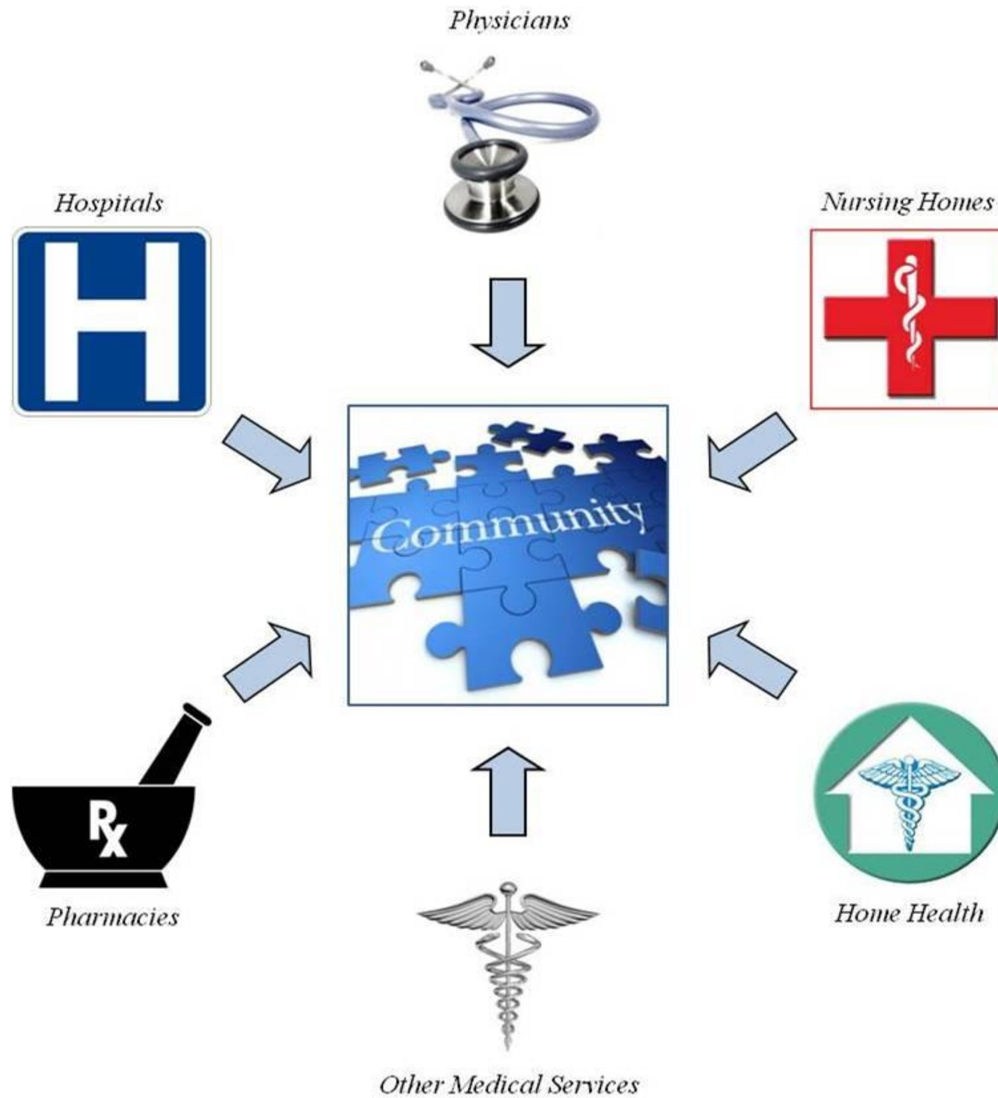
The Economic Impact of the Health Sector on the Share Medical Center Medical Service Area



Oklahoma Office of Rural Health
OSU Center for Rural Health

Oklahoma Cooperative Extension Service
Oklahoma State University

March 2014

AE-14002

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**Community Health Needs Assessment documents available online at:
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Medical facilities have a tremendous medical and economic impact on the community in which they are located. This is especially true with health care facilities, such as hospitals and nursing homes. These facilities not only employ a large number of people and have a significant payroll, but they also draw a large number of people from rural areas that need medical services into the community. The overall objective of this study is to measure the economic impact of the health sector on the Share Medical Center medical service area. The specific objectives of this report are to:

1. Review economic trends of the health sector for the U.S. and Woods County;
2. Identify the population for the medical service area of Share Medical Center;
3. Summarize the direct economic activities of the health sector;
4. Review concepts of community economics and multipliers; and
5. Estimate the secondary and total impacts of the health sector on the Share Medical Center medical service area.

No recommendations will be made in this report.

Health Services and Rural Development

The nexus between health care services and rural development is often overlooked. At least three primary areas of commonality exist. A strong health care system can help attract and maintain business and industry growth, and attract and retain retirees. A strong health care system can also create jobs in the local area. The following section looks at how the health care sector impacts these areas.

Services that Impact Rural Development

Type of Growth	Services Important to Attract Growth
Industrial and Business	Health and Education
Retirees	Health and Safety

Business and Industry Growth

Studies have found that quality-of-life (QOL) factors are playing a dramatic role in business and industry location decisions. Among the most significant of the QOL variables are health care services, which are important for at least three reasons.

First, as noted by a member of the Board of Directors of a community economic development corporation, the presence of good health and education services is 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 inconveniently located 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 factor in productivity is good health. Thus, investments in health care services can be expected to yield dividends in the form of increased labor productivity.

The cost of health care services is the third factor that is considered by business and industry in development decisions. Research shows that corporations take a serious look at health care costs in determining site locations. Sites that provide health care services at a lower cost are given higher consideration for new industry than sites with much higher health care costs.

Health Services and Attracting Retirees

A strong and convenient health care system is important to retirees, a special group of residents whose spending and purchasing can be a significant source of income for the local economy. Many rural areas have environments (e.g., moderate climate and outdoor activities) that enable them to be in a good position to attract and retain retirees. The amount of spending embodied in this population, including the purchasing power associated with Social Security, Medicare, and other transfer payments, is substantial. Additionally, middle and upper income retirees often have significant 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.

Health Services and Job Growth

A factor important to the success of rural economic development is job creation. ***The health care sector is an extremely fast growing sector, and based on the current demographics, there is every reason to expect this trend to continue.*** Data in **Table 1** provide selected health expenditures 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. This increased to 17.2 percent in 2012;
- Per capita health expenditures increased from $356 in 1970 to $8,915 in 2012;

- Employment in the health sector increased almost 368 percent from 1970 to 2012; and
- Annual increases in employment from 2001 to 2012 ranged from 1.7 percent to 2.8 percent, even during the 2007-2009 recession when many other sectors lost jobs.

In fact, the U. S. Department of Health and Human Services, Centers for Medicare and Medicaid Services predict that health care expenditures will account for 18.3 percent of GDP by 2014 and increase to 19.9 percent of GDP in 2022. Per capita health care expenditures are projected to increase to $9,697 in 2014 and to $14,664 in 2022. Total health expenditures are projected to increase to nearly $4.8 trillion in 2021.

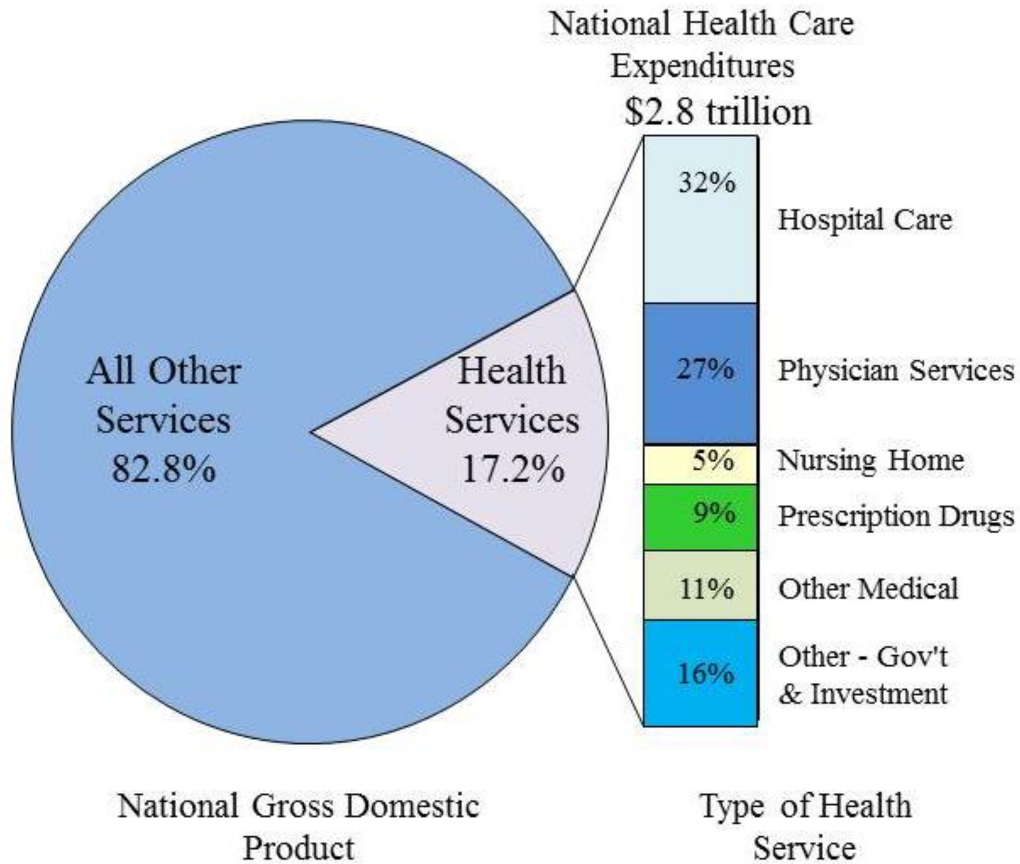
Figure 1 illustrates that health services accounted for 17.2% of all national expenditures (as reported by the gross domestic product) in 2012. This figure also breaks the amount spent on health services into various categories. The health service area accounting for the largest portion of total health expenditures was hospital care, at 32 percent. Physician services also accounted for a considerable portion of health expenditures, representing 27 percent of the total.

Table 1
United States Health Expenditures and Employment Data
1970-2012; Projected for 2012-2022

Year	Total Health Expenditures ($Billions)	Per Capita Health Expenditures ($)	Health as % of GDP (%)	Health Sector Employment (0)		Avg Annual Increase in Employment (%)
Historical						
1970	$74.9	$356	7.0%	3,052	a	
1980	255.8	1,110	8.9%	5,278	a	7.3%
1990	724.3	2,855	12.1%	8,211	a	5.6%
2000	1,377.2	4,878	13.4%	10,858	a	3.2%
2010	2,599.0	8,411	17.4%	13,777	b	2.7%
2001	1,493.4	5,238	14.1%	11,188	b	
2003	1,778.0	6,128	15.4%	11,817	b	2.8%
2005	2,035.4	6,889	15.5%	12,314	b	2.1%
2007	2,302.9	7,649	15.9%	12,947	b	2.6%
2009	2,504.2	8,170	17.4%	13,543	b	2.3%
2010	2,599.0	8,411	17.4%	13,777	b	1.7%
2011	2,692.8	8,658	17.3%	14,026	b	1.8%
2012	2,793.4	8,915	17.2%	14,302	b	2.0%
				Avg Yrly Increase 2001 to 2012		2.5%
Projections						
2014	3,093.0	9,697	18.3%			
2016	3,458.0	10,651	18.4%			
2018	3,889.0	11,771	18.5%			
2020	4,416.0	13,142	19.2%			
2022	5,009.0	14,664	19.9%			

SOURCES: U.S. Department of Labor, Bureau of Labor Statistics (www.bls.gov [February 2014]); U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, National Health Expenditures 1960-2012 and National Health Expenditure Projections 2012-2022 (http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/index.html [February 2014]).

[a] Based on Standard Industrial Classification (SIC) codes for health sector employment.
[b] Based on North American Industrial Classification System (NAICS) for health sector employment.



Woods County Economic Trends

Data relative to the health sector for Woods County are provided in **Table 2.** Data in **Table 2** are from the U. S. Census Bureau County Business Patterns, based on the North American Industry Classification System (NAICS). The table shows employment and payroll for both health services and total county services for Woods County. Further, it indicates the percentage of total employment and payroll that health services account for at both the county and state level.

Table 2

Employment and Payroll County Business Patterns[1]
for Woods County and the State of Oklahoma

Employment

Based on NAICS[2]	Health Services Employment	Total County Employment	Health Services as a Percent of Total County Employment	Health Services as a Percent of Total State Employment
2004	389	2,278	17.1%	15.4%
2005	387	2,305	16.8%	15.4%
2006	370	2,260	16.4%	15.1%
2007	250-499	2,371	n/a	15.3%
2008	264	2,177	12.1%	15.3%
2009	250-499	2,356	n/a	16.0%
2010	250-499	2,313	n.a	16.9%
2011	285	2,241	12.7%	16.8%
% Change '04 - '11	n/a	-1.6%		

Payroll

Based on NAICS[2]	Health Services Payroll ($1000s)	Total County Payroll ($1000s)	Health Services as a Percent of Total County Payroll	Health Services as a Percent of Total State Payroll
2004	$7,908	$45,467	17.4%	15.7%
2005	$7,830	$45,919	17.1%	15.1%
2006	$7,843	$50,325	15.6%	15.1%
2007	$9,011	$52,243	17.2%	15.3%
2008	$6,689	$66,975	10.0%	15.2%
2009	$7,063	$66,143	10.7%	16.8%
2010	$7,252	$64,913	11.2%	16.9%
2011	$7,738	$75,136	10.3%	16.5%
% Change '04 - '11	-2.1%	65.3%		

Source: U.S. Census Bureau, County Business Patterns; 2004-2011 data (www.census.gov [February 2014]).

[1] Data from County Business Patterns exclude 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-charted credit unions, and hospitals).

[2] The Health Care and Social Assistance NAICS 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. 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 shared 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.

This table displays how health services have changed over time. Health services employment in Woods County accounted for 389 employees 2004 (**Table 2**). This was the peak employment level for the years shown. In 2008, health service employment dropped to 264 employees. In 2011, health services employment accounted for 285 employees. This resulted in an overall decline of 26.7 percent in the local health care sector. Specific employment levels are not available for years 2007, 2009, and 2010. Total county employment saw a decrease of 1.6 percent from 2004 to 2011. The share of county employment comprised of health services has overall decreased from 17.1 percent in 2004 to 12.7 percent in 2011. However, the 12.7 percent still represents a significant portion of all jobs in Woods County. The state health services employment as a percent of total state employment increased, from 15.4 percent in 2004 to 16.8 percent in 2011.

The county health services payroll is available for all years displayed. Woods County's health services payroll decreased 2.1 percent from about $7.9 million in 2004 to about $7.7 million in 2011. For the same time period, total county payroll increased by 65.3 percent (**Table 2**). State health services payroll as a percent of state payroll increased 1.8 percent from 2004 to 2011, from 15.7 to 16.5 percent of total payroll. County health services payroll as a percent of total county payroll decreased from 17.4 percent in 2004 to 10.3 percent in 2011.

Basic economic indicators of the Woods County economy are illustrated in **Table 3**. Based on Bureau of Economic Analysis data, the 2012 per capita income for Woods County of $44,049 is higher than the per capita income for the state of Oklahoma and the United States.

According to the Bureau of Labor Statistics, the unemployment rate for Woods County was 2.9 percent in 2012, significantly lower than both the state rate of 5.2 percent and the

national rate of 8.1 percent. Preliminary estimates for December 2013 indicate the unemployment rate for Woods County had increased slightly to 3.4 percent, which was still considerably lower than the state and national rates (5.2 and 6.5 percent, respectively). The employment level in Woods County also shows positive improvements with an increase of 2.4 percent from 2012 to December 2013. This is a common trend across the state and the nation as recovery from the 2007-2009 recession continues. The number of people unemployed in Woods County also increased 23.8 percent during that same time period. This increase in both the unemployment rate and number of jobs suggests that more people entered the workforce over this time.

From the U. S. Census Bureau, the percent of people in poverty in Woods County was 15.2 percent in 2012, compared to 17.2 percent for the state and 15.9 percent nationally. The percentage of people under age 18 in poverty in 2012 followed similar trends with Woods County lower than the state and the nation. Another economic indicator is the share of income that is derived from transfer payments. These typically include social security, Medicare, and retirement / disability payments. Based on Bureau of Economic Analysis data, Woods County had 15.0 percent of total personal income from transfer payments, which was significantly lower than the state and the nation.

Table 3
Economic Indicators for Woods County,
the State of Oklahoma and the Nation

Indicator	County	State	U.S.
Total Personal Income (2012)	$389,040,000	$154,958,271,000	$13,729,063,000,000
Per Capita Income (2012)	$44,049	$40,620	$43,735
Employment (2012)	5,121	1,708,797	142,469,000
Unemployment (2012)	151	93,842	12,506,000
Unemployment Rate (2012)	2.9%	5.2%	8.1%
Employment (December 2013)*	5,245	1,723,590	144,423,000
Unemployment (December 2013)*	187	94,056	9,984,000
Unemployment Rate (December 2013)*	3.4%	5.2%	6.5%
Percentage of People in Poverty (2012)	15.2%	17.2%	15.9%
Percentage of Under 18 in Poverty (2012)	18.2%	24.1%	22.6%
Transfer Dollars (2012)	$58,469,000	$28,702,760,000	$2,358,236,000,000
Transfer Dollars as Percentage of Total Personal Income (2012)	15.0%	18.5%	17.2%

*County estimates are considered preliminary

SOURCES: 2013 Bureau of Labor Statistics; 2013 Bureau of Economic Analysis; 2013 U.S. Census Bureau.

Figures 2 and 3 spatially analyze the county level unemployment rates across the state of Oklahoma. **Figure 2** displays unemployment rate categories across the state for 2012. Unemployment rates were much lower in the western half of the state for 2012. **Figure 3** shows the latest available monthly unemployment rates for December 2013. Overall, unemployment rates have improved in some of the historically higher areas of the state. As noted earlier,

Woods County has experienced a light increase in unemployment since 2012. That is accurately displayed in **Figures 2** and **3**.

Figure 2. 2012 Unemployment Rates

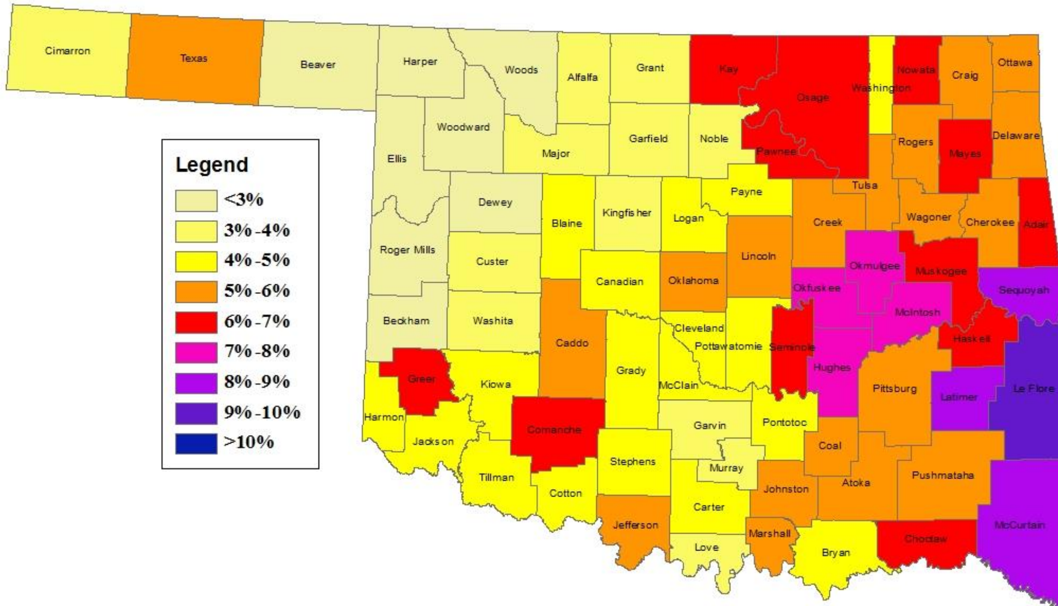
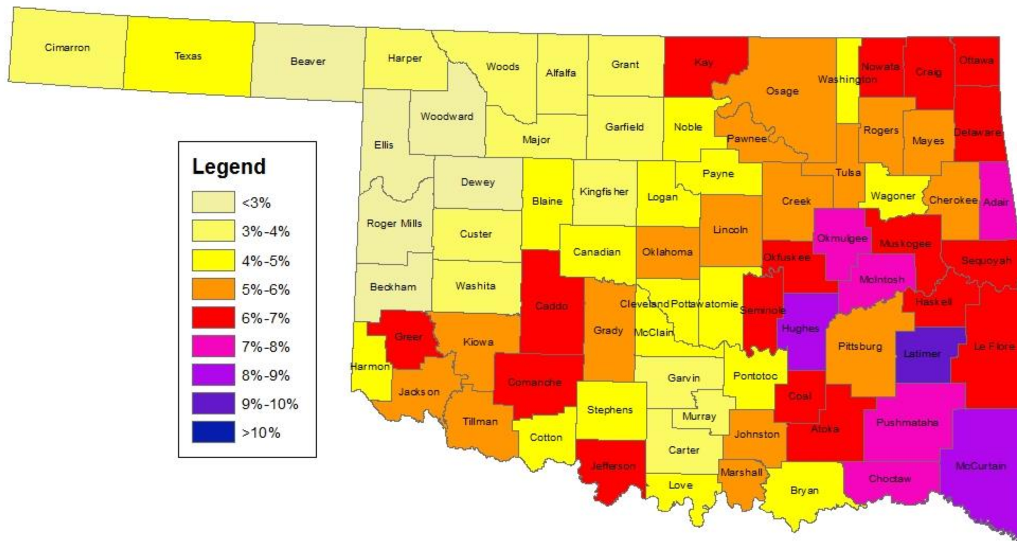


Figure 3. December 2013 Unemployment Rates



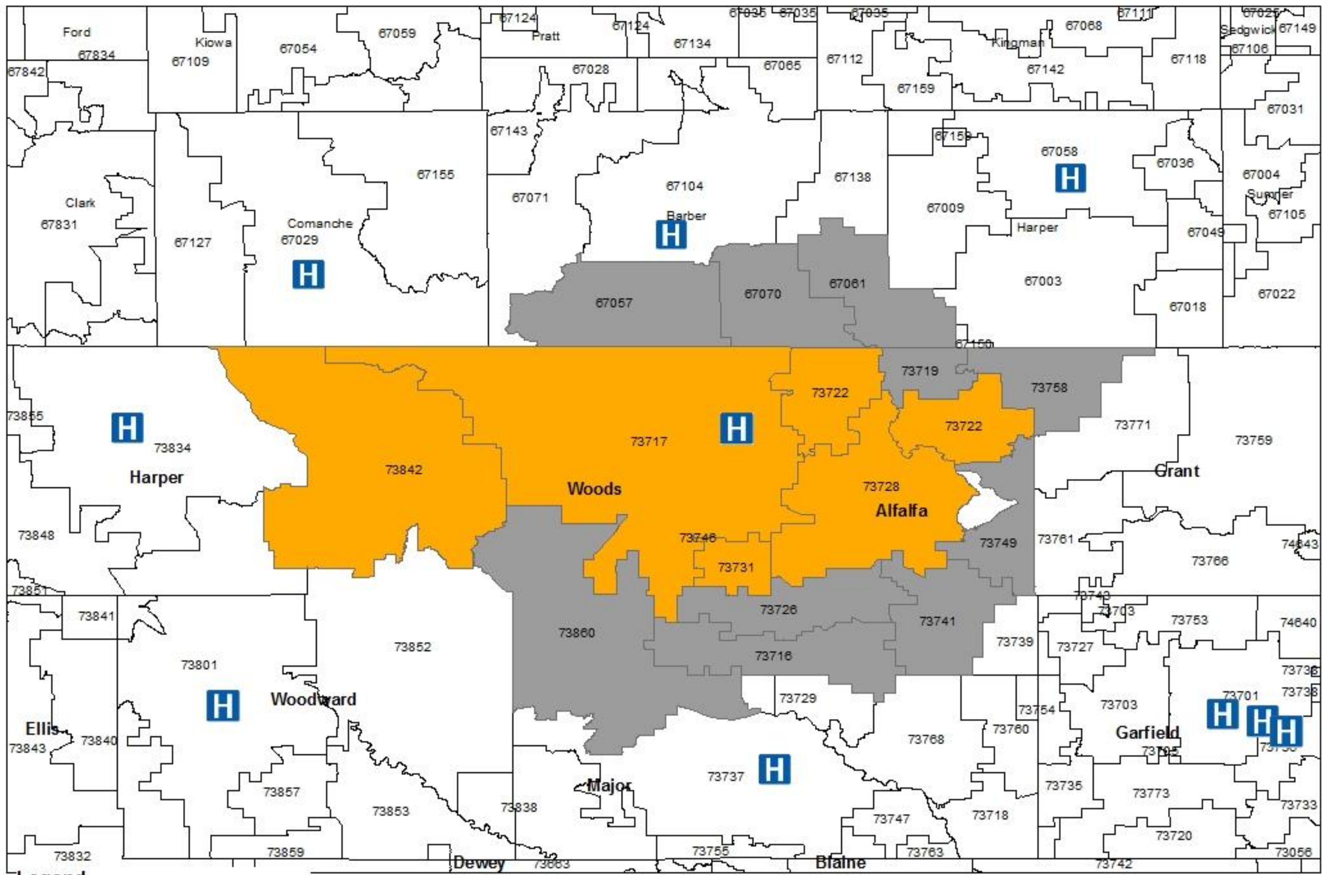
*December 2013 Unemployment Rates Considered Preliminary

Demographic Trends for the Share Medical Center Medical Service Area and Woods County

The Share Medical Center medical service area is delineated in **Figure 4**, which also shows the location of nearby hospitals. The primary medical service area is the immediate area surrounding Alva including the zip code areas of Alva (73717), Freedom (73842), Burlington (73722), Dacoma (73731), Cherokee (73728), and Hopeton (73746). According to the U.S. Census Bureau, the 1990 Census population of this primary medical service area was 9,871 (**Table 4a**). The population of this area increased to 10,208 by 2000, and slightly decreased to 9,836 according to the 2010 Census. Share Medical Center also serves a secondary medical service area, which consists of the zip code areas of Waynoka (73860), Carmen (73726), Aline (73716), Helena (73741), Jet (73749), Manchester (73758), Amorita (73719), Hardtner, KS (67057), Kiowa, KS (67070), and Hazelton, KS (67061).

According to the U.S. Census Bureau, the 1990 Census population of this secondary medical service area was 6,821 (**Table 4a**). The secondary medical service area experienced a decrease in population from the 1990 Census to the 2000 Census reflecting a population of 6,747. This medical service area experienced another decrease of 7.5% from the 2000 Census to the 2010 Census.

Figure 4. Share Medical Center Medical Service Areas



City	County	Hospital	No. of Beds
Enid	Garfield	INTEGRIS Baptist Medical Center, Inc.	629
Enid	Garfield	INTEGRIS Bass Pavilion	24
Enid	Garfield	St. Mary’s Regional Medical Center	245
Buffalo	Harper	Harper County Community Hospital	25
Fairview	Major	Fairview Regional Medical Center	25
Alva	Woods	Share Medical Center	25
Woodward	Woodward	Woodward Regional Hospital	87
Medicine Lodge	Barber, KS	Medicine Lodge Memorial Hospital	25
Coldwater	Comanche, KS	Comanche County Hospital	14
Harper	Harper, KS	Harper Hospital District #5	25

Table 4a
Population of Share Medical Center Medical Service Area

Population by Zip Code		1990 Census	2000 Census	2010 Census	% Change '90-'00	% Change '00-'10
Primary Medical Service Area						
73717	Alva	6,373	6,940	6,846	8.9%	-1.4%
73842	Freedom	532	535	494	0.6%	-7.7%
73722	Burlington	359	486	427	35.4%	-12.1%
73731	Dacoma	351	186	171	-47.0%	-8.1%
73728	Cherokee	2,256	2,001	1,861	-11.3%	-7.0%
73746	Hopeton	n/a	60	37	n/a	-38.3%
	Total	**9,871**	**10,208**	**9,836**	**3.4%**	**-3.6%**
Secondary Medical Service Area						
73860	Waynoka	1,516	1,387	1,337	-8.5%	-3.6%
73726	Carmen	642	600	472	-6.5%	-21.3%
73716	Aline	526	544	510	3.4%	-6.3%
73741	Helena	1,365	1,648	1,614	20.7%	-2.1%
73749	Jet	526	481	448	-8.6%	-6.9%
73758	Manchester	206	243	197	18.0%	-18.9%
73719	Amorita	178	117	83	-34.3%	-29.1%
67057	Hardtner, KS	284	254	241	-10.6%	-5.1%
67070	Kiowa, KS	1,255	1,230	1,169	-2.0%	-5.0%
67061	Hazelton, KS	323	243	171	-24.8%	-29.6%
	Total	**6,821**	**6,747**	**6,242**	**-1.1%**	**-7.5%**

SOURCE: Population data from the U.S. Bureau of Census, 1990, 2000 and 2010 (February 2013).

Table 4b shows population trends for the state of Oklahoma, Woods County, and the cities and towns located in the primary and secondary medical service areas for the years 2000, 2010, and population estimates for 2012. The city level estimates are place estimates rather than zip code estimates that were discussed in **Table 4a**. From 2000 to 2010, Woods County had a

population decrease of 2.3 percent, while the state increased 8.7 percent. During the same time period Freedom (6.6%) was the only place to experience an increase in population. Dacoma (-27.7%), Hazelton, KS (-35.4%), Amorita (-15.9%), Carmen (-13.6%) and Hardtner, KS (-13.6%) experienced the largest declines in population during that same time period. From 2010 to 2012, Woods County saw another decrease in population of 0.5 percent. The state population increased by 1.7 percent during this time period. Burlington (1.3%), Hazelton, KS (1.1%), and Aline (1.0%) saw the largest increases in population. Waynoka (-0.8%) and Alva (-0.6%) experienced the largest decreases in population during this time period.

It must be noted that the population of Helena experienced much variance during this twelve year period. This can be largely attributed to the counting of the local prison population.

Table 4b
Population Trends for Woods County and the State of Oklahoma

Population by Place	2000 Census	2010 Census	2012 Estimates	% Change '00-'10	% Change '10-'12
State of Oklahoma	3,450,654	3,751,351	3,814,820	8.7%	1.7%
Woods County	9,089	8,878	8,832	-2.3%	-0.5%
Primary Medical Service Area					
Alva	5,288	4,945	4913	-6.5%	-0.6%
Freedom	271	289	288	6.6%	-0.3%
Burlington	156	152	154	-2.6%	1.3%
Dacoma	148	107	107	-27.7%	0.0%
Cherokee	1,630	1,498	1499	-8.1%	0.1%
Hopeton	n/a	n/a	n/a	n/a	n/a
Total	**7,493**	**6,991**	**6,961**	**-6.7%**	**-0.4%**
Secondary Medical Service Area					
Waynoka	993	927	920	-6.6%	-0.8%
Carmen	411	355	355	-13.6%	0.0%
Aline	214	207	209	-3.3%	1.0%
Helena	443	1,403	1,407	216.7%	0.3%
Jet	230	213	215	-7.4%	0.9%
Manchester	104	103	103	-1.0%	0.0%
Amorita	44	37	37	-15.9%	0.0%
Hardtner, KS	199	172	173	-13.6%	0.6%
Kiowa, KS	1,055	1,026	1,023	-2.7%	-0.3%
Hazelton, KS	144	93	94	-35.4%	1.1%
Total	**3,837**	**4,536**	**4,536**	**18.2%**	**0.0%**

SOURCE: Population data from the U.S. Bureau of Census, 1990, 2000 and 2010 (February 2014).

Tables 5 and **6** provide further details about the demographic trends of the primary and secondary medical service areas as well as trends in Woods County and Oklahoma state level data. **Table 5** presents the breakdown by age group for these geographies from the census years

2000 and 2010. The age groups of 45-64 experienced an increase for all geographies from 2000 to 2010. In terms of comparing age groups across medical service areas, the age group of 45-64 accounts for 23.7 percent of the total population of the primary medical service area. This is compared to 32.2 percent for the same age cohort in the secondary medical service area. Also, the age group of 65 and over is much larger (17.7%) in the primary medical service area compared and secondary medical service area (20.8%) compared to the state (13.5%). The youngest age group (0-14) accounts for a larger share of the primary medical service area (16.0%) compared to the secondary medical service area (14.5%). Both service areas have a considerably lower share when compared to the state (20.7%).

Table 5

Percent of Total Population by Age Group for Share Medical Center Medical Service Areas, Woods County and Oklahoma

Age Groups	Primary Medical Service Area	Secondary Medical Service Area	Woods County	Oklahoma
2000 Census				
0-14	16.1%	15.3%	15.5%	21.2%
15-19	8.4%	6.2%	8.6%	7.8%
20-24	11.1%	4.0%	11.9%	7.2%
25-44	23.2%	27.7%	23.2%	28.3%
45-64	21.3%	25.4%	20.9%	22.3%
65+	19.8%	21.4%	19.9%	13.2%
Totals	100.0%	100.0%	100.0%	100.0%
Total Population	10,208	6,747	9,089	3,450,654
2010 Census				
0-14	16.0%	14.5%	15.9%	20.7%
15-19	7.7%	4.7%	7.9%	7.1%
20-24	12.7%	4.2%	13.7%	7.2%
25-44	22.2%	23.6%	22.3%	25.8%
45-64	23.7%	32.2%	23.1%	25.7%
65+	17.7%	20.8%	17.2%	13.5%
Totals	100.0%	100.0%	100.0%	100.0%
Total Population	9,836	6,242	8,878	3,751,351

SOURCE: U.S. Census Bureau, Census data for 1990, 2000, and 2010 (www.census.gov [February 2014]).

Table 6 shows the race and ethnic group percentages for the primary and secondary medical service areas and Woods County and the state of Oklahoma for the census years 2000 and 2010. The state has experienced a significant increase in people of Hispanic origin, increasing from 5.2 percent in 2000 to 8.9 percent in 2010. Woods County has experienced a similar trend of the Hispanic origin population increasing from 2.4 percent in 2000 to 4.8 percent of the total population in 2010. When examining the medical service area level data, the primary and secondary medical service areas follow the county trend very closely.

Table 6. Percent of Total Population by Race and Ethnicity for Share Medical Center Medical Service Areas, Woods County and Oklahoma

Race/Ethnic Groups	Primary Medical Service Area	Secondary Medical Service Area	Woods County	Oklahoma
2000 Census				
White	94.1%	89.5%	93.4%	74.1%
Black	1.9%	4.2%	2.4%	7.5%
Native American [1]	1.6%	2.4%	1.6%	7.7%
Other [2]	1.1%	1.7%	1.1%	1.5%
Two or more Races [3]	1.3%	2.1%	1.5%	4.1%
Hispanic Origin [4]	2.4%	3.4%	2.4%	5.2%
Total Population	10,208	6,747	9,089	3,450,654
2010 Census				
White	89.6%	89.3%	88.4%	68.7%
Black	3.1%	3.5%	3.3%	7.3%
Native American [1]	2.3%	2.4%	2.4%	8.2%
Other [2]	2.7%	2.3%	3.2%	1.9%
Two or more Races [3]	2.3%	2.5%	2.7%	5.1%
Hispanic Origin [4]	4.3%	4.5%	4.8%	8.9%
Total Population	9,836	6,242	8,878	3,751,351

SOURCE: U.S. Census Bureau, Census data for 2000 and 2010 (www.census.gov [February 2014]).

[1] Native American includes American Indians and Alaska Natives.

[2] Other is defined as Asian Americans, Native Hawaiians, Pacific Islanders and all others.

[3] Two or more races indicate a person is included in more than one race group.

[4] Hispanic population is not a race group but rather a description of ethnic origin; Hispanics are included in the five race groups.

The Direct Economic Activities

The health sector creates employment and payroll impacts, which are important direct economic activities for the Share Medical Center service area. The health sector is divided into the following six components:

- Hospital
- Physicians, Dentists, and Other Medical Professionals
- Nursing and Protective Care
- Home Health
- Pharmacies
- Other Medical and Diagnostic Labs

As of 2014, the health sector in Alva medical service area employs 383 full-time and part-time employees and has an estimated payroll of $17,152,102 (Table 7). The Hospital component provides 171 full and part-time jobs with an estimated annual payroll of $6,734,913 (including benefits1). The Physicians, Dentists, and Other Medical Professionals sector employs 51 total full and part-time employees with an estimated payroll of $3,830,466. The Other Medical and Health Services, Home Health and Nursing Home component employs 140 total full-time and part-time employees and has an estimated annual payroll of $5,648,551. The pharmacies component includes three locations with a total employment of 21 employees and total annual payroll of $938,172.

Note that this total employment (383 jobs) is significantly higher than the 285 health sector jobs denoted in Table 2. This is due to differences in what is counted as a "health sector" job by the U.S. Census Bureau and the more recent data used here (2014 vs. 2011).

[1] The ratios for benefits are derived from the 2002 Economic Census Data-Oklahoma Health Care and Social Assistance by industry, U.S. Census Bureau.

Table 7
Direct Economic Activities of the Health Sector
in the Share Medical Center Medical Service Area

Component	Full-Time & Part-Time Employment	Total Payroll with Benefits
Hospital	171	$6,734,913
Includes Share Medical Center, SMC Clinic, Share Convalescent Home, Hospice and Retirement Living		
Physicians, Dentists, & Other Medical Professionals	51	$3,830,466
Includes 4 physician offices, 4 dental offices, 3 chiropractic offices, and 2 optometrist offices		
Other Medical & Health Services & Home Health & Nursing Homes	140	$5,648,551
Includes 2 home health offices, Woods County Health Department, 2 EMS services, 1 mental health provider, and one nursing home		
Pharmacies	21	$938,172
Includes 3 pharmacies		
Totals	**383**	**$17,152,102**

SOURCE: Local survey and estimates from research.

The health sector is a vital component to the local economy in terms of both a community employer and a source of income to the community's economy. As demonstrated in **Table 7**, the health sector employs a large number of residents. These residents, along with businesses in the health sector, purchase a large amount of goods and services from businesses in the Share Medical Center medical service area. These impacts are referred to as secondary impacts or benefits to the economy. Before the secondary impacts of the health sector are discussed, the basic concepts of community economics will be reviewed.

Basic Concepts of Community Economics and Income and Employment Multipliers

Figure 5 illustrates the major flows of goods, services, and dollars of any economy. The foundations of a community's economy are those businesses that sell some or all of their goods and services to buyers outside of the community. Such a business is referred to as a basic industry. The two arrows in the upper right portion of **Figure 5** represent the flow of products out of, and dollars into, a community. To produce these goods and services for "export" outside the community, the basic industry purchases inputs from outside of the community (upper left portion of **Figure 5**), labor from the residents or "households" of the community (left side of **Figure 5**), and inputs from service industries located within the community (right side of **Figure 5**). Households using their earnings to purchase goods and services from the community's service industries complete the flow of labor, goods, and services in the community (bottom of **Figure 5**). It is evident from the relationships illustrated in **Figure 5** that a change in any one segment of a community's economy will cause reverberations throughout the entire economic system of the community.

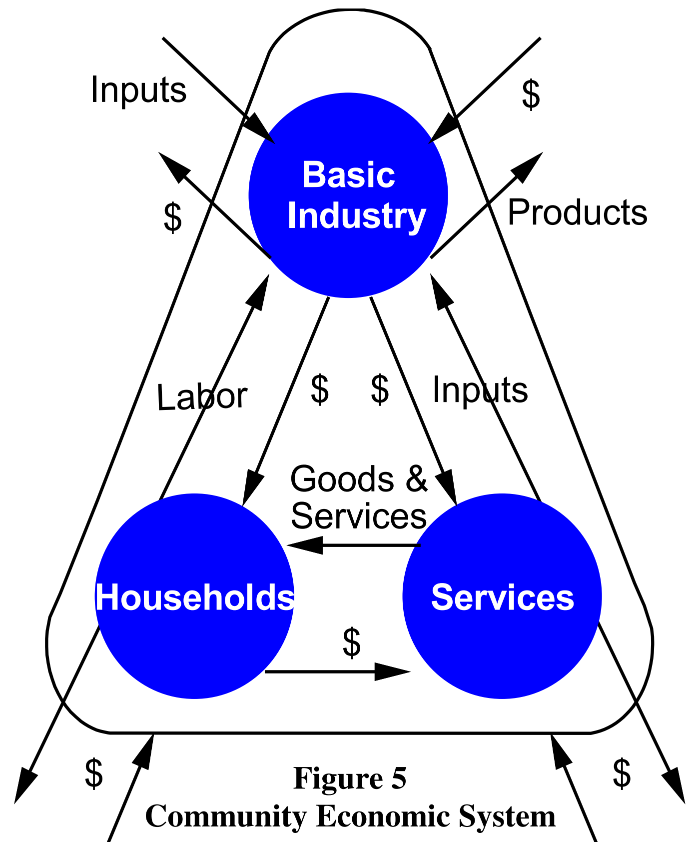


Figure 5
Community Economic System

Consider, for instance, the closing of a hospital. The services section will no longer pay employees and the dollars flowing into households from these jobs will stop. Likewise, the hospital will not purchase goods from other businesses, and the dollar flow to other businesses will stop. This decreases income in the "households" segment of the economy. Since earnings would decrease, households decrease their purchases of goods and services from businesses within the "services" segment of the economy. This, in turn, decreases the amount of labor and input that these businesses' purchase. Thus, the change in the economic base works its way throughout the entire local economy. The total impact of a change in the economy consists of direct, indirect, and induced impacts. Direct impacts are the changes in the activities of the impacting industry, such as the closing of a hospital. The impacting business, such as the hospital, changes its purchase of inputs as a result of the direct impact. This produces an indirect impact in the business sectors.

Both the direct and indirect impacts change the flow of dollars to the community's households. The households alter their consumption accordingly. The effect of this change in household consumption upon businesses in a community is referred to as an induced impact. 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. The multipliers used in this report are defined as:

> "…the ratio between direct employment (or income), or that employment (or income) used by the industry initially experiencing a change in final demand and the direct, indirect, and induced employment (or income)."

An employment multiplier of 3.0 indicates that if one job is created by a new industry, 2.0 jobs are created in other sectors due to business (indirect) and household (induced) spending.

Secondary Impacts of the Health Sector on the Economy of Share Medical Center Medical Service Area

Employment and income multipliers for the area have been calculated by use of the IMPLAN model. This model was developed by the U.S. Forest Service[2] and allows for the development of multipliers for various sectors of an economy. The multipliers generated by the model are county-specific and are determined by historical spending patterns in the county. The employment multipliers for the components of the Share Medical Center health sector are shown in **Table 8**, column 3. The employment multiplier for the Hospital component is 1.23. This indicates that for each job in that component, an additional 0.23 jobs are created throughout the area due to business (indirect) and household (induced) spending. The employment multipliers for the other health sector components are also shown in **Table 8**.

Applying the employment multipliers to the employment for each component yields an estimate of the impact on the economy (**Table 8**). For example, the hospital component has a direct employment of 171 full-time and part-time employees; applying the employment multiplier of 1.23 to the direct employment number of 171 yields a total employment impact of 211 employees. The Physicians, Dentists, and Other Professionals component employs 51 people; however, the total impact is 69 employees once the multiplier of 1.35 is applied. The Other Medical and Health Services, Home Health and Nursing Home component has 140 full-time and part-time employees and an employment multiplier of 1.21, for a total employment impact of 169. The Pharmacies component has a direct employment of 21, but after applying the employment multiplier of 1.25, the total employment impact is 26 employees. The total

[2] For complete details of model, see [1], [2], and [3].

employment impact of the health sector in Share Medical Center medical service area is estimated to be 475 employees (**Table 8**).

Applying the income multipliers to the income (payroll including benefits) for each of the health sector components yields an estimate of each component's income impact on the Share Medical Center medical service area (**Table 8**).

The income multiplier for the Hospital component is 1.16 (**Table 8**). This indicates that for each dollar in that component, an additional 0.16 dollars are created throughout the area due to business (indirect) and household (induced) spending. The Hospital component has a total payroll of $6,734,913; applying the income multiplier of 1.16 brings the total Hospital component income impact to $7,803,972. The income multipliers for the other health sector components are also shown in **Table 8**. The Physicians, Dentists, and Other Medical Professionals component has a total income impact of $4,490,467, based on the application of the income multiplier of 1.17 to the direct $4,490,467 payroll. The Other Medical and Health Services, Home Health and Nursing Homes component has a direct payroll of $5,648,551 and an income multiplier of 1.16 leading to a total income impact of $6,557,126. The Pharmacies component has a total income impact of $1,109,403 after applying the income multiplier of 1.18. The total income impact of the health sector on the economy of Share Medical Center medical service area is projected to be $19,960,968 (**Table 8**).

Table 8
Share Medical Center Medical Service Area Health Sector Impact
on Employment and Income, and Retail Sales and Sales Tax

	Employment			Income			Retail	1 Cent
Health Sectors	Employed	Multiplier	Impact	Income	Multiplier	Impact	Sales	Sales Tax
Hospitals	171	1.23	211	$6,734,913	1.16	$7,803,972	$2,247,544	$22,475
Physicians, Dentists, & Other Medical Professionals	51	1.35	69	$3,830,466	1.17	$4,490,467	$1,293,254	$12,933
Other Medical & Health Services & Home Health & Nursing Homes	140	1.21	169	$5,648,551	1.16	$6,557,126	$1,888,452	$18,885
Pharmacies	21	1.25	26	$938,172	1.18	$1,109,403	$319,508	$3,195
Total	**383**		**475**	**$17,152,102**		**$19,960,968**	**$5,748,759**	**$57,488**

SOURCE: 2012 IMPLAN database, Minnesota IMPLAN Group, Inc.; Local data for employment, employee compensation and proprietor's income; income estimated based on state average incomes if local data not available

* Based on the ratio between Woods County retail sales and income (28.8%) – from 2012 County Sales Tax Data and 2012 Personal Income Estimates from the Bureau of Economic Analysis.

Income also has an impact on retail sales, and the health sector has its own distinct effect on these retail sales. The local retail sales capture ratio is used to estimate the effect of the health sector on retail sales. This ratio indicates the percentage of personal income spent locally on items that generate local sales tax. If the county ratio between retail sales and income continues as it was in 2012 (around 28.8 percent), then direct and secondary retail sales generated by the health sector equals $5,748,759 (**Table 8**). Each of the components' income impacts is utilized to determine the retail sales and the effects of a one-cent sales tax collection for each component. A one-cent sales tax collection is estimated to generate $57,488 in the Share Medical Center medical service area economy as a result of the health sector income impact (**Table 8**). This estimate only examines expenditures made by health care employees. Retail sales made by individuals traveling to the community for services are not included, but have been proven to be significant [4]. The bottom line is that the health sector in the Share Medical Center medical service area not only contributes greatly to the medical health of the community, but also to the economic health of the community.

Summary

The economic impact of the health sector on the economy of Share Medical Center medical service area is tremendous. The health sector employs a large number of residents, similar to a large industrial firm. The secondary impact occurring in the community is extremely large and is a testament to the importance of the health sector. If the health sector increases or decreases in size, the medical health of the community, as well as the economic health of the community, is greatly affected. For the attraction of industrial firms, businesses, and retirees, it is crucial that the area have a quality health sector. The fact that a prosperous health sector also contributes to the economic health of the community is often overlooked.

References

[1] IMPLAN Professional Version 2.0 Social Accounting & Impact Analysis Software – USER'S GUIDE, ANALYSIS GUIDE, DATA GUIDE, MIG, Minnesota IMPLAN Group, 2nd Edition, June 2000.

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[4] Brooks, L. and Whitacre, B. E. , Critical Access Hospitals and Retail Activity: An Empirical Analysis in Oklahoma. The Journal of Rural Health, no. doi: 10.1111/j.1748-0361.2010.00336.x