Economic Impact of the Health Sector on the Economy of Craig County, Oklahoma

Oklahoma Office of Rural Health
Oklahoma State Department of Health

Oklahoma Cooperative Extension Service
Oklahoma State University

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The Economic Impact of the Health Sector
on the Economy
of Craig County, Oklahoma

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

1. summarize the direct economic activities of the health sector;
2. review concepts of community economics and multipliers; and
3. estimate the secondary impacts of the health sector on Craig County.

No recommendations will be made in this report.

Craig County Demographic and Economic Data

General demographic and economic data for Craig County are presented in Table 1. The population of Craig County was 14,104 in 1990 according to the U.S. Census Bureau and is estimated to be 14,450 in 1998 according to the U. S. Census Bureau, Population Estimates Branch. The population of Vinita, the county seat, according to the 1990 Census was 5,804 and the 1998 population is estimated to be 5,741, representing a slight decrease. The next largest community in Craig County is Welch, with a 1990 population of 499 and a 1998 estimated population of 525. Big Cabin has also increased population from 1990 of 271 to 291 in 1998. Since the 1990 Census, the populations of the surrounding rural area of Craig County and all the rural communities, except Vinita, have increased.
Table 1  
Population and Employment of Craig County, Oklahoma  

<table>
<thead>
<tr>
<th>POPULATION</th>
<th>1990 Population</th>
<th>1998 Estimated Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Craig County</td>
<td>14,104</td>
<td>14,450</td>
</tr>
<tr>
<td>Big Cabin</td>
<td>271</td>
<td>291</td>
</tr>
<tr>
<td>Bluejacket</td>
<td>175</td>
<td>181</td>
</tr>
<tr>
<td>Ketchum</td>
<td>263</td>
<td>282</td>
</tr>
<tr>
<td>Vinita</td>
<td>5,804</td>
<td>5,741</td>
</tr>
<tr>
<td>Welch</td>
<td>499</td>
<td>525</td>
</tr>
<tr>
<td>Balance of Craig County</td>
<td>7,092</td>
<td>7,430</td>
</tr>
</tbody>
</table>

EMPLOYMENT  

TOTAL EMPLOYMENT ................................................................. 9,115  
By Type:  
Wage and Salary ........................................................................................................... 6,771  
Proprietors .................................................................................................................. 2,344  
Farm ............................................................................................................................. 1,153  
Nonfarm ..................................................................................................................... 1,191  
By Industry:  
Farm .............................................................................................................................. 1,268  
Nonfarm ....................................................................................................................... 7,847  
Private ........................................................................................................................ 5,841  
Ag. serv., for., fish., and other ................................................................. 96  
Mining ......................................................................................................................... 92  
Construction ............................................................................................................ 322  
Manufacturing .......................................................................................................... 1,111  
Transportation and public utilities .......................................................... 638  
Wholesale trade ...................................................................................................... 271  
Retail trade ............................................................................................................. 1,142  
Finance, insurance, and real estate ................................................................. 318  
Services .................................................................................................................. 1,851  
Government and government enterprises .................................................. 2,006  
Federal, civilian ................................................................................................. 59  
Military ....................................................................................................................... 73  
State and local ....................................................................................................... 1,874

3 SOURCE: Employment data is 1997 data from the Bureau of Economic Analysis, Regional Economic Information System.
Employment data for Craig County are also presented in Table 1; data is for 1997 from the Bureau of Economic Analysis, Regional Economic Information System. The sectors with the largest employment are services (1,851), farm (1,268), and manufacturing (1,111). Craig County has a manufacturing, farm, and services economic base.

The Direct Economic Activities

Employment and payroll are the important direct economic activities created in Craig County 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 total health sector in Craig County employs 1,483 full-time equivalent employees and has an estimated payroll of $31,627,500 (Table 2). The health sector in Craig County is typical of many rural counties, with two hospitals, six physicians, three dentists, two optometrists, two chiropractors, one county health department, and six pharmacies. Craig County is unique in that the Eastern State Mental Hospital is located within the county and that there are a number of residential facilities in relationship to the mental hospital. The Hospital component employs 703 people with an annual payroll of $18,419,500. The Doctors and Dentists component employs 56 full-time equivalent employees with an annual payroll of $2,155,000. The Nursing and Protective Care Component employs 616 people with an annual payroll of $8,316,000. The Other Medical and Health Services component employs 81 employees for an annual payroll cost
### Table 2
**Direct Economic Activities of Health Sector**
in Craig County, Oklahoma

<table>
<thead>
<tr>
<th>Component</th>
<th>Estimated Employees</th>
<th>Estimated Payroll</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospitals (2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Craig General Hospital</td>
<td>129</td>
<td>$3,495,500</td>
</tr>
<tr>
<td>(Acute Care)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern State Hospital</td>
<td>574</td>
<td>$14,924,000</td>
</tr>
<tr>
<td>(Mental Health)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>703</td>
<td><strong>$18,419,500</strong></td>
</tr>
<tr>
<td><strong>Doctors and Dentists</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physicians (6)</td>
<td>29</td>
<td>$1,155,000</td>
</tr>
<tr>
<td>Dentists (3)</td>
<td>15</td>
<td>$525,000</td>
</tr>
<tr>
<td>Optometrists (2)</td>
<td>7</td>
<td>$285,000</td>
</tr>
<tr>
<td>Chiropractors (2)</td>
<td>5</td>
<td>$190,000</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>56</td>
<td>$2,155,000</td>
</tr>
<tr>
<td><strong>Nursing &amp; Protective Care (11)</strong></td>
<td>616</td>
<td><strong>$8,316,000</strong></td>
</tr>
<tr>
<td><strong>Other Medical &amp; Health Services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulance</td>
<td>26</td>
<td>$482,976</td>
</tr>
<tr>
<td>Home Health Care (4)</td>
<td>68</td>
<td>$1,462,000</td>
</tr>
<tr>
<td>County Health Department</td>
<td>13</td>
<td>$450,000</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>81</td>
<td><strong>$1,912,000</strong></td>
</tr>
<tr>
<td><strong>Pharmacies (6)</strong></td>
<td>27</td>
<td><strong>$825,000</strong></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>1,483</td>
<td><strong>$31,627,500</strong></td>
</tr>
</tbody>
</table>

**SOURCE:** Local survey and estimated from research
of $1,912,000. The Pharmacies component has a total of 27 employees totaling a payroll of $825,000. 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. Craig County has an even larger number of Nursing and Protective Care facilities due to the location of the Eastern State Hospital in the county.

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 Craig County. 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 are those businesses which sell some or all of their goods and services to buyers outside of the community. Such a business is a basic industry. The flow of products out of, and dollars into, a community are represented by the two arrows in the upper right portion of **Figure 1**. 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.
Community Economic System

Figure 1), and inputs from service industries located within the community (right side of Figure 1). The flow of 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:

\[ \text{Type III} = \text{the ratio between direct employment, or that employment used by the industry initially experiencing a change in final demand and the direct, indirect, and induced employment.} \]

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 Craig County, Oklahoma**

Employment and income multipliers for the area have been calculated by use of the IMPLAN model. It was developed by the U.S. Forest Service and is a model which allows for development of county multipliers. The Type III employment multipliers for the five components of the health sector are shown in Table 3, column 3. The Type III employment multiplier for the hospital component is 1.39. This indicates that for each job created in that sector, .39 jobs are created throughout the area due to business (indirect) and household spending.

\[ \text{Table 3} \]

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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>
<thead>
<tr>
<th>(1) Health Sector Component</th>
<th>(2) Employment</th>
<th>(3) Multiplier</th>
<th>(4) Employment Multiplier</th>
<th>(5) Income</th>
<th>(6) Multiplier</th>
<th>(7) Income Impact</th>
<th>(8) Retail Sales</th>
<th>(9) One Cent Sales Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>703</td>
<td>1.39</td>
<td>977</td>
<td>$18,419,500</td>
<td>1.24</td>
<td>$22,840,180</td>
<td>$6,783,533</td>
<td>$67,835</td>
</tr>
<tr>
<td>Doctors &amp; Dentists</td>
<td>56</td>
<td>1.50</td>
<td>84</td>
<td>$2,155,000</td>
<td>1.24</td>
<td>$2,672,200</td>
<td>$793,643</td>
<td>$7,936</td>
</tr>
<tr>
<td>Nursing &amp; Protective Care</td>
<td>616</td>
<td>1.37</td>
<td>844</td>
<td>$8,316,000</td>
<td>1.35</td>
<td>$11,226,600</td>
<td>$3,334,300</td>
<td>$33,343</td>
</tr>
<tr>
<td>Other Medical &amp; Health Services</td>
<td>81</td>
<td>1.40</td>
<td>113</td>
<td>$1,912,000</td>
<td>1.53</td>
<td>$2,925,360</td>
<td>$868,832</td>
<td>$8,688</td>
</tr>
<tr>
<td>Pharmacies</td>
<td>27</td>
<td>1.34</td>
<td>36</td>
<td>$825,000</td>
<td>1.59</td>
<td>$1,311,750</td>
<td>$389,590</td>
<td>$3,896</td>
</tr>
<tr>
<td>TOTALS</td>
<td>1,483</td>
<td>2.055</td>
<td></td>
<td>$31,627,500</td>
<td></td>
<td>$40,976,090</td>
<td>$12,169,899</td>
<td>$121,699</td>
</tr>
</tbody>
</table>

SOURCE: 1994 IMPLAN Data Base
(induced) spending. The Type III employment multipliers for the other health sector components are also shown in Table 3, column 3. The Type III income multiplier for the hospital sector is 1.24 (Table 3, column 6). This indicates that for each dollar created in that sector, .24 dollars are 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 3, column 6. The multipliers for the Craig County area are small due to the fact that many residents shop in regional shopping centers.

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 Craig County (Table 3, columns 2, 3, and 4). For example, the hospitals have employment of 703 employees; applying the Type III employment multiplier of 1.39 to the employment number of 703 brings the total employment impact of the hospitals to 977 employees (703 x 1.39 = 977). The Doctors and Dentists component has a direct impact of 56 employees and with the application of the Type III multiplier of 1.50, the total impact comes to 84 employees (56 x 1.50 = 84). The Nursing and Protective Care component has a direct effect of 616 employees and an employment multiplier of 1.37, to bring the total impact to 844 employees (616 x 1.37 = 844). The Other Medical & Health Services component has a direct effect of 81 employees, an employment multiplier of 1.40, and a total employment impact of 113 employees (81 x 1.40 = 113). The Pharmacies component has 27 employees and a total impact of 36 employees, applying the employment multiplier of 1.34 (27 x 1.34 = 36). The total employment impact of the health sector in Craig County is estimated at 2,055 employees (Table 3, 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 Craig County (Table 3, columns 5, 6, and 7). The Hospital component has a total payroll of $18,419,500; applying the Type III income multiplier of 1.24 brings the total Hospital income impact to $22,840,180 ($18,419,500 x 1.24 = $22,840,180). The Doctors and Dentists have a total income impact of $2,672,200 ($2,155,000 x 1.24 = $2,672,200), based on the application of the income multiplier of 1.24 to the payroll of the Doctors and Dentists component of $2,155,000. The Nursing & Protective Care component has a payroll of $8,316,000, a multiplier of 1.35, resulting in an income impact of $11,226,600 ($8,316,000 x 1.35 = $11,226,600). The Other Medical & Health Services has an income impact of $2,925,360, based on the direct payroll of $1,912,000 and the income multiplier of 1.53 ($1,912,000 x 1.53 = $2,925,360). The Pharmacies has an income impact of $1,311,750, based on the direct payroll of $825,000 and the income multiplier of 1.59 ($825,000 x 1.59 = $1,311,750). The total income impact of the health sector in Craig County is projected at $40,976,090 (Table 3, 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 the county ratio for retail sales generated by the health sector and its employees equals $12,169,899 (Table 3, total of column 8). Each of the five health sector components’ income impacts is utilized to determine the retail sales and a 1% 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 1% sales tax collection is estimated to generate $121,699 in Craig County as a result of the total health sector income impact (Table 3, 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 Craig County 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. The multipliers for the area are quite small, as many residents trade at regional shopping centers. 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
