Economic Impact of the Integris Marshall Memorial Hospital Medical Service Area on the Economy of Marshall County

Oklahoma State Department of Health, Office of Rural Health

Oklahoma Cooperative Extension Service, Oklahoma State University
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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 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 Marshall 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 the economy of Marshall County.

No recommendations will be made in this report.

County Demographic and Economic Data

The population for Marshall County will be illustrated in this section. The medical service area consisting of the towns of Kingston, Madill, Oakland, and Woodville and the remainder of Marshall County are presented in Table 1. The population of the town of Kingston was 1,237 in 1990 and increased 12% to 1,390 according to the 2000 Census. The town of Madill increased 11% in population from 3,069 in 1990 to 3,410 in 2000. The town of Oakland has a population of 674 according to the 2000 Census, an increase of 12%, from 602 in 1990. The town of Woodville increased in population 123% between 1990 and 2000, from 31 to 69 residents. The remainder of Marshall County increased 22% in population, from 10,829 in 1990
Employment data for Marshall County are presented in Table 2. Data for the 2000 estimated employment is from Woods and Poole. The industry sectors with the largest employment in 2000 are manufacturing (1,252), services (1,225), and retail trade (1,009). Marshall County has a manufacturing, services, and retail trade economic base.
Table 2

Employment of Marshall County, Oklahoma

<table>
<thead>
<tr>
<th>2000 Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL EMPLOYMENT&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

By Type:
- Wage and Salary | N/A |
- Proprietors | N/A |
- Farm | N/A |
- Nonfarm<sup>2</sup> |

By Industry:
- Farm | 496 |
- Nonfarm | 5,648 |
- Private |
  - Ag. Serv., for., fish., and other<sup>3</sup> | 48 |
  - Mining | 134 |
  - Construction | 272 |
  - Manufacturing | 1,252 |
  - Transportation and public utilities | 235 |
  - Wholesale trade | 402 |
  - Retail trade | 1,009 |
  - Finance, insurance, and real estate | 265 |
  - Services | 1,225 |
- Government and governmental enterprises | 806 |
  - Federal, civilian | 25 |
  - Military | 61 |
  - State and local | 720 |

The Direct Economic Activities

Employment and payroll are the important direct economic activities created in Marshall 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 Marshall County employs 283 full-time equivalent employees and has an estimated payroll of $7,024,919 (Table 3). The health sector in Marshall County is typical of many rural areas, with one hospital, six physicians, one dentist, one optometrist, two chiropractors, two nursing homes, a county health department, home health, an assisted living facility, and three pharmacies. The Hospital Component employs 88 people, includes a hospital-based clinic and a rural clinic, and an annual payroll of $2,670,014. The Doctors, Dentists, and Other Professionals Component employs 26 full-time equivalent employees with an annual payroll of $1,419,000. The Nursing and Protective Care Component employs 132 people with an annual payroll of $1,960,000. The Other Medical and Health Component has a total of 25.5 employees with a payroll totaling $554,405. The Pharmacies Component includes 11.5 employees and has an annual payroll of $421,500. 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.
<table>
<thead>
<tr>
<th>Components</th>
<th>Estimated Employees</th>
<th>Estimated Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>88</td>
<td>$2,670,014</td>
</tr>
<tr>
<td>Integris Marshall Memorial Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(includes 2 primary care physicians, rural health clinic, &amp; hospital clinic)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctors, Dentists, and Other Medical Professionals</td>
<td>26</td>
<td>$1,419,000</td>
</tr>
<tr>
<td>(Includes 4 primary care physicians, 1 dentist, 1 optometrist, &amp; 2 chiropractors)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing and Protective Care (2)</td>
<td>132</td>
<td>$1,960,000</td>
</tr>
<tr>
<td>Other Medical and Health Services</td>
<td>25.5</td>
<td>$554,405</td>
</tr>
<tr>
<td>(Includes 1 home health agency, county health dept., 1 assisted living facility)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td>11.5</td>
<td>$421,500</td>
</tr>
<tr>
<td>(Includes 3 pharmacies &amp; 3 pharmacists)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td>283</td>
<td>$7,024,919</td>
</tr>
</tbody>
</table>

SOURCE: Local employment data and estimated income
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 Marshall 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 that 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
Figure 1. Community Economic System
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 III -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 the Integris Marshall Memorial 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 Service 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 4, column 3. The Type III employment multiplier for the hospital component is 1.70. This indicates that for each job created in that sector, 0.70 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 4, column 3. The Type III income multiplier for the hospital sector is 1.38 (Table 4, column 6). This indicates that for each dollar created in that sector, 0.38 dollars

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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].
### Table 4

Economic Impact of the Health Sector on Employment, Income, Retail Sales, & Sales Tax in the Integris Marshall Memorial Hospital Medical Service Area

<table>
<thead>
<tr>
<th>Health Sector Component</th>
<th>(2) Number</th>
<th>(3) Multiplier</th>
<th>(4) Impact</th>
<th>(5) Income</th>
<th>(6) Multiplier</th>
<th>(7) Impact</th>
<th>(8) Retail Sales</th>
<th>(9) One Cent Sales Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>88</td>
<td>1.70</td>
<td>150</td>
<td>$2,670,014</td>
<td>1.38</td>
<td>$3,684,619</td>
<td>$1,032,062</td>
<td>$10,321</td>
</tr>
<tr>
<td>Doctors &amp; Dentists</td>
<td>26</td>
<td>1.66</td>
<td>43</td>
<td>$1,419,000</td>
<td>1.30</td>
<td>$1,844,700</td>
<td>$516,700</td>
<td>$5,167</td>
</tr>
<tr>
<td>Nursing &amp; Protective Care</td>
<td>132</td>
<td>1.48</td>
<td>195</td>
<td>$1,960,000</td>
<td>1.40</td>
<td>$2,744,000</td>
<td>$768,594</td>
<td>$7,686</td>
</tr>
<tr>
<td>Other Medical &amp; Health Services</td>
<td>25.5</td>
<td>1.57</td>
<td>40</td>
<td>$554,405</td>
<td>1.58</td>
<td>$875,960</td>
<td>$245,356</td>
<td>$2,454</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>11.5</td>
<td>1.43</td>
<td>16</td>
<td>$421,500</td>
<td>1.59</td>
<td>$670,185</td>
<td>$187,719</td>
<td>$1,877</td>
</tr>
<tr>
<td>TOTALS</td>
<td>283</td>
<td>444</td>
<td></td>
<td>$7,024,919</td>
<td></td>
<td>$9,819,464</td>
<td>$2,750,431</td>
<td>$27,505</td>
</tr>
</tbody>
</table>

**SOURCE:** 1998 IMPLAN Multipliers; Local employment and income data; 1999 BEA Data; U.S. Census Quickfacts 2000

1 Based on local retail sales capture ratio of 28.01%

2 Since communities have different sales tax rates, the amount collected from a one cent sales tax is illustrated here.
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 4, 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 the Integris Marshall Memorial Hospital medical service area (Table 4, columns 2, 3, and 4). For example, the hospital has 88 employees. Applying the Type III employment multiplier of 1.70 to the employment number of 88 brings the total employment impact of the hospital to 150 employees (88 X 1.70=150). The Doctors & Dentists component has a direct impact of 26 employees and with the application of the Type III multiplier of 1.66, the total impact comes to 43 employees. The Nursing and Protective Care component has a direct effect of 132 employees and an employment multiplier of 1.48, to bring the total impact to 195 employees. The Other Medical & Health Services component has a direct effect of 25.5 employees, an employment multiplier of 1.57 and a total employment impact of 40 employees. The Pharmacy component has 11.5 employees and a total impact of 16 employees, applying the employment multiplier of 1.43. The total employment impact of the health sector in the Integris Marshall Memorial Hospital Medical Service Area is estimated at 444 employees (Table 4, 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 the Integris Marshall Memorial Hospital Medical Service Area (Table 4, columns 5, 6, and 7). The Hospital component has a total payroll of $2,670,014; applying the Type III income multiplier of 1.38 brings the total Hospital income impact to $3,684,619 ($2,670,014 X 1.38=$3,684,610). The Doctors and Dentists component has a total income impact of $1,844,700 based on the
application of the income multiplier of 1.30 to the payroll of the Doctors and Dentists component of $1,419,000. The Nursing & Protective Care component has a payroll of $1,960,000, a multiplier of 1.40 resulting in an income impact of $2,744,000. The Other Medical & Health Services has an income impact of $875,960 based on the direct payroll of $554,405 and the income multiplier of 1.58. The Pharmacies component has an income impact of $670,185 based on the direct payroll of $421,500 and the income multiplier of 1.59. The total income impact of the health sector in the Integris Marshall Memorial Hospital Medical Service Area is projected to be $9,819,464 (Table 4, 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 $2,750,431 (Table 4, 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 $27,505 in the Integris Marshall Memorial Hospital Medical Service Area as a result of the total health sector impact (Table 4, 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 Marshall 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. 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
