

6-1-2005


Lake Hospital System: An Economic Impact Study

Robert Sadowski

Ziona Austrian
Cleveland State University, z.austrian@csuohio.edu

How does access to this work benefit you? Let us know!

Follow this and additional works at: https://engagedscholarship.csuohio.edu/urban_facpub

 Part of the [Growth and Development Commons](#), [Urban Studies Commons](#), and the [Urban Studies and Planning Commons](#)

Repository Citation

Sadowski, Robert and Austrian, Ziona, "Lake Hospital System: An Economic Impact Study" (2005). *Urban Publications*. 0 1 2 3 254.
https://engagedscholarship.csuohio.edu/urban_facpub/254

This Report is brought to you for free and open access by the Maxine Goodman Levin College of Urban Affairs at EngagedScholarship@CSU. It has been accepted for inclusion in Urban Publications by an authorized administrator of EngagedScholarship@CSU. For more information, please contact library.es@csuohio.edu.



Prepared for:
Lake Hospital System

Prepared by:
Robert Sadowski
Ziona Austrian, Ph.D.

June 8, 2005

LAKE HOSPITAL SYSTEM:

ECONOMIC IMPACT STUDY

**Center for
Economic
Development**



2121 Euclid Avenue Cleveland, Ohio 44115
<http://urban.csuohio.edu>

TABLE OF CONTENTS

List of Tables	ii
List of Figures	ii
Executive Summary	1
Introduction	2
Economic Impact of the Lake Hospital System Spending Patterns	4
Methodology	4
Output Impact	8
Employment Impact	11
Earnings Impact	14
Summary	16
Appendix A: Lake Hospital System Expenditure Schedule for Lake County	17

LIST OF TABLES

Table 1. LHS Utilization Trends, 2000 – 2003.....	2
Table 2. Output Impact Based on Lake Hospital System Spending, 2003	9
Table 3. Employment Impact Based on Lake Hospital System Spending, 2003	12
Table 4. Earnings Impact Based on Lake Hospital System Spending, 2003.....	14
Table A-1. Lake Hospital System Detailed Expenditures	17

LIST OF FIGURES

Figure 1. Lake Hospital System – Economic Impact on Lake County	7
Figure 2. Output (Sales) Generated by Direct, Indirect, and Induced Impacts	10
Figure 3. Job Creation Due to Direct, Indirect, and Induced Impacts	13
Figure 4. Household Earnings Due to Direct, Indirect, and Induced Impacts	15

EXECUTIVE SUMMARY

- Since its establishment in 1902, Lake Hospital System (LHS) has been a community-based, not-for-profit provider of comprehensive healthcare services to the residents of Lake, eastern Cuyahoga, Geauga, and Ashtabula Counties. Today, LHS is the largest employer in Lake County, with 500 physicians and over 2,400 healthcare professionals working in seven facilities.
- The purpose of this study is to assess the economic impact of Lake Hospital System on Lake County in 2003 by analyzing the spending patterns of LHS within Lake County and how its purchase of goods and services generates additional economic activity.
- Economic impact is an analytic approach used to estimate the economic benefits generated by an operating entity on an affected region. The impact is measured in terms of output (sales), employment, and household earnings. Estimates are made by quantifying the buy-sell relationships among industries using input/output models.
- Economic activity generated by LHS produced the following economic impacts on Lake County (2003 dollars):
 - Total Output Impact: \$129,425,321
 - Total Employment Impact: 3,246 Jobs
 - Total Earnings Impact: \$72,015,102
- The economic impact presented in this report reflects spending during calendar year 2003. In that year, 95 percent of expenditures made by LHS in Lake County were for personnel-related expenses (salaries, wages, health benefits, and doctor fees). The result is that two-thirds of the estimated impact is related to day-to-day spending primarily for housing, retail trade, food and drink establishments, healthcare, and other services by persons affiliated with LHS and others living in Lake County. If economic impact were estimated for another year in which capital expenditures were greater and a higher percentage of purchases by LHS for goods and services were made in Lake County, then the economic impact would be greater.

INTRODUCTION

Since its establishment in 1902, Lake Hospital System (LHS) has been a community-based, not-for-profit provider of comprehensive healthcare services to the residents of Lake, eastern Cuyahoga, Geauga, and Ashtabula Counties. Today, LHS is the largest employer in Lake County, with 500 physicians and over 2,400 healthcare professionals. The system has seven facilities including LakeWest Hospital (Willoughby), LakeEast Hospital (Painesville), Mentor Medical Campus (Mentor), Madison Medical Campus (Madison), LHS Rehabilitation and Wellness (Mentor), LHS Tyler Boulevard Walk-in Care Center (Mentor), LHS Willowick Walk-in Care Center (Willowick), and the Chardon Medical Campus (Chardon).

According to Robert Schiebli, chairman of Lake Hospital System's Board of Trustees, LHS provided between \$18 million and \$20 million in free medical care in 2003 to patients who didn't have the ability to pay.¹ In addition, LHS continually looks for new ways to meet emerging community needs through support groups, continued investment in clinical services, and the development of outreach programs such as Get Healthy Lake County. To demonstrate the importance of Lake Hospital System to people living in and around Lake County, consider the utilization trends shown in Table 1.

Table 1. LHS Utilization Trends, 2000 – 2003

Utilization Type	2000	2003	% Change
Adult Admissions	14,376	15,797	9.9%
Newborns	1,663	1,785	7.3%
Emergency Room Registrations	65,177	67,036	2.9%
Outpatient Registrations	142,858	180,924	26.6%
Total Surgeries	9,991	10,249	2.6%
Walk-in Care Visits	51,926	69,319	33.5%

Source: Lake Hospital System

Solucient, the leading source of healthcare business intelligence, named Lake Hospital System one of the 100 top hospitals in the nation.² The award, which was given in September 2003, recognizes hospitals that have achieved excellence in quality of care, operational

¹ Kramer, J. (2004). Healthy community: Lake Hospital System provides superb care for the entire county, pg. 7. [Supplement]. *Inside Business Magazine*.

² Solucient, LLC. 100 top hospitals: Benchmarks for success – national 2002, [Electronic version], 17. April 26, 2005, available at <http://www.100tophospitals.com/studies/>.

efficiency, financial performance, and adaptation to the environment. LHS was recognized in the category of Large Community Hospitals (250+ beds).

In June 2004, LHS announced its decision to build a new, \$50 million hospital building that would essentially replace the LakeEast Hospital building in downtown Painesville. The new building will be near the intersection of Route 44 and Interstate 90 in Concord Township, about four miles from the current hospital. However, LHS is committed to retaining as much of the hospital's downtown Painesville presence as possible, including its use as an emergency care center.

With seven operating facilities and an employment level approaching 3,000, Lake Hospital System generates a significant economic impact on Lake County through its delivery of healthcare services. Economic impact is an analytic approach used to estimate the economic benefits generated by an operating entity on an affected region. The purpose of this study is to assess the economic impact of LHS on Lake County by analyzing the spending patterns of LHS within Lake County and how its purchase of goods and services generates additional economic activity.³

In 2003, Lake Hospital System spent \$180.6 million on wages and salaries, employee benefits, professional fees, supplies, purchased services, insurance, and capital expenditures. Of this amount, 40.7 percent (\$73.6 million) was spent in Lake County. Dividing this spending into personnel (wages, salaries, benefits, and professional fees) vs. non-personnel expenditures (supplies, purchased services, insurance, and capital) reveals the following:

- The majority of LHS expenditures on personnel-related items were in Lake County—\$70.3 million (64 percent). Personnel-related spending outside Lake County was \$39.7 million (36 percent).
- In sharp contrast, almost all LHS expenditures on non-personnel items were outside Lake County—\$67.4 million (95.6 percent). Non-personnel spending within Lake County was \$3.1 million (4 percent).

This spending distribution is a critical factor in the outcome of the economic impact analysis.

³ The research was conducted by the Center for Economic Development at Cleveland State University's Maxine Goodman Levin College of Urban Affairs at the request of Lake Hospital System.

ECONOMIC IMPACT OF THE LAKE HOSPITAL SYSTEM SPENDING PATTERNS

This section discusses the economic impact of the Lake Hospital System (LHS) on Lake County during calendar year 2003. Impact is measured in terms of output (gross receipts or sales), employment, and household earnings. For each of these categories, total economic impact is estimated. Total economic impact is the sum of four components: change in final demand, direct impact, indirect impact, and induced impact.

METHODOLOGY

If we imagine that the entire Lake Hospital System came into existence in one day, we can assume that the money it would bring into the Lake County economy would stimulate activity by creating a demand for goods and services. A value can be placed on this stimulus—known as the change in final demand—and it must be included in any estimate of LHS's economic impact.⁴ The effects of a change in final demand can then be traced throughout Lake County's economy using an input-output model that provides links among all industry sectors.

In order to produce the services required by Lake Hospital System, other goods and services are needed as intermediate inputs. This leads to the other components of economic impact—direct, indirect, and induced. Direct impact refers to the initial value of goods and services, including labor, purchased by LHS within Lake County (first-round effects). Indirect impact measures the value of labor, capital, and other inputs of production needed to produce the goods and services required by LHS (second-round effects). Induced impact measures the change in spending by local households due to increased earnings by employees in local industries who produce goods and services for LHS.

As stated earlier, economic impact analysis takes into account inter-industry relationships within an economy—that is, the buy-sell relationships among industries. These relationships largely determine how an economy responds to changes in economic activity. Input-output (I-O) models estimate inter-industry relationships in a county, region, state, or country by measuring the industrial distribution of inputs purchased and outputs sold by each industry. Thus, by using I-O models, it is possible to estimate how the impact of one dollar or one job ripples through the local economy, creating additional expenditures and jobs. The

⁴Change in final demand is defined as the purchase of goods and services for final consumption—in this case by Lake Hospital System.

economic multiplier measures the ripple effect that an initial expenditure has on the local economy.⁵ This study utilizes regional I-O multipliers from IMPLAN Professional.⁶

Three factors were considered when calculating the Lake Hospital System (LHS) economic impact: 1) purchases by LHS from companies located in Lake County versus purchases from out-of-county vendors; 2) share of LHS revenues received from consumers living in Lake County; and 3) the share of LHS revenue that could have been collected by competing healthcare providers within Lake County (substitution effect). Following are some comments regarding these factors.

For this analysis, economic impact is created only by LHS purchases from companies located within Lake County. Therefore, goods and services purchased from businesses outside Lake County were excluded from the model. Lake Hospital System officials requested that an estimation of economic impact be limited to their primary service area, i.e., Lake County. If they had requested an estimate of their economic impact on the entire greater Cleveland area, then purchases of goods and services by LHS within the five-county Cleveland metro area would have been included in the model. The result would have been larger impact values.

Before entering local expenditures into the IMPLAN model, the amounts must be discounted by the percentage of revenues that are derived from local (Lake County) sources. If expenditures were not discounted by the percentage of revenues coming from local sources, then the economic impact values would reflect the redistribution of local funds. The objective of impact analysis is to estimate wealth that is being created within an economy rather than the redistribution of monies already existing in the economy. For this study, it is estimated that over 97 percent of LHS revenues are derived from patient services. Almost all of these revenues come from payments made by insurance companies or Medicare. Since the pool of money paid out by insurers or Medicare is national in origin, it was decided not to discount any revenues. Trying to estimate the percentage of local monies (within Lake County) that comprised insurance or Medicare payments would be a difficult task.

In economic impact analysis, there is a concept that is referred to as the substitution effect. If LHS did not exist, which category of health consumers would continue to expend their resources at other healthcare providers in Lake County? The answer—those who could obtain

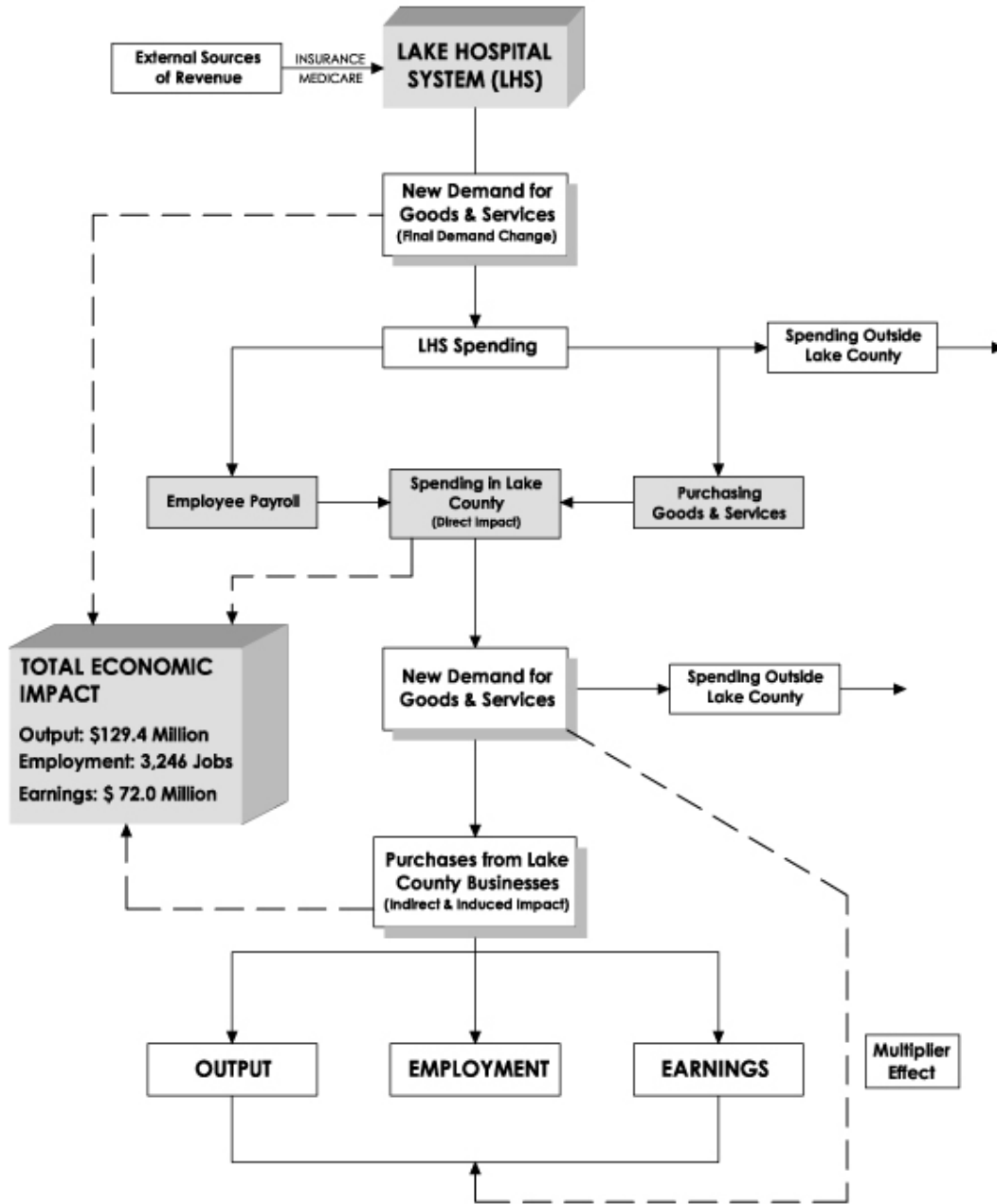
⁵ For example, suppose that company XYZ reports sales of \$1 million. From the revenues, the company pays its suppliers and workers, covers production costs, and takes a profit. Once the suppliers and employees receive their payments, they will spend a portion of their money in the local economy purchasing goods and services, while another portion of the monies will be spent outside the local economy (leakage). By evaluating the chain of local purchases that result from the initial infusion of \$1 million, it is possible to estimate a regional economic multiplier.

⁶ IMPLAN was originally developed by two federal agencies, the Department of Agriculture and the Department of the Interior, to assist in land and resource management planning. The model was later commercialized by the Minnesota IMPLAN Group, Inc.

equivalent out-patient services. According to LHS officials, there are two such providers, the Cleveland Clinic Family Health Center and the Kaiser Permanente office, both located in Willoughby. Since a segment of health consumers would continue to expend resources at other Lake County facilities whether or not LHS existed, LHS cannot be seen as the generator of economic impact for these consumers. The result is that in calculating economic impact values, local expenditures by LHS must be reduced by a proportion that is equal to the number of these health consumers. For this analysis, LHS officials estimated that in 2003, seven percent of their patients could have easily received equivalent services at the Clinic and Kaiser facilities. The result is that all expenditures made by LHS in Lake County have been discounted by seven percent before entry into the IMPLAN model. Table A-1 in the Appendix provides a detailed listing of local (within Lake County) LHS expenditures with the appropriate discounting.

Figure 1 illustrates the process by which Lake Hospital System impacts the local economy through its spending in Lake County. LHS creates new demand for goods and services (final demand change). Some of this demand is generated for goods and services provided by vendors outside Lake County, resulting in dollars leaking out of the local economy. However, many goods and services are purchased locally (within Lake County). Local spending by LHS for goods, services, and labor is the direct impact. As these dollars move through the economy, they result in additional demand for goods and services, creating indirect and induced impact. The total economic impact of the Lake Hospital System is equal to the sum of the change in final demand, direct, indirect, and induced impacts.

Figure 1. Lake Hospital System – Economic Impact on Lake County



OUTPUT IMPACT

This analysis uses multipliers to estimate the ripple effect that an initial expenditure has on a local economy.⁷ These multipliers measure the effect of Lake Hospital System spending on output (gross receipts or sales) in Lake County. They provide a quantitative measure of the total change in output produced by Lake County industries for each additional final demand dollar expended by LHS.

Lake Hospital System expenditures were divided into spending on goods and services purchased from companies located in Lake County (local) and spending for goods and services from businesses located elsewhere. Local spending is then categorized by industry, based upon an IMPLAN industry classification system that is analogous to the North American Industry Classification System (NAICS). Table A-1 in the appendix provides a detailed LHS expenditure list by specific industry.⁸

Table 2 presents the total output impact and its components. Local LHS expenditures represent direct output impact. However, total LHS expenditures in Lake County differ slightly from the direct impact (\$53.5 million vs. \$53.1 million) as a result of adjustments for margins. In cases where goods are purchased locally but produced outside the region, some local economic benefits are still captured via wholesale, retail, and transportation margins.⁹

In reviewing Table 2, the reader may observe that households (employee payroll and monies paid to doctors) are not included as an industry sector. The reason for this is that IMPLAN automatically distributes these monies directly to the industries from which households typically make purchases. The industry sector that is the largest beneficiary of household spending is foreign and domestic trade (\$24.9 million). This sector represents products that are purchased by households, but are produced outside Lake County, either domestically or internationally.

Indirect impact is estimated by summing the contributions of individual industries that provide inputs to the producers of the products and services ultimately consumed by Lake Hospital System. Induced impact is estimated by measuring the spending of workers who are employed as a result of the demand for products and services created by LHS. Total output impact is the sum of change in final demand, direct impact, indirect impact, and induced impact.

⁷Type SAM multipliers are used in this study. SAM multipliers are based on information in a social account matrix that considers social security and income tax leakage, institution savings, commuting, and inter-institutional transfers.

⁸Expenditures in Table A-1 have been discounted by seven percent to take into account the substitution effect. See pages 6-7 for a detailed discussion.

⁹Margins represent the difference between producer and purchaser prices (money spent by LHS). The end result is that, by using margins, the value of the economic benefit is split into the portion going to retail markup (local), wholesale markup (local), transportation cost (local), and producer price (outside the region).

Table 2 reveals output impacts by aggregate industry group. It shows how LHS spending patterns across Lake County affect all sectors of the economy.

Table 2. Output Impact Based on Lake Hospital System Spending, 2003

Lake Hospital System Expenditures: \$53,478,627^a				
	Direct Impact	Indirect Impact	Induced Impact	Direct + Indirect + Induced
Agriculture, Forestry, Fishing & Hunting	\$75,963	\$17,930	\$15,055	\$108,948
Construction	\$909,756	\$252,049	\$40,879	\$1,202,684
Manufacturing	\$903,090	\$1,069,110	\$267,821	\$2,240,021
Transportation	\$74,039	\$129,406	\$26,804	\$230,249
Information, Finance & Insurance	\$2,018,401	\$777,723	\$468,997	\$3,265,121
Real Estate and Rental & Leasing	\$2,301,261	\$748,731	\$253,533	\$3,303,526
Professional, Scientific & Technical Services	\$360,857	\$580,570	\$126,379	\$1,067,806
Administrative & Support services	\$255,096	\$556,800	\$101,325	\$913,220
Education, Health & Social Services	\$6,574,003	\$65,814	\$1,065,798	\$7,705,615
Arts, Entertainment & Food Services	\$2,342,544	\$196,748	\$472,697	\$3,011,989
Other Services	\$1,993,945	\$295,853	\$396,205	\$2,686,004
Public Administration	\$638,402	\$135,714	\$114,860	\$888,976
Foreign & Domestic Trade	\$24,875,561	\$0	\$0	\$24,875,561
Other ^b	\$9,811,939	\$852,172	\$1,660,228	\$12,324,339
TOTAL	\$53,134,857	\$5,678,621	\$5,010,580	\$63,824,058

Change in Final Demand ^c	\$65,601,262
Direct Impact	\$53,134,857
Indirect Impact	\$5,678,621
Induced Impact	\$5,010,580
TOTAL OUTPUT IMPACT	\$129,425,321

^aOnly goods and services purchased within Lake County are included as Lake Hospital System expenditures. These expenditures were discounted by seven percent to account for LHS patients who could have easily received equivalent services at the Cleveland Clinic or Kaiser facilities located in Lake County (substitution effect).

^b“Other” refers primarily to retail margins and payments made to state and local governments.

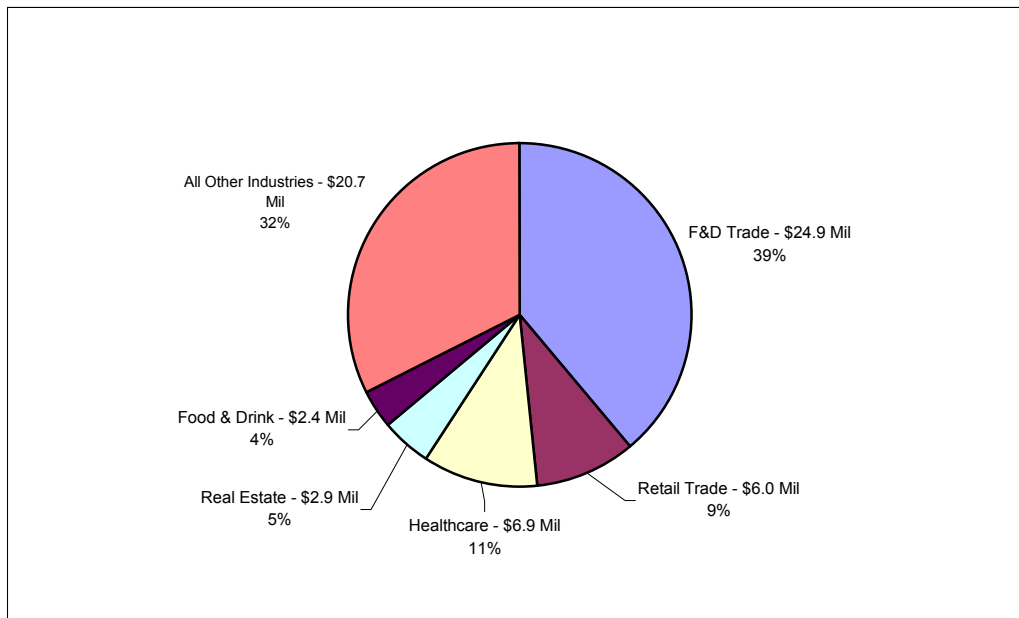
^cFor output impact, the change in final demand is equal to expenditures by Lake Hospital System within and outside Lake County (excluding payroll, benefits, and payments made to physicians). Expenditures are discounted by seven percent to account for the substitution effect.

Looking at Table 2, we see how LHS expenditures of \$53.5 million resulted in a change in output of \$63.8 million across all industry sectors. For example, LHS spending affected a \$2.24 million increase in sales by manufacturing-related industries and \$3.26 million in

increased sales by companies in the information, finance, and insurance industry. The total output impact due to LHS spending patterns in Lake County is \$129.4 million. Of this amount, \$65.6 million (51 percent) results from change in final demand that occurs because LHS activities bring resources into Lake County from outside the region. Approximately \$53.1 million (41 percent) of the total output impact is a result of direct spending by LHS for goods and services purchased within Lake County. The remaining output impact of \$10.7 million (8 percent) is attributable to the indirect and induced components, as LHS spending ripples through the economy.

Of the \$53.5 million in local expenditures reported by LHS in 2003, almost 95 percent was spent on payments to doctors, employee payroll, and medical insurance. A detailed inspection of the IMPLAN model results indicate that of the \$63.8 million change in output (sales) generated by the direct, indirect, and induced impacts, 68 percent (\$43 million) reflects the day-to-day spending by LHS doctors and employees and other consumers who produced products for LHS. Figure 2 shows the output distribution.

Figure 2. Output (Sales) Generated by Direct, Indirect, and Induced Impacts



From Figure 2 we see that the largest component of the change in output went into foreign and domestic (F&D) trade—\$24.9 million. In other words, doctors and LHS employees spent \$24.9 million of their wages for products that were produced elsewhere in the U.S. or internationally. Another \$2.4 million accounted for sales in Lake County restaurants and bars. Almost \$3 million was expended on real estate-related services, primarily rental payments. LHS

employees and other consumers in Lake County spent \$6.9 million on health-related services such as doctor visits and nursing home care. Retail trade (margins) in Lake County was estimated at \$6 million. Sales by all other industries combined totaled \$20.7 million.¹⁰

EMPLOYMENT IMPACT

Lake Hospital System's healthcare services in Lake County affect job creation beyond LHS's hiring of its own employees (change in final demand). Spending by LHS creates employment in industries from which it purchases goods and services (direct impact) and employment in industries that provide inputs into those goods and services (indirect impact). In addition, monies spent by LHS employees and employees of those companies LHS does business with create jobs in a variety of other industries (induced impact). Total employment impact equals the sum of Lake Hospital System employment, direct impact, indirect impact, and induced impact. Table 3 shows the number of jobs created by aggregate industry group.

¹⁰ The IMPLAN model provides output, employment, and earnings estimates for about 500 industries.

Table 3. Employment Impact Based on Lake Hospital System Spending, 2003

Lake Hospital System Expenditures: \$53,478,627^a				
	Direct Impact (Jobs)	Indirect Impact (Jobs)	Induced Impact (Jobs)	Direct + Indirect + Induced (Jobs)
Agriculture, Forestry, Fishing & Hunting	0.5	0.1	0.1	0.8
Construction	11.1	3.0	0.5	14.6
Manufacturing	4.3	5.1	1.2	10.6
Transportation	1.0	1.7	0.3	3.0
Information, Finance & Insurance	15.3	7.8	3.8	27.0
Real Estate and Rental & Leasing	26.9	8.7	3.2	38.8
Professional, Scientific & Technical Services	5.9	8.6	2.1	16.6
Administrative & Support services	7.0	16.3	2.8	26.1
Education, Health & Social Services	93.5	1.2	15.1	109.8
Arts, Entertainment & Food Services	64.9	5.5	13.1	83.4
Other Services	32.8	4.2	7.0	44.0
Public Administration	3.7	0.7	0.7	5.1
Other ^b	105.5	10.4	18.5	134.4
TOTAL	372.3	73.3	68.4	514.0

Change in Final Demand ^c	2,732.0
Direct Impact	372.3
Indirect Impact	73.3
Induced Impact	68.4
TOTAL EMPLOYMENT IMPACT	3,246

^aOnly goods and services purchased within Lake County are included as Lake Hospital System expenditures. These expenditures were discounted by seven percent to account for LHS patients who could have easily received equivalent services at the Cleveland Clinic or Kaiser facilities located in Lake County (substitution effect).

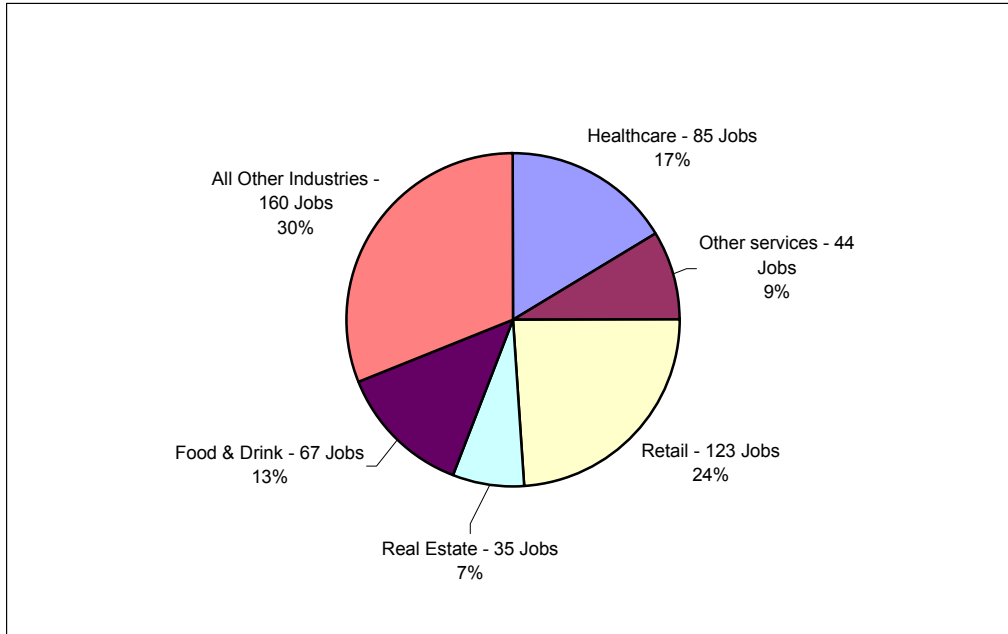
^bOther refers primarily to employees engaged by retail outlets.

^cFor employment impact, the change in final demand is equal to the number of full-time equivalent employees working for LHS and the number of physicians practicing in LHS facilities discounted by seven percent to account for the substitution effect.

The total employment impact by Lake Hospital System on the Lake County economy is 3,246 jobs. 2,732 of these jobs (84 percent) are directly associated with LHS. As a result of LHS's direct spending for goods and services purchased in the region, 372 jobs were created. The remaining employment impact, 142 jobs, is in the form of indirect and induced impact as LHS spending ripples through the economy. Of the 514 jobs created in Lake County due to direct, indirect, and induced impacts, the majority is attributable to the personal consumption of

products and services by LHS affiliated doctors and employees. Figure 3 shows the distribution of these jobs.

Figure 3. Job Creation Due to Direct, Indirect, and Induced Impacts



From Figure 3 we see that the retail sector reported the highest number of jobs (123) created due to spending by LHS employees. Healthcare-related businesses had the second highest employment gain at 85 jobs. Most of these gains were seen in offices of health practitioners, hospitals, and nursing homes. Restaurants and bars hired an additional 67 workers due to the presence of LHS. “Other services” saw the creation of 44 jobs. This industry sector is very diverse and includes businesses from car washes to funeral homes. In the real estate sector, 35 jobs were created. In all other industries combined, 160 jobs were created due to spending by LHS in Lake County.

EARNINGS IMPACT

Every new job created by LHS' purchase of goods and services from businesses in Lake County generated new earnings for local households. Earnings impact is the estimated total change in earnings that occurs within local households due to spending by LHS for goods and services. Adding the direct, indirect, and induced impacts generated by the different spending categories to the payroll received by LHS employees (final demand change) results in total earnings impact. Aggregate industry earnings impact is shown in Table 4.

Table 4. Earnings Impact Based on Lake Hospital System Spending, 2003

Lake Hospital System Expenditures: \$53,478,627^a				
	Direct Impact	Indirect Impact	Induced Impact	Direct + Indirect + Induced
Agriculture, Forestry, Fishing & Hunting	\$47,105	\$11,238	\$9,383	\$67,726
Construction	\$373,898	\$103,339	\$16,430	\$493,666
Manufacturing	\$325,830	\$366,026	\$91,541	\$783,397
Transportation	\$57,155	\$97,681	\$20,566	\$175,402
Information, Finance & Insurance	\$1,056,708	\$416,500	\$234,978	\$1,708,186
Real Estate and Rental & Leasing	\$1,600,641	\$526,125	\$178,357	\$2,305,123
Professional, Scientific & Technical Services	\$256,372	\$437,857	\$91,416	\$785,645
Administrative & Support services	\$169,108	\$403,311	\$71,782	\$644,201
Education, Health & Social Services	\$3,563,397	\$33,995	\$568,954	\$4,166,347
Arts, Entertainment & Food Services	\$1,111,981	\$96,856	\$225,832	\$1,434,670
Other Services	\$1,121,944	\$148,004	\$216,862	\$1,486,811
Public Administration	\$352,866	\$75,696	\$63,423	\$491,985
Other ^b	\$5,345,091	\$519,830	\$1,091,155	\$6,956,075
TOTAL	\$15,382,097	\$3,236,460	\$2,880,677	\$21,499,234
Change in Final Demand ^c	\$50,515,868			
Direct Impact	\$15,382,097			
Indirect Impact	\$3,236,460			
Induced Impact	\$2,880,677			
TOTAL EARNINGS IMPACT	\$72,015,102			

^aOnly goods and services purchased within Lake County are included as Lake Hospital System expenditures. These expenditures were discounted by seven percent to account for LHS patients who could have easily received equivalent services at the Cleveland Clinic or Kaiser facilities located in Lake County (substitution effect).

^bOther refers primarily to retail trade and owner-occupied dwellings (see footnote 10, page 15 for a detailed description).

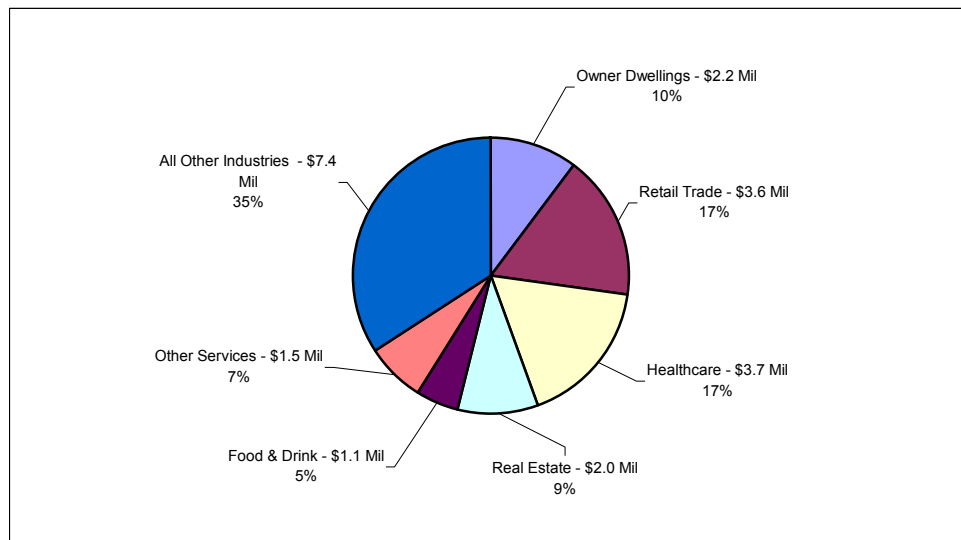
^cFor earnings impact, change in final demand (CFD) is equal to the disposable income (75 percent of gross income) plus medical insurance paid to LHS employees and physicians during 2003 discounted by seven percent to account for the substitution effect.

Total household earnings in Lake County increased by \$72 million as a result of Lake Hospital System's spending on goods and services. \$50.5 million (70 percent) of this impact results from change in final demand that occurs as a result of LHS' employee payroll and payments made to physicians who practice in LHS facilities. \$15.4 million (21 percent) of the

total earnings impact is a result of LHS' direct spending for goods and services purchased in Lake County. The remaining earnings impact, \$6.1 million (9 percent) is in the form of indirect and induced impact, as LHS spending ripples through the Lake County economy.

A detailed inspection of the IMPLAN results indicate that 65 percent of the change in household earnings is found in industries directly associated with products and services consumed by LHS employees and other purchasers. Figure 4 shows the distribution of household earnings among these industries.

Figure 4. Household Earnings Due to Direct, Indirect, and Induced Impacts



From Figure 4 we see that employees in healthcare-related businesses reported the largest change in household earnings. Of the \$3.7 million increase in earnings, most can be attributed to those working in health practitioner offices, hospitals, and nursing homes. Persons working in retail trade reported the second-highest increase in household earnings at \$3.6 million, while those working in bars and restaurants saw their household earnings increase by \$1.1 million. Workers in businesses that support owner-occupied dwellings saw their earnings change by \$2.2 million.¹¹ Persons in the real estate sector, primarily real estate agents and lessors of residential and commercial real estate reported a household earnings change of \$2 million. Most real estate earnings are rental payments to landlords or commercial real estate

¹¹ Owner-occupied dwellings is a special industry sector developed by the Bureau of Economic Analysis. It estimates what owner/occupants would pay in rent if they rented rather than owned their homes. This sector creates an industry out of owning a home. Its sole product (or output) is ownership, purchased entirely by personal consumption expenditures. Owner-occupied dwellings captures the expenses of home ownership such as repair and maintenance construction, various closing costs, and other expenditures related to the upkeep of the space in the same way expenses are captured for rental properties.

companies. Household earnings for persons working in “other services” increased by \$1.5 million. Of the 13 industries that make up the “other industries” group, automotive repair and maintenance accounted for 40 percent of the \$1.5 million. Workers in all other industry sectors combined saw their earnings change by \$7.4 million.

SUMMARY

Economic activity generated by Lake Hospital System produced the following economic impacts on Lake County (2003 dollars):

- Total Output Impact: \$129,425,321
- Total Employment Impact: 3,246 jobs
- Total Earnings Impact: \$72,015,102

The economic impact presented in this report reflects spending during calendar year 2003. In that year, 95 percent of expenditures made by LHS in Lake County were for personnel-related expenses (salaries, wages, health benefits, and doctor fees). The result is that two-thirds of the estimated impact is related to day-to-day spending, primarily for housing, retail trade, food and drink establishments, healthcare, and other services by persons affiliated with LHS and others living in Lake County. If economic impact were estimated for another year in which capital expenditures were greater and a higher percentage of purchases by LHS for goods and services were made in Lake County, then the economic impact would be greater.

APPENDIX A: LAKE HOSPITAL SYSTEM EXPENDITURE SCHEDULE FOR LAKE COUNTY

Table A-1. Lake Hospital System Detailed Expenditures

DESCRIPTION	SECTOR (1)	VALUE (2)	DISCOUNT VALUE (3)	BASIS (4)
Agriculture, Forestry, Fishing & Hunting - NAICS 11				
		\$4,177	\$3,885	
Florist	6	\$4,177	\$3,885	Commodity
Construction - NAICS 23				
		\$984,583	\$915,662	
Commercial & Institutional Buildings	38	\$929,881	\$864,789	Industry
Maintenance of Nonresidential Buildings	43	\$32,423	\$30,153	Industry
Other Maintenance & Repair	45	\$22,279	\$20,719	Industry
Manufacturing - NAICS 31-33				
		\$754,926	\$702,081	
Confectionery	58	\$940	\$875	Commodity
Baked Goods	73	\$710	\$660	Industry
Floor Covering	99	\$1,455	\$1,353	Commodity
Lumber	118	\$2,630	\$2,446	Commodity
Printing Services	139	\$117,201	\$108,997	Industry
Soap & Detergents	163	\$30,384	\$28,257	Commodity
Sanitation Supplies	164	\$1,170	\$1,088	Commodity
Electrical Supplies	217	\$40,353	\$37,528	Commodity
Windows & Doors	235	\$1,650	\$1,535	Commodity
Building Maintenance Supplies	248	\$17,166	\$15,964	Commodity
Miscellaneous Fabricated Metal Products	255	\$14,247	\$13,250	Commodity
Maintenance Supplies	281	\$80	\$74	Industry
Mechanical Power Transmission	287	\$6,100	\$5,673	Commodity
Electronic Equipment Repair	309	\$37	\$34	Commodity
Electromedical Apparatus	313	\$201,611	\$187,498	Commodity
Lighting Fixtures	326	\$9,109	\$8,472	Commodity
Electric Power Equipment	333	\$10,218	\$9,503	Commodity
Batteries	338	\$843	\$784	Commodity
Wiring Devices	341	\$3,852	\$3,583	Commodity
Auto/Truck Parts & Equipment	350	\$32,749	\$30,457	Commodity
Restaurant Supplies	366	\$245	\$228	Commodity
Surgical and Medical Instruments	375	\$79,869	\$74,278	Commodity
Surgical Appliances & Supplies	376	\$168,084	\$156,318	Commodity
Workout Equipment	381	\$221	\$205	Commodity
Signs	384	\$655	\$609	Commodity
Musical Instruments	386	\$13,347	\$12,413	Commodity

Table A-1. Lake Hospital System Detailed Expenditures (continued)

DESCRIPTION	SECTOR (1)	VALUE (2)	DISCOUNT VALUE (3)	BASIS (4)
Transportation - NAICS 49		\$41,288	\$38,398	
Postal Services	398	\$32,922	\$30,617	Industry
Courier Services	399	\$8,366	\$7,780	Industry
Information, Finance, and Insurance - NAICS 51 - 52		\$42,056	\$39,112	
Newspaper Publishing	413	\$1,028	\$956	Industry
Newspaper Publishing	413	\$140	\$131	Commodity
Television Program Distribution	421	\$16,391	\$15,244	Industry
Internet & Computer Services	423	\$10,870	\$10,109	Industry
Insurance	428	\$13,627	\$12,673	Industry
Real Estate and Rental & Leasing - NAICS 53		\$933,279	\$867,950	
Office Space Leasing	431	\$670,571	\$623,631	Industry
Equipment Rental & Leasing	434	\$262,571	\$244,191	Industry
Consumer Goods Rental	435	\$137	\$128	Industry
Professional, Scientific, and Technical Services - NAICS 54		\$92,000	\$85,560	
Specialized Design Services (Art)	440	\$41,850	\$38,921	Commodity
Custom Programming Services (HR)	441	\$9,600	\$8,928	Industry
Management Consulting	444	\$3,574	\$3,324	Industry
Translator Services	450	\$36,976	\$34,388	Industry
Administrative & Support Services - NAICS 56		\$164,535	\$153,017	
Miscellaneous Business Support	455	\$2,249	\$2,092	Industry
Security Services	457	\$2,379	\$2,212	Industry
Landscaping & Janitorial Services	458	\$153,477	\$142,734	Industry
Paper Recycling	460	\$6,430	\$5,980	Industry
Educational, Health, and Social Services - NAICS 61 - 62		\$106,257	\$98,819	
Colleges and Universities	462	\$11,458	\$10,656	Industry
Other Educational Services	463	\$45,501	\$42,316	Industry
Physical Therapy Services	465	\$17,587	\$16,356	Industry
Other Ambulatory Health Care Services	466	\$31,711	\$29,491	Industry
Arts, Entertainment, and Food Services - NAICS 71 - 72		\$27,944	\$25,987	
Golf	478	\$5,332	\$4,958	Industry
Food Services	481	\$22,612	\$21,029	Industry

Table A-1. Lake Hospital System Detailed Expenditures (continued)

DESCRIPTION	SECTOR (1)	VALUE (2)	DISCOUNT VALUE (3)	BASIS (4)
Other Services (except public administration) - NAICS 81		\$29,154	\$27,113	
Auto Repair & Maintenance	483	\$14,191	\$13,198	Industry
Electronic Equipment Repair	484	\$4,683	\$4,355	Industry
Equipment Maintenance	485	\$5,304	\$4,933	Industry
Furniture Repair	486	\$94	\$87	Industry
Laundry Services	489	\$3,734	\$3,473	Industry
Photo Services	490	\$121	\$113	Industry
Scrap	501	\$1,027	\$955	Industry
Public Administration - NAICS 92		\$5,509	\$5,123	
Local Government	499	\$5,509	\$5,123	Industry
Households - NAICS (n/a)		\$54,318,192	\$50,515,919	
Household Spending (5)	10004	\$50,668,500	\$47,121,705	Industry
Household Spending	10009	\$3,649,692	\$3,394,214	Industry
TOTAL LAKE COUNTY EXPENDITURES		\$57,503,900	\$53,478,626	

- (1) **Sector:** Industry classification code used by IMPLAN. It is analogous to the North American Industry Classification System (NAICS). IMPLAN provides a cross-reference table bridging their sector numbers and NAICS codes.
- (2) **Value:** Actual dollar value for a product or service spent by the Lake Hospital System (LHS) in calendar year 2003. Values shown in Table A-1 are only for expenditures made in Lake County. For example, LHS spent \$4,177 on floral arrangements. Total LHS expenditures in Lake County were \$57.5 million. 94 percent of these expenditures were for employee salary and health benefits and payments made to physicians practicing in LHS facilities.
- (3) **Discount Value:** Before entering expenditures into the IMPLAN model, the amounts must be discounted by the revenue share that could have been collected by LHS competitors in Lake County, in this case seven percent. See discussion on the substitution effect (pages 5-6) for a detailed explanation.
- (4) **Basis:** Industries consist of businesses producing goods and services; commodities are the goods and services. An **industry** impact gives the entire sector dollar value to the industry that has been selected. For example, LHS purchases building construction services from the Hamann Construction Company. Therefore, the entire value spent for new construction and remodeling in the impact analysis is assigned to the construction industry (NAICS 23). A **commodity** impact splits the sector dollar value among all industries producing that commodity. For example, LHS purchased carpeting from Lamb Flooring. Since Lamb Flooring did not manufacture the carpet, IMPLAN splits the dollar value among all industries that produce carpeting. If these industries are located outside Lake County, IMPLAN only assigns margin values (transportation, wholesale, and retail) in the impact analysis.
- (5) **Households:** Household expenditures include LHS employee payroll and medical insurance and payments made to doctors practicing in LHS facilities. Payments have been reduced to only include disposable income. In this analysis, disposable income equals 75 percent of the gross amount. Disposable income excludes income that is used for savings and to pay taxes.