Economic Impact of the Health Sector on the Economy of Owasso in Rogers and Tulsa Counties, 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 Owasso in Rogers and Tulsa Counties, Oklahoma

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RURAL DEVELOPMENT
OKLAHOMA COOPERATIVE EXTENSION SERVICE
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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, nursing homes and assisted living facilities. 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 Owasso in Rogers and Tulsa Counties, Oklahoma. 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 Owasso economy.

No recommendations will be made in this report.

County Demographic and Economic Data

The population for Owasso and surrounding communities in Rogers and Tulsa Counties are presented in Table 1. The population of Owasso was 11,151 in 1990 according to the U.S. Census Bureau and is estimated to be 15,030 in 1998 according to the U. S. Census Bureau, Population Estimates Branch. The population of Collinsville was 3,612 in 1990 according to the U.S. Census Bureau and is estimated to be 3,970 in 1998 according to the U. S. Census Bureau, Population Estimates Branch. Skiatook population has increased from 4,910 in 1990 to 5,330 in 1998. The population of Rogers County increased from 55,170 in 1990 to 68,100 in 1998. Tulsa County population increased from 503,341 in 1990 to 543,500 in 1998. In summary,
Table 1
Population of Collinsville, Owasso, and Skiatook
In Osage, Rogers, and Tulsa Counties, Oklahoma

<table>
<thead>
<tr>
<th>Community</th>
<th>Osage County</th>
<th>Rogers County</th>
<th>Tulsa County</th>
<th>Community Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collinsville City</td>
<td>---</td>
<td>0</td>
<td>3,612</td>
<td>3,612</td>
</tr>
<tr>
<td>Owasso City</td>
<td>---</td>
<td>88</td>
<td>11,063</td>
<td>11,151</td>
</tr>
<tr>
<td>Skiatook Town</td>
<td>3,364</td>
<td>---</td>
<td>1,546</td>
<td>4,910</td>
</tr>
<tr>
<td>Total County Population</td>
<td>41,645</td>
<td>55,170</td>
<td>503,341</td>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community</th>
<th>Osage County</th>
<th>Rogers County</th>
<th>Tulsa County</th>
<th>Community Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collinsville City</td>
<td>---</td>
<td>10</td>
<td>3,960</td>
<td>3,970</td>
</tr>
<tr>
<td>Owasso City</td>
<td>---</td>
<td>360</td>
<td>14,670</td>
<td>15,030</td>
</tr>
<tr>
<td>Skiatook Town</td>
<td>3,630</td>
<td>---</td>
<td>1,700</td>
<td>5,330</td>
</tr>
<tr>
<td>Total County Population</td>
<td>42,800</td>
<td>68,100</td>
<td>543,500</td>
<td>---</td>
</tr>
</tbody>
</table>


the population of the Collinsville area in Rogers and Tulsa Counties has increased from 1990 to 1998.

The Direct Economic Activities

Employment and payroll are the important direct economic activities created in the Owasso health sector. The health sector is divided into the following five components:

- Hospitals
- Medical Professionals (includes Doctors, Dentists, and others)
- Nursing and Protective Care
- Other Medical and Health Services (includes home health care and county health departments)
- Pharmacies

The total health sector in employs 768 full-time and part-time employees and has an estimated payroll of $12,546,500 (Table 2). The health sector in Owasso is typical of a suburban community with eleven physicians, four optometrists, five chiropractors, ten dentists, one podiatrist, one oral surgeon, two nursing homes, one retirement center, one home health agency, one physical rehabilitation facility, five pharmacies, and ten pharmacists. The Doctors and Other Medical Professionals component employs 149 full-time equivalent employees with an annual payroll of $4,447,500. This includes eleven physicians, four optometrists, five chiropractors, ten dentists, one podiatrist, and one oral surgeon. The Nursing and Protective Care Component employs 452 people with an annual payroll of $5,067,000. This component includes two nursing homes and one retirement center. The Other Medical and Health Services component employs 57 employees with an annual payroll cost of $982,000. Included in this component are one home health agency and one physical rehabilitation facility. The Pharmacies component has a total of 110 employees totaling a payroll of $2,050,000. It should be noted that many rural communities have a large number of senior citizens, and the ranchers and farmers often retire in the towns. Thus, Nursing and Protective Care facilities are an important component of the health sector.
### Table 2
**Direct Economic Activities of Health Sector in Owasso, Oklahoma**

<table>
<thead>
<tr>
<th>Component</th>
<th>Estimated Employees (Full-time &amp; Part-time)</th>
<th>Estimated Payroll</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>Doctors and Dentists</td>
<td>149</td>
<td>$4,447,500</td>
</tr>
<tr>
<td>Includes eleven physicians, four optometrists, five chiropractors, ten dentists, one podiatrist, and one oral surgeon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing and Protective Care</td>
<td>452</td>
<td>$1,043,000</td>
</tr>
<tr>
<td>Includes two nursing homes and one retirement center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Medical and Health Services</td>
<td>57</td>
<td>$5,067,000</td>
</tr>
<tr>
<td>Includes one home health agency and one physical rehabilitation facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td>110</td>
<td>$982,000</td>
</tr>
<tr>
<td>Includes five pharmacies and ten pharmacists</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>768</td>
<td><strong>$12,546,500</strong></td>
</tr>
</tbody>
</table>

SOURCE: Local survey and estimated from research
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 Owasso. 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*), 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
Figure 1. Community Economic System
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:

\[
\text{Type III} = \frac{1}{1 - (1 - \text{direct, indirect, and induced employment})}
\]

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.

\[1\] The 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].
Secondary Impacts of Health Sector on the Economy of Owasso in Rogers and Tulsa Counties, 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\(^2\) 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 Doctors & Dentists component is 1.89. This indicates that for each job created in that sector, 0.89 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 3, column 3. The Type III income multiplier for the Doctors & Dentist sector is 1.39 (Table 3, column 6). This indicates that for each dollar created in that sector, 0.39 dollars are created throughout the area due to business (indirect) and household (induced) spending. The Type III income multipliers for the other health sector components are also given in Table 3, column 6.

Applying the employment multipliers to the employment for each of the five health sector components yields an estimate of each component’s total employment impact on the Owasso economy (Table 3, columns 2, 3, and 4). For example, the Doctors & Dentists sector has employment of 149 employees; applying the Type III employment multiplier of 1.89 to the employment number of 149 brings the total employment impact of the Hospital sector to 7 employees (149 x 1.89 = 282). There is no hospital in Owasso so no hospital data is given. The Nursing and Protective Care component has a direct effect of 452 employees and an employment multiplier of 1.70, to bring the total impact to 768 employees. The Other Medical & Health Services component has a direct effect of 57 employees, an employment multiplier of 1.75,\(^2\)

\(^2\)For complete details of model, see [1] and [2].
### Table 3

**Economic Impact of the Health Sector**

on Employment and Income in Owasso, Rogers and Tulsa Counties, Oklahoma

<table>
<thead>
<tr>
<th>Health Sector Component</th>
<th>(1) Employment</th>
<th>(2) Multiplier</th>
<th>(3) Employment Impact</th>
<th>(4) Income</th>
<th>(5) Multiplier</th>
<th>(6) Income Impact</th>
<th>(7) Retail Sales</th>
<th>(8) One Cent Sales Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>0</td>
<td>1.74</td>
<td>0</td>
<td>$0</td>
<td>1.46</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Doctors &amp; Dentists</td>
<td>149</td>
<td>1.89</td>
<td>282</td>
<td>$4,447,500</td>
<td>1.39</td>
<td>$6,182,025</td>
<td>$2,802,736</td>
<td>$28,027</td>
</tr>
<tr>
<td>Nursing &amp; Protective Care</td>
<td>452</td>
<td>1.70</td>
<td>768</td>
<td>$5,067,000</td>
<td>1.93</td>
<td>$9,779,310</td>
<td>$4,433,633</td>
<td>$44,336</td>
</tr>
<tr>
<td>Other Medical &amp; Health Services</td>
<td>57</td>
<td>1.75</td>
<td>100</td>
<td>$982,000</td>
<td>2.06</td>
<td>$2,022,920</td>
<td>$917,129</td>
<td>$9,171</td>
</tr>
<tr>
<td>Pharmacies</td>
<td>110</td>
<td>1.66</td>
<td>183</td>
<td>$2,050,000</td>
<td>2.00</td>
<td>$4,100,000</td>
<td>$1,858,812</td>
<td>$18,588</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>768</td>
<td>1.333</td>
<td>$12,546,500</td>
<td>$22,084,255</td>
<td>$10,012,310</td>
<td>$100,122</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOURCE:** 1996 IMPLAN data base
and a total employment impact of 100 employees. The Pharmacies component has 110 employees and a total impact of 183 employees, applying the employment multiplier of 1.66. The total employment impact of the health sector in Owasso is estimated at 768 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 Owasso (Table 3, columns 5, 6, and 7). There is no hospital so no hospital data is given. The Doctors & Dentists component has a total income impact of $6,182,025 based on the application of the income multiplier of 1.39 to the payroll component of $4,447,500. The Nursing & Protective Care component has a payroll of $5,067,000, a multiplier of 1.93, resulting in an income impact of $9,779,310. The Other Medical & Health Services has an income impact of $2,022,920, based on the direct payroll of $2,050,000 and the income multiplier of 2.06. The Pharmacies has an income impact of $4,100,000 based on the direct payroll of $2,050,000 and the income multiplier of 2.00. The total income impact of the health sector in Owasso is projected at $22,084,255 (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 direct and secondary retail sales generated by the health sector and its employees equals $10,012,310 (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-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 1-cent sales tax collection is estimated to generate $100,122 in Owasso as a result of the total health sector 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 Owasso is tremendous. The health sector employs a significant number of residents. The secondary impact occurring in the community 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
