

Good Pay, B.A. Not Required: An Analysis of Occupations, Pay and Educational Requirements

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A common assumption among people is that a four-year degree is the only ticket to career success. In fact, only 22 percent of this nation's workers are in jobs that require a bachelor's degree and three-fourths of the U.S. adult population does not have a bachelor's degree.

The IEDC recently analyzed occupations within Indiana and found that 78 meet the following criteria:

- Pay \$20,000 or more per year
- Expect 10-year growth of 10 percent or more
- Do not require a bachelor's degree
- Offer sufficient numbers of jobs within the given occupation class

A unique database was created by the IEDC to conduct this research. That database combines federal and state labor force data on employment, occupations and wages. This database uses a categorization scheme developed by the U.S. Bureau of Labor Statistics (BLS)¹. This scheme categorizes occupations into 11 separate levels of education and training. Categories start with short-term on-the-job training and progress through long-term on-the-job training, associate's degree, bachelor's degree, professional or graduate degree and doctoral degree. Specifics on the 78 occupations that met the above four criteria and the seven job clusters or categories are described below.

Focus Occupations

These 78 occupations were called focus occupations and combined employ 633,000 Hoosiers, or 22 percent of the workforce in the state. These focus occupations were combined into seven career clusters or industries:

- Building and Construction
- Business, Management and Finance
- Health Services
- Manufacturing and Processing
- Marketing, Sales and Promotion
- Mechanical Repair and Precision Crafts
- Transportation

The occupations employing the most Hoosiers are helpers, laborers and material movers (people who move things by hand); registered nurses; and truck drivers.

The occupations paying more than \$38,000 are dental hygienists, first line construction supervisors, selected business services sales agents, other sales representatives and the group that includes plumbers, pipe fitters and steamfitters.

Indiana occupations expected to grow by more than 50 percent by 2006 are physical and corrective therapy assistants and aides; bill and account collectors; combination machine tool setters and setup operators; and adjustment clerks.

Three key occupations that employ another 133,000 Hoosiers were excluded from this study, despite a good wage and educational match. These were licensed practical nurses, secretaries, and assemblers and fabricators. Each of them is expected to grow by less than 10 percent by 2006.

Building and Construction (Table 1)

The construction industry offers some of the best-paid jobs without a degree requirement, particularly within the skilled trades and crafts, such as carpenters, electricians and bricklayers. The Indiana construction industry had approximately 145,000 jobs in 1998 with an annual average wage of \$33,380.

Decoding the Education and Training Codes in the Tables

- Code 7.....Bachelor's degree — four-year bachelor's degree.
- Code 6.....Associate's degree — associate's degree or at least 2 years of full-time equivalent academic work
- Code 5.....Post-secondary vocational training — completion of vocational school training
- Code 4.....Work experience in a related occupation — skills obtained through work experience in a related occupation
- Code 3.....Long-term on-the-job training — 12 months or more of on-the-job training or combined work experience and formal classroom instruction in order for workers to develop the skills needed for average job performance
- Code 2.....Moderate-term on-the-job training — workers can develop the skills needed for average job performance after one-to-12 months of combined on-the-job experience and informal training
- Code 1.....Short-term on-the-job training — workers generally can develop the skills needed for average job performance after a short demonstration or up to one month of on-the-job experience and instruction

Many construction jobs are forecast to grow at rates in the high 20 percent to low 30 percent range over the decade. Jobs in this industry do require long-term training and most workers enter through apprenticeships. The industry is heavily unionized and employment is often affected by seasonal conditions and swings in the economy. These 11 focus occupations (of the entire 78), have combined employment of 61,565.

Business Management and Finance (Table 2)

In the hospitality area, only food service and lodging managers meet the focus occupation criteria. It is the 11th fastest growing business occupation, increasing at a rate of 34 percent over the decade. Four key factors improve mobility and job advancement for food service and lodging managers: strong expansion and job growth; 24-hour operation; high turnover; and wide variety and many levels within an organization.

Administrative jobs are found across a wide variety of industries. Nationally, it is the largest

occupational group. About 104,000 Hoosiers have well-paying occupations in this category. Although the overall category is growing less than 10 percent, some occupations will have very strong growth over the next several years. For example, adjustment clerks and bill and account collectors should increase by more than 50 percent. Entry to and advancement in this career cluster are possible without formal education beyond high school, although technical training may be necessary for advancement.

Health Services (Table 3)

The health care industry is a substantial employer in Indiana, with annual average employment of more than 225,000 jobs. The greatest and most varied opportunities in health-care occupations are found in the metropolitan areas of the state, where large hospitals and medical centers are located, yet opportunities exist throughout the state. Health care occupations are not only fast growing, but they also pay very good wages. However, extensive formal

“The construction industry offers some of the best-paid jobs without a degree requirement.”

Table 1

	Indiana Avg. Annual Salary, 1998	Growth Rate to 2006	Estimated Statewide Employment	Education & Training Level
Building and Construction			61,565	
First Line Supervisors, Construction	\$40,240	17.30%	7,280	4
Carpenters	\$29,900	20.40%	19,308	3
Electricians	\$37,750	18.00%	12,785	3
Bricklayers	\$37,400	29.00%	3,043	3
Concrete and Terrazzo Finishers	\$30,000	23.60%	3,733	3
Painters and Paperhangers, Construction & Maintenance	\$26,920	34.80%	6,184	2
Plumbers, Pipefitters and Steamfitters	\$38,080	17.50%	8,136	3
Helpers, Brick and Stone Mason	\$26,200	28.90%	2,102	1
Helpers, Carpenters and Related Workers	\$20,650	30.00%	4,012	1
Helpers, Plumbers, Pipefitters, and Steamfitters	\$21,220	26.60%	1,162	1
Helpers, All Other Construction Trades Workers	\$23,240	21.70%	1,100	1

education is often required for higher-paid nursing and technical occupations, with almost all requiring an associate's degree or vocational-technical education. Dental assistant is the only occupation within this cluster that does not require formal education beyond high school.

Manufacturing and Processing (Table 4)

Indiana is the leading manufacturing state in the nation with 24 percent of its total employment in the manufacturing sector. As of 1998, the total employment (annual average) in manufacturing was 683,900, with an annual average wage just above \$40,000. Machine operators account for 14 of these focus occupations, reflecting the increasing use of technology and automation in the production process. Welders and welding machine operators require formal vocational-technical training; all others are learned through on the job training.

Marketing, Sales and Promotion (Table 5)

Marketing, sales and promotion occupations are concentrated in the retail and wholesale industries, with 690,000 jobs in just these two industries. Overall, the category is expected to increase by 17.5 percent from 1996 to 2006. That rate of growth would equal 158,610 new employees. Almost 99,000 of the openings will come from replacements.

Nationally, the number of workers in this cluster is growing at a slower rate than in earlier periods. The slower growth is attributed, in part, to automated and Internet sales transactions. Despite a modest growth rate, the number of employees in this occupational cluster and the significant need for replacement workers will provide substantial opportunity for advancement.

Entry to and advancement in the focus occupations in Business, Management and Finance are possible without formal education beyond high school, although technical training may be necessary for advancement.

Table 2

	Indiana Avg. Annual Salary, 1998	Growth Rate to 2006	Estimated Statewide Employment	Education & Training Level
Business, Management and Finance			104,164	
Hospitality Industry				
Food Service and Lodging Managers	\$25,400	34.20%	8,004	4
Administrative Support and Clerical Occupations				
Clerical Supervisors and Managers	\$29,110	20.30%	24,588	4
Loan and Credit Clerks	\$20,400	20.10%	4,046	1
Adjustment Clerks	\$21,970	50.30%	7,612	1
Insurance Claims Clerks	\$21,770	26.50%	2,518	2
Bill and Account Collectors	\$21,520	52.10%	4,129	1
Legal Secretaries	\$23,700	15.70%	4,449	5
Medical Secretaries	\$20,170	18.10%	5,571	5
Customer Service Representatives, Utilities	\$25,230	24.90%	2,342	1
Traffic, Shipping, and Receiving Clerks	\$22,660	13.80%	19,639	1
All Other Material Recording, Scheduling and Distribution Workers	\$23,410	11.20%	5,554	1
All Other Clerical and Administrative Workers	\$22,590	27.50%	15,713	1

Health care occupations are not only fast growing in Indiana, but they also pay very good wages. While some of the highest-paid nursing positions require an associate's degree or vocational-technical education, a dental assistantship does not require formal education beyond high school.

Most of the well-paying occupations in this cluster are at the supervisory level or involve more specialized skills. While none of the occupations have educational requirements beyond high school, some of the more specialized sales agents may require a postsecondary or college education.

Mechanical Repair and Precision Crafts (Table 6)

This career cluster includes an assortment of occupations that cross many industries. Employees are generally mechanics, repairers, installers or precision workers. It includes 16 focus occupations and employs 93,189 Hoosiers. Seven of these occupations require formal postsecondary education. The remaining 9 require long-term or moderate-term on-the-job training. A few require apprenticeships combining on-the-job training with formal classroom instruction. All of them demand strong basic skills, good manual dexterity and mechanical aptitude.

Transportation (Table 7)

This cluster is particularly relevant to Indiana, which has a high concentration of jobs related to trucking, warehousing and distribution. Eight focus occupations are in this cluster, including dispatchers, truck drivers and others involved in moving or distributing materials and goods. Most of the focus occupations require only short-term or moderate length on-the-job training. Formal truck driver training programs of short duration are available for new entrants. Operating engineers often learn their trade through apprenticeship programs.

Table 3

	Indiana Avg. Annual Salary, 1998	Growth Rate to 2006	Estimated Statewide Employment	Education & Training Level
Health Services			63,337	
Registered Nurses	\$37,290	12.40%	42,161	6
Dental Hygienists	\$41,730	36.90%	3,387	6
Radiologic Technologists.....	\$29,170	12.50%	2,600	6
Surgical Technologists	\$24,490	12.00%	861	5
All Other Health Professionals, Paraprofessionals, and Technicians	\$25,700	13.70%	8,873	6
Dental Assistants.....	\$21,460	27.90%	4,359	2
Physical and Corrective Therapy Assistants and Aides	\$25,660	55.20%	1,096	6

Most careers in Manufacturing and Processing are learned through on-the-job training....None of the occupations in the selected Marketing, Sales and Promotion cluster have educational requirements beyond high school.

Table 4

	Indiana Avg. Annual Salary, 1998	Growth Rate to 2006	Estimated Statewide Employment	Education & Training Level
Manufacturing and Processing.....			132,502	
Numerical Control Machine Tool Operators and Tenders, Metal/Plastic	\$28,600	41.20%	4,603	2
Combination Machine Tool Setters and Set-Up Operators	\$35,210	50.90%	3,645	2
Combination Machine Tool Operators and Tenders	\$27,430	39.40%	4,007	2
Welding Machine Setters and Set-Up Operators	\$26,220	11.60%	2,152	2
Welding Machine Operators and Tenders	\$27,250	11.50%	3,282	2
Metal Fabricators, Structural Metal	\$20,700	27.00%	474	2
Plastic Molding Machine Setters, and Set-Up Operators	\$26,110	22.20%	2,250	2
Plastic Molding Machine Operators and Tenders	\$22,910	21.90%	8,270	2
Electrolytic Plating, Operators, Metal/Plastic	\$21,980	24.00%	631	2
All Other Metal and Plastic Setters	\$25,300	30.10%	5,755	2
All Other Metal and Plastic Operators	\$26,950	32.90%	7,379	2
Cutting and Slicing Machine Operators and Tenders	\$21,390	11.00%	1,605	2
Painters, Transportation Equipment	\$31,340	23.00%	468	2
Coating, Painting, Spraying Machine Setters & Set-Up Operators	\$22,310	15.90%	1,422	2
Painting Machine Operators and Tenders	\$21,050	14.30%	4,367	2
All Other Machine Operators	\$26,130	13.20%	16,100	2
All Other Precision Assemblers, Metal	\$24,700	17.20%	4,684	4
Welders and Cutters	\$25,670	17.20%	11,512	5
All Other Helpers, Laborers and Material Movers, Hand	\$20,680	25.70%	49,895	1

Table 5

	Indiana Avg. Annual Salary, 1998	Growth Rate to 2006	Estimated Statewide Employment	Education & Training Level
Marketing, Sales and Promotion			84,004	
Marketing and Sales Worker Supervisors	\$30,280	14.40%	34,559	4
Sales Agents, Selected Business Services	\$39,260	32.40%	3,180	2
Other Sales Reps	\$39,100	15.40%	24,158	2
Salespersons, Parts	\$22,390	16.20%	8,213	1
All Other Sales and Related Workers	\$22,940	19.10%	13,895	2

UPDATES

Since this study was released, the U.S. Bureau of Labor Statistics has updated its occupational projections to the year 2008. Access is available on the web at: imis.dws.state.ut.us/occ/projhome.asp. There is also a host of national and regional occupational data available from the U.S. Bureau of Labor Statistics (www.bls.gov/empoccl.htm) and the Indiana Department of Workforce Development (www.state.in.us/dwd/inews). For an overview of the population and economy of a county or region in Indiana, go to STATS Indiana at www.stats.indiana.edu.

Table 6

	Indiana Avg. Annual Salary, 1998	Growth Rate to 2006	Estimated Statewide Employment	Education & Training Level
Mechanical Repair and Precision Crafts.....			93,189	
Maintenance Repairers, General Utility	\$23,440	20.90%	30,569	3
Automotive Mechanics	\$27,750	12.70%	14,493	5
Bus and Truck Mechanics and Diesel Engine Specialists.....	\$28,270	10.90%	6,237	3
Mobile Heavy Equipment Mechanics	\$32,080	11.60%	1,312	3
Aircraft Mechanics.....	\$30,280	28.20%	1,613	5
Telephone and Cable TV Line Installers and Repairers.....	\$30,210	19.50%	2,711	3
All Other Electrical/Electronic Equipment Mechanics, Installers, Repairers	\$34,980	10.90%	3,384	3
Heating, Air-Conditioning, and Refrigeration Mechanics and Installers	\$28,030	34.60%	4,130	3
Office Machine and Cash Register Servicers	\$24,590	29.70%	1,313	3
All Other Mechanics, Installers, and Repairers	\$30,750	18.80%	12,423	3
Sheet Metal Workers.....	\$29,720	10.40%	6,021	2
Wood Machinists.....	\$21,410	25.90%	1,339	3
Cabinetmakers and Bench Carpenters.....	\$24,770	20.20%	2,299	3
Furniture Finishers	\$21,410	28.90%	683	3
All Other Precision Woodworkers	\$22,950	32.60%	1,464	3
All Other Precision Workers.....	\$23,320	24.30%	3,198	3

Table 7

	Indiana Avg. Annual Salary, 1998	Growth Rate to 2006	Estimated Statewide Employment	Education & Training Level
Transportation.....			91,525	
Dispatchers Except Police, Fire, and Ambulance	\$29,440	16.00%	2,839	2
Transportation Agents	\$20,290	37.70%	828	1
Truck Drivers, Heavy or Tractor-Trailer.....	\$29,460	23.10%	39,878	1
Truck Drivers, Light.....	\$20,610	27.00%	23,424	1
All Other Transportation Workers.....	\$20,880	15.40%	4,056	2
Industrial Truck and Tractor Operators.....	\$26,150	13.30%	16,066	1
Operating Engineers	\$37,900	24.60%	4,434	2
All Other Material Moving Equipment Operators.....	\$26,410	15.90%	3,913	2

Conclusion

Indiana has well-paying jobs that do not require a four-year college degree. Unemployment has been very low in the state and recent IEDC research has found that there is a skills shortage.² Workers with strong skills are in great demand, especially in growing occupations and industries.

Career advancement and earning a livable wage are goals that can be reached. This research, part of a larger report on "Pathways to a Livable Wage,"³ has identified a number of occupations that pay good wages and have strong growth rates. Detailed snapshots of the focus occupations, by state and by the 12 workforce regions, can be found on the Web at

www.ladders4success.org/research/pathways.html, along with other aspects of the "Pathways to a Livable Wage" project.

References

1. George Silvestri, "Occupational Employment Projections to 2006," *Monthly Labor Review*, 1997, p. 83.
2. Charles R. Warren, "Is There a Job Gap in Indiana? An Updated Analysis" (Indianapolis: Indiana Economic Development Council, 2001).
3. Charles R. Warren, "Pathways to a Livable Wage" (Indianapolis: Indiana Economic Development Council, 2001).