



# The Health Care Industry in Hardin County, Illinois

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### Hardin County Quick Facts

	Hardin County	Illinois	USA
Population, 2001 estimate	4,824	12,482,301	284,796,887
Population, 2000	4,800	12,419,293	281,421,906
Population, percent change, 1990 to 2000	-7.5%	8.6%	13.1%
Persons under 5 years old, percent, 2000	5.5%	7.1%	6.8%
Persons under 18 years old, percent, 2000	20.4%	26.1%	25.7%
Persons 65 years old and over, percent, 2000	18.6%	12.1%	12.4%
White persons, percent, 2000	95.4%	73.5%	75.1%
Black or African American persons, percent, 2000	2.8%	15.1%	12.3%
American Indian and Alaska Native persons, percent, 2000	Z	0.2%	0.9%
Asian persons, percent, 2000	0.5%	3.4%	3.6%
Native Hawaiian and Other Pacific Islander, percent, 2000	0.1%	Z	0.1%
Persons reporting some other race, percent, 2000	0.5%	5.8%	5.5%
Female population, 2000	49.9%	51.0%	50.9%
Homeownership rate, 2000	80.4%	67.3%	66.2%
Persons per household, 2000	2.3	2.6	2.6
Median household money income, 1997 model-based estimate	\$24,285	\$41,179	\$37,005
Persons below poverty, percent, 1997 model-based estimate	20.0%	11.3%	13.3%
Children below poverty, percent, 1997 model-based estimate	28.5%	17.5%	19.9%
Retail sales per capita, 1997	\$1,732	\$8,992	\$9,190
Local government employment - full-time equivalent, 1997	210	459,893	10,227,429
Persons per square mile, 2000	27.0	223.4	79.6
Farm land, 1997 (acres)	39,264	27,204,780	931,795,255
Land area, 2000 (square miles)	178	55,584	3,537,441

\*U.S. Census Bureau

### Major Employers

	Employment
Martin Marietta Aggregates	135
Hardin County General Hospital (Health Care)	100
Hardin County Schools (Education)	90
Hardin County Golden Circle (Senior Citizen Center)	49
Hastie Mining (Fluorspar Mining)	40
American Minerals (Milling Manganese)	25
Bob's Food Mart (Groceries)	12
McDowell Trucking (Long Distance Hauling)	4

\*Illinois Department of Commerce and Community Affairs, 2000

## Executive Summary

This report examines the health care system in Hardin County, Illinois. Detailed interviews with health care providers, economic leaders, and other community members revealed how the Hardin County health care system contributes to the health and quality of life of local residents. Additionally, input output analysis demonstrates how health care, through its interactions with other local economic sectors, contributes to the local economy.

Hardin County's economy is currently experiencing a period of slow economic growth. Few industries have relocated to the area and one major employer has recently vacated the community. Examination of several leading economic indicators displays the difficult situation facing Hardin County. However, local residents remain hopeful about the future of Hardin County. Residents believe that Hardin County's quiet living, beautiful scenery, historic background, low cost of living, and isolated setting act as a powerful tool for the attraction of retirees and tourists.

Local officials recognize that health care will play a prominent role in future development efforts. The wide range of services offered by the health care system will continue to act as an added incentive for those businesses and retirees that seek residence in Hardin County. In addition to the services it offers, the health care system also represents a major employer. Health care directly employs 223 people, but including secondary effects, we estimate that health care generates 256 jobs. Examining the income directly generated by the health care sector demonstrates a similar scenario. Health care directly generates \$5,256,000 of income, but including secondary effects, we estimate that health care creates over \$6,079,000 of income. While health care does provide tremendous contributions to the community, the hospital and local health care providers can take steps to improve the local health care system and increase its impact upon Hardin County residents and the Hardin County economy.

## A Portrait of Hardin County

Hardin County (pop. 4800) is located in southeastern Illinois approximately 360 miles from Chicago and 200 miles from St. Louis. Hardin County is an isolated community, but it finds itself within moderately close proximity of Carbondale, Illinois, Paducah, Kentucky and Evansville, Indiana. From 1990 to 2000, Hardin County's population contracted at a rate of 7.5 percent; during this same period, the nation's population grew at a rate of 13.1 percent while the State of Illinois experienced population growth of 8.6 percent. Hardin County has a population per square mile of 27 people, with Rosiclare, Elizabethtown, and Cave in Rock representing the major areas of residence.

## Hardin County's Economy

Recently, Hardin County's economy has experienced a period of minimal growth. Very few industries have entered the community and another major employer, Ozark-Mahoning (mining), has left the community. The Illinois Department of Employment Security estimates current unemployment at 5.8 percent (December 2002), which is up from 5.5 percent a year ago. Hardin County's isolated location and limited infrastructure makes business recruitment difficult.

Rather than focusing their efforts on attracting additional industries, economic development officials have sought to retain and expand existing industries. Furthermore, community leaders cited that they hope to build upon Hardin County's peaceful living, location adjacent to the Ohio River, low cost of living, and historical background in their attempts to entice retirees and tourists to the area. Several community members noted a recent influx in retirees that have already moved into the community.

Due to limited local employment opportunities, Hardin County residents often seek employment outside of the county. Community members mentioned the Department of Corrections as a major employer, with a large number of residents commuting to the prisons in Vienna. Additionally, community members noted that local jobs often fail to offer a competitive wage in comparison to jobs

available in surrounding communities. Residents also declared that very few local employment opportunities offer health insurance as a benefit. Along with limited employment options, Hardin County residents have limited opportunity to spend their earnings on local food, entertainment and consumer products.

Very few stores exist within the community where residents can shop. Only one major grocery store and a few smaller quickmart groceries/gas stations are located within the county, and residents stated that the lower prices and wider selection at grocery stores in surrounding, larger communities results in a number of people bypassing local stores. In addition to groceries, local shopping for entertainment and consumer goods remains limited. Once again, a lack of variety results in many residents spending their earnings in other communities, which offer a larger supply of entertainment and consumer goods. In order to better comprehend the Hardin County economy, the following section utilizes several economic indicators to compare Hardin County to state and national averages as well as to other rural counties in surrounding states<sup>1</sup>.

## **How Does the Economy of Hardin County Compare?**

Mining has always played a prominent role in Hardin County, but this sector's influence has waned due to the loss of Ozark-Mahoning, which laid off 102 workers in 1996. Farming takes place within Hardin County, but the number of farms continues to decline; the majority of farm income derives from beef cattle. Major local employers would include Martin Marietta (mining), Hardin County General Hospital, the Hardin County School System, Golden Circle Senior Citizens Council, American Minerals (mining), RIDES Mass Transit, and Hastie Trucking & Mining.

Figure 1 displays that Hardin County's per capita personal income figure falls significantly below similar figures for Illinois and the nation, but when compared to similar rural counties, as in Figure 2, Hardin County's measure of per capita personal income looks more favorable. However,

because the counties contained in Figure 2 all represent some of the most rural and isolated counties in their respective states, Hardin County's per capita personal income figure only looks favorable in comparison to the similarly weak measures of the comparison counties. Along with lower incomes, Hardin County also has a relatively high rate of persons living in poverty.

Figure 3, which compares Hardin County's measure of persons below poverty to both state and national averages, provides added evidence of the difficult economic circumstances facing Hardin County residents. Hardin County's figure of 18.6 percent exceeds that of Illinois (10.7%) and the nation (12.4%). Additionally, Figure 4 displays that Hardin County's measure of persons below poverty exceeds all but one other county that has similar geographic and population characteristics. In addition to lower income levels and proportionately greater poverty, the limited supply of local retailers adds to the difficult economic environment in Hardin County.

Table 1 compares Hardin County's measure of retail sales per capita to similar averages for Illinois, the nation, and other rural counties from surrounding states. This table depicts Hardin County as a county with low levels of retail activity. Hardin County's comparatively low retail sales figure could result from higher incomes in other counties, but Figure 2 displayed that Hardin County's per capita personal income figure did not appear significantly lower than any of the comparison counties. However, its per capita retail sales figure of \$1,732 falls below similar measures for all of the

**Table 1: Retail sales per capita**

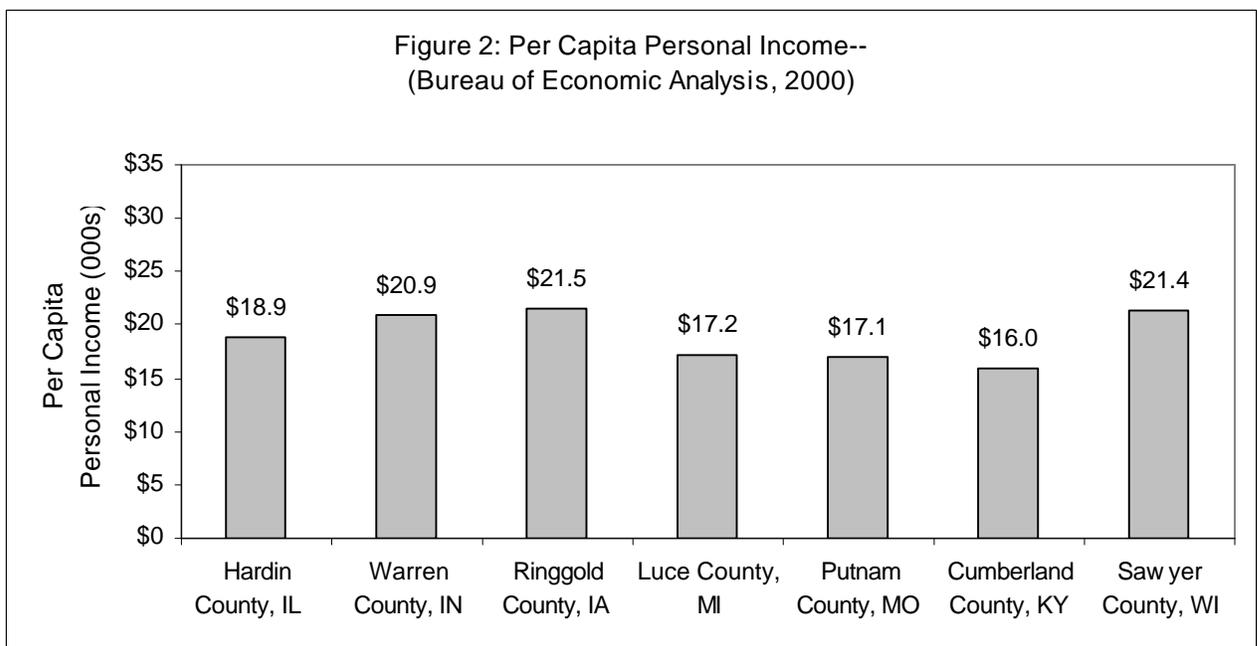
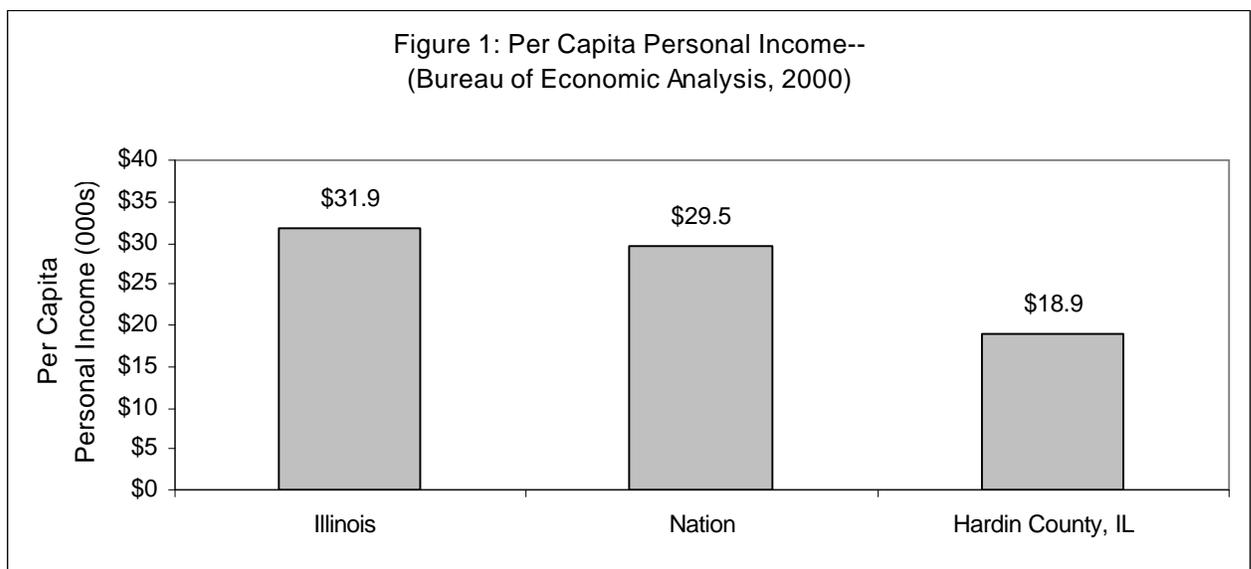
Illinois	\$8,992
Nation	\$9,190
Hardin County, IL	\$1,732
Warren County, IN	\$2,398
Ringgold County, IA	\$7,117
Luce County, MI	\$9,792
Putnam County, MO	\$3,572
Cumberland County, KY	\$5,115
Sawyer County, WI	\$8,333

*\*U.S. Census Bureau, 1997*

comparison counties. This suggests that local residents do not spend their earnings locally, which reduces secondary economic activity. Rather than resulting from community members bypassing local retailers or community disloyalty, the lack of local retail activity stems from the limited supply of local consumer, grocery, and entertainment retailers. Hardin County consumers cited Paducah, Kentucky and Harrisburg, Illinois as two primary shopping areas.

In summary, a slowing economy, lower incomes, higher rates of poverty, and a limited local

retail presence results in challenging economic circumstances for Hardin County residents. However, the attitude within Hardin County is not one of pessimism. Hardin County residents value their community, and they see a hopeful future. Development leaders see great potential in Hardin County as a destination spot for tourists and retirees. Furthermore, while economic development and government leaders do not acknowledge industry recruitment as a potentially strong option for development, current strategies focus on providing assistance to existing industries and businesses, and



therefore, retaining and expanding the influence of these current employers.

## Hardin County Health Care Description

Despite its isolated location and small size, Hardin County contains a variety of health services capable of meeting the needs of Hardin County residents. Hardin County General Hospital (Rosiclare) acts as the anchor of this health care system. Like many small, rural hospitals, Hardin County General does not offer a wide range of

specialty services, although providing specialty services in a small community like Hardin County would prove difficult, and ultimately, economically unsustainable. Hardin County lacks the large population base and the specialized equipment that allow for the economically feasible delivery of specialty services.

However, Hardin County General Hospital does offer an array of inpatient and outpatient services including MRI scanning, ultrasound studies, nuclear scans, CAT scans, echocardiograms, stress testing, pulmonary function testing, physical therapy, vision/hearing testing, lab services, radiology services, respiratory care, nursing services, social services, speech therapy, swing bed, and surgical

Figure 3: Persons below Poverty--  
(Bureau of the Census, 1999)

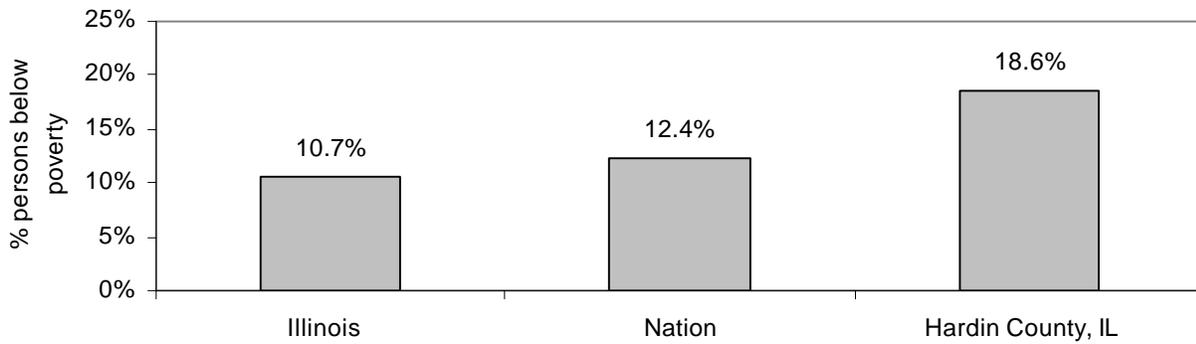
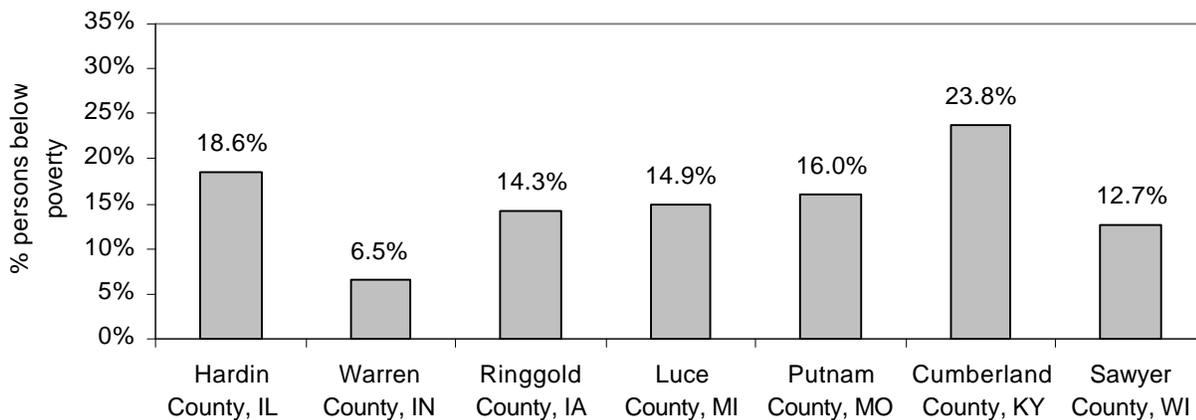


Figure 4: Persons below Poverty--  
(Bureau of the Census, 1999)



services. Additionally, the hospital makes available 24-hour emergency room services, which the hospital staffs with three on-call physicians. Due to Hardin County's isolated location, one would have to travel anywhere from 40 minutes to one hour in order to access another hospital. The immediacy and availability of emergency services not only provides a sense of security and convenience, but, more importantly, it saves lives. Several community members made reference to specific examples of friends and family members that had been saved as a result of the immediate availability of emergency services at the hospital. The county currently maintains an ambulance service that enhances the response time to emergency events; the ambulance service has one vehicle that provides service throughout Hardin County. In addition to the provision of medical services, residents utilize the hospital as a provider of information. Hospital employees stated that residents often contact the hospital with questions about the availability of regional medical services and questions pertaining to Medicare billing.

Hardin County General Hospital provides a majority of its services to elderly residents of Hardin County. Because the hospital services a large elderly population, Medicare reimbursements represent a significant share of patient revenues. The availability of local hospital services proves extremely valuable for the elderly population, as these older men and women often lack the ability and the desire to travel for health care services. Therefore, many elderly residents receive care that would otherwise remain untreated. However, elderly residents of Hardin County are not the only segment of the population that benefits from access to the local hospital.

Despite a high proportion of poor and uninsured residents, access to health care does not appear problematic for Hardin County residents. The hospital never turns away a patient due to ability to pay, and the hospital actually provides a significant amount of care each year, which it ultimately writes off as uncollectible receivables. Thus, the presence of Hardin County General provides value to the lives of all members of the community. Additionally, the hospital's service area extends beyond Hardin County. The hospital services residents of Pope, Gallatin, and Saline

counties, with a majority of these commuters coming from Pope County. In addition to the presence of a hospital, Hardin County also possesses a local health clinic, CHESI (Community Health and Emergency Services) Clinic, which currently has the designation of a Federally Qualified Health Center (FQHC).

Three physicians staff the FQHC. Two of the physicians have served in the community for over ten years, and one physician has served in the community for approximately four years. Very few communities of this size contain three physicians, and one can associate much of this with the presence of the local hospital. All three physicians have privileges at Hardin County General, and all three staff the ER. In addition to a site in Cave in Rock, the clinic currently maintains its main office on the hospital campus (Rosiclare). This close proximity to the hospital, along with the sharing of the physicians, has resulted in a good professional relationship between the two facilities, as both facilities realize their dependence upon one another for survival.

The clinic's status as an FQHC implies that this clinic must service all clients that walk through its doors. The clinic receives cost-based Medicare and Medicaid reimbursement, and therefore, it can serve these two portions of the community without the fear of inadequate reimbursement. In addition, the clinic also allows uninsured residents of Hardin County who meet certain income eligibility requirements to pay for medical care according to a sliding scale fee. In addition to medical services, the FQHC also provides dental services.

The FQHC currently employs one dentist (Rosiclare). Therefore, unlike many rural communities throughout America, Hardin County residents do not lack good access to dental care. Even more valuable, the dentist's association with the FQHC indicates that all residents, including public aid eligible residents, have access to dental care. In addition to access to dental services, residents have the opportunity to utilize the local health department.

The local health department also maintains its office on the hospital campus (Rosiclare). The health department serves a wide range of patients, with the majority of patients consisting of infants and childbearing women. Services include WIC

(women, infants, and children), family planning, women’s health, environmental health, and breast and cervical cancer prevention. In addition to the health department, Hardin County also possesses a nursing home, Rosiclare Health Care Center (Rosiclare), which currently has Medicare and Medicaid certification.

The local nursing home’s close proximity to the hospital and the health clinic provide residents with immediate access to medical care. One physician estimated that local doctors could service approximately 95 percent of nursing home patients’ needs at the local hospital. While the nursing home provides care to elderly residents of Hardin County, Riverview Terrace provides care for those developmentally disabled residents of Hardin County.

Riverview Terrace (Rosiclare) is a licensed intermediate care facility that holds Medicaid certification. This 16-bed facility provides housing and meals to disabled residents from a variety of geographic locations. Hardin County residents also have access to the Hardin County Family Counseling Center (Elizabethtown), which provides mental health services. In addition to allowing clients to pay according to a sliding scale fee, the counseling center accepts Medicare and Medicaid. As a complement to the community’s medical providers, Hardin County also possesses several service agencies, which enhance the health care system’s ability to serve Hardin County residents.

RIDES Mass Transit District (Rosiclare), a rural public transportation system, services nine counties, including Hardin County. RIDES solves what amounts to a tremendous problem facing many rural communities: access to medical care. In many small, rural communities, residents in outlying areas of the region often cannot access medical care due to a lack of transportation. However, RIDES has routes throughout Hardin County, including frequent stops at the hospital. Additionally, RIDES provides trips to Paducah and other larger surrounding communities for those residents that require access to specialty medical services. Furthermore, RIDES’ services in Pope County, which does not have a hospital, provides Pope residents with access to care at Hardin County General. In addition to RIDES, the Golden Circle Senior Citizens Council (Elizabethtown) provides

services to the local community, which enhances locally available health care.

Golden Circle provides non-health maintenance and home care for elderly residents of Hardin County. Golden Circle provides meals, helps with shopping, runs errands, and takes residents to medical appointments. Residents can receive transportation assistance to access medical services throughout Hardin County as well as surrounding areas, such as Paducah. The above description displays that despite Hardin County’s small size and rural location it has many health and service amenities lacking in larger communities. The following section provides an evaluation of Hardin County’s health care system by comparing Hardin County to state and national averages as well as other rural counties in surrounding states.

## How Does the Hardin County Health Care System Compare?

The supply of Medical Doctors (MDs) represents a key measure of rural health. Table 2 displays that Hardin County’s supply of MDs falls below state and national county averages, state and

**Table 2: MDs Per 1000 Persons**

Illinois County Avg	1.01
Illinois Rural County Avg	0.76
Illinois Urban County Avg	1.65
Nation Rural County Avg	0.86
Nation Urban County Avg	2.03
Nation County Avg	1.17
Luce County, MI	1.36
Sawyer County, WI	1.18
Ringgold County, IA	0.56
Warren County, IN	0.48
Hardin County, IL	0.41
Cumberland County, KY	0.29
Putnam County, MO	0

*\*Area Resource File*

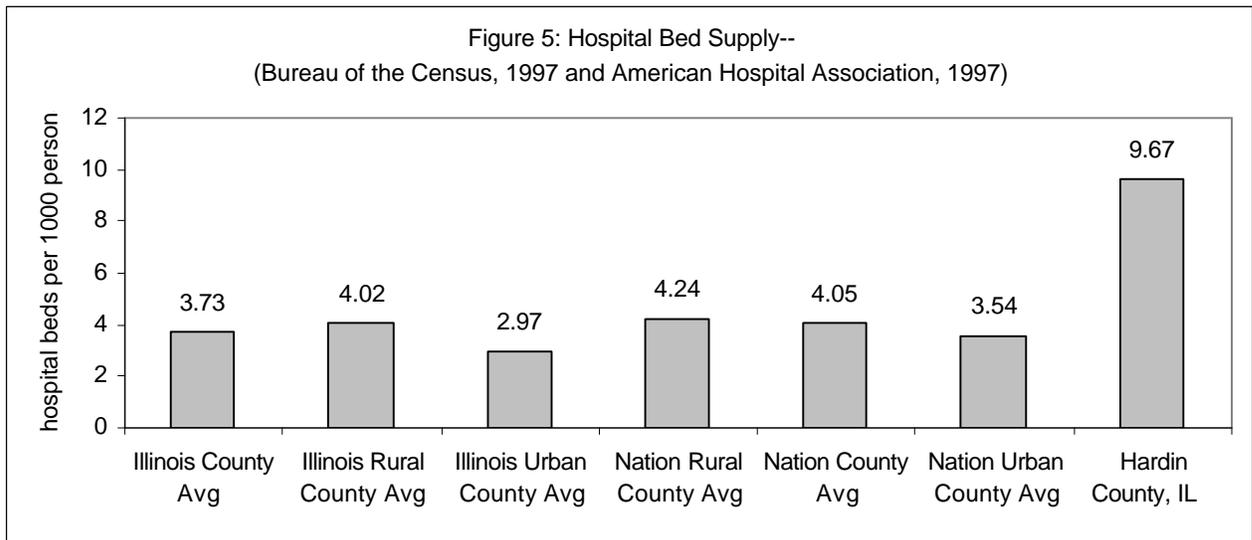
*\*American Medical Association Physician Masterfiles, 1998*

*\*Bureau of the Census, 1998*

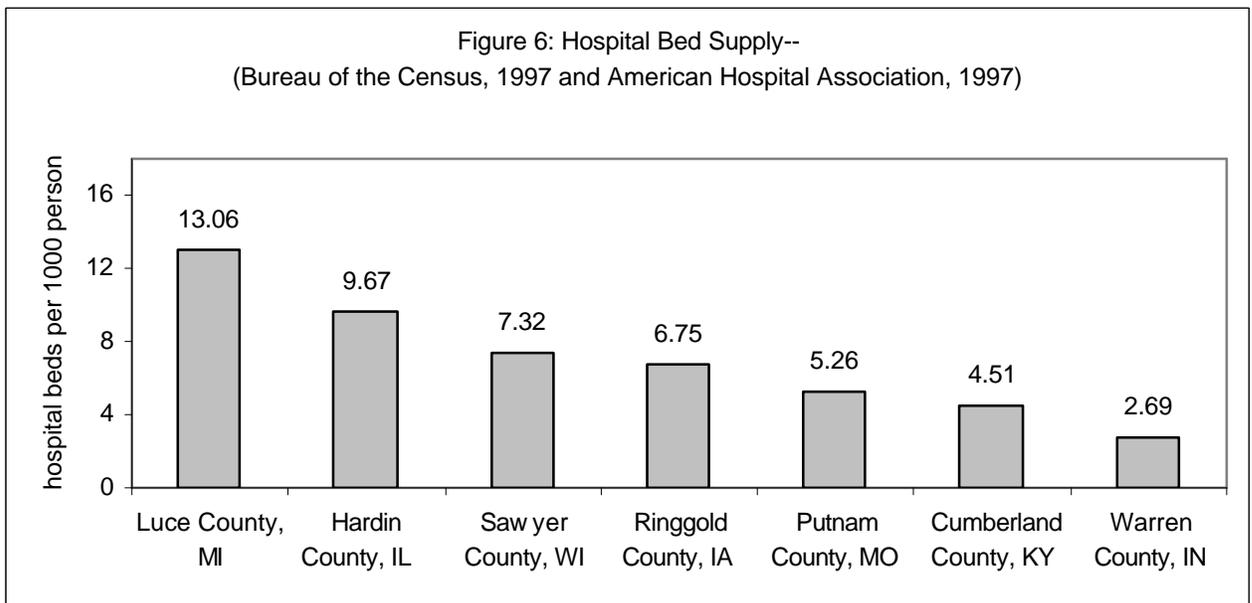
national urban county averages, and state and national rural county averages. However, Hardin County's small size dictates that comparing Hardin County to other rural counties with similar geographic and population characteristics, also contained in Table 2, would provide a more accurate and significant indication of MD supply.<sup>2</sup>

In comparison to other rural counties, Hardin County displays a lower measure of MDs per 1,000 persons, but only Luce County, Michigan (1.36) and Sawyer County, Wisconsin (1.18) have ratios that

greatly exceed Hardin County's ratio (.41). Moreover, Table 2 depicts the physician population as of 1998, which was before the arrival of a third physician. The addition of this third physician would propel Hardin County's ratio of MDs per 1,000 persons to approximately .63. Hardin County residents did not cite the supply of physicians as insufficient, and many cited the current supply of three as a tremendous strength of the community. The supply of hospital beds represents another key health indicator.



*\*Area Resource File*



*\*Area Resource File*

Figure 5 displays that, in comparison to state and national averages, Hardin County's supply of hospital beds appears more than acceptable. Hardin County's ratio of hospital beds per 1,000 persons (9.67) more than doubles all of the state and national averages. Furthermore, Figure 6, which compares Hardin County to other rural counties in surrounding states, provides added evidence of Hardin County's abundant supply of hospital beds. Other than Luce County, Michigan, Hardin County has a larger supply of hospital beds than any of the other comparison counties. While Hardin County looks to have a plentiful supply of physicians and hospital beds, examination of the Medicare payments derived from MDs and other local providers offer a primary example of why the health care industry remains a vital component of the economy.

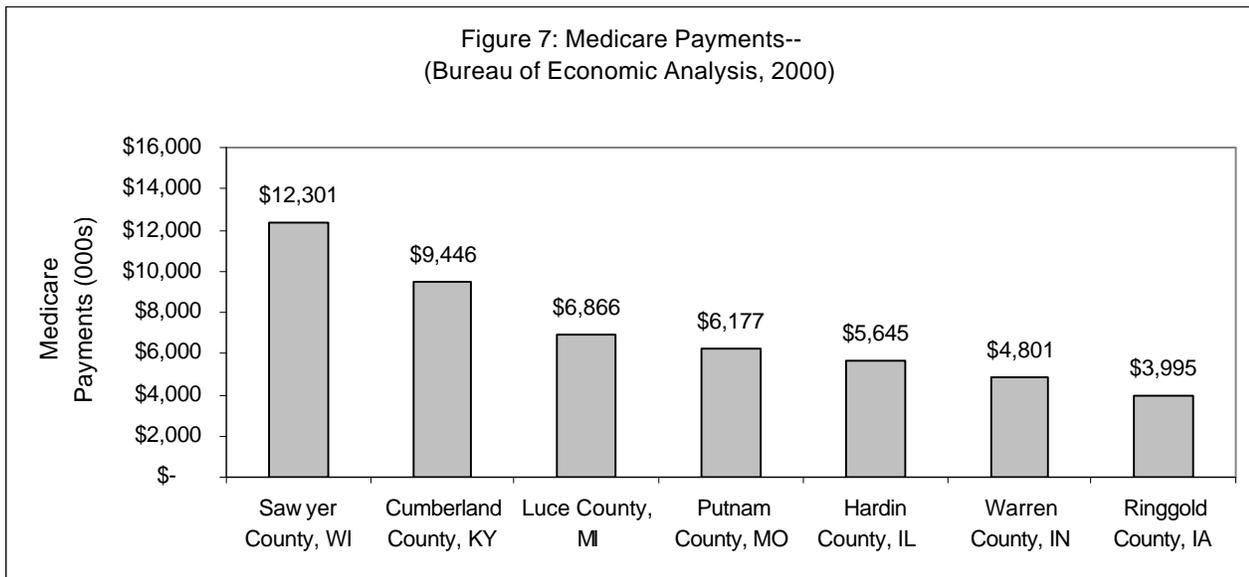
The establishment of export industries remains one of the primary goals of economic development. The importance of such industries derives from their ability to channel in dollars from outside the community. These exporting industries effectively capture demand from foreign regions. To some extent, Medicare payments, as well as insurance and Medicaid payments, have a similar effect. Because of the high proportion of elderly residents that often live within rural communities, and the higher demand for medical services associated with this demographic group, Medicare payments have special significance for rural commu-

nities.

Local providers of health care services receive Medicare payments from the Federal Government, and thus, these providers successfully bring outside dollars into the community. Ideally, these dollars will be spent within the community and the effects of these payments will ripple throughout the economy as this money is reused to make purchases in the region. Figure 7 displays Hardin County's Medicare payments in comparison to other rural counties in surrounding states.

In 2000, Hardin County received approximately \$5,645,000 in Medicare payments, which represents about .063 percent of total state Medicare payments (\$9,026,634,000). Figure 7 displays that Hardin County's Medicare payments seem comparatively similar to other rural counties in surrounding states. Only Sawyer County, Wisconsin (\$12,301,000) and Cumberland County, Kentucky (\$9,446,000) have Medicare payment figures that greatly exceed Hardin County's figure. However, nominal value comparisons of Medicare payments have little worth. Rather than comparing actual values, one should absorb from these two graphs that Medicare payments result in over \$5.6 million in revenues for county providers. Thus, health care providers, in effect, generate roughly \$5.6 million in export revenues for the community. Health care providers spend these revenues within the community in terms of salaries, wages, and various other forms of medical expenses necessary for the

Figure 7: Medicare Payments--  
(Bureau of Economic Analysis, 2000)



delivery of services.

The above analysis demonstrates that Hardin County houses a significant health care system. Hardin County possesses a hospital, clinics, a health department, a nursing home, a dentist, and mental health services capable of meeting the needs of residents. Not only can this system meet the medical needs of residents, but it also provides a valuable contribution to the local economy by funneling outside dollars into the community.

## **The Role of Health Services in a Rural Community**

In the past twenty years, health care costs rose dramatically, which forced millions of Americans to forgo services they need. For example, in 1980 per capita health care expenditures were \$1,067, but by 1999, per capita health care expenditures had risen to \$4,358. During this period, health care expenditures have increased at a decreasing rate. From 1980 to 1990, health care expenditures grew at an average annual rate of approximately 11 percent. From 1990-1999, health care expenditures grew at an average annual rate of approximately 6.4 percent (Cowan et al., 1999). Despite this declining growth rate, Kovner and Jonas (1999, pg. 56) noted that, "the rate of increase in health care costs has consistently far exceeded the rate of inflation in the general economy. Thus, health care expenses each year account for an increasing share of the nation's GDP." In 1980, health care costs represented 8.8 percent of GDP, but as of 1999, health care costs made up 13.0 percent of GDP (Cowan et al., 1999). This rapid rise in health care costs significantly impacted our entire nation, but this issue has had a much deeper impact upon rural communities throughout America.

For many communities, the rapid rise in health care costs results in either a loss of services or a reduction in services. Urban communities have felt the impact of the consolidation of and reduction of medical services, but, for the most part, the same services remain available even if at a reduced amount of locations. In contrast, a reduction in health services forces rural residents to travel greater distances to seek care, which increases the

real and opportunity costs of seeking medical care, and therefore, increases the already high cost of health care services. Examination of the demographic and economic characteristics associated with rural communities displays that while rural communities find themselves at a much higher risk of losing services, they are also much more likely to need access to health care services.

Doeksen and Schott (1999, pg. 3) noted that "in rural areas there are proportionately more elderly, more children living in poverty, unemployment is higher and incomes are lower." The economic composition of the rural community can multiply the effects of these demographic characteristics, as rural communities contain a high proportion of small businesses and privately owned businesses. Due to the rising cost of health insurance, these smaller employers find it difficult to provide health insurance coverage for their workers and themselves. The heavy dependence upon agriculture in rural communities also influences exposure to risk, as a re-emergence of the farm crisis has left many farmers, and the businesses linked to these farmers, on the verge of failure (Doeksen & Schott, 1999). These external pressures necessitate that these communities have adequate access to care.

Furthermore, better health care leads to better quality of life. Improved quality of life is important on the obvious and practical level, as improved health care leads to the improved health of residents. However, there remains an impressionistic element that needs attention, as the actual value of a health care system extends beyond the services offered and the frequency of utilization. Whether utilized or not, one derives confidence and a peace of mind from the knowledge that one has immediate access to health care services. Thus, not only does the health care system enhance the value of the community through the services it offers, but also, its mere presence adds a perceived value to the community, which can equally enhance quality of life.

## Health Care and the Rural Economy

In addition to the contributions made to quality of life and to the health of local residents, the existence of a health care system also has ramifications for the local economy. First and foremost, health care provides a substantial contribution to employment and income. Additionally, as detailed by Cordes, Doeksen, and Shaffer (1996), a strong health care system contributes to the generation of investment funds, the attraction and retention of businesses, the attraction and retention of retirees, and the enhancement of the local leadership structure.

Health care's contributions to employment and income represent its most basic role in the local economy. The health care system often acts as one of the major employers in a rural community. In Hardin County for example, the health care system directly generates 223 jobs, which represents 12.8 percent of total employment (IMPLAN, 1999). However, health care's contribution to the local economy does not stop at its direct contributions to employment and income. Each job and each dollar of income generated by the health care industry generates secondary rounds of spending, which multiply the effects of the initial impact to the economy. When one considers secondary effects, the Hardin County health care system generates a total of 256 jobs, which represents 14.7 percent of total employment (IMPLAN, 1999). In order to comprehend this complex economic system, one must understand the interconnectedness of the economy.

The various industries that make up the local economy do not consist of independent and antagonistic firms, but these industries exist in a system of interdependence and interconnectedness. The various firms, as well as households, interact with one another, and therefore, this interdependence multiplies the direct impact of any one specific industry. To understand this, it is necessary to understand three different definitions: direct effects, indirect effects, and induced effects. Direct effects represent the changes in industries, which have experienced a change in final demand; indirect effects consist of the purchases made by secondary

industries in response to the demands of the directly affected industries; induced effects correspond to changes in household spending as income changes due to changes in final demand (Olson & Lindall, 2000). Thus, the direct contributions of the health care sector impacts other local economic sectors, which multiplies the health care sector's direct impact. However, the size of the economic impact will vary depending on the amount of leakages that occur.

Leakages occur in two forms: local residents seeking services outside of the community and local industries making purchases outside of the community. Residents that seek health care from outside providers have a three-fold effect upon the local economy. First, local health care providers lose revenues associated with the patient's out-of-pocket costs for services. Second, local health care providers lose additional revenues associated with secondary payments (e.g. Medicare, Medicaid, and insurance). Third, residents that seek care outside of the local community do not relegate their purchases to health care. Residents often make additional purchases such as food, clothing, appliances, meals and various other consumer goods. Therefore, the retention of local residents should remain a primary concern for the local health care industry. Cordes et al. (1994, p.35) cited that "Preventing a dollar leakage has an impact identical to that of selling a dollar's worth of service to someone who lives beyond the boundaries of the local economy." However, leakages also occur in the form of local industries purchasing inputs from outside of the local economy. As a result, when the health care industry purchases local labor and other local inputs, this increases the secondary effects associated with the delivery of health care services. Furthermore, the labor-intensive nature of health care delivery can have the effect of increasing the local supply of investment funds.

Because of the labor-intensive nature of health care delivery, wages and salaries constitute a large portion of the health care sector's operating expenses. Thus, the need to meet payroll requirements demands that health care providers have access to a substantial sum of liquid assets. When stored at local financial institutions these funds remain available to local businesses and individuals in the form of loans. In addition to contributing to

the supply of investment funds, the presence of a local health care system can effect decisions made by industries to relocate to or remain in a community (Cordes et al., 1994).

The rising cost of health care has forced businesses to find site locations that can deliver health care services in a cost effective manner. A survey by Lyne (cited in Cordes et al., 1994, p. 38) of corporate executives indicated that corporations display preference to site locations that can provide health services at a low cost. 17 percent of respondents claimed that health care costs acted as a tiebreaker between comparably favorable sites. Businesses also examine quality of life issues, as employees and management may resist locating to an area that does not offer adequate health care services. The health care system can also play a similar role in the attraction of retirees (Cordes et al., 1994).

In a survey by Toseland and Rasch (cited in Cordes et al., 1994, p. 36) of 878 persons 55 and older, respondents cited safety, recreational facilities, dwelling units, and health care as the four best predictors of retirement location. A survey by Reginier and Gelwicks (cited in Cordes et al., 1994, p. 36) found similar evidence, as 60 percent of survey respondents cited health services as a must have. As our nation as a whole ages, and more men and women move into their retirement years, the attraction and retention of retirees can have a significant impact upon rural communities. Rural communities often possess many of the qualities that retirees desire: good climate, slow pace, and outdoor activities (Doeksen & Schott, 1999). Thus, rural communities have a distinct advantage in attracting and retaining these older men and women and the social security and transfer pay-

ments associated with this demographic group.

The retention of retirees can also impact the supply of local leaders, as many of these older men and women have excess free time, which therefore, permits them the luxury of contributing their reserves of knowledge and experience to the community through local leadership positions (Cordes et al., 1994). However, the health care system's ability to attract retirees is not the only means through which it contributes to local leadership development. Frequently, health care providers and workers participate in the community through various local leadership roles. A study of Pennsylvania by Erickson, Gavin and Cordes (1984) found that almost one-half of hospital administrators sought involvement in local development efforts. The following section, through the use of IMPLAN software, provides additional quantitative verification of the health care sector's economic impact.

### Input/Output Analysis of the Hardin County Health Care System

This study used IMPLAN software to perform input/output analysis on the economic data for Hardin County. The exploration of this data yielded a picture, which depicts the health care sector's economic impact in Hardin County.

Analysis of Table 3 allows one to see the interconnected nature of the regional economy. Not only do firms directly employ Hardin County residents, but the interaction that takes place among interrelated firms results in the creation of addi-

**Table 3: Hardin County Health Care System Employment Multipliers (IMPLAN 1999)**

Sector Name	Employment	Type SAM Multiplier	Total Employment
Pharmacies	8	1.05	8
Doctors and Dentists	27	1.30	35
Nursing and Protective Care	83	1.09	90
Hospitals	98	1.17	115
Other Medical and Health Services	7	1.13	8
<b>TOTAL</b>	<b>223</b>		<b>256</b>

tional jobs. For example, Health care generates a total of 223 jobs. However, as a result of secondary effects (indirect and induced effects), these 223 jobs result in an additional 33 jobs, which results in a total of 256 jobs. The Type SAM multipliers provide evidence of these additional, secondary jobs. The hospitals sector's multiplier of 1.17 implies that every one job created within a hospital results in .17 (indirect and induced) additional jobs; consequently, the 98 jobs within this sector results in a total of 115 ( $98 * 1.17$ ) jobs. The size of the total impact associated with each sector is a function of both the size of the multiplier as well as the size of the direct impact. While the hospitals sector does have the largest total impact, this largely results from the significant number of employees directly employed at the hospital. In contrast, the doctors and dentists sector has the largest multiplier (1.30), but this does not result in the largest overall impact; the 27 jobs at doctors and dentists' offices results in a total of 35 ( $27 * 1.30$ ) jobs. The pharmacies sector has the smallest multiplier. Every one job within a pharmacy results in .05 (indirect and induced) additional jobs. Thus, the 8 jobs created at pharmacies results in .4 ( $.05 * 8$ ) additional jobs.

Table 4 provides an additional example of the interconnected nature of the local economy. Income directly generated within one sector results in the creation of additional income within other interrelated sectors. Health care directly generates \$5,256,000 of income. However, as a result of secondary effects (indirect and induced), health care generates an additional \$823,247 of income, which results in a total of \$6,079,247 of income. As an example, the hospitals sector's multiplier of 1.16 implies that every dollar of income generated at a hospital results in an additional \$.16 (indirect and induced). However, the total impact associated with each sector is a function of both the size of the initial impact as well as the size of the multiplier. Thus, while the hospitals sector does not have the largest multiplier, this sector does have the largest total impact. The \$2,530,000 in salaries and benefits generated by the hospital results in a total of \$2,942,226 ( $\$2,530,000 * 1.16$ ) of income. The doctors and dentists sector has the largest income multiplier (1.21), but this does not result in the largest total impact. The \$1,000,000 in salaries and benefits generated within this sector results in a total of \$1,207,526 ( $\$1,000,000 * 1.21$ ). The

**Table 4: Hardin County Health Care System Income Multipliers (IMPLAN 1999)**

Sector Name	Income	Type SAM Multiplier	Total Income
Pharmacies	\$200,000	1.10	\$220,696
Doctors and Dentists	\$1,000,000	1.21	\$1,207,526
Nursing and Protective Care	\$1,389,000	1.12	\$1,551,942
Hospitals	\$2,530,000	1.16	\$2,942,226
Other Medical and Health Services	\$137,000	1.14	\$156,857
<b>TOTAL</b>	<b>\$5,256,000</b>		<b>\$6,079,247</b>

**Table 5: Hardin County Health Care System Retail Information (IMPLAN 1999)**

Sector Name	Retail Sales	\$.01 Sales Tax Collection
Pharmacies	\$23,774	\$238
Doctors and Dentists	\$130,078	\$1,301
Nursing and Protective Care	\$167,180	\$1,672
Hospitals	\$316,945	\$3,169
Other Medical and Health Services	\$16,897	\$169
<b>TOTAL</b>	<b>\$654,874</b>	<b>\$6,549</b>

pharmacies sector has the smallest multiplier (1.10). Every dollar of income generated at a pharmacy results in an additional \$.10. Thus, the \$200,000 of income generated within pharmacies results in a total of \$220,696 ( $1.10 * \$200,000$ ).

Table 5 illustrates the contributions that the Hardin County health care system makes to the local economy in terms of retail sales and tax collection. A ratio called the “local retail sales capture ratio” helps to obtain this impact. Taking the total retail sales and dividing this by total personal income derives this ratio. This figure estimates the proportion of income that residents devote to local retail sales. For instance, the figure in this Hardin County study is approximately .11; therefore, one can estimate that residents allocate \$.11 of every dollar towards local retail sales. In order to obtain the figures in Table 5, the local retail sales capture ratio is multiplied by total income for each respective sector, which is located in Table 4. For example, Pharmacies generate a total of \$220,696 of income, which results in a retail sales estimate of \$23,774 ( $.11 * \$220,696$ ). The sum of the products of the retail sales capture ratio and the total income impact for each respective sector provides the total retail sales impact. This calculation illustrates the depth of the health care sector’s impact. In addition to its impact upon employment and income, the health care sector attracts over \$654,000 in annual retail payments. However, health care’s impact does not stop here. Based upon a simple \$.01 sales tax estimate, the retail sales associated with health care results in sales tax revenue of over \$6,500.

## Strategies for Increasing Impact

Many of the rural hospitals that we have studied battle issues associated with patient outmigration. In many instances, outmigration results from patients needing specialty care that a small, rural hospital lacks the ability to provide. Patient outmigration also results when local residents and local health care providers lack awareness of local hospital services. Therefore, in order for the hospital to retain local residents and local dollars that would otherwise leave the community, Hardin County General must make the community aware of the services it offers. A flyer or a bro-

chure could provide a suitable means of informing the community, but other hospitals have chosen more proactive forms of marketing. For example, some rural hospitals have hosted health care career fairs and health care screenings, which, in addition to providing a valuable service to the community, offers the hospital an opportunity to update residents on available hospital services. Such events are not just marketing tools, but they represent long-term investments in the community that can ultimately result in long run benefits, such as increased community loyalty and a reduction in patient outmigration.

However, successful community events, such as health care career fairs and health care screenings, require partnerships with other local service organizations. Establishing relationships with local service and development agencies allows the hospital and health care providers to better assess and meet the community’s medical needs. Furthermore, because the hospital’s survival depends upon the local economic climate, rural hospitals have benefited greatly from building relationships with economic development organizations. Economic development organizations can assist the hospital with strategic planning efforts, grant writing, advocacy issues, and data collection. The hospital and health care officials can aid development efforts by seeking involvement in economic development boards or committees, providing continued investment in the health care infrastructure, and participating in job creation strategies by partnering with local educational institutions.

In summary, Hardin County’s health care system provides an array of services capable of meeting the medical needs of Hardin County residents. Along with providing for the medical needs of residents, the health care system acts as a major contributor to the local economy. The hospital acts as the anchor of this system, and its 98 employees make it one of the largest employers in the county. However, the hospital and local health care providers can take actions, such as increasing awareness of local health care services, making continuous investments in the community, and increasing partnerships with local economic development and service agencies, that will enhance health care’s contributions to the health of Hardin County residents and the health of the local economy.

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## Notes

<sup>1</sup> Comparison counties were chosen based upon population, rural designation, and the presence of a local hospital.

<sup>2</sup> Putnam County's measure of MDs per 1000 persons is believed to be incorrect due to data inaccuracy.

