

THE ECONOMIC IMPACT OF THE HEALTH SECTOR ON THE ECONOMY OF OSCEOLA COUNTY, IOWA

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The Economic Impact of the Health Sector on the Economy of Osceola County, Iowa^a

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The importance of medical and health facilities as community service providers is well established, yet their role in generating significant economic impacts for the community is less often acknowledged. Health care facilities, such as hospitals and nursing homes, not only employ many people with a sizeable payroll, but also draw a large number of people from rural areas into the community for medical services. In this study, we attempt to identify and measure the economic importance of the health sector for the economy of Osceola County, Iowa. 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 related to healthcare; and
3. estimate the secondary impacts of the health sector on Osceola County's economy.

County Demographic and Economic Data

This section will illustrate the population and employment patterns for Osceola County.

Table 1 presents the population figures for Osceola County. In 1990, the population of Osceola County was 7,267. By 2000, the county population had decreased to 7,003. The population of Sibley, the county seat, was 2,815 in 1990 and decreased to 2,767 in 2000. In Ocheydedan, the next largest town, the population remained virtually unchanged. Harris gained about 30 people, while in Ashton and Melvin, the population decreased between 1990 and 2000. The population in the rural areas of Osceola County decreased about 9%, from 3,031 in 1990 to 2,767 in 2000.

a Based on materials originally developed for the Rural Health Works program through the Federal Office of Rural health Policy with Oklahoma State University as project leader.

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Table 1. Population of Osceola County, Iowa

	1990 Population	2000 Population
Osceola County	7,267	7,003
Ashton	462	461
Harris	170	200
Melvin	250	243
Ocheyedan	539	536
Sibley	2,815	2,796
Balance of Osceola County	3,031	2,767

¹SOURCE: Population data from the U.S. Bureau of the Census, 1990, 2000.

Map 1. Osceola County, Iowa

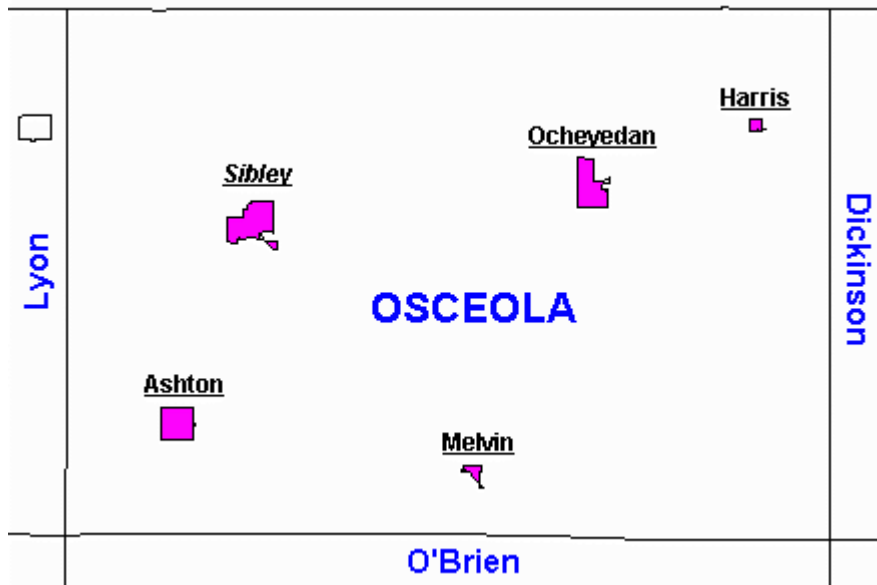


Table 2. Personal Employment by Industry

	1980	1990	1995	2000
Total full-time and part-time employment	3,903	3,628	3,750	3,850
Wage and salary employment	2,323	2,231	2,421	2,543
Proprietors' employment	1,580	1,397	1,329	1,307
Farm proprietors' employment	850	746	662	590
Nonfarm proprietors' employment	730	651	667	717
Farm employment	1,103	916	821	707
Nonfarm employment	2,800	2,712	2,929	3,143
Private employment	2,397	2,335	2,542	2,739
Ag. services, forestry, fishing, & other	38	60	(D)	(D)
Mining	(L)	(L)	(D)	(D)
Construction	231	149	213	233
Manufacturing	405	565	573	715
Transportation and public utilities	168	121	155	218
Wholesale trade	271	193	144	114
Retail trade	519	411	463	441
Finance, insurance, and real estate	199	162	190	(D)
Services	565	669	721	717
Government and government enterprises	403	377	387	404
Federal, civilian	44	49	34	41
Military	33	41	35	33
State and local	326	287	318	330
State	11	17	16	16
Local	315	270	302	314

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Local Area Personal Income and Employment, 2000.

(D) Not disclosed for reasons of confidentiality

(L) Less than 10 employees

Table 2 presents employment data for Osceola County; data are from the Bureau of Economic Analysis' Regional Economic Information System for years between 1980 and 2000. In contrast to the population numbers, total employment in Osceola County increased between 1990 and 2000. The industry sectors with the largest employment are services (717) and manufacturing (715). Farms (707), retail trade (441), and state and local government (330) also employ a significant number of workers in Osceola County.

Table 3 presents income data for Osceola County; these data are also from the Bureau of Economic Analysis' Regional Economic Information System. Total personal income in Osceola County increased from about \$73 million in 1980 to \$170 million in 2000. Accounting for inflation, real personal income in the county rose 12% over this time period. Per capita income increased from \$8,740 per person in 1980 to \$24,359 per person in 2000. This is an increase of 33% in inflation-adjusted terms.

In 2000, approximately 67% of the personal income in Osceola County was earned through wage and salary work or other labor income. The farm (\$37,746,000), manufacturing (\$19,744,000) and services (\$11,393,000) sectors accounted for the largest share of these earnings. The remainder of personal income in the county was derived from other sources, such as transfer payments and income from dividends, interest and rent.

Table 3. Personal Income by Industry
(in thousands of current dollars)

	1980	1990	1995	2000
<i>Income By Place of Residence</i>				
Personal income	\$72,983	\$111,168	\$134,714	\$170,077
Nonfarm personal income	\$63,665	\$92,118	\$110,315	\$132,331
Farm income	\$9,318	\$19,050	\$24,399	\$37,746
Per capita personal income (dollars)	\$8,740	\$15,260	\$18,873	\$24,359
<u>Derivation of personal income</u>				
Earnings by place of work	\$39,798	\$61,079	\$76,941	\$106,364
less: Personal contrb. for social insurance	\$1,773	\$3,240	\$4,161	\$5,067
plus: Adjustment for residence	\$3,581	\$7,276	\$10,425	\$11,929
equals: Net earnings by place of residence	\$41,606	\$65,115	\$83,205	\$113,226
plus: Dividends, interest, and rent	\$22,381	\$29,697	\$30,018	\$33,003
plus: Transfer payments	\$8,996	\$16,356	\$21,491	\$23,848
<i>Earnings By Place of Work</i>				
<u>Components of Earnings</u>				
Wage and salary disbursements	\$21,254	\$32,740	\$41,860	\$53,833
Other labor income	\$2,400	\$4,465	\$5,715	\$6,106
Proprietors' income	\$16,144	\$23,874	\$29,366	\$46,425
Farm proprietors' income	\$7,476	\$16,733	\$21,654	\$34,488
Nonfarm proprietors' income	\$8,668	\$7,141	\$7,712	\$11,937
<u>Earnings By Industry</u>				
Farm earnings	\$9,318	\$19,050	\$24,399	\$37,746
Nonfarm earnings	\$30,480	\$42,029	\$52,542	\$68,618
Private earnings	\$26,145	\$34,810	\$43,653	\$57,663
Ag. services, forestry, fishing, & other 8/	\$465	\$353	(D)	(D)
Mining	(L)	(L)	(D)	(D)
Construction	\$4,004	\$3,264	\$4,308	\$6,498
Manufacturing	\$5,144	\$11,275	\$13,668	\$19,744
Transportation and public utilities	\$2,164	\$3,056	\$4,229	\$6,223
Wholesale trade	\$4,707	\$4,169	\$4,712	\$4,473
Retail trade	\$3,369	\$3,596	\$4,446	\$4,988
Finance, insurance, and real estate	\$1,989	\$2,055	\$2,696	(D)
Services	\$4,289	\$7,018	\$8,889	\$11,393
Government and government enterprises	\$4,335	\$7,219	\$8,889	\$10,955
Federal	\$960	\$1,823	\$1,790	\$2,197
State	\$158	\$434	\$520	\$605
Local	\$3,217	\$4,962	\$6,579	\$8,153

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Local Area Personal Income and Employment, 2000.

(D) Not disclosed for reasons of confidentiality

The Direct Economic Activities

The health sector in Osceola County most directly affects the area's economy through its employment and payroll. Federal and state employment and earnings reports can be used to measure the direct employment and income levels in the health-related sectors. 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 Osceola County employs 444 people and has an estimated payroll of \$6,666,281 (**Table 4**). Data from the U.S. Census Bureau's 2000 *County Business Patterns* indicate that the health sector in Osceola County is typical of many rural areas, with one hospital, three physician offices, two dental offices, two nursing homes, and two pharmacies. The Hospital component employs 108 people with an annual payroll of \$1,942,065. The Doctors and Dentists (& Other Medical Professionals) component employs 17 people, with an annual payroll of \$519,000. Employment in the Nursing and Protective Care Component totals 91 people with an annual payroll of \$1,093,000. The Other Medical and Health Services component employs 200 workers, with an annual payroll cost of \$2,582,000. The Pharmacies component has an estimated 28 employees and a payroll of \$530,216. Nursing and Protective Care facilities are a particularly important component of the health sector in many rural communities, which have a large number of elderly, including farmers who often retire in the towns to be near medical facilities.

Table 4.
Direct Economic Activities of Health Sector in
Osceola County, Iowa

Component	Estimated Employees	Estimated Payroll
Hospital	108	\$1,942,065
Doctors and Dentists	17	\$519,000
Nursing and Protective Care	91	\$1,093,000
Other Medical Health Services	200	\$2,582,000
Pharmacies (Health and Personal Care)	28	\$530,216
TOTALS	444	\$6,666,281

In summary, the health sector, as a large community employer, is valuable to the community's economy. In addition to this direct employment impact, firms in the health sector and their employees purchase many goods and services from businesses in Osceola County. These purchases are referred to as secondary impacts to the economy. Before the secondary impacts of the health sector are discussed, several basic concepts of community economics will be presented. This will provide a context for understanding the relationships between different sectors of the local economy.

Some Basic Concepts of Community Economics and Income and Employment Multipliers

A community's economy can be viewed as an interrelated flow of goods and services.

Figure 1 illustrates the major conceptual flows of goods, services, and dollars of any economy.

The foundations 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 called a basic industry.

The two arrows in the upper right portion of **Figure 1** represent the flow of products out of, and dollars into, a community. 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 when households use 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 impacts throughout the entire economic system of the community.

Consider, for instance, the closing of a hospital. The services section will reduce employment and dollars going to households will decline. Likewise, hospital purchases from other businesses and the related dollar flow will stop. This decreases income in the “households” segment of the economy. Since earnings decrease, households reduce 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. Because some of the supplies are specialized and not available locally, and because of consumer preferences for non-local goods and services, part of this spending “leaks” out of the community.

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

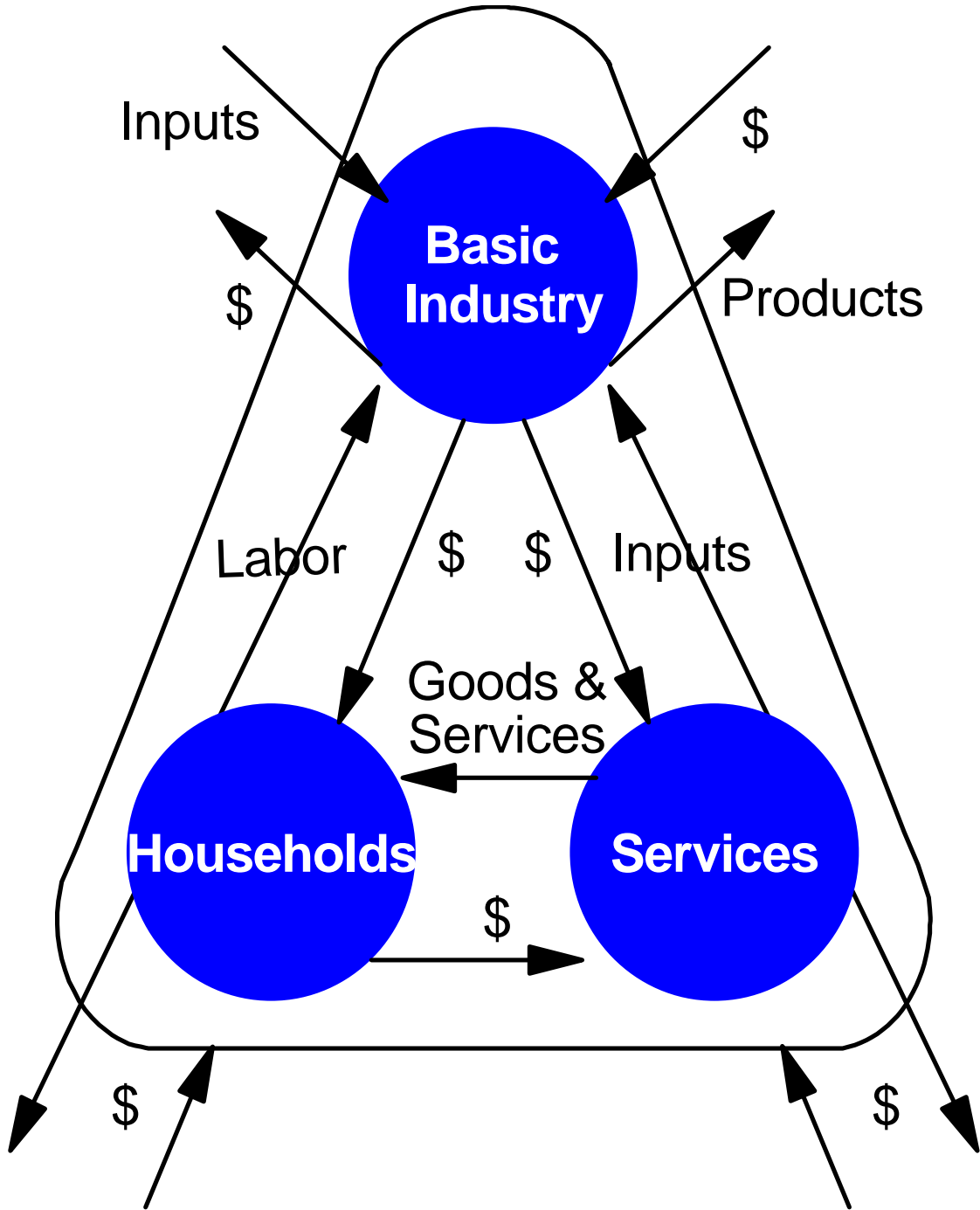


Figure 1. Community Economic System

supplies and services 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, who alter their consumption accordingly. The effect of this change in household consumption upon businesses in a community is referred to as an induced impact.

In economics, the summary measure that describes the total effects created by an increase or decrease in economic activity is called the multiplier effect. An economic multiplier is defined as the ratio between the total (sum of the direct, indirect, and induced effects (employment, income, etc.)) and the direct economic effect stimulated by the industry initially experiencing a change in final demand. It is the total change in the local economy resulting from the initial change. This report provides Type II^c multipliers for income and employment effects. For example, an employment multiplier of 2.2 indicates that if one job is created by a new industry, 1.2 jobs are created in other sectors due to business (indirect) and household (induced) spending.

Secondary Impacts of Health Sector on the Economy of Osceola County, Iowa

The IMPLAN model was used to calculate employment and income multipliers for Osceola County. IMPLAN was developed by the U.S. Forest Service^d and is a model that allows for development of county-level multipliers. The Osceola County Type II employment multipliers for each of the five components of the health sector are shown in **Table 5**, column 3. The Type II employment multiplier for the hospital component is 1.16. This indicates that for each job created in that sector, 0.16 jobs are created throughout the area due to business (indirect) and household (induced) spending. The Type II employment multipliers for the other health sector components

^c Type II multipliers include household spending effects based on new income generated

^d For complete details of model, see [1], [2], and [3].

are also shown in **Table 5**, column 3. The Type II income multiplier for the hospital sector is 1.19 (**Table 5**, column 6). This indicates that for each \$10.00 of payroll created in that sector, \$1.90 is created throughout the area due to business (indirect) and household (induced) spending. The Type II income multipliers for the other four health sector components are also given in **Table 5**, column 6.

Applying the employment multipliers to the employment levels for each of the five health sector components yields an estimate of each component's employment impact on Osceola County (**Table 5**, columns 2, 3, and 4). For example, the hospital has 108 employees; applying the Type II employment multiplier of 1.16 to this employment number brings the total employment impact of the hospital to 125 employees ($108 \times 1.16 = 125$). The Doctors and Dentists component has 17 employees. With the application of the Type II multiplier of 1.27, the total impact comes to 22 employees ($17 \times 1.27 = 22$). The Nursing and Protective Care component has 91 employees and an employment multiplier of 1.09, bringing the total impact to 99 employees ($91 \times 1.09 = 99$). The Other Medical & Health Services component has a direct effect of 200 employees, an employment multiplier of 1.14, and a total employment impact of 229 employees ($200 \times 1.14 = 229$). The Pharmacies component has an estimated 28 employees and a total impact of 30 employees, applying the employment multiplier of 1.06 ($28 \times 1.06 = 30$). The total employment impact associated with the health sector in Osceola County is an estimated 504 employees (**Table 5**, total of column 4).

Similarly, 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 Osceola County (**Table 5**, columns 5, 6, and 7). The Hospital component has a total payroll of \$1,942,065; applying the Type II income multiplier of 1.19 brings the total Hospital income

Table 5.
Economic Impact of the Health Sector
On Employment and Income in Osceola County, Iowa

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Health Sector Component	Employment	Type II Multiplier	Employment Impact	Income	Type II Multiplier	Income Impact	Retail Sales
Hospitals	108	1.16	125	\$1,942,065	1.19	\$2,307,515	\$487,521
Doctors & Dentists	17	1.27	22	\$519,000	1.21	\$630,315	\$133,170
Nursing & Protective Care	91	1.09	99	\$1,093,000	1.12	\$1,228,831	\$259,622
Other Medical & Health Services	200	1.14	229	\$2,582,000	1.20	\$3,105,315	\$656,076
Pharmacies	<u>28</u>	1.06	<u>30</u>	<u>\$530,216</u>	1.12	<u>\$595,765</u>	<u>\$125,870</u>
TOTALS	444		504	\$6,666,281		\$7,867,741	\$1,662,258

SOURCE: 1999IMPLAN Data Base.

impact to \$2,307,515 ($\$1,942,065 \times 1.19 = \$2,307,515$). The Doctors and Dentists sector has a total income impact of \$630,315 ($\$519,000 \times 1.21 = \$630,315$), based on the application of the income multiplier of 1.21 to the payroll of the Doctors and Dentists component of \$519,000. The Nursing & Protective Care component has a payroll of \$1,093,000, and a multiplier of 1.12, resulting in an income impact of \$1,228,831 ($\$1,093,000 \times 1.12 = \$1,228,831$). The Other Medical & Health Services has an income impact of \$3,105,315, based on the direct payroll of \$2,582,000 and the income multiplier of 1.20. The Pharmacies component has an income impact of \$595,765, based on the direct payroll of \$530,216 and the income multiplier of 1.12. The total income impact associated with the health sector in Osceola County is a projected \$7,867,741 (**Table 5**, total of column 7).

Income also affects retail sales. Based on the ratio between retail sales and income in the county over the past several years, the quantity of retail sales directly and indirectly supported by the health sector and its employees totals an estimated \$1,662,258 (**Table 5**, total of column 8). The bottom line is that the health sector not only contributes noticeably to the medical health of the community, but also to the economic health of the community.

Summary

The health sector in Osceola County contributes significantly to the area's economy. It directly employs approximately 445 people with an annual payroll of \$6.7 million. In total, through its linkages with the local economy, this sector supports an estimated 504 employees and \$7.9 million in payroll within the county.

Availability of quality health care is often thought of as important for the attraction and retention of industrial firms, businesses, and retirees. Yet the fact that a prosperous health sector also contributes to the economic health of the community is often overlooked. The health sector

employs a large number of residents and generates economic benefits similar to a large industrial firm. The secondary impacts occurring in the community are sizeable and contribute to the total impact of the health sector. An increase or decrease in the size of the health sector affects not only the medical health of the community but the community's economic health as well.

References

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