



# The Importance of the Health Care Sector to the Kansas Economy

Kansas Hospital Association  
November 2010

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## The Importance of the Health Care Sector to the Kansas Economy

### - Executive Summary -

Economic impact arises directly from the sales, wages and employment generated by business activity. It also arises indirectly through the “ripple” effect of businesses purchasing goods and services from other local businesses, and through health care workers spending wages and other income for household goods and services. These linkages tend to distribute the impact of an activity or event very broadly throughout the economy.

This report estimates the economic contribution associated with health care sector to the State of Kansas. The estimates presented represent the annual contribution to the state’s economy renewed each year by the continuing activity in the sector.

#### Estimated Total Economic Contribution of the Health Care System to the Kansas Economy, 2010 (millions)

	Total Employment	Total Income (millions)	Retail Sales (millions)
Health and personal care stores	13,835	\$443.047	\$159.967
Veterinary services	6,483	\$195.626	\$70.633
Offices of health practitioners	67,498	\$3,826.322	\$1,381.535
Home health care services	9,765	\$300.802	\$108.608
Medical labs, outpatient and ambulatory care	22,259	\$1,007.996	\$363.948
Hospitals	104,476	\$4,772.841	\$1,723.287
Nursing and residential care facilities	51,542	\$1,447.390	\$522.596
Fitness and recreational sports centers	7,726	\$137.658	\$49.703
Total	283,584	\$12,131.683	\$4,380.277

Although the connections between health care services and local economic development are often overlooked, there are at least three important linkages to be recognized. A strong health care system can (1) help attract and maintain business and industry growth, (2) attract and retain retirees, and (3) create jobs in the local area. A vigorous and sustainable health care system is essential not only for the health and welfare of community residents, but to enhance economic opportunity as well.

While industry trends related to health care are generally positive, significant challenges remain for many communities. If a community wants to maintain the benefits associated with accessible and affordable health care, it must actively work to meet these challenges. The challenges cannot be met by those directly responsible for health care administration alone. They require a community-wide response involving government, business and civic leaders. It also requires supportive state- and federal-level policies and programs to assist communities that may not have the wherewithal to respond to all of the needs that may exist.



## Introduction

Though the connections between health care services and local economic development are often overlooked, there are at least three important relationships to be recognized. A strong health care system can help attract and maintain business and industry growth, attract and retain retirees, and also create jobs in the local area.

Studies have found that quality of life factors play a dramatic role in business and industry location decisions. Health care services represent some of the most significant quality of life factors for at least three reasons. First, good health and education services are imperative to industrial and business leaders as they select a community for location. Employees and participating management may offer strong resistance if they are asked to move into a community with substandard or inconvenient health services. Secondly, when a business or industry makes a location decision, it wants to ensure that the local labor force will be productive, and a key productivity factor is good health. Thus, investments in health care services can be expected to yield dividends in the form of increased labor productivity.

The third factor that business and industry consider in location decisions is cost of health care services. A 1990 site selection survey concluded that corporations looked carefully at health care costs, and sites that provided health care services at a low cost sometimes received priority. In fact, 17 percent of the respondents indicated that their companies used health care costs as a tie-breaking factor between comparable sites.

A strong and convenient health care system is important to retirees, a special group of residents whose spending and purchasing can provide a significant source of income for the local economy. Retirees represent a substantial amount of spending, including the purchasing power associated with pensions, investments, Social Security, Medicare and other transfer payments. Additionally, middle and upper income retirees often have substantial net worth. Although the data are limited, several studies suggest health services may be a critical variable that influences the location decision of retirees. For example, one study found that four items were the best predictors of retirement locations: safety, recreational facilities, dwelling units, and health care. Another study found that nearly 60 percent of potential retirees said health services were in the “must have” category when considering a retirement community. Only protective services were mentioned more often than health services as a “must have” service.

Job creation represents an important goal for most local economic development programs. National employment in health care services increased by 70 percent from 1990 to 2008, and by approximately 335 percent since 1970. In rural areas, in particular, employment in health-related services often accounts for 10 to 15 percent of total employment. This reflects the fact that the hospital is often the second largest employer in a rural community (local government including schools typically being the largest employer).

Another important factor is the growth of the health sector. Health services, as a share of gross domestic product (GDP), have increased substantially over time. As shown in Table 1, Americans spent \$74.9 billion on health care in 1970, which accounted for 7.2 percent of the GDP. In 2008, health care costs increased to nearly \$2.34 trillion, or 16.2 percent of the GDP. If current trends continue, projections indicate that Americans will spend 19.3 percent of GDP on health care by 2019. Capturing a share of this economic growth can only help a community. This research considered the economic contribution of the regional health care system to the State of Kansas economy.

**Table 1. United States Health Expenditure and Employment Data for 1970-2008; Projected for 2009, 2012, 2016 & 2019**

Year	Total Health Expenditures (\$ billions)	Per Capita Health Expenditures (\$)	Health as % of GDP (%)	Health Sector Employment (thousands)	Avg. Annual Increase in Employment (%)	
1970	\$75	\$356	7.2%	3,052		
1980	\$254	\$1,102	9.1%	5,278	7.3%	
1990	\$714	\$2,813	12.3%	7,814	4.8%	Employment Based on SIC <sup>1</sup>
2000	\$1,353	\$4,790	13.8%	10,103	2.9%	
2001	\$1,470	\$5,148	14.5%	10,381	2.8%	
2002	\$1,603	\$5,559	15.3%	10,673	2.8%	
2003	\$1,735	\$5,967	15.8%	11,817	N/A	Employment Based on NAICS <sup>2</sup>
2004	\$1,855	\$6,328	15.6%	12,055	2.0%	
2005	\$1,983	\$6,701	15.7%	12,314	2.1%	
2006	\$2,113	\$7,071	15.8%	12,602	2.3%	
2007	\$2,240	\$7,423	15.9%	12,947	2.7%	
2008	\$2,339	\$7,681	16.2%	13,290	2.7%	
<b>Projections</b>						
2009	\$2,472	\$8,047	17.3%			
2012	\$2,850	\$9,035	17.2%			
2016	\$3,684	\$11,281	18.1%			
2019	\$4,483	\$13,387	19.3%			

Sources: Bureau of Labor Statistics; U.S Department of Labor; Employment, Hours, and Earnings

[www.bls.gov/webapps/legacy/cesbtab1.htm](http://www.bls.gov/webapps/legacy/cesbtab1.htm)

and the Center for Medicare & Medicaid Services,

National Health Expenditures 1970-2008 and National Health Expenditure Projections 2009-2019, website:

[www.cms.hhs.gov/NationalHealthExpendData](http://www.cms.hhs.gov/NationalHealthExpendData), updated Summer, 2009.

N/A - Not Available

<sup>1</sup> Based on Standard Industrial Classification (SIC) codes for health sector employment.

<sup>2</sup> Based on North American Industrial Classification System (NAICS) for health sector employment.

## Scope and Objectives

This report presents estimates of the “gross” contribution associated with the health care sector to economic activity in the State of Kansas. The economic contribution attributable to the health care sector in the state is measured in four different areas: 1) additional output (sales) 2) additional income 3) the number of jobs that the health care sector supports directly and indirectly and 4) the additional local and state tax revenue that the health sector generates.

## Analysis Method

Social Accounting Matrix (SAM) analysis is a system of accounting for the economic transactions occurring in a state or regional economy over a period of one year. A SAM model creates a “computerized spreadsheet,” charting the flow of dollars between local business sectors, households, government, and other non-local consumers of locally-produced goods and services. SAM analysis enables estimates of how spending in one area of the economy “ripples” through the economy to other sectors.

The SAM modeling system used for this analysis is the IMPLAN (Impact Analysis for Planning) system developed by the U.S. Forest Service (Minnesota IMPLAN Group, Inc.). The IMPLAN system consists of the software necessary to construct economic accounts, an impact analysis routine, and state- and county-level data files containing information related to economic activity. A 394 industry sector model was built for the State of Kansas and calibrated to 2008, the most recent year the necessary data were available. Health sector employment was updated to 2010 levels using the Kansas Department of Labor's Quarterly Census of Employment and Wages.

## **Direct and Indirect, and Induced Economic Contributions**

Economic impact arises directly from the sales, wages, and employment generated by business activity. It also arises indirectly through the "ripple" effect of businesses purchasing goods and services from other local businesses and through health care workers spending wages and other income for household goods and services. These linkages tend to distribute the impact of an activity or event very broadly throughout the economy.

The total economic contribution of the health care sector on the Kansas economy, also known as the multiplier effect, is equal to the sum of three components: the direct effect, the indirect effect, and the induced effect. The direct effect is the immediate upshot caused by consumer expenditures for health care products and services. Due to the interactions between firms, industries, and social institutions that naturally occur within the regional economy, the direct effect initiates a series of iterative rounds of income creation, spending and re-spending that result in indirect and induced effects. The indirect effects are changes in production, employment and income that result from the inter-industry purchases triggered by the direct effect. Finally, induced effects arise due to changes in household income and spending patterns caused by direct and indirect effects.

Since the total impact of the health care sector expenditures is a multiple of the initial expenditures, the total effect is expressed as a multiplier effect, that is, the sum of the direct, indirect and induced effects. Therefore, the total impact of the health care sector on the Kansas economy is larger than the initial expenditures. For example, an output multiplier of 1.5 indicates that for every million dollars spent (direct expenditure) an additional 0.5 million dollars is generated within the Kansas economy. Similarly, an employment multiplier of 1.6 indicates that for each job created by direct expenditure, an additional 0.6 jobs are created or supported due to business (indirect) and household (induced) spending.

In SAM analysis, the entire process is compressed into a one-year time frame. The impact analysis estimates the direct, indirect, and induced effects as though the entire process occurred in that year. Each year the spending continues, the direct, indirect, and induced effects are replenished.

## State Economic Overview

In 2008, the Kansas economy generated about \$297 billion in sales, the broadest measure of economic activity as shown in Table 2. Manufacturing was the largest single sector with about 34.7 percent of the total sales. Services' (including health care) was the next largest economic sector in terms of total sales, accounting for 34.1 percent of total sales for the state. The service, FIRE, trade, and government sectors combine to form what is referred to as the "service economy" in the popular media, and are generally the fastest growing sectors.

The services sector (including health care) employed the largest number of workers at more than 844,000. This was over 4 times more than the number of workers employed by the manufacturing sector. One economic measure of efficiency is the output-per-worker ratio. Dividing sales by the number of full- and part-time employees, the manufacturing sector had the largest output per worker ratio at over \$564,000 per worker. The state average was about \$160,900 per worker while the health sector had about \$89,230 per worker. The relatively smaller ratio for health care suggests higher labor intensity needed to deliver these services. Health care services were separated from the service and retail trade sectors in Table 2 but not double counted in the totals.

The health sector is detailed in Table 3. The numbers for each sector include not only the professionals in the sector (the doctors, dentists, etc.) but also support staff (assistants, clerks, receptionists, etc.) employed by the business. In the health sector, the Health and Personal Care stores category includes pharmacies, while the Health Practitioners category includes not only doctors and dentists, but also chiropractors, optometrists, and other health care practitioners. Other Ambulatory Health Care Services includes services such as medical and diagnostic labs and outpatient care centers. Focusing on the health care services sector, the combined health care sectors accounted for nearly \$16.5 billion in total sales, or about 5.6 percent of the state total.

**Table 2. Direct Contributions to the Kansas Economy by Economic Sector, 2008 (2010\$)**

<b>Description</b>	<b>Employment</b>	<b>Total Sales (millions)</b>	<b>Labor Income (millions)</b>	<b>Total Income (millions)</b>
Agriculture	84,396	\$14,893.4	\$1,075.3	\$5,439.6
Mining	20,458	\$7,859.4	\$1,586.4	\$4,251.1
Construction	100,203	\$12,690.2	\$4,478.8	\$4,909.3
Manufacturing	181,976	\$102,918.2	\$13,226.7	\$20,178.5
TIPU	63,648	\$12,499.5	\$3,684.1	\$7,251.9
Trade	245,280	\$22,192.6	\$8,835.9	\$14,654.8
Service (Other than Health)	659,701	\$85,262.7	\$24,764.1	\$47,245.2
Health Services (2010)	184,483	\$16,461.5	\$8,538.7	\$9,938.8
Government	300,132	\$21,400.2	\$15,634.5	\$18,832.0
<b>Total</b>	<b>1,840,277</b>	<b>\$296,177.7</b>	<b>\$81,824.4</b>	<b>\$132,701.2</b>

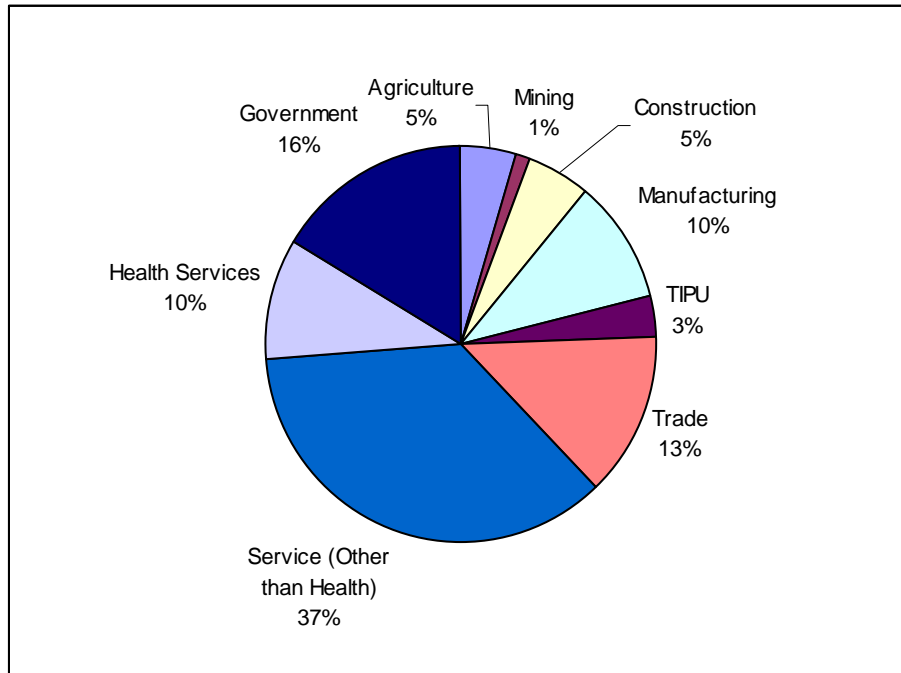
TIPU is Transportation, Information and Public Utilities.

**Table 3. Direct Contributions to the Kansas Economy by Health Care Sector, 2010 (2010\$)**

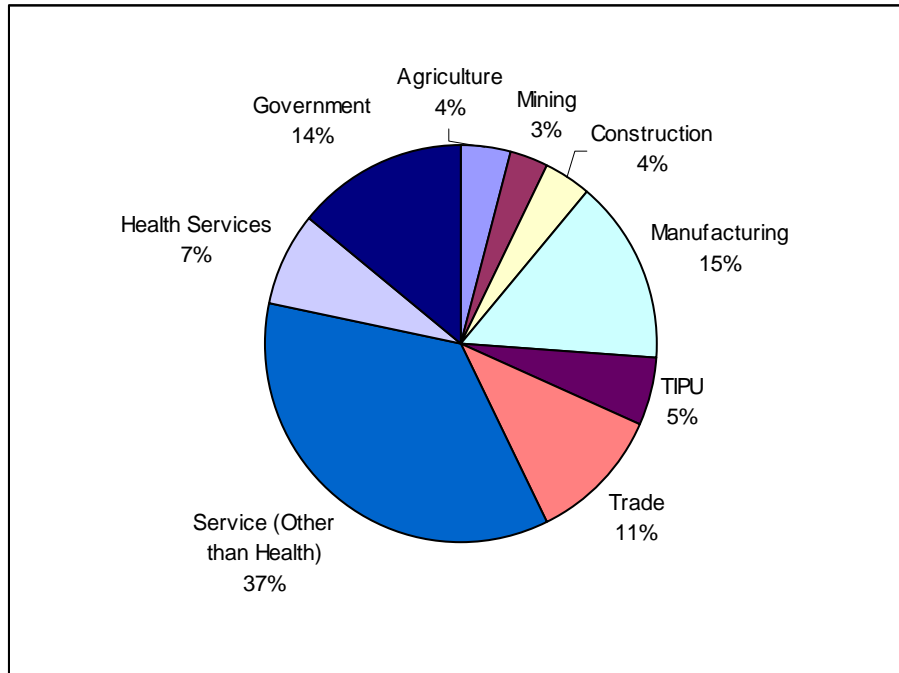
Description	Employment	Total Sales (millions)	Labor Income (millions)	Total Income (millions)
Health and personal care stores	10,365	\$677.9	\$315.0	\$493.2
Veterinary services	4,760	\$333.6	\$131.8	\$144.5
Offices of health practitioners	38,941	\$4,728.1	\$2,797.2	\$3,244.4
Home health care services	7,537	\$384.0	\$222.2	\$281.8
Medical labs, outpatient and ambulatory care	12,701	\$1,817.1	\$651.0	\$1,144.5
Hospitals	62,446	\$6,745.5	\$3,245.8	\$3,408.5
Nursing and residential care facilities	41,398	\$1,566.5	\$1,090.5	\$1,130.2
Fitness and recreational sports centers	6,336	\$208.8	\$85.4	\$91.7
<b>Total</b>	<b>184,483</b>	<b>\$16,461.5</b>	<b>\$8,538.7</b>	<b>\$9,938.8</b>

Health care services employed 184,483 people, or 10.0 percent of all job holders in the state. This compares to about 9.1 percent of all job holders in the United States working in health care services. Health care services were the fourth largest aggregate employer in the state (Figure 1). Health care generated \$9.9 billion in total income and nearly \$16.5 billion in total sales. As shown in Figures 2 and 3, the health care sector also was the fifth largest producer of total income (Figure 2) and total sales (Figure 3). The health sector plays an important direct role in the state's economy.

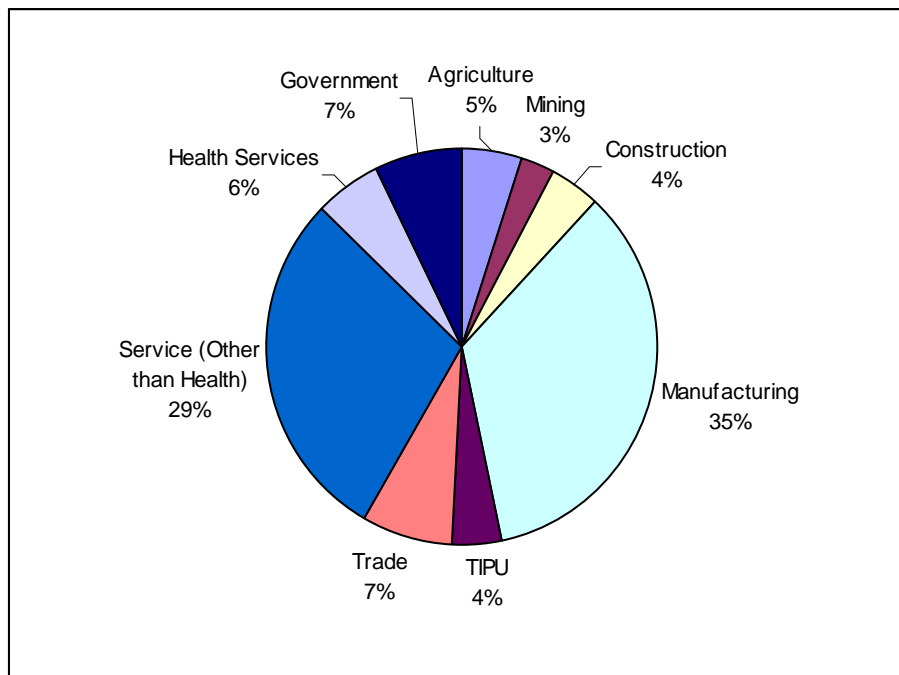
**Figure 1. Kansas Employment by Economic Sector, 2010**



**Figure 2. Kansas Total Income by Economic Sector, 2010**



**Figure 3. Kansas Total Sales by Economic Sector, 2010**



## Total Economic Contribution of Health Care

Tables 4 and 5 illustrate the ripple effect in the state. As an example, Table 4 shows that the hospital sector employed an estimated 62,446 people in 2010 and had an employment multiplier of 1.67 (rounded). This means that for each job created in the hospital sector, another 0.67 jobs were supported in other businesses and industries in the state's economy. The direct impact of the 62,446 hospital employees resulted in an indirect impact of 41,839 jobs ( $62,446 \times 0.67 = 41,839$ ) throughout all businesses and industries in the state. Thus, the hospital sector employment had a total impact on state employment of 104,476 jobs ( $62,446 \times 1.67 = 104,476$  (discrepancies due to rounding)).

Similarly, multiplier analysis can estimate the total impact of the approximately \$3.2 billion direct income for hospital employees shown in Table 5. The hospital sector had an income multiplier of 1.47 which indicates that for every one dollar of income generated in the hospital sector, another \$0.47 was generated in other businesses and industries in the state's economy. Thus, the hospital sector had an estimated total impact on income throughout all businesses and industries of \$4,772,840,000 ( $\$3,245,759,000 \times 1.47 = 4,772,840,000$  (discrepancies due to rounding)).

**Table 4. Kansas Health Sector Contribution to State Employment, 2010**

	Direct Employment	Employment Multiplier	Total Employment
Health and personal care stores	10,365	1.33	13,835
Veterinary services	4,760	1.36	6,483
Offices of health practitioners	38,941	1.73	67,498
Home health care services	7,537	1.30	9,765
Medical labs, outpatient and ambulatory care	12,701	1.75	22,259
Hospitals	62,446	1.67	104,476
Nursing and residential care facilities	41,398	1.25	51,542
Fitness and recreational sports centers	6,336	1.22	7,726
<b>Total</b>	<b>184,483</b>		<b>283,584</b>

**Table 5. Kansas Health Sector Contribution to State Income and Retail Sales, 2010 (2010\$)**

	Direct Labor Income (millions)	Labor Income Multiplier	Total Income (millions)	Retail Sales (millions)	6.30% Sales Tax (millions)
Health and personal care stores	\$315.0	1.41	\$443.0	\$160.0	\$10.1
Veterinary services	\$131.8	1.48	\$195.6	\$70.6	\$4.4
Offices of health practitioners	\$2,797.2	1.37	\$3,826.3	\$1,381.5	\$87.0
Home health care services	\$222.2	1.35	\$300.8	\$108.6	\$6.8
Medical labs, outpatient and ambulatory care	\$651.0	1.55	\$1,008.0	\$363.9	\$22.9
Hospitals	\$3,245.8	1.47	\$4,772.8	\$1,723.3	\$108.6
Nursing and residential care facilities	\$1,090.5	1.33	\$1,447.4	\$522.6	\$32.9
Fitness and recreational sports centers	\$85.4	1.61	\$137.7	\$49.7	\$3.1
<b>Total</b>	<b>\$8,538.7</b>		<b>\$12,131.7</b>	<b>\$4,380.3</b>	<b>\$276.0</b>

In this manner, the total employment and income impacts of all the health care services sectors can be estimated. In Table 4, the total employment impact of the health services sector results in an estimated 283,584 jobs in the state economy. In Table 5, the total income impact of health care services resulted in an estimated \$12.1 billion for the economy.

The second to last column in Table 5 shows the retail sales that the health sector helps to generate. To estimate this, this study incorporated a retail sales capture ratio (retail sales to total personal income). Kansas had retail sales of \$38,424,327,265 and \$106,420,600,000 total personal income in 2008. Thus, the estimated retail sales capture ratio equals 36.1 percent. Using this as the retail sales capture ratio for the state, this says that people spent 36.1 percent of their income on retail goods and services within the state. By taking all of the household income associated with health sector activities and multiplying by the retail sales capture ratio, we can estimate the impacts of the health sector on state retail sales. Thus, the total retail sales generated by the retail sector equaled \$4.4 billion ( $\$12,131,683,000 \times 36.1\% = \$4,380,277,000$ ). This is a conservative estimate insofar as only retail sales associated with labor and proprietary income are considered and not the impact of any local purchases made by the health services businesses.

The state of Kansas has an effective sales tax rate of 6.3%. Applying this rate to the retail sales, it was estimated that the health care sector generated \$276 million in sales tax revenue for the state. While it should be noted that prescription drugs and other medical supplies may be exempt from sales tax, the \$276 million in sales tax revenue is most likely a conservative estimate because it was calculated from the similarly conservative retail sales estimate.

## **Estimating Tax Impacts from the Social Accounting Matrix**

The social accounting matrix is a comprehensive accounting system. It includes transactions occurring between production sectors as well as transactions occurring between government and households and between government and production sectors. In so doing, information related to tax transfers is available. This information can be used to estimate the tax impacts associated with industry sectors or economic events.

There are several important assumptions (limitations) in using a social accounting matrix to estimate tax impacts. The first is that the distribution of tax impacts associated with any given event will be the same as the average tax distribution as pictured in the base year of the accounts. This means that the distribution associated with small economic changes will be the same as large ones. The SAM cannot distinguish a tax that may have variable rates depending on the size of the change. For example, the SAM would overestimate the impact of a small change in a progressive tax and underestimate the impact of a large change.

A second important assumption is that the distribution of taxes as shown in the SAM will hold regardless of the industries affected. That is, the SAM represents an average for the state and will treat any change the same regardless of the industry affected. Thus, the tax impacts associated with tourism spending will be treated the same as the tax impacts associated with changes in gas and oil production, despite that very different taxes would be involved in either activity.

Finally, using a SAM to estimate tax impacts only considers the revenue side of the equation. There is no information related to the costs of providing government services to an industry sector or household group. A full tax analysis would consider government expenditures as well as revenues.

Given these limitations, it is appropriate to recognize that estimates of tax impacts are only approximations. Still, public finances are an important part of the economic picture when trying to understand the impacts of industries, events or policies. And, having limited information is generally better than having none. A more comprehensive analysis of the public finance impacts associated with Kansas health care sector was beyond the scope of this research.

The procedure used to estimate tax revenues was to reduce all of the health care sectors in the model to a single job in each sector while maintaining the job-to-sales and job-to-income relationships earlier calculated. Then, employment in all the sectors was simultaneously increased to the estimated 2010 levels. The observed tax revenue generated was then reported.

Table 6 shows the combined federal and state/local tax revenues associated with the industry sector activity. It was estimated the federal government collected approximately \$2.3 billion in tax revenues, and that state and local governments garnered approximately \$1.2 billion from the varied activities associated with health care sector in 2010.

## **Summary and Conclusion**

This report documented the relative importance of the health care sector to the Kansas economy. While the estimates of economic impact are substantial, they are only a partial accounting of the benefits to the state. Health care industries, especially in rural counties, help to preserve the population base, invigorating the communities and school systems. Similarly, many hospitals and nursing care facilities have active community outreach programs that enhance community services and the quality of life for community residents.

A vigorous and sustainable health care system is essential not only for the health and welfare of community residents, but to enhance economic opportunity as well. Health-related sectors are among the fastest growing in economy. Given demographic trends, this growth is likely to continue. The attraction and retention of new business and retirees also depends on access to adequate health care services.

While industry trends related to health care are positive overall, significant challenges remain for many areas. If a community wants to maintain the benefits associated with accessible and affordable health care, it must actively work to meet these challenges. The challenges cannot be met by those directly responsible for health care administration alone. They require a community-wide response involving government, business and civic leaders. Further, they require supportive state and federal policies and programs to meet all of the needs of individuals and communities.

**Table 6. Estimated Federal, State and Local Tax Collections Associated with the Kansas Health Care Sector, 2010\$**

		Employee Compensation (millions)	Proprietary Income (millions)	Household Expenditures (millions)	Enterprises (Corporations) (millions)	Indirect Business Tax (millions)	Total (\$) (millions)
Federal Government Non-Defense	Corporate Profits Tax				\$168.2		\$168.2
	Indirect Bus. Tax: Custom Duty					\$22.8	\$22.8
	Indirect Bus. Tax: Excise Taxes					\$48.9	\$48.9
	Indirect Bus. Tax: Fed Non-Taxes					\$37.6	\$37.6
	Personal Tax: Estate and Gift Tax						\$0.0
	Personal Tax: Income Tax			\$702.8			\$702.8
	Personal Tax: Non-Taxes (Fines - Fees)						\$0.0
	Social Ins. Tax - Employee Contribution	\$618.5	\$99.8				\$718.3
Social Ins. Tax - Employer Contribution	\$625.4					\$625.4	
	<b>Sub-Total</b>	\$1,243.9	\$99.8	\$702.8	\$168.2	\$109.2	\$2,323.9
State/Local Government Non-Education	Corporate Profits Tax				\$29.6		\$29.6
	Dividends				\$35.3		\$35.3
	Indirect Bus. Tax: Motor Vehicle License					\$6.9	\$6.9
	Indirect Bus. Tax: Other Taxes					\$14.9	\$14.9
	Indirect Bus. Tax: Property Tax					\$316.6	\$316.6
	Indirect Bus. Tax: S/L Non-Taxes					\$45.4	\$45.4
	Indirect Bus. Tax: Sales Tax					\$370.1	\$370.1
	Indirect Bus. Tax: Severance Tax					\$28.1	\$28.1
	Personal Tax: Estate and Gift Tax						\$0.0
	Personal Tax: Income Tax			\$232.5			\$232.5
	Personal Tax: Motor Vehicle License			\$11.8			\$11.8
	Personal Tax: NonTaxes (Fines - Fees)			\$54.6			\$54.6
	Personal Tax: Other Tax (Fish/Hunt)			\$7.5			\$7.5
	Personal Tax: Property Taxes			\$5.6			\$5.6
	Social Ins Tax - Employee Contribution	\$3.4					\$3.4
Social Ins Tax - Employer Contribution	\$14.6					\$14.6	
	<b>Sub-Total</b>	\$18.0		\$312.0	\$64.9	\$782.1	\$1,177.0
	<b>Total</b>	\$1,261.9	\$99.8	\$1,014.8	\$233.1	\$891.3	\$3,500.9

