INCONTEXT

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IN the Spotlight

Casting a Stamp on the Future

Indiana has a rich tradition in the tool and die industry. Its high-skill, high-wage jobs have supported the state's manufacturing base for decades. As firms compete for skilled workers, what challenges can the industry expect in the future?

The Indiana Department of Workforce Development's (DWD) long-term projections can help answer this question. In conjunction with the Bureau of Labor Statistics, DWD is able to project short- and long-term staffing patterns for 664 different occupations at both the state and local levels. What is unique about DWD's calculations is the estimation of not only natural job growth but also replacement jobs, defined as people leaving the workforce for reasons such as retirement or those taking jobs in other occupations. "IN the Details" on page 2 explains the forecasting methodology in greater detail.

DWD identified 23 skilled tool and die occupations statewide. Unskilled labor, supervisors, and administrative and support positions were excluded from the analysis. In 1996, 85,876 people were employed in these 23 skilled tool and die positions statewide. This represented more than 12% of Indiana's manufacturing workforce. DWD estimates the tool and die workforce will total 92,731 in 2006, an 8% increase from 1996 (see Table 1 on page 2). This averages about 685 new jobs each year.

The top five tool and die growth occupations are numerical control machine operators, combination machine tool setters, combination machine tool operators/tenders, machine shop sheet metal workers and non-classified precision workers. The five occupations with the largest declines are drilling/bore machine

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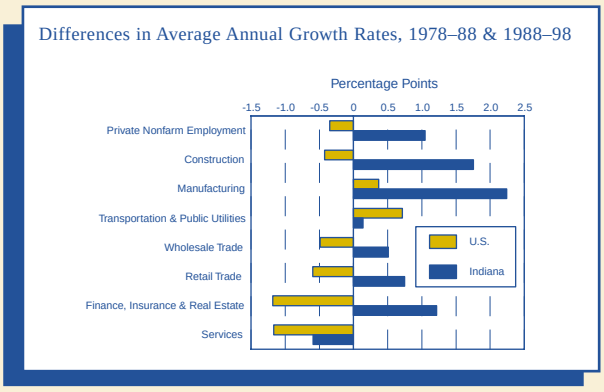

Employment Advances in Indiana

See 'IN the News' on page 3 for details ...

*IN*SIDE *this issue:*

Indiana Unemployment Rate for July 2000: 3.6%

Up from 2.9% in July 1999

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setters/operators, grinding machine setters/operators, maintenance and production (M/P), punching machine setters/operators (M/P), foundry mold and core makers, and machine forming operators (M/P).

An 8% growth rate for skilled tool and die jobs between 1996 and 2006 may not appear significant, but when replacement jobs for the industry are included, another picture emerges. Table 1 shows that 17,850 — 21% of the employees working in machine shop-related jobs — will have to be replaced statewide between 1996 and 2006. Occupations experiencing the most turnover are machinists, machine forming operators, numerical control machine operators, combination machine tool setters and combination machine tool operator/tenders.

When tool and die replacements are combined with new jobs, the workforce picture becomes clearer. Between 1996 and 2006 the industry will need a total of 24,705 new and replacement workers across the state, or 29% of the 1996 tool and die workforce. This equals 2,470 jobs annually. The main reason the Hoosier tool and die industry may face challenges in finding skilled workers is the number of workers leaving the industry, largely due to retirement.

Table 1: Indiana Tool & Die Occupational Projections

	Tool & Die Workers Needed, 1996–2006	Total Tool & Die Jobs
Total tool & die jobs, 1996		85,876
Replacement jobs open due to retirement, transfer, etc., 1996–2006	17,850	
New jobs created, 1996–2006	6,855	6,855
Total new workers needed, 1996–2006	24,705	
Percent of 1996 workforce	29%	
Total tool & die jobs, 2006		92,731
Percent increase, 1996–2006		8%

Source: U.S. Bureau of Labor Statistics and Indiana Department of Workforce Development

One reason for this may be that many tool and die jobs are connected to Indiana's automotive industry, which is projected to experience significant retirements in the skilled trades. In 1996, there were 20,092 skilled tool and die workers employed in SIC 37 (transportation) statewide, representing approximately 23% of the state's tool and die workforce. Although DWD does not have replacement figures at the two-digit SIC level, tool and die workers make up 23% of Indiana's transportation sector production workforce.

Total statewide tool and die growth and replacement figures may be even higher. Because DWD used 1996 as the base year, many new direct and indirect tool and die jobs created by Toyota in Southwest Indiana are not included; employment did not begin there in earnest until the second half of 1998. Once these numbers are included in DWD's 1998–2008 round of occupation projections, tool and die totals may increase further.

The tool and die industry plays a vital support role in Indiana's new economy. Filling an estimated 2,470 or more positions a year may be a challenge as the industry competes for skilled workers. With the benefit of DWD's long-term projections, industry representatives can start to address these issues today.

IN the Details

How Jobs in Indiana Are Forecast

The Indiana Department of Workforce Development (DWD), in cooperation with the U.S. Department of Labor, recently released its forecast estimating the kinds of jobs that will be found in Indiana in the year 2006. This forecast projects the number of jobs in each occupation within each industry for the period 1996–2006. The projections are developed using a four-step process that builds off of 1996 data. The first step in preparing the projections is completing the Indiana Occupational Employment Statistics (OES) survey, which provides current estimates of occupational employment by industry. A sample of establishments in the nonfarm wage and salary sectors of

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Midwest Turnaround

The years from 1978 to 1988 were difficult for the Midwestern states. Indiana and its four neighboring states, plus Wisconsin, added private sector jobs at an average annual rate of just 1.1% during those years, while the nation enjoyed a 2.3% annual increase. But the picture has changed. In the subsequent 10 years, 1988 to 1998, both the nation and this six-state region have seen jobs grow at a 2% average annual rate.

While every state in the region witnessed a bounce back in private sector employment growth (see Figure 1), the experience is far from uniform. Indiana, Kentucky and Wisconsin, the three smallest states of the region, have been the leaders in recovery, each topping the nation's 2% growth rate. The larger states (Illinois, Michigan and Ohio) have been lagging.

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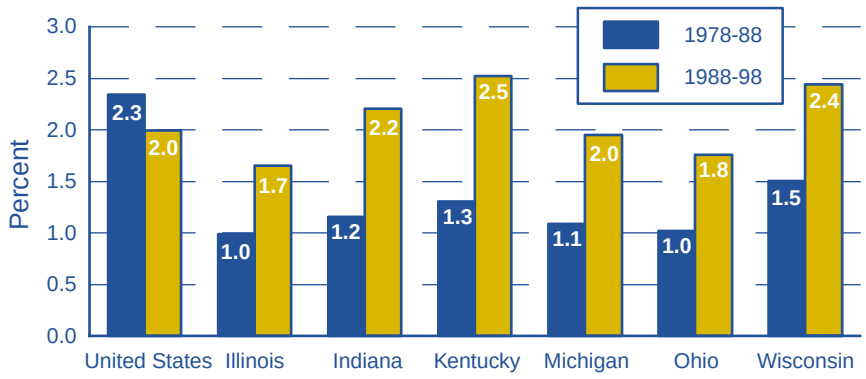
Figure 1: Average Annual Percent Change in Employment, by State

Midwest outperformed the nation



Source: U.S. Bureau of Economic Analysis

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the economy is surveyed over a three-year period to obtain employment levels by occupation. There are 75 industries from the Standard Industrial Classification system at the two-digit level, and more than 700 occupations. The next set of projections, through 2008, will be issued later this year and will use industry data at the three-digit SIC level for about 400 industries.

Industry/Occupation (I/O) Matrix

The next step is to create the industry/occupation matrix, which presents the occupational staffing patterns of each industry. It tabulates employment cross-classified by industry and occupation.

Industry Projections

Projecting the growth and decline of individual industries is the third step in preparing the forecast. Changes in industry structure will affect the growth and decline of the occupations needed to staff those industries.

Statewide annual average employment projections are produced for each industry based on statistical analysis of data from DWD, BLS and the U.S. Census Bureau. In addition, qualitative information from local and state labor market analysts is used to adjust industry projections.

Occupational Employment Projections

The last step is to forecast employment demand by occupation within each industry using the I/O matrix. Statewide estimates are developed for the base year (1996) and projected to the year 2006. They take into account factors, developed by BLS, that estimate changes in industry staffing patterns brought about by new technology and changing business practices.

The projected estimates include annual net job openings caused by both new demand due to growth and replacement needs. Average net openings for each occupation are the sum of growth demand and

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The details of the turnaround for Indiana are shown in Table 1. From 1988 to 1998, the Hoosier state increased its relative standing in the nation in each major sector of the private economy, compared to the 1978–88 period. Except for transportation and public utilities (where mergers and buyouts moved corporate headquarters from Indiana), Indiana's rank in the nation for employment growth rose in each sector and from 40th to 31st overall.

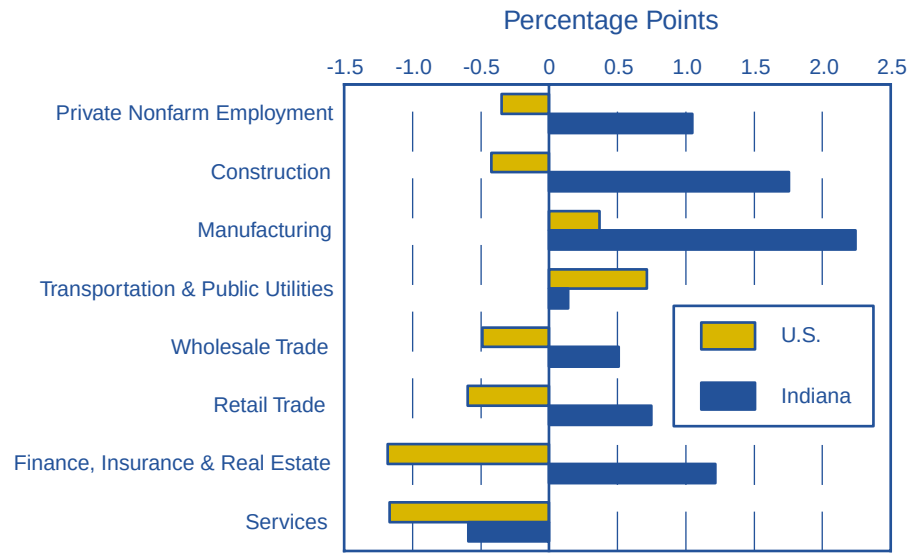
The same data appear even more dramatic when considered as shown in Figure 2. In most sectors, the nation's employment growth slowed. In Indiana, services was the only sector that grew less rapidly in 1988–98, compared with 1978–88. And even here, Indiana outperformed the nation, which had a greater slowing in employment growth.

As is often the case, manufacturing made the big difference for Indiana. After experiencing a 1.5% average annual decline in manufacturing in the 1978–88 period, the state rebounded with a 0.8% average annual growth in the next 10 years. The nation, however, saw manufacturing employment declines in both periods.

The surprise in these data, however, may be the finance, insurance and real estate sector. Despite dramatic changes in the industry, Indiana moved from the 42nd-fastest-growing state between 1978 and 1988 to 18th place in the next 10 years. This jump of 24 places was the largest the state made between these two very different periods.

Figure 2: Differences in Average Annual Growth Rates, 1978–88 & 1988–98

Employment advances in Indiana



Source: U.S. Bureau of Economic Analysis

Table 1: Average Annual Percent Change in Employment

	United States		Indiana			
					Rank in Nation	
	1978–88	1988–98	1978–88	1988–98	1978–88	1988–98
Private Nonfarm Employment	2.3	2.0	1.2	2.2	40	31
Construction	2.5	2.1	1.4	3.1	24	23
Manufacturing	-0.5	-0.2	-1.5	0.8	41	23
Transportation and Public Utilities	1.4	2.1	1.4	1.5	29	32
Wholesale Trade	1.8	1.3	1.3	1.8	30	21
Retail Trade	2.5	1.9	1.6	2.3	32	25
Finance, Insurance, and Real Estate	2.6	1.4	0.9	2.1	42	18
Services	4.5	3.4	3.9	3.3	29	27

Source: U.S. Bureau of Economic Analysis

3,046,404 Hoosiers Employed in July, Up Almost 15,000

Interest rate hikes by the U.S. Federal Reserve Board appear to be having their intended effect on the U.S. economy: National indicators show growth is continuing, but the rate of growth has moderated since the rapid expansion in 1999 and early 2000.

Indiana's economy, like that of the nation, is showing no signs of recession, however. The unemployment rate in Indiana rose slightly to 3.6% in July, the second consecutive monthly increase. The rate in July last year was 2.9%. The July U.S. unemployment rate was still substantially higher than in Indiana, at 4.2%, unchanged from June (see Figure 1 for the July unemployment rates for all Indiana counties).

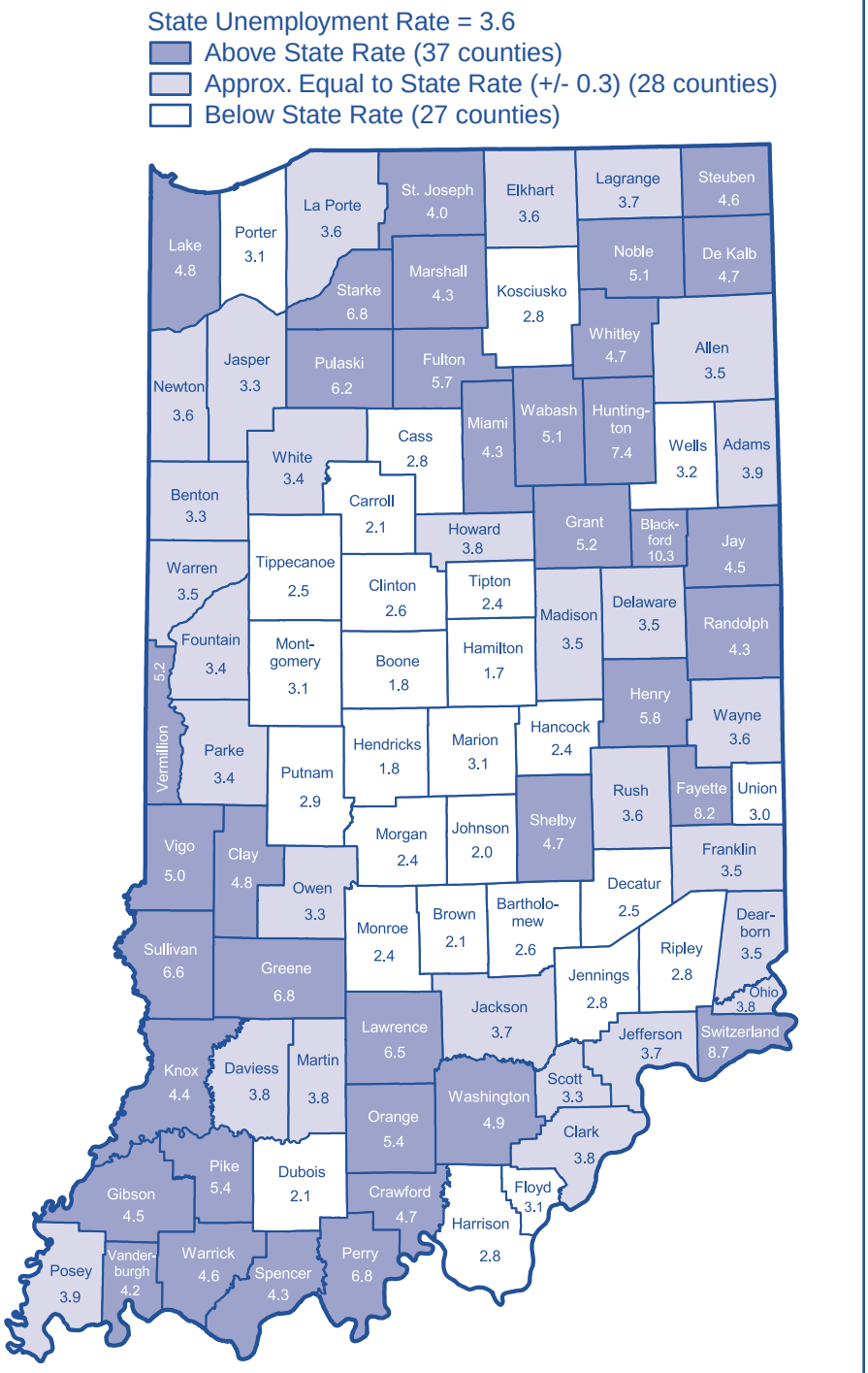
The uptick in the unemployment rate indicates that the pace of economic growth in Indiana has slowed, but employment is still rising. Indiana is thus in the interesting situation of seeing rising employment with a simultaneously rising unemployment rate.

Indiana's labor force has risen compared to the preceding month in every month this year except January. The number of employed people in the labor force rose in most months, too, but not always at the same rate.

Whenever the growth in the number employed exceeded the growth in the labor force, the unemployment rate dropped. The drop occurred because the economy was putting people to work faster than people were being added to the labor force. When the labor force expands faster than the growth in the number of people working, unemployment inches up.

Figure 1: July Unemployment Rates by County

The national unemployment rate for July was 4.2%



Source: Indiana Department of Workforce Development

Employment Gains Outpace Population Growth Across Indiana

According to new tabulations of workers covered under Indiana's unemployment insurance laws, statewide employment grew at a healthy pace between third quarter 1989 and the same quarter in 1999, increasing by nearly 461,000 to a total of 2.9 million. The employment gain of 18.8% over this 10-year period coincides with a 22.8% increase in establishments, suggesting that most of the growth has come from small businesses. The state added 25,674 establishments (employers) and 461,000 workers over the 10-year interval.

Figure 1 presents a comparison of 1989–99 employment gains and population change. It seems reasonable to expect that employment gains over the past 10 years would roughly approximate population increases for the same period. Census Bureau population estimates, with an annual reference date of July 1, provide the population benchmark.

The chart shows that while the state's population grew steadily over the 10-year interval, employment grew at a faster pace, especially in recent years. In fact, the state's employment gain of 461,000 workers was achieved with a population gain of only 419,000 people, an apparent deficit of 42,000 workers.

This deficit is easily explained, however, by the state's vigorous recovery from the recession of the early 1990s and the resulting drop in unemployment. Indiana's unemployment rate fell from 4.5% in August 1989 to 2.9% 10 years later, with 42,000 people moving off the state's unemployment rolls, presumably onto payrolls. Besides reducing the ranks of the unemployed, a strong economy also contributes to employment growth by attracting new entrants to the workforce, such as stay-at-home mothers who decide to work for pay. As the economy improves, increased demand for goods and services creates the need for even more labor.

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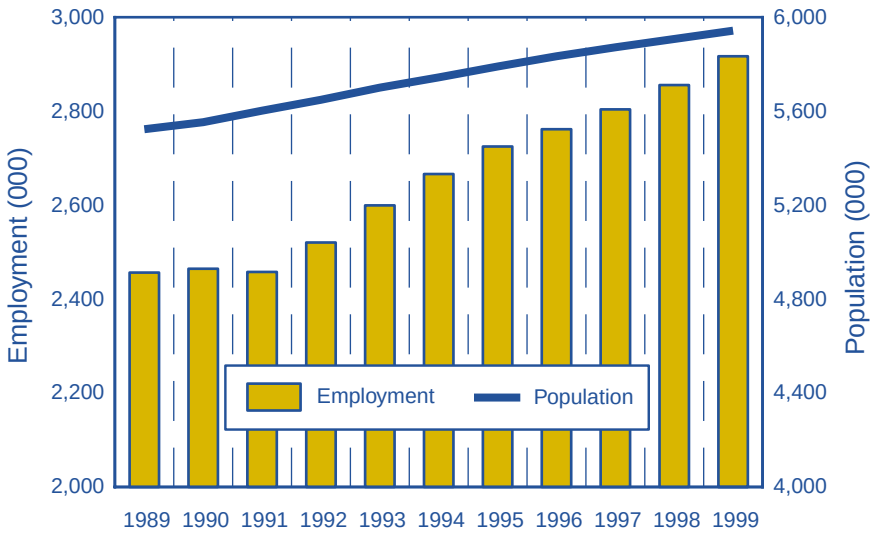
Indiana's two largest counties in employment size had vastly different records on job creation over the 1989–99 period. Marion County led the state in total employment by a wide margin in both 1989 and 1999, stretching its lead by adding 85,000 jobs — more than any other county. Lake County ranked No. 2 in total employment for both years, but added only 8,000 jobs over the 10-year period to rank 14th in job growth.

Figure 1: Indiana Employment and Population Growth, 1989–99

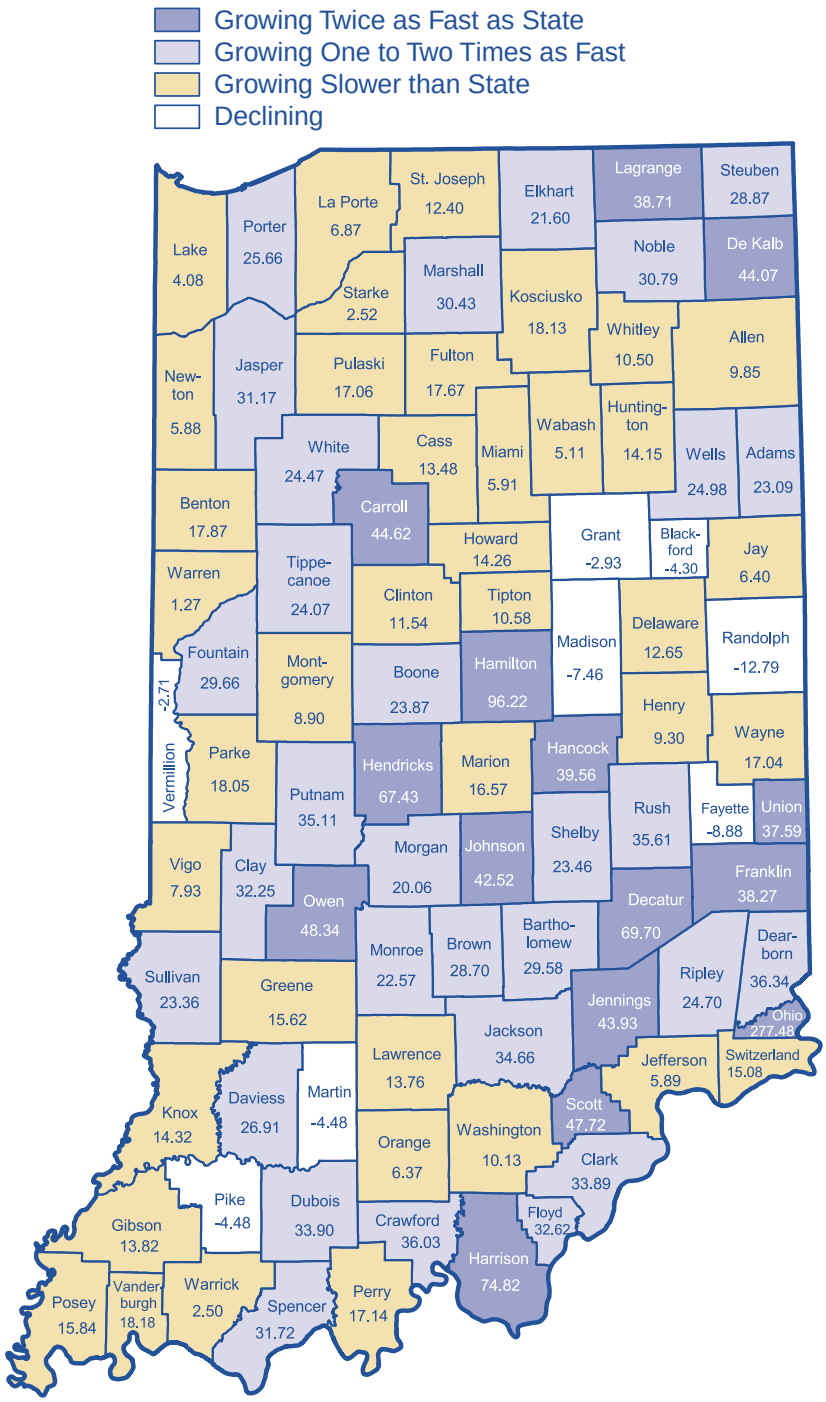
Employment growth outpaced population growth



Source: Indiana Department of Workforce Development / U.S. Census Bureau

Figure 2: Employment Change, 1989:3Q to 1999:3Q

Employment grew rapidly in counties ringing Indianapolis



Source: Indiana Department of Workforce Development

The map in Figure 2 depicts the percent change in employment from 1989 to 1999 for each Indiana county. The introduction of riverboat casino gambling allowed Ohio County to boost employment by a phenomenal 277%, easily outdistancing all other counties. Indianapolis suburban counties, particularly Hamilton and Hendricks, experienced rapid expansion in employment, with large gains in services and retail trade. Employment grew 75%, mostly in services, in Harrison County, which is part of the Louisville metropolitan area. Decatur County was another standout, with a 70% rate of employment growth, primarily in services and manufacturing.

Eight Indiana counties suffered employment losses over the 10-year period. Madison County lost the most jobs overall, including 5,800 manufacturing jobs, offsetting gains in most other industrial sectors. Randolph and Fayette also lost more than 1,000 jobs, mostly in manufacturing.

Despite the loss of manufacturing jobs and erosion of employment in a few areas, Indiana capitalized strongly on the nation's long economic expansion of the 1990s. Hoosiers can look forward to more of the same in the new century.

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replacement needs. Replacement needs are the average number of workers who retire or leave their occupation to enter a new occupation.

The projected data reflect studies of past and present industrial trends. They illustrate what is likely to happen, barring major changes from past trends. The forecast assumes that no major events, such as widespread or long-lasting energy shortages, other price shocks, or major wars will significantly alter the economy's industrial structure or economic growth rates. Current political, institutional, social, technological and scientific trends are also assumed to continue without significant changes. Readers should view the estimates of projected employment as indicators of relative magnitude and probable direction rather than as estimates of absolute values. Therefore, consider the projections only a starting point when studying future industry and occupational employment.

IN Depth:

For all the latest state and county figures and complete time series data sets related to the Indiana economy, visit the following Internet sites:

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