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WORKFORCE

SHORTAGE?

A Fact Book of Labor Shortage Indicators



September 2000

Minnesota Department of Economic Security

Workforce Shortage?

A Fact Book of Labor Shortage Indicators

Minnesota's vibrant economy shows signs of a possible workforce shortage. Indicators pointing in this direction include low unemployment, rising wages, and abundant job vacancies. While these factors can certainly signal a labor shortage, in reality, workforce shortages are often the result of many interconnected causes.

In response to requests for information about the circumstances that can lead to a workforce shortage, the Minnesota Department of Economic Security has developed this fact book. The report identifies and discusses factors that can signal a tight labor market. Indicators described here include the following:

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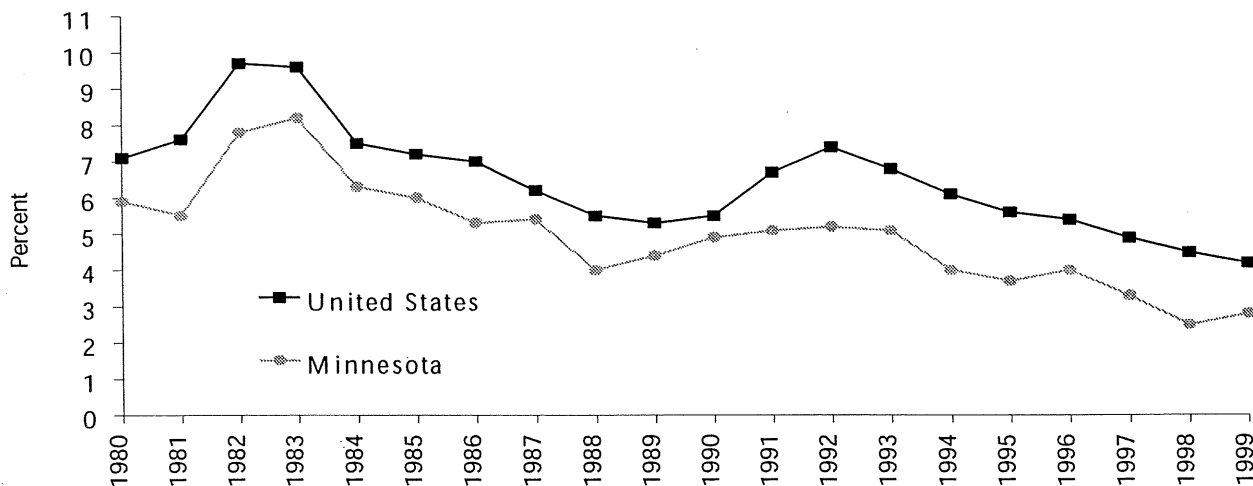
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It is important to recognize that each of the above taken alone is not significant evidence of a labor shortage but in combination may indicate shortage conditions. It is also important to remember that specific shortages can occur for many different reasons. For example, a shortage in a particular industry can occur when wages or other working conditions are not favorable enough to attract workers. Additionally, the supply of workers can be "blocked" due to inadequate training opportunities or similar situations.

Unemployment Rate: *How many people are actively looking for a job but not working?*

The unemployment rate measures the proportion of people who are actively seeking a job but not working during a survey week. There will always be some unemployment in an economy, and many economists believe that the “full employment” level of unemployment is about 5.5 percent. Minnesota’s rate has been below this figure for several years, representing a particularly low reserve pool of labor from which employers can potentially hire workers.

Annual Average Unemployment Rates, United States and Minnesota, 1980-1999



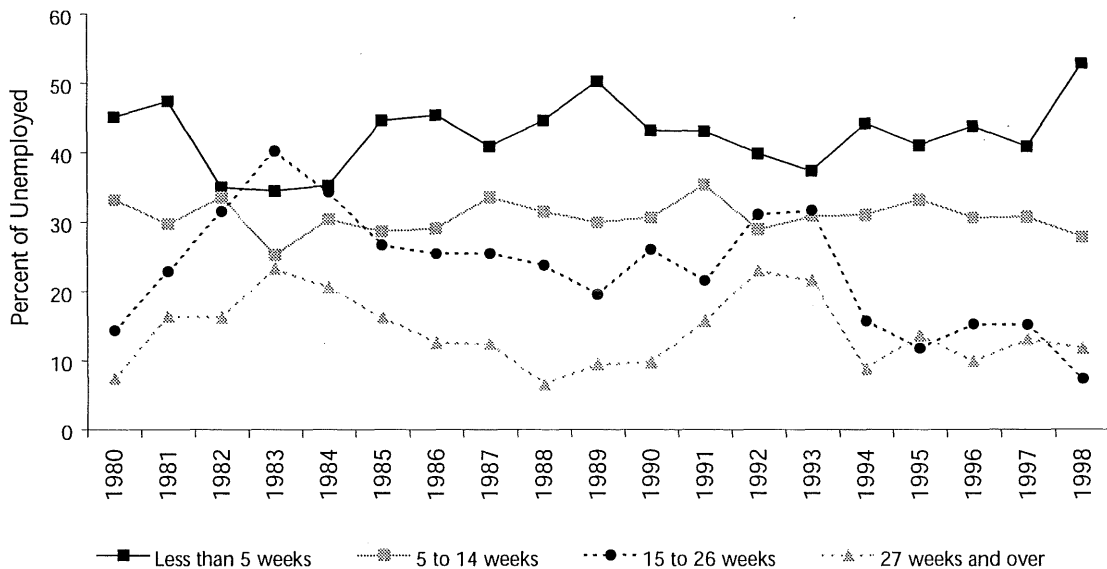
Source: Local Area Unemployment Statistics, Research and Statistics Office, Minnesota Department of Economic Security (MDES).

- In 1999, Minnesota’s annual average unemployment rate was 2.8 percent, well below the national average of 4.2 percent.
- In 1998, Minnesota recorded the lowest annual average unemployment rate in the nation, at 2.5 percent.
- Minnesota’s annual average unemployment rate has consistently remained below the national average for more than 20 years.

Duration of Unemployment: *How long do the unemployed spend looking for work?*

Often the amount of time that the unemployed spend looking for work is more indicative of labor market tightness than the simple unemployment rate. Between 1980 and 1998, the duration of unemployment was, on average, highest during the recession periods of the early 1980s and the early 1990s.

Duration of Unemployment, Minnesota, 1980-1998



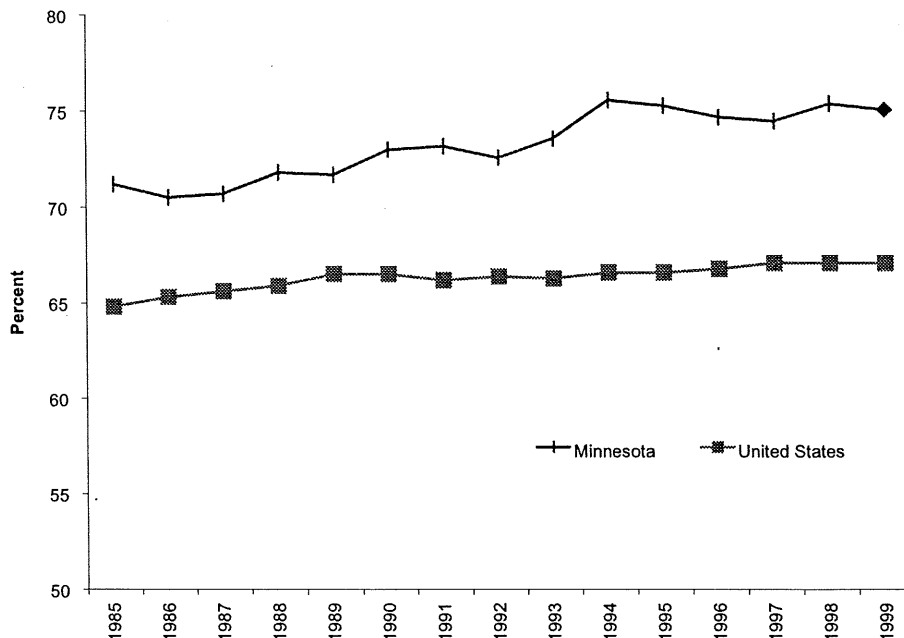
Source: *Geographic Profile of Employment and Unemployment, Bureau of Labor Statistics (BLS).*

- Since the mild recession of 1992, the percent of the Minnesota workforce that spends more than 15 weeks looking for work has dropped dramatically, while the percent that spends less than 15 weeks without a job has trended upward.
- The period of the longest statewide average duration of unemployment was around 1983 when 64 percent of the workforce that became unemployed spent more than 15 weeks looking for work.

Labor Force Participation Rate: *How many people are either working or looking for a job?*

The labor force is the group against which the unemployment rate is measured, so the population outside of the labor force can also be thought of as a part of an economy's reserve pool of labor. While a certain number of people will always remain outside of the labor force due to illness, disability, retirement, incarceration, or other reasons, a higher labor force participation rate reflects a smaller pool of potential workers available for employment. Historically, this rate has been higher for Minnesota than for the United States as a whole, and in 1999, Minnesota's workforce participation rate of 75.1 was the nation's highest.

Labor Force Participation Rates, Minnesota and United States, 1985-1999



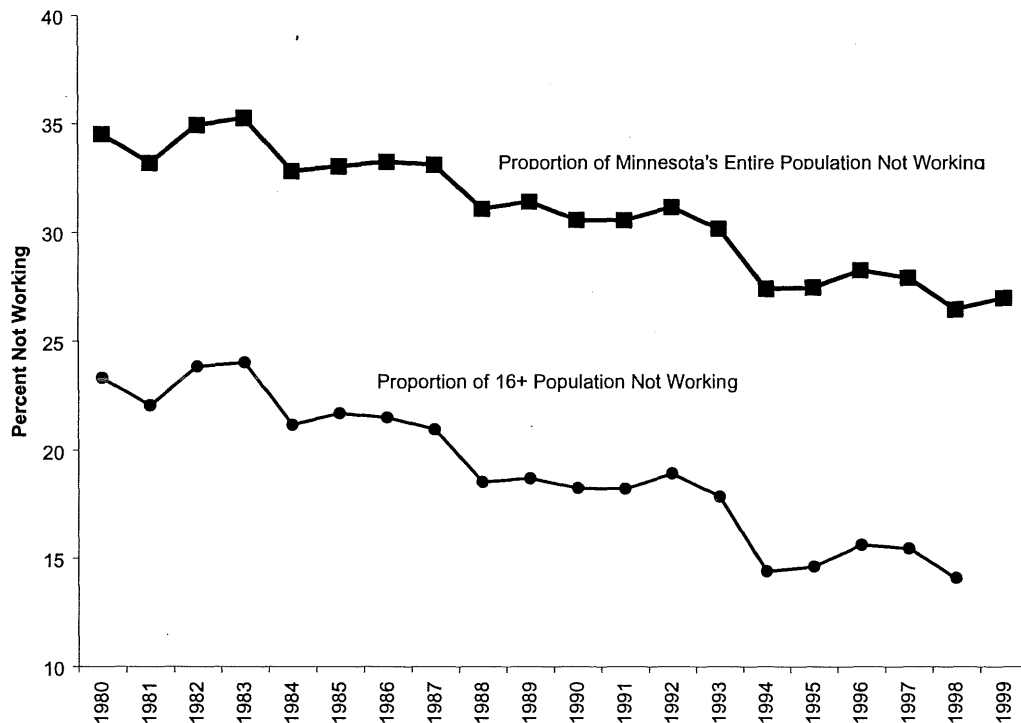
Source: *Geographic Profile of Employment and Unemployment, BLS.*

- **Females:** In 1999, Minnesota had the highest labor force participation rate for females (69.9 percent) in the country; the national average was 60 percent. This rate rose steadily from the 1970s to the mid-1990s and has remained relatively steady since then.
- **Ages 16-19:** In 1999, Minnesota's labor force participation rate for teens was the third highest in the United States, at 67.9 percent, and well above the national average of 52 percent. Labor force participation among Minnesota teens has declined slightly since peaking at 75 percent in 1995.
- **Ages 65 and over:** In 1997, Minnesota had the fourth highest labor force participation rate for workers age 65 and over, at 16.9 percent. The national average was 12.2 percent in 1997. This rate has remained relatively steady for 15 years.

People Not Working: *How much of the population is not employed?*

This indicator includes both the “unemployed” and those not in the labor force and is perhaps the most complete reflection of the entire pool of potential workers. In Minnesota, low unemployment combined with high labor force participation leads to a low proportion of people not working. The steady decline of this figure over the last few decades shows a decreasing pool of potential workers.

Proportion of Population Not Working, Minnesota, 1980-1997



Source: *Geographic Profile of Employment and Unemployment, BLS.*

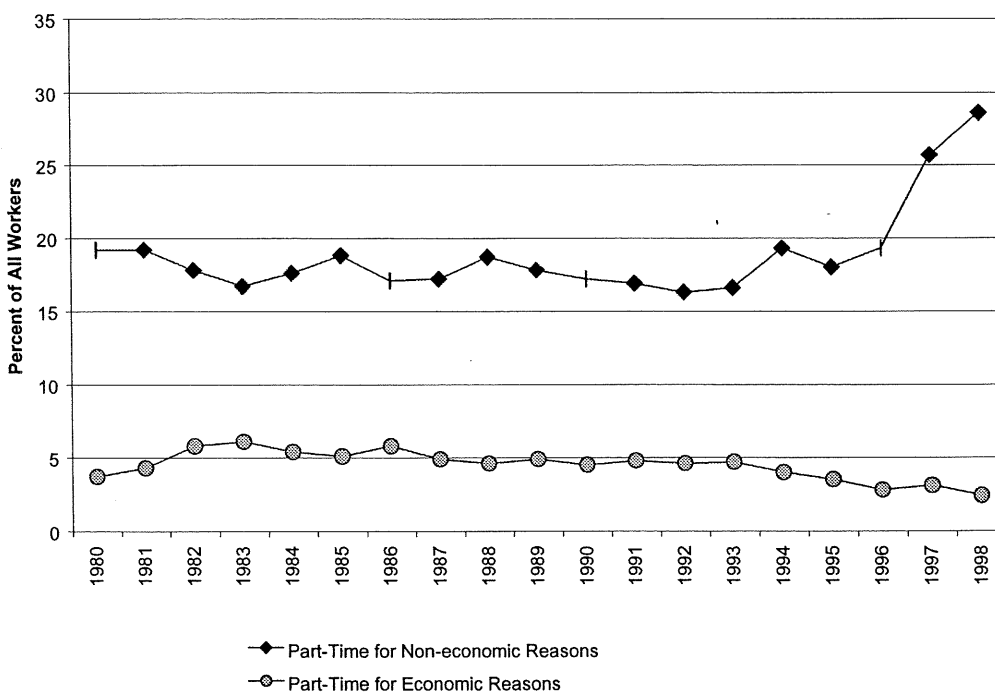
- Overall, the number of people not working is low and declining in Minnesota.
- In 1999, about 27 percent of all Minnesotans were not working.
- Among the population age 16 and over, approximately 14 percent were not working in 1998.

Part-time Workers: Are people working part-time because they prefer it to full-time work or because they can't find a full-time job?

Labor market analysts frequently divide part-time workers into two categories: "Part-time for economic reasons" is used to describe those workers who would prefer to hold a full-time job, while "part-time for non-economic reasons" describes those who prefer the part-time schedule.

A drop in the proportion of workers who want full-time jobs but cannot find full-time employment often reflects a tight labor market. Minnesota has experienced such a drop since the mid-1990s, while the proportion of part-time workers who prefer that schedule has risen dramatically.

Part-time Workers, Minnesota, 1980 - 1998



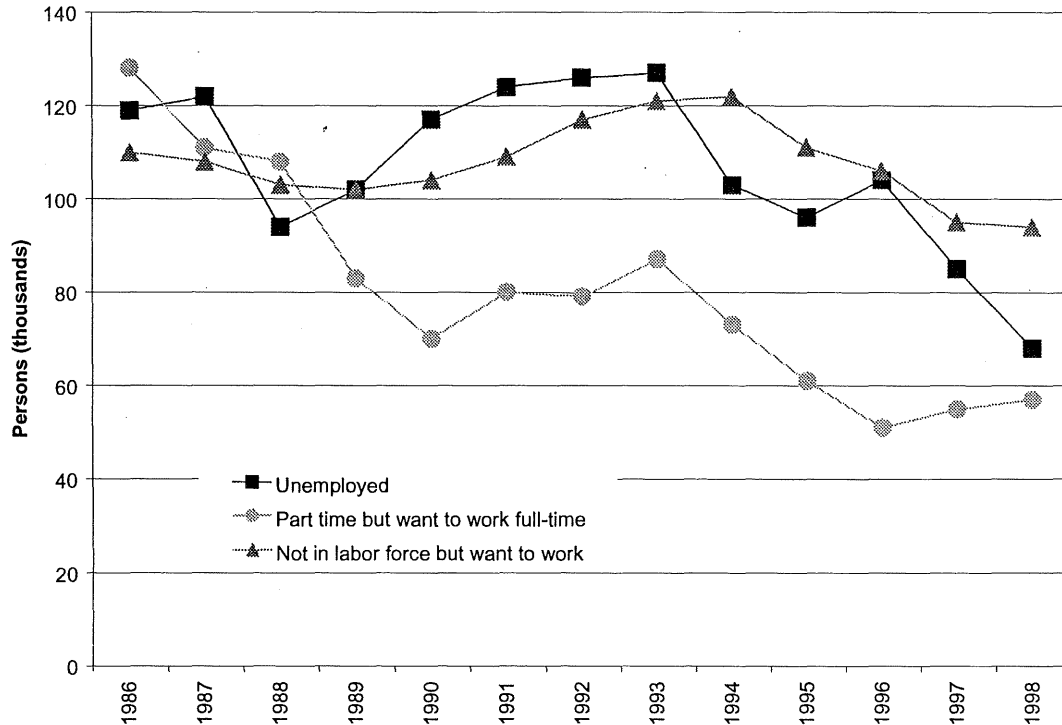
Source: *Geographic Profile of Employment and Unemployment, BLS.*

- The proportion of workers holding part-time schedules for economic reasons – those who would prefer to be working full time – fell to a 20-year low of 2.4 percent of the workforce in 1998. In general, those workers have comprised a relatively stable 3 to 6 percent of the workforce over the past two decades.
- The proportion of Minnesotans working part-time for non-economic reasons – that is, the workers who choose part-time schedules over full-time ones – also changed little through most of the 1980s and 1990s. But in 1997 that percentage jumped by 33 percent to comprise, for the first time, more than a quarter of the workforce. By 1998, 28 percent of the Minnesota workforce held part-time jobs for non-economic reasons.

The Reserve Worker Supply: *Who could potentially fill available jobs?*

The pool of reserve workers from which employers can draw to fill positions includes unemployed persons, persons employed part-time who would like to work full-time, and persons not currently in the workforce but who want to find work.

Components of Reserve Worker Supply, Minnesota, 1986-1998



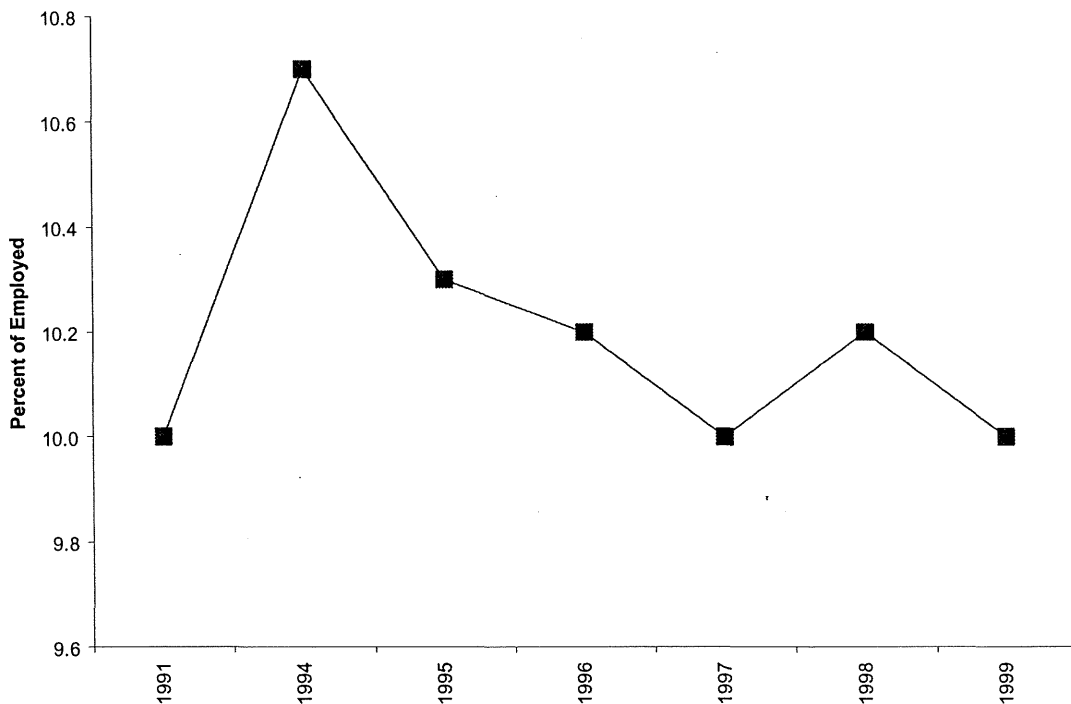
Source: *Geographic Profile of Employment and Unemployment, BLS.*

- In total, the reserve worker pool declined from 364,000 persons to 232,000 persons from 1993 to 1998.
- During that period, the number of unemployed persons declined from 127,000 to 68,000, the number of persons employed part-time for economic reasons declined from 116,000 to 70,000, and the number of persons not in the labor force, but able and willing to work, declined from 121,000 to 94,000.
- From 1993 to 1998, the number of unemployed workers declined by 46.5 percent, the number of those employed part-time for economic reasons declined by 39.7 percent, and the number of persons not in the labor force, but willing to work, declined by 22.9 percent.

Multiple Jobholders: *How many people hold down more than one job at a time?*

A high proportion of workers who hold multiple jobs can be one indicator of a particularly tight economy. Throughout the 1990s, Minnesota's multiple jobholding rate has been among the country's highest.

Multiple Jobholders, Minnesota, 1991-1999



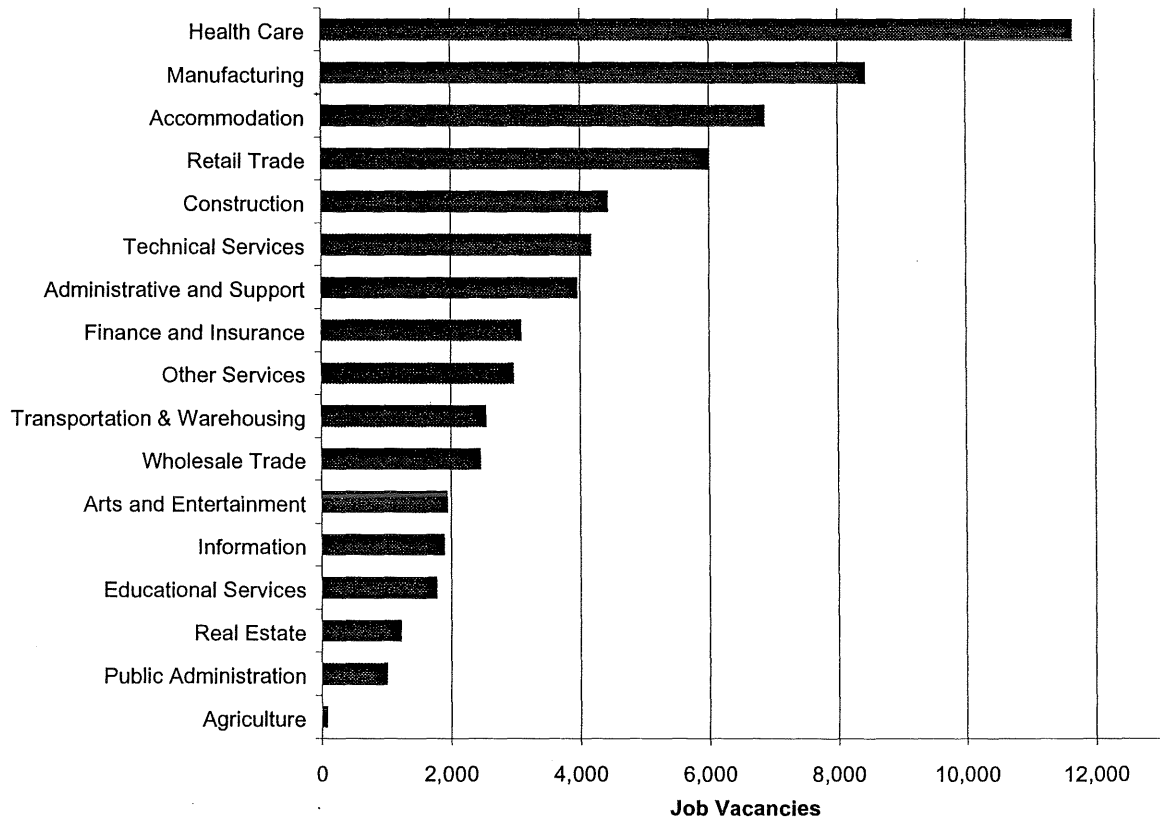
Source: Unpublished data from BLS.

- In 1999, Minnesota's multiple jobholding rate of 10 percent was surpassed by just two other states: Montana and North Dakota each had rates of 10.3 percent.
- In 1998, Minnesota also ranked third in terms of multiple jobholders, and in 1997, Minnesota was fifth in the nation.
- In 1994, 1995, and 1996, Minnesota had the country's highest rate of multiple jobholding.

Job Openings by Industry: *How do we know if there is a worker shortage in manufacturing or service industries?*

Industry vacancy rates are useful for determining which industries are having the most trouble attracting and retaining workers.

Job Vacancies by Industry, Twin Cities Metro Area, 2000



Source: *Twin Cities Job Vacancy Survey, Second Quarter 2000*, Research and Statistics Office, MDES.

- There were 64,500 vacancies in the Twin Cities area during second quarter 2000.
- The region's four largest industry sectors—manufacturing, retail trade, health care and social assistance, and accommodation—account for half (51 percent) of all openings.
- In health care and social assistance, 55 percent of positions are filled with “great difficulty” and 59 percent of vacancies include job titles that are “always open.”

Job Openings by Occupation: *How do we know if there is a shortage of information technology workers or registered nurses?*

Direct measures of occupational shortages do not exist. Instead, several indicators are used together to understand the employment conditions for each occupation. Job vacancy rates and employers' perceptions of hiring difficulty are among the clearest indicators of occupational shortages. Job vacancy rates show where the job openings are, while hiring difficulty points to which jobs have the most trouble attracting workers. The Hiring Demand Index measures workforce demand due to factors other than turnover—mainly the demand for new entries into a field. Fast-growing occupations have hiring demand indexes of “above average.”

Job Vacancy Rates* and Hiring Difficulty, Selected Occupations, Twin Cities Metro Area, 2000

Employment and Job Vacancies by Major Occupation Group	Number of Openings	Metro Area Employment Estimate	Job Vacancy Rate (%)	Hiring Demand Index	Great Difficulty to Fill (%)
Healthcare Support	4,552	32,500	14.0%	Above average	55%
Community and Social Services	1,708	16,700	10.2%	Above average	28%
Personal Care and Service	3,562	39,100	9.1%	Above average	34%
Construction and Extraction	4,172	48,400	8.6%	Above average	15%
Healthcare Practitioners and Technical	4,200	68,500	6.1%	Above average	71%
Computer and Mathematical	2,414	44,700	5.4%	Above average	32%

Source: *Twin Cities Job Vacancy Survey, Second Quarter 2000*, MDES

- The five occupations with the most openings are: sales representatives; waiters and waitresses; nursing aides, orderlies, and attendants; customer service representatives; and personal and home care aides.
- Employers report “great difficulty” filling 38 percent of current openings. As for the balance, firms expect “some difficulty” for 56 percent of openings and “no difficulty” for 6 percent.
- Many positions (45 percent) are “always open” for hire, meaning that employers recruit and place workers on a continuous, rolling basis.
- Other vacancies are open for a discrete period of time: at the point of the survey, 26 percent of all vacancies had been open less than 30 days; 16 percent, 30 to 59 days; and 13 percent, 60 days or longer.

* To address the need for occupational labor market indicators, MDES has developed the *Twin Cities Job Vacancy Survey*, conducted in the fourth quarter of 1999 and the second quarter of 2000. This report discusses job market demand measures for major occupation groups, specific occupations, and industry sectors. Education and training requirements, wages, and benefits for current openings are also discussed.

New Hires: *Where are the jobs?*

When looking at demand for labor, it is useful to have a measure of total new hiring – for newly created positions and to fill positions open because of turnover.* Large numbers of new hires in an industry reveals “where the jobs are.” However, during a labor shortage, the number of new hires reflects only part of an employer’s total demand for labor; the number of new hires does not tell us anything about how many workers an employer would like to hire but cannot find. The number of new hires *does* provide a better measure of demand than only using employment growth.**



Source: Wage Detail Records, Research and Statistics Office, MDES

- The number of new hires by a given firm in a particular quarter is defined as the employees added to the firm who were not with that firm during either of the two quarters preceding the quarter of hire.
- In an average quarter of 1997, over three-quarters of jobs taken by new hires were in three industries: 42 percent were in the services industry, 26 percent in the retail trade industry, and 10 percent in manufacturing.
- About 412,600 jobs were taken by new hires in an average quarter of 1997, a figure that represents close to 19 percent of the total jobs in that quarter. In an average firm, about four jobs were taken by new hires in an average quarter of 1997.

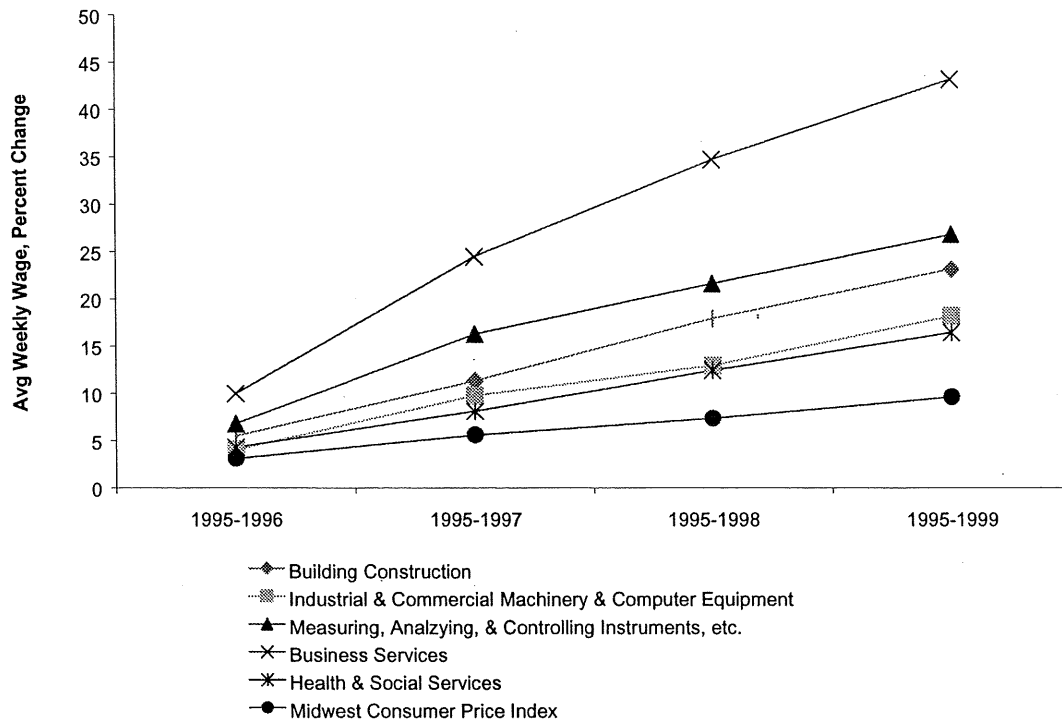
* Turnover occurs when positions open for reasons such as leaving for retirement, school, better jobs, etc. Positions open because of turnover are also called “replacement openings.”

** MDES created the measure of new hires for 1997 from Wage Detail data. No recent data exist for new hires; the data presented here provide a picture of industries engaging in the most hiring during selected quarters of 1997.

Rapidly Increasing Wages: *Is the demand for workers outpacing the supply of workers?*

Wages that grow faster than inflation are one of the strongest indicators of labor shortages. Rising wages often mean employers are facing a supply of labor that does not meet their demand and therefore have to raise wages to attract workers.* The chart below displays a sample of industries experiencing wage growth at a rate faster than inflation.

Wage Growth vs. Inflation, Selected Industries, Minnesota, 1995-1999



Source: MDES analysis of Covered Employment and Wages Program (ES-202)

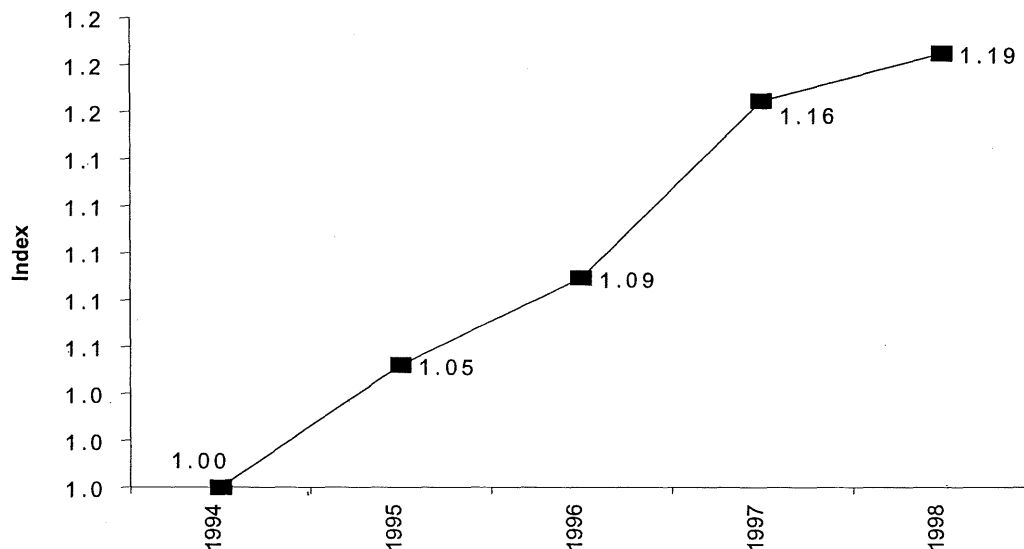
- From 1995 to 1999, wages in the Business Services industry have grown – the fastest among this group of industries – at a rate 33.5 percentage points faster than inflation (Midwest Consumer Price Index).
- In each of these industries, the number of firms and the average employment has grown from 1995 to 1999.
- These industries employ a high percentage of workers in demand occupations, including software and information technology and healthcare occupations.
- Statewide, wages for all industries combined are growing faster than inflation. From 1995 to 1999, average weekly wages for all industries in Minnesota grew at a rate of 22.4 percent.

*Sometimes employers do not have full discretion to increase wages. Therefore, it is important to understand how wages are impacted by other factors – i.e., legislation, union contracts, etc. – and to use wage changes in combination with other indicators, such as employment growth and supply of reserve worker trends, when examining workforce shortages.

The Labor Market “Tightness” Index: *How do rising wages and a shrinking reserve pool of workers contribute to workforce shortages?*

As the reserve worker supply declines, employers are likely to raise wages as a strategy for attracting workers. This is precisely what the labor market tightness index measures – the combination of a decreasing supply of reserve workers and increasing real wages. “Tightness” refers to the short supply of potential workers and the high competition for available workers.

Labor Market Tightness Index, Minnesota, 1994-1998



Source: Research and Statistics Office, MDES

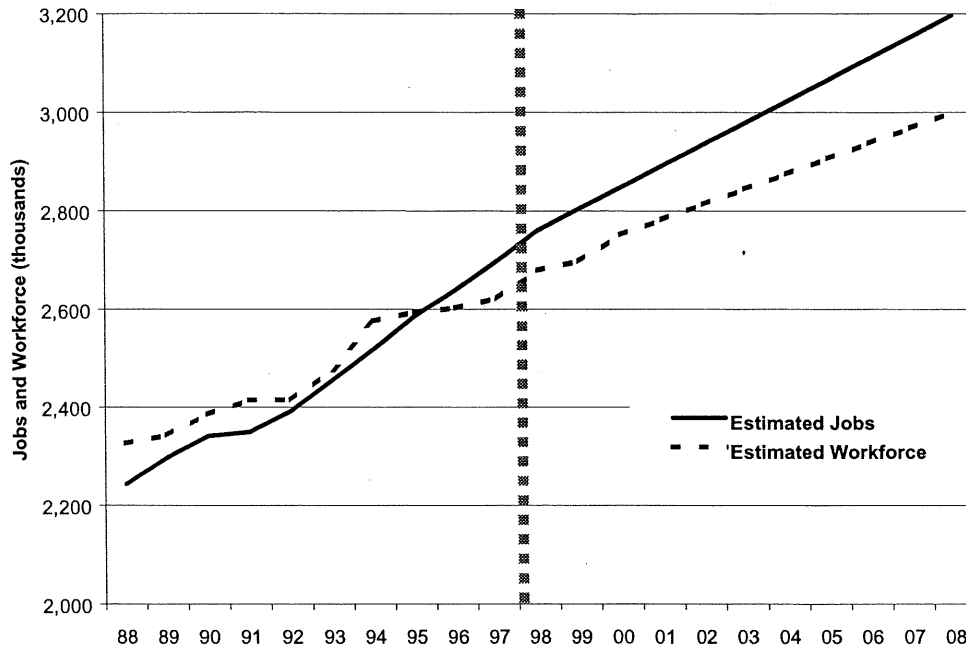
- An indexed number compares how tight the labor market is in various years to how tight it was in 1994. Values greater than one (1.0) suggest that the labor market is tighter compared to the base year 1994.
- Consistent increases in real wages coupled with declines in the reserve worker supply constitute compelling evidence of tight labor market conditions and worker shortages.
- From 1993 to 1998, the reserve supply of workers fell substantially from 364,000 to 232,000, while inflation-adjusted weekly wages rose by \$55.58.
- From 1994 to 1998, the Labor Market Tightness Index increased from 1.00 to 1.19.

Projected Workforce Growth: *How will changes in the size of the workforce affect the labor market?*

Contrasting potential workforce growth with potential job growth provides one measure for predicting the future tightness of a labor market: when job growth exceeds workforce growth, unemployment falls, and the labor market becomes tight.

While Minnesota's population growth has been high throughout the 1990s, the State Demographic Center projects slower growth over the next ten years. Combined with a relatively stable labor force participation rate, this slower overall population growth will lead to decreasing workforce expansion. Meanwhile, job growth is expected to exceed workforce growth over the coming decade, leading to a tighter labor market.

Estimated Workforce and Total Jobs, Historical and Projected, Minnesota, 1988-2008



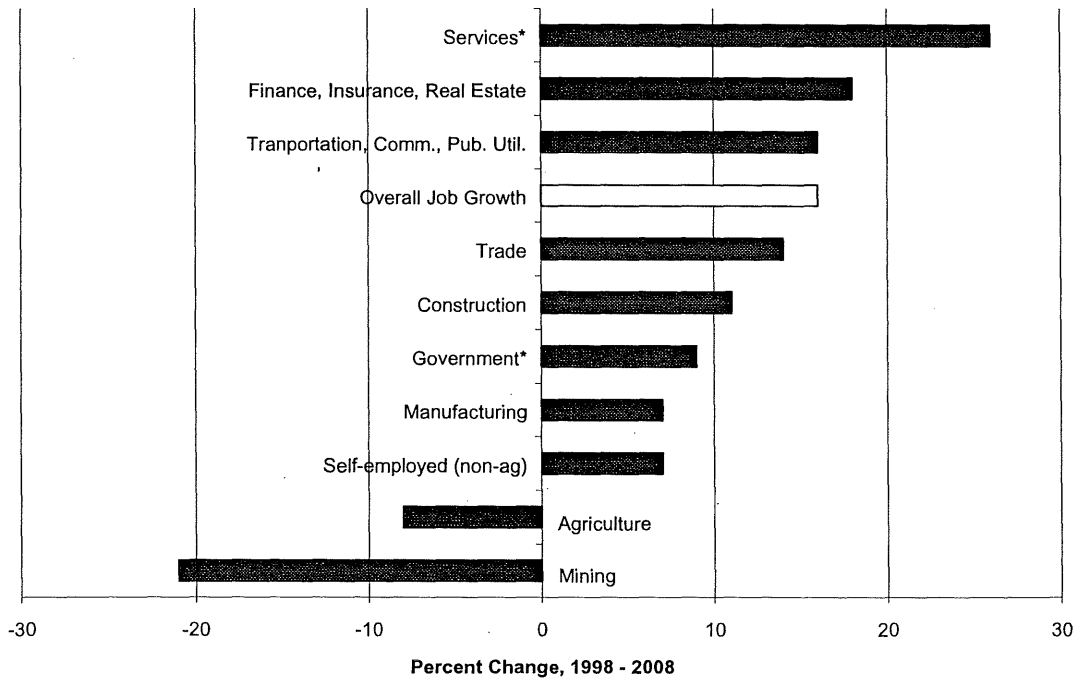
Source: MDES analysis of Current Employment Statistics (CES) and ES-202

- Since 1998, job growth has generally exceeded workforce growth, pushing unemployment down across most of Minnesota and creating tight labor market conditions. Two exceptions were in 1992 and the first six months of 1996 when workforce growth exceeded job growth and unemployment increased.
- Between 1998 and 2008, the workforce is projected to grow 12 percent, well below the projected job growth of 16 percent over the period. As a result, labor markets will remain tight, and workforce shortages may become severe enough to hinder job growth.

Projected Employment Growth, by Industry: *Where will new jobs be?*

Examining projected employment growth by industry provides a picture of where new jobs will be. Overall, employment in Minnesota is projected to increase by 434,000 jobs between 1998 and 2008. As the graph below shows, the services industry is projected to add the greatest number of new jobs.

Employment by Industry, Percent Change, Minnesota, 1998-2008



*State and local government education and hospital employment is included in the services division.
Source: MDES analysis of ES-202 and CES data.

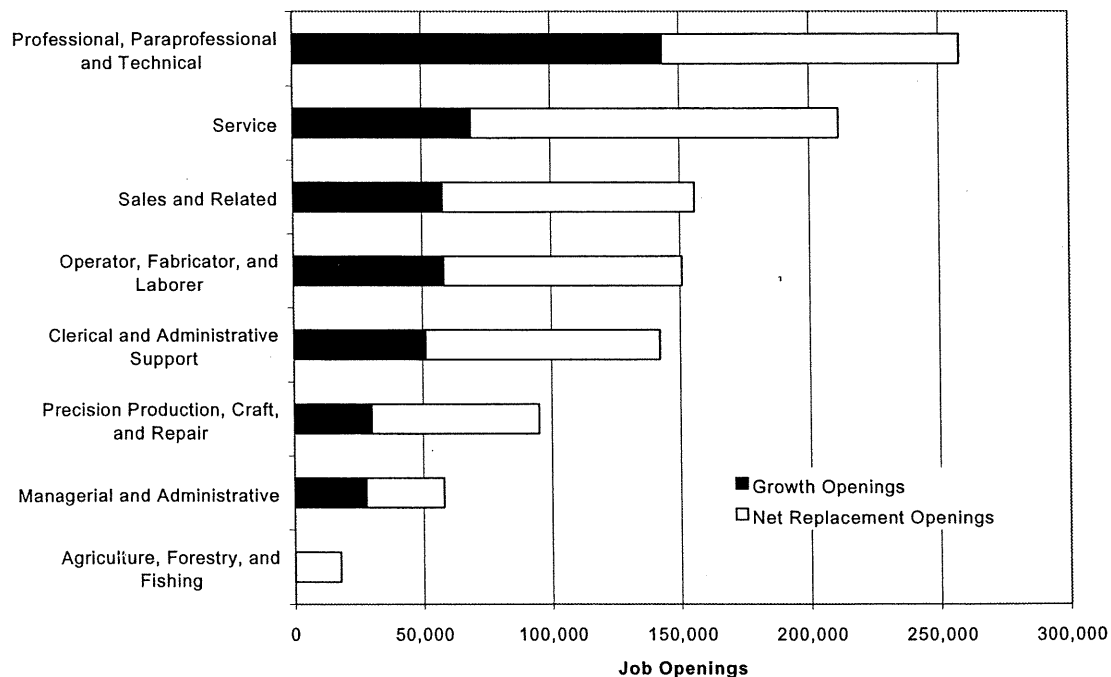
- The services division is projected to have the fastest growth and largest employment increase among all industries, with a projected 26 percent gain in employment, or about 236,000 new jobs. This increase amounts to more than half of all projected new jobs statewide.
- Finance, insurance, and real estate is the only other industry division projected to exceed, at about 18 percent, the state's projected overall job growth rate of 16 percent.
- Employment opportunities are expected to decline in the agriculture and mining industries.
- Job growth in transportation, communication, and public utilities is expected to match the state's overall job growth rate of 16 percent.

Projected Employment Growth, by Occupation: *What will the new jobs be?*

Future job openings can be divided into two categories: *employment growth* refers to newly created jobs while *net replacement job openings* consist of vacancies resulting from turnover. The combination of these comprise the total projected job openings, and the distribution of these projections across occupations provides a picture of what types of jobs will be available in the future.

On the whole, as shown below, projected net replacement openings are expected to be more evenly spread across occupations than are projected openings from employment growth.

Projected Employment Growth and Net Replacement Job Openings, Minnesota, 1998-2008



Source: MDES analysis of ES-202 and CES data

- Professional, paraprofessional, and technical occupations are expected to both grow fastest and add the most jobs by 2008.
- The occupation of computer systems analyst is expected to be Minnesota's single fastest-growing occupation, with growth projected at 100 percent over this period.
- The occupation of typesetter / composing machine operator is expected to be the single fastest-declining occupation, with 50 percent of those jobs expected to disappear between 1998 and 2008.