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INDIANA UNIVERSITY
Indiana Business Research Center

The Indiana Life
Science Industry

The Economic Footprint
of Indiana's Community
Health Centers

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From the Editor

What do the names Borkenstein, Brandon, Dick, Harger, Julian, Lilly, Muhler, Scholl, and Walker have in common?

The most recognizable belongs to pharmacist and inventor Colonel Eli Lilly, who shared the gift of Hoosier invention and ingenuity with the others. Each person listed lived in Indiana and worked famously within the life sciences. Robert Borkenstein and Rolla Harger (both of Indianapolis) each invented separate devices to test the levels of alcohol in the human body. Percy Julian's work (Greencastle) led to the use of synthetic cortisone and a drug for lowering blood pressure. Joseph Muhler (Fort Wayne) invented stannous fluoride, much to the delight of parents and dentists, while Madame C. J. Walker developed Tetter Salve as a remedy for skin diseases. Dr. George and Gladys Dick invented a test for scarlet fever, while William Scholl (La Porte) invented much needed arch supports for those of us working long hours on factory floors, while Wayne Brandon of Alexandria developed a pain-relieving glove for arthritis sufferers.

By employment numbers, the life science cluster is overshadowed by many other clusters of industry in this state. But by earnings potential and the wage per job (average: \$81,900), it is a star that continues to rise despite the economic downturn. Its potential is what has seduced many states to set their sights on life sciences as an economic opportunity. But the majority of states don't have what Indiana already had for decades—a strong manufacturing base in chemicals. Kinghorn and Slaper provide us with a summary of their findings on the size, scale, and scope of life sciences in Indiana. Their report cements what those in the life sciences community already knew—life science is a dominant cluster in the state in terms of productivity and growth.

But wait there's more ... We then turn to an estimation of the impact of community health centers within their counties and statewide. Estimating their impact based on the multiplicity of funding streams and the complexities of valuing volunteers yields interesting results and implications for the return on investment foundations and governments receive from these vital organizations.

The Indiana Life Science Industry

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The growth of the life sciences is emblematic of Indiana's restructuring economy. As many traditional manufacturing sectors contract, Indiana's manufacturing base has shifted toward producing other types of goods. Life science manufacturing is an important part of that shift.

Life science-related firms employed 50,000 Hoosiers in 2007.¹ At 1.7 percent of total employment, these firms represent a small yet rapidly growing segment of Indiana's workforce. **Table 1** shows payroll employment in Indiana life science industries growing nearly 3 percent annually. This average annual rate of growth is more than twice as great as the nation.

The important role that the life sciences play in the state is more evident when compared to Indiana's employment picture overall. Payroll employment in Indiana increased by 33,000 between 2001 and 2007—a 0.2 percent average annual growth. Meanwhile, life science employment expanded by 7,600 jobs, representing 23 percent of Indiana's total job growth over this period.

What makes Indiana's life science industries growth so important is the high wages associated with these jobs. The annual wage of a typical life science job in Indiana was \$82,000

TABLE 1: Life Science Industry Overview

	Indiana	United States
Number of Life Science Establishments	1,652	62,388
Manufacturing	333	17,485
Wholesale Trade	1,098	28,538
Research and Development	221	16,365
Life Science Employment	50,146	1,637,575
Manufacturing	38,486	704,229
Wholesale Trade	8,227	400,597
Research and Development	3,433	532,749
Life Science as a Share of Total Employment	1.7%	1.2%
Average Annual Change in Life Science Employment, 2001–2007	2.8%	1.2%
Average Annual Change in Total Employment, 2001–2007	0.2%	0.7%
Life Science as a Share of Total Employment Growth, 2001–2007	22.9%	2.0%
Average Annual Life Science Wage	\$81,974	\$84,992
Average Annual Wage (Total Employment)	\$37,447	\$44,450

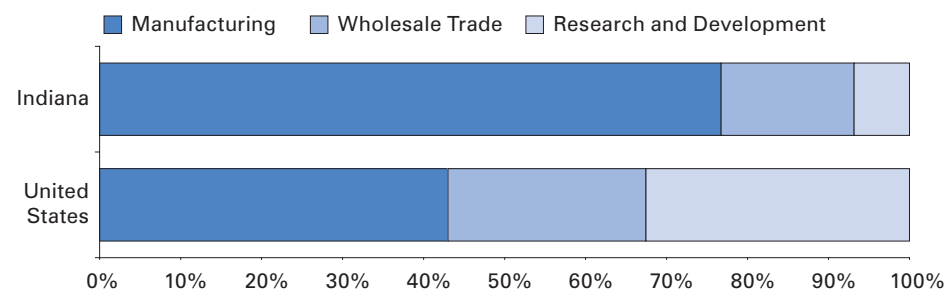
Source: IBRC, using 2007 Bureau of Labor Statistics data

in 2007 (the latest available data)—a mark that is more than double the average wage for all employment. Furthermore, the average wage of an Indiana life science job more closely resembles the national average than is the case for employment overall.

Life science industries, as defined in this article, consist of firms operating in three business activities: manufacturing, wholesale distribution, and research and development. Not surprisingly, given Indiana's industrial heritage, employment in the manufacturing sector accounts for 77 percent of the life science industry total compared to 43 percent nationally (see **Figure 1**). Meanwhile, life science wholesale trade employment is relatively small yet growing rapidly in the state—a trend that is likely to continue given the emphasis on developing Indiana's logistics sector.

One glaring gap in Indiana's otherwise strong life science industry is found in the research and development (R&D) sector. At the

FIGURE 1: Life Science Industry Employment by Business Activity



Source: IBRC, using 2007 Bureau of Labor Statistics data

national level, a far larger share (37 percent) of the life science workforce is employed with firms focused on R&D than is the case in Indiana (7 percent). Furthermore, Indiana life science R&D wages are well below the national average. By contrast, the state's average annual life science manufacturing wage was \$81,000 compared to \$78,000 for the nation. The wage differential in medical equipment wholesale trade was more than \$6,000 in Indiana's favor.

It is important to note that firms are categorized by their primary business activity for the purposes of industry classification. Primary business activity is typically defined by the pursuit that accounts for the greatest share of production costs, capital investment or revenue. Firms with a major manufacturing presence, for instance, may still heavily engage in R&D.

Life Science Manufacturing

Indiana life science manufacturing is led by pharmaceutical and medicine production (see **Table 2**). In 2007, this industry accounted for

half of life science manufacturing employment and 38 percent of all life science jobs. With an average wage of \$102,000, Indiana pharmaceutical firms pay above the national industry average and their wages are nearly three times greater than Indiana's average for all jobs.

The manufacturing of medical instruments and surgical appliances is another area of strength. Each of these industries employed 8,200 people, which combined to account for 33 percent of Indiana's total life science workforce. Additionally, with strong average annual growth since 2001, medical instruments (5.4 percent) and surgical appliances (8.3 percent) are high-growth industries in Indiana, far outpacing U.S. growth rates in these same sectors. Each industry had an average wage well above Indiana's total manufacturing

“The manufacturing of medical instruments and surgical appliances is another area of strength. Each of these industries employed 8,200 people, which combined to account for 33 percent of Indiana’s total life science workforce.”

mark of \$51,000. The surgical appliances industry, in particular, provided high wages with an average of \$71,500 in 2007—nearly \$12,000 above the national average.

Gains in life science manufacturing employment are in sharp contrast to the dominant trend in manufacturing overall. Indiana's total manufacturing employment declined by nearly 66,000 between 2001 and 2007. Transportation equipment manufacturing, the state's hallmark industry, contracted by roughly 8,000 jobs during that period.

■ **TABLE 2: Life Science Manufacturing Summary by Industry**

Manufacturing Industry	Employment	Average Wage per Job		Average Annual Employment Change, 2001-2007	
	Indiana	Indiana	United States	Indiana	United States
Pharmaceutical Preparation	19,104	\$102,158	\$98,587	0.8%	0.7%
Surgical Appliance and Supplies	8,241	\$71,481	\$59,754	8.3%*	1.2%*
Surgical and Medical Instrument	8,205	\$57,574	\$66,615	5.4%	0.5%
Dental Laboratories	1,294	\$31,150	\$36,141	-0.8%	0.7%
Ophthalmic Goods	608	\$27,940	\$52,023	4.9%	-1.9%
In-Vitro Diagnostic Substance	253	\$54,352	\$90,737	9.3%	5.0%
Analytical Laboratory Instrument	251	\$61,813	\$83,796	1.8%	-0.9%
Dental Equipment and Supplies	221	\$41,155	\$50,546	0.2%	-0.8%
Biological Product (except Diagnostic)**	n/a	n/a	\$84,919	n/a	0.8%
Electromedical Apparatus**	n/a	n/a	\$82,534	n/a	1.9%
Irradiation Apparatus**	n/a	n/a	\$90,190	n/a	1.4%
Medicinal and Botanical**	n/a	n/a	\$91,617	n/a	-0.2%

*Some North American Industry Classification System (NAICS) sectors were revised in 2007. The surgical appliance and supplies manufacturing industry received a portion of the now eliminated NAICS 339111. Therefore, a portion of this growth can be attributed to this revision.

**Indiana data are not available due to Bureau of Labor Statistics non-disclosure requirements.

Source: IBRC, using 2007 Bureau of Labor Statistics data

The value of Indiana's manufacturing output continues to climb. Current dollar output of manufacturing has grown at an average annual rate of 2.8 percent, while the production of transportation equipment specifically has increased at an annual rate of 2.2 percent (see **Figure 2**). The contrast of employment loss and output gain reflects several underlying forces: improvements in technology, increases in productivity and the divestment of lower value-added functions.

The relative strength of the state's life science manufacturing sector is illustrated not only by employment growth but also by the nearly 8 percent average annual growth in output. This rate of growth was twice as large as the state total for all industries.

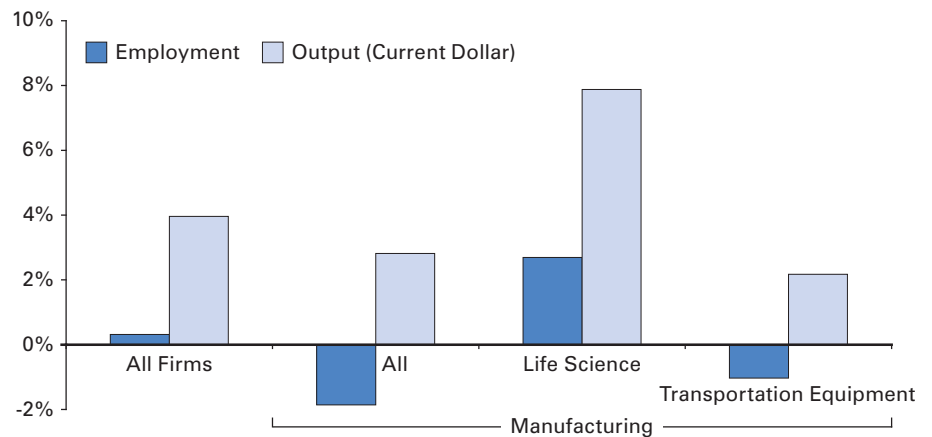
This exceptional growth in life sciences (relative to total manufacturing) signals a potential realignment of the state's industry mix. The life science share of total manufacturing output has grown to 20 percent which, as **Figure 3** illustrates, now narrowly exceeds the transportation equipment sector's contribution.

While life science manufacturing output has surpassed that of transportation manufacturing in recent years, it has done so with less than one-third the workforce. The importance of this sector's tremendous productivity cannot be overstated. Yet it is important to keep in mind that, in terms of employment alone, gains in life science manufacturing will not offset losses in the broader manufacturing sector if recent trends continue.

Indiana Life Science Manufacturing in Perspective

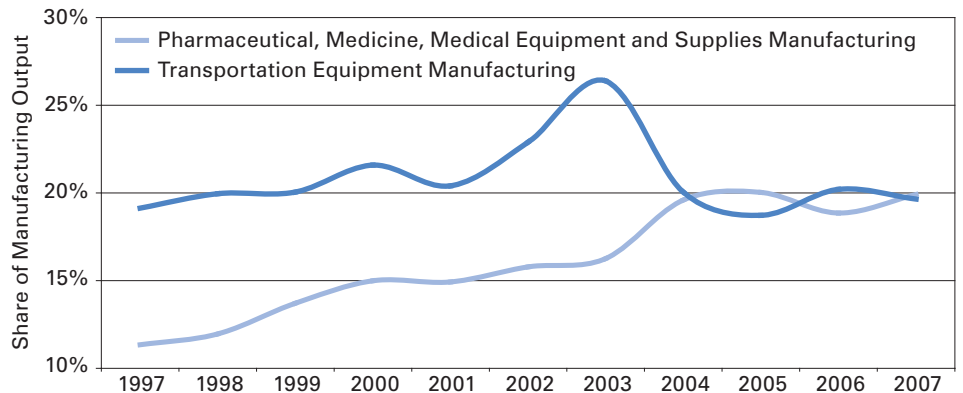
Manufacturing of pharmaceuticals and medical devices is an increasing strength of Indiana's economy. More importantly, Indiana stands as a national leader within these key

FIGURE 2: Average Annual Employment and Output Change for Select Industries, 2001–2007



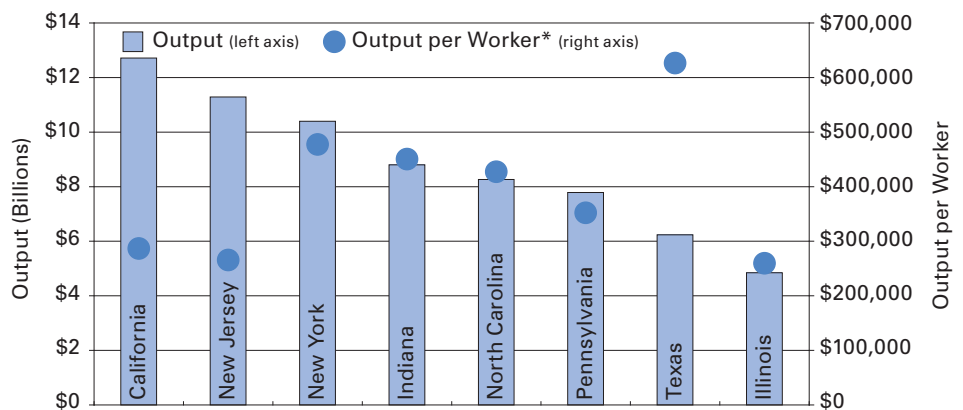
Source: IBRC, using Bureau of Labor Statistics data

FIGURE 3: Share of Indiana Total Manufacturing Output (Current Dollar) by Select Industries, 1997 to 2007



Source: IBRC, using data from Moody's Economy.com

FIGURE 4: Total Output and Productivity of Pharmaceutical and Medicine Manufacturing, Leading States



*Output per worker is a common measure of productivity
Source: IBRC, using 2007 Bureau of Labor Statistics data

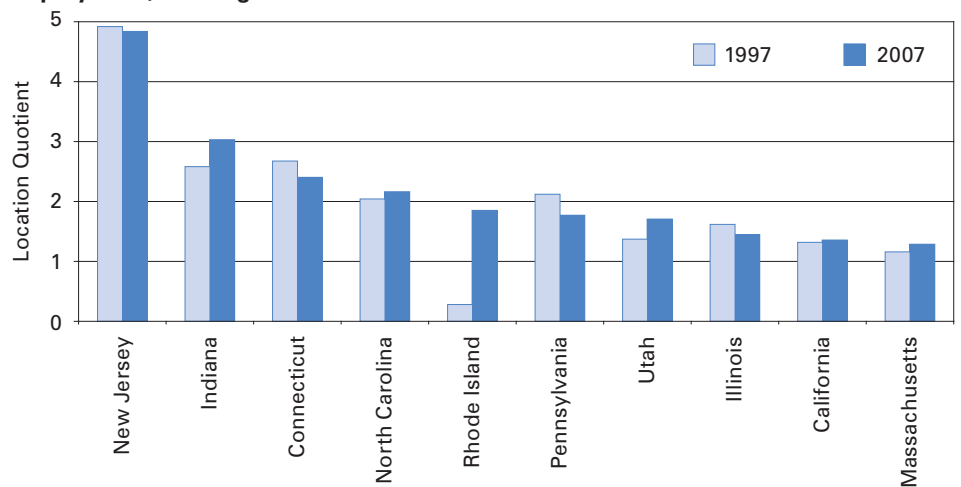
industries. For instance, Indiana firms generated \$8.8 billion in pharmaceutical and medicine output in 2007 (see **Figure 4**). This level of output was fourth among all states behind California, New Jersey and New York—some of the nation’s largest economies. In fact, Indiana is unique in this list in that it is the only state that is not also among the top ten nationally in total output.

Sheer output alone does not offer a complete account of a state’s productivity given these variations in relative size of state economies. Output per worker helps to compare states on a level playing field. Indiana ranks third among these top producers in output per pharmaceutical worker at \$450,000, which places the state ahead of California and New Jersey and behind only Texas and New York. Indiana’s output per worker for all industries was \$82,500.

Another indication of Indiana’s position as a national leader is the relatively large share of total employment this industry holds. Indiana had a pharmaceutical employment location quotient (LQ)² of 3.0 in 2007, meaning that the state’s share of its workforce dedicated to this sector was three times greater than that of the nation. This measure was second only to New Jersey, which had a location quotient approaching 5 (see **Figure 5**). Not only is Indiana highly concentrated but this concentration has increased since 1997 when its LQ was 2.6. Indiana’s ten-year change in LQ (at an annual average rate) ranked third among the leading states for this measure—behind Rhode Island and Utah.

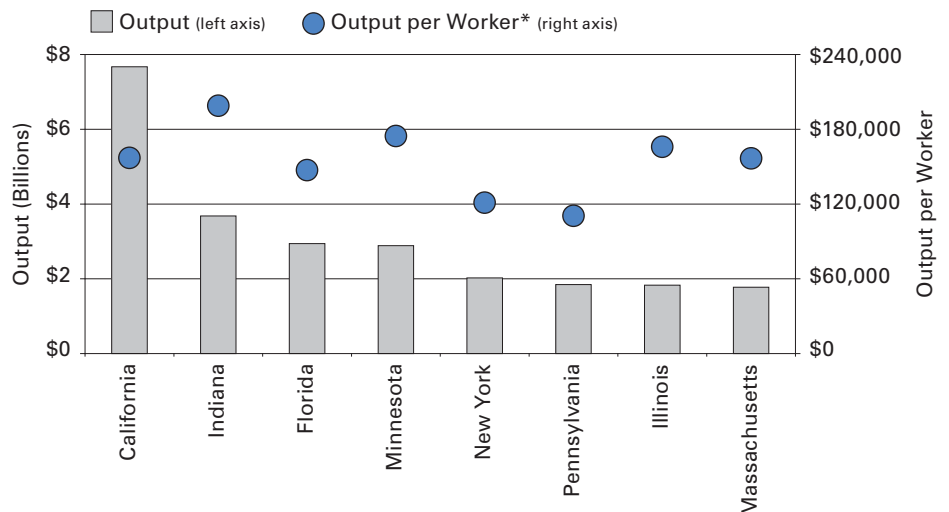
At \$3.7 billion in output, the state’s medical device sector does not match the exceptional output generated by the pharmaceutical industry, yet Indiana’s position nationally is equally significant. The state ranked second in output and exhibited the highest output per medical device

FIGURE 5: Location Quotient of Pharmaceutical and Medicine Manufacturing Employment, Leading States



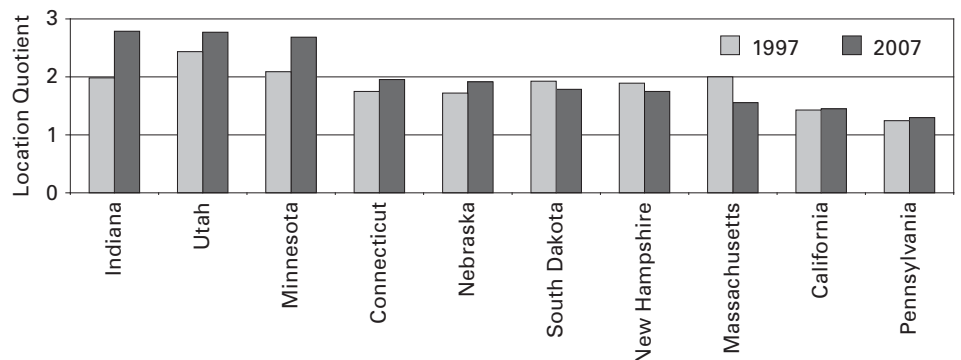
Source: IBRC, using 2007 data from Moody’s Economy.com

FIGURE 6: Total Output and Productivity of Medical Equipment and Supplies Manufacturing, Leading States



*Output per worker is a common measure of productivity
Source: IBRC, using 2007 data from Moody’s Economy.com

FIGURE 7: Location Quotient of Medical Equipment and Supplies Manufacturing Employment, Leading States



Source: IBRC, using 2007 data from Moody’s Economy.com

worker (\$199,000) of these top producers. California led the nation with a total output that was more than twice as large as Indiana's. The Hoosier State's strong performance in this sector is especially evident when one considers that each of the states listed in **Figure 6** has a larger economy than Indiana, which ranked eighteenth in total output. California's total output, for instance, was more than seven times larger than Indiana's.

Indiana led all states in the share of employment in medical device manufacturing with an LQ of 2.8. This level was up from 2.0 in 1997, which was the largest LQ increase of the states in **Figure 7**.

Indiana Life Science Occupations

There is no mistaking Indiana's position at the forefront of the nation's life science industries. With 85 percent of employment in manufacturing-oriented firms, it stands to reason that Indiana's life science workforce would be more heavily concentrated in production-related occupations (see **Table 3**).

TABLE 3: Life Science Manufacturing and Research and Development Jobs by Occupation Type*

Type of Occupation	Indiana	United States
Production	28.8%	22.1%
Life, Physical, and Social Science**	n/a	17.7%
Office and Administrative Support	12.5%	12.8%
Management	10.7%	9.8%
Architecture and Engineering	6.1%	9.8%
Computer and Mathematical	5.5%	7.7%
Business and Financial Operations	8.1%	6.8%

*Only the top seven occupation types are displayed. Manufacturing jobs cover only pharmaceuticals (NAICS 3254) and medical devices (NAICS 3391).

**Indiana data are not available due to Indiana Department of Workforce Development non-disclosure requirements. Source: IBRC, using 2007 Indiana Department of Workforce Development and Bureau of Labor Statistics data

Does this mean that Indiana is simply a production hub? Or does the state support the high-skill, high-wage scientific and technical jobs commonly associated with this industry? Occupation data provide a useful supplement to industry-level trends and present a different perspective that can help answer this question.

The difference between the two perspectives—industry versus occupation—is that an establishment

classified as a pharmaceutical and medicine manufacturer, for instance, employs many different types of occupations. In addition to the production workers on the shop floor, there are administrative employees that take care of payroll and billing. There are managers, quality inspectors, financial analysts and custodians. There are also chemists and biologists. All of the above occupations are integral to the operation of a successful firm, but

TABLE 4: Summary of Indiana Life Science Occupations

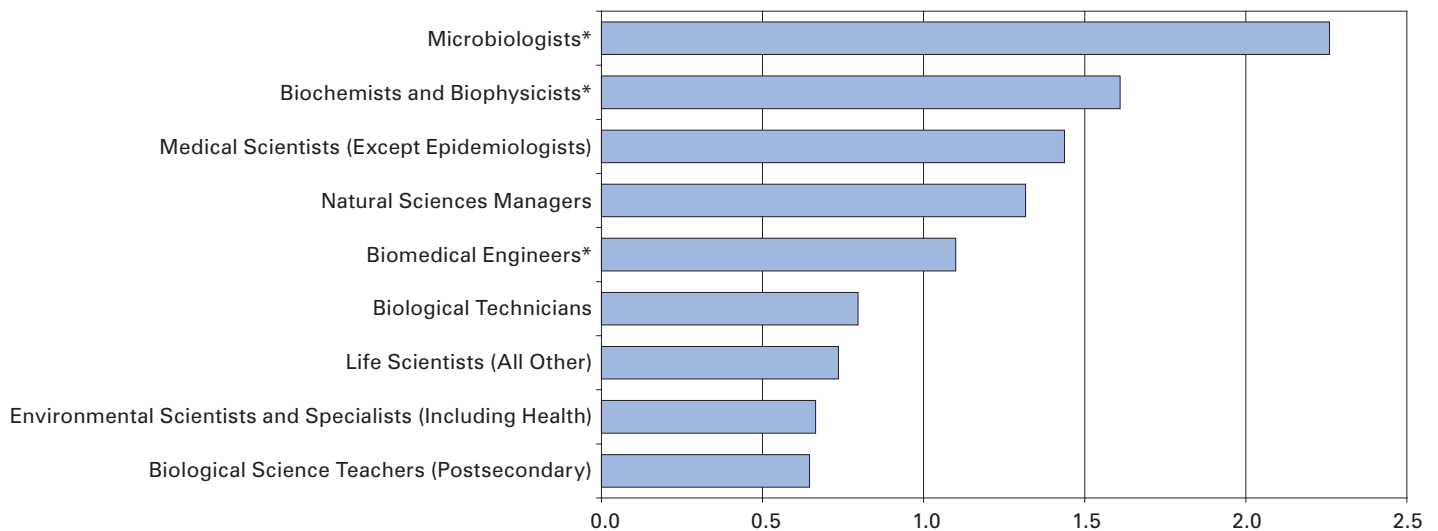
	Employment	Average Annual Employment Change, 2001–2007		Average Wage	
	Indiana	Indiana	United States	Indiana	United States
All Occupations	2,928,780	0.4%	0.8%	\$36,410	\$40,690
Medical Scientists, Except Epidemiologists	2,740§	47.3%§	10.6%	\$52,710	\$74,160
Biological Technicians	1,200	9.5%	7.7%	\$34,960	\$40,240
Environmental Scientists and Specialists, Including Health	1,160	4.2%	5.5%	\$55,870	\$63,870
Natural Sciences Managers	1,130	0.0%***	-1.3%	\$58,590	\$113,170
Microbiologists	780*	11.5%**	-1.0%	\$67,790*	\$66,430
Biological Science Teachers, Postsecondary	740	-3.3%	5.2%	\$71,200	\$84,130
Biochemists and Biophysicists	660*§	27.1%**§	3.2%	\$90,230	\$85,290
Biomedical Engineers	340*	6.1%**	13.2%	\$62,740	\$79,610
Life Scientists, All Other	200	n/a	n/a	\$56,250	\$66,930

*2006 data, ** 2001-2006 data, *** 2002-2007 data

§ The Occupational Employment Statistics survey reports large margins of error in 2007 for these occupations. As a result, the reader is strongly cautioned that actual industry and employment trends may conflict with published government—Bureau of Labor Statistics—data sources. Industry experts may provide a more accurate and complete analysis of regional or state industry structure.

Source: IBRC, using 2007 Bureau of Labor Statistics

■ FIGURE 8: Indiana Location Quotients by Life Science Occupation



*2006 data are the most recent available
Source: IBRC, using 2007 Bureau of Labor Statistics data

this section focuses on occupations requiring scientific or technical skills specific to the life sciences because they provide the knowledge-based foundation for future growth.

Indiana had 8,950 people employed in life science occupations in 2007 (see **Table 4**).³ While this figure makes up a small share of total employment (0.31 percent), it is slightly larger than the proportion of employment these occupations hold nationally (0.29 percent). The state's employment in nearly all life science occupations has grown since 2001.

With employment of 2,740, medical scientists comprise Indiana's largest life science occupation, growing from just 160 in 2001—a remarkable 47 percent average annual growth. Other occupations with significant growth include biochemists and biophysicists at a 27 percent annual average growth and microbiologists at 12 percent. Growth in each of these occupations outperforms national averages. Indiana's employment trend for postsecondary biological science teachers, the only life science occupation to contract over this period, is a point of concern given the growth seen nationally and the increased emphasis that is sure to be

placed on science and engineering education in the coming decades.

Figure 8 illustrates that Indiana had a location quotient above one in half of the life science occupations, indicating that these occupations' shares of total employment are larger in the state than nationally. Those with the highest LQs—namely microbiologists, biochemists and biophysicists, medical scientists, and natural science managers—offer some of the top salaries among life science occupations and require the highest levels of education and preparation according to the U.S. Department of Labor's O*NET framework. These high LQ values help to demonstrate that, although manufacturing as a business activity dominates the state's life science pursuits, Indiana firms also employ a higher-than-average number of highly skilled scientists and technicians.

Conclusion

Indiana's position as a life science leader is clear. The state is specialized in both life science industry employment and occupational employment. Perhaps more important, life science is a source of strong growth for the state at a time

when other industries are facing challenges. From an employment perspective, gains in the life science industry alone will not offset job losses experienced in some of Indiana's traditional manufacturing sectors. Continued efforts to cultivate this industry will play an important role in Indiana's efforts to reposition its economy for the future.

For more information, view the full report online at www.ibrc.indiana.edu/studies/life-science-industries_2009.pdf. ■

Notes

1. For the purposes of this article, the life science industry consists of establishments engaged in the research and development, manufacture, or wholesale distribution of life science products (e.g. pharmaceuticals, medical devices, etc.). Health care delivery is not included. See the full report for a detailed industry definition (www.ibrc.indiana.edu/studies/life-science-industries_2009.pdf).
2. Location quotient is a measure of industry concentration which in this article calculates a ratio of an industry's share of total employment locally to its share nationally. The national average equals 1 and an LQ above 1 indicates that a state is more specialized than the nation in that industry.
3. Data for some occupations are unavailable for 2007 due to non-disclosure policies. When possible, data for previous years are used and denoted with asterisks in Table 4.

The Economic Footprint of Indiana's Community Health Centers

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Beyond providing accessible, high-quality health care, Indiana's Community Health Centers (CHCs) also have a significant economic presence at both the state and county level.

There are roughly eighty-five CHC facilities that operate primarily in 40 counties across the state. CHCs provide primary health care services by state-licensed professionals to community members.

This article highlights findings from a recent study commissioned by the Indiana State Department of Health and the Indiana Primary Health Care Association and conducted by the Indiana Business Research Center (IBRC).¹ The study utilized a web-based survey of CHC administrators. Seventy out of the state's eighty-one sites in operation during this period responded for a response rate of 86 percent.²

Methodology

The expenditure data was analyzed using IMPLAN, an input-output modeling software that tracked the economic linkages associated with CHC expenditures.³ In a manner of speaking, this approach tracks the money that re-circulates in a local or regional economy. For example, as money moves from the nurse at a CHC to the auto mechanic, to the proprietor of the local bait and tackle shop—the money circulating through the economy. This approach measures the effect of the direct spending of a typical CHC as well as its ripple effects. Direct effects have to do with the change in dollars or employment associated with the direct spending of a CHC.⁴

In addition to estimating the economic ripple effects of CHCs, the estimated value of gifts-in-kind

TABLE 1: Statewide Economic Footprint of Indiana's Community Health Centers

	Direct Effects	Ripple Effects	Total
Purchases	\$36,478,880	\$28,838,205	\$65,317,084
Construction	\$7,179,714	\$5,593,336	\$12,773,050
Payroll	\$82,422,866	\$34,074,000	\$116,496,865
All	\$126,081,460	\$68,505,541	\$194,586,999

Source: IBRC, using 2007 IMPLAN model results from data obtained through the Community Health Center Survey

TABLE 2: Statewide Employment Effects and State and Local Tax Effects of Indiana's Community Health Centers

	Direct Effects	Ripple Effects	Total	State and Local Tax Effects
Purchases	256	247	502	\$2,418,597
Construction	73	49	122	\$492,445
Payroll	532	290	822	\$6,100,294
All	861	586	1,446	\$9,011,336

Source: IBRC, using 2007 IMPLAN model results from data obtained through the Community Health Center Survey

donated by private companies and nonprofit organizations was developed. Gifts-in-kind, such as patient medications, medical devices and non-medical supplies comprise a significant form of support for a community clinic. In a sense, state appropriation and private foundation funding leverage additional support in the form of gifts-in-kind.

CHCs also leverage resources in the form of volunteers—volunteers who would command a significant level of compensation if they were on the payroll. To estimate the value of each type of volunteer service, an equivalent occupation and compensation based on data from the U.S. Bureau of Labor Statistics was assigned.⁵

Statewide Economic Footprint

Indiana's Community Health Centers had an estimated economic footprint of \$195 million. The majority of this sum, \$126 million, is the result of direct spending of CHCs (see **Table 1**). The economic ripple effects total

\$68 million. For every dollar spent directly by the average CHC, there is an additional 54 cents of economic activity within the state.

CHCs also generate an estimated 1,446 jobs across the state, including 861 jobs directly and an additional 586 jobs through economic ripple effects (see **Table 2**).

Spending by CHCs and the economic ripple effects of that spending also produce a wide range of tax revenues for state and local governments. **Table 2** shows that these taxes total more than \$9 million.

County-Level Economic Footprint

At the county level, the economic footprint of CHCs vary according to the relative number, size and spending of operations within each county. **Table 3** shows that CHCs within Marion County had an economic footprint of \$35 million, accounting for 233 jobs and \$1.6 million in state and local taxes.

Typically, counties with larger economies will also have larger

multipliers. In the same way, the state as a whole has a larger multiplier than any one county. As one would expect, **Figure 1** shows that Marion County (with twenty-two CHCs) and St. Joseph County (with six primary CHCs) are among the ten counties where each dollar of CHC spending generates an additional 30 cents or more of spending in the local economy.

However, even though Allen County has only one CHC, it is also among this group of counties with

a greater multiplier. This suggests that a relatively high proportion of this CHC's purchases are sourced in Allen County and that a relatively high proportion of its staff live in the county.

Gifts-in-Kind

CHCs reported an estimated \$9 million in donations from local (within county) sources. For the centers reporting gifts-in-kind, these non-monetary forms of support are equal to about half of the \$18 million

they receive from private payments within the county and three times as much as they receive from local governments (see **Figure 2**).

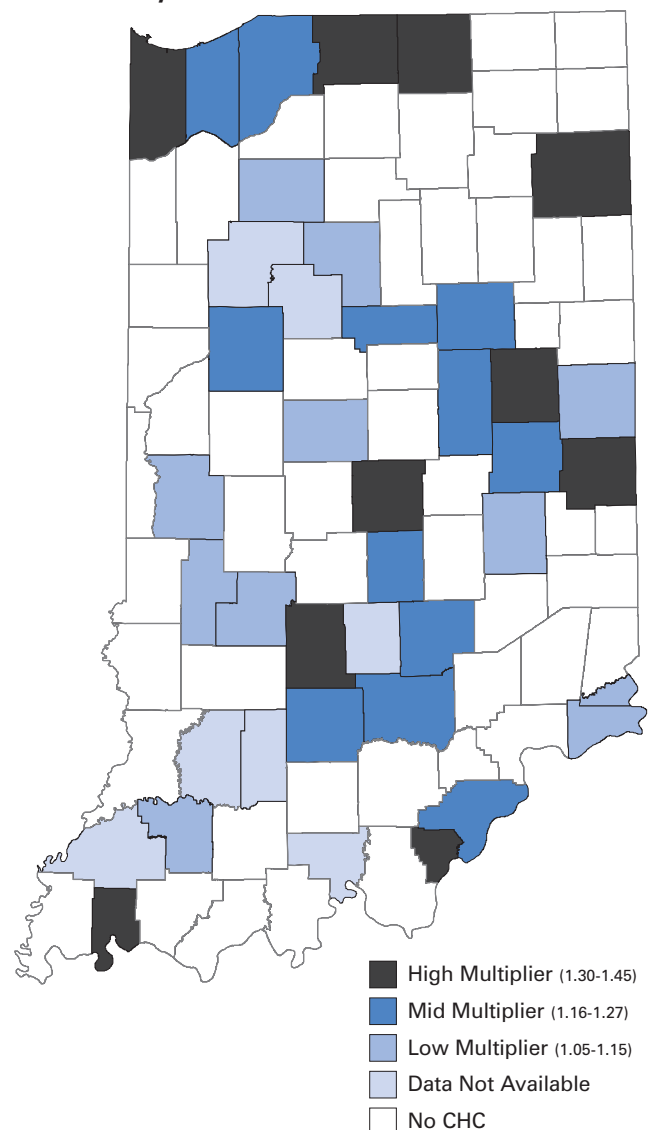
Considering income from all geographic sources, the reported value of gifts-in-kind is more than \$14 million, higher than 10 percent of the value of all monetary income sources (\$125 million). **Figure 3** illustrates that the value of gifts-in-kind contributions is slightly higher than state funding (\$13 million) reported by centers that completed the survey.

TABLE 3: County-Level Economic Footprints of Indiana's Community Health Centers, 2007

County	Economic Impact	Employment	State and Local Tax
Marion*	\$35,663,313	233	\$1,624,799
Lake	\$5,846,518	45	\$254,830
Porter	\$5,661,423	38	\$240,627
St. Joseph*	\$5,160,293	39	\$224,067
Allen	\$4,553,994	34	\$199,866
Delaware	\$3,367,334	27	\$149,457
Vanderburgh	\$3,303,562	25	\$138,317
Elkhart	\$3,219,154	24	\$124,690
Tippecanoe*	\$2,765,262	19	\$113,105
Wayne	\$1,885,083	16	\$75,458
Howard	\$1,800,782	12	\$67,549
Johnson	\$1,573,998	11	\$72,431
Randolph	\$1,538,291	9	\$52,022
Madison	\$1,389,042	11	\$58,770
Floyd	\$1,343,329	12	\$46,550
Clark	\$1,037,310	8	\$44,086
Jackson	\$1,021,707	7	\$40,110
Grant	\$832,566	7	\$32,347
Cass	\$745,795	5	\$26,213
Rush	\$613,397	3	\$20,625
LaPorte	\$562,261	4	\$25,647
Parke	\$378,402	2	\$12,044
Ohio	\$377,524	4	\$12,415
Monroe	\$363,289	3	\$14,864
Clay	\$347,691	2	\$11,434
Lawrence	\$309,389	2	\$12,431
Pike	\$255,914	1	\$7,182
Boone	\$138,714	1	\$5,608
Switzerland	\$125,929	1	\$3,327
Henry	\$124,573	1	\$4,828
Pulaski	\$91,885	1	\$3,076
Owen	\$83,628	1	\$2,343
Bartholomew	\$65,459	1	\$2,549

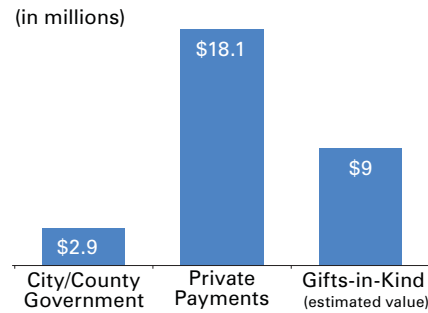
*The figures for Marion, St. Joseph, and Tippecanoe counties do not include estimates for a few centers that did not complete the Community Health Center Survey. Note: Community Health Centers in Brown, Carroll, Crawford, Daviess, Gibson, Martin, and White counties did not complete the survey. Source: IBRC, using IMPLAN model results from data obtained through the Community Health Center Survey

FIGURE 1: Comparison of Economic Multipliers by County for Community Health Centers Active in 2007



Note: The figures for Marion, St. Joseph, and Tippecanoe counties do not include estimates for a few centers that did not complete the Community Health Center Survey. Additionally, community health centers in Brown, Carroll, Crawford, Daviess, Gibson, Martin, and White counties did not complete the survey. Source: IBRC, using IMPLAN model results from data obtained through the Community Health Center Survey

FIGURE 2: County-Level Revenue Sources for Indiana Community Health Centers, 2007



Note: These figures reflect only the totals reported by centers that completed the survey.
Source: IBRC, using IMPLAN model results from data obtained through the Community Health Center Survey

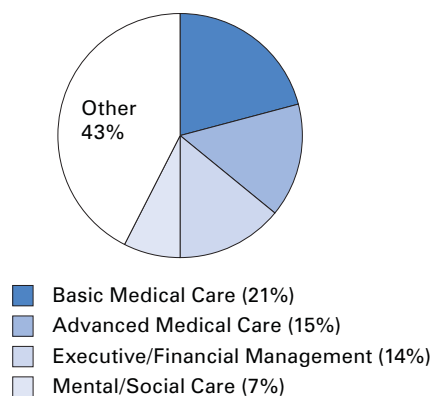
This suggests that every dollar appropriated by the state is matched by \$1.07 in non-monetary support.

Volunteering

Volunteers further augment CHC support by way of unpaid hours of service. **Figure 4** shows that the most popular volunteer activities reported were basic medical care (21 percent of all volunteer hours) and advanced medical care (15 percent). Together these medical activities amounted to over 25,000 hours of annual volunteer service. Another 10,000 volunteer hours were devoted to advisory boards or financial services.

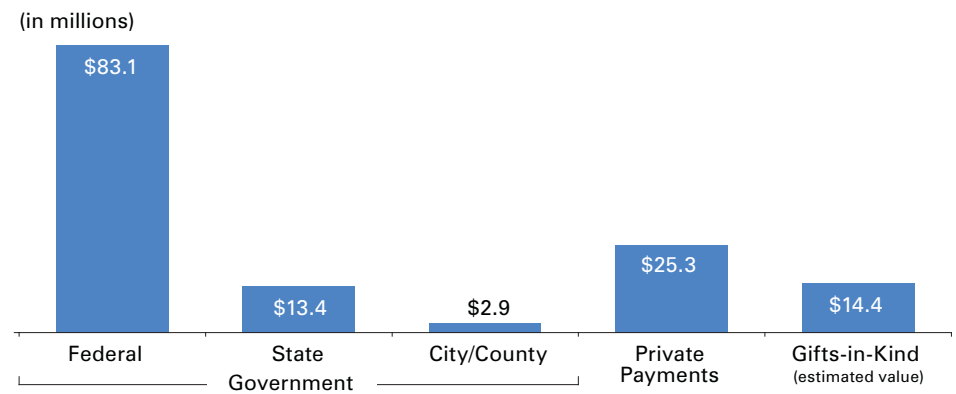
Table 4 summarizes the estimated value of CHC volunteer-related activities for those centers that reported volunteer activity. The conservative estimate of these 71,000 hours of service is \$945,000.

FIGURE 4: Volunteer Activity for Indiana CHC Staff, 2007



Source: IBRC, using IMPLAN model results from data obtained through the Community Health Center Survey

FIGURE 3: All Income Sources for Indiana Community Health Centers, 2007



Note: These figures reflect only the totals reported by centers that completed the survey.
Source: IBRC, using IMPLAN model results from data obtained through the Community Health Center Survey

Conclusion

Statewide, the economic footprint of Indiana's Community Health Centers is nearly \$200 million. Every dollar of direct spending by CHCs generates another \$0.54 in economic ripple effects in the state. Gifts-in-kind totaled an additional \$14 million and volunteering activities at CHCs an equivalent value of approximately \$945,000.

CHCs not only play a crucial role in providing accessible health care but also have a significant economic footprint at both the state and county level. Given that state appropriations are able to leverage additional resources—gifts-in-kind and volunteer service—that equal if not exceed those appropriations, there is no exaggeration in saying

that community health centers are an excellent value. ■

Notes

1. The full report is available at www.ibrc.indiana.edu/studies/Community_Health_Centers_2009.pdf.
2. A few centers have opened and others have closed during the past year. More information is available from the Indiana State Department of Health, Primary Care Office document: "Mapping Indiana Community Health Centers, Fiscal Year 2008," www.in.gov/isdh/files/CHC_and_maps_GIS_08.pdf. IBRC analysts estimated expenditures of missing centers for statewide calculations.
3. More IMPLAN information is available at http://implan.com/index.php?option=com_content&task=blogcategory&id=83&Itemid=28.
4. Please see the full report for complete methodological details.
5. Total compensation (wages and legally-required benefits) is further discounted at 73 percent using a factor of proportionality. Scholarly support for such an approach comes from: Eleanor Brown, "Assessing the Value of Volunteer Activity," *Nonprofit and Voluntary Sector Quarterly*, 1999, 28(3): 3-17.

TABLE 4: Estimated Economic Impact for Volunteering Activities of Indiana Community Health Center Staff, 2007

Volunteer Role	Total Annual Hours	Equivalent Hourly Compensation	Total Equivalent Compensation/Year
Advanced Medical Care	10,655	\$39.25	\$418,234
Basic Medical Care	14,831	\$14.29	\$211,925
Mental/Social Care	5,208	\$19.48	\$101,445
Executive/Financial Management	10,287	\$24.26	\$249,563
Other	30,402	\$10.32	\$313,833
Total	71,383		\$1,295,001
Overall Economic Impact of Volunteering (using 73% price-to-client value ratio)			\$945,351

Note: These figures only include data for the 56 centers that submitted volunteer information in the survey. Equivalent hourly compensation is based on wages and benefits of similar occupations. The overall economic impact assumes a 0.73 market price-to-client value ratio as discussed in the full report.
Source: IBRC, using IMPLAN model results from data obtained through the Community Health Center Survey

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