

INCONTEXT

February 2000

THE INDIANA ECONOMY

Vol. 1, Issue 1

Introducing *IN Context*

IN Context is a new publication designed to provide more information about Indiana's economy than has been available previously. Here readers will find the latest data previously scattered among several different documents, supplemented by feature articles that add depth to our understanding of the state's diverse economy.

But this is a publication with a difference. *IN Context* is an integrated publication with a printed version linked to a comprehensive data base available on the Internet at www.ibrc.indiana.edu/incontext.

Launching *IN Context* is the result of a unique collaboration among three organizations. Each month the Labor Market Information division in the Indiana Department of Workforce Development collects, organizes and releases vital information about our state's employment situation. Analysis of these and other data is published periodically by the Research Division of the Indiana

Department of Commerce. In addition, the Indiana Business Research Center in the Kelley School of Business at Indiana University offers insights into the state's economy on a routine basis. All these data and insights, as well as other information, will appear in these pages and on the *IN Context* Web site.

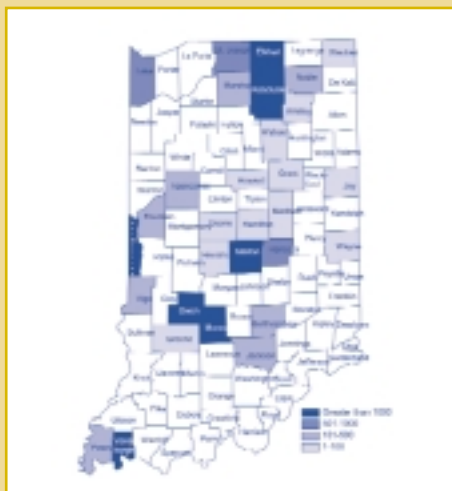
As the months go by, *IN Context* will provide articles and features that place Indiana in a national and international perspective. The Web site for *IN Context* will grow to offer extensive details on each county or industry, where available, in a fashion that answers questions before they are asked.

These goals will not be achieved instantly. But readers should find that this evolving publication meets their needs better than any previously available source. To the extent that we succeed (or fail), please let us know. Our addresses are on the back cover.

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Progressive Manufacturing - Medical Devices & Biotechnology

PART ONE: Understanding Indiana's Medical & Biotech Industry

Medicine, biomedicine, and biotechnology conjure images of scientists and doctors, white coats and test tubes but the industry is in fact more diverse than these images would suggest. Manufacturing is a large part of the industry in Indiana along with scientific research and clinical practice. This article will focus on the manufacturing part of this sector. Manufacturers, such as Eli Lilly & Company, conduct the majority of the research and development (R&D) activity within the industry. Thus, while R&D statistics cannot be isolated, looking at manufacturing data best captures this portion of the industry. Using manufacturing data will also capture distribution activities related to the medical and biotech industry. This article will not cover the clinical practice of medicine or related services, because they do not drive, but result from, economic development.

Medical and biotech manufacturing can be divided into three parts: (1) Pharmaceuticals; (2) Surgical, medical, and dental supplies; and (3) Vision health (ophthalmic) goods. Pharmaceuticals can range from zinc ointments to anti-depressant medication while medical equipment can include expensive, high-tech instruments and tongue depressors. Similarly, each area includes both high-tech, high-skill jobs and low- or semi-skilled jobs. Other industries, including plastics, electronics, metal fabrication, and rubber fabrication are also part of the medical

and biotechnology sector but are not categorized as such since use of their products is not limited to this sector. The data used in this article are limited to the businesses that earn the majority of their income from medical and biotech manufacturing.

Biomedicine is the application of the natural science to clinical medicine.

Biotechnology is the use of living organisms or other biological systems in the manufacture of drugs or for environmental management.

Who is the Indiana Biomedical Industry? Here is a small sample:

Pharmaceutical Companies

- Alexon-Trend (Seradyn)
- Bayer Corporation
- Cook Pharmaceuticals
- Eli Lilly & Co.
- Mead Johnson
- Pfizer
- Roche Diagnostics
- Schwartz Pharmaceuticals

Medical Device Manufacturers

- BAS Analytic
- Bayer Diagnostics
- Biomet
- Biovona
- Boston Scientific
- Cook Group
- DePuy
- Fort Wayne Metals Research
- Guidant Corporation
- Othy

- Sofamor-Danek
- Ultrex
- Zimmer

Source: *The Indiana Industrial Directory*, Harris InfoSource.

The Indiana medical and biotech industry is geographically concentrated. Only 33 of the state's 92 counties have some type of biomedical industry and only 16 of these counties have employment greater than 100. Most employment falls into three geographic clusters. The northern cluster forms around St. Joseph, Elkhart, and Kosciusko Counties. The largest cluster is the central triangle formed by Marion and Hancock Counties in the North extending to Monroe and Owen Counties in the south and finally to Vermillion County in the west. The southern cluster is mainly Vanderburgh County.

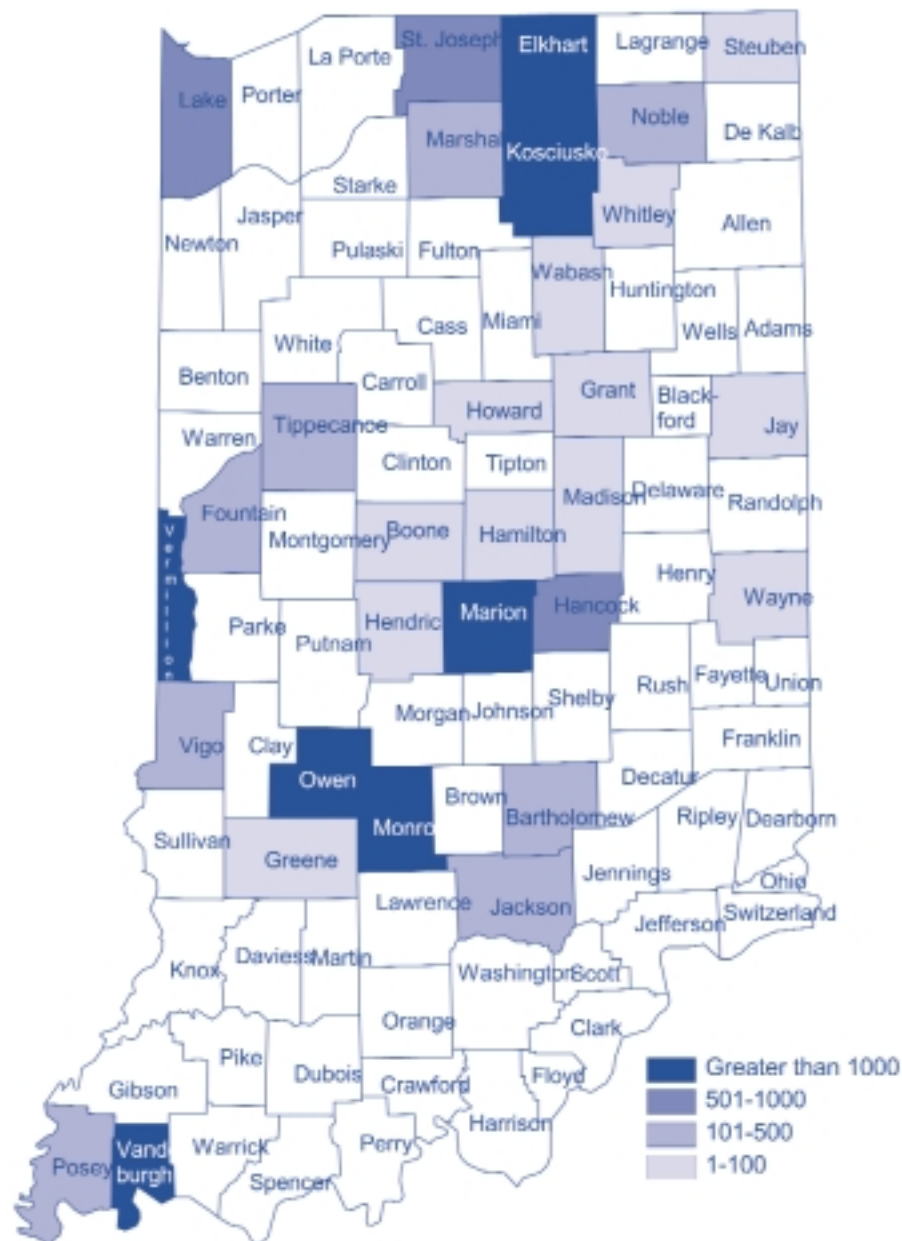
*By Ted Jockel and Leslie Richardson,
Indiana Department of Commerce*

Next Month— PART TWO: Indiana's Biomedical Industry Today

Because of confidentiality restrictions, exact employment figures cannot be reported. At present, counties with more than 1,000 biomedical industry employees include Elkhart, Kosciusko, Marion, Vanderburgh, Vermillion, Monroe, and Owen Counties. Counties with more than 500 biomedical industry employees are St. Joseph, Lake, and Hancock Counties. Counties with more than 100 biomedical industry employees include Marshall, Noble, Whitley, Wabash, Howard, Jay, Boone, Hamilton, Grant, Madison, Wayne, Hendricks, and Greene Counties. The remaining counties with biomedical industry employees are Steuben, White, Jasper, Pulaski, Fulton, Wabash, Huntington, Wells, Adams, Benton, White, Carroll, Howard, Grant, Blackford, Jay, Warren, Tippecanoe, Clinton, Tipton, Madison, Delaware, Randolph, Fountain, Montgomery, Boone, Hamilton, Henry, Wayne, Parke, Putnam, Hendrick, Marion, Hancock, Rush, Fayette, Union, Morgan, Johnson, Shelby, Franklin, Clay, Owen, Brown, Bartholomew, Ripley, Dearborn, Sullivan, Greene, Monroe, Lawrence, Jackson, Jennings, Ohio, Knox, Davies, Martin, Washington, Scott, Jefferson, Switzerland, Gibson, Pike, Dubois, Crawford, Floyd, Perry, Harrison, Spencer, Warrick, Posey, and Vanderburgh.

Figure 1: 2nd Quarter 1999 Number of Employees in Biomedical Industry

Source: Bureau of Labor Statistics



Indiana in 98th Month of Continuous Employment Expansion

Since December of 1991, and every month thereafter through December 1999, total non-farm employment in Indiana has exceeded the same month a year earlier (see Figure 1).

The 1990-91 recession cut into employment gains for 11 months, a situation that might have been worse if the state had not enjoyed gains in finance, insurance and real estate while other sectors were in decline.

Since that period, each month the number of jobs in the state has been greater than it had been 12 months earlier. Some sectors saw a slowdown in 1995, but 120 consecutive months of advances in services kept the state growing.

For the year 1999, Indiana has averaged 1.2% above the corresponding period in 1998. However, that rate has been decreasing, as seen in the 12-month moving average of the monthly numbers (Fig. 2). The curve is flattening in recent years, reflecting the lower rate of increase. There has been speculation that this slowing of the growth rate may be related to Indiana's low unemployment rate.

The most significant softening in growth appears in construction, where employment has been below year-earlier levels in 11 of the past 12 months (see Fig. 3). Another area of slowing is transportation and public utilities which has been in negative territory in four of the last six months. Considerable strength, however, appears in finance, insurance and real estate where the 1999 average employment gain has been 3.9% compared to just 1.8% in 1998.

Figure 1: Non-farm Employment, Percent Change from Year Earlier

Source: Indiana Department of Workforce Development

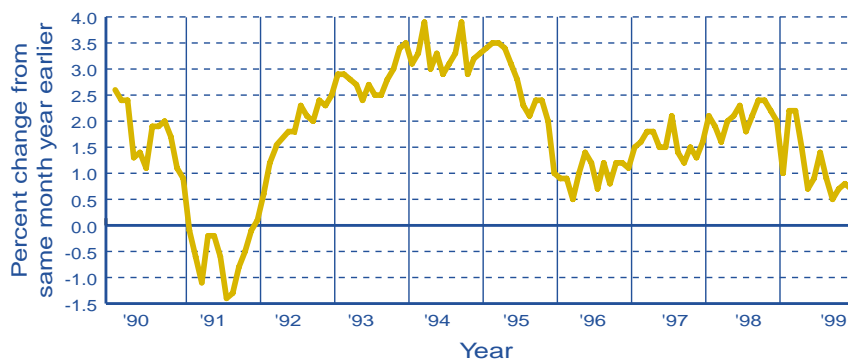


Figure 2: Non-farm Employment, Percent Change From Year Earlier

Source: Indiana Department of Workforce Development

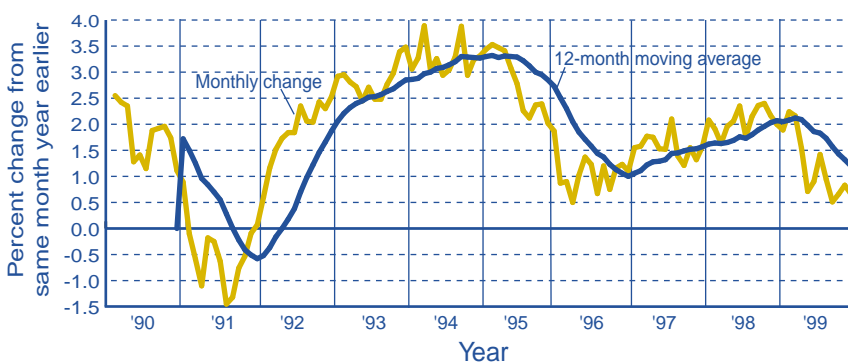
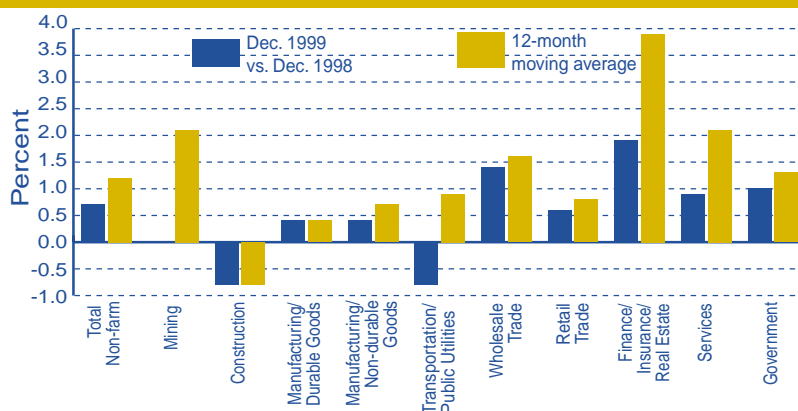


Figure 3: Change in Non-farm Employment by Industry Sector

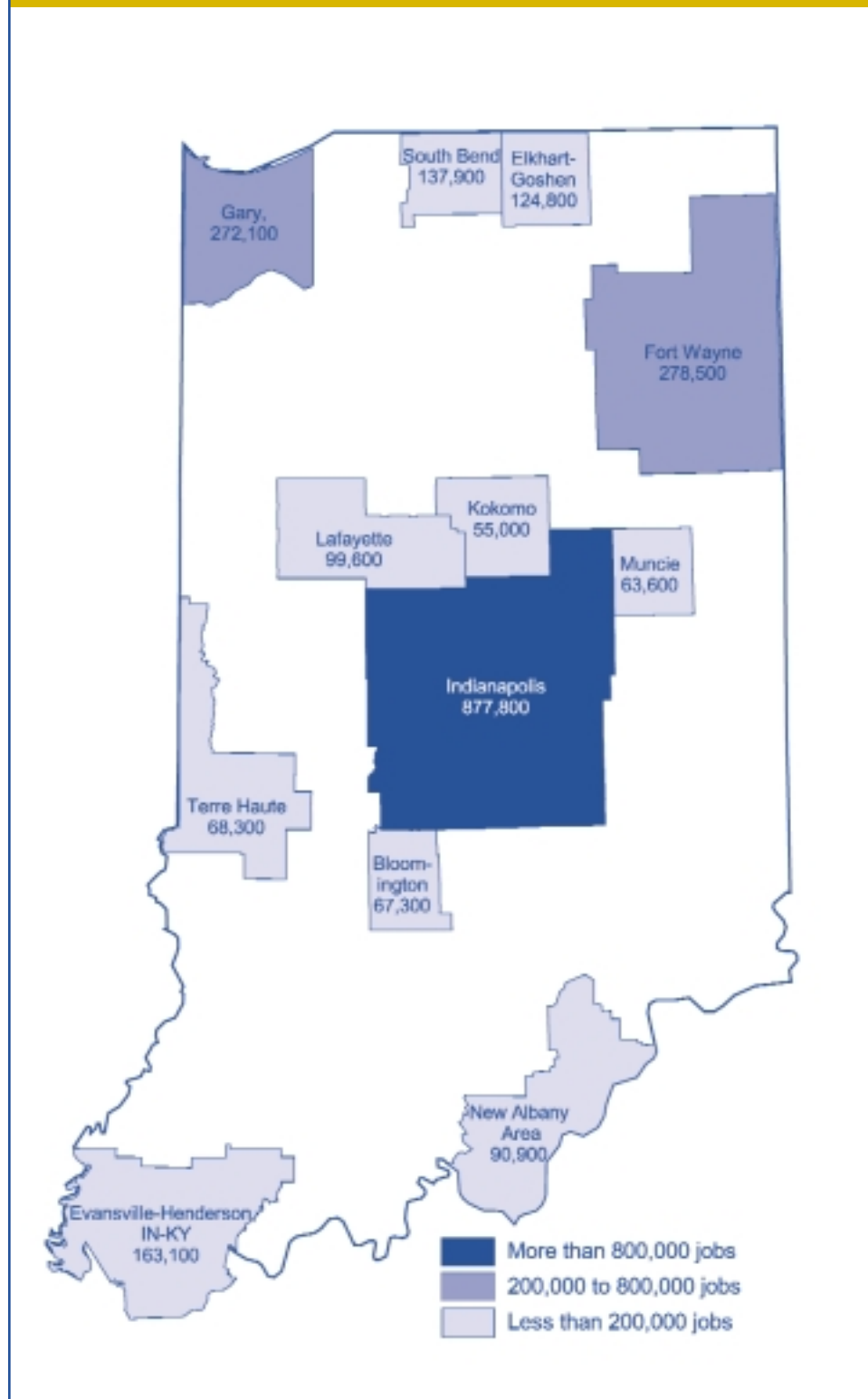
Source: Indiana Department of Workforce Development



Jobs by Metropolitan Statistical Area

Figure 4: December 1999 MSA Employment

Source: Indiana Department of Workforce Development



This page of each issue of *IN Context* will present different views of the employment data for Indiana. This month, the map shows total jobs as of December, 1999 in each Metropolitan Statistical Area (MSA) in Indiana. An MSA is defined by the federal government to include a main city and the surrounding territory that is most closely linked to the economy of that city.

There are ten MSAs in Indiana, plus two portions of MSAs that are centered on cities outside Indiana: the Gary area and the New Albany area.

Ranked by employment, Indianapolis' 877,800 jobs makes it the state's largest MSA. Fort Wayne and Gary are nearly equal to each other, between 270,000 and 280,000 jobs. The Kokomo MSA has the smallest number of jobs, at 55,000.

Service Economy Now Matches Manufacturing Economy in Lake County

Lake County has a reputation as a center for heavy manufacturing in Indiana. While that reputation is well deserved, total wages paid by service businesses in Lake County have pulled even with total wages paid by the manufacturing sector.

If twice as many people in Lake County work in services as in the two sectors of manufacturing, why are total wages about equal?

The Indiana Department of Workforce Development recently released statistics on employment and wages by industry sector in the first quarter of 1999. These data show each industry sector's share of all wages paid. For both Lake County and the state, the sector with the largest share of first quarter wages was services: 31% for Lake County, 27% for the state (see Fig. 1). Manufacturing-durable goods now accounts for 24% of wages in Lake County, the same share as in the state. In manufacturing-non durable goods, Lake County trails the state average for first quarter wages, at a 7% share compared to 11% for the state.

Together, the two manufacturing sectors' wages equaled wages in services.

As the state's second most populous county, Lake now has 73,382 people employed in service businesses, according to IDWD data. Durable and non-durable manufacturing together employ 37,072. Yet taken together, durable and non-durable manufacturing accounted for about the same amount of Lake County wages in the first quarter as services.

If twice as many people in Lake County work in services as in the two sectors of manufacturing, why are total wages paid about equal? The answer can be seen in Fig. 2. Lake County's service sector employees earned on average only half the amount paid to manufacturing employees in the first quarter. In fact, Lake County exceeded the state's average quarterly wages for manufacturing-durable goods by 20%.

Certainly part-time employees are more common in service businesses, and that fact will pull down the average pay for the quarter. Service employees received on average half the pay for the quarter as did manufacturing employees. Even so, Lake County businesses in the service industries paid as many dollars in wages as all manufacturing combined.

Other sectors for which the amount of quarterly wages in Lake County significantly exceeded the state's average were construction (22% higher); transportation, communication and public utilities (11% higher) and mining (10% higher). Lake County's average quarterly wages were well below the state average in finance, insurance and real estate (26% lower) and agriculture, forestry and fishing (13% lower).

Figure 1: Industry Sector's Share of Total Wages, First Quarter 1999

Source: Indiana Department of Workforce Development

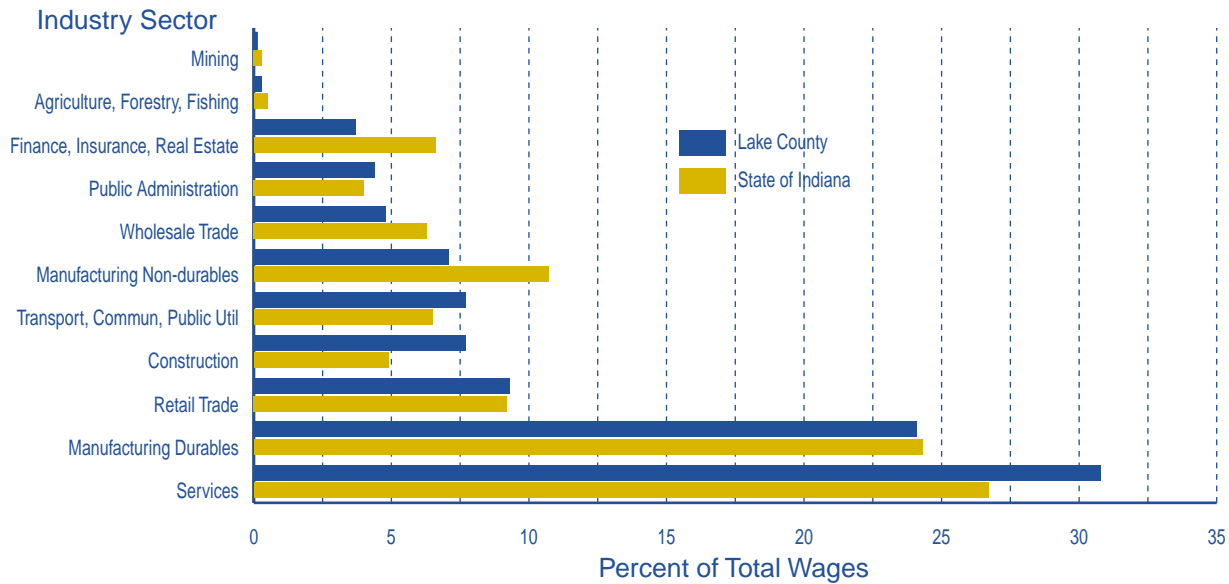
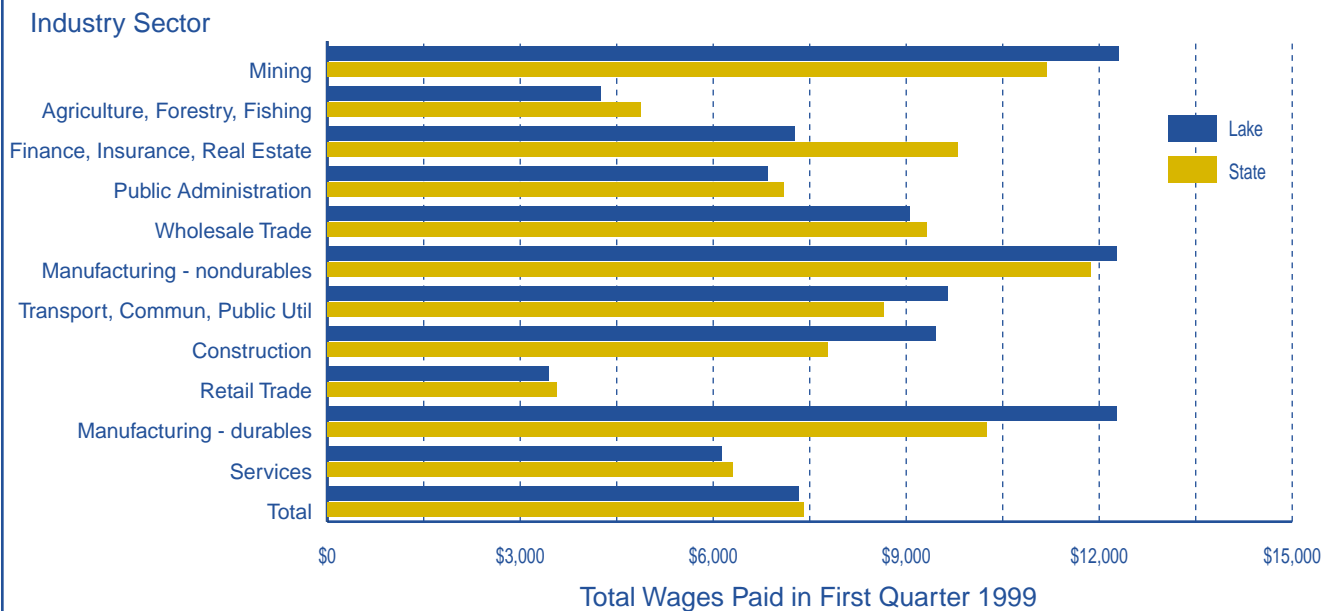


Figure 2: Average Quarterly Wages, First Quarter 1999, Lake County and State

Source: Indiana Department of Workforce Development



State and County Unemployment Rates

Indiana Unemployment Rate in November: 2.8%

Source: Indiana Department of Workforce Development, Local Area Unemployment Statistics, not seasonally adjusted.

Indiana's statewide unemployment rate was 2.8% in November, continuing a gradual trend toward lower

unemployment. Though the individual monthly rates normally bounce around a bit, the 12-month moving average (see Fig. 1) has been declining for several years. The statewide rate was near 4% as recently as early 1998.

The U.S. unemployment rate was 3.8% in December.

Indiana typically runs at least one percentage point below the national average. Compared to neighboring states, Indiana's average unemployment rate for the three months ending November 1999 was lowest.

Figure 1: Unemployment Rates, January 1998 through November 1999

Source: Indiana Department of Workforce Development

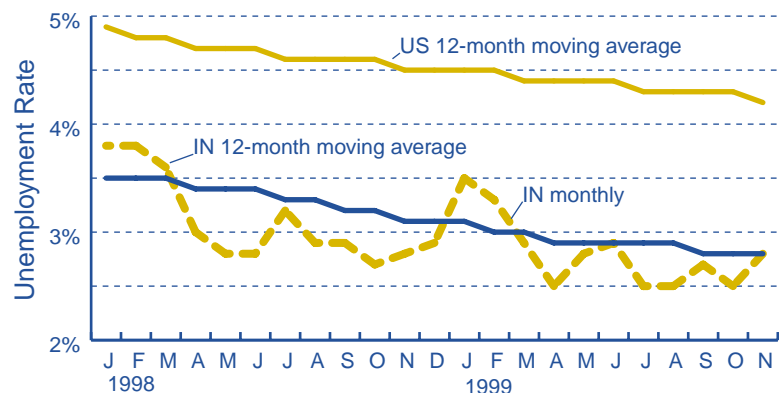
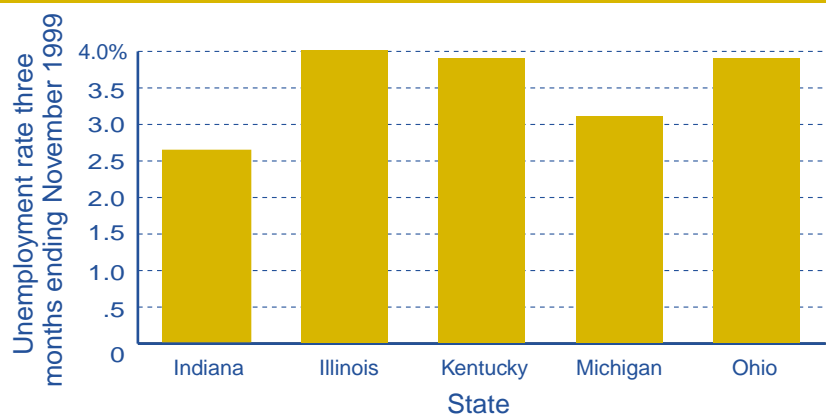
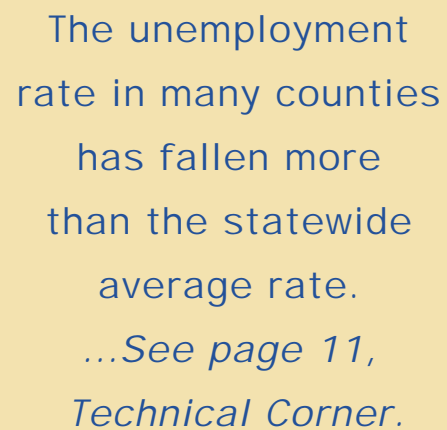


Figure 2: Unemployment Rate by State, Three Month Average Ending November, 1999

Source: Indiana Department of Workforce Development



Source: Indiana Department of Workforce Development.



Recent and Noteworthy: State's Population Rises 7.2% in 1990s

Indiana's total population rose to 5,940,000 people in 1999, according to estimates released from the U.S. Census Bureau at the end of December.

From the Census of 1990 through 1999, Indiana's population grew by 399,000. That represents a 7.2% increase during the nine-year period. Indiana's percent increase ranked 28th in the U.S., just slightly below the 9.6% growth rate for the nation as a whole. Nevada (50.6%) and Arizona (30.4%) led the nation in rate of growth. Three states - Connecticut, North Dakota, and Rhode Island - plus the District of Columbia, lost population.

Indiana's population grows in two ways. One is natural increase, which is the excess of births over deaths. The other is net migration (more people moving in than moving out). Indiana was one of 35 states in which natural increase and net in-migration worked together to increase population.

Natural increase accounted for the biggest part of Indiana's growth (Figure 1). Indiana averaged 84,200 births and 52,300 deaths over the period. There were 161 births for every 100 deaths in Indiana, compared to a rate of 176 in the nation. Indiana ranked 27th among the states in this ratio.

Migration added nearly 112,000 persons to Indiana's population in the 1990s. (Figure 2). Indiana was one of 29 states enjoying more people moving in from other states than moved out to other states. This trend has slowed, though. Net domestic migration (movement between states) reached more than 18,300 in 1993. It had become negative for Indiana by 1999.

Net international migration to Indiana tripled during the decade. About 27% of Indiana's net in-migration came from other countries.

Michigan, Illinois, and Ohio were among 12 states with net out-migra-

tion, though their population actually grew because the out-migration was more than offset by natural increase.

Figure 1: Births and Deaths in Indiana 1991-1999

Source: U.S. Census Bureau

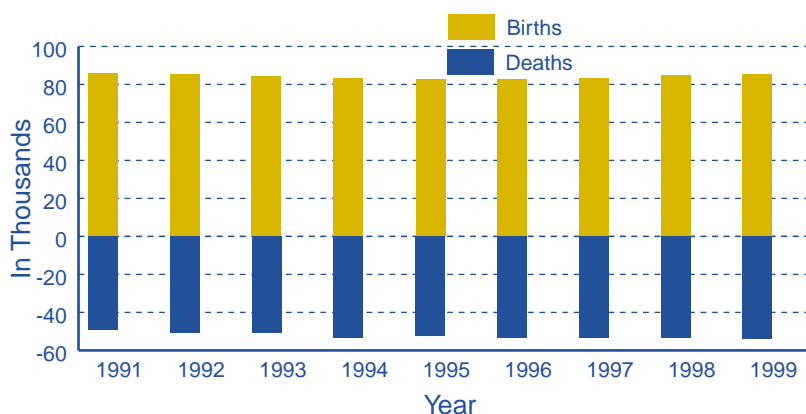
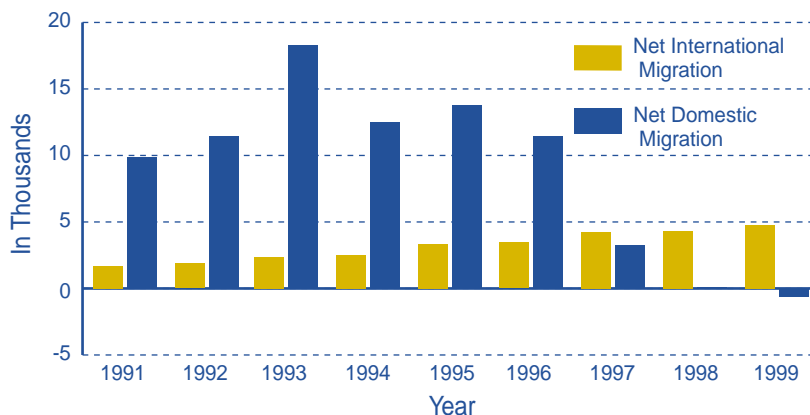


Figure 2: Indiana Net Migration 1991-1999

Source: U.S. Census Bureau



Indiana's Unemployment Rate Changed—and Stayed the Same

The October unemployment rate for Indiana was reported at 2.5%. This was the same rate the state enjoyed in April of 1999. But the statewide figure hid an improving situation in the state.

In April, 49 of Indiana's 92 counties had unemployment rates greater than the statewide figure of 2.5%. By October, although the statewide figure remained unchanged, only 41 counties were over 2.5%.

Perhaps more importantly, the unemployment rate improved in 54 counties during those six months. Higher unemployment was recorded in just 23 counties, and 15 remained unchanged. (See Fig. 1).

Question: How can there be no change in the state's unemployment rate while the employment situation in most counties improved?

The unemployment rate is the percentage of persons in the labor force who are unemployed and seeking work. The labor force is the sum of those employed (E) plus those unemployed (U). The unemployment rate (R) is the result of dividing the number of persons unemployed by the total number of persons in the labor force (E + U).

$$R = \frac{U}{E+U}$$

The statewide unemployment rate uses the number of persons in the state labor force: the sum of those in every county who are either employed or unemployed. The rate for each county uses the comparable numbers just in that county. The statewide rate, therefore, is not the average of the individual county rates. The statewide rate is a computation based on the total Indiana labor force, without regard to the counties in which they work.

The statewide rate reflects the fact that our counties are of very different sizes. Marion County has a labor force

(457,670) that is 166 times the size of the labor force in Ohio County (2,750).

Hence, a percentage point change in the Marion County unemployment rate will have much more impact on the statewide figure than a comparable change in Ohio County.

Casual examination of these findings suggests that, while the statewide figure was at 2.5% in both April and October, the rates for smaller counties improved more dramatically than the rates for more populous counties (see fig. 2). The five largest counties in Indiana (with a combined labor

force of 1,092,020 workers - about one-third the state's total) showed no change in their aggregate unemployment rate (2.6%). In contrast, the 30 smallest counties (with 243,215 workers) saw their collective unemployment rate fall from 3.5% to 3.2%.

The 57 middle counties in labor force size edged down from 2.4% to 2.3%.

Since policy is often geographically specific, even if it phrased as being geo-neutral, it helps to understand that a single statewide average may hide, if not distort, our understanding of the unemployment situation.

Figure 1: Change in Unemployment Rate by County, April to October 1999

Source: Indiana Department of Workforce Development.

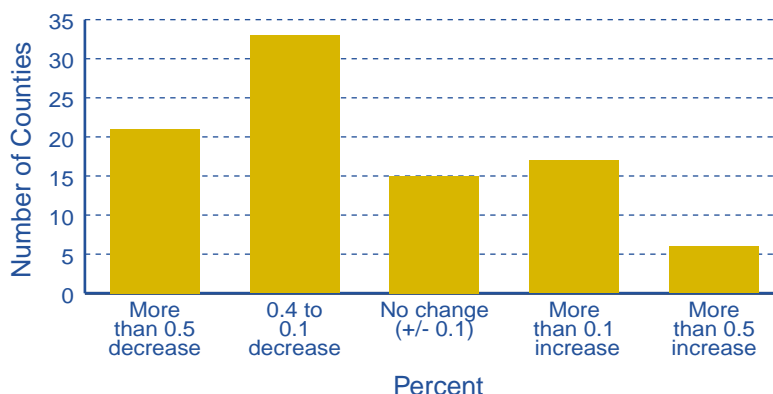
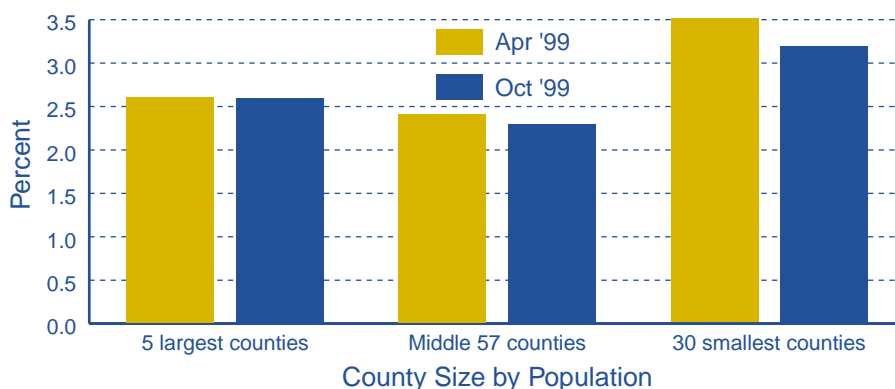


Figure 2: Change in Unemployment Rate: By County Size, April and October, 1999

Source: Indiana Department of Workforce Development.



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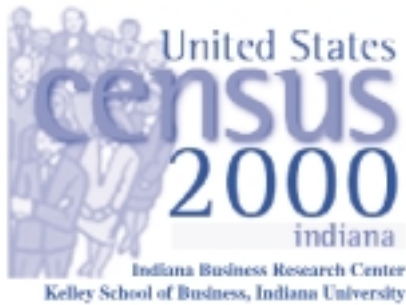
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IN coming issues:

- The fastest growing industry sectors in Indiana
- Spotlight on Indiana's manufacturing industries
- Law firms and lawn care: What do we mean by the "Services" industry?

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:

www.ibrc.indiana.edu/incontext

www.stats.indiana.edu

www.state.in.us/doc

www.dwd.state.in.us

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