



The Health Care Industry in Piatt County, Illinois

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The Illinois Rural Health Workshop is a joint program between University of Illinois Extension and the Illinois Health Education Consortium/AHEC working with rural communities in Illinois through the development and provision of economic information about the local health care sector.

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April 2003

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Piatt County Quick Facts

	Piatt	Illinois	U.S.
Population, 2000	16,365	12,419,293	281,421,906
Population, percent change, 1990 to 2000	5.3%	8.6%	13.1%
Persons 65 years old and over, percent, 2000	15.5%	12.1%	12.4%
Persons under 18 years old, percent, 2000	25.1%	26.1%	25.7%
White persons, percent, 2000 (a)	98.8%	73.5%	75.1%
Black or African American persons, percent, 2000 (a)	0.2%	15.1%	12.3%
American Indian and Alaska Native persons, percent, 2000 (a)	0.1%	0.2%	0.9%
Asian persons, percent, 2000 (a)	0.1%	3.4%	3.6%
Persons reporting some other race, percent, 2000 (a)	0.1%	5.8%	5.5%
Persons reporting two or more races, percent, 2000	0.6%	1.9%	2.4%
Homeownership rate, 2000	80.2%	67.3%	66.2%
Median household money income, 1997 model-based estimate	\$43,109	\$41,179	\$37,005
Persons below poverty, percent, 1997 model-based estimate	6.7%	11.3%	13.3%
Children below poverty, percent, 1997 model-based estimate	9.6%	17.5%	19.9%
Persons per square mile, 2000	37.2	223.4	79.6
Retail sales per capita, 1997	\$6,031	\$8,992	\$9,190

**U.S. Census Bureau*

Major Employers	Employment
Monticello Schools	174
Piatt County Nursing Home	155
BICC General (Telephone Cable)	128
Kirby Hospital	105
NeighborCare (Pharmaceutical)	87
Central Illinois Mfg (Oil Filters)	85
County of Piatt	79
Cerro Gordo Schools	58
Bement Schools	54
First State Bank	41
Piatt County Mental Health Center	40
Clarkson Grain Co.	40

**Illinois Dept. of Commerce & Community Affairs*

**County of Piatt*

Executive Summary

This report examines the health care system in Piatt County, Illinois. Detailed interviews with health care providers, economic leaders, and other community members revealed how the Piatt County health care system contributes to the health and quality of life of local residents. Additionally, this report displays the economic impact of the health care system. Through input/output analysis, this report displays the health care system's contribution to the local economy and how the various components of this system interact with and impact other local economic sectors.

Piatt County's economy appears to be typical of a rural community, as the farming sector acts as the second largest employer and the largest sector in terms of output. Outside of farming, Piatt County lacks a dominant or defining industry, and consequently, an abundance of major employers. However, Piatt County's close proximity to Champaign, coupled with its immediate access to Interstate 72, provides Piatt County residents with a number of employment options. As a result, a number of Piatt County residents seek employment outside of the county. While there may be a limited amount of local employment options within the county, this does not appear to be a detriment to the economic well-being of the community. The examination of several economic indicators displays that Piatt County maintains low levels of poverty and a comparatively high per capita income level.

Through the recruitment of new industries and businesses, Piatt County economic leaders hope to encourage the growth of the local economy. This development process remains in its infancy, but a key component of this recruitment effort will be the local health care system. The presence of a hospital and the health care system's ability to provide a full range of services will play a major role in the attraction and retention of future employers. In addition to the services it provides, the health care system acts as a major contributor to both income and employment. The health care system in Piatt County directly produces 598 jobs. However, when secondary effects are included, our calculations display that the health care system generates approximately 735 jobs. A similar scenario unfolds when the income generated by the

Piatt County health care system is examined. Health care directly produces over \$13 million of income, but when secondary effects are included, our calculations show that health care is responsible for the creation of almost \$17 million of income.

A Portrait of Piatt County

Piatt County, Illinois (pop. 16,365) is located in central Illinois approximately 150 miles from Chicago and 140 miles from St. Louis. Additionally, Piatt County's location along Interstate 72 provides easy access to both Champaign and Decatur. Despite its immediacy to these urban communities, Piatt County would likely fall into the stereotype of a small, rural, agricultural community. Piatt County's population grew at a rate of 5.3 percent from 1990-2000, while in comparison, the state of Illinois saw a growth rate of 8.6 percent and the United States saw a growth rate of 13.1 percent for the same period (U.S. Census Bureau). Piatt County has a population per square mile of 37.2 people, but the majority of residents reside in the cities of Monticello (pop. 5,138), Cerro Gordo (pop. 1,436), and Bement (pop. 1,784).

Piatt County's Economy

Piatt County is currently undergoing a period of slow economic growth. Few industries have moved into the community and farming remains the dominant industry, as approximately 90 percent of total land in Piatt County remains devoted to farming (Illinois Farm Business Farm Management, 2001). As a result, residents have limited employment options within the community. Many Piatt County residents seek employment in Champaign and Decatur, and some residents travel as far as Springfield or Bloomington. While Piatt County's close proximity to Champaign and Decatur provides valuable employment options for Piatt County residents, this closeness to Champaign and Decatur has also produced an influx of professionals into the community. However, these professionals seek Piatt County as a place to call home rather than as a place to work.

In recent years, Piatt County has seen a number of doctors, lawyers, University of Illinois employees, and various other business professionals purchase homes and take up residence in Piatt County. Piatt County's location offers these professionals the opportunity to experience small town community living without completely discarding their access to the urban amenities and employment options of Champaign and Decatur. However, the economic influence of these commuters remains a mystery, as it is unknown whether a substantial portion of Piatt County residents that work outside of the county spend their earnings within Piatt County.

Like most small communities, the shopping options within Piatt County remain limited. Few national chain stores exist in the community and a majority of the businesses consist of smaller, privately owned businesses. However, it remains unclear whether Piatt County experiences a significant amount of consumer out-migration. Through the course of this study, health care and government officials participated in detailed interviews which resulted in conflicting evidence pertaining to the shopping patterns of Piatt County residents. Some respondents cited that the majority of residents shop locally, while others cited that a substantial number of residents spend their earnings in Champaign and Decatur.

While conflicting evidence arose pertaining to the shopping patterns of Piatt County residents, Table 1 displays that Piatt County retailers experience less utilization than retailers in surrounding counties. With the exception of Moultrie County, Piatt County's per capita retail sales figure of \$6,031 falls below similar measures for surrounding coun-

Table 1: Retail Sales

County	Per Capita Retail Sales
McLean	\$10,406
Macon	\$9,895
Douglas	\$9,349
Champaign	\$9,131
DeWitt	\$8,475
Piatt	\$6,031
Moultrie	\$2,940

Source: U.S. Census, 1997.

ties. The existence of higher incomes in surrounding counties could explain some of the difference in retail sales, but Table 2 displays that only McLean County has a median household income that exceeds Piatt County's figure of \$45,752. Additionally, Piatt County also displays a relatively high measure of per capita personal income in comparison to neighboring counties. Thus, it appears that Piatt County's comparatively smaller per capita retail sales figure does not result from a lack of income. Rather, it seems likely that local dollars leak out to surrounding communities, with survey respondents noting a concentrated flow into Champaign and Decatur.

How Does the Economy of Piatt County Compare?

Outside of the three main residential areas of Monticello, Bement, and Cerro Gordo, corn and soybean fields dominate Piatt County's landscape. Piatt County has approximately 395 square miles of

Table 2: Income Comparison

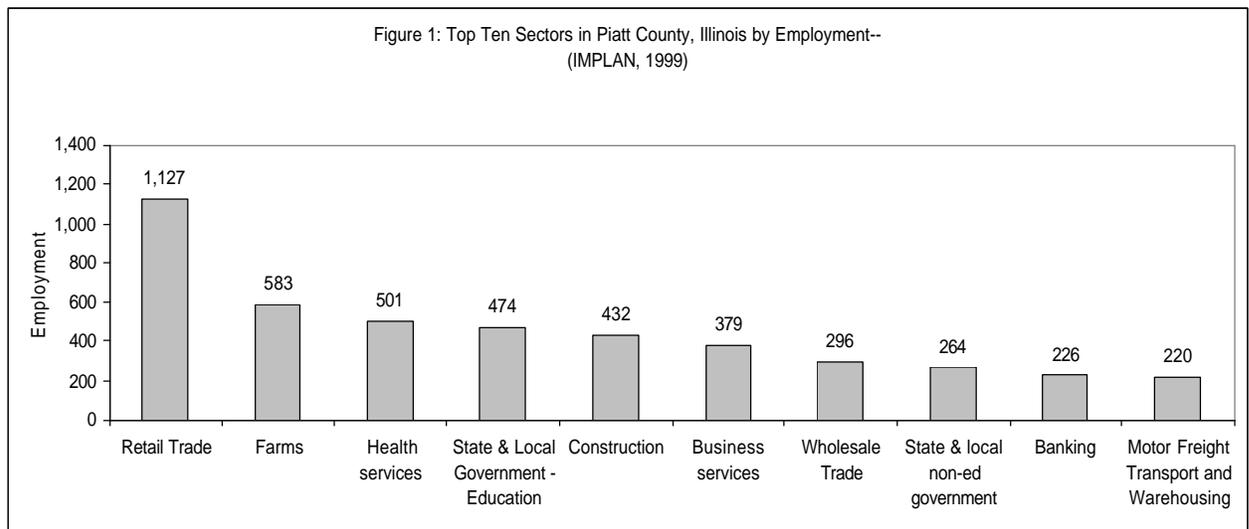
County	Per Capita Personal Income	Median Household Income
McLean	\$29,670	\$47,021
Macon	\$27,516	\$37,859
Piatt	\$28,631	\$45,752
DeWitt	\$22,778	\$41,256
Champaign	\$25,331	\$37,780
Douglas	\$24,061	\$39,439
Moultrie	\$22,905	\$40,084

Source: BEA, 2000 & U.S. Census, 1999.

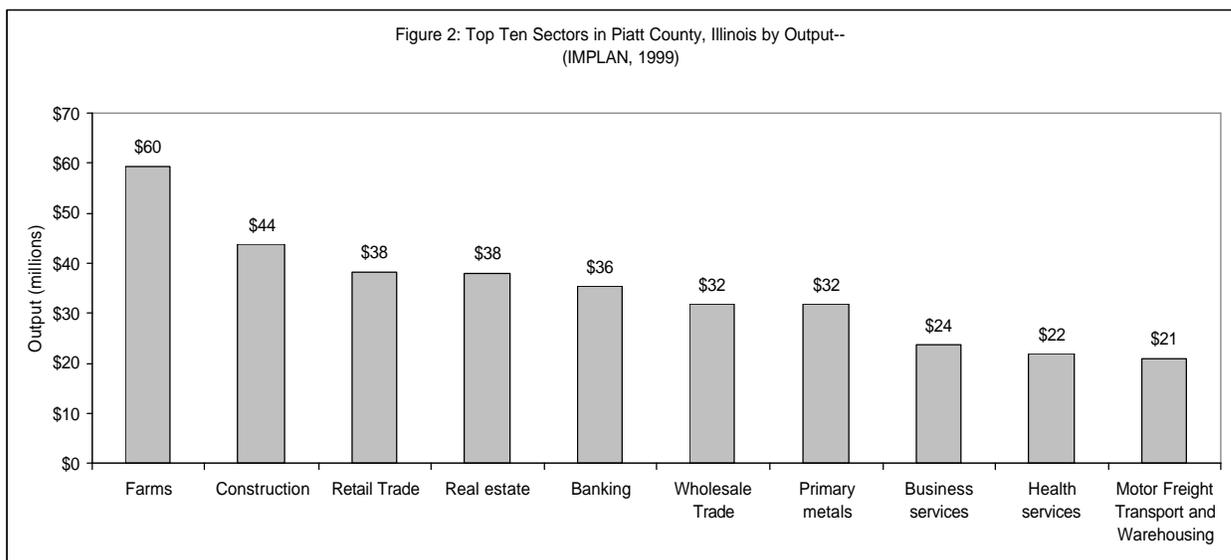
land devoted to farming (Illinois Farm Business Farm Management, 2001), which represents about 90 percent of total land within the county. Figure 1 and Figure 2 provide further evidence of the significance of the farming sector, as farming represents the second largest sector in terms of employment and the largest sector in terms of output. Excluding the owner and operator of the farm, the farming sector will not directly create a substantial number of jobs within the community. For example, the average farm in the state of Illinois hired only 4.5 months of labor for the year

2001 (Illinois Farm Business Farm Management). With the exception of farming, Piatt County lacks a significant or defining sector. The dominance by the farming sector and a lack of employment options forces many Piatt County residents to commute to work in surrounding counties.

Table 3, which provides evidence of the commuting and work location choices of Piatt County residents, displays that 46.5 percent of Piatt County residents live and work in the county. This implies that over 53 percent of Piatt County residents seek employment outside of Piatt County.



Note: Pharmacies are excluded from the health services sector.



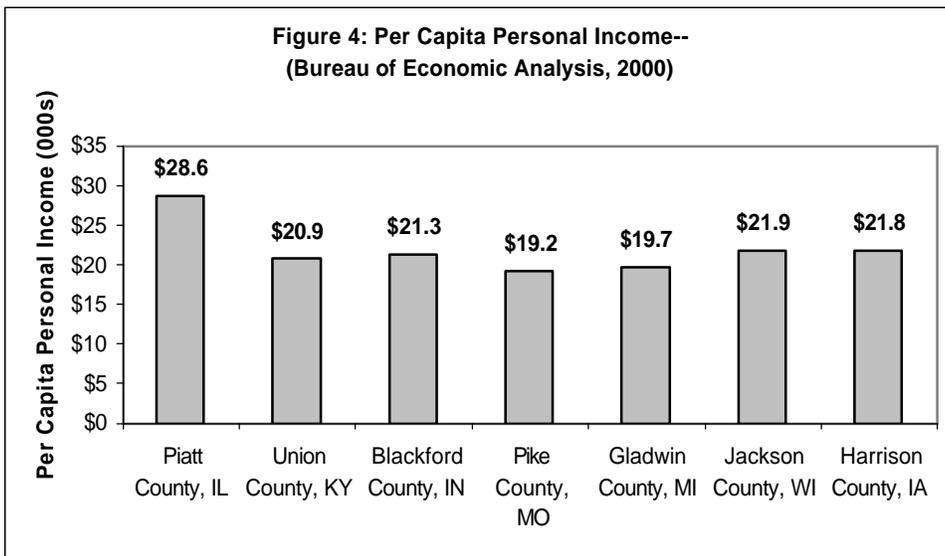
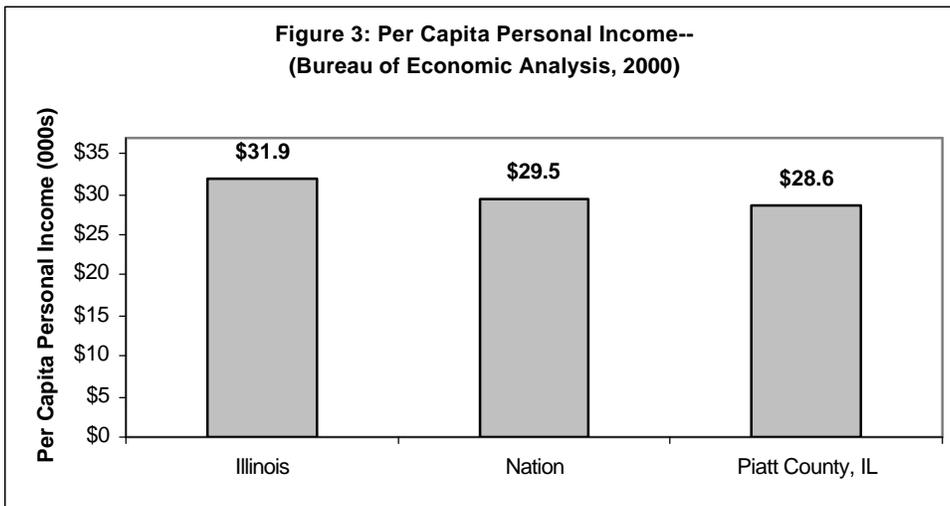
Note: Pharmacies are excluded from the health services sector.

This figure compares less than favorably to state and national averages, or to similar measures for rural counties in surrounding states¹. While some Piatt County residents have commuting thrust upon them as a result of the limited employment options within the county, it would be incorrect to assume that this pattern of commuting results completely from necessity rather than individual preferences. Some Piatt County residents believe that the benefits of Piatt County's quaint, small town atmosphere outweigh the negatives associated with a daily commute. Proof of this can be found in the number of professionals that make the daily commute to Champaign.

Table 3: % Working in County of Residence

Illinois	67.8
Rural Illinois	68.8
Nation	72.3
Rural Nation	74.7
Piatt County, IL	46.5
Union County, KY	81.9
Blackford County, IN	62.1
Pike County, MO	79.6
Gladwin County, MI	61.5
Jackson County, WI	74.9
Harrison County, IA	60.7

Source: Area Resource File, Census of Population and Housing, 1990.



This inability to keep residents within the community further exacerbates the problem of residents spending their wages and salaries outside of the community because the more frequently rural residents leave the community, the more likely they will spend their wages and earnings outside of the community. However, the economic welfare of a community extends beyond employment opportunities. Examination of several other economic indicators will help with understanding Piatt County and life in this community.

As displayed previously in Table 2, Piatt County appears

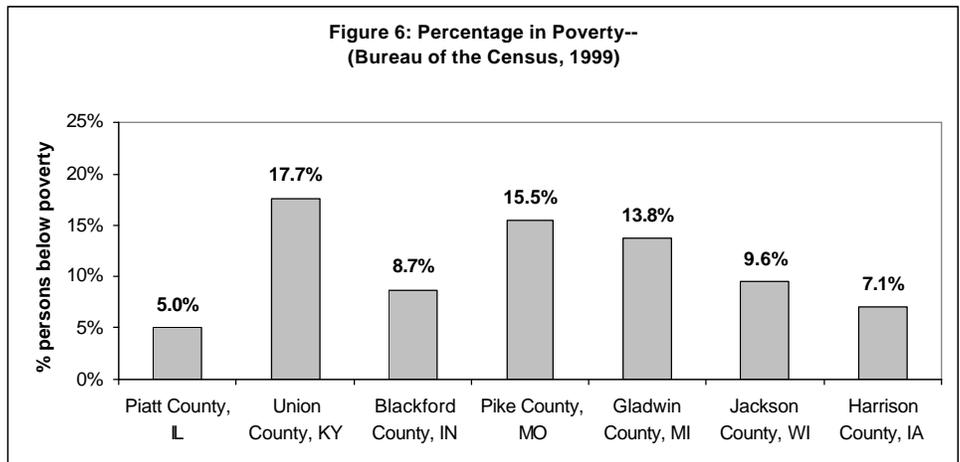
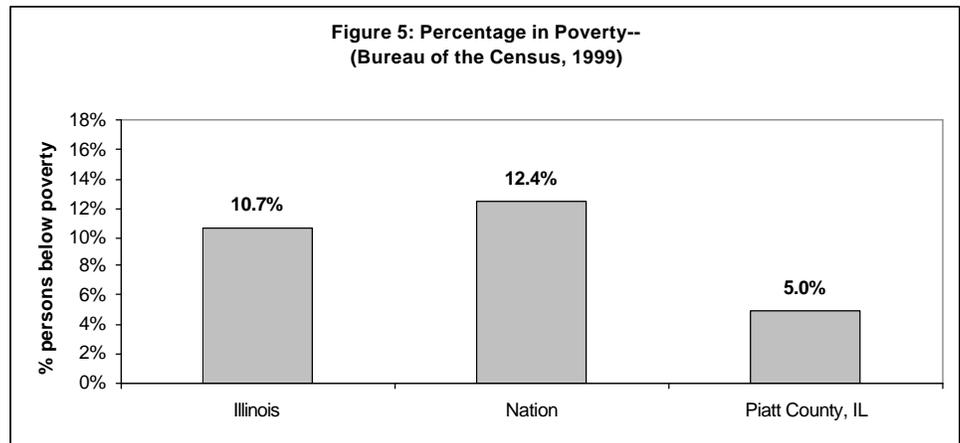
to have a relatively high measure of per capita personal income in comparison to neighboring counties. However, Figure 3 displays that Piatt County's per capita personal income figure of \$28,600 falls below similar measures for Illinois and the nation. While comparisons to state and national averages are useful, we feel that comparing Piatt County to other rural counties with similar geographic and population characteristics, as found in Figure 4, is more directly relevant. Figure 4 displays that Piatt County's per capita personal income figure compares favorably with other rural counties in surrounding states, as none of the other comparison counties has a higher measure of per capita personal income. Furthermore, Piatt County's measure of the percentage of persons in poverty (Figure 5 and Figure 6) provides added evidence of Piatt County's economic status.

Figure 5 compares Piatt County to both state and national averages for the percentage of persons in poverty. Piatt County's figure of 5.0 percent falls below the figures of 10.7 percent and 12.4 percent for the respective measures of persons in poverty for Illinois and the nation. In addition, Figure 6, which compares Piatt County to other rural counties in surrounding states, displays further evidence of Piatt County's favorable measure of the percentage of persons in poverty, as Piatt County's figure falls well below similar measures for these counties with similar geographic and population characteristics.

In summary, Piatt County has a limited amount of local employment options. Consequently, some Piatt County residents seek employment outside of the county. The defining sector within the county, farming, consists primarily of privately owned farms and partnerships, and the owners of these farms will generally represent this sector's direct contribution to employment. However, despite the lack of local employment options, Piatt County exhibits encouraging measures of poverty status and economic standing.

Piatt County Health Care Description

Piatt County's health care system provides an extensive collection of services capable of meeting the medical needs of residents. John and Mary E.



Kirby Hospital (Monticello) acts as the anchor of this system and provides services to all residents, with a majority of its patients over the age of 60. Kirby Hospital, a sixteen-bed Critical Access Hospital, is actually the smallest hospital in the state of Illinois. However, in spite of its small stature, Kirby offers a wide range of services including the following: ambulance service staffed by certified EMTs, 24 hour physician assistant staffed ER services, physician assistant staffed convenient care (non-emergency medical services), telemedicine, lab services, radiology, mammography, bone densitometry, respiratory care, in-patient pharmacy, cardiac rehabilitation, physical therapy, surgery, and patient education programs.

Piatt County's close proximity to Champaign and Decatur often leads to patient outmigration, but health care providers noted that this patient exodus results from the lack of specialty services available at Kirby. It appears that those residents that leave the county for hospital services do so only for those specialty services not available locally. With the exception of specialty services, Kirby officials believe that they control a strong share of the local market. Like most small hospitals, Kirby lacks the ability to offer a wide range of specialist care for Piatt County residents. However, the telemedicine technology utilized by Kirby negates some of these access issues.

Kirby currently possesses an interactive video system that allows patients and physicians to consult with Carle Clinic specialists in Champaign. As a result, Carle cardiologists, cancer specialists, and orthopedic surgeons can consult with and instruct Kirby physicians and physician assistants as they treat patients. Additionally, Kirby partners with a visiting gynecologist that administers services at the hospital two to four times a month. Furthermore, Kirby Hospital serves the community through a rural health clinic in Atwood, which is located in the southern region of the county. The Atwood clinic also offers telemedicine services, which provide access to Kirby's diagnostic services in Monticello.

Kirby provides a majority of its services to elderly residents of Piatt County. Approximately 50 percent of outpatients are over 60 years of age, and Medicare enrollees account for around 80 percent of inpatients. However, Kirby services a relatively low amount of public aid eligible patients,

as only about 3 percent of patients pay with Medicaid. Additionally, Piatt County possesses a substantial and competent supply of local physicians capable of meeting the community's demand for primary care services.

Residents seek primary care services through the Rural Health Clinic at Atwood and the Carle Clinic located in Monticello. Additionally, several independent physicians reside within the community who provide primary care services. A majority of the patients serviced by local physicians live in Piatt County, but some patients do travel into Piatt County from surrounding counties. In addition to services provided by the hospital and local physicians, residents can seek care through the local health department.

The health department acts as a bi-county provider of services for DeWitt and Piatt counties. Both counties currently contain office locations, and the Piatt County office is located in the city of Monticello. The health department offers a myriad of services including family planning, immunizations, WIC (a women, infants, and children nutritional supplement program), wellness clinics, and environmental health services. The health department administers services to a wide range of patients ranging from infants to the elderly. These patients consist primarily of low-income residents of Piatt County. While the health department services a broad range of the local population, nursing home services remain available for those elderly residents in need of health care services.

Currently, two nursing home facilities exist within the county. One facility is located in Monticello, and one facility is located in Bement. Through these facilities, residents can receive skilled and intermediate long-term care services. The Piatt County Nursing Home houses the Halcyon Program, which provides elderly residents with a special environment specifically designed to meet the needs of Alzheimer's patients. Additionally, elderly residents of Piatt County can utilize Piatt County Services for Seniors (a program that links older residents to agencies, services and activities), Faith in Action (a volunteer care giving ministry), and Care Management (a needs assessment and education program). Furthermore, Piatt County's elderly residents can also seek assistance through Tatman Village.

Tatman Village, a retirement community located in the city of Monticello, offers housing, maintenance, housekeeping, and dietary services for elderly residents of Piatt County. Residents must be at least 62 years of age, with preference given to Monticello Township residents, then to residents of Piatt County, and then to people affiliated with Piatt County. All Tatman Village residents remain capable of living independently, and Tatman Village does not offer assisted living services. Unfortunately, Piatt County does not possess any assisted living facilities, and health care providers cited this as an unmet need. In addition to the services described above, the Piatt County Mental Health Center (Monticello) exists to meet the psychological needs of the community.

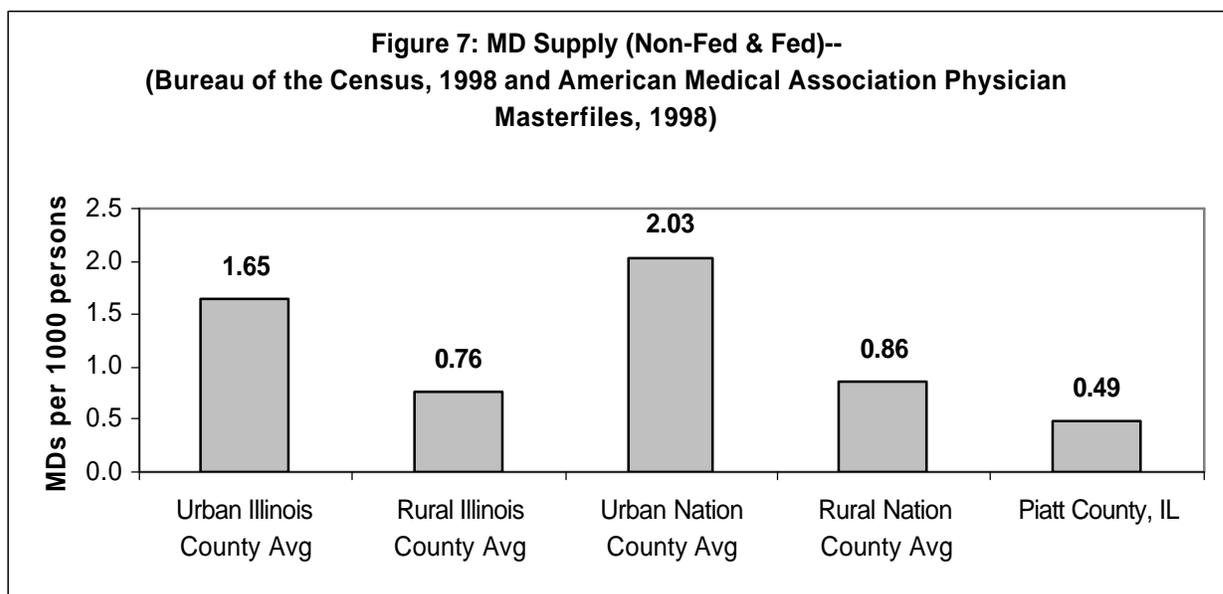
The Piatt County Mental Health Center provides a full range of psychological services. Some of the services offered include development therapy, substance abuse treatment, child development therapy, client and family support, and case management. The patient base consists primarily of low-income men and women between 20 to 60 years of age. The geographic area of service is restricted to Piatt County, as one must be a Piatt County resident to seek services. The mental health center also houses the Piatt County Transportation Program. A part of this transportation program consists of a Medi-Van operation, which

transports people to therapy, dialysis, and various other medical services that would normally remain inaccessible.

Furthermore, several dentists reside in Piatt County who provide access to oral health care. However, it was noted that public aid eligible residents of Piatt County lack good access to dental care and oral surgery. While Piatt County residents appear to have access to a full range of health services, the following section provides further insights into Piatt County's health care system through the comparative examination of several leading health care indicators for Piatt County, the nation, the state of Illinois, and several rural counties in surrounding states.

How Does the Piatt County Health Care System Compare?

The supply of Medical Doctors (MDs) remains a key measure of rural health care. Figure 7 compares Piatt County's supply of MDs to both state and national averages. Piatt County's ratio of MDs per 1,000 persons (.49) falls below both state and national urban averages as well as state and national rural averages. However, due to Piatt County's small size, using state and national averages as a point of comparison seems to be a question-



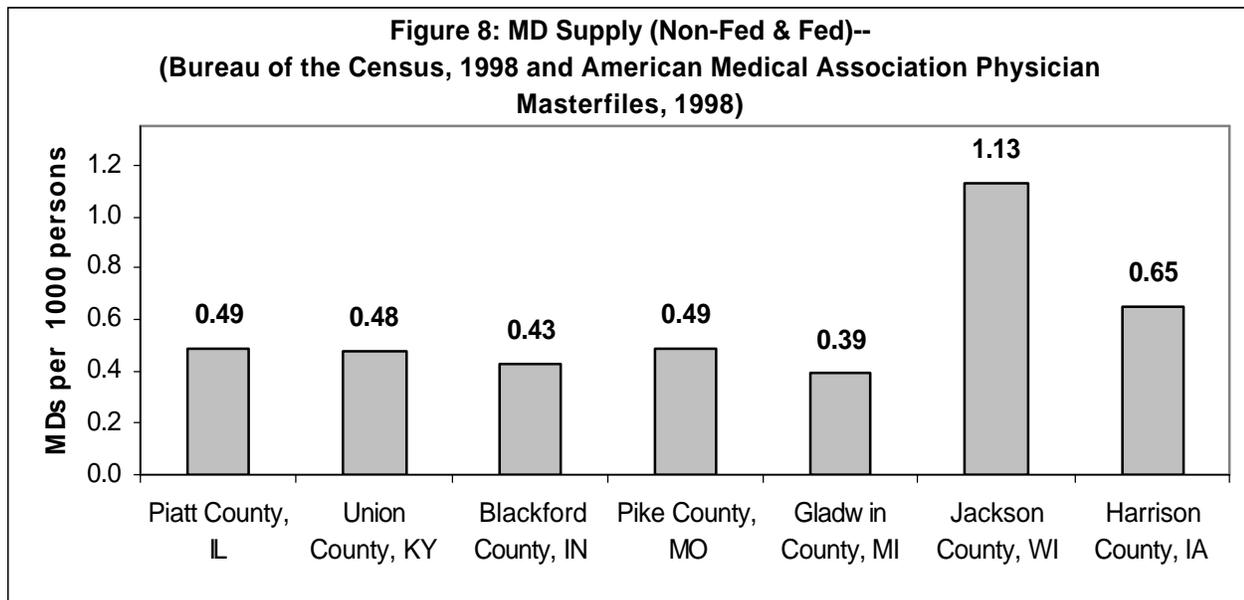
Source: Area Resource File.

able means of analysis. Most specifically, the relevance of comparing urban and rural MD supplies remains debatable. Rosenblatt and Hart (1999) noted that there remains a large supply of urban physicians that may actually represent a surplus of physicians. Thus, while comparisons such as Figure 7 display that rural areas contain fewer MDs, these rural communities may only contain fewer MDs in comparison to oversupplied urban communities. Such a comparison may not actually provide evidence of a physician shortage within rural communities, but further evidence of a physician oversupply within urban communities. However, using state and national rural averages as a point of reference also appears questionable. While Piatt County is a rural county, it is a very small rural county. As a result, Figure 8, which compares Piatt County's supply of MDs to other rural counties with similar geographic and population characteristics, provides a more significant comparison.

Figure 8 displays that Piatt County's supply of physicians appears favorable in comparison to other rural counties with similar population and geographic characteristics. Only Jackson County, Wisconsin and Harrison County, Iowa have ratios that outpace Piatt County's measure of .49 MDs per 1,000 persons. Additionally, Piatt County's immediacy to Champaign and Decatur further nullifies any physician access issues that may exist.

In addition to the supply of total physicians, the supply of specialist physicians within rural communities remains an issue of concern.

Examination of Piatt County's supply of specialist MDs displays that Piatt County, as well as other rural counties, has a limited supply of specialty services available. Piatt County's ratio of specialists per 10,000 persons (1.2) compares somewhat favorably to similar county average ratios for rural Illinois (1.7) and the rural nation (1.8). In comparison to similar county average ratios for urban America (6.2) and urban Illinois (5.2), Piatt County compares less than favorably. However, examination of this indicator holds little value for a small, rural county such as Piatt County. Piatt County, as well as rural counties throughout the nation, lacks a significant supply of specialty physicians due to several economic issues associated with specialty care; Piatt County lacks the large population base and the specialized equipment and facilities necessary for the economically viable delivery of specialty care. Furthermore, Kirby's use of telemedicine technology and Piatt County's nearness to Champaign and Decatur appears to negate any problems associated with access to specialty care. While Piatt County residents seem to have adequate access to physician services, examination of the Medicare payments derived from MDs and other local providers offer a pri-



Source: Area Resource File.

mary example of why the health care industry remains a vital component of the economy.

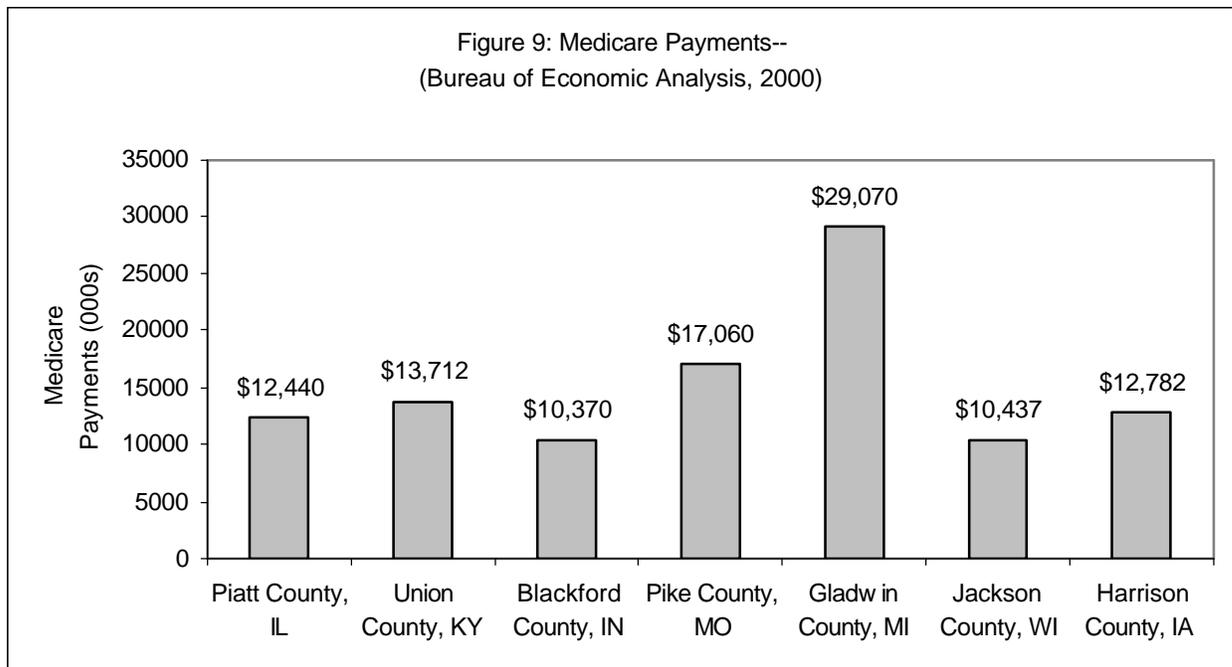
The establishment of export industries remains one of the primary goals of economic development. The importance of such industries derives from their ability to channel in dollars from outside the community. These exporting industries effectively capture demand from foreign regions. To some extent, Medicare 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 communities

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 9 displays Piatt County's Medicare payments in comparison to other rural counties in surrounding states.

In 2000, Piatt County received approximately \$12,440,000 in Medicare payments, which represents about .14 percent of total state Medicare

payments (\$9,026,634,000). Figure 9, which compares Piatt County to other rural counties in surrounding states, displays that Piatt County's Medicare payments appear similar to other small, rural counties. Only Pike County, Missouri (\$17,060,000) and Gladwin County, Michigan (\$29,070,000) have Medicare payment figures that are substantially higher than Piatt 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 about \$12.4 million in revenues for county providers. Thus, health care providers, in effect, generate in excess of \$12.4 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 delivery of services.

The above analysis demonstrates that Piatt County houses a significant health care system. Along with adequate access to physician services, Piatt County possesses a hospital, clinics, a health department, several nursing homes, dentists, and psychological 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

Over the past twenty years health care costs rose dramatically and forced millions of Americans to forgo services they needed. 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 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. However, 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. However, 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) noted that “in rural areas there are proportionately more elderly, more children living in poverty, unemployment is higher and incomes are lower” (pg. 3). Additionally,

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 insurance, these smaller employers find it difficult to provide insurance for their workers and themselves. Furthermore, the heavy dependence upon agriculture within rural communities 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 within the county. 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 within a rural community. In Piatt County for example, our calculations display that the health care system directly employs 598 people, which represents approximately 9.5 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 within the health care industry generates secondary rounds of spending, which multiply the effects of the initial impact to the economy. When one includes secondary effects, our calculations display that the Piatt County health care system creates 735 jobs, which represents approximately 11.7 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. However, leakages also occur in the form of local industries purchasing inputs from outside of the local economy. Consequently, 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. Seventeen percent of respondents claimed that health care costs acted as a tiebreaker between comparably favorable sites. Furthermore, 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, the four best predictors of retirement location were safety, recreational facilities, dwelling units, and health care. 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 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 payments associated with this demographic group (Cordes et al., 1994).

The retention of retirees can also impact the supply of local leaders within the community, 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.

Table 4: Piatt County Health Care System Employment Multipliers (IMPLAN, 1999)

Sector Name	Employment	Type SAM Multiplier	Total Employment
Pharmacies	97	1.16	113
Doctors and Dentists	79	1.41	112
Nursing and Protective Care	219	1.15	252
Hospitals	127	1.28	163
Other Medical and Health Services	76	1.26	96
TOTAL	598		735

Table 5: Piatt County Health Care System Income Multipliers (IMPLAN, 1999)

Sector Name	Income	Type SAM Multiplier	Total Income
Pharmacies	\$1,470,319	1.19	\$1,744,558
Doctors and Dentists	\$2,632,000	1.29	\$3,387,350
Nursing and Protective Care	\$3,984,000	1.21	\$4,833,313
Hospitals	\$3,528,000	1.29	\$4,548,231
Other Medical and Health Services	\$1,786,000	1.30	\$2,317,415
TOTAL	\$13,400,319		\$16,830,867

Input/Output Analysis of the Piatt County Health Care System

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

Table 4, using Type SAM employment multipliers, displays the interactive relationship that exists between the health care industry and the rest of the economy. This table displays the amount of jobs directly created by the health care sector as well as the additional jobs created as a result of the indirect and induced effects associated with the direct contribution to employment. Health care directly generates 598 jobs. However, as a result of secondary effects, these 598 jobs create an additional 137 jobs, which results in a total of 735 jobs. The nursing and protective care sector has the greatest overall impact upon employment, as it directly generates 219 jobs, which lead to an additional 33 jobs ($219 * .15$). This results in a total of 252 ($219 * 1.15$) jobs. However, examination of the nursing and protective care sector's multiplier of 1.15 displays that while this sector has the greatest overall impact upon employment it does not have the greatest impact upon employment on a per job basis. Every one job created within the nursing and protective care sector creates an additional .15 jobs. While significant, this figure is less than the employment multiplier for the doctors and dentists sector, which measures 1.41. This implies that every job generated within this sector results in an additional .41 jobs. Thus, the 79 jobs

within doctors and dentists' offices result in a total of 112 ($79 * 1.41$) jobs. The other medical and health services sector has the lowest overall impact upon employment. Every job generated within this sector leads to an additional .26 jobs. Therefore, the 76 jobs created within the other medical and health services sector results in a total of 96 ($76 * 1.26$) jobs for Piatt County.

Table 5 displays the income multipliers for the Piatt County health care system created by IMPLAN. The health care system in Piatt County directly contributes \$13,400,319 to income, and as a result of secondary effects, generates an additional \$3,430,548, resulting in a total of \$16,830,867. The nursing and protective care sector has the greatest overall impact upon income, as it directly generates \$3,984,000. This direct contribution to income leads to the creation of an additional \$849,313 ($\$3,984,000 * .21$), which results in a total of \$4,833,313 ($\$3,984,000 * 1.21$). However, the nursing and protective care sector will not have the greatest impact upon income on a per dollar basis. The nursing and protective care sector's income multiplier of 1.21 implies that every dollar of income generated within this sector results in an additional \$.21 of income. In contrast, every dollar of income generated within the other medical and health services sector results in an additional \$.30 of income. Thus, the \$1,786,000 of income directly created within the other medical and health services sector results in a total of \$2,317,415 ($1.30 * \$1,786,000$). The pharmacies sector has the smallest impact upon income, as its multiplier of 1.19 implies that every dollar of income created within a pharmacy generates an additional \$.19. Therefore, the \$1,470,319 directly generated within

Table 6: Piatt County Health Care System Retail Information (IMPLAN, 1999)

Sector Name	Retail Sales	\$.01 Sales Tax
		Collection
Pharmacies	\$397,768	\$3,978
Doctors and Dentists	\$772,332	\$7,723
Nursing and Protective Care	\$1,102,018	\$11,020
Hospitals	\$1,037,018	\$10,370
Other Medical and Health Services	\$528,382	\$5,284
TOTAL	\$3,837,517	\$38,375

pharmacies leads to a total of \$1,744,558 (\$1,470,319 * 1.19).

Table 6 illustrates the contribution that the health care system in Piatt County 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 Piatt County study was roughly .23; therefore, one can estimate that residents allocate \$.23 of every dollar towards local retail sales. In order to obtain the figures in Table 6, the local retail sales capture ratio is multiplied by total income for each respective sector, which is located in Table 5. For example, pharmacies generate a total of \$1,744,558 of income, which results in a retail sales estimate of \$397,768 (.23 * \$1,744,558). 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 within Piatt County. In addition to its impact upon employment and income, the health care sector attracts over \$3,800,000 in annual retail payments. While this total retail sales figure is impressive, the \$38,375 of tax revenue produced for the county further punctuates the retail sales impact of the health care industry.

Conclusion

The Piatt County health care system offers a wide range of services capable of meeting the medical needs of Piatt County residents. Not only does this system contribute to the health of residents, but the health care system also plays an additional and equally important role in maintaining a healthy economy. Currently, the health care service sector, excluding pharmacies, acts as the third largest sector in terms of employment and the ninth largest sector in terms of total output (IMPLAN, 1999). Thus, health care providers have the ability to provide for the medical and economic needs of the community. Additionally, this study displays that health care’s impact within the com-

munity is not relegated to its direct economic activity. As a result of the interconnected nature of the economy, employment and income created in the health care sector generate additional jobs and income. Furthermore, the presence of a comprehensive health care system, and the related enhancements to quality of life, will play a key role in Piatt County’s ability to attract and retain retail and production based industries.

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Notes

- ¹Comparison counties from surrounding states were
chosen based upon population, rural designation,
and the presence of a local hospital.