

# **Measuring the Impact of the Health Care Sector on a Local Economy:**

## **Perry County, Mississippi**

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**Measuring the Impact of the Health Sector on a Local Economy:  
Perry County, Mississippi**

**Introduction**

Communities often overlook the economic influence of the health care sector on their economies. Hospitals, nursing homes, physicians, dentists, pharmacies, home health agencies and ambulance services are just a few of the providers that make up the health care sector. In a rural community, this particular sector generally represents a proportionally larger share of the local economy than it does in urban areas, with the rural hospital typically being one of the largest employers in the area.

The health care industry is changing not only in urban areas but also in rural areas due to policy- and market-driven forces (Ormand et al.). With the passing of the Balanced Budget Act of 1997, Medicare and Medicaid payments to small rural hospitals are often inadequate to maintain the financial health of those institutions. The higher proportion of an elderly population in rural areas with chronic conditions makes it difficult for a variety of health care providers to achieve a patient mix that is needed to offset the costs of high use among a few. This situation could trigger a reduction in services, the decision to not serve certain types of patients, or the closing of a particular health care entity.

Closure of a rural hospital, for example, can represent a serious threat not only to the health but also to the economic well-being of the community. The availability of quality health care is critical to long-term economic development in rural communities (Doeksen et al.). Employers looking for a place to establish a new business choose to locate in an area that has good education and health care systems already in place. Attracting retirees to a community is

also more successful when there are quality health care providers available locally to meet their demand for services.

The demographic and socioeconomic composition found in rural communities can influence the demand placed on the health care delivery system. The types of services demanded and those supplied may vary between communities based on demographic factors and the availability of quality health care providers.

This report was developed by a team of economists working on a project called Rural Health Works in Mississippi. The following sections will address selected demographics and the health statistics of the county population along with the economic importance of the health care sector to the Perry County economy.

### **Health Care Expenditures in Mississippi**

Consistent with national trends, data in Table 1 show that health care expenditures in Mississippi have more than doubled during the past two decades, growing from \$1.4 billion in 1980 to \$3.6 billion in 1999. Of particular importance is the fact that health care services represent a growing component of the state's economy as well. In 1980, health care expenditures accounted for only 3.23% of Mississippi's gross state product, but by 1999 this figure had increased to 5.60%. This represents an average annual growth rate (in real dollars) for health care services of about 5% over the twenty-year period, which is greater than the average annual growth rate of about 2% for the total gross state product during the same period.

As shown in Table 2, growth in personal health care spending in Mississippi averages 5.31% from 1980 to 1998, increasing from nearly \$3.5 billion in 1980 to \$8.8 billion in 1998 (in real dollars). The major components of personal health care spending include hospital care,

**Table 1. Gross State Product (GSP) and Health Services Component of GSP  
Mississippi, 1980-1999**

Year	Total Gross State Product (millions of current \$)	Health Services	Total Gross State Product (millions of 1999 \$ <sup>1</sup> )	Health Services	Health Services as a Percent of GSP (%)
1980	21,532	696	43,534	1,407	3.23
1981	24,203	800	44,359	1,466	3.31
1982	24,857	902	42,914	1,557	3.63
1983	26,190	966	43,808	1,616	3.69
1984	29,246	1,051	46,895	1,685	3.59
1985	30,669	1,105	47,486	1,711	3.60
1986	31,438	1,186	47,788	1,803	3.77
1987	33,844	1,352	49,634	1,983	3.99
1988	36,022	1,468	50,729	2,067	4.08
1989	37,657	1,618	50,594	2,174	4.30
1990	39,175	1,829	49,935	2,331	4.67
1991	41,311	2,051	50,532	2,509	4.96
1992	44,222	2,304	52,512	2,736	5.21
1993	47,384	2,412	54,631	2,781	5.09
1994	51,358	2,685	57,734	3,018	5.23
1995	54,562	2,942	59,646	3,216	5.39
1996	56,575	3,267	60,073	3,469	5.77
1997	58,743	3,483	60,976	3,615	5.93
1998	61,417	3,547	62,773	3,625	5.78
1999	64,286	3,603	64,286	3,603	5.60
Average Annual Percentage Growth	5.93	9.04	2.07	5.07	

<sup>1</sup> The CPI-U (1982-84=100) for the U.S. was adjusted to make 1999 the base year and this index was used to deflate nominal dollar values.

Source: Compiled from Bureau of Economic Analysis, Regional Accounts Data.

**Table 2. Personal Health Care Spending, Mississippi, Selected Years, 1980-1998**

Health Care Category	Average Annual Percentage Growth (%)	1980	1985	1990	1995	1998
		(millions of 1998 \$ <sup>1</sup> )				
Hospital Care	4.59	1,715	2,163	2,727	3,709	3,848
Physician & Other Professional Services	6.31	736	1,029	1,462	1,874	2,212
Prescription Drugs	7.08	281	362	510	686	962
Nursing Home Care	5.43	265	291	387	557	687
Dental Services	3.93	158	180	216	281	317
Home Health Care	10.90	45	85	178	348	293
Nonprescription Drugs and Other Medical Nondurables	2.38	170	212	236	249	260
Other Personal Health Care	4.91	89	86	112	173	211
Vision Products & Other Medical Durables	4.31	44	52	70	87	93
<b>Total Spending</b>	<b>5.31</b>	<b>3,499</b>	<b>4,458</b>	<b>5,898</b>	<b>7,965</b>	<b>8,882</b>

<sup>1</sup> The CPI-U (1982-84=100) for the U.S. was adjusted to make 1998 the base year and this index was used to deflate nominal dollar values.

Source: Compiled from data obtained from the Health Care Financing Administration

physician and other professionals, prescription drugs, and home health services. The data in Table 2 show more money was spent on home health care than any other health category, averaging 10.9% growth during the period. Prescription drugs and physician and other professional services ranked second and third with annual growth rates of 7.08% and 6.51% respectively. Table 3 contains similar data for the same time period; however, it reflects per capita expenditures on health care. The trends in growth of the health care sector and expenditures are similar and there is no evidence that these trends will change in the future, given advances in medical technology and the increasing life span of the population.

**Table 3. Personal Health Care Spending Per Capita, Mississippi, Selected Years, 1980-1998**

Health Care Category	Average Annual Percentage Growth (%)	1980	1985	1990	1995	1998
				(1998 \$ <sup>1</sup> )		
Hospital Care	4.08	680	836	1,058	1,379	1,398
Physician & Other Professional Services	5.79	292	397	567	697	804
Prescription Drugs	6.56	111	140	198	255	350
Nursing Home Care	4.92	105	112	150	207	250
Dental Services	3.43	63	70	84	105	115
Home Health Care	10.36	18	33	69	129	106
Nonprescription Drugs and Other Medical Nondurables	1.89	67	82	91	93	94
Other Personal Health Care	4.40	35	33	44	64	77
Vision Products & Other Medical Durables	3.80	17	20	27	32	34
<b>Total Spending</b>	<b>4.80</b>	<b>1,388</b>	<b>1,723</b>	<b>2,289</b>	<b>2,961</b>	<b>3,228</b>

<sup>1</sup> The CPI-U (1982-84=100) for the U.S. was adjusted to make 1998 the base year and this index was used to deflate nominal dollar values.

Source: Compiled from data obtained from the Health Care Financing Administration

### Potential Demand for Health Care

People require different types of health care equipment (goods) and services, some of which may not be available locally. The amount of spending on different types of health care services retained within a local economy depends on a diverse set of factors. The size and types of health care businesses located within the community will have an impact on the welfare of the residents as well as the local economy. For purposes of this study, a business that produces or sells health care goods or services is defined as being a local provider if it is located inside the county. In general, people would prefer to make their purchases from local providers due to savings in travel expenses and time. However, residents will seek businesses located outside the

county if there are no local providers for a particular type of service. Therefore, it is in the best interest of the residents as well as the local economy to maintain a viable health care sector within the county.

As shown previously in Table 3, the average annual per capita expenditure on health care in Mississippi in 1998 was \$3,228. If Perry County's 12,138 residents (U.S. Census Bureau, 2000) spent this average amount, more than \$39 million would have been spent for health care services in the county. The first column in Table 4 presents Mississippi per capita expenditures by major health care categories in 1998. The second column contains estimated shares of each type of health care service that local businesses could provide if these businesses existed. Explanations of these estimated percentages are provided in Appendix A. The third column is the product of the first column multiplied by the second column. Multiplying the numbers in the local spending per capita column by 12,138 provides estimates of potential local spending (primary health care) in Perry County. The total spending potential is estimated to be \$28.1 million per year. The actual amount of spending could be greater than or less than this value depending on the type, size and quality of local providers in Perry County.

By comparing the potential local expenditures with actual local spending, the opportunity to expand local health care services may be assessed. For example, an existing hospital will generate a certain amount of revenue every year. If this figure is below the potential value, there may be room to expand hospital services and retain more dollars within the local economy. Knowledge of where residents actually acquire various health care services will also be useful in determining whether the county has potential for growth. If residents are leaving the county in search of adequate care, then there may be a potential to expand locally. However, any business

must have a reliable consumer base of a certain size in order to remain viable. The size of the consumer base is dependent on population demographics within the county and possibly in nearby counties.

County-level data may help identify important aspects of the local economy and potential impacts from the health care sector. The following sections present various types of information for Perry County and the state.

**Table 4. Estimated Potential Local Spending for Health Care in Perry County**

Health Care Category	Mississippi Spending Per Capita	Percent Local Spending	Local Spending Per Capita	Potential Local Spending
Hospital Care	\$1,398	61%	\$853	\$10,353,714
Physician & Other Professional Services	\$804	75%	\$603	\$7,319,214
Prescription Drugs	\$350	75%	\$263	\$3,192,294
Nursing Home Care	\$250	100%	\$250	\$3,034,500
Dental Services	\$115	75%	\$86	\$1,043,868
Home Health Care	\$106	100%	\$106	\$1,286,628
Non-Prescription Drugs and Other Medical Non-Durables	\$94	75%	\$71	\$861,798
Other Personal Health Care	\$77	75%	\$58	\$704,004
Vision Products and Other Medical Durables	\$34	75%	\$26	\$315,588
<b>Total Spending</b>	<b>\$3,228</b>	<b>72%</b>	<b>\$2,316</b>	<b>\$28,111,608</b>

<sup>1</sup> Footnotes explaining "Percent Local Spending" for each category are presented in Appendix A

## Demographics

Population information detailing historical growth and future projections, population density, current age distribution, and household information for Perry County and Mississippi are presented in Table 5. Between 1990 and 2000, Mississippi's population increased 10.5 percent and Perry County experienced an increase of 11.7 percent. Perry County, with about 19 persons per square mile, has much less than one half of the population density as Mississippi (60 persons

per square mile), indicating its extremely rural nature. The county's older residents represent 11.0 percent of the population, which is almost the same as state, with 12.0 percent of its total population aged 65 and older. Population in Perry County is projected through 2025 to increase by nearly 12 percent while the state's population is projected to increase by 18 percent. The number of residents in the 65 and over category is expected to increase by an amazing 93 percent in the county and by only 73 percent in the state.

According to the 2000 Census, the population of Perry County was 76.2 percent white and 61.4 percent non-white. These numbers are quite different than those of the state. The percentage of high school graduates in the county is slightly lower (47.3%) than that of the state (49.5%), as was the percentage of college graduates in the county (8.4%) lower than the state(14.7%). (NOTE: The high school and college graduate information is from the 1990 US Census population and is the most recent data available; educational attainment levels may actually be higher or lower at the time of this writing).

### **Economic Indicators**

Data presented in Table 6 give general observations of economic activity in Perry County and Mississippi. The county's annual personal income is more than \$170 million, providing slightly more than \$14,000 of annual income per person (about \$6,500 less than the state average). The median household income in Perry County is \$24,328 about \$4,200 lower than the state income value (\$28,527) and the county's poverty rate at 19.2 percent is slightly higher than the state's rate (18.1%).

The civilian labor force in the county is almost 4,412 with about 816 people employed by governments, and 301 unemployed (1999 US Census Bureau MapStats). All types of local enterprises generate 3,881 jobs. Persons employed in non-farm, private sector jobs total about

2,044. This indicator has increased by 27.2 percent since 1990, and is very close to the state (30%). Average earnings per job are slightly more than \$24,000 per year compared to about \$23,750 for the state.

**Table 5. Selected Demographic Data for Perry County and Mississippi**

Item	County	State
Population, 2000	12,138	2,844,658
Population, percent change, 1990 to 2000	11.7%	10.5%
Persons per square mile, 2000	18.8	60.6
Populations by age, percent of total, 2000		
Under 20 years	31.8%	30.7%
20 to 64 years	57.2%	57.3%
65 years and over	11.0%	12.0%
Population projection, percent change to 2025		
Total population	11.9%	18.2%
65 years and over	93.53%	73.3%
Race:		
White	76.2%	61.4%
Non-white	23.8%	38.6%
Persons over 25 graduating from high school, 1990	47.3%	49.5%
Persons over 25 graduating from college, 1990	8.4%	14.7%
Households, 2000	4,420	1,046,434
Median Household money income, 1997	\$24,328	\$28,527
Persons below poverty, % 1997	19.2%	18.1%

Sources: US Census Bureau, Profile of General Demographic Characteristics: 2000 US Census Bureau, MapStats; Woods and Poole Economics, Inc

**Table 6. Selected Economic Data for Perry County and Mississippi**

Item	County	State
Personal Income, 1999 (\$1,000)	\$170,571	\$57,272,226
Personal Income per capita, 1999	\$14,168	\$20,686
Civilian Labor Force, 1999	4,412	1,269,955
Unemployment, 1999	301	64,666
Full-time and part-time employment by place of work, 1999	3,881	1,493,441
Employment in government, 1997	816	253,888
Local government employment, full-time equivalent, 1997	1,398	122,256
Private non-farm employment, 1998	2,044	937,023
Private non-farm employment, percent change 1990 to 1998	27.2%	29.6%
Average earnings per job, 1997	\$24,261	\$23,388
Private non-farm establishments with paid employees, 1999	152	59,771
Private non-farm establishments with less than 20 employees, 1999	135	51,949
Non-employer establishments, 1997	551	121,668
Retail sales, 1997 (\$1,000)	\$29,395	\$10,124,822
Retail sales per capita, 1997	\$2,478	\$7,605

Sources: Profile of General Demographic Characteristics, 2000, Woods and Poole Economics, Inc.; US Census Bureau MapStats

There are 152 private non-farm establishments, but 135 of these have less than 20 employees. There are 551 businesses, which do not have any paid employees (proprietorships). Retail sales in the county were more than \$29.3 million in 1997. This is about \$2,480 per person but is about \$5,127 below the state average.

Table 7 shows types of employment in Perry County and the state. Manufacturing (28.6%), retail trade (12.1%) and services (11.9%) were the three leading employment sectors in

1999. Most health care jobs are included in the services sector, while sales of drugs and other medical durables and non-durables would be included in the retail trade sector.

**Table 7. Employment by Industry in Perry County and Mississippi, 1999**

Industry	County	Percent of County	State	Percent of State
Farm Employment	301	7.8%	55,203	3.7%
Ag. Services, Forestry, Fishing	66	1.7%	19,256	1.3%
Mining	(D)		8,101	0.5%
Construction	288	7.4%	84,954	5.7%
Manufacturing	1111	28.6%	250,824	16.8%
Transportation/Public Utilities	146	3.8%	67,269	4.5%
Wholesale Trade	(D)		51,052	3.4%
Retail Trade	471	12.1%	244,023	16.3%
Finance, Insurance, Real Estate Services	121	3.1%	76,283	5.1%
	463	11.9%	371,730	24.9%
Government				0.0%
Federal Civilian	25	0.6%	26,033	1.7%
Federal Military	80	2.1%	35,129	2.4%
State	22	0.6%	62,085	4.2%
Local	712	18.3%	141,499	9.5%
Total Employment	3881	100.0%	1,493,441	100.0%

Source: Bureau of Economic Analysis, Regional Accounts Data

(D) Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

A more detailed view of personal income sources is presented in Table 8. The data indicate that 58.9 percent of total personal income came from total earnings (adjusted to place of residence) with transfer payments contributing 27.6 percent. Other data show that 76.0 percent of the total earnings that originate in employment within the county are from wages and salaries. Finally, 40.3 percent of transfer payments were made for retirement/disability while 34.7 percent were made for medical purposes. Incidentally, during fiscal year 2001, the state's Division of

Medicaid paid providers in Perry County a total of \$9,526,458 or 0.4% of the state total of \$2.089 billion for services rendered to patients with Medicaid as their health insurance carrier.

**Table 8. Personal Income Sources for Perry County, and Mississippi, 1999**

Source	County Total (\$1,000)	County Percent	State Percent
Total Personal Income <sup>1</sup>	\$170,571		
Earnings by Place of Residence <sup>2</sup>	\$100,478	58.9%	64.9%
Transfer Payments	\$47,155	27.6%	18.6%
 Total Earnings <sup>3</sup>	 \$94,671		
Wages and Salaries	\$71,937	76.0%	78.1%
Proprietors Income	\$13,440	14.2%	11.7%
Other Labor Income	\$9,294	9.8%	10.3%
 Transfer Payments	 \$47,155		
Retirement and Disability	\$18,993	40.3%	37.4%
Medical Payments	\$16,342	34.7%	38.6%
Other	\$11,820	25.1%	23.9%

<sup>1</sup> Definitions are in Appendix B, Glossary of Terms

<sup>2</sup> Total earnings adjusted to reflect earnings by place of residence

<sup>3</sup> Total earnings by place of work.

Source: Bureau of Economics Analysis (1999 Data)

### **Health Care Availability and Utilization**

Health care resources are summarized in Table 9. These statistics demonstrate the availability of physicians and other selected health care services in the county. The rate of health care service providers in Perry County was lower than the state in most categories.

**Table 9. Availability of Selected Medical Providers in Perry County**

Provider Type	County Number	County Rate/1000	State Rate/1000
Hospitals (2000)	1		
Licensed Hospital Beds	32	2.7	4.2
Nursing Home (2001)	1		
Beds	75	6.3	6.2
Health Care Practitioners: (2001)			
M.D.s	4	0.3	2.0
Family Practice	2	0.2	0.2
Internal Medicine	1	0.1	0.3
Other	1	0.1	1.4
Dentists	3	0.3	0.4
Nurse Practitioners	1	0.1	0.5
Emergency Medical Personnel (2001)			
EMT Basics & Intermediates	2	0.2	0.6
Paramedics	1	0.1	0.4

Note: Rate per 1000 based on 2000 Census Bureau county population data.  
Sources: Mississippi State Department of Health, Division of Health Facilities Licensure & Certification; Mississippi State Department of Health, Emergency Medical Services Division; Mississippi State Board of Medical Licensure; Mississippi State Board of Nursing; Mississippi State Board of Dental Examiners; Mississippi Medical Association

### **Hospital Utilization**

Fifty-five of Mississippi's eighty-two counties have only one hospital and 9 counties do not have any hospitals. The other eighteen counties have two or more hospitals. Perry County has one hospital. There are six Mississippi counties that border Perry, four of which have one hospital each and the remaining two counties have no hospital. There are a total of 955 hospital beds in these surrounding counties with 537 of them in one county, 285 in another,

while Perry County General Hospital has 22 licensed beds. Table 10 contains data showing where county residents go to receive hospital care (out-flow). About 88 percent of

**Table 10. Hospital Discharge of Perry County Residents by Hospital**

Name of Hospital	Number <sup>1</sup>	Percent
Forrest General Hospital	226	68.5%
<b>Perry Co. General Hospital</b>	40	12.1%
Wesley Medical Center	38	11.5%
University Medical Center	8	2.4%
MS Baptist Medical Center	3	0.9%
South Central Regional Medical Center	2	0.6%
George Co. Hospital	2	0.6%
Singing River Hospital	2	0.6%
Wayne General Hospital	2	0.6%
Prentiss Regional Hospital	1	0.3%
Garden Park Community Hospital	1	0.3%
South West MS Regional Medical Center	1	0.3%
Laird Hospital	1	0.3%
St. Dominic Hospital	1	0.3%
Central MS Medical Center	1	0.3%
Rankin Medical Center	1	0.3%
<b>Total</b>	<b>330</b>	<b>100.0%</b>

<sup>1</sup> Aggregate Patient Origin Study, data collected during four 2-week periods from October 2000-July 2001.

Source: Mississippi Office of Rural Health

Perry County residents obtained some form of hospital care outside the county during the time period studied. Data in Table 11 show the county of residence of patients receiving care from the local hospital (in-flow). Perry County Hospital had approximately 72.7 percent of its patients from Perry County and 18 percent from Greene County during the time period being studied. In Table 11A, the patient mix of the local hospital during the selected time period being studied shows that more than 42 percent of the patients discharged were covered by Medicare,

36 percent were covered by Medicaid, and nearly 12 percent had commercial insurance or Blue Cross coverage.

**Table. 11 Discharges by Hospital by County of Residence**

Perry County General Hospital	Frequency <sup>1</sup>	Percent
Perry County	40	72.73%
Green County	10	18.18%
Jones County	4	7.27%
Lamar County	1	1.82%
Total	55	100.00%

<sup>1</sup> Aggregate Patient Origin Study, data collected during four 2-week periods from October 2000-July 2001.

Source: Mississippi Office of Rural Health

**Table 11A. Discharges by Hospital by Insurance Type**

Perry County General Hospital	Number of Discharges	Percent of Total
Medicare	176	42.00%
Medicaid	153	36.52%
Commercial	26	6.21%
Blue Cross	22	5.25%
Unknown	22	5.25%
Self Pay	19	4.53%
Other Government	1	0.24%
Total	419	100.00%

<sup>1</sup> Aggregate Patient Origin Study, data collected during four 2-week periods from April 2001- January 2002.

Source: Mississippi Office of Rural Health

### Discharge Diagnoses

Data was obtained from the Mississippi State Office of Rural Health of Perry County General Hospital's patient discharge diagnoses during four, 2-week study periods between October 2000 and July 2001. Diagnoses during that time showed that 25 percent were for

circulatory problems, which includes all types of heart diseases (hypertension, heart attacks, arteriosclerosis, etc.), 20 percent were for respiratory diseases, 5 percent each for mental, endocrine (diabetes mellitus, thyroid and other metabolic diseases) and infectious diseases. This data is somewhat consistent to the diagnoses of county residents that sought hospital care outside the county during the same time period, which is shown below.

Table 12 shows the most common discharge diagnoses for residents of Perry County who were hospitalized *at any hospital in the state* during the same study period as mentioned above: 25 percent were for respiratory diseases, 20 percent for circulatory diseases, 9 percent each for endocrine and mental disorders.

**Table 12. Discharge Diagnosis of Perry County Residents From Hospitals in Mississippi (Four 2-week Periods Oct 00-July 01)**

Disease Group	Number <sup>1</sup>	Percent
Respiratory	14	25.45%
Circulatory	11	20.00%
Endocrine, Immun	5	9.09%
Mental Disorders	5	9.09%
Digestive	4	7.27%
Genitourinary	3	5.45%
Musculoskeletal	2	3.64%
Injury/Poisoning	1	1.82%
Pregnancy, childbirth	0	0.00%
Live newborns	0	0.00%
All other categories	10	18.18%
TOTAL	55	100.00%

<sup>1</sup> Aggregate Patient Origin Study, data collected during four 2-week periods from October 2000-July 2001.

Source: Mississippi Office of Rural Health

Information concerning hospital admissions, Medicare and Medicaid enrollment, and selected birth and death statistics are detailed in Table 13. Perry County General Hospital

had 388 discharges for FYE 2000. The county had a slightly lower percentage of residents enrolled in Medicare than the state; however, the county's Medicaid statistics were slightly higher than the state's values. These Medicaid values are consistent with the slightly higher population of residents in Perry County living at or below the poverty level (19.2%) as compared to the state's poverty level (18.1%). The rate of infant mortality was much less than the state's rate, and the percentage of births to unmarried mothers in the county (38.2%) was only lower than the state (46%); the teenage pregnancy rate in the county was higher (46.4) than the state's rate (42.9).

**Table 13. Health Status and Health Indicators for Perry County and Mississippi**

Status or Indicator <sup>1</sup>	County Number	County Percent/Rate	State Percent/Rate <sup>4</sup>
Hospital Discharges	388	3.2%	N/A
Medicare Enrollment (98)			
Aged (65 and over)	1,192	9.9%	11.5%
Disabled (Under 65)	395	3.3%	2.9%
Medicaid Eligible (2000)	2,722	22.6%	19.5%
Infant Mortality (1996-2000) <sup>2</sup>	2	6.3	10.5
Live Births to Unmarried Mothers	68	38.2%	46%
Teenage Pregnancy (2000) <sup>3</sup>	44	46.4	42.9

<sup>1</sup> Definitions are in Appendix B, Glossary of Terms

<sup>2</sup> Number represents total resident live births and deaths for 2000; county rate displayed as average annual rate per 1,000 live births

<sup>3</sup> Number represents total resident live births to mothers age 12-19 for 2000; county rate displayed as births per 1,000 females (age 12-19)

<sup>4</sup> State rates are age-adjusted to year 2000 standard; per 100,000 population

Sources: Mississippi State Department of Health, Vital Statistics (2000); Department of Health and Human Services, Division of Medicaid (2000); Health Care Financing Administration (1998)

Table 14 contains the eleven most common causes of death among Perry County residents in 2000. Cardiovascular disease, cancer, accidents and chronic lung diseases and pneumonia &/or influenza were the top five reasons for death among county residents. This data is consistent with state rates for the five most common causes of death.

**Table 14. Death Rates from Selected Causes for Perry County**

Causes of Death	Perry County		State of Mississippi	
	Number <sup>1</sup>	Rate <sup>2</sup>	Number <sup>1</sup>	Rate <sup>2</sup>
Cardiovascular Diseases *	56	461.4	11,792	414.5
All Types of Cancer	32	263.6	6,080	213.0
Accidents (all types)	10	82.4	1,119	58.1
Chronic Lung Diseases	10	82.4	1,303	45.8
Pneumonia & Influenza	10	82.4	804	28.3
Diabetes Mellitus	9	74.1	670	23.6
Automobile Accidents	6	49.4	613	32.9
Liver Diseases	2	16.5	246	8.6
Homicide	2	16.5	215	11.0
Kidney Diseases	1	8.2	612	21.5
Suicide	0	0	291	10.2

<sup>1</sup> Numbers are total deaths per 1,000 population

<sup>2</sup> Rates are per 100,000 population

\* Includes hypertension, cerebrovascular diseases and atherosclerosis

Source: Mississippi State Department of Health, Vital Statistics, 2000

### **Health Care Sector Economic Impacts**

Businesses generate direct impacts on local economies by providing employment for residents (and possibly non-residents) and income to the employees. In addition, these businesses may purchase goods and services from other businesses and may provide tax revenue to local, state, and federal governments. Business profits and employee income are then spent in

several different ways. Some spending is for goods and services provided by other local businesses, and some spending is “leaked” out of the county. These “indirect” impacts generated by a sector may be estimated with the help of an input-output model. Such a model was used to estimate the direct and indirect impacts of the health care sector for Perry County.

Table 15 reports the estimated impact of the local hospital on Perry County’s economy. The nature of operations at Perry County General Hospital consists of an acute care hospital, nursing home and home health agency organized as an enterprise (proprietary) operation. For this report, this enterprise will be referred to as the “hospital”. Based on 1999 IMPLAN model data and primary data gathered from FYE 9-30-2000 hospital financial reports, the county’s hospital provides 155 jobs and these jobs create the need for 16 additional local jobs.

**Table 15. Estimated Contribution of Perry County General Hospital<sup>1</sup> to the Perry County Economy**

Category	Unit of Measure	Initial Impact of Hospital	Additional Impact of Hospital	Total Impact of Hospital	Hospital County Total	Hospital as a Percent of Total
Employment	jobs	155	16	171	3,881	4.4%
Personal Income	\$	3,890,677	302,333	4,193,010	170,571,000	2.5%
Indirect Business Taxes <sup>2</sup>	\$	0	54,322	90,494	7,069,000	1.3%

<sup>1</sup>Perry County General Hospital includes a nursing home and home health agency

<sup>2</sup>Indirect business taxes include: sales taxes, property taxes, excise taxes, and other non-income taxes.

Source: Department of Agricultural Economics, Mississippi State University

Compiled from 1999 IMPLAN model supplemented with data obtained from Perry County General Hospital

Thus, Perry County Memorial Hospital generates an impact of 4.4% of the total county employment or 171 jobs. Likewise, the hospital creates more than \$3.8 million in personal income directly, and about \$302 thousand indirectly, for a total of 2.5% of the county’s income

(\$4.193 million). Indirect business taxes in the county of more than \$90 thousand are generated by the existing hospital as it creates secondary economic activity.

In Table 16, the last component of the health care sector (doctors & dentists) has been combined with the figures from the county hospital (see Table 15). This additional component employs 88 people resulting in a total of 243 people employed by the county's health care sector. Total payroll for the sector is estimated to be slightly more than \$5.88 million. The existing health care sector has a significant impact on employment and income throughout the other industries in Perry County. The total employment impact of Perry County's health care sector is an estimated 267 jobs that result in a total income of more than \$6.35 million or 6.9% of the total county employment being either directly or indirectly in the health care sector. Indirect business taxes attributed to the health care sector are approximately \$129 thousand or 1.8% of the total in the county.

**Table 16. Estimated Contribution of the Local Health Care Sector to the Perry County Economy**

Category	Unit of Measure	Initial Impact of Health Care Sector	Additional Impact of Health care Sector	Total Impact of Health Care Sector	County Total	Health Care as a Percent of Total
Employment	jobs	243	24	267	3,881	6.9%
Personal Income	\$	5,880,677	472,393	6,353,070	170,571,000	3.7%
Indirect Business Taxes <sup>1</sup>	\$	43,000	86,587	129,587	7,069,000	1.8%

<sup>1</sup>Indirect business taxes include: sales taxes, property taxes, excise taxes, and other non-income taxes.

Source: Department of Agricultural Economics, Mississippi State University.

Compiled from 1999 IMPLAN model supplemented with data obtained from Perry County General Hospital

## Summary and Conclusions

The economic influence of providing health care services is often overlooked when analyzing the local economy. Hospitals, nursing homes, physicians, dentists, pharmacies, home health agencies, and ambulance services are just a few of the providers that make up the health care sector. In a rural community, this particular sector generally represents a proportionally larger share of the local economy than it does in urban areas, with the rural hospital typically being one of the largest employers in the area. This report addresses selected demographics and the health status of the population and emphasizes the economic importance of the health care sector to the Perry County economy. The income and employment estimates for Perry County reinforce findings from similar research in other geographic areas.

Health care expenditures (in real dollars) in Mississippi have more than doubled during the past two decades, rising from \$1.4 billion in 1980 to \$3.6 billion in 1999. The economic value of health care as a percent of the state's gross product also increased from 3.23% in 1980 to 5.60% in 1999.

The demand for health care services within a geographical area is dependent upon several factors relating to socioeconomic and health status indicators. Some of these factors include the current age distribution, population density, and health status of county residents.

Health care services from a variety of providers located in Perry County are delivered to residents and non-residents alike. This creates substantial direct and indirect impacts on the local economy by providing residents (and possibly non-residents) with employment and income opportunities.

Financial interrelationships captured in an economic model indicate that the total impact (direct and indirect combined) of the hospital component of the health care sector in Perry

County results in the employment of 4.4% of the county's total workforce (171 jobs) and 2.5 % of the total earned personal income (\$4.19 million). When the other component of the health care sector was added to the hospital component, the impact on employment increases from 4.4% to 6.9% of the county's total workforce being employed either directly in or indirectly because of the health care sector. These additional impacts cause personal income to increase from \$4.19 million or 2.5% to more than \$6.35 million or 3.7 % of the county's total income. Indirect business taxes are affected in a similar manner, increasing from 1.3% to 1.8% of the county's total.

The results of research conducted on the Rural Health Works in Mississippi project quantify the importance of the health care sector in a rural economy. The economic viability of a community can depend on a strong and growing health care sector. The local health care sector can then be viewed as an economic development engine.

Comprehensive health care planning is essential to develop the strongest health care sector that efficiently and effectively meets local needs. A community can use the economic impact information provided in this report to stimulate community interest in comprehensive health care planning to answer questions such as the following. What health care services are needed and feasible in our community? What changes are needed in our existing health care sector? This can best be accomplished with an open community planning process that includes a cross section of community residents, health care providers and members of the business community. Technical assistance can be obtained from Land Grant Universities or Offices of Rural Health. Comprehensive reports such as this one completed for other counties in Mississippi with hospitals eligible for Critical Access designation can be found on the Internet at: [http://msucares.com/health/health/rh\\_economics.html](http://msucares.com/health/health/rh_economics.html).

**Appendix A**  
**Footnotes for Table 4**

1. This estimate is an extrapolation from Kentucky's experience. Kentucky's Medicaid program offers a wider range of services than required by Medicaid. To restrain Medicaid cost increases, Kentucky established a primary care gatekeeper program several years ago. This program is thought to have an impact with respect to appropriate utilization of care, but is not felt to be fully effective. Kentucky Medicaid eligible may use health care differently than individuals insured through commercial insurance plans. A 1996 study compared local to non-local use by 300,500 Medicaid eligible people who reside in 49 rural counties in Southeast Kentucky. The aggregate of the 49 counties retained 61% of all hospital expenditures. Measuring by expenditure is important, particularly in hospital care, because tertiary care is far more expensive. This percent was applied to Table 4.
2. The federal Bureau of Primary Health Care (BPHC) required that applicants for Community/Migrant Health Centers (C/MHC) grants (330 clinics) develop a needs assessment to justify staffing of the clinic with physicians, midlevels, dentists, optometrists, pharmacists, and other providers. To help support the needs assessment and assure consistency in needs assessment assumptions, BPHC provided a formula, based on age and sex of the service area population that derived the total number of all ambulatory care visits. The formula estimates that 75% of all ambulatory care visits would be to primary care physicians. Note that these estimates use visits as the denominator. The BPHC rate was applied here.
3. Home health care is low technology care and can easily be offered by rural-based providers.
4. Nursing home care is low technology care, yet very expensive. In Kentucky, the average annual cost per patient excluding physician services and drugs is \$35,000 per patient year. Nursing home costs may vary significantly by state. Nursing home care can easily be provided in any rural community.

## **Appendix B Glossary of Terms**

The Rural Health Works in Mississippi research team recommended that a glossary be included at the end of this county report. The team will review this list and add or delete terms as needed. Some definitions were adapted from the report entitled “The Importance of the Health Care Sector on the Economy of Atoka County, Oklahoma”, Doeksen et al, Oklahoma Cooperative Extension Service at Oklahoma State University.

**Balanced Budget Act (BBA):** Signed in 1997 by President Clinton, this omnibus legislative package was primarily intended to balance the federal budget by 2002. This legislation contains major Medicare and Medicaid reforms, and a number of key rural health provisions.

**Gross state product (GSP):** The total output of goods and services produced by labor and property located within the state being considered

**Medicaid:** State administered program, funded by state and federal governments, which provides medical assistance to persons meeting local income and other eligibility criteria

**Medicare:** Federal national insurance program which covers certain health services for persons over age 65 and other selected eligible persons.

**Personal income:** Income received by individuals from all sources.

**Poverty rate:** Percent of individuals who live at or below the federal poverty level. In 1998, the federal poverty level of a family of four was \$16,450.

**Primary care physicians:** Generally refers to family physicians, general practitioners, obstetricians and gynecologists, and general internists. Primary care physicians provide the first level of comprehensive health care.

**Teenage pregnancy:** Live births and reportable spontaneous fetal deaths and induced terminations to mothers less than 20 years of age.

**Transfer dollars:** Dollars flowing to individuals in the community as income or income subsidy from state or federal sources, such as government payments for health care (Medicare and Medicaid), supplemental security income (SSI), social security and other retirement income, and TAN-F (Temporary Assistance for Needy Families).

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