	216,534	57,186	4,076	7,385
1989	10,607	0	92,151	285,636	30,916	186,663	50,815	5,599	11,643
1990	14,340	0	66,657	344,452	32,967	224,251	59,974	14,043	13,217
1991	21,985	0	67,548	365,095	31,179	235,985	81,111	3,713	13,107
1992	19,693	51	46,425	376,862	34,382	229,621	74,111	14,911	23,837
1993	21,977	11,167	50,574	445,627	31,918	271,503	112,686	5,291	24,229
1994	27,349	47,276	113,868	402,047	33,772	250,000	80,000	9,377	28,898
1995	26,914	76,499	118,547	470,835	35,730	303,142	104,576	5,144	22,243
1996	43,253	82,944	126,226	528,287	31,191	351,962	113,861	7,158	24,115
1997	35,400	100,275	195,524	528,215	30,603	351,048	106,983	14,875	24,706
1998	38,782	130,683	169,173	465,741	23,392	294,507	110,866	5,868	31,108
1999	33,697	181,717	193,521	555,584	19,486	354,014	105,139	27,833	49,112
2000	30,875	176,894	267,662	557,703	20,343	370,924	107,469	10,846	48,121
2001	30,534	208,738	253,898	580,830	21,238	377,103	110,531	10,859	61,099

Note: Data for fiscal years 1999-2001 are estimates.

TABLE 52 REAL AND PERSONAL PROPERTY TAX LEVIES, INCLUDING SPECIAL ASSESSMENTS (THOUSANDS)

Payable Year	County	City	Township	School district	Special taxing district[1]	Total taxes[2]	Average tax (mills)[3]	Homestead credit[4]	Agricultural credit	Other credits[5]	Net taxes
1970	$207,861	$195,278	$14,617	$489,309	$5,339	$912,404	329.16	$108,055	-	-	$804,350
1971	241,176	227,211	15,496	595,312	5,969	1,085,163	335.95	127,596	-	-	$957,567
1972	249,348	223,437	15,599	504,453	14,748	1,007,586	297.47	117,086	-	-	$890,500
1973	256,835	226,836	15,596	521,697	16,255	1,037,220	94.19	122,753	-	-	$914,467
1974	283,824	245,391	16,565	568,557	21,930	1,136,268	99.15	189,373	-	-	$946,895
1975	323,903	280,237	17,523	631,720	37,342	1,307,398	109.12	206,709	-	-	$1,100,689
1976	339,410	295,797	20,162	657,055	31,139	1,364,550	101.43	220,254	-	-	$1,144,296
1977	379,243	328,532	23,212	757,026	36,212	1,543,744	104.93	234,563	$29,500	-	$1,279,682
1978	409,108	339,683	25,286	777,953	36,940	1,612,045	105.16	243,964	35,165	-	$1,332,915
1979	438,513	347,978	28,504	817,858	41,640	1,704,016	102.27	254,089	41,634	-	$1,408,293
1980	492,335	374,696	34,866	855,277	50,580	1,844,023	97.23	371,313	52,187	-	$1,420,523
1981	556,514	439,544	44,168	850,256	74,274	2,011,530	87.01	447,233	70,456	$13,927	$1,479,913
1982	626,927	493,538	49,599	1,099,691	95,256	2,430,399	92.15	495,706	86,946	17,064	$1,830,684
1983	669,839	535,249	52,911	1,209,908	120,095	2,677,166	92.10	521,541	96,947	17,762	$2,040,915
1984	720,661	563,916	60,631	1,329,561	135,087	2,917,675	98.14	525,482	92,676	1,651	$2,297,866
1985	754,438	590,175	63,707	1,316,382	149,161	3,011,667	99.33	539,504	106,513	2,201	$2,363,448
1986	824,330	629,645	66,450	1,389,754	173,142	3,224,927	105.47	586,112	126,081	2,426	$2,510,309
1987	877,680	658,276	69,874	1,441,104	204,320	3,421,316	111.30	609,223	115,622	2,107	$2,694,364
1988	952,981	686,725	73,141	1,509,728	250,870	3,682,260	118.34	622,443	102,059	23,912	$2,933,846
1989	1,025,732	665,320	75,098	1,635,444	292,885	3,943,704	101.15	666,314	94,976	2,711	$3,184,704
1990[6]	841,204	600,729	69,481	1,228,779	280,883	3,298,638	99.77	-	-	10,682	$3,136,366
1991	946,746	614,922	67,930	1,381,779	337,370	3,653,525	106.69	-	-	10,880	$3,489,227
1992	1,013,748	640,765	69,158	1,460,231	349,202	3,873,554	115.01	-	-	11,559	$3,701,795
1993	1,039,725	650,160	72,925	1,612,361	369,880	4,110,414	123.51	-	-	13,973	$3,940,567
1994[7]	1,082,444	664,921	73,974	1,668,035	363,593	4,222,528	128.18	-	-	16,525	$4,050,132
1995	1,145,887	706,987	79,614	1,832,319	388,591	4,479,180	130.68	-	-	18,460	$4,299,673
1996	1,196,611	739,750	84,077	1,912,709	409,225	4,709,972	128.60	-	-	18,502	$4,691,470
1997	1,246,259	782,476	85,079	1,982,570	422,898	4,903,141	124.93	-	-	18,319	$4,884,822
1998	1,294,782	812,021	91,718	1,935,818	433,601	4,978,685	128.07	-	-	177,827[8]	$4,800,858
1999	1,353,218	859,518	97,943	1,958,856	448,442	5,116,473	131.37	-	-	325,586	$4,790,888
2000	1,402,883	895,538	102,218	2,048,188	469,294	5,326,758	127.51	-	-	461,264	$4,865,494

[1] Includes tax increment financing levies.
[2] Includes seven-county metropolitan contribution levy and power line levy.
[3] Mills through 1988; percent in 1989 and years following.
[4] Includes taconite credit.
[5] Includes the following credits: reduced assessment, wetlands, enterprise zone, agricultural preserves, native prairie, taconite, power line, disparity reduction, disaster credits and education homestead and agricultural credits.
[6] Reported levies for 1990 are after homestead and agricultural credits.
[7] Beginning in 1994, levies include referendum market value levies
[8] In payable 1998, "Other Credits" also includes the Education Homestead Credit.

Data description: Property tax data is compiled by the Department of Revenue from information provided by local governments. Property taxes are levied by local units of government; the state government of Minnesota has not levied a property tax since 1966. Property taxes on real property are based on the assessed value of the property as of January 2 and become payable the following year.

State agency contact:
Property Tax Division (651) 296-2286
Minnesota Department of Revenue
http://www.taxes.state.mn.us

TABLE 53 GOVERNMENTAL EXPENDITURES – COUNTIES (THOUSANDS)

Year	Total expen-ditures	General govern-ment	Public safety	Streets and highways	Human services	Interest and fiscal charges	All other expen-ditures
1970	$515,878	$47,325	$22,077	$105,858	$283,047	$2,708	$54,863
1971	614,519	50,651	25,825	113,593	363,964	3,403	57,082
1972	692,846	71,100	28,379	112,021	410,289	3,783	67,274
1973	791,417	92,582	35,973	143,161	433,154	3,723	82,824
1974	783,602	95,128	48,691	157,612	361,625	3,407	117,141
1975	826,341	111,482	63,969	158,729	363,630	4,224	124,307
1976	854,292	120,812	69,782	167,592	341,646	5,650	148,810
1977	950,473	133,018	84,314	188,426	385,257	5,464	153,994
1978	1,022,192	139,158	89,916	223,934	415,405	5,555	148,224
1979	1,121,886	161,516	98,365	247,152	454,696	5,649	154,507
1980	1,267,970	159,426	130,395	262,263	560,617	7,533	147,735
1981	1,393,065	177,196	150,209	254,325	650,795	10,469	150,071
1982	1,428,614	201,434	172,584	261,182	629,753	9,398	154,263
1983	1,576,618	205,364	183,670	297,682	711,583	11,991	166,328
1984	1,789,392	231,893	195,747	341,673	813,564	12,245	194,271
1985	1,965,467	252,760	206,730	365,294	903,453	23,362	213,868
1986	2,151,681	268,440	228,361	358,886	944,941	24,482	326,571
1987	2,146,607	283,677	256,217	381,164	988,354	17,079	220,118
1988	2,337,498	312,316	267,233	400,876	1,082,028	20,476	254,568
1989	2,594,343	381,387	293,760	434,208	1,191,485	27,731	265,771
1990	2,815,641	410,986	320,011	448,244	1,281,155	42,342	312,902
1991	2,733,143	425,272	348,075	412,931	1,205,987	44,552	296,326
1992	2,765,885	435,285	396,707	479,465	1,083,683	48,924	321,821
1993	2,942,850	428,966	416,669	512,520	1,173,308	53,732	357,655
1994	3,018,391	480,439	441,095	517,859	1,155,933	52,587	370,478
1995	2,967,657	479,348	477,969	520,006	1,050,799	53,044	386,490
1996	3,226,948	526,555	512,522	596,860	1,139,930	50,349	400,732
1997	3,424,591	587,824	580,391	579,920	1,171,857	51,949	452,649
1998	3567898	612540	643283	560797	1202161	70186	478,930

Data description: County revenue and expenditure data is compiled from annual county financial reports of audits by public accountants and the state auditor, county auditors' tax abstracts and reports of indebtedness, and Department of Revenue records of state-shared tax distributions, grants, aids, taxable valuations and tax levies. Governmental funds include general funds, debt service, capital projects and special assessment funds. Not included are enterprise funds such as water, sewer, nursing homes or hospitals. There have been numerous accounting changes since 1970 and year-to-year comparisons should be made with caution.
Additional information: Data are available by county and by detailed type of revenue and expenditure.

State agency contact:
Governmental Information Division (651) 296-2551
Office of the State Auditor
http://www.osa.state.mn.us/downloads.lasso

TABLE 54 GOVERNMENTAL REVENUES – COUNTIES (THOUSANDS)

Year	Total revenues	Taxes	Special assess-ments	Intergov-ernmental revenues	Charges for services	Interest earnings	All other revenues
1970	$527,105	$179,826	$3,689	$318,668	$9,470	$11,095	$4,358
1971	620,752	208,312	4,414	380,669	12,051	10,688	4,619
1972	720,130	210,975	4,249	471,911	15,648	10,056	7,290
1973	805,394	223,631	4,456	523,058	19,154	17,164	17,932
1974	785,735	234,904	4,774	474,476	20,923	22,435	28,223
1975	790,658	274,417	4,410	443,958	23,484	18,217	26,172
1976	865,618	286,871	5,702	499,157	33,104	16,948	23,835
1977	977,347	317,300	6,691	566,465	38,543	19,139	29,209
1978	1,071,921	347,304	6,343	601,674	47,115	29,267	40,218
1979	1,136,176	377,472	7,384	605,142	55,262	43,712	47,204
1980	1,275,922	389,205	7,393	720,214	50,695	41,451	66,964
1981	1,449,526	419,575	14,557	812,591	64,061	65,576	73,166
1982	1,485,474	485,173	10,545	768,182	72,049	70,624	78,902
1983	1,661,500	528,586	12,945	895,301	76,301	65,570	82,756
1984	1,834,433	580,065	13,229	973,557	91,295	82,815	93,472
1985	1,979,044	634,258	14,110	1,031,494	105,507	93,390	100,285
1986	2,197,150	702,079	14,138	1,042,404	118,769	78,534	241,226
1987	2,153,439	767,743	16,581	1,048,555	133,067	69,576	117,917
1988	2,340,727	843,597	15,559	1,118,476	154,423	75,984	132,688
1989	2,589,691	897,454	15,449	1,271,308	173,008	102,872	129,600
1990	2,796,747	951,172	13,485	1,394,119	184,050	106,779	147,142
1991	2,824,196	1,026,161	14,307	1,311,848	204,263	105,462	162,154
1992	2,809,351	1,074,371	16,675	1,248,830	215,065	102,325	152,085
1993	2,960,301	1,111,787	16,951	1,324,369	245,024	100,043	162,126
1994	3,072,311	1,154,044	18,489	1,363,406	252,525	101,864	181,984
1995	3,058,065	1,219,558	19,799	1,200,095	236,491	123,225	190,896
1996	3,287,487	1,279,091	21,894	1,404,688	262,061	123,411	198,362
1997	3,489,287	1,339,137	24,219	1,382,614	342,737	164,478	236,102
1998	3,568,186	1,398,069	26,612	1,477,756	315,933	145,919	203,898

Data description: County revenue and expenditure data is compiled from annual county financial reports of audits by public accountants and the state auditor, county auditors' tax abstracts and reports of indebtedness, and Department of Revenue records of state-shared tax distributions, grants, aids, taxable valuations and tax levies. Governmental funds include general funds, debt service, capital projects and special assessment funds. Not included are enterprise funds such as water, sewer, nursing homes or hospitals. There have been numerous accounting changes since 1970 and year-to-year comparisons should be made with caution.
Additional information: Data are available by county and by detailed type of revenue and expenditure.

State agency contact:
Governmental Information Division (651) 296-2551
Office of the State Auditor
http://www.osa.state.mn.us/downloads.lasso

TABLE 55 GOVERNMENTAL EXPENDITURES – CITIES (THOUSANDS)

Year	Total expenditures	Genera govern-ment	Public safety	Streets and highways	Culture and recrea-tion	Interest and fiscal charges	All other Expendi-tures
1970	$468,752	$34,030	$90,516	$96,197	$54,984	$27,936	$165,089
1971	542,736	35,677	102,541	106,463	65,686	32,374	199,994
1972	585,638	39,969	115,536	101,103	65,975	38,077	224,979
1973	661,399	46,581	127,088	131,306	77,735	41,668	237,020
1974	745,235	61,900	142,189	142,001	98,880	45,640	254,626
1975	847,486	81,864	165,619	165,406	95,319	56,356	282,922
1976	908,899	65,997	182,990	170,295	103,004	61,332	325,280
1977	989,771	82,409	199,894	164,762	119,335	65,840	357,531
1978	1,106,917	92,493	218,761	192,281	138,271	70,613	394,499
1979	1,250,069	102,898	237,847	241,917	140,252	77,701	449,454
1980	1,328,898	126,242	265,021	257,408	156,167	93,980	430,081
1981	1,333,868	130,579	288,867	296,364	154,412	107,588	356,057
1982	1,352,591	126,425	308,310	299,357	138,314	122,151	358,034
1983	1,447,081	142,025	321,827	311,136	148,065	139,504	384,524
1984	1,626,092	165,009	339,603	332,388	157,666	146,070	485,356
1985	1,745,839	176,304	371,983	366,583	179,169	159,146	492,654
1986	1,935,052	191,735	399,664	396,123	193,215	178,772	575,544
1987	2,067,131	198,460	420,265	453,882	208,787	202,598	583,139
1988	2,167,978	224,720	454,972	446,622	207,418	215,214	619,032
1989	2,230,695	250,315	486,254	480,845	244,041	228,481	540,758
1990	2,422,805	261,242	512,092	516,945	263,164	236,281	633,081
1991	2,516,207	260,911	540,431	587,419	260,869	238,096	628,481
1992	2,536,391	277,698	589,027	562,947	259,518	233,220	613,981
1993	2,615,205	310,504	600,520	576,431	270,686	223,263	633,800
1994	2,718,653	312,254	618,215	650,277	298,718	224,285	614,904
1995	2,926,698	345,982	652,323	687,853	331,701	212,425	696,414
1996	2,973,083	366,879	697,998	702,034	336,354	208,031	661,786
1997	3,195,869	373,200	740,457	732,705	395,606	209,718	744,183
1998	3,300,857	358,696	782,872	764,229	435,083	220,811	739,166

Data description: City revenue and expenditure data is compiled from annual city financial reports of audits by public accountants and the state auditor, county auditors' tax abstracts and reports of indebtedness, and Department of Revenue records of state-shared tax distributions, grants, aids, taxable valuations and tax levies. Governmental funds include general funds, debt service, capital projects and special assessment funds. Not included are enterprise funds such as water, sewer, nursing homes or hospitals. There have been numerous accounting changes since 1970 and year-to-year comparisons should be made with caution. **Additional information:** Data is available by city and by detailed type of revenue and expenditure.

State agency contact:
Governmental Information Division (651) 296-2551
Office of the State Auditor
http://www.osa.state.mn.us/downloads.lass

TABLE 56 GOVERNMENTAL REVENUES – CITIES (THOUSANDS)

Year	Total revenues	Taxes	Special assess-ments	Intergov-ernmental revenues	Charges for services	Interest earnings	All other revenues
1970	$415,642	$154,365	$53,929	$111,343	$40,007	$13,327	$42,670
1971	479,891	178,112	62,889	126,197	51,875	13,539	47,279
1972	554,665	178,142	75,282	177,742	58,788	14,953	49,760
1973	611,198	175,733	78,012	219,220	69,193	20,431	48,609
1974	670,363	179,606	76,063	259,165	73,583	29,528	52,417
1975	754,039	218,065	88,553	273,732	86,142	29,921	57,626
1976	875,629	226,285	113,470	353,550	94,922	26,468	60,934
1977	991,478	261,802	116,202	415,862	104,568	27,149	65,895
1978	1,117,029	263,770	112,277	481,959	135,620	44,287	79,117
1979	1,221,882	276,197	132,198	504,317	143,033	66,718	99,420
1980	1,302,294	274,695	175,168	564,512	93,039	87,543	107,337
1981	1,355,301	312,400	164,042	585,300	67,213	121,305	105,041
1982	1,382,717	362,560	156,745	558,637	68,686	117,158	118,931
1983	1,506,971	415,658	155,830	615,732	76,473	112,167	131,110
1984	1,680,906	475,622	163,212	649,756	86,196	141,978	164,142
1985	1,755,110	510,675	164,336	669,037	96,395	141,282	173,386
1986	1,867,862	559,509	192,991	686,188	98,514	159,522	171,138
1987	1,942,318	605,292	216,090	676,739	106,336	146,496	191,365
1988	2,095,212	674,669	198,532	709,779	124,143	166,091	221,997
1989	2,229,859	701,596	183,009	799,476	145,375	202,467	197,936
1990	2,360,979	754,147	186,148	844,954	156,395	213,655	205,680
1991	2,345,294	807,459	189,234	803,340	163,853	180,238	201,169
1992	2,491,506	857,741	217,317	859,460	174,308	154,225	228,457
1993	2,592,523	883,824	219,637	914,488	191,256	149,704	233,615
1994	2,603,409	931,192	204,383	876,091	179,830	154,563	257,350
1995	2,790,325	979,024	197,534	942,948	196,200	185,871	288,147
1996	2,935,202	1,072,364	210,395	931,386	213,180	177,922	329,954
1997	3,146,206	1,141,171	206,465	1,030,085	241,244	193,999	333,242
1998	3,336,999	1,183,173	239,043	1,083,677	260,100	204,202	366,805

Data description: City revenue and expenditure data is compiled from annual city financial reports of audits by public accountants and the state auditor, county auditors' tax abstracts and reports of indebtedness, and Department of Revenue records of state-shared tax distributions, grants, aids, taxable valuations and tax levies. Governmental funds include general funds, debt service, capital projects and special assessment funds. Not included are enterprise funds such as water, sewer, nursing homes or hospitals. There have been numerous accounting changes since 1970 and year-to-year comparisons should be made with caution. **Additional information:** Data is available by city and by detailed type of revenue and expenditure.

State agency contact:
Governmental Information Division (651) 296-2551
Office of the State Auditor
http://www.osa.state.mn.us/downloads.lasso

TABLE 57 GOVERNMENTAL EXPENDITURES SCHOOL DISTRICTS (THOUSANDS)

Fiscal Year	Total expenditures	General fund	Food	Transportation	Community	Non-operating
1977	$1,665,327	$1,241,467	$69,518	$95,056	$23,337	$236,949
1978	1,814,265	1,309,754	79,714	101,858	20,636	302,303
1979	1,860,850	1,375,995	91,099	112,800	23,202	257,754
1980	2,056,646	1,500,033	97,961	132,520	28,664	297,468
1981	2,238,782	1,607,386	107,642	149,147	35,501	339,106
1982	2,290,735	1,720,535	104,489	151,986	39,574	274,151
1983	2,342,745	1,782,224	101,911	151,974	42,845	263,791
1984	2,479,170	1,891,682	107,571	160,825	48,245	270,847
1985	2,680,116	2,030,026	114,175	171,075	55,029	309,811
1986	2,923,972	2,205,018	118,545	183,767	67,087	349,555
1987	3,337,785	2,574,717	124,621	192,088	80,015	386,344
1988	3,561,085	2,705,188	129,038	199,676	92,220	434,963
1989	3,872,087	2,887,218	137,470	213,076	105,835	528,488
1990	4,376,287	3,215,947	145,685	226,906	121,791	665,959
1991	4,693,092	3,431,052	151,804	244,039	135,119	731,078
1992	5,015,201	3,611,310	158,183	250,300	148,994	846,415
1993	5,349,970	3,793,225	168,813	257,242	166,937	963,754
1994	5,691,963	3,949,392	178,588	266,798	179,326	1,117,858
1995	6,187,944	4,267,941	190,816	285,465	195,600	1,248,122
1996	6,702,314	4,511,904	200,498	300,379	204,087	1,485,446
1997	7,020,271	5,377,113	218,910	*	218,450	1,205,799
1998	7,364,465	5,659,811	229,637	*	237,042	1,237,975
1999	7,838,567	6,077,452	244,446	*	262,286	1,254,383

*Pupil Transportation Fund and the Capital Expenditure Fund was transferred into the General Fund in FY 1997.

Data description: School district revenue and expenditure data is obtained from annual financial reports filed with the Department of Education. Data does not include transfers between funds. Nonoperating funds include, among other items, capital expenditures and debt service. **Additional information:** Revenue and expenditure data are available by school district.

State agency contact:
Financial Management Team (651) 582-8770
Department of Children, Families and Learning
http://www.osa.state.mn.us/downloads.lasso

TABLE 58 GOVERNMENTAL REVENUES SCHOOL DISTRICTS (THOUSANDS)

Fiscal Year	Total revenue	State	Local	Federal	Other
1977	$1,643,815	$893,314	$605,392	$87,817	$57,292
1978	1,791,775	943,482	684,335	104,620	59,338
1979	1,894,812	991,576	725,775	110,794	66,667
1980	2,057,560	1,073,246	783,995	126,020	74,299
1981	2,252,362	1,172,718	817,220	131,697	130,727
1982	2,304,334	1,334,197	756,160	107,069	106,908
1983	2,354,094	916,435	1,209,994	110,241	117,424
1984	2,541,496	1,237,815	1,070,350	114,437	118,894
1985	2,677,408	1,308,601	1,114,640	118,248	135,919
1986	2,938,605	1,407,494	1,211,805	125,494	193,812
1987	3,449,805	1,783,681	1,263,016	130,879	272,229
1988	3,635,749	1,852,866	1,360,049	132,561	290,273
1989	3,844,601	1,928,743	1,465,959	144,883	305,016
1990	4,322,224	2,096,481	1,736,557	165,627	323,559
1991	4,851,092	2,384,018	1,746,965	182,583	537,525
1992	5,047,779	2,334,304	1,976,743	200,858	535,874
1993	5,461,429	2,244,959	2,226,839	224,985	764,647
1994	6,159,672	2,781,340	2,135,758	236,861	1,005,713
1995	6,242,170	2,918,069	2,467,232	247,982	608,886
1996	6,964,085	3,438,245	2,305,332	254,283	966,225
1997	6,970,980	3,333,534	2,603,179	264,528	769,739
1998	7,774,842	3,388,088	2,960,619	333,470	1,092,665
1999	8,068,970	3,871,643	2,605,919	312,274	1,279,134

Data description: School district revenue and expenditure data is obtained from annual financial reports filed with the Department of Education. Data does not include transfers between funds. Nonoperating funds include, among other items, capital expenditures and debt service. **Additional information:** Revenue and expenditure data are available by school district.

State agency contact:
Financial Management Team (651) 296-5906
Department of Children, Families and Learning
http://www.educ.state.mn.us

TABLE 59 GENERAL OBLIGATION BONDS OUTSTANDING, JUNE 30, EACH YEAR (THOUSANDS)

	Category 1				Category 2	3	4	5	6
Year	Fiscal (general)	Building	Refunding	Other	Schools	Highway	Tobacco	Sport clubs	Infrastructure devel. fund
1983	$835,650	$516,394	$0	$319,256	$48,890	$52,470	$0	$0	$0
1984	939,080	617,300	0	321,780	48,295	85,260	0	0	0
1985	983,730	611,999	106,565	265,166	49,535	111,040	0	0	0
1986	1,056,755	637,120	158,690	260,945	59,495	99,665	0	0	0
1987	1,007,416	415,785	363,711	227,920	51,999	90,955	0	0	0
1988	1,109,732	445,657	414,085	249,990	48,768	81,625	45,000	5,000	0
1989	1,134,150	474,773	414,085	245,292	46,960	76,440	132,420	25,920	0
1990	1,259,393	591,192	414,085	254,116	45,697	71,355	112,290	27,625	0
1991	1,293,912	623,960	414,085	255,867	42,108	66,270	100,745	26,020	49,000
1992	1,264,717	617,711	414,083	232,921	60,058	61,185	89,200	24,415	134,755
1993	1,315,211	420,288	714,839	180,084	90,907	57,185	77,655	22,920	147,032
1994	1,398,243	454,633	868,377	75,233	108,621	48,450	66,320	21,455	127,782
1995	1,410,812	435,967	826,135	148,710	106,350	43,940	52,220	16,585	219,718
1996	1,676,500	650,060	755,666	270,774	114,400	39,050	43,220	18,125	227,370
1997	1,657,090	718,035	700,362	238,693	120,080	28,900	31,450	16,390	262,680
1998	1,994,133	942,392	744,085	307,656	111,775	22,585	19,895	14,770	299,657
1999	1,899,744	930,268	685,053	284,423	93,275	17,675	9,340	13,115	311,711

Data description: Category 1 bonds are payable primarily from money appropriated to the Debt Service Fund from the General Fund. Category 2 bonds are payable primarily from money appropriated to the Debt Service Fund from special accounts in the General Fund to which receipts have been pledged from special revenue sources such as school district capital and debt service loan repayments, state college charges, fees and rentals, and aviation taxes. Category 3 bonds are payable primarily from the Trunk Highway Fund, which receives 62 percent of the net proceeds of the state gasoline and motor vehicle registration taxes pursuant to the constitution. Category 4 bonds are payable primarily from money appropriated to the Debt Service Fund from the sales tax on the sale of cigarettes and other tobacco products. Category 5 bonds are payable primarily from money appropriated to the Debt Service Fund from the sales tax on membership dues, initiation fees, and facilities of private sports and health clubs. Category 6 bonds are one-third payable from revenue sources at the higher educational system and the balance from money appropriated to the Debt Service Fund from the General Fund. The full faith and credit and unlimited taxing powers of the state are pledged for the payment of all the above bonds. **Additional information:** More detailed information is available concerning the use of bond proceeds. A detailed repayment schedule is also available.

State agency contact:
Minnesota Department of Finance (651) 296-5900
http://www.finance.state.mn.us

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ECONOMIC REPORT TO THE GOVERNOR

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