Economic Impact of the Health Sector on the Economy of Lindsay, 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 Lindsay, 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, 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 Lindsay, 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 Lindsay economy.

No recommendations will be made in this report.

County Demographic and Economic Data

The populations for Lindsay, surrounding communities, and their respective counties are presented in Table 1. The population of Lindsay was 2,947 in 1990 according to the U.S. Census Bureau and is estimated to be 2,871 in 1998 according to the U. S. Census Bureau, Population Estimates Branch. The nearest community to Lindsay, Maysville, also decreased in population from 1,203 (1990 U.S. Census) to 1,161 (1998 Estimates). Garvin County shows an estimated growth from 26,605 (1990 Census) to 27,044 (1998 Estimates). Adjacent counties, Grady and McClain, also show an increase in population. Grady County increased from 41,747 (1990 Census) to 45,934 (1998 Estimates). The communities of Alex and Bradley also increased
Table 1

Population of Lindsay and Surrounding Communities in Oklahoma

<table>
<thead>
<tr>
<th>County and Town</th>
<th>1990 Population</th>
<th>1998 Estimated Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garvin County</td>
<td>26,605</td>
<td>27,044</td>
</tr>
<tr>
<td>Lindsay</td>
<td>2,947</td>
<td>2,871</td>
</tr>
<tr>
<td>Maysville</td>
<td>1,203</td>
<td>1,161</td>
</tr>
<tr>
<td>Purdy</td>
<td>59</td>
<td>N/A</td>
</tr>
<tr>
<td>Grady County</td>
<td>41,747</td>
<td>45,934</td>
</tr>
<tr>
<td>Alex</td>
<td>639</td>
<td>677</td>
</tr>
<tr>
<td>Bradley</td>
<td>166</td>
<td>175</td>
</tr>
<tr>
<td>McClain County</td>
<td>22,795</td>
<td>26,224</td>
</tr>
<tr>
<td>Criner</td>
<td>24</td>
<td>N/A</td>
</tr>
<tr>
<td>Payne</td>
<td>8</td>
<td>N/A</td>
</tr>
</tbody>
</table>

in population according to 1998 estimates. McClain County increased from 22,795 (1990 Census) to 26,224 (1998 Estimates). In summary, the population of Lindsay has decreased from 1990 to 1998 even though the population of the county and surrounding counties increased during this period.

Employment data for Garvin County are presented in **Table 2**; data is for 1997 from the Bureau of Economic Analysis, Regional Economic Information System. The largest employment categories in the private sector are retail trade (2,284), services (2,236), manufacturing (1,115) and mining (1,069). Farm employment is also significant with 1,599 employees. Garvin County has a significant industrial base, with both manufacturing and mining, and a strong farm base.

### The Direct Economic Activities

Employment and payroll are the important direct economic activities created in the Lindsay health sector. The health sector is divided into the following four 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 Lindsay employs 123 full-time equivalent employees and has an estimated payroll of $2,811,000 (**Table 3**). The health sector in Lindsay is typical of many rural areas, with one physician, two dentists, and two pharmacies. However, Lindsay does not have a hospital component. The Medical Professionals component employs 22 full-time equivalent employees with an annual payroll of $782,000. This includes one physician, two dentists, an optometrist, a chiropractor and a nurse practitioner. The Nursing and Protective Care
Table 2

Employment in Garvin County, Oklahoma

<table>
<thead>
<tr>
<th>EMPLOYMENT¹</th>
<th></th>
</tr>
</thead>
</table>

TOTAL EMPLOYMENT ........................................................................................................... 13,742

By Type:

- Wage and Salary .......................................................................................................... 9,036
- Proprietors ................................................................................................................... 4,706
- Farm ........................................................................................................................ 1,439
- Nonfarm .................................................................................................................. 3,267

By Industry:

- Farm ............................................................................................................................ 1,599
- Nonfarm ..................................................................................................................... 12,143
- Private ....................................................................................................................... 9,448
  - Ag. serv., for., fish., and other ................................................................................. 224
  - Mining ................................................................................................................... 1,069
  - Construction ......................................................................................................... 766
  - Manufacturing ....................................................................................................... 1,155
  - Transportation and public utilities ......................................................................... 767
  - Wholesale trade .................................................................................................. 386
  - Retail trade ......................................................................................................... 2,284
  - Finance, insurance, and real estate ....................................................................... 561
  - Services .............................................................................................................. 2,236
- Government and government enterprises ................................................................... 2,695
  - Federal, civilian ................................................................................................... 92
  - Military ............................................................................................................... 136
  - State and local .................................................................................................. 2,467

¹ SOURCE: Employment data is 1997 data from the Bureau of Economic Analysis, Regional Economic Information System.
## Table 3
**Direct Economic Activities of Health Sector**  
in Lindsay, Oklahoma

<table>
<thead>
<tr>
<th>Component</th>
<th>Estimated Employees</th>
<th>Estimated Payroll</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors and Dentists (Includes one physician, two dentists, one optometrist, one chiropractor, and one nurse practitioner)</td>
<td>22</td>
<td>$782,000</td>
</tr>
<tr>
<td>Nursing and Protective Care (2)</td>
<td>62</td>
<td>$750,000</td>
</tr>
<tr>
<td>Other Medical and Health (Includes ambulance service, a medical equipment company, &amp; two therapy providers)</td>
<td>27</td>
<td>$733,000</td>
</tr>
<tr>
<td>Pharmacies (2)</td>
<td>12</td>
<td>$546,000</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>123</strong></td>
<td><strong>$2,811,000</strong></td>
</tr>
</tbody>
</table>

**SOURCE**: Local survey and estimated from research
Component employs 62 people with an annual payroll of $750,000. This component includes a nursing home and an assisted living facility. The Other Medical and Health Services component employs 27 employees with an annual payroll cost of $733,000. Included in this component are the ambulance service, a medical equipment supply service and two therapy facilities. The Pharmacies component has two pharmacies with a total of 12 employees totaling a payroll of $546,000. 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 a large amount of goods and services from businesses in Lindsay. 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 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.
Figure 1.
Community Economic System
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 Lindsay, 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 four components of the health sector are shown in Table 4, column 3. The Type III employment multiplier for the medical component is 1.65. This indicates that for each job created in that sector, 0.65 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 medical sector is 1.37 (Table 4, column 6). This indicates that for each dollar created in that sector, 0.37 dollars are created throughout the

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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].
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 4, column 6.

Applying the employment multipliers to the employment for each of the four health sector components yields an estimate of each component’s total employment impact on the Lindsay economy (Table 4, columns 2, 3, and 4). For example, the medical sector has employment of 22 employees; applying the Type III employment multiplier of 1.65 to the employment number of 22 brings the total employment impact of the medical sector to 36 employees (22 x 1.65=36). The Nursing and Protective Care component has a direct effect of 62 employees and an employment multiplier of 1.56, to bring the total impact to 97 employees. The Other Medical & Health Services component has a direct effect of 27 employees, an employment multiplier of 1.61, and a total employment impact of 43 employees. The Pharmacies component has 12 employees and a total impact of 18 employees, applying the employment multiplier of 1.53. The total employment impact of the health sector in Lindsay is estimated at 194 employees (Table 4, total of column 4).

Applying the income multipliers to the income (payroll) for each of the four health sector components yields an estimate of each component’s income impact on Lindsay (Table 4, columns 5, 6, and 7). The Medical Professionals have a total income impact of $1,071,340 based on the application of the income multiplier of 1.37 to the payroll component of $782,000 ($782,000 x 1.37=$1,071,340). The Nursing & Protective Care component has a payroll of $750,000, a multiplier of 1.61, resulting in an income impact of $1,207,500. The Other Medical & Health Services has an income impact of $1,158,140, based on the direct payroll of $733,000 and the income multiplier of 1.58. The Pharmacies has an income impact of $1,010,100 based
Table 4  
Economic Impact of the Health Sector  
on Employment and Income in Lindsay, 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>Medical Professionals</td>
<td>22</td>
<td>1.65</td>
<td>36</td>
<td>$782,000</td>
<td>1.37</td>
<td>$1,071,340</td>
<td>$334,258</td>
<td>$3,343</td>
</tr>
<tr>
<td>Nursing &amp; Protective Care</td>
<td>62</td>
<td>1.56</td>
<td>97</td>
<td>$750,000</td>
<td>1.61</td>
<td>$1,207,500</td>
<td>$376,740</td>
<td>$3,767</td>
</tr>
<tr>
<td>Other Medical &amp; Health Services</td>
<td>27</td>
<td>1.61</td>
<td>43</td>
<td>$733,000</td>
<td>1.58</td>
<td>$1,158,140</td>
<td>$361,340</td>
<td>$3,613</td>
</tr>
<tr>
<td>Pharmacies</td>
<td>12</td>
<td>1.53</td>
<td>18</td>
<td>$546,000</td>
<td>1.85</td>
<td>$1,010,100</td>
<td>$315,151</td>
<td>$3,152</td>
</tr>
<tr>
<td>TOTALS</td>
<td>123</td>
<td>194</td>
<td></td>
<td>$2,811,000</td>
<td></td>
<td>$4,447,080</td>
<td>$1,387,489</td>
<td>$13,875</td>
</tr>
</tbody>
</table>

SOURCE: 1994 IMPLAN data base
on the direct payroll of $546,000 and the income multiplier of 1.85. The total income impact of the health sector in Lindsay is projected at $4,447,080 (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 $1,387,489 (Table 4, total of column 8). Each of the four health sector components’ income impacts is utilized to determine the retail sales and a 1-cent sales tax collection for each component. Then the four 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 $13,875 in Lindsay 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 Lindsay 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
