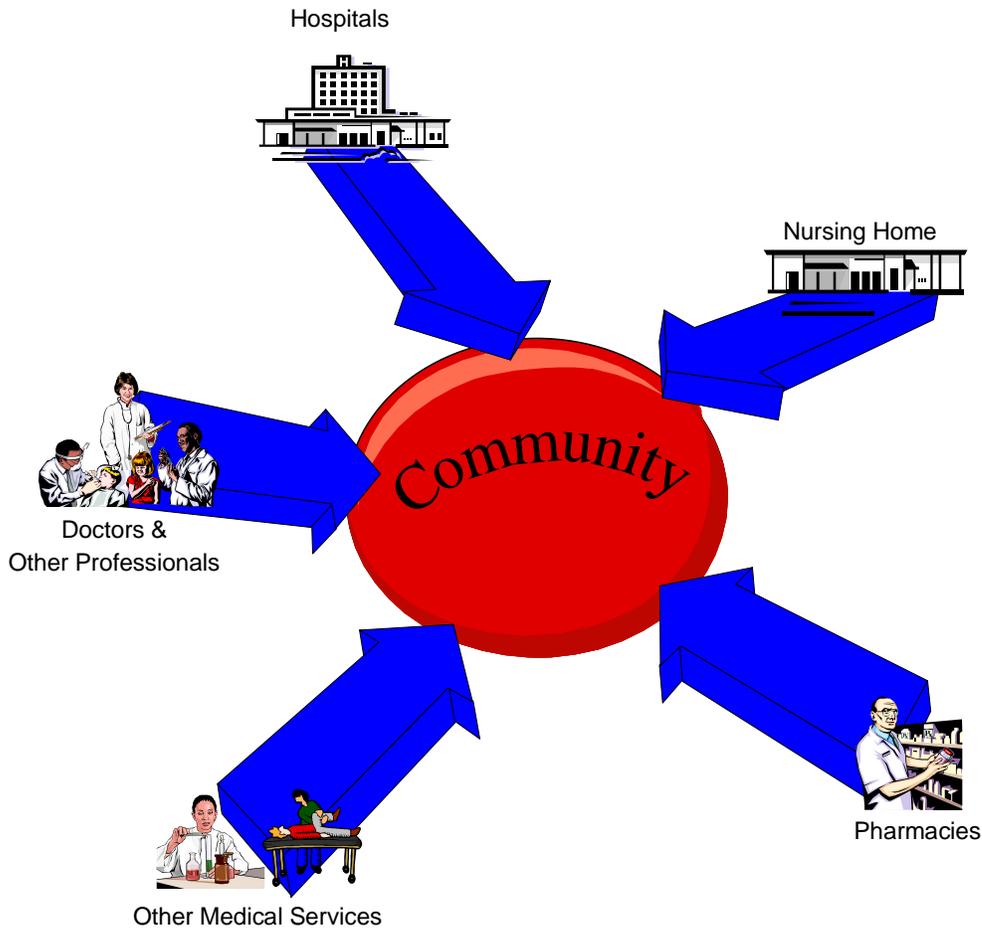


Economic Impact of the Health Sector on the Economy of the Cushing Regional Hospital Medical Service Area



Oklahoma State Department of Health,
Office of Rural Health

Oklahoma Cooperative Extension Service,
Oklahoma State University

April 2001

**The Economic Impact of the Health Sector on the Economy
of Cushing Regional Hospital Medical Service Area**

R. David Shelton, Extension Associate, OSU, Stillwater
(405) 744-6081

Cheryl F. St. Clair - Extension Associate, OSU, Stillwater
(405) 744-6081

Gerald A. Doeksen - Extension Economist, OSU, Stillwater
(405) 744-6081

Jack Frye - Area Extension Rural Development Specialist, Ada
(580) 332-4100

Val Schott, Director, Oklahoma Office of Rural Health, Oklahoma City
(405) 271-8750

Nathan Anderson - Payne County Extension Director, Stillwater
(405) 747-8320

RURAL DEVELOPMENT
OKLAHOMA COOPERATIVE EXTENSION SERVICE
OKLAHOMA STATE UNIVERSITY

April 2001

The Economic Impact of the Health Sector on the Economy of Cushing Regional Hospital Medical Service Area

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 number of people and have a large payroll, but they also draw into the community a large number of people from rural areas that need medical services. The overall objective of this study is to measure the economic impact of the health sector on the economy of Cushing Regional Hospital medical service area. The specific objectives of this report are to:

1. Summarize the population and employment of Payne County,
2. Summarize the direct economic activities of the health sector in the Cushing Regional Hospital medical service area,
3. Review concepts of community economics and multipliers, and
4. Estimate the secondary impacts of the health sector on Cushing Regional Hospital medical service area.

No recommendations will be made in this report.

Payne County Population and Employment

General population data for Payne County is presented in **Table 1**. The population of Payne County was 61,450 in 1990 according to the U.S. Census Bureau and is estimated to be 65,418 in 1999 according to the U. S. Census Bureau, Population Estimates Branch, which is an increase of 6.5%. The population of Stillwater, the county seat, according to the 1990 Census was 36,659 and the 1999 population is estimated to be 38,444, representing an increase of 4.9%.

Table 1
Population of Payne County, Oklahoma

POPULATION	1990 Population ¹	1999 Estimated Population ²	% Change from 1990-1999
Payne County	61,450	65,418	6.5%
Cushing city	7,233	7,933	9.7%
Drumright city (pt.)	67	67	0.0%
Glencoe town	474	509	7.4%
Perkins town	1,945	2,090	7.5%
Quay town (pt.)	18	21	16.7%
Ripley town	376	405	7.7%
Stillwater city	36,659	38,444	4.9%
Yale city	1,412	1,349	-4.5%
Balance of Payne County	13,266	14,600	10.1%

¹ SOURCE: Population data from the U.S. Bureau of the Census, 1990.

² SOURCE: Population data from the U.S. Bureau of the Census, Population Estimates Branch, 1999.

The next largest community in Payne County is Cushing, with a 1990 population of 7,233 and a 1999 estimated population of 7,933, representing an increase of 9.7%. Since the 1990 Census, the populations of the rural area of Payne County and all the communities, except Yale, have increased.

Employment data for Payne County is presented in **Table 2**; data is for 1998 from the Bureau of Economic Analysis, Regional Economic Information System. The sectors with the largest employment are government and governmental enterprises (14,534), services (11,207), and retail trade (7,149). Payne County has a government, services, and retail trade base.

Table 2
Employment of Payne County, Oklahoma

EMPLOYMENT¹	1998 Employment*
TOTAL EMPLOYMENT	<u>43,943</u>
By Type:	
Wage and Salary	35,578
Proprietors	<u>8,365</u>
Farm	1,391
Nonfarm ²	<u>6,974</u>
TOTAL EMPLOYMENT	<u>43,943</u>
By Industry:	
Farm	1,495
Nonfarm	<u>42,448</u>
Private	27,914
Ag. Serv., for., fish., and other ³	(D)
Mining	(D)
Construction	1,822
Manufacturing	2,850
Transportation and public utilities	714
Wholesale trade	961
Retail trade	7,149
Finance, insurance, and real estate	1,934
Services	<u>11,207</u>
Government and gov't enterprises	<u>14,534</u>
Federal, civilian	275
Military	344
State and local	<u>13,915</u>

* SOURCE: Employment data is 1998 data from the Bureau of Economic Analysis, Region Economic Information System.

¹ The estimates of employment for 1969-74 based on 1967 Standard Industrial Classification (SIC). The estimates for 1975-87 are based on the 1972 SIC. The estimates for 1988-98 are based on the 1987 SIC.

² Excludes limited partners.

³ "Other" consists of the number of jobs held by U.S. residents employed by international organizations and foreign embassies and consulates in the U.S.

(D) Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

The Direct Economic Activities

Table 3 shows the population of Cushing Regional Hospital's primary medical service area. This area represents the city limits of Cushing and a five to six mile radius. Cushing Regional Hospital's secondary medical service area is vast. It includes patients from as far north as Hominy and as far south as Chandler.

Employment and payroll are the important direct economic activities created in Cushing Regional Hospital medical service area from the health sector. The health sector is divided into the following five components:

- Hospitals
- Doctors and Dentists (includes other medical professionals)
- Nursing and Protective Care
- Other Medical and Health Services (includes home health care and county health departments)
- Pharmacies

The health sector in Cushing Regional Hospital medical service area employs 496 full-time equivalent employees and has an estimated payroll of \$18,088,929 (**Table 4**). The health sector in Cushing Regional Hospital medical service area is typical of many rural counties, with one hospital, 14 physicians, three dentists, two optometrists, three chiropractors, four anesthetists, two nursing homes, one county health department, and four pharmacies. Cushing Regional Hospital medical service area is unique in that the Valley Hope Alcohol/Drug Treatment Center is located within the area. The Hospital component employs 250 people with an annual payroll of \$7,843,000. The Doctors and Dentists component employs 90 full-time equivalent employees with an annual payroll of \$5,564,012. The Nursing and Protective Care Component employs 68 people with an annual payroll of \$1,515,000. The Other Medical

Table 3
Cushing Regional Hospital Medical Service Area

PRIMARY SERVICE AREA	1999 Census Data
Cushing (Incorporated)	7,933
Cushing Rural - Payne County	1,980
Cushing Rural - Lincoln County	<u>606</u>
TOTAL OF PRIMARY SERVICE AREA	10,519

SOURCE: 1999 U.S. Census Population

Table 4
Direct Economic Activities of the Health Sector
Within the Cushing Regional Hospital Medical Service Area
in Payne and Lincoln Counties, Oklahoma

Components	Estimated Employees	Estimated Payroll
Hospital Cushing Regional Hospital (Includes 3 ER Physicians & Home Health)	250	\$7,843,000
Doctors, Dentists, and Other Medical Professionals (Includes 14 primary care physicians, 3 dentists, 3 chiropractors, 2 optometrists, & 4 Anesthetists)	90	\$5,564,012
Nursing and Protective Care (2)	68	\$1,515,000
Other Medical and Health Services (Includes Valley Hope Treatment Center & county health department)	65	\$2,478,917
Pharmacy (Includes 4 pharmacies & 6 pharmacists)	23	\$688,000
TOTALS	<u>496</u>	<u>\$18,088,929</u>

SOURCE: Local data provided

and Health Services component employs 65 employees for an annual payroll cost of \$2,478,917. The Pharmacy component has 23 employees totaling a payroll of \$688,000. It should be noted that many rural communities have a large number of elderly, and the ranchers and farmers often retire in the towns. Thus, Nursing and Protective Care facilities are an important component of the health sector.

In summary, the health sector is vitally important as a community employer and important to the community's economy. The health sector definitely employs a large number of residents. The health sector and the employees in the health sector purchase a large amount of goods and services from businesses in Cushing Regional Hospital 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, basic concepts of community economics will be discussed.

Some Basic Concepts of Community Economics and Income and Employment Multipliers

Figure 1 illustrates the major flows of goods, services, and dollars of any economy. The foundation of a community's economy is those businesses that sell some or all of their goods and services to buyers outside of the community. Such a business is a basic industry. The two arrows in the upper right portion of **Figure 1** 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 1**), labor from the residents or "households" of the community (left side of **Figure 1**), and inputs from service industries located within the community (right side of **Figure 1**). The flow of

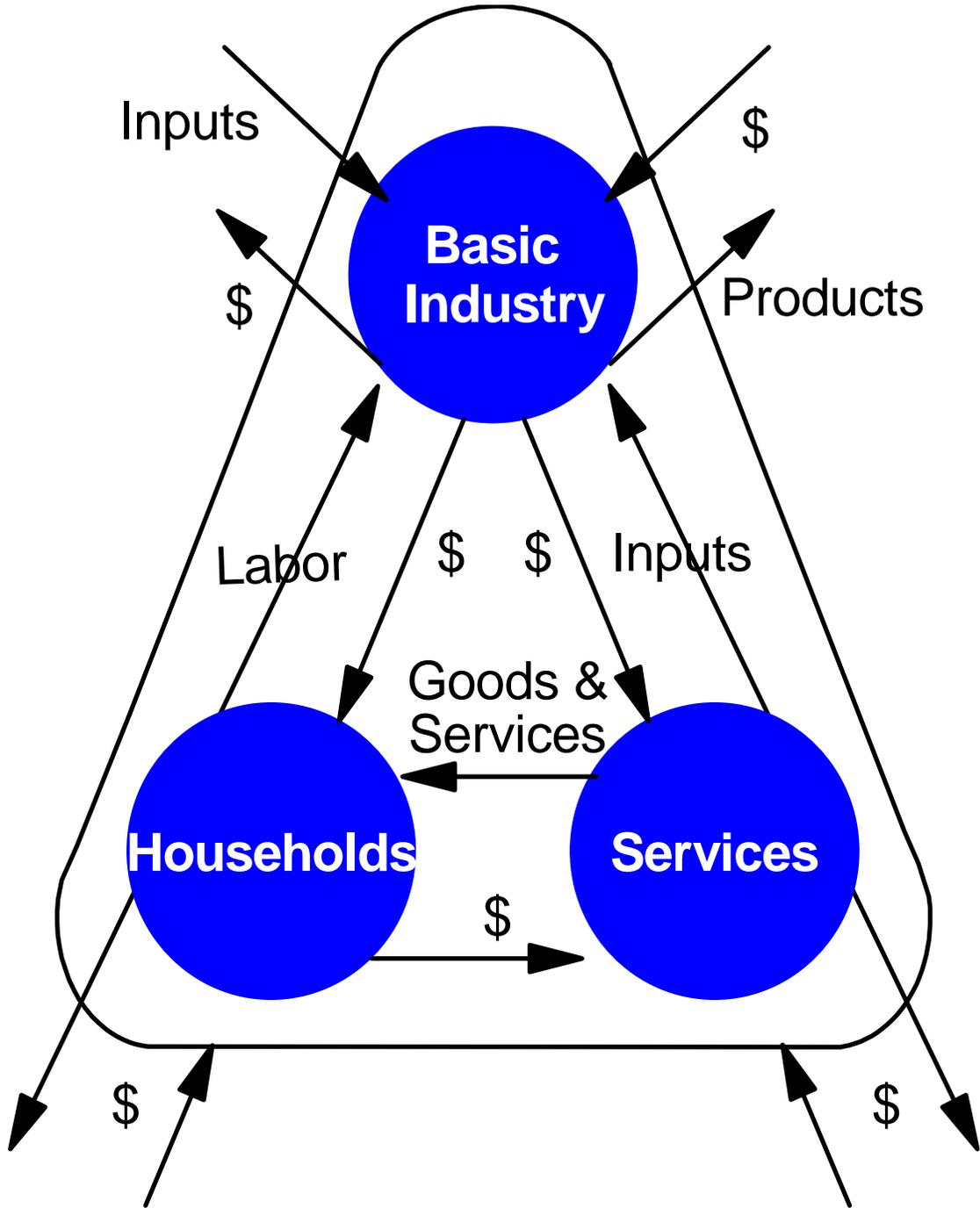


Figure 1.
Community Economic System

labor, goods, and services in the community is completed by households using their earnings to purchase goods and services from the community's service industries (bottom of **Figure 1**). It is evident from the interrelationships illustrated in **Figure 1** that a change in any one segment of a community's economy will have reverberations throughout the entire economic system of the community.

Consider, for instance, the closing of a hospital. The services section will no longer pay employees and dollars going to households will stop. Likewise, the hospital will not purchase goods from other businesses and 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 these businesses' purchases of labor and inputs. 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 purchases 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. A type III multiplier is used in this report. It is defined as:

Type III¹ -is the ratio between direct employment, or that employment used by the industry initially experiencing a change in final demand and the direct, indirect, and induced employment.

A Type III 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 Health Sector on the Economy of Cushing Regional Hospital Medical Service Area

Employment and income multipliers for the area have been calculated by use of the IMPLAN model. It was developed by the U.S. Forest Service² and is a model that allows for development of county multipliers. The Type III employment multipliers for the five components of the health sector are shown in **Table 5**, column 3. The Type III employment multiplier for the hospital component is 1.55. This indicates that for each job created in that sector, .55 jobs are created throughout the area due to business (indirect) and household (induced) spending. The Type III employment multipliers for the other health sector components are also shown in **Table 5**, column 3. The Type III income multiplier for the hospital sector is 1.31 (**Table 5**, column 6). This indicates that for each dollar created in that sector, .31 dollars are

¹The Type III multiplier is a modified Type II multiplier and is calculated slightly differently than normal type II methodology. Researchers feel it is more accurate. For specific reasons and how to calculate see [1].

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

Table 5
Economic Impact of the Health Sector
on Employment and Income in Cushing, Oklahoma

(1) Health Sector Component	(2) Employment Numbers	(3) Multiplier	(4) Impact	(5) Payroll	(6) Income Multiplier	(7) Impact	(8) Retail Sales	(9) One Cent Sales Tax
Hospitals	250	1.55	388	\$7,843,000	1.31	\$10,274,330	\$3,910,565	\$39,106
Doctors & Dentists	90	1.69	152	\$5,564,012	1.26	\$7,010,655	\$2,668,361	\$26,684
Nursing & Protective Care	68	1.46	99	\$1,515,000	1.59	\$2,408,850	\$916,845	\$9,168
Other Medical & Health Services	65	1.53	99	\$2,478,917	1.50	\$3,718,376	\$1,415,270	\$14,153
Pharmacy	<u>23</u>	1.43	<u>33</u>	<u>\$688,000</u>	1.71	<u>\$1,176,480</u>	<u>\$447,786</u>	<u>\$4,478</u>
TOTALS	496		771	\$18,088,929		\$24,588,691	\$9,358,827	\$93,589

SOURCES: 1997 IMPLAN Multipliers, Local Employment and Payroll, 1998 BEA Data, and 2000 U.S. Census Quickfacts Retail Sales

created throughout the area due to business (indirect) and household (induced) spending. The Type III income multipliers for the other four health sector components are also given in **Table 5**, column 6.

Applying the employment multipliers to the employment for each of the five health sector components yields an estimate of each component's employment impact on Cushing Regional Hospital medical service area (**Table 5**, columns 2, 3, and 4). For example, the hospital has an employment of 250 employees; applying the Type III employment multiplier of 1.55 to the employment number of 250 brings the total employment impact of the hospital to 388 employees ($250 \times 1.55 = 388$). The Doctors and Dentists component has a direct impact of 90 employees and with the application of the Type III multiplier of 1.69; the total impact comes to 152 employees. The Nursing and Protective Care component has a direct effect of 68 employees and an employment multiplier of 1.46, to bring the total impact to 99 employees. The Other Medical & Health Services component has a direct effect of 65 employees, an employment multiplier of 1.53, and a total employment impact of 99 employees. The Pharmacies component has 23 employees and a total impact of 33 employees, applying the employment multiplier of 1.43. The total employment impact of the health sector in Cushing Regional Hospital medical service area is estimated at 771 employees (**Table 5**, total of column 4).

Applying the income multipliers to the income (payroll) for each of the five health sector components yields an estimate of each component's income impact on Cushing Regional Hospital medical service area (**Table 5**, columns 5, 6, and 7). The Hospital component has a total payroll of \$7,843,000; applying the Type III income multiplier of 1.31 brings the total Hospital income impact to \$10,274,330 ($\$7,843,000 \times 1.31 = \$10,274,330$). The Doctors and

Dentists have a total income impact of \$7,010,655, based on the application of the income multiplier of 1.26 to the payroll of the Doctors and Dentists component of \$5,564,012. The Nursing & Protective Care component has a payroll of \$1,515,000, a multiplier of 1.59, resulting in an income impact of \$2,408,850. The Other Medical & Health Services has an income impact of \$3,718,376, based on the direct payroll of \$2,478,917 and the income multiplier of 1.50. The Pharmacies has an income impact of \$1,176,480 based on the direct payroll of \$688,000 and the income multiplier of 1.71. The total income impact of the health sector in Cushing Regional Hospital medical service area is projected at \$24,588,691 (**Table 5**, total of column 7).

Income also has an impact on retail sales. If the county ratio between retail sales and income continues as in the past several years, then direct and secondary retail sales generated by the health sector and its employees equals \$9,358,827 (**Table 5**, total of column 8). Each of the five health sector components' income impact is utilized to determine the retail sales and a one-cent sales tax collection for each component. Then the five components are totaled to determine the direct and secondary retail sales generated by the health sector. A one-cent sales tax collection is estimated to generate \$93,589 in Cushing Regional Hospital medical service area as a result of the total health sector income impact (**Table 5**, total of column 9). This estimate is probably low, as many health care employees will spend a larger proportion of their income in local establishments that collect sales tax. The bottom line is that the health sector 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 upon the economy of Cushing Regional Hospital 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 measures the total impact 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, are greatly effected. For the attraction of industrial firms, businesses, and retirees, it is crucial that the area have a quality health sector. Often overlooked is the fact that a prosperous health sector also contributes to the economic health of the community.

References

- [1] Palmer, Charles and Eric Siverts, IMPLAN ANALYSIS GUIDE. U.S. Department of Agriculture, Forest Service Land Management Planning Systems Section, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado, 1985.
- [2] Siverts, Eric, Charles Palmer, Ken Walters, and Greg Alward, IMPLAN USER'S GUIDE, U.S. Department of Agriculture, Forest Service, Systems Application Unit, Land Management Planning, Fort Collins, Colorado, 1983.