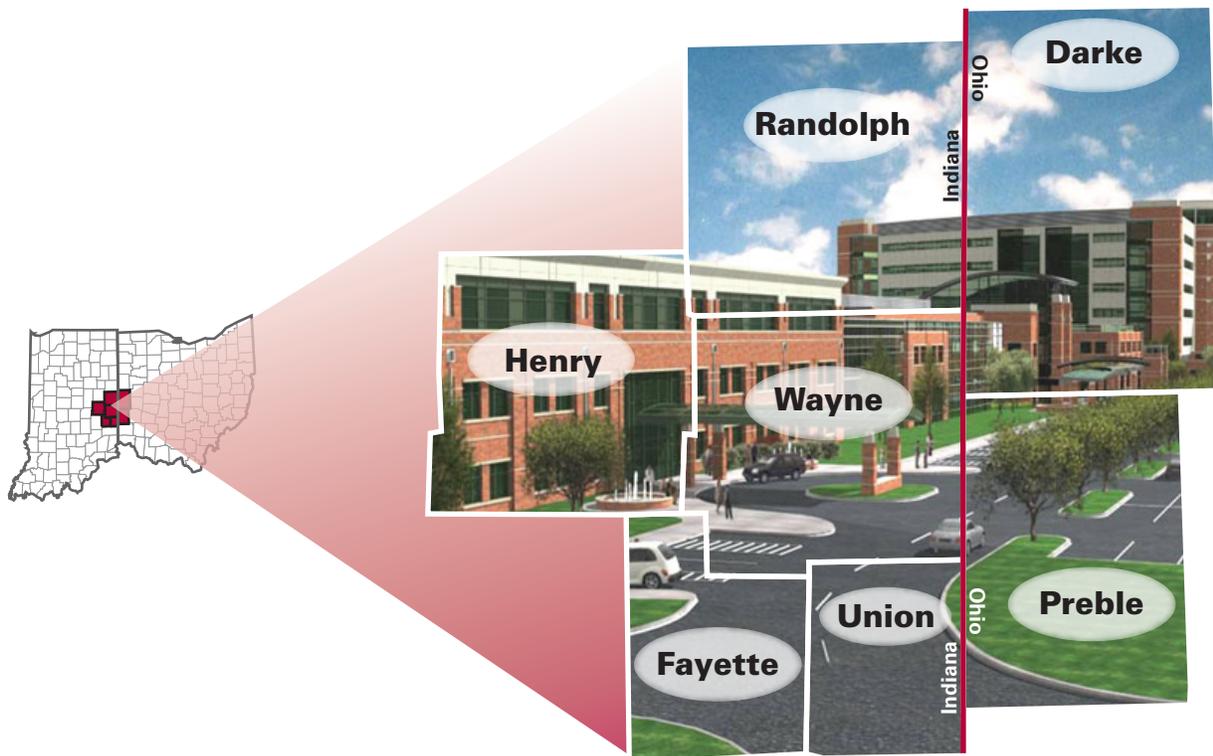


Economic Impact of the New Reid Hospital

FEBRUARY 2006



A report prepared by
Jerry N. Conover, Director
and Vincent B. Thompson, Economic Research Analyst


Reid Hospital
& Health Care Services

Indiana Business Research Center at the
Indiana University Kelley School of Business
www.ibrc.indiana.edu



THE ECONOMIC IMPACT OF THE NEW REID HOSPITAL ON WAYNE AND SURROUNDING COUNTIES

EXECUTIVE SUMMARY

- This study estimates the economic impact of the new Reid Hospital on the seven-county region consisting of Wayne, Randolph, Henry, Fayette and Union counties in Indiana; and Darke and Preble counties in Ohio. The analysis considers only the goods and services provided by businesses within the seven-county region. Thus, impacts on construction and professional services provided by firms from outside the region are not reflected.
- The widely used IMPLAN economic modeling software was used to create the models that generated these estimates. These models allow quantification of the “multiplier” effects that result from dollars circulating and recirculating throughout the local economy (indirect and induced effects).
- Reid Hospital directly employs 1,563, and an additional 1,305 jobs are created within the seven-county region due to indirect and induced impacts.
- To date, the new Reid Hospital construction completed by contractors from within the seven-county region has directly contributed about \$2.6 million to the gross state product (GSP), with a total contribution to GSP of nearly \$4.9 million. The state and local tax impact has been about \$400,000.
- The construction project is expected to create an annual average of 54 construction jobs for contractors within the seven-county region, plus an additional 31 jobs in the region’s economy due to multiplier effects.
- The portion of the overall construction project completed by contractors from within the region is expected to directly contribute about \$4.6 million to GSP, while the contribution is expected to total nearly \$8.5 million after adding in the indirect and induced impacts. The impact on state and local taxes is projected to total about \$700,000.
- The average annual impacts associated with all Reid activities during the construction phase create demand for 1,619 jobs within the region, and a total of nearly 3,000 jobs after considering multiplier effects. The estimated average annual state and local tax impacts total nearly \$9 million.
- Not included in this report is the establishment of the Reid Medical Office Building, LLC, a for profit entity, which will add \$33.8 million to local tax revenues over the next 30 years.

THE ECONOMIC IMPACT OF THE NEW REID HOSPITAL ON WAYNE AND SURROUNDING COUNTIES

Introduction

Construction of the new Reid Hospital is currently underway, and hospital managers desire a greater understanding of the project's economic impacts on the seven-county region consisting of Wayne and surrounding counties.¹ In order to aid management decision making, as well as to help facilitate communication of these impacts to local governments and the general public, Reid Hospital management asked the Indiana Business Research Center (IBRC) at Indiana University's Kelley School of Business to prepare this report.

Reid staff provided the IBRC with basic assumptions about hospital operations and the scope of the construction project, and shared relevant financial data and projections for use as inputs to our economic models. Some of these assumptions include the following:

- Job growth is expected by Reid administration but not assumed in this study. Employment is conservatively projected by the study at the current 1,563 employees.
- Visitors to patients are estimated to have spent more than \$1.5 million within the region in 2004, excluding spending at the hospital cafeteria and gift shop. Visitors from outside the seven-county region spent about \$68,000 of this, while visitors from outside Wayne County accounted for well over \$500,000.
- Total construction expenditures for the project are expected to exceed \$200 million, with more than \$12 million of this business expected to go to contractors from within the region.
- As of October 2005 billing, expenditures for architectural, engineering, interior design, legal, and other consulting services totaled more than \$16 million. Nearly \$60,000 of this business went to firms within the region.

The overall impact on the local economy substantially exceeds the direct impacts of the activities outlined above. Due to recirculation of funds within the region, dollars are spent and re-spent many times to create a multiplier effect, which generates additional dollars in the local economy. This study estimates the direct effects of the above activities as well as the multiplier effects, both during the construction phase and during subsequent operation. In addition, the study estimates the impacts of these activities on taxes at the state and local levels.

¹ The seven-county region includes Wayne, Randolph, Henry, Fayette and Union counties in Indiana, plus Darke and Preble counties in Ohio.

This study estimates only monetary impacts. It should be noted that any major new construction project may have non-monetary impacts on a region, such as contributions of firms and their employees to community activities and charitable causes, impacts on public services, benefits of improved infrastructure, and so on. However, these non-monetary impacts were not taken into account in the present analysis.

Methodology

This study was completed using a national input-output (I-O) model. These types of models are often used to estimate the impact on a local economy of a given event or of a particular entity. The model is used to analyze impacts that result from a change in demand for a particular good or service affecting an area.

Input-output models measure three distinct effects, and they can be used to measure the impacts of either an increase or a decrease in economic activity. For example, I-O models can be used to measure the impact of a new manufacturing plant in a community or the impact suffered when a military base closes in an area.

If we wish to estimate the impact of a new activity (e.g., building and operating the new Reid Hospital), we first consider the increase in demand for the goods or services this type of activity produces, which is called the *direct effect*.

The direct effect prompts those satisfying the demand (e.g., Reid Hospital) to purchase additional inputs (both labor and material inputs) to meet the increased demand. Some of this demand is satisfied by businesses within the region, and this creates a ripple or multiplier effect in the local economy. Called the *indirect effect*, this results when local businesses gear up to provide these inputs. To accomplish this, these firms increase their purchase of inputs from other producers, some of whom may be local. In addition, those producers must also increase hiring of workers necessary to produce the desired goods and services.

Furthermore, the increase in local employment due to direct and indirect effects will increase the incomes of households in the region. These households, in turn, spend a portion of this additional income in the local area (on groceries, dry cleaning, gasoline, etc.). Their spending stimulates even more demand for output and creates additional employment opportunities in the region. This tertiary increase in economic activity, called the *induced effect*, is a reflection of the changes in the area's household incomes.

Finally, the *total effect* of a change in demand is merely the sum the direct, indirect, and induced effects.²

The model recognizes that a portion of the economic activity generated by changes in demand in an area will occur outside that region. This is called *leakage*, and these expenditures stimulate activity in regions elsewhere instead of locally and thus must be subtracted out of the local impact. For example, not all of the proceeds from gasoline sales remain in the local area. The crude oil is pumped at the source and refined at

² Definitions are provided later in this report for terms used in impact modeling.

facilities throughout the world. Furthermore, transporting the final product (gasoline) to the local area is often provided by individuals who don't reside here and by firms that are not located here. The local residents and firms only become involved in the final stage where the consumer purchases the final product. Therefore, much of the value of a gallon of gasoline will be used to fund the activities of those entities that produce and transport the gasoline to the local service stations and should not be counted as part of the local impact.

The specific model used for this study, developed by the Minnesota IMPLAN Group, Inc., is used nationwide for economic impact studies. The IMPLAN model tends to be more conservative than other models, which tend to overestimate the induced impact effects. IMPLAN, which refers to IMpact analysis for PLANning, utilizes a computer program to adapt national input-output tables to county and state tables, thereby allowing for impact estimates to be generated at the local level. The smallest geographic region that IMPLAN uses is the county; therefore, the local region is synonymous with one or more counties.

In the case of this analysis, the local region was defined as the seven-county area consisting of Wayne and surrounding counties. Of course, the economic activities outlined here will affect the economies of other counties and even other states; but the focus of this analysis is only the impacts on the seven-county area.

The Impact of the New Reid Hospital

The impact of new Reid Hospital is separated into four distinct components. The first component is that of current Reid Hospital operations. The magnitude of this impact is assumed not to change significantly after the move to the new facility, so it is used as a proxy for future annual operations impacts. The second component is visitor spending. Only the spending of visitors from outside the region is included in this component. The third component is the construction of the new Reid Hospital. This component includes only the work performed by firms from within the region. The fourth and final component combines other professional services, such as architectural, engineering, and interior design services related to the new construction. Again, only those services provided by firms from within the region are included. These impacts are presented separately below, showing for each the direct impact and the total impact, which combines direct, indirect and induced effects.

Each impact is expressed in four forms: impacts on employment, output, total value added, and state/local taxes. The employment impact represents the number of jobs attributed to the economic activity. The output impact reflects the dollar value of the goods or services provided. The total-value-added impact represents the additional money generated in the region's economy. Viewed another way, the total-value-added impact is the increase in the region's contribution to the gross state product³ as a result of the economic activity. Finally, impacts are estimated for the combined effects on state and local taxes.

³ Gross state product is, in essence, the total value of goods and services produced in the state.

Impact of Hospital Operation

Assuming a payroll of 1,563 employees, we arrive at an estimated direct value-added impact of about \$78.5 million per year (in 2005 dollars). As shown in Table 1, IMPLAN estimates that these 1,563 jobs stimulate demand for more than 1,300 additional jobs in the local economy (indirect and induced effects) for a total employment impact of nearly 2,900 jobs. The wages generated by these additional jobs bring the total value-added impact to more than \$130 million annually.

In addition, economic activities related to the direct, indirect and induced impacts of hospital operations are estimated to add more than \$8.7 million to state and local tax revenues.

**TABLE 1: ECONOMIC IMPACT OF
REID HOSPITAL OPERATIONS**

ANNUAL IMPACT ON THE SEVEN-COUNTY REGION

IMPACT TYPE	DIRECT ⁴	ESTIMATED TOTAL IMPACT ⁵
EMPLOYMENT (Number of jobs)	1,563.0	2,868.7
TOTAL OUTPUT ⁶	\$ 188,301,168	\$ 280,963,891
TOTAL VALUE ADDED	\$ 78,586,000	\$ 130,607,095
Labor Income	\$ 77,345,064	\$ 109,054,599
Employee Compensation	\$ 77,345,064	\$ 105,829,454
Proprietors' Income	\$ 0	\$ 3,225,145
Other Property Type Income	\$ 549,787	\$ 15,940,629
Indirect Business Taxes	\$ 691,137	\$ 5,611,852
STATE & LOCAL TAX IMPACT		\$ 8,714,844

Note: Monetary values are stated in 2005 dollars. Total impacts are based on 2001 IMPLAN multipliers.

⁴ Estimates of direct annual impacts are based on information provided by Reid Hospital staff.

⁵ Each total impact is the sum of the direct, indirect and induced impacts as estimated by the IMPLAN model.

⁶ In a manufacturing sense, total output is equal to sales plus or minus inventory. However, for an intangible service, total output is simply the value of the service provided.

Impact of Visitor Spending

Based on estimates provided by Reid Hospital staff, people who visited patients at the hospital in 2004 spent more than \$1.5 million in the region. This conservative figure excludes spending in the hospital cafeteria and gift shop. However, for this analysis we take into consideration only the spending by visitors from outside the region, which is estimated to have been about \$68,000 in 2004. The dollars spent by visitors from within the region are not "new" dollars to the region, so they are not included in this analysis.

Note that the direct output impact reported in Table 2A is less than the spending estimate provided by Reid Hospital staff. This is because some spending is attributed to the retail sector, and that portion of the impact is adjusted to only reflect the retailers' markup. In other words, the leakage is subtracted out (see the bottom of page 2 of this report for a discussion of leakage).

The total contribution to gross state product related to the direct, indirect and induced impacts of spending by visitors from outside the region is estimated to be about \$41,000. The impact on state and local taxes is about \$5,600.

TABLE 2A: ECONOMIC IMPACT OF SPENDING* BY VISITORS FROM OUTSIDE THE REGION

ANNUAL IMPACT ON THE SEVEN-COUNTY REGION

IMPACT TYPE	DIRECT	ESTIMATED TOTAL IMPACT
EMPLOYMENT (Number of jobs)	1.2	1.6
TOTAL OUTPUT	\$ 53,954	\$ 78,643
TOTAL VALUE ADDED	\$ 27,653	\$ 41,090
Labor Income	\$ 20,046	\$ 28,090
Employee Compensation	\$ 16,699	\$ 23,919
Proprietors' Income	\$ 3,347	\$ 4,171
Other Property Type Income	\$ 3,761	\$ 7,878
Indirect Business Taxes	\$ 3,847	\$ 5,122
STATE & LOCAL TAX IMPACT		\$ 5,636

Note: Monetary values are stated in 2005 dollars. Total impacts are based on 2001 IMPLAN multipliers.

* These impacts exclude spending at the hospital gift shop and cafeteria, so they are conservative.

Since the impact of spending by visitors from outside the seven-county region is rather modest, we also ran a model to estimate the impact of spending by visitors from outside Wayne County. This allows us to take in consideration a larger amount of dollars “new” to that county’s economy. As shown in Table 2B, the estimated direct, indirect and induced impacts of visitor spending on Wayne County result in an increase of about \$264,000 in the contribution to gross state product, and these impacts create about 10 Wayne County jobs. The impact on state and local taxes exceeds \$35,000.

TABLE 2B: ECONOMIC IMPACT OF SPENDING* BY VISITORS FROM OUTSIDE WAYNE COUNTY

ANNUAL IMPACT ON WAYNE COUNTY

IMPACT TYPE	DIRECT	ESTIMATED TOTAL IMPACT
EMPLOYMENT (Number of jobs)	7.8	9.7
TOTAL OUTPUT	\$ 322,959	\$ 481,846
TOTAL VALUE ADDED	\$ 173,259	\$ 263,863
Labor Income	\$ 127,965	\$ 181,689
Employee Compensation	\$ 109,788	\$ 158,386
Proprietors’ Income	\$ 18,177	\$ 23,303
Other Property Type Income	\$ 20,695	\$ 48,707
Indirect Business Taxes	\$ 24,598	\$ 33,467
STATE & LOCAL TAX IMPACT		\$ 35,673

Note: Monetary values are stated in 2005 dollars. Total impacts are based on 2001 IMPLAN multipliers.

* These impacts exclude spending at the hospital gift shop and cafeteria, so they are conservative.

Impacts of the New Reid Hospital Construction

As shown in Table 3, IMPLAN estimates that the locally-satisfied demand for construction to-date was enough to employ about 93 workers from within the region for one year. The total employment impact of construction is 147 jobs. Although this table gives cumulative impacts representing work completed since 2001, the vast majority of this work was completed in 2005.

Note that the direct impact for Other Property Type Income is negative. This is because corporate profits for the construction sector in this region have been negative. This is not uncommon for some industrial sectors (e.g., the airline transportation industry).

Assuming that the 93 direct-employment workers are paid the regional average wage for this class of construction, the total-value-added direct impact on the local economy is over \$2.6 million. Adding in the total value added by indirect- and induced-effect employment brings the total impact of construction to-date, in value-added terms, to more than \$4.8 million. The impact to-date on state and local taxes is over \$400,000.

TABLE 3: ECONOMIC IMPACT OF NEW REID HOSPITAL CONSTRUCTION TO-DATE

IMPACT ON THE SEVEN-COUNTY REGION

CUMULATIVE IMPACT AS OF OCTOBER 2005 BILLING

IMPACT TYPE	DIRECT	ESTIMATED TOTAL IMPACT
EMPLOYMENT (Number of jobs)	93.2*	147.0*
TOTAL OUTPUT	\$ 7,355,884	\$ 11,378,996
TOTAL VALUE ADDED	\$ 2,644,034	\$ 4,872,402
Labor Income	\$ 2,997,732	\$ 4,372,625
Employee Compensation	\$ 2,356,828	\$ 3,597,786
Proprietors' Income	\$ 640,904	\$ 774,840
Other Property Type Income	\$ (413,293)	\$ 216,791
Indirect Business Taxes	\$ 59,595	\$ 282,986
STATE & LOCAL TAX IMPACT		\$ 403,678

Note: Monetary values are stated in 2005 dollars. Total impacts are based on 2001 IMPLAN multipliers.

* These employment estimates are based on the assumption that all work completed by regional contractors took place within a one-year period. In other words, if the work were completed within one year, these are the average employment levels that would have been sustained in the region.

Impacts of Other Professional Services

Table 4 shows the cumulative impacts of professional services related to the construction project. The majority of these expenditures are for architectural and engineering services. According to Reid Hospital staff, nearly \$60,000 worth of these services was provided by businesses within the region. The contribution to gross state product associated with the direct, indirect and induced impacts totals about \$58,000. The state and local tax impact is about \$2,900.

TABLE 4: ECONOMIC IMPACT OF ARCHITECTURAL, ENGINEERING, INTERIOR DESIGN, LEGAL, & OTHER CONSULTING SERVICES TO-DATE			
IMPACT ON THE SEVEN-COUNTY REGION			
CUMULATIVE IMPACT AS OF OCTOBER 2005 BILLING			
IMPACT TYPE	DIRECT		ESTIMATED TOTAL IMPACT
EMPLOYMENT (Number of jobs)	0.9*		1.2*
TOTAL OUTPUT	\$	59,720	\$ 83,470
TOTAL VALUE ADDED	\$	44,131	\$ 57,969
Labor Income	\$	30,165	\$ 38,456
Employee Compensation	\$	24,001	\$ 31,433
Proprietors' Income	\$	6,164	\$ 7,023
Other Property Type Income	\$	13,625	\$ 17,903
Indirect Business Taxes	\$	341	\$ 1,610
STATE & LOCAL TAX IMPACT			\$ 2,869

Note: Monetary values are stated in 2005 dollars. Total impacts are based on 2001 IMPLAN multipliers.

* These employment estimates are based on the assumption that all services provided by regional firms were performed within a one-year period. In other words, if these services were carried out within one year, these are the average employment levels that would be sustained in the region.

Projected Impacts of the New Reid Hospital Construction

The estimated impacts of the overall construction project are shown in Table 5. The employment impacts are based on the assumption that the project will be completed within a three-year period.

In total, the construction project creates enough demand from area firms to directly employ an average of 54 workers for three years. Indirect and induced effects create demand for another 31 jobs on average throughout the three-year period. Note that these average annual employment figures are substantially lower than the employment figures reported in Table 3 for construction to-date. This reflects Reid Hospital staff's expectation that the proportion of construction work completed by firms from within the region will decrease as the project progresses. The total-value-added impact for the entire project is estimated to be nearly \$8.5 million. The total impact on state and local taxes is estimated at about \$700,000.

**TABLE 5: PROJECTED IMPACT OF THE ENTIRE
NEW REID HOSPITAL CONSTRUCTION PROJECT**

IMPACT ON THE SEVEN-COUNTY REGION

IMPACT TYPE	DIRECT	ESTIMATED TOTAL IMPACT
EMPLOYMENT (Number of jobs)	54.0*	85.2*
TOTAL OUTPUT	\$ 12,796,250	\$ 19,794,832
TOTAL VALUE ADDED	\$ 4,599,545	\$ 8,476,001
Labor Income	\$ 5,214,836	\$ 7,606,592
Employee Compensation	\$ 4,099,923	\$ 6,258,686
Proprietors' Income	\$ 1,114,913	\$ 1,347,906
Other Property Type Income	\$ (718,961)	\$ 377,129
Indirect Business Taxes	\$ 103,671	\$ 492,281
STATE & LOCAL TAX IMPACT		\$ 702,235

Note: Monetary values are stated in 2005 dollars. Total impacts are based on 2001 IMPLAN multipliers.

* These are average annual employment estimates, and are based on the assumption that all work completed by regional contractors will take place within a three-year period. In other words, if the work would be completed within three years, these are the average annual employment levels that would be sustained in the region throughout the period.

Combined Annual Impacts during the Construction Phase

The estimated combined annual impacts of the four distinct components—hospital operations, visitor spending, professional services, and construction—are displayed in Table 6. The direct impacts account for an annual average of 1,619 jobs during the three-year construction phase, with a total employment impact of 2,956. The direct contribution to gross state product exceeds \$80 million, and the total contribution is about \$133.5 million. The estimated average annual state and local tax impacts total nearly \$9 million.

TABLE 6: COMBINED ECONOMIC IMPACTS* DURING CONSTRUCTION PHASE

AVERAGE ANNUAL IMPACT ON THE SEVEN-COUNTY REGION

IMPACT TYPE	DIRECT	ESTIMATED TOTAL IMPACT
EMPLOYMENT (Number of jobs)	1,619.1	2,956.7
TOTAL OUTPUT	\$ 192,675,993	\$ 287,717,682
TOTAL VALUE ADDED	\$ 80,189,433	\$ 133,528,662
Labor Income	\$ 79,131,816	\$ 111,654,140
Employee Compensation	\$ 78,751,038	\$ 107,968,948
Proprietors' Income	\$ 380,777	\$ 3,685,192
Other Property Type Income	\$ 327,759	\$ 16,091,994
Indirect Business Taxes	\$ 729,847	\$ 5,782,513
STATE & LOCAL TAX IMPACT		\$ 8,957,193

Note: Monetary values are stated in 2005 dollars. Total impacts are based on 2001 IMPLAN multipliers.

* The numbers displayed in this table were derived from an aggregation of tables 1, 2A, 4, and a recalculated version of table 5 reflecting average annual impacts over a three-year period.

Disclaimer

The IBRC has conducted this analysis according to generally accepted input-output modeling practices based on information provided by the IMPLAN model and by Reid Hospital management.

Operation of any business enterprise is subject to numerous variables beyond the scope of this analysis; thus, the IBRC cannot guarantee that the estimated impacts will, in fact, occur.

Impact Model Definitions

- **Direct Impact** – the change for a given industry (in employment, output, etc.) based on a change in final demand for that same industry.
- **Employee Compensation Impact** – the change in wages and salaries, plus benefits.
- **Employment Impact** – the change in the number of jobs.
- **Final Demand** – the dollar value of goods and services purchased by their ultimate consumer.
- **Indirect Business Taxes Impact** – the change in sales taxes, excise taxes, property taxes, etc., paid by businesses. Does NOT include taxes on profit or income.
- **Indirect Impact** – the impacts caused by industries purchasing from industries resulting from direct final demand changes. In other words, the impacts due to changes in business-to-business activity.
- **Induced Impact** – the change in household consumption demand generated by the direct and indirect effects of final demand changes.
- **Labor Income Impact** – the change in employee compensation and proprietors' income.
- **Leakage** – changes in economic activity that are expected to take place outside the geographic region of interest.
- **Other Property Type Income Impact** – the change in other property-type income such as rent, interest, and corporate profits.
- **Proprietors' Income Impact** – the change in proprietors' income, which is received by self-employed individuals such as private business owners, doctors, lawyers, etc.
- **Total Output Impact** – the change in the dollar value of goods and services sold by an industry. Some of an industry's output is sold to its ultimate consumer (final demand), and some is sold to other industries for use in their production operations. It can also be thought of as total value added plus intermediate inputs.
- **Total Value Added Impact** – the change in income (profits and wages) generated by a firm's operations. Value added is computed as the value of a firm's output minus the value of that firm's intermediate inputs (i.e., raw materials, but not labor). It can also be thought of as the change in contribution to gross state product.

THE INDIANA BUSINESS RESEARCH CENTER

Established in 1925, the Indiana Business Research Center is an information-outreach service of the Kelley School of Business at Indiana University. The IBRC provides and interprets the economic information needed by the state's business, government and nonprofit organizations, as well as users of such information throughout the nation.

The IBRC maintains numerous databases on topics such as income, employment, taxes, economic sectors, education, demographics and a host of other economic indicators for the nation, the state and local areas. Much of this information is available via the web at the IBRC's award-winning website, *STATS Indiana* (www.stats.indiana.edu).

In addition, the Center conducts original research to generate needed information when existing data are not available or sufficient; the present study is an example of such custom research. The Center's role in the analytical work it carries out is to provide impartial, objective analysis to help interested parties make informed conclusions and policy decisions.

The Indiana Business Research Center serves the whole state from its offices in Bloomington and Indianapolis.