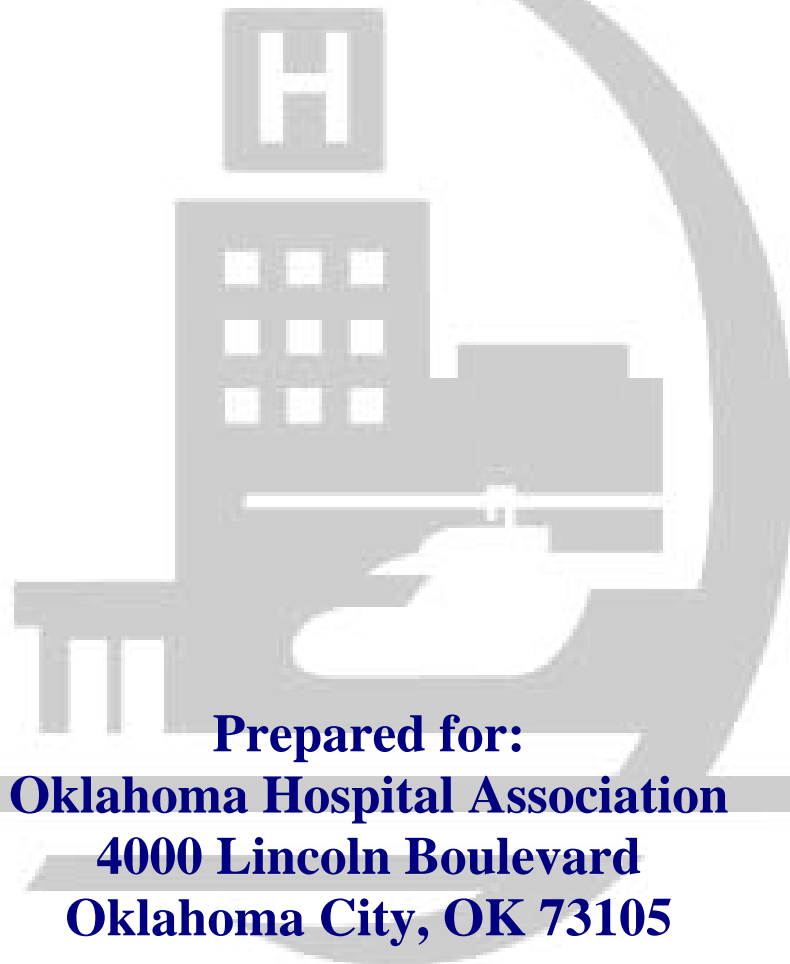


# **The Economic Impact of Oklahoma Hospitals on the State of Oklahoma**



**Prepared for:  
Oklahoma Hospital Association  
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**March 2011**

The Economic Impact of Oklahoma Hospitals  
on the State of Oklahoma

Study Commissioned by:

Oklahoma Hospital Association  
4000 Lincoln Boulevard  
Oklahoma City, Oklahoma 73105

To Measure the Economic Impact of Oklahoma Hospitals  
on the State of Oklahoma

Study completed by:

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# **The Economic Impact of Oklahoma Hospitals on the State of Oklahoma**

## **EXECUTIVE SUMMARY**

The economic impact of Oklahoma hospitals illustrates the hospitals have a staggering impact on the Oklahoma economy and on the economies of Oklahoma and Tulsa Counties. This study, “The Economic Impact of Oklahoma Hospitals on the State of Oklahoma” was commissioned by the Oklahoma Hospital Association and conducted by Dr. Gerald A. Doeksen, Regents Professor and Director, National Center for Rural Health Works, Oklahoma State University.

Using a computer program developed specifically for the health care industry, Dr. Doeksen analyzed not only the direct economic contribution of hospitals and other providers, but also calculated how many jobs and how much payroll plus benefits (income) were created as a secondary effect. The jobs and income generated in other businesses are measured with employment and income multipliers derived specifically for the State of Oklahoma and Oklahoma and Tulsa Counties.

### **The Impact on the State of Oklahoma Economy**

Oklahoma hospitals employ a significant number of employees and generate many construction jobs from their capital improvement projects. To further illustrate the employment impact, the number of secondary jobs generated in the economy was calculated based on employment multipliers from a computer model. The impact on employment is:

- 71,161 jobs employed directly by Oklahoma hospitals
- 9,657 jobs in construction from capital improvement activities

- 65,269 secondary jobs created in other businesses
- 146,087 total jobs generated by Oklahoma hospitals

The income (payroll and benefits) derived from these jobs also impact the state economy. The impact from income is:

- \$4.0 billion paid to employees of Oklahoma hospitals
- \$375.2 million paid to construction workers from capital improvement projects
- \$2.5 billion paid in secondary income in other businesses
- \$6.8 billion in total income generated by Oklahoma hospitals
- \$2.2 billion spent in retail sales
- \$99.5 million in state sales taxes from retail spending

### **The Impact on Selected State and Federal Taxes**

Although some of Oklahoma hospitals are tax-exempt entities, all of the hospitals generate many dollars worth of taxes in other businesses from secondary business spending and construction activities, as well as from the spending of the direct and secondary employees. The impacts on taxes are:

- \$99.5 million in State sales taxes
- \$195.1 million in State income taxes
- \$97.8 million in motor fuels taxes
- \$38.1 million in beverage, tobacco, and gaming taxes
- \$638.1 million in Federal income taxes

In summary, Oklahoma hospitals, through their economic activities, generated a total of \$1.1 billion dollars annually in selected State and Federal taxes.

## **The Impact on the Economies of Oklahoma and Tulsa Counties**

The economic impact of Oklahoma hospitals was also calculated at the county level for Oklahoma and Tulsa Counties. The employment impact of hospitals in Oklahoma County was:

- 22,744 jobs employed by Oklahoma County hospitals
- 2,134 jobs in construction from capital improvement projects
- 19,860 secondary jobs created in other businesses
- 44,738 total jobs generated by Oklahoma County hospitals

The income (payroll plus benefits) impact for Oklahoma County was:

- \$1.4 billion paid to employees of Oklahoma County hospitals
- \$93.3 million paid to construction workers from capital improvement projects
- \$788.9 million paid in secondary income in other businesses
- \$2.3 billion in total income generated by Oklahoma County hospitals
- \$716.7 million spent in retail sales
- \$32.3 million in state sales taxes from retail spending

These numbers illustrate that the hospitals have a significant impact on income, retail sales, and state sales taxes in Oklahoma County.

The economic impact of the Tulsa County hospitals was also calculated at the county level. The impact of hospitals in Tulsa County is:

- 14,605 jobs employed by Tulsa County hospitals
- 1,831 jobs in construction from capital improvement projects
- 12,948 secondary jobs created in other businesses
- 29,384 total jobs generated by Tulsa County hospitals

The income impact from hospitals in Tulsa County was:

- \$833.4 million paid to employees of Tulsa County hospitals
- \$75.1 million paid to construction workers from capital improvement projects
- \$503.3 million paid in secondary income in other businesses
- \$1.4 billion in total income generated by Tulsa County hospitals
- \$417.9 million spent in retail sales
- \$18.8 million in state sales taxes from retail spending

These numbers illustrate that Tulsa County hospitals have an impact on income, retail sales, and state sales taxes in Tulsa County. Oklahoma hospitals are also very important in the other counties for providing services and having an economic impact.

### **Opportunities for Future Economic Growth**

As the State of Oklahoma and county leaders continue to consider their economic priorities and look for ways to create more jobs, they should keep in mind the importance of the health services provided by Oklahoma hospitals. This study shows that Oklahoma hospitals do much more than just provide medical services. The employment and income generated by Oklahoma hospitals and the ripple effect in other businesses throughout the economy are enormous.

The study clearly demonstrates that Oklahoma hospitals will be major contributors to the future economic development of the State of Oklahoma and the counties. Economic development agencies, business groups, and local government leaders must play a more active role in promoting the health sector as a key partner and primary sector in generating new economic opportunities.

# **The Economic Impact of Oklahoma Hospitals on the State of Oklahoma**

## **INTRODUCTION**

Across the State of Oklahoma, *hospitals and hospital systems provide access to vital health care services 24 hours a day, seven days a week, 365 days a year. However, the role hospitals and hospital systems play as major contributors to State of Oklahoma economy is often overlooked.* Hospitals train and employ physicians and other health care workers, resulting in significant and direct contributions to the fiscal health of the State of Oklahoma. Additionally, the economic contributions of hospitals result in a significant number of jobs created in other businesses and industries. The objective of this report is to measure the economic impact of Oklahoma hospitals on the economy of the State of Oklahoma. More specifically, the report will:

1. Review economic trends of hospital and health employment and payroll for the United States and the State of Oklahoma;
2. Present economic data for Oklahoma hospitals;
3. Measure the economic impact of operating activities and construction activities of Oklahoma hospitals on the economy of the State of Oklahoma;
4. Estimate the amount of selected state and federal taxes paid by the employees and secondary employees of Oklahoma hospitals; and
5. Measure the economic impact of operating activities and construction activities of Oklahoma County hospitals and Tulsa County hospitals on the county economies.



## TRENDS IN THE HEALTH CARE INDUSTRY

### National Trends

*The health care sector is an extremely fast-growing sector in the United States, and based on the current demographics, there is every reason to expect this trend to continue.* Data in **Table 1** provide selected expenditure and employment data for the United States. Several highlights from the national data are:

- In 1970, health care services as a share of the national gross domestic product (GDP) were 7.2 percent and increased to 16.2 percent in 2008;
- Employment in the health sector increased 341.3 percent from 1970 to 2008; and
- Annual increases in employment from 2003 to 2008 ranged from 2.0 percent to 4.0 percent.

In addition, the Bureau of Labor Statistics projects substantial increases in health care expenditures from 2009 through 2019. In fact, the U. S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, predicts that health care expenditures will account for 18.7 percent of GDP by 2016 and increase to 19.6 percent of GDP in 2019. Per capita health care expenditures are projected to increase to \$11,625 in 2016 and to \$13,653 in 2019. Total health expenditures are projected to increase to \$4.6 trillion in 2019.

**Figure 1** illustrates 2008 health expenditures by percent of GDP and by type of health service. Health services represented 16.2 percent of national GDP in 2008. The largest category of health services was hospital care, representing 31.0 percent of the total and the second largest category was physician services with 21.0 percent of the total.

**Table 1**  
**United States Health Expenditures and Employment Data**  
**1970-2008; Projected for 2010, 2013, 2016 & 2019**

Year	Total Health Expenditures (\$Billions)	Per Capita Health Expenditures (\$)	Health as % of GDP (%)	Health Sector Employment (000)		Avg. Annual Increase in Employment (%)
1970	\$74.9	\$356	7.2%	3,052	a	
1980	253.4	1,100	9.1%	5,278	a	7.3%
1990	714.1	2,814	12.3%	7,814	a	4.8%
2000	1,352.9	4,789	13.6%	10,858	a	3.9%
2001	1,469.2	5,150	14.3%	11,188	a	3.0%
2002	1,602.4	5,564	15.1%	11,536	a	3.1%
2003	1,735.2	5,973	15.6%	11,817	b	N/A
2004	1,855.4	6,328	15.6%	12,055	b	2.0%
2005	1,982.5	6,701	15.7%	12,314	b	2.1%
2006	2,112.5	7,071	15.8%	12,602	b	2.3%
2007	2,239.7	7,423	15.9%	12,946	b	2.7%
2008	2,338.7	7,681	16.2%	13,469	b	4.0%
<b>Projections</b>						
2010	2,600.2	8,389	17.5%			
2013	3,024.8	9,505	17.3%			
2016	3,795.9	11,625	18.7%			
2019	4,571.5	13,653	19.6%			

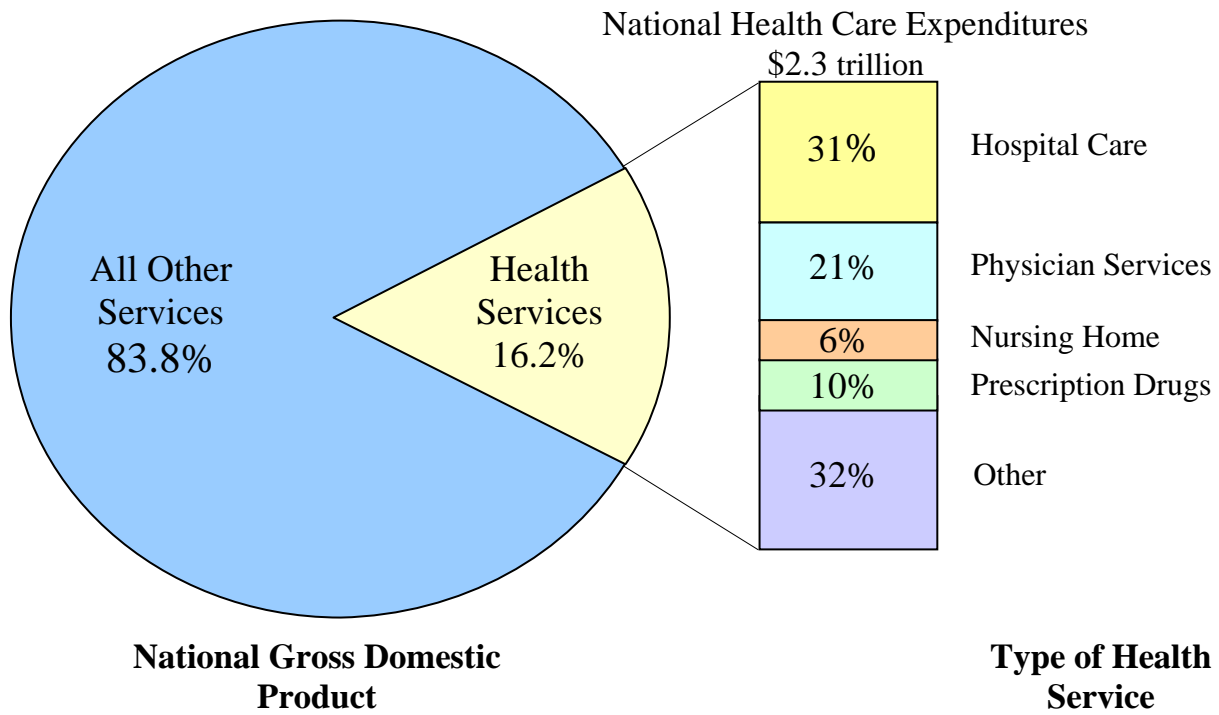
SOURCES: Bureau of Labor Statistics ([www.bls.gov](http://www.bls.gov) [January 2011]); U.S. Department of Health & Human Services, Centers for Medicare & Medicaid Services, National Health Expenditures 1970-2008 and National Health Expenditure Projections 2009-2019 (<http://www.cms.hhs.gov/nationalhealthexpenddata> [January 2011]).

N/A - Not Available.

<sup>a</sup> Based on Standard Industrial Classification (SIC) codes for health sector employment.

<sup>b</sup> Based on North American Industrial Classification System (NAICS) for health sector employment.

**Figure 1. National Health Expenditures as a Percent of Gross Domestic Product and by Health Service Type, 2008**



## **Oklahoma Trends**

Health data for the State of Oklahoma are presented. Two secondary data sources are utilized to illustrate trends and the magnitude of the importance of the health sector in Oklahoma. These sources use different definitions and thus cannot be directly compared to each other. However, both sources demonstrate the growth and importance of the health sector to the Oklahoma economy.

Data in **Tables 2** and **3** are from the U. S. Census Bureau, County Business Patterns, and illustrate how the health sector is growing over time in Oklahoma. From 1999 through 2008, the health services employment grew 22.8 percent and health services payroll 73.1 percent. During this same time period, total employment of all industries in Oklahoma increased by 14.0 percent and total payroll of all industries in Oklahoma increased by 60.6 percent. In 2008, health employment comprised 15.3 percent of the total state employment and 15.2 percent of total state payroll.

Hospital employment and payroll are presented in **Table 3** for the State of Oklahoma. Hospital employment and payroll data illustrate the same growth patterns as the overall health sector trends. From 1999 through 2008, growth in hospital employment was 13.0 percent while growth in hospital payroll was 73.5 percent. The average salary increased by 53.5 percent during the same time period.

Data in **Tables 4** and **5** are from the U. S. Department of Commerce, Bureau of Economic Analysis, for 2007 and 2008. This data source has a broader definition of employment than County Business Patterns. These tables demonstrate the importance of the health sector as compared to the other industries in the state's economy. In 2008, the health care sector (which includes hospitals) accounted for 204,353 full- and part-time employees or 11.7 percent of the

**Table 2**  
**Health Services<sup>1,2</sup> Employment and Payroll for State of Oklahoma, 1999-2008**

Year	Employment			Payroll (\$1,000s)		
	Health Services	Percent of Total	Total All Industries	Health Services	Percent of Total	Total All Industries
1999	166,399	14.2%	1,171,356	4,203,599	14.1%	\$29,887,654
2000	168,890	14.1%	1,201,606	4,436,126	14.0%	\$31,700,630
2001	173,678	14.3%	1,212,230	4,833,223	14.5%	\$33,404,026
2002	180,938	15.1%	1,200,477	5,094,542	15.2%	\$33,564,498
2003	179,718	15.2%	1,184,589	5,111,824	15.2%	\$33,555,356
2004	184,166	15.4%	1,195,043	5,594,854	15.7%	\$35,597,604
2005	187,899	15.4%	1,220,285	5,821,233	15.5%	\$37,620,071
2006	193,346	15.1%	1,276,921	6,225,221	15.1%	\$41,356,648
2007	199,863	15.3%	1,307,858	6,821,584	15.3%	\$44,607,658
2008	204,374	15.3%	1,335,622	7,275,520	15.2%	\$47,993,796
% Change from 1999 to 2008	<b>22.8%</b>		<b>14.0%</b>	<b>73.1%</b>		<b>60.6%</b>

Source: U.S. Census Bureau, County Business Patterns, based upon North American Industry Classification System (NAICS) ([www.census.gov](http://www.census.gov) [February 2011]).

<sup>1</sup> Health services is defined as the Health Care and Social Assistance NAICS sector. This sector comprises establishments providing health care and social assistance for individuals. The sector includes both health care and social assistance because it is sometimes difficult to distinguish between the boundaries of these two activities. The industries in this sector are arranged on a continuum starting with those establishments providing medical care exclusively, continuing with those providing health care and social assistance, and finally finishing with those providing only social assistance. The services provided by establishments in this sector are delivered by trained professionals. All industries in the sector share this commonality of process, namely, labor inputs of health practitioners or social workers with the requisite expertise. Many of the industries in the sector are defined based on the educational degree held by the practitioners included in the industry.

<sup>2</sup> Data are excluded for self-employed persons, employees of private households, railroad employees, agricultural production workers, and for most government employees (except for those working in wholesale liquor establishments, retail liquor stores, Federally-chartered savings institutions, Federally-chartered credit unions, and hospitals).

**Table 3**  
**Hospitals - Number, Employees, Payroll, and Average Payroll**  
**in the State of Oklahoma, 1999-2008**

Year	No. of Hospitals	No. of Employees	Payroll (\$1,000s)	Avg. Payroll (\$1,000s)	Avg. Salary (\$)
1999	159	59,769	\$1,721,371	\$10,826	\$28,800
2000	168	59,746	\$1,777,552	\$10,581	\$29,752
2001	173	60,829	\$1,920,926	\$11,104	\$31,579
2002	176	60,881	\$2,015,135	\$11,450	\$33,100
2003	150	61,310	\$2,016,944	\$13,446	\$32,897
2004	167	61,853	\$2,216,260	\$13,271	\$35,831
2005	170	62,537	\$2,240,023	\$13,177	\$35,819
2006	168	65,223	\$2,461,227	\$14,650	\$37,736
2007	171	67,356	\$2,798,588	\$16,366	\$41,549
2008	173	67,547	\$2,985,908	\$17,260	\$44,205
% Change from 1999 to 2008	<b>8.8%</b>	<b>13.0%</b>	<b>73.5%</b>	<b>59.4%</b>	<b>53.5%</b>

Source: U.S. Census Bureau, County Business Patterns, based upon North American Industry Classification System (NAICS) (www.census.gov [February 2011]).

**Table 4**  
**Full- and Part-Time Employment by Type and Major Industry**  
**for the State of Oklahoma, 2007 and 2008**

	2007			2008		
	No. of Jobs	% of Total	% of Private	No. of Jobs	% of Total	% of Private
<b>Total FT &amp; PT Employment</b>	<u>2,145,016</u>	100.0%		<u>2,206,469</u>	<u>100.0%</u>	
Wage & salary employment	1,648,789	76.9%		1,678,434	76.1%	
Proprietors' employment	<u>496,227</u>	<u>23.1%</u>		<u>528,035</u>	<u>23.9%</u>	
<b>By industry</b>						
Farm employment	90,498	4.2%		91,532	4.1%	
Nonfarm employment	<u>2,054,518</u>	<u>95.8%</u>		<u>2,114,937</u>	<u>95.9%</u>	
<b>Private employment</b>	<u>1,694,502</u>	<u>82.5%</u>	<u>100.0%</u>	<u>1,751,143</u>	<u>82.8%</u>	<u>100.0%</u>
Forestry, fishing, & related & other	8,734		0.5%	9,085		0.5%
Mining	81,251		4.8%	95,139		5.4%
Utilities	10,912		0.6%	11,305		0.6%
Construction	127,263		7.5%	133,704		7.6%
Manufacturing	158,074		9.3%	159,025		9.1%
Wholesale trade	65,659		3.9%	65,910		3.8%
Retail trade	219,967		13.0%	222,373		12.7%
Transportation & warehousing	64,310		3.8%	64,428		3.7%
Information	33,639		2.0%	33,990		1.9%
Finance & insurance	86,712		5.1%	91,172		5.2%
Real estate & rental and leasing	72,269		4.3%	77,369		4.4%
Prof, scientific, & tech svcs	102,567		6.1%	106,247		6.1%
Mgmt of companies & enterprises	14,328		0.8%	14,693		0.8%
Admin & waste services	138,023		8.1%	141,594		8.1%
Educational services	25,744		1.5%	26,545		1.5%
<b>Hlth care &amp; soc asst incl HOSPS</b>	<b>197,766</b>		<b>11.7%</b>	<b>204,353</b>		<b>11.7%</b>
Arts, entertainment, & recreation	31,130		1.8%	33,399		1.9%
Accomm & food services	135,721		8.0%	138,364		7.9%
Other svcs, except public admin	<u>120,433</u>		<u>7.1%</u>	<u>122,448</u>		<u>7.0%</u>
<b>Govt &amp; govt enterprises</b>	<u>360,016</u>	<u>17.5%</u>		<u>363,794</u>	<u>17.2%</u>	

Source: U.S. Department of Commerce, Bureau of Economic Analysis, based on North American Industry Classification System (NAICS) (www.bea.gov [February 2011]).

**Table 5**  
**Personal Income by Major Source and Industry**  
**for the State of Oklahoma, 2007 and 2008**

	2007			2008		
	Income (\$1,000s)	% of Total	% of Private	Income (\$1,000s)	% of Total	% of Private
<b>Earnings by place of work</b>	<u>\$89,314,809</u>	<u>100.0%</u>		<u>\$94,722,795</u>	<u>100.0%</u>	
Wage & salary disbursements	\$59,831,233	67.0%		\$63,504,762	67.0%	
Proprietors' income <sup>1</sup>	\$14,130,799	15.8%		\$15,173,915	16.0%	
Other Earnings	<u>\$15,352,777</u>	<u>17.2%</u>		<u>\$16,044,118</u>	<u>16.9%</u>	
<b>Earnings by industry</b>						
Farm earnings	\$544,198	0.6%		\$828,474	0.6%	
Nonfarm earnings	<u>\$88,770,611</u>	<u>99.4%</u>		<u>\$93,894,321</u>	<u>99.4%</u>	
<b>Private earnings</b>	<u>\$69,497,899</u>	<u>78.3%</u>	<u>100.0%</u>	<u>\$73,787,102</u>	<u>78.6%</u>	<u>100.0%</u>
Forestry, fishing, related & other	\$200,534		0.3%	\$203,171		0.3%
Mining	\$6,587,427		9.5%	\$7,962,813		10.8%
Utilities	\$1,276,811		1.8%	\$1,309,082		1.8%
Construction	\$4,640,730		6.7%	\$4,721,528		6.4%
Manufacturing	\$11,419,874		16.4%	\$12,000,040		16.3%
Wholesale trade	\$3,828,107		5.5%	\$4,060,350		5.5%
Retail trade	\$6,057,390		8.7%	\$6,255,275		8.5%
Transportation & warehousing	\$3,575,350		5.1%	\$3,731,708		5.1%
Information	\$1,943,584		2.8%	\$2,026,210		2.7%
Finance & insurance	\$3,595,664		5.2%	\$3,772,698		5.1%
Real estate, rental & leasing	\$1,340,302		1.9%	\$1,280,779		1.7%
Prof, scientific, & technical svcs	\$4,877,523		7.0%	\$5,124,178		6.9%
Mgmt of companies & enterprises	\$1,165,654		1.7%	\$1,172,471		1.6%
Admin & waste services	\$3,737,936		5.4%	\$4,015,727		5.4%
Educational services	\$667,372		1.0%	\$705,786		1.0%
<b>Hlth care &amp; soc asst incl HOSPS</b>	<b>\$8,416,234</b>		<b>12.1%</b>	<b>\$8,928,878</b>		<b>12.1%</b>
Arts, entertainment, & recreation	\$558,776		0.8%	\$601,260		0.8%
Accommodations & food services	\$2,351,499		3.4%	\$2,486,022		3.4%
Other svcs, except public admin	<u>\$3,257,132</u>		<u>4.7%</u>	<u>\$3,429,126</u>		<u>4.6%</u>
<b>Govt &amp; govt enterprises</b>	<u>\$19,272,712</u>	<u>21.7%</u>		<u>\$20,107,219</u>	<u>21.4%</u>	

Source: U.S. Department of Commerce, Bureau of Economic Analysis, based on North American Industry Classification System (NAICS) (www.bea.gov [February 2011]).

<sup>1</sup> Proprietors' income includes the inventory valuation adjustment & capital consumption adjustment.



private employment in Oklahoma (**Table 4**) and accounted for \$8.9 billion in earnings or 12.1 percent of private earnings in Oklahoma (**Table 5**).

**Table 6** compares full- and part-time employment statistics from 1980, 1990, 2000 and 2008 for the State of Oklahoma. From 1980 to 2008, the emphasis on manufacturing has significantly decreased in the State of Oklahoma and the emphasis on services, including health care, has become much more dominant. Data in **Table 6** clearly exemplify the changing Oklahoma economy. From 1980 to 2008, manufacturing as a percent of the private employment dropped from 16.5 percent to 9.1 percent. During this same time period, services increased from 24.5 percent of private employment services to 46.9 percent. All health care jobs are included in the service sector. The data source does not provide specific information on health employment or hospital employment.

Data in **Table 7** reflect the population trends. From 1990 to 2000, population increased by 9.7 percent in the State of Oklahoma, as compared to the national rate of 13.2 percent. From 2000 to 2009, population is estimated to have increased in the State of Oklahoma by 6.9 percent, as compared to national rate of 9.1 percent. Oklahoma is projected to continue to grow. From 2000 to 2030, Oklahoma is projected to increase by 21.5 percent, compared to the national rate of 32.7 percent.

**Table 6**  
**Full- and Part-Time Employment**

**by Type and Major Industry for the State of Oklahoma, 1980, 1990, 2000, and 2008**

	1980			1990			2000			2008		
	No. of Jobs	% of Total	% of Private	No. of Jobs	% of Total	% of Private	No. of Jobs	% of Total	% of Private	No. of Jobs	% of Total	% of Private
<b>Total FT &amp; PT employment</b>	<u>1,547,367</u>	<u>100.0%</u>		<u>1,654,743</u>	<u>100.0%</u>		<u>2,002,817</u>	<u>100.0%</u>		<u>2,206,469</u>	<u>100.0%</u>	
Wage & salary employment	1,239,282	80.1%		1,284,412	77.6%		1,563,936	78.1%		1,678,434	76.1%	
Proprietors' employment	<u>308,085</u>	<u>19.9%</u>		<u>370,331</u>	<u>22.4%</u>		<u>438,881</u>	<u>21.9%</u>		<u>528,035</u>	<u>23.9%</u>	
<b>By Industry</b>												
Farm employment	89,470	5.8%		82,529	5.0%		100,194	5.0%		91,532	4.1%	
Nonfarm employment	<u>1,457,897</u>	<u>94.2%</u>		<u>1,572,214</u>	<u>95.0%</u>		<u>1,902,623</u>	<u>95.0%</u>		<u>2,114,937</u>	<u>95.9%</u>	
<b>Private employment</b>	<u>1,180,301</u>	<u>81.0%</u>	<u>100.0%</u>	<u>1,263,085</u>	<u>76.3%</u>	<u>100.0%</u>	<u>1,572,190</u>	<u>78.5%</u>	<u>100.0%</u>	<u>1,751,143</u>	<u>82.8%</u>	<u>100.0%</u>
Ag svcs, related & Mining	115,376		9.8%	97,484		7.7%	76,420		4.9%	104,224		6.0%
Construction	84,583		7.2%	69,501		5.5%	102,078		6.5%	133,704		7.6%
Manufacturing	195,027		16.5%	174,833		13.8%	188,998		12.0%	159,025		9.1%
Transp & public utilities	78,746		6.7%	79,819		6.3%	103,067		6.6%	75,733		4.3%
Wholesale trade	73,237		6.2%	66,369		5.3%	75,380		4.8%	65,910		3.8%
Retail trade	236,340		20.0%	263,833		20.9%	331,052		21.1%	222,373		12.7%
Finance, ins, & real estate	107,789		9.1%	99,358		7.9%	129,426		8.2%	168,541		9.6%
Services <sup>1,2</sup>	<u>289,203</u>		<u>24.5%</u>	<u>411,888</u>		<u>32.6%</u>	<u>565,769</u>		<u>36.0%</u>	<u>821,633</u>		<u>46.9%</u>
<b>Govt &amp; govt enterprises</b>	<u>277,596</u>	<u>19.0%</u>		<u>309,129</u>	<u>18.7%</u>		<u>330,433</u>	<u>16.5%</u>		<u>363,794</u>	<u>17.2%</u>	

Source: U. S. Department of Commerce, Bureau of Economic Analysis, 1980-2000 data based on Standard Industry Classification (SIC) and 2008 data based on North American Industry Classification System (NAICS) (www.bea.gov [February 2011]).

<sup>1</sup> **Services** - For 1980, 1990, and 2000, the data are based on the Standard Industrial Classification system (SIC) division and the services include establishments primarily engaged in providing a wide variety of services for individuals, business and government establishments, and other organizations; hotels and other lodging places; establishments providing personal, business, repair, and amusement services; health, legal, engineering, and other professional services; educational institutions; membership organizations, and other miscellaneous services, are included. Establishments which provide specialized services closely allied to activities covered in other divisions are classified in such divisions.

<sup>2</sup> **Services** - For 2008, the data are based on the North American Industry Classification System (NAICS) and the services include information, management of companies and enterprises, administrative and waste services, educational services, health care and social assistance, arts, entertainment, and recreation, accommodation and food services, and other services, except public administration.

**Table 7**  
**Population and Population Projections**  
**for the State of Oklahoma and the United States, 1990 - 2030**

Population Category	State of Oklahoma	United States
1990 Census	3,145,585	248,709,873
2000 Census	3,450,654	281,421,906
2009 Estimated	3,687,050	307,006,550
2010 Projected	3,707,000	310,233,000
2020 Projected	3,963,800	341,387,000
2030 Projected	4,192,400	373,504,000
<b>Change from last Census</b>		
1990 - 2000 % change	9.7%	13.2%
<b>Change from Census to latest Estimates</b>		
2000 - 2009 % change	6.9%	9.1%
<b>Change from last Census through Projections</b>		
2000 - 2010 % change	7.4%	10.2%
2000 - 2020 % change	14.9%	21.3%
2000 - 2030 % change	21.5%	32.7%

Source: 1990 and 2000 census population and 2009 estimated population and U. S. projected populations, U.S. Census Bureau (www.census.gov February 2011); Oklahoma projected populations, Oklahoma Department of Commerce (www.okcommerce.gov [February 2011]).

### **Oklahoma and Tulsa County Trends**

Hospital-specific data from County Business Patterns are available for Oklahoma and Tulsa Counties. For Oklahoma County from 1999 to 2008 (**Table 8a**), the number of hospitals increased 18.5 percent, hospital employment increased 13.7 percent, hospital payroll increased 74.9 percent, and the average salary increased 53.9 percent. For Tulsa County from 1999 to 2008 (**Table 8b**), the number of hospitals increased 58.8 percent, hospital employment increased 3.1 percent, hospital payroll increased 55.4 percent, and the average salary increased 50.7 percent.

**Table 8a**  
**Number of Hospitals, Employment, Payroll, Average Payroll and Average Salary**  
**in Oklahoma County, Oklahoma, 1999-2008**

<b>Year</b>	<b>No. of Hospitals<sup>1,2</sup></b>	<b>No. of Employees</b>	<b>Payroll (\$1,000s)</b>	<b>Avg. Payroll (\$1,000s)</b>	<b>Avg. Salary (\$)</b>
1999	27	17,863	\$565,947	\$20,961	\$31,683
2000	31	17,570	\$578,376	\$18,657	\$32,918
2001	34	18,952	\$643,354	\$18,922	\$33,946
2002	36	19,537	\$705,461	\$19,596	\$36,109
2003	29	21,194	\$716,860	\$24,719	\$33,824
2004	34	21,255	\$776,220	\$22,830	\$36,519
2005	39	21,565	\$802,664	\$20,581	\$37,221
2006	35	22,026	\$849,936	\$24,284	\$38,588
2007	33	20,788	\$931,286	\$28,221	\$44,799
2008	32	20,306	\$989,814	\$30,932	\$48,745
<b>% Change from 1999 to 2008</b>	<b>18.5%</b>	<b>13.7%</b>	<b>74.9%</b>	<b>47.6%</b>	<b>53.9%</b>

**Table 8b**  
**Number of Hospitals, Employment, Payroll, Average Payroll and Average Salary**  
**in Tulsa County, Oklahoma, 1999-2008**

<b>Year</b>	<b>No. of Hospitals<sup>1,2</sup></b>	<b>No. of Employees</b>	<b>Payroll (\$1,000s)</b>	<b>Avg. Payroll (\$1,000s)</b>	<b>Avg. Salary (\$)</b>
1999	17	12,745	\$391,153	\$23,009	\$30,691
2000	20	12,950	\$402,120	\$20,106	\$31,052
2001	23	12,908	\$437,880	\$19,038	\$33,923
2002	20	12,286	\$390,400	\$19,520	\$31,776
2003	13	10,779	\$342,233	\$26,326	\$31,750
2004	18	12,047	\$458,363	\$25,465	\$38,048
2005	21	13,173	\$467,162	\$22,246	\$35,464
2006	20	14,258	\$521,909	\$26,095	\$36,605
2007	22	13,457	\$571,882	\$25,995	\$42,497
2008	27	13,145	\$607,825	\$22,512	\$46,240
<b>% Change from 1999 to 2008</b>	<b>58.8%</b>	<b>3.1%</b>	<b>55.4%</b>	<b>-2.2%</b>	<b>50.7%</b>

Source: U.S. Census Bureau, County Business Patterns; 1999-2008 based upon North American Industry Classification System (NAICS), (www.census.gov [February 2011]).

<sup>1</sup> Industries in the Hospitals subsector provide medical, diagnostic, and treatment services that include physician, nursing, and other health services to inpatients and the specialized accommodation services required by inpatients. Hospitals may also provide outpatient services as a secondary activity. Establishments in the Hospitals subsector provide inpatient health services, many of which can only be provided using the specialized facilities and equipment that form a significant and integral part of the production process.

<sup>2</sup> Data are excluded for self-employed persons, employees of private households, railroad employees, agricultural production workers, and for most government employees (except for those working in wholesale liquor establishments, retail liquor stores, Federally-chartered savings institutions, Federally-chartered credit unions, and hospitals.)

NOTE: Shaded cells indicate the data have been estimated.

## STATISTICS OF OKLAHOMA HOSPITALS

The economic impact of Oklahoma hospitals is significant, as measured by employment, payroll, and capital investment in construction activities. To derive exact numbers, the Oklahoma Hospital Association conducted a survey of hospitals during early 2011. Oklahoma hospitals were requested to provide data for the latest fiscal year. The results are presented in the next two tables. Seventy-three hospitals provided data to the Oklahoma Hospital Association for 2010. Forty-six percent of all Oklahoma hospitals responded to the survey. Based on bed size categories from the hospitals reporting data, averages were derived and utilized to estimate data for the non-reporting hospitals.

### **Results by Bed Size**

The estimated employment of Oklahoma hospitals during 2010 was 71,161 full- and part-time jobs and *the average employment per hospital was 450 jobs (Table 9)*. Average hospital payroll (wages, salaries and benefits) ranged from a low of \$9.1 million for the small hospitals to \$180.2 million for the larger hospitals. *Average salary and benefits per employee for all hospitals was \$56,363.*

Data were also collected relative to capital expenditures for construction activities. Since these capital expenditures can vary year by year, data were collected for the past two fiscal years. *The results document that hospitals invest tremendous amounts each year to improve their physical plants. The impacts of these investments on Oklahoma's economy are often overlooked.* Oklahoma hospitals invested \$1.2 billion last fiscal year and \$628.9 million in the prior fiscal year. The average annual capital investments for construction activities per hospital were \$8.1 million for the last fiscal year and \$4.0 million for the prior fiscal year.

**Table 9**  
**Selected Statistics for Oklahoma Hospitals by Bed Size, 2010**

	< 100 Beds	100-199 Beds	200-299 Beds	300-499 Beds	500+ Beds	Totals
No. of Hospitals	121	19	7	3	8	158
Employment	22,122	12,647	6,899	5,979	23,514	71,161
Avg. Employment	183	666	986	1,993	2,939	450
Payroll (Salary & Benefits)	\$1,102,572,019	\$711,009,055	\$417,746,642	\$337,612,251	\$1,441,896,501	\$4,010,836,468
Avg. Payroll	\$9,112,165	\$37,421,529	\$59,678,092	\$112,537,417	\$180,237,063	\$25,385,041
Avg. Salary	\$49,841	\$56,220	\$60,552	\$56,466	\$61,321	\$56,363
Capital Inv. Last Fiscal Year	\$476,385,745	\$230,903,644	\$59,044,878	\$26,618,874	\$489,345,744	\$1,282,298,885
Avg. Capital Inv. Last Fiscal Year	\$3,937,072	\$12,152,823	\$8,434,983	\$8,872,958	\$61,168,218	\$8,115,816
Capital Inv. Prior Fiscal Year	\$142,400,707	\$208,010,674	\$31,971,103	\$46,518,895	\$200,045,346	\$628,946,725
Avg. Capital Inv. Prior Fiscal Year	\$1,176,865	\$10,947,930	\$4,567,300	\$15,506,298	\$25,005,668	\$3,980,675

Source: Survey of the Oklahoma Hospital Association or estimated based on averages per bed size.

## **Results by County**

**Table 10** presents the selected data for Oklahoma hospitals in Oklahoma and Tulsa Counties and aggregates the data for all other counties. Thirty percent of Oklahoma hospitals are located in Oklahoma and Tulsa Counties.

Oklahoma County had a total of twenty-six hospitals with employment of 22,744 and payroll of \$1.4 billion. The average payroll per hospital was \$52.8 million with an average salary per employee of \$60,310. The Oklahoma County hospitals invested \$297.0 million in construction activities last fiscal year and \$182.3 million the prior fiscal year. This was an average investment per hospital of \$11.4 million last fiscal year and \$7.0 million the prior fiscal year.

Tulsa County had twenty-one hospitals with total employment of 14,605 and total payroll of \$833.4 million. The average employment per hospital was 695 employees, with an average payroll per hospital of \$39.7 million and an average salary per employee of \$57,064. The average capital investment for construction activities per hospital was \$11.8 million last fiscal year and \$5.5 million the prior fiscal year.

All other Oklahoma hospitals were grouped together in the “All Other Counties” category. This category included 111 hospitals in 72 counties. These hospitals are much smaller than the hospitals in Oklahoma and Tulsa Counties. The average employment per hospital was 305, with an average payroll of \$16.3 million and an average salary of \$53,405. The average capital investment for construction activities per hospital was \$6.6 million last fiscal year, a increase from \$3.0 million the prior fiscal year.



**Table 10**  
**Selected Statistics for Oklahoma Hospitals by Oklahoma, Tulsa, and All Other Counties, 2010**

	Oklahoma County	Tulsa County	All Other Counties	Totals
No. of Hospitals	26	21	111	158
Employment	22,744	14,605	33,812	71,161
Avg. Employment	875	695	305	450
Payroll (Salary & Benefits)	\$1,371,684,954	\$833,417,303	\$1,805,734,211	\$4,010,836,468
Avg. Payroll	\$52,757,114	\$39,686,538	\$16,267,876	\$25,385,041
Avg. Salary	\$60,310	\$57,064	\$53,405	\$56,363
Capital Inv. Last Fiscal Year	\$297,049,294	\$248,259,430	\$736,990,161	\$1,282,298,885
Avg. Capital Inv. Last Fiscal Year	\$11,424,973	\$11,821,878	\$6,639,551	\$8,115,816
Capital Inv. Prior Fiscal Year	\$182,323,920	\$114,650,969	\$331,971,836	\$628,946,725
Avg. Capital Inv. Prior Fiscal Year	\$7,012,458	\$5,459,570	\$2,990,737	\$3,980,675

Source: Survey of the Oklahoma Hospital Association or estimated based on averages per bed size.

## THE IMPACTS OF OKLAHOMA HOSPITALS ON THE STATE OF OKLAHOMA

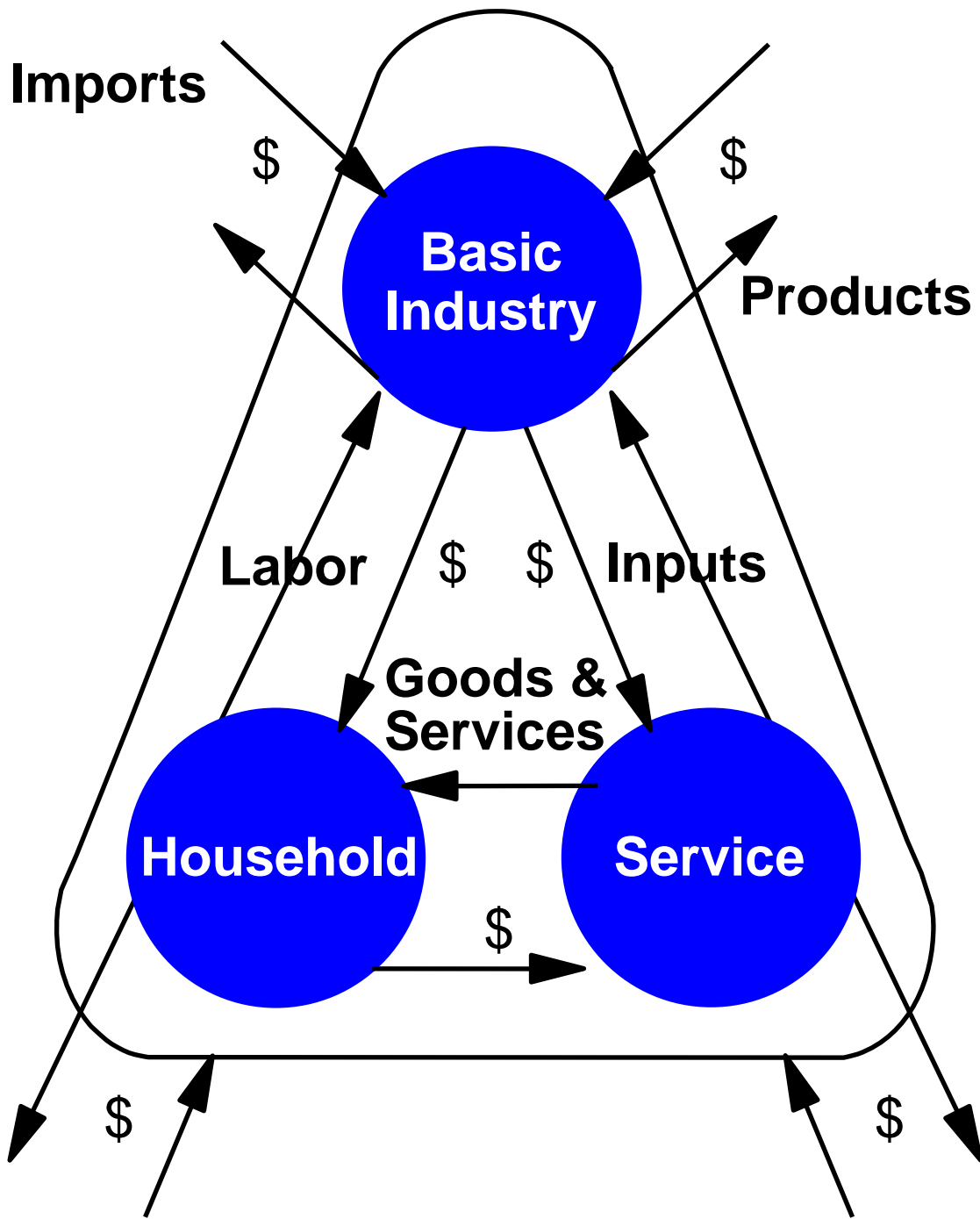
As presented in the previous section, *the economic impacts of Oklahoma hospitals are significant, as measured by their employment and income (wages, salaries, and benefit).*

However, this does not tell the complete story as secondary economic impacts are created when the hospitals and their employees spend money. These secondary benefits are measured by multipliers using an input-output model and data from IMPLAN, a model that is widely used by economists and other academics across the United States. The model and data are further discussed in **Appendix A**.

### **The Multiplier Effect**

To further explain the concept of a multiplier, consider, for instance, the closing of a hospital. The hospital no longer pays employees, and dollars going to these households will stop. Likewise, the hospital cannot purchase goods from other businesses, and the dollar flowing to those other businesses will stop. As a result, household income and revenues for other businesses in the economy will be decreased. Since earnings would decrease, households and businesses decrease their purchases of goods and services from other businesses. This in turn, decreases the purchases of labor and inputs. Thus, the change in the economic base works its way throughout the entire economy.

A measure is needed that yields the effects created by an increase or decrease in economic activity. In economics, this measure is called the multiplier effect. An employment multiplier of 2.0 indicates that if one job is created by a new industry, 1.0 additional jobs are created in other sectors due to business and household spending. The model calculates employment, income, and output multipliers (**Figure 3**).



**Figure 3**  
**Economic System of a County or State**

## **The Employment Impact on the Economy of the State of Oklahoma**

The employment impact of Oklahoma hospitals on the economy of the State of Oklahoma is presented in **Table 11**. Oklahoma hospitals create employment from their operating activities and from their construction activities. Employment and income from operating activities were derived from the survey or from utilizing average data based on hospitals by bed size. Annual employment and income from construction activities had to be estimated from capital investment construction activity data provided by the survey or from utilizing average construction activity data based on hospitals by bed size. From the hospital statistics, Oklahoma hospitals had 71,161 full- and part-time employees. The state hospital employment multiplier was 1.81; this meant that for every job in the hospital sector, another 0.81 jobs are created in other businesses in the State of Oklahoma. Thus, secondary employment created by Oklahoma hospitals equaled 57,640. *In total, Oklahoma hospitals generated 128,801 jobs throughout the State of Oklahoma due to operating activities.*

Data results indicated that Oklahoma hospitals spent about \$1.3 billion on capital expenditures for construction activities during the last fiscal year. These expenditures created significant construction employment and were a significant part of the impact Oklahoma hospitals had on the economy of the State of Oklahoma. From IMPLAN, the employment per million dollars of output was derived and applied to the capital expenditures for construction activities. The construction activities resulted in the creation of 9,657 jobs annually. These construction jobs worked directly on hospital construction activities. However, these construction companies and workers also had secondary impacts that are measured by multipliers. The construction employment multiplier for the State of Oklahoma was 1.79. Thus, 7,629 secondary jobs were created in other businesses due to the construction activities of

Oklahoma hospitals during the last year. *Total jobs created by hospital construction activities were 17,286. Combined operating and construction activities of Oklahoma hospitals created 146,087 jobs in the State of Oklahoma last year.*

**Table 11**  
**Total Employment Impact of Oklahoma Hospitals**  
**on the Economy of the State of Oklahoma, 2010**

	Direct Employment	Multiplier	Secondary Employment Impact	Total Employment Impact
Operations	71,161	1.81	57,640	128,801
Construction	<u>9,657</u>	1.79	<u>7,629</u>	<u>17,286</u>
<b>Totals</b>	<b><u>80,818</u></b>		<b><u>65,269</u></b>	<b><u>146,087</u></b>

Source: Employment for hospitals from survey of the Oklahoma Hospital Association or estimated based on averages per bed size; employment for construction estimated from IMPLAN data and current IMPLAN multipliers, Minnesota IMPLAN Group, Inc.

### **The Income Impact on the Economy of the State of Oklahoma**

Data on the income impact of Oklahoma hospitals are presented in **Table 12**. From the hospital data, total income from the operating activities of Oklahoma hospitals was estimated to be \$4.0 billion. Using the state hospital income multiplier of 1.54, Oklahoma hospitals generated income in other businesses of \$2.2 billion. *The total income impact of the hospitals from operating activities was \$6.2 billion on the economy of the State of Oklahoma.*

Income generated directly by construction workers engaged in hospital construction activities was estimated at \$375.2 million. Applying the state construction income multiplier of 1.79, hospital construction activities were estimated to generate \$296.4 million in income in other businesses. *Thus, the total income impact generated from hospital construction activities was \$671.6 million in the State of Oklahoma. Combined operating and construction activities of Oklahoma hospitals generated \$6.8 billion in annual income impact in the State of*

*Oklahoma. The total income impact of \$6.8 billion generated retail sales of \$2.2 billion, resulting in \$99.5 million in state sales tax impact from the 4.5% state sales tax.*

**Table 12**  
**Total Income, Retail Sales, and State Sales Tax Impact of Oklahoma Hospitals**  
**on the Economy of the State of Oklahoma, 2010**

	Direct Income	Multiplier	Secondary Income Impact	Total Income Impact
Operations	\$4,010,836,468	1.54	\$2,165,851,693	<b>\$6,176,688,161</b>
Construction	<u>\$375,168,846</u>	1.79	<u>\$296,383,388</u>	<b><u>\$671,552,234</u></b>
<b>Totals</b>	<b><u>\$4,386,005,314</u></b>		<b><u>\$2,462,235,081</u></b>	<b><u>\$6,848,240,395</u></b>
			Retail Sales	4.5% State Sales Tax
Operations			\$1,995,070,276	\$89,778,162
Construction			<u>\$216,911,372</u>	<u>\$9,761,012</u>
<b>Totals</b>			<b><u>\$2,211,981,648</u></b>	<b><u>\$99,539,174</u></b>

Source: Income for hospitals from survey of the Oklahoma Hospital Association or estimated based on averages per bed size; income for construction estimated from IMPLAN data and current IMPLAN multipliers, Minnesota IMPLAN Group, Inc.; state retail sales capture ratio calculated from personal income from Bureau of Economic Analysis and from taxable sales from Oklahoma Tax Commission.

## **THE IMPACT ON SELECTED STATE AND FEDERAL TAXES**

Many Oklahoma hospitals are tax-exempt entities and will not generate significant tax dollars through their employees and the secondary employment. Data in **Table 13** summarize the 2010 federal and state taxes generated by Oklahoma hospitals' employment, construction employment, and secondary employment. When available, tax data from a sample of Oklahoma hospitals were utilized in the estimation process. In many cases, tax data were not available and estimates were made using the best available estimation procedures. The estimation assumptions are discussed below. The total of the selected state and federal taxes is estimated to be \$1.1 billion annually.

### **State Sales Taxes**

State sales taxes paid by the direct and secondary employees of Oklahoma hospitals were estimated at \$99.5 million. From **Table 12**, it was estimated that Oklahoma hospital employees and secondary employees generated \$2.2 billion in retail sales annually. Applying the 4.5% state sales tax rate resulted in the estimated total of \$99.5 million in state sales taxes paid by direct and secondary employees of Oklahoma hospitals.

### **State Income Taxes**

From the survey of Oklahoma hospitals, the amount of state withholding taxes was provided. The ratio of state income taxes withheld to total wages, salaries, and benefits was calculated. This ratio was then used to estimate state income tax withholdings for hospital employees, construction employees, and secondary employees. Total state income taxes for all employees were estimated at \$195.1 million.

**Table 13**  
**Summary of Selected State and Federal Taxes Generated Annually**  
**by Oklahoma Hospital Employees, Construction Employees,**  
**and Secondary Employees, 2010**

Type of Tax	Estimated Taxes
<b>State Taxes</b>	
State Sales Taxes	\$99,539,174
State Income Taxes	\$195,096,363
Motor Fuels Taxes <sup>1</sup>	\$97,769,344
Beverage, Tobacco, and Gaming Taxes <sup>2</sup>	<u>\$38,133,250</u>
<b>Total of Selected State Taxes</b>	<b><u>\$430,538,131</u></b>
<b>Federal Taxes</b>	
Federal Income Taxes	<b><u>\$638,149,093</u></b>
<b>GRAND TOTAL - Selected State and Federal Taxes</b>	<b><u>\$1,068,687,224</u></b>

<sup>1</sup> Motor fuels taxes include Diesel Fuel Excise Tax, Gasoline Excise Tax, Gross Production Tax-Oil and Gas, Petroleum Excise Tax, Special Fuel Decal, Special Fuel Use Tax, and Tag Agent Remittance Tax.

<sup>2</sup> Beverage, tobacco, and gaming taxes include Alcoholic Beverage Excise Tax, Beverage Tax, Bingo Tax, Charity Games Tax, Cigarette Tax, Tobacco Products Tax, Pari-Mutuel Taxes, Pari-Mutuel-Other Tax, Mixed Beverage Gross Receipts Tax, Horse Track Gaming, and Gaming Exclusivity Fees.

**State Motor Fuels Taxes**

The state generates a large amount of revenue from motor fuels taxes, including Diesel Fuel Excise Tax, Gasoline Excise Tax, Gross Production Tax-Oil and Gas, Petroleum Excise Tax, Special Fuel Decal, Special Fuel Use Tax, and Tag Agent Remittance Tax. These were estimated by deriving a state average tax paid per employee. This was multiplied times the total number of direct and secondary employees of Oklahoma hospitals. The estimated amount of taxes generated was \$97.8 million.



### **State Beverage, Tobacco, and Gaming Taxes**

The beverage, tobacco, and gaming taxes include Alcoholic Beverage Excise Tax, Beverage Tax, Bingo Tax, Charity Games Tax, Cigarette Tax, Tobacco Products Tax, Pari-Mutuel Taxes, Pari-Mutuel-Other Tax, Mixed Beverage Gross Receipts Tax, Horse Track Gaming, and Gaming Exclusivity Fees. The state average tax paid per employee was estimated. The state average tax paid per employee was then multiplied by the total number of direct and secondary employees of Oklahoma hospitals for an estimated total of \$38.1 million.

The total selected state taxes include state sales taxes, state income taxes, motor fuels taxes, and beverage, tobacco, and gaming taxes. The selected state taxes impact from Oklahoma hospitals is estimated at \$430.5 million.

### **Federal Income Taxes**

Federal income taxes for 2010 were estimated utilizing Oklahoma hospital survey data. From the hospitals reporting federal withholding taxes, the ratio of withholding to total wages, salaries, and benefits was calculated. This ratio was applied to the total income impact of Oklahoma hospitals to derive the federal income taxes impact of \$638.1 million. The assumption is made that the federal income taxes withheld are reflective of the federal income tax liability.

### **Summary of Taxes**

The analysis of selected state and federal taxes clearly demonstrates that Oklahoma hospitals, whether non-profit or profit facilities, generate a significant amount of taxes, totaling \$1.1 billion per year. With future economic development, the amount of state and federal taxes generated will only increase and further demonstrate the economic importance of health care on the economies of the counties and the State of Oklahoma.

**THE IMPACTS OF OKLAHOMA HOSPITALS  
ON THE ECONOMIES OF OKLAHOMA AND TULSA COUNTIES**

An analysis by county was completed for Oklahoma and Tulsa Counties. For each county, the employment, income, retail sales and state sales tax impacts were estimated.

Data in **Table 14** measure the employment impact in Oklahoma and Tulsa Counties from both operating and construction activities. The hospitals in Oklahoma County had 22,744 employees from operating activities. Construction workers held 2,134 jobs while working on construction activities for Oklahoma County hospitals. The Oklahoma County employment multipliers are presented in **Table 14**. Each multiplier indicates the number of jobs created

**Table 14  
Total Employment Impact of Oklahoma Hospitals  
on Oklahoma and Tulsa Counties, 2010**

County	Direct Employment	Multiplier	Secondary Employment Impact	Total Employment Impact
<u>Oklahoma County</u>				
Operations	22,744	1.80	18,195	40,939
Construction	<u>2,134</u>	1.78	<u>1,665</u>	<u>3,799</u>
<b>Totals</b>	<b><u>24,878</u></b>		<b><u>19,860</u></b>	<b><u>44,738</u></b>
<u>Tulsa County</u>				
Operations	14,605	1.79	11,538	26,143
Construction	<u>1,831</u>	1.77	<u>1,410</u>	<u>3,241</u>
<b>Totals</b>	<b><u>16,436</u></b>		<b><u>12,948</u></b>	<b><u>29,384</u></b>

Source: Employment for hospitals from survey of the Oklahoma Hospital Association or estimated based on averages per bed size; employment for construction estimated from IMPLAN data and current IMPLAN multipliers, Minnesota IMPLAN Group, Inc.

throughout the county due to one job in a particular sector. For example, the employment multiplier for hospital operations for Oklahoma County was 1.80. This means that for each job

created in the hospitals, another 0.80 job is created in other businesses in the county. The total number of jobs created in other businesses was 18,195 resulting in total employment impact from hospital operations in Oklahoma County of 40,939. ***When the construction jobs were added, the total employment impact of Oklahoma County hospitals was 44,738 jobs.***

The same analysis was completed for Tulsa County (**Table 14**). The total job impact from operations was 26,143 and total job impact from construction was 3,241, for ***a total employment impact of Tulsa County hospitals of 29,384 jobs.***

The income impact of Oklahoma hospitals on the economies of Oklahoma and Tulsa Counties is presented in **Table 15**. Income paid by the Oklahoma County hospitals for operating and construction activities are presented in the first column. Oklahoma County hospitals paid their employees \$1.4 billion. The construction workers were paid an estimated \$93.3 million while working on hospital construction activities. The total direct income resulting from the Oklahoma County hospitals was \$1.5 billion.

The hospital income multiplier for Oklahoma County was 1.52. The secondary income generated in other businesses was \$788.9 million. The total income impact from operations of Oklahoma County hospitals was \$2.1 billion. After applying the construction multiplier, ***the total income impact from both operating and construction activities of Oklahoma County hospitals was \$2.3 billion.*** According to data for Oklahoma County, 31.8 percent of all income is spent at businesses that collect sales taxes. The activities of Oklahoma County hospitals resulted in \$716.7 million in retail sales and \$32.3 million in state sales tax (4.5 percent).

The same analysis was completed for Tulsa County. In total, ***Tulsa County hospitals generated \$1.4 billion in income resulting in \$417.9 million in retail sales and \$18.8 million in state sales taxes (4.5 percent).***

**Table 15a**  
**Total Income, Retail Sales, and Sales Tax Impact**  
**of Oklahoma County Hospitals on Oklahoma County, 2010**

	Direct Income	Multiplier	Secondary Income Impact	Total Income Impact
<u>Oklahoma County</u>				
Operations	\$1,371,684,954	1.52	\$713,276,176	\$2,084,961,130
Construction	<u>\$93,322,889</u>	1.81	<u>\$75,591,540</u>	<u>\$168,914,429</u>
<b>Totals</b>	<b><u>\$1,465,007,843</u></b>		<b><u>\$788,867,716</u></b>	<b><u>\$2,253,875,559</u></b>
			Retail Sales	4.5% State Sales Tax
<u>Oklahoma County</u>				
Operations			\$663,017,639	\$29,835,794
Construction			<u>\$53,714,788</u>	<u>\$2,417,165</u>
<b>Totals</b>			<b><u>\$716,732,427</u></b>	<b><u>\$32,252,959</u></b>

**Table 15b**  
**Total Income, Retail Sales, and Sales Tax Impact**  
**of Tulsa County Hospitals on Tulsa County, 2010**

	Direct Income	Multiplier	Secondary Income Impact	Total Income Impact
<u>Tulsa County</u>				
Operations	\$833,417,303	1.53	\$441,711,171	\$1,275,128,474
Construction	<u>\$75,157,790</u>	1.82	<u>\$61,629,388</u>	<u>\$136,787,178</u>
<b>Totals</b>	<b><u>\$908,575,093</u></b>		<b><u>\$503,340,559</u></b>	<b><u>\$1,411,915,652</u></b>
			Retail Sales	4.5% State Sales Tax
<u>Tulsa County</u>				
Operations			\$377,438,028	\$16,984,711
Construction			<u>\$40,489,005</u>	<u>\$1,822,005</u>
<b>Totals</b>			<b><u>\$417,927,033</u></b>	<b><u>\$18,806,716</u></b>

Source: Income for hospitals from survey of the Oklahoma Hospital Association or estimated based on averages per bed size; income for construction estimated from IMPLAN data and current IMPLAN multipliers, Minnesota IMPLAN Group, Inc.; local retail sales capture ratios calculated from personal income from Bureau of Economic Analysis and from taxable sales from Oklahoma Tax Commission.

## **SUMMARY**

In summary, Oklahoma hospitals act as an economic engine and generate huge impacts. Economic developers frequently seek manufacturing and high technology industries that will create new jobs. The activities of Oklahoma hospitals are attracting these industries and must be recognized as a large contributor to the economy and viability of the counties and the State of Oklahoma. Policies should be adopted to enhance and encourage the positive impacts generated by Oklahoma hospitals to ensure continued expansion of economic growth for the counties and the State of Oklahoma.

## **APPENDIX A**

**Model and Data Used to Estimate  
Employment and Income Multipliers**

## **Appendix A Model and Data Used to Estimate Employment and Income Multipliers**

A computer spreadsheet that uses state IMPLAN multipliers was developed to enable community development specialists to easily measure the secondary benefits of the health sector on a state, regional or county economy. The complete methodology, which includes an aggregate version, a disaggregate version, and a dynamic version, is presented in Measuring the Economic Importance of the Health Sector on a Local Economy: A Brief Literature Review and Procedures to Measure Local Impacts (Doeksen, et al., 1997). A brief review of input-output analysis and IMPLAN are presented here.

### **A Review of Input-Output Analysis**

Input-output (I/O) (Miernyk, 1965) was designed to analyze the transactions among the industries in an economy. These models are largely based on the work of Wassily Leontief (1936). Detailed I/O analysis captures the indirect and induced interrelated circular behavior of the economy. For example, an increase in the demand for health services requires more equipment, more labor, and more supplies, which, in turn, requires more labor to produce the supplies, etc. By simultaneously accounting for structural interaction between sectors and industries, I/O analysis gives expression to the general economic equilibrium system. The analysis utilizes assumptions based on linear and fixed coefficients and limited substitutions among inputs and outputs. The analysis also assumes that average and marginal I/O coefficients are equal.

Nonetheless, the framework has been widely accepted and used. I/O analysis is useful when carefully executed and interpreted in defining the structure of a region, the interdependencies among industries, and forecasting economic outcomes.

The I/O model coefficients describe the structural interdependence of an economy. From the coefficients, various predictive devices can be computed, which can be useful in analyzing economic changes in a state, a region or a county. Multipliers indicate the relationship between some observed change in the economy and the total change in economic activity created throughout the economy.

### **MicroIMPLAN**

MicroIMPLAN is a computer program developed by the United States Forest Service (Alward, et al., 1989) to construct I/O accounts and models. Typically, the complexity of I/O modeling has hindered practitioners from constructing models specific to a community requesting an analysis. Too often, inappropriate U.S. multipliers have been used to estimate local economic impacts. In contrast, IMPLAN can construct a model for any county, region, state, or zip code area in the United States by using available state, county, and zip code level data. Impact analysis can be performed once a regional I/O model is constructed.

Five different sets of multipliers are estimated by IMPLAN, corresponding to five measures of regional economic activity. These are: total industry output, personal income, total income, value added, and employment. Two types of multipliers are generated. Type I multipliers measure the impact in terms of direct and indirect effects. Direct impacts are the changes in the activities of the focus industry or firm, such as the closing of a hospital. The focus business changes its purchases of inputs as a result of the direct impacts. This produces indirect impacts in other business sectors. However, the total impact of a change in the economy consists of direct, indirect, and induced changes. Both the direct and indirect impacts change the flow of dollars to the state, region, or county's households. Subsequently, the households alter their consumption accordingly. The effect of the changes in household consumption on businesses in a



community is referred to as an induced effect. To measure the total impact, a Type II multiplier is used. The Type II multiplier compares direct, indirect, and induced effects with the direct effects generated by a change in final demand (the sum of direct, indirect, and induced divided by direct).

**Minnesota IMPLAN Group, Inc. (MIG)**

Dr. Wilbur Maki at the University of Minnesota utilized the input/output model and database work from the U. S. Forest Service's Land Management Planning Unit in Fort Collins to further develop the methodology and to expand the data sources. Scott Lindall and Doug Olson joined the University of Minnesota in 1984 and worked with Maki and the model.

As an outgrowth of their work with the University of Minnesota, Lindall and Olson entered into a technology transfer agreement with the University of Minnesota that allowed them to form MIG. At first, MIG focused on database development and provided data that could be used in the Forest Service version of the software. In 1995, MIG took on the task of writing a new version of the IMPLAN software from scratch. This new version extended the previous Forest Service version by creating an entirely new modeling system that included creating Social Accounting Matrices (SAMs) – an extension of input-output accounts, and resulting SAM multipliers. Version 2 of the new IMPLAN software became available in May of 1999. For more information about Minnesota IMPLAN Group, Inc., please contact Scott Lindall or Doug Olson by phone at 651-439-4421 or by email at [info@implan.com](mailto:info@implan.com) or review their website at [www.implan.com](http://www.implan.com).

## **APPENDIX B**

### Individual Studies for Hospitals and Hospital Systems

## APPENDIX B

### *Listing of Hospitals and Hospital Systems Receiving Individual Studies*

No.	Hospital Name	County	City
1	Atoka County Medical Center	Atoka	Atoka
2	Bailey Medical Center	Tulsa	Owasso
3	Cedar Ridge Hospital	Oklahoma	Oklahoma City
4	Chickasaw Nation Medical Center	Pontotoc	Ada
5	Comanche County Memorial Hospital	Comanche	Lawton
6	Craig County Hospital Authority	Craig	Vinita
7	Cushing Regional Hospital	Payne	Cushing
8	Duncan Regional Hospital	Stephens	Duncan
9	Eastern Oklahoma Medical Center	Le Flore	Poteau
10	Elkview General Hospital	Kiowa	Hobart
11	Fairview Regional Medical Center	Major	Fairview
12	Grady Memorial Hospital	Grady	Chickasha
13	Great Plains Regional Medical Center	Beckham	Elk City
14	Harper County Community Hospital	Harper	Buffalo
15	Healdton Memorial Hospital	Carter	Healdton
16	Henryetta Medical Center	Okmulgee	Henryetta
17	Hillcrest Medical Center	Tulsa	Tulsa
18	Holdenville General Hospital	Hughes	Holdenville
19	INTEGRIS Baptist Medical Center	Oklahoma	Oklahoma City
20	INTEGRIS Baptist Regional Health Ctr.	Ottawa	Miami
21	INTEGRIS Bass Baptist Health Center	Garfield	Enid
22	INTEGRIS Bass Pavilion	Garfield	Enid
23	INTEGRIS Blackwell Regional Hospital	Kay	Blackwell
24	INTEGRIS Canadian Valley Regional Hospital	Canadian	Yukon
25	INTEGRIS Clinton Regional Hospital	Custer	Clinton
26	INTEGRIS Grove General Hospital	Delaware	Grove
27	INTEGRIS Marshall County Medical Center	Marshall	Madill
28	INTEGRIS Mayes County Medical Center	Mayes	Pryor
29	INTEGRIS Mental Health-Spencer	Oklahoma	Spencer
30	INTEGRIS Seminole Medical Center	Seminole	Seminole
31	INTEGRIS Southwest Medical Center	Oklahoma	Oklahoma City
32	J.D. McCarty Center	Cleveland	Norman
33	Jackson County Memorial Hospital	Jackson	Altus
34	Jane Phillips Health Corporation, Inc.	Washington	Bartlesville
35	Jefferson County Hospital	Jefferson	Waurika

(Continued) **Appendix B -**  
***Listing of Hospitals and Hospital Systems Receiving Individual Studies***

No.	Hospital Name	County	City
36	Kingfisher Regional Hospital	Kingfisher	Kingfisher
37	Logan Medical Center	Logan	Guthrie
38	McAlester Regional Health Center	Pittsburg	McAlester
39	McCurtain Memorial Hospital	McCurtain	Idabel
40	Memorial Hospital & Physician Group	Tillman	Frederick
41	Memorial Hospital of Texas County	Texas	Guymon
42	Mercy Health Center	Oklahoma	Oklahoma City
43	Mercy Health Love County	Love	Marietta
44	Mercy Hospital El Reno	Canadian	El Reno
45	Mercy Hospital Tishomingo	Johnston	Tishomingo
46	Mercy Memorial Health Center	Carter	Ardmore
47	Muskogee Regional Medical Center	Muskogee	Muskogee
48	Newman Memorial Hospital	Ellis	Shattuck
49	Norman Regional Health System	Cleveland	Norman
50	Okeene Municipal Hospital	Blaine	Okeene
51	Oklahoma State University Medical Center	Tulsa	Tulsa
52	Okmulgee Memorial Hospital	Okmulgee	Okmulgee
53	Orthopedic Hospital	Oklahoma	Oklahoma City
54	OU Medical Center	Oklahoma	Oklahoma City
55	OU Medical Center Edmond	Oklahoma	Edmond
56	Pauls Valley General Hospital	Garvin	Pauls Valley
57	Perry Memorial Hospital	Noble	Perry
58	Purcell Municipal Hospital	McClain	Purcell
59	Roger Mills Memorial Hospital	Roger Mills	Cheyenne
60	Sayre Memorial Hospital	Beckham	Sayre
61	Sequoyah Memorial Hospital	Sequoyah	Sallisaw
62	Share Medical Center	Woods	Alva
63	Southwestern Medical Center	Comanche	Lawton
64	Specialty Hospital of Midwest City	Oklahoma	Midwest City
65	St Anthony/Bone and Joint at SAH	Oklahoma	Oklahoma City
66	St. John Health System	Tulsa	Tulsa
67	St. Mary's Regional Medical Center	Garfield	Enid
68	Stillwater Medical Center	Payne	Stillwater
69	Tahlequah City Hospital	Cherokee	Tahlequah
70	Unity Health Center	Pottawatomie	Shawnee
71	Wagoner Community Hospital	Wagoner	Wagoner
72	Weatherford Regional Hospital	Custer	Weatherford
73	Willow Crest Hospital, Inc.	Ottawa	Miami



