

IN the Spotlight:

Highs and Lows of High-Tech Occupations

High-technology employment is often used to indicate a state's success in the new economy. In the June 2000 issue of *IN Context*, we calculated high-technology employment in Indiana using three different classifications of industries considered to be high-tech. This article will calculate employment using occupation types rather than industries.

The U.S. Bureau of Labor Statistics (BLS) obtains occupational data at the state and national level through the

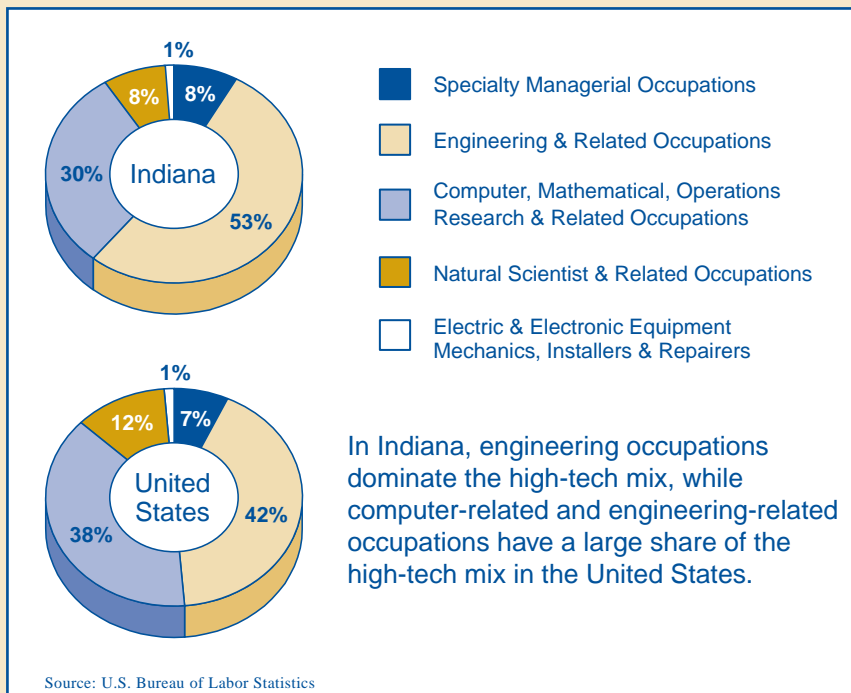
Occupational Employment Statistics survey (OES). There does not appear to be an official classification of high-technology occupations — the classification used here is based on BLS reports on high-technology employment published in the *Monthly Labor Review*. In these reports, BLS focused on those occupations most often associated with research and development activities. This study takes a slightly broader view, including most

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Figure 1: High-Tech Employment in Indiana and the Nation, by Major Occupational Groupings



**Indiana
Unemployment
Rate for
February 2001:
3.5%**

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engineers, scientists, computer specialists and single categories for specialty management and support. High-technology employment and average salary for 1998 are presented by major occupational groupings in Table 1. The individual occupations identified as high-tech for this article are listed in the sidebar below.

Engineering and related occupations employ the most high-technology workers in both Indiana and the United

States, constituting 53% and 42%, respectively, of all high-technology workers. The pie charts in Figure 1 illustrate the structural similarities and differences between the distributions of high-technology employment in Indiana versus the nation. The highest-paid group of technology workers are employed in specialty managerial occupations as engineering, mathematical or natural-science managers. These managers earn, on average, \$64,060 annually in Indiana and \$71,840 nationally. Computer and

related occupations is the second-largest grouping and pays the third-largest salaries in both Indiana and the nation.

In terms of total impact on the high-technology economy, engineering occupations stand out, given their number and relatively high wages. Assuming that each person employed as an engineer in Indiana makes the average salary of \$48,960, this group adds more than \$2.3 billion in income to the Indiana economy each year. Meanwhile, high-technology managers

Who's High-Tech?

The following occupations are defined as high-tech for the purposes of this article.

- Engineering, Mathematical, and Natural Sciences Managers
- Metallurgists and Metallurgical, Ceramic, and Materials Engineers
- Chemical Engineers
- Agricultural Engineers
- Electrical and Electronic Engineers
- Computer Engineers
- Industrial Engineers, Except Safety
- Mechanical Engineers
- Marine Engineers
- All Other Engineers
- Electrical and Electronic Engineering Technicians and Technologists
- Industrial Engineering Technicians and Technologists
- Mechanical Engineering Technicians and Technologists
- All Other Engineering and Related Technicians and Technologists
- Physicists and Astronomers
- Chemists, Except Biochemists
- Atmospheric and Space Scientists
- Geologists, Geophysicists, and Oceanographers
- All Other Physical Scientists
- Foresters and Conservation Scientists
- Agricultural and Food Scientists
- Biological Scientists
- Medical Scientists
- All Other Life Scientists
- Biological, Agricultural, and Food Technicians and Technologists, Except Health
- Chemical Technicians and Technologists, Except Health
- Nuclear Technicians and Technologists
- Petroleum Technicians and Technologists
- All Other Physical and Life Science Technicians and Technologists
- Systems Analysts, Electronic Data Processing
- Data Base Administrators
- Computer Support Specialists
- Computer Programmers
- Computer Programmer Aides
- Programmers, Numerical Tool and Process Control
- All Other Computer Scientists
- Operations and Systems Researchers and Analysts, Except Computer
- Mathematical Scientists
- All Other Mathematical Scientists
- Mathematical Technicians
- Data Processing Equipment Repairers

with their higher salaries contribute only \$459 million. Similarly, in the United States, engineering occupations generate \$110 billion in earnings, while high-technology managers generate \$25 billion annually. The impact of engineering occupations is also greater in both Indiana and the nation than computer-related occupations, which contribute annual earnings of \$1.2 billion in Indiana and \$96 billion nationally.

In the context of the larger economy, high-technology employment constitutes just 3% of all employment in Indiana and 4% of all U.S.

employment. Table 2 compares high-technology occupations to all occupations in Indiana and the nation in terms of both employment and wages. Indiana's share of national high-tech employment is lower than its share of total employment, and high-technology wages in Indiana are 7% lower than the U.S. average. Similarly, Indiana's average wage for all occupations is 94% of the national average. *All wage averages used in this article have been weighted to take into account the size of each occupation.*

(continued on page 4)

In the context of the larger economy, high-technology employment constitutes just 3% of all employment in Indiana and 4% of all U.S. employment.

Table 1: Major High-Technology Occupational Groupings

	INDIANA			UNITED STATES		
	Employment	Percent Total High-Tech Employment	Annual Average Salary (Weighted)	Employment	Percent Total High-Tech Employment	Annual Average Salary (Weighted)
Specialty Managerial Occupations	7,170	8%	\$64,060	345,790	7%	\$71,840
Engineering and Related Occupations	46,800	53%	\$48,960	2,115,500	42%	\$52,320
Natural Scientist and Related Occupations	7,080	8%	\$40,821	591,190	12%	\$44,157
Computer, Mathematical, Operations Research and Related Occupations	26,700	30%	\$44,070	1,939,610	38%	\$49,444
Electric and Electronic Equipment Mechanics, Installers and Repairers	950	1%	\$29,440	61,680	1%	\$31,520

Source: U.S. Bureau of Labor Statistics

Table 2: High-Tech Occupations as a Percent of All Occupations: Employment and Salary

	Indiana	United States	Indiana as a Percent of U.S.
EMPLOYMENT			
All High-Tech Occupations	88,700	5,053,770	1.76%
All Occupations including High-Tech	2,872,360	124,704,600	2.30%
High-Tech Occupations as a Percent of all Occupations	3%	4%	
AVERAGE ANNUAL SALARY (WEIGHTED)			
All High-Tech Occupations	\$47,850	\$51,343	93%
All Occupations including High-Tech	\$27,682	\$29,743	94%
High-Tech Average Wages as a Percent of Total Average Wage	173%	173%	

Source: U.S. Bureau of Labor Statistics

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(continued from page 3)

In terms of single occupations, Indiana’s largest high-tech employment group is “all other” engineers, followed closely by systems analysts (see Table 3). Computer programmers are the top employment group in the United States, also followed by systems analysts (see Table 4). In both Indiana and the nation, the top 10 occupations constitute approximately 75% of employment in all the high-tech

occupations. Of these occupations, three in Indiana are also among the top 10 highest-paid technology occupations — engineering, mathematical and natural-sciences managers; all other engineers; and electrical and electronic engineers. In the nation as a whole, computer engineers also fall into both the top 10 largest occupations and the top 10 highest-paid occupations.

The next step to understanding high-technology employment is to look at both industry and occupations

simultaneously. The Indiana Department of Workforce Development (DWD) has developed staffing patterns that show, for example, every industry employing engineers, or, looking at it from the opposite perspective, how many engineers are employed by a single industry, such as fabricated metals or transportation. This information can be found on DWD’s new workforce statistics Web site at www.state.in.us/dwd/inews/lmi.asp.

Table 3: Indiana’s Top 10 High-Tech Occupations

Occupation	Employment	Rank	Wage	Rank
All Other Engineers	8,950	1	\$59,050	3
Systems Analysts, Electronic Data Processing	8,460	2	\$50,830	15
Mechanical Engineers	7,310	3	\$51,890	12
Engineering, Mathematical, and Natural Sciences Managers	7,170	4	\$64,060	1
Computer Programmers	7,090	5	\$44,910	21
Electrical and Electronic Engineering Technicians and Technologists	6,300	6	\$36,530	29
Computer Support Specialists	6,150	7	\$36,200	30
All Other Engineering and Related Technicians and Technologists	5,830	8	\$38,880	27
Electrical and Electronic Engineers	5,280	9	\$52,470	10
Industrial Engineers, Except Safety	4,080	10	\$53,940	6

Source: U.S. Bureau of Labor Statistics

Table 4: The Nation’s Top 10 High-Tech Occupations

Occupation	Employment	Rank	Wage	Rank
Computer Programmers	573,850	1	\$53,400	16
Systems Analysts, Electronic Data Processing	552,530	2	\$54,110	13
Computer Support Specialists	455,950	3	\$40,590	33
All Other Engineers	420,620	4	\$59,160	7
Engineering, Mathematical, and Natural Sciences Managers	345,790	5	\$71,840	1
Electrical and Electronic Engineers	328,410	6	\$59,670	6
Computer Engineers	300,830	7	\$59,850	5
Electrical and Electronic Engineering Technicians and Technologists	299,020	8	\$38,110	35
All Other Engineering and Related Technicians and Technologists	253,980	9	\$39,840	34
Mechanical Engineers	216,100	10	\$54,550	11

Source: U.S. Bureau of Labor Statistics

January Jobs Set Record in Indiana

Newly revised data released by the U.S. Bureau of Labor Statistics show Indiana's payroll employment climbed to 2,949,000 in January, a record for any January. That figure was about one-tenth of one percent higher than January 2000 and nearly 3% above the January 1999 level.

Indiana's year-over-year gain in nonfarm employment, however, trailed both the region and the nation as a whole (see Figure 1). Nationally, non-seasonally-adjusted job growth was 1.3% in January. In Wisconsin, the January job count was up 1.5% over the prior year; Kentucky and Michigan each posted 1.1% growth.

Among major industry categories in Indiana, the highest rate of growth in jobs (4.4%) came in the social services industry. This was also the industry with the highest growth rate nationwide (see Figure 2 on page 6). The social services category includes child care and adult residential care, job training and individual and family services not classified as health care.

The other two biggest gainers in Indiana, among industries with at least 2% of all jobs, were wholesale trade in durable goods, up 2.2%, and business services, which increased just over 2%. Business services include personnel supply services and computer software design, as well as building maintenance.

Indiana employment in health services rose 1.6% in January over the prior year, and jobs at auto dealers and service stations increased 1.4%. Employment in the category for wood building and mobile home manufacturing was up 1.1% compared to January 2000.

Construction Jobs Increased in U.S., not in Indiana

In the U.S. as a whole, construction industries chalked up big gains in January, up 3.4% over the prior year. All major categories of construction rose nationwide, including both residential and nonresidential building construction.

Indiana's construction industry was flat, though, coming in at about a one-half percent decline.

Another industry with large employment gains nationwide was engineering and management services. The category includes architects, accountants and management consultants and accounts for 2.7% of all jobs. January employment in the nation jumped 4.7% in this industry. In Indiana, the industry expanded by 4.8%, but it represents only 1.4% of Indiana employment. Consequently, small changes in the number of those

jobs in this state create large percentage changes.

Manufacturing Employment Down but Still High

The industry with the greatest decline in employment in Indiana was transportation equipment manufacturing (see Figure 2 on page 6). As layoffs hit many Hoosier auto plants, employment in the industry dropped 6.7% compared to January 2000. The national figure for the industry was a similar 6.2% dip.

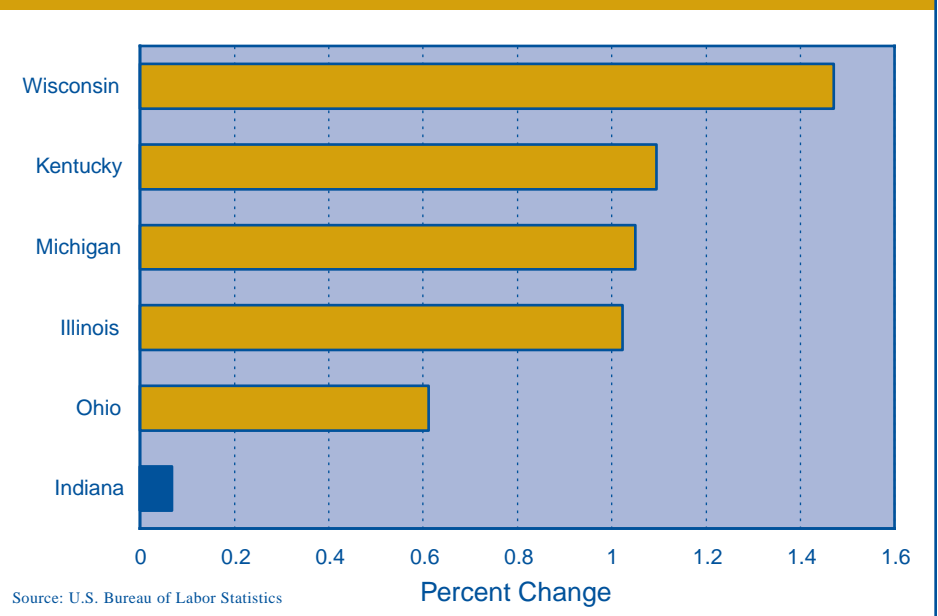
Interestingly, however, employment in the industry in Indiana, at 121,000 statewide, remained well *above* the 117,400 January figure for the boom year of 1998 and approximately equal to that for January 1999.

All manufacturing industries in Indiana together recorded a 2.7% decline in employment.

(continued on page 6)

Figure 1: Growth in Payroll Employment, January 2000 to January 2001

Indiana added jobs, but at a slower rate than surrounding states



State government employment was off 3.5% in Indiana, while that industry category rose by 0.8% in the nation.

Indiana Leads Region in Medical Instrument Manufacturing

Despite the rapid growth in employment in business services in Indiana, the industry represents a smaller share of state employment than in any state in the Great Lakes region (see Figure 3). Of all nonfarm jobs in Indiana in January, 5.1% were in the business services industry. This compares to 5.8% in Kentucky and 8.1% in Illinois.

Indiana leads the region, though, in employment in medical instrument and supplies manufacturing (see Figure 4). The industry provides about 0.5% of

Indiana jobs, more than twice the industry's share in second-place Illinois. Michigan recorded one-tenth of one percent of its jobs in medical manufacturing. Other states in the region had no significant employment in the industry.

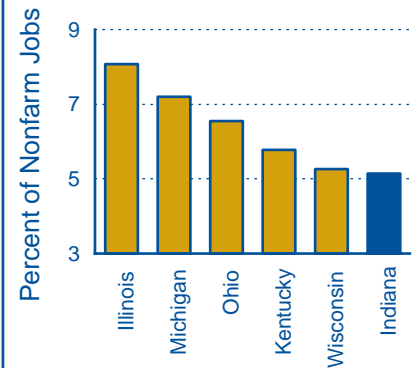
Indiana's role in the nation's auto industry came through in the January numbers (see Figure 5). With 4.1% of state employment in transportation equipment manufacturing, Indiana ranked second only to Michigan among Great Lakes states. Ohio and Kentucky trailed with about 2.5% each. The industry was but a minor factor in Illinois and Wisconsin.

January Data Revised for Accuracy

Every year in March, BLS issues revisions to the state employment data

Figure 3: Business Services

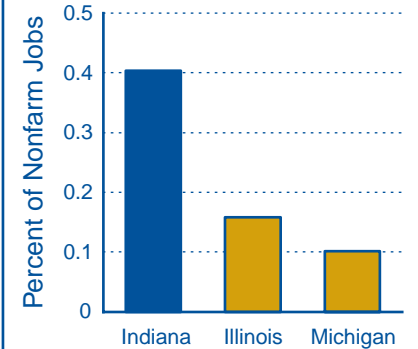
January 2001 employment



Source: U.S. Bureau of Labor Statistics

Figure 4: Medical Instruments

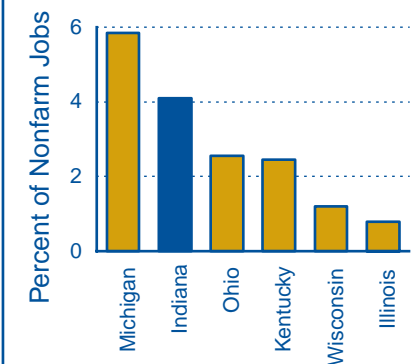
January 2001 employment



Source: U.S. Bureau of Labor Statistics

Figure 5: Transportation Mfg.

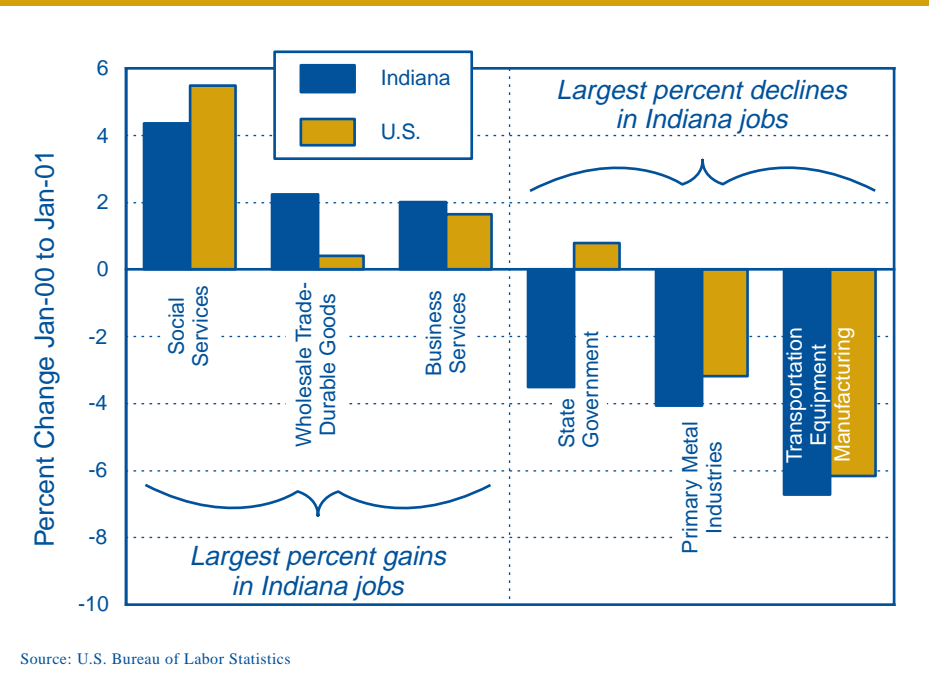
January 2001 employment



Source: U.S. Bureau of Labor Statistics

Figure 2: Largest Percent Gains and Declines in Employment by Industry

Indiana's biggest decline came in vehicle manufacturing



Source: U.S. Bureau of Labor Statistics

it produces in its Current Employment Statistics program (CES). Known as a benchmark revision, these new data incorporate a nearly complete count of payroll employment at the state level as of March 2000. The count is taken principally from state unemployment insurance tax reports that nearly all employers are required to file. The benchmark revision means that data for January 2001 are about as accurate as these numbers get. In subsequent months, BLS computes estimates of employment levels based on ratios found in a monthly sample of establishments.

Note that payroll employment reported in the CES numbers represents the number of jobs in the state, not the number of people working. A person working at two jobs

will count twice. The total CES employment figure for the state, therefore, will differ from the employment numbers reported as part of the monthly unemployment statistics. Monthly unemployment statistics estimate the number of people working and not working, not the number of jobs in the state. The CES data also generally count part-time employment the same as full-time employment.

Although they do not show earnings from the various industries, the January data offer the most accurate and most current picture of the mix of employment in Indiana. Figure 6 shows how Indiana's employment structure compared to the nation as a whole in January 2001.

While services industries accounted

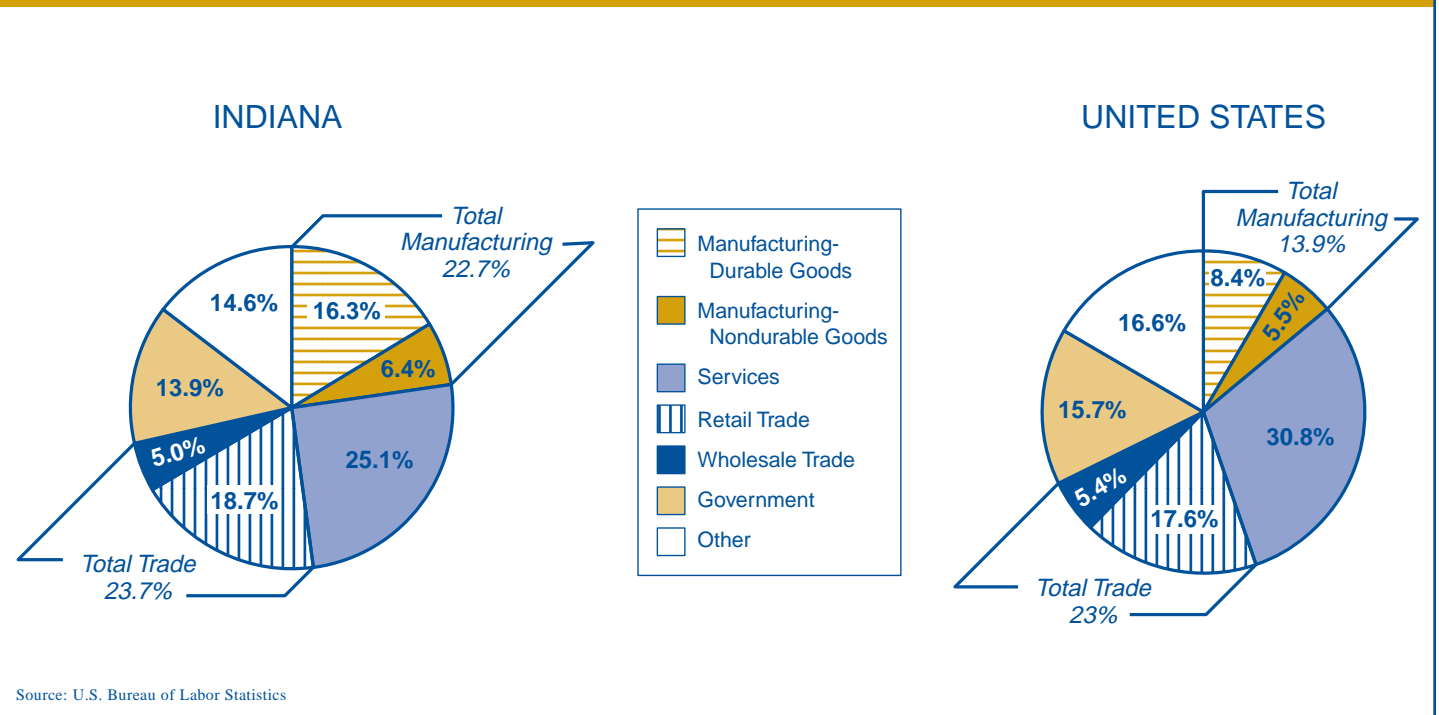
for 30.8% of U.S. jobs, they provided just over 25% of Indiana jobs. Manufacturing generated nearly 23% of all jobs in Indiana, while those industries as a group dropped to only 13.9% of nationwide employment.

Indiana was similar to the nation in share of employment in retail and wholesale trade. Government employment in Indiana, at 13.9% of all jobs, was somewhat lower than the 15.7% of U.S. employment in government jobs.

The "other" category on Figure 6 includes employment in construction; mining; finance, insurance and real estate; and transportation and public utilities. Together these industry groups represented 16.6% of all jobs in the nation but just 14.6% of Indiana employment.

Figure 6: Indiana Employment Compared to U.S.

Indiana jobs in January 2001 were twice as likely to be in durable goods manufacturing



Measuring the Growth Momentum of Employment in Indiana

Growth momentum: Picture each industry sector as a snowball, growing as it rolls down a hill.

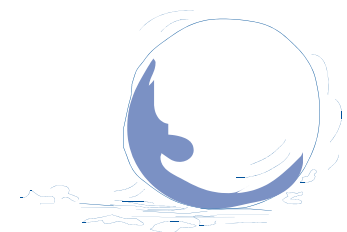
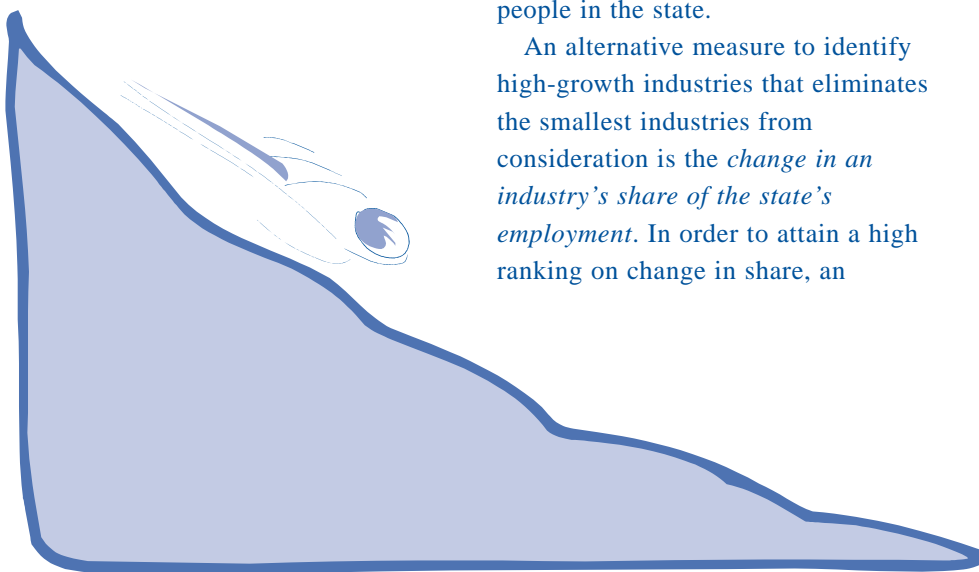
What are the high employment growth industries in Indiana? This is a frequently asked question that does not have a simple answer. Let's explore different employment growth measures in an attempt to identify high-employment-growth industries using Covered Employment and Wage data for first quarter 2000 and first quarter 1995. Data for some industries have been suppressed due to disclosure restrictions, resulting in a list of 316 industry sectors at the three-digit SIC level.

Two common measures of employment growth are *change in employment* and *percent change in employment*. Change in employment tends to overlook significant growth in smaller industries, while percent change can overemphasize very rapid growth in extremely small industries. For example, employment in the fastest-growing telegraph and other message communications sector grew by 450% between 1995 and 2000, but this sector still employs less than 100 people in the state.

An alternative measure to identify high-growth industries that eliminates the smallest industries from consideration is the *change in an industry's share of the state's employment*. In order to attain a high ranking on change in share, an

industry must satisfy two criteria: a fast rate of growth, and large enough in employment size so that its growth results in a noticeable change in the industry's share of statewide employment. In the case of the telegraph and other message communications industry, which grew by 450% over five years, only the growth rate criterion is satisfied. Even in 2000, after experiencing rapid growth, the industry's employment size of fewer than 100 workers leaves this sector with a microscopically small change in its share of total state employment.

However, a drawback to this measure is its treatment of the state's largest industry sectors that are growing, but not as rapidly as the average state growth. For instance, if a very large industry has a growth rate that matches the state average, the industry's change in share is zero. Furthermore, if a large industry's growth rate is slightly below the state average, the industry will show a decline in its share of the state's employment. Between 1995 and 2000, the state's largest sector, Eating and Drinking Places, grew by almost 14,000 in employment, ranking as the state's fourth largest in numeric growth. However the sector's growth rate of 7.5% was below the state average 8.7%, resulting in a decline in



share. In fact, the sector ranked 298th out of 316 industries, despite healthy growth in an already large sector.

Is there a measure that incorporates both numeric growth and the growth rate? In physics, momentum of an object is calculated as the mass of the object times its velocity. A fast-moving small object and a larger but more slowly moving object might have the same momentum. If two objects have the same mass, then the one that is moving faster will have the larger

momentum. Similarly, if two objects are moving at the same speed, then the object with more mass will have the larger momentum.

Let's put together a simple measure of employment *growth momentum* by multiplying the change in employment for an industry (similar to mass) by the growth rate for that industry (similar to velocity). The result is an attempt to quantify employment growth in industry sectors, using both numeric growth amounts and growth rates. For

industry sectors experiencing decline in employment, the momentum is multiplied by negative one, resulting in negative values of momentum for these sectors.

Table 1 illustrates employment for first quarter 2000, change and percent change in employment between 1995 and 2000, and the growth momentum measure for a subset of industry sectors. The subset of sectors includes any industry that ranks in the top 10 in *(continued on page 11)*

Table 1: Employment Growth Measures, Covered Employment and Wage Data, 1995:1 to 2000:1

SIC	INDUSTRY • Bold: Top 10 in Numeric Change • <i>Italicized: Top 10 in Percent Change</i>	Employment 2000:1	Numeric Change 1995 to 2000	Percent Change 1995 to 2000	Growth Momentum
799	Misc. Amusement, Recreation Services	27,522	15,731	133	2,098,756
451	Air Transportation, Scheduled	19,363	12,082	166	2,004,872
961	<i>Admin. of General Economic Programs</i>	5,264	3,795	258	980,397
736	Personnel Supply Services	67,245	19,597	41	805,999
737	Computer and Data Processing Services	17,763	6,760	61	415,319
874	<i>Management and Public Relations</i>	9,614	4,522	89	401,581
011	<i>Cash Grains</i>	2,181	1,439	194	279,073
821	Elementary and Secondary Schools	164,954	18,069	12	222,275
539	<i>Misc. General Merchandise Stores</i>	7,825	3,181	68	217,889
594	<i>Miscellaneous Shopping Goods Stores</i>	23,316	5,726	33	186,396
371	Motor Vehicles and Equipment	103,936	12,044	13	157,857
801	Offices & Clinics of Medical Doctors	41,616	7,082	21	145,233
581	Eating and Drinking Places	197,763	13,841	8	104,160
822	Colleges and Universities	65,436	6,992	12	83,649
628	<i>Security and Commodity Services</i>	1,155	636	123	77,938
671	<i>Holding Offices</i>	1,072	569	113	64,366
531	Department Stores	72,180	5,807	9	50,806
919	<i>General Government, NEC</i>	69,583	4,977	8	38,341
024	<i>Dairy Farms</i>	514	264	106	27,878
019	<i>General Farms, Primarily Crop</i>	396	219	124	27,097
482	<i>Telegraph & Other Communications</i>	66	54	450	24,300
559	<i>Automotive Dealers, NEC</i>	167	101	153	15,456
806	<i>Hospitals</i>	123,006	4,257	4	15,261
541	<i>Grocery Stores</i>	59,094	-5,180	-8	-41,747
421	<i>Trucking & Courier Services, Ex. Air</i>	56,246	-6,241	-10	-62,333

Source: Indiana Business Research Center and Indiana Department of Workforce Development

Table 2: Ranks of Employment Growth Measures, Covered Employment and Wage Data, 1995:1 to 2000:1

SIC	INDUSTRY • Bold: Top 10 in Numeric Change • <i>Italicized: Top 10 in Percent Change</i>	Employment 2000:1	Numeric Change 1995 to 2000	Percent Change 1995 to 2000	Growth Momentum
799	Misc. Amusement, Recreation Services	12	3	6	1
451	Air Transportation, Scheduled	14	5	4	2
961	<i>Admin. of General Economic Programs</i>	18	15	2	3
736	Personnel Supply Services	7	1	14	4
737	Computer and Data Processing Services	15	9	13	5
874	Management and Public Relations	16	13	11	6
011	<i>Cash Grains</i>	19	17	3	7
821	Elementary and Secondary Schools	2	2	18	8
539	Misc. General Merchandise Stores	17	16	12	9
594	Miscellaneous Shopping Goods Stores	13	11	15	10
371	Motor Vehicles and Equipment	4	6	17	11
801	Offices & Clinics of Medical Doctors	11	7	16	12
581	Eating and Drinking Places	1	4	22	13
822	Colleges and Universities	8	8	19	14
628	<i>Security and Commodity Services</i>	20	18	8	15
671	<i>Holding Offices</i>	21	19	9	16
531	Department Stores	5	10	20	17
919	General Government, NEC	6	12	21	18
024	<i>Dairy Farms</i>	22	20	10	19
019	<i>General Farms, Primarily Crop</i>	23	21	7	20
482	<i>Telegraph & Other Communications</i>	25	23	1	21
559	<i>Automotive Dealers, NEC</i>	24	22	5	22
806	Hospitals	3	14	23	23
541	Grocery Stores	9	24	24	24
421	Trucking & Courier Services, Ex. Air	10	25	25	25

Source: Indiana Business Research Center and Indiana Department of Workforce Development

Table 3: Top 10 Sectors in Employment Growth Momentum

SIC	Sector	Examples of Types of Establishments (from SIC manual, 1987)
799	Misc. Amusement, Recreation Services	Riverboat casinos, amusement parks, public golf courses
451	Air Transportation, Scheduled	Air passenger and cargo carriers, courier services
961	Admin. of General Economic Programs	Government economic development agencies
736	Personnel Supply Services	Employment agencies, temporary and office help
737	Computer and Data Processing Services	Programming, design & development of software, systems development, computer repair
874	Management and Public Relations	Business management and public relations services, consultants
011	Cash Grains	Wheat, rice, corn, soybeans
821	Elementary and Secondary Schools	Schools, academies, boarding schools
539	Misc. General Merchandise Stores	Stores selling department store commodities in limited amounts
594	Miscellaneous Shopping Goods Stores	Sporting goods and bicycle shops, book, jewelry, hobby and gift stores

IN Business

(continued from page 9)

employment, change, percent change, change in share or growth momentum.

The result is a list of industry sectors that includes large amounts of employment, large numeric growth, high percent growth, large increases in share of the state's employment and high momentum. This allows us to compare the various growth measures and subsequent rankings for these highest-ranking industry sectors. Table 2 contains the rankings for each growth measure for these industries. The industry sectors are listed in descending order of momentum in both tables.

The top 10 sectors in terms of momentum have numeric employment growth figures that range from 1,400 (cash grains) to almost 20,000 (personnel supply services). Employment growth rates range from 12% (elementary and secondary schools) to 258% (administration of general economic programs). Examples of the types of establishments found in each of the top 10 momentum sectors can be found in Table 3.

Picture each industry sector as a snowball, growing as it rolls down a hill. The sectors that are experiencing the largest amounts of numeric growth in employment are the ones that are adding the most snow. The sectors with the largest growth rates are moving the fastest. Figure 1 is a scatterplot that shows numeric growth and percent change in employment between 1995 and 2000 for each of the top 10 momentum sectors.

Faster-moving sectors that are

adding larger numbers of employees are miscellaneous amusement and recreation services, and air transportation, scheduled, and air courier services. These are the two sectors that are rolling quickly (growth rate more than 100%) and adding large amounts of snow (more than 10,000 employees).

Fastest-moving sectors that are adding fewer employees are administration of general economic programs and cash grains. These are the two snowballs that are moving very quickly but not adding as much snow as the sectors above (less than 10,000 employees).

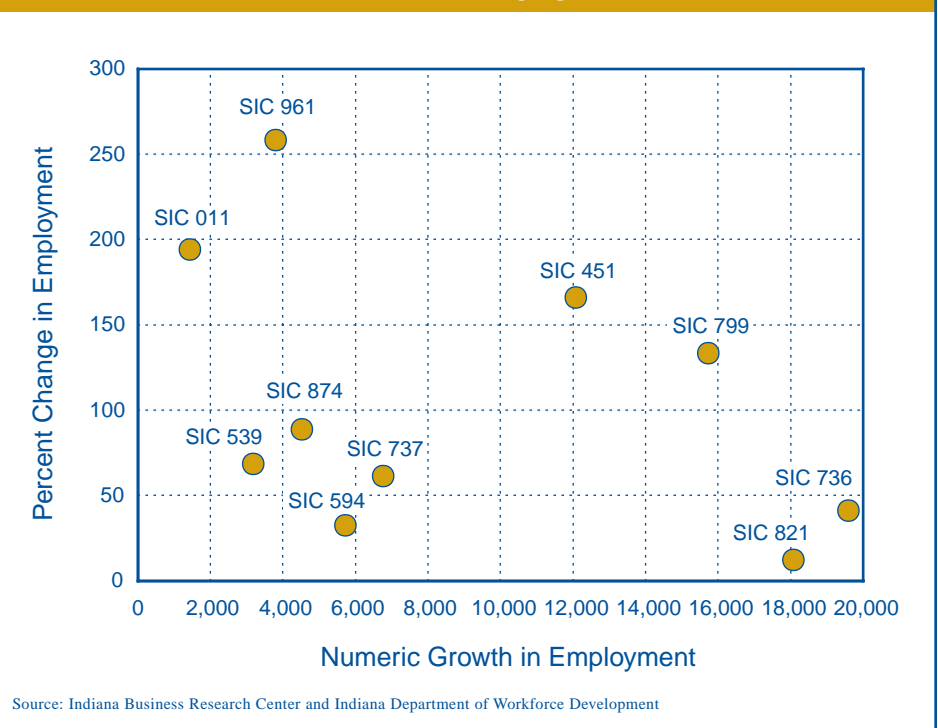
Sectors that are adding the largest numbers of employees but are moving more slowly are personnel supply services, and elementary and

secondary schools. Sectors that are adding smaller numbers (less than 10,000 employees) and moving more slowly (growth rate less than 100%) are computer, data processing and other computer-related services; miscellaneous shopping goods stores; management and public relations services; and miscellaneous general merchandise stores.

It is important to note that terms such as "more slowly" and "smaller numbers" are relative. These 10 industry sectors are those with the highest employment growth momentum measures in the state economy. Each of these industries is growing faster than the state average of 8.7% between 1995 and 2000, and each industry added a large number of new employees.

Figure 1: Top 10 Sectors in Employment Growth Momentum

SIC codes 451 and 799 stand out with high growth numbers and rates



Region 6: A Detailed View of Employment and Wages

With the implementation of the national Workforce Investment Act of 1997, the Department of Workforce Development, in conjunction with the governor's office and local civic and government units, grouped Indiana's 92 counties into 12 regions. The Workforce Investment/economic development planning regions were based on, among other criteria, economic similarities in industrial composition, trade relationships and work commuting patterns.

Region 6 is located in east central Indiana and stretches to the eastern border of the state. It is comprised of Blackford, Delaware, Grant, Henry,

Jay, Madison and Randolph counties. The Muncie MSA, which consists of only Delaware County, is also located in Region 6. The city of Muncie, located in the center of the region, is approximately 55 miles northeast of Indianapolis. According to the 2000 Census, these seven contiguous counties are home to 437,293 residents, indicating a net gain of 1,930 residents, or 0.4%, over the past decade. The 2000 Census shows that Madison County — part of the Indianapolis MSA — has the largest population base in Region 6, accounting for 30% of the total population. The least populated county in the region is Blackford, with

14,048, or 3% of the regional population. The region has been losing population since its 1970 high of 472,677 residents.

On a more current note, the labor force for Region 6 was 209,000 in January 2001, down 0.2% from the previous January (see Tables 1 and 2). The labor force and employment were down in all Region 6 counties except Madison. Unemployment rates were higher in January 2001 than the previous year, and the number of unemployed workers in each county was also greater, even in Madison County.

Employment in the service industries grew nearly 30% in the last 10 years, while manufacturing decreased more than 16%. Since the late 1970s, manufacturing, which has been heavily concentrated around the transportation equipment industries, decreased 40% in the region. In the past, General Motors was the largest employer, due to the many large manufacturing plants in the area. Although the region has been significantly affected by declines in manufacturing, less than 20% of the area's 2000 total industry employment is still in the manufacturing sector. The service industries comprise 27% of the 2000 total industry employment. The region's fastest-growing occupations reflect the shift in industries. The 10 fastest-growing occupations include none of the factory skills that once were in high demand.

In the second quarter 2000, firms and employment by industry report 9,005 firms with 163,670 workers were in the region. The quarterly average wage for all industry groups (except

Table 1: January 2000 Local Area Employment and Unemployment

Area	Total Labor Force	Employed	Unemployed	Unemployment Rate
Blackford County	6,340	6,020	320	5.0%
Delaware County	60,280	58,000	2,280	3.8%
Grant County	32,180	30,740	1,440	4.5%
Henry County	23,470	22,520	950	4.0%
Jay County	10,330	9,910	420	4.1%
Madison County	65,550	63,050	2,500	3.8%
Randolph County	11,300	10,620	680	6.0%
Region 6	209,450	200,860	8590	4.1%

Source: Indiana Department of Workforce Development

Table 2: January 2001 Local Area Employment and Unemployment

Area	Total Labor Force	Employed	Unemployed	Unemployment Rate
Blackford County	6,165	5,770	395	6.4%
Delaware County	59,910	57,450	2,460	4.1%
Grant County	31,660	29,870	1,790	5.7%
Henry County	23,280	22,200	1,080	4.7%
Jay County	10,250	9,720	530	5.1%
Madison County	67,030	64,290	2,740	4.1%
Randolph County	10,730	10,020	710	6.6%
Region 6	209,025	199,320	9,705	4.6%

Source: Indiana Department of Workforce Development

federal) was \$27,055, which is lower than the state average of \$30,056. Manufacturing, with average annual wages of \$41,162, is the only industry group in the region reporting average

annual wages higher than the state average of \$40,132. The quarterly wages in individual counties for all industries ranged from \$30,524 in Madison to a low of \$23,400 in Jay

County (see Table 4). Wages in the manufacturing industries were highest in Henry County, \$55,796. Jay County once again had the lowest wages, \$27,872.

Table 3: Muncie MSA: Wage and Salary Employment

Sector	Jan. '01	Dec. '00	Jan. '00	Dec. '00 to Jan. '01		Jan. '00 to Jan. '01	
				Numeric Change	Percent Change	Numeric Change	Percent Change
Total Nonfarm	58,900	60,900	58,000	2,000	3.30%	-900	-1.60%
Goods Producing	12,100	12,200	11,700	100	0.80%	-400	-3.40%
Construction & Mining	2,400	2,500	2,200	100	4.00%	-200	-9.10%
Manufacturing	9,700	9,700	9,500	0	0.00%	-200	-2.10%
Durable Goods	7,900	7,900	7,600	0	0.00%	-300	-3.90%
Industrial Machinery	1,300	1,300	1,300	0	0.00%	0	0.00%
Nondurable Goods	1,800	1,800	1,900	0	0.00%	100	5.30%
Service Producing	46,800	48,700	46,300	1,900	3.90%	-500	-1.10%
Transportation & Utilities	3,400	3,500	3,400	100	2.90%	0	0.00%
Wholesale Trade	1,700	1,700	1,700	0	0.00%	0	0.00%
Retail Trade	12,100	12,800	12,100	700	5.50%	0	0.00%
Finance, Insurance, Real Estate	1,900	1,900	1,900	0	0.00%	0	0.00%
Services	16,000	16,300	15,500	300	1.80%	-500	-3.20%
Total Government	11,700	12,500	11,700	800	6.40%	0	0.00%
State	6,700	7,400	6,700	700	9.50%	0	0.00%
Local	4,400	4,500	4,500	100	2.20%	100	2.20%
Local Education	2,700	2,900	2,800	200	6.90%	100	3.60%

Source: Indiana Department of Workforce Development

Table 4: Employment and Wages in Covered* Employment, Second Quarter 2000

Region	June Employment	AVERAGE WEEKLY EARNINGS		AVERAGE ANNUAL EARNINGS	
		All	Manufacturing	All	Manufacturing
Indiana	2,930,320	\$578	\$791	\$30,056	\$41,132
Region 6	163,670	\$520	\$792	\$27,055	\$41,162
Blackford County	4,240	\$466	\$564	\$24,232	\$29,328
Delaware County (Muncie MSA)	53,980	\$528	\$854	\$27,456	\$44,408
Grant County	29,400	\$542	\$823	\$28,184	\$42,796
Henry County	14,660	\$580	\$1,073	\$30,160	\$55,796
Jay County	7,270	\$450	\$536	\$23,400	\$27,872
Madison County	46,220	\$587	\$1,040	\$30,524	\$54,080
Randolph County	7,900	\$489	\$651	\$25,428	\$33,852

Source: Indiana Department of Workforce Development, Covered Employment & Wages Report

*By Unemployment Insurance

Forget the Crystal Ball: Occupational Projections Give Answers

What kind of jobs will be needed in the future? How much need will there be for teachers or economists, systems analysts or telemarketers, home health aides or doctors? What types of jobs will Indiana have to offer people graduating from high school or college or a vocational program? Will the jobs of the future be in food service or health service? These are just a smattering of the questions that career counselors, students, mid-life career changers and policy-makers might ask.

It won't take a crystal ball to find answers. The U.S. Bureau of Labor Statistics (BLS) and its Indiana partner, the Department of Workforce Development, produce short- and long-term occupational projections on a two-year cycle. The focus here is primarily the availability of statewide and regional occupational projections for Indiana and its 12 workforce investment areas.

The Short-Term Forecasts

The short-term occupational needs projections cover a two-year period.

Current availability spans the third quarter of 1999 through the third quarter of 2001. According to the short-term forecast, Indiana will have approximately 126,000 job openings, 53,000 of which will be new jobs and the remainder replacement jobs (see Table 1). *It is important to note that these short-term forecasts include the rise and fall of business cycles in the forecasting process.*

The Long-Term Projections

A 10-year span of time, currently 1996 to 2006 (see Table 2), is covered by the long-term projections. According to this set of projections, Indiana will have roughly 115,000 job openings by 2006 (see Table 2). *Again, understanding that the long-term outlook for job needs does not include the rise and fall of business cycles.* Rather, the method used to project employment needs by occupation relies on the growth and contraction of industry employment and the changes of staffing patterns within industries. This difference in methodology accounts, in part, for the notable

difference in total job needs between the two series.

Statewide and Regional Availability

Occupational needs for 12 Indiana regions, as well as statewide totals, are projected by the Indiana Department of Workforce Development every two years. Available on their Web site (www.state.in.us/dwd/inews), these projections can be viewed in toto or by selecting major job categories: marketing/sales; administrative support, clerical; executive, administrative, managerial; professional specialty; service; agricultural, forestry and fishing; precision production craft and repair; and operators, fabricators and laborers.

Using Occupational Projections

The number of annual average openings, as shown in Tables 1 and 2, provides insight into the overall need for a specific occupation, whether from the need to replace workers or from the creation of new jobs. The

(continued on back cover)

Table 1: Short-Term Job Projections: Indiana Statewide Needs, 1999:3-2001:3

Job Title	Employment 1999:3	Employment 2001:3	Annual Growth Rate	Annual Average New Jobs	Annual Average Replacement Jobs	Annual Average Total Openings
Total, All Occupations	2,916,391	3,022,842	1.83%	53,266	72,865	126,131

Source: Indiana Department of Workforce Development

Table 2: Long-Term Job Projections: Indiana Statewide Needs, 1996-2006

Job Title	Employment 1996	Employment 2006	Annual Growth Rate	Annual Average New Jobs	Annual Average Replacement Jobs	Annual Average Total Openings
Total, All Occupations	2,904,125	3,363,246	1.0%	45,921	68,518	114,439

Source: Indiana Department of Workforce Development

IN CONTEXT

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IN the Details

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average annual job openings essentially estimates the number of jobs that will come about from the need to replace workers who will die, retire or permanently leave an occupation each year during the projection period. Occupations with shrinking employment can still show positive annual job openings if the average annual replacement needs for that occupation are greater than the projected average annual decline in employment.

Searching for a specific occupation can be a bit tricky. The Standard Occupational Classification (SOC) is used to define the categories and describe specific occupations (the SOC manual can be found on the web at www.bls.gov/soc/soc_home.htm).

A search for doctors will yield nothing, but searching for physicians will. Some job titles are part of an aggregated group of jobs.

Other useful tips for anyone using these occupational projections either as a harbinger of change or as a way to impose reality on a teenager ambivalent about work, include skimming the national *Occupational Outlook Handbook* from the BLS (www.bls.gov/ocohome.htm). From that source, one learns that among the fastest-growing occupations are those in the computer and health fields: computer engineers (108% growth); systems analysts (94%); database administrators (77%); desktop publishing specialists (73%); personal care and home health aides (58%) and medical assistants (58%).

Visit *IN Context* on the Web at
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