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

Oklahoma Office of Rural Health
Oklahoma State Department of Health

Oklahoma Cooperative Extension Service
Oklahoma State University

June 2000
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RURAL DEVELOPMENT
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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 Collinsville 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 Collinsville economy.

No recommendations will be made in this report.

County Demographic and Economic Data

The population for Collinsville and surrounding communities in Rogers and Tulsa Counties are presented in Table 1. 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. The population of Owasso has increased from 11,151 in 1990 to 15,030 in 1998. 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></th>
<th>Osage County</th>
<th>Rogers County</th>
<th>Tulsa County</th>
<th>Community Totals</th>
</tr>
</thead>
<tbody>
<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></th>
<th>Osage County</th>
<th>Rogers County</th>
<th>Tulsa County</th>
<th>Community Totals</th>
</tr>
</thead>
<tbody>
<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 Collinsville 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 Collinsville employs 65 full-time equivalent employees and has an estimated payroll of $1,948,500 (Table 2). The health sector in Collinsville is typical of many rural areas, with four physicians, one dentist, one optometrist, one nursing home, one retirement center, one pharmacy, and two pharmacists. There is no hospital in Collinsville so there is no data for the Hospital sector. The Doctors and Dentists component employs 33 full-time equivalent employees with an annual payroll of $1,316,500. This includes four physicians, one dentist, and one optometrist. The Nursing and Protective Care component employs 24 people with an annual payroll of $380,000. This component includes one nursing home and one retirement center. No data was reported for the Other Medical and Health Services component. The Pharmacies component has a total of 8 employees totaling a payroll of $252,000. 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. 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
Table 2
Direct Economic Activities of Health Sector
in Collinsville, Oklahoma

<table>
<thead>
<tr>
<th>Component</th>
<th>Estimated Employees</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>33</td>
<td>$1,316,500</td>
</tr>
<tr>
<td>Includes four physicians, one dentist, and one optometrist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing and Protective Care</td>
<td>24</td>
<td>$380,000</td>
</tr>
<tr>
<td>Includes one nursing home and one retirement center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Medical and Health Services</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>8</td>
<td>$252,000</td>
</tr>
<tr>
<td>Includes one pharmacy with two pharmacists</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>65</strong></td>
<td><strong>$1,948,500</strong></td>
</tr>
</tbody>
</table>

SOURCE: Local survey and estimated from research.
a large amount of goods and services from businesses in Collinsville. 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 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 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.
Figure 1. Community Economic System
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 III\(^1\) 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 Collinsville, Tulsa and Rogers 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

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\(^1\)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].

\(^2\)For complete details of model, see [1] and [2].
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 & Dentists 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 Collinsville economy (Table 3, columns 2, 3, and 4). For example, the Doctors & Dentists sector has employment of 4 employees; applying the Type III employment multiplier of 1.89 to the employment number of 33 brings the total employment impact of the Hospital sector to 62 employees (33 x 1.89 = 62). The Nursing & Protective Care component has a direct effect of 24 employees and an employment multiplier of 1.70, to bring the total impact to 41 employees. The Pharmacies component has 8 employees and a total impact of 13 employees, applying the employment multiplier of 1.66. The total employment impact of the health sector in Collinsville is estimated at 116 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 Collinsville (Table 3, columns 5, 6, and 7). Collinsville does not have a hospital so no data was reported.
<table>
<thead>
<tr>
<th>Health Sector Component</th>
<th>(2) Employment</th>
<th>(3) Multiplier</th>
<th>(4) Employment Impact</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>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>33</td>
<td>1.89</td>
<td>62</td>
<td>$1,316,500</td>
<td>1.39</td>
<td>$1,829,935</td>
<td>$398,887</td>
<td>$3,989</td>
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<tr>
<td>Nursing &amp; Protective Care</td>
<td>24</td>
<td>1.70</td>
<td>41</td>
<td>$380,000</td>
<td>1.93</td>
<td>$733,400</td>
<td>$159,865</td>
<td>$1,599</td>
</tr>
<tr>
<td>Other Medical &amp; Health Services</td>
<td>0</td>
<td>1.75</td>
<td>0</td>
<td>$0</td>
<td>2.06</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Pharmacies</td>
<td>8</td>
<td>1.66</td>
<td>13</td>
<td>$252,000</td>
<td>2.00</td>
<td>$504,000</td>
<td>$109,861</td>
<td>$1,099</td>
</tr>
<tr>
<td>TOTALS</td>
<td>65</td>
<td>116</td>
<td></td>
<td>$1,948,500</td>
<td></td>
<td>$3,067,335</td>
<td>$668,613</td>
<td>$6,687</td>
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</tbody>
</table>

SOURCE: 1996 IMPLAN data base
The Doctors & Dentists component has a payroll of $1,316,500; applying the Type III income multiplier of 1.39 brings the total impact to $1,829,935 ($1,316,500 x 1.39 = $1,829,935). The Nursing & Protective Care component has a payroll of $380,000, a multiplier of 1.93, resulting in an income impact of $733,400. No data was reported for the Other Medical and Health Services component. The Pharmacies has an income impact of $504,000 based on the direct payroll of $252,000 and the income multiplier of 2.00. The total income impact of the health sector in Collinsville is projected at $3,067,335 (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 $668,613 (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 $6,687 in Collinsville 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 Collinsville 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
