

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

## **Pearl River County, Mississippi**

Report Prepared by:

L. Suzanne Berry, Agricultural Economics Research Associate  
Stan Spurlock, Agricultural Economist  
Mississippi State University Department of Agricultural Economics

Report Prepared for:

Mississippi State Department of Health  
Office of Rural Health, David Lightwine, Regional Director

Mississippi Hospital Association  
Mendal Kemp, Rural Health Flexibility Coordinator

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

### **Pearl River 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 Pearl River 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 Pearl River County's 48,621 residents (U.S. Census Bureau, 2000) spent this average amount, more than \$156.9 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 48,621 provides estimates of potential local spending (primary health care) in Pearl River County. The total spending potential is estimated to be more than \$112.6 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 Pearl River County.

By comparing the potential local expenditures with actual local spending, the opportunity to expand local health care services may be assessed. For example, existing hospitals 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

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

Health Care Category	Mississippi Spending Per Capita	Percent Local Spending	Local Spending Per Capita	Potential Local Spending
Hospital Care	\$1,398	61%	\$853	\$41,473,713
Physician & Other Professional Services	\$804	75%	\$603	\$29,318,463
Prescription Drugs	\$350	75%	\$263	\$12,787,323
Nursing Home Care	\$250	100%	\$250	\$12,155,250
Dental Services	\$115	75%	\$86	\$4,181,406
Home Health Care	\$106	100%	\$106	\$5,153,826
Non-Prescription Drugs and Other Medical Non-Durables	\$94	75%	\$71	\$3,452,091
Other Personal Health Care	\$77	75%	\$58	\$2,820,018
Vision Products and Other Medical Durables	\$34	75%	\$26	\$1,264,146
<b>Total Spending</b>	<b>\$3,228</b>	<b>72%</b>	<b>\$2,316</b>	<b>\$112,606,236</b>

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

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 Pearl River County and the state.

## **Demographics**

Population information detailing historical growth and future projections, population density, current age distribution, and household information for Pearl River County and Mississippi are presented in Table 5. Between 1990 and 2000, Mississippi's population increased 10.5 percent and Pearl River County also experienced an increase of 25.6 percent. Pearl River County has a population density of 60.0 persons per square mile, which is nearly the same as the state with 60.6 persons per square mile. The county's older residents represent almost the same proportion of its total population as the state as a whole. Population in Pearl River County is projected through 2025 to increase by 32.7 percent while the state's population is projected to only increase by 18 percent. The number of residents in the 65 and over category, however, is expected to increase by 122.6 percent in the county (from 5,530 persons to 12,310 persons) and by more than 73 percent in the state.

According to the 2000 Census, the population of Pearl River County was 85.6 percent white and 14.4 percent non-white. These numbers are vastly different than those of the state. The percentage of high school graduates in the county (57.0%) is higher than that of the state (49.5%), but the percentage of college graduates is less in the county (11.4%) than in the state (14.7%).

## **Economic Indicators**

Data presented in Table 6 give general observations of economic activity in Pearl River County and Mississippi. In 1999, the county's annual personal income was more than \$798 million, providing slightly more than \$17,000 of annual income per person, which is about \$3,300 less than the state average of \$20,686. The median household income in Pearl River

County is \$27,091 about 5 percent lower than the state's income value (\$28, 527) and the county's poverty rate at 17.5% percent is slightly lower than the state's (18.1%). The civilian labor force in the county is 19,869 with about 2,700 people employed by the state and local governments. All types of local enterprises generate 14,300 jobs. Persons employed in non-farm, private sector jobs total about 7,937. This indicator has increased by 53.2 percent since 1990, and is 22 percent higher than the state. Average earnings per job are \$17,300 per year compared to \$23,388 for the state.

**Table 5. Selected Demographic Data for Pearl River County and Mississippi**

Item	County	State
Population, 2000	48,621	2,844,658
Population, percent change, 1990 to 2000	25.6%	10.5%
Persons per square mile, 2000	60.0	60.6
Populations by age, percent of total, 2000		
Under 20 years	30.2%	30.7%
20 to 64 years	57.1%	57.3%
65 years and over	12.6%	12.0%
Population projection, percent change to 2025		
Total population	32.7%	18.2%
65 years and over	122.6%	73.3%
Race: White		
Non-white	14.4%	38.6%
Persons over 25 graduating from high school, 1990	57.0%	49.5%
Persons over 25 graduating from college, 1990	11.4%	14.7%
Households, 2000	18,078	1,046,434
Median Household money income, 1997	\$27,091	\$28,527
Persons below poverty, % 1997	17.5%	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 Pearl River County and Mississippi**

Item	County	State
Personal Income, 1999 (\$1,000)	\$798,159	\$57,272,226
Personal Income per capita, 1999	\$16,639	\$20,686
Civilian Labor Force, 1999	19,869	1,269,955
Unemployment, 1999	807	64,666
Full-time and part-time employment by place of work, 1997	14,300	1,425,691
Employment in government, 1997	2,703	253,888
Local government employment, full-time equivalent, 1997	1,821	122,256
Private nonfarm employment, 1999	7,937	948,883
Private nonfarm employment, percent change 1990 to 1999	53.2%	31.2%
Average earnings per job, 1997	\$17,300	\$23,388
Private nonfarm establishments with paid employees, 1999	776	59,834
Private nonfarm establishments with less than 20 employees, 1999	682	51,931
Nonemployer establishments, 1998	2,908	125,634
Retail sales, 1997 (\$1,000)	\$336,338	\$20,774,508
Retail sales per capita, 1997	\$7,367	\$7,605

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

There are 776 private non-farm establishments, but 682 of these have less than 20 employees. There are 2,908 non-employer establishments (proprietorships), which do not have any paid employees. Retail sales in the county were more than \$ 336.3 million in 1997. This is slightly more than \$7,367 per person per year and is very close to the state average of \$7,605.

Table 7 shows types of employment in Pearl River County and the state. Retail trade, services and local government 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.

A more detailed view of personal income sources is presented in Table 8. The data indicate that 60.4 percent of total personal income came from total earnings (adjusted to place of

**Table 7. Employment by Industry in Pearl River County and Mississippi, 2000**

Industry	County	Percent of County	State	Percent of State
Farm Employment	805	5.2%	55,203	3.7%
Ag. Services, Forestry, Fishing	(D)		19,256	1.3%
Mining	(D)		8,101	0.5%
Construction	1,516	9.8%	84,954	5.7%
Manufacturing	1,100	7.1%	250,824	16.8%
Transportation/Public Utilities	654	4.2%	67,269	4.5%
Wholesale Trade	419	2.7%	51,052	3.4%
Retail Trade	3,618	23.3%	244,023	16.3%
Finance, Insurance, Real Estate	819	5.3%	76,283	5.1%
Services	3,320	21.4%	371,730	24.9%
Government				
Federal Civilian	110	0.7%	26,033	1.7%
Federal Military	319	2.1%	35,129	2.4%
State	123	0.8%	62,085	4.2%
Local	2,413	15.6%	141,499	9.5%
Total Employment	15,502	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.

residence) with transfer payments contributing 23.7 percent. Other data show that 68.4 percent of the total earnings that originate in employment within the county are from wages and salaries. Finally, 42.3 percent of transfer payments were made for retirement/disability while 36.7 percent were made for medical purposes. An example of transfer payments would be the dollars Medicaid paid to healthcare goods and services' providers during fiscal year 2001. This amounted to more than \$28 million and represents 1.3% of the total amount paid (\$2.08 billion) to providers across the state during FY 2001.

**Table 8. Personal Income Sources for Pearl River County, and Mississippi, 2000**

Source	County Total	County Percent	State Percent
	(\$1,000)		
Total Personal Income <sup>1</sup>	\$798,159		
Earnings by Place of Residence <sup>2</sup>	\$482,447	60.4%	64.9%
Transfer Payments	\$189,535	23.7%	18.6%
 Total Earnings <sup>3</sup>	 \$286,780		
Wages and Salaries	\$196,117	68.4%	78.1%
Proprietors Income	\$63,519	22.1%	11.7%
Other Labor Income	\$27,144	9.5%	10.3%
 Transfer Payments	 \$189,535		
Retirement and Disability	\$80,253	42.3%	37.4%
Medical Payments	\$69,598	36.7%	38.6%
Other	\$39,684	20.9%	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 (2000 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 Pearl River County was much lower than the state in most categories, as was the rate for the county's hospital beds at 2.4 per 1,000 residents compared to

**Table 9. Availability of Selected Medical Providers in Pearl River County**

Provider Type	County Number	County Rate/1000	State Rate/1000
Hospitals (2000)	2		
Licensed Hospital Beds	119	2.4	4.2
Nursing Home (2001)	2		
Beds	186	3.8	6.2
Health Care Practitioners: (2001)			
M.D.s	46	0.9	2
Family Practice	10	0.2	0.2
Internal Medicine	7	0.1	0.3
Other	29	0.6	1.4
Dentists	12	0.2	0.4
Nurse Practitioners	7	0.1	0.5
Emergency Medical Personnel (2001)			
EMT Basics & Intermediates.	20	0.4	0.6
Paramedics	17	0.3	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

the state's rate of 4.2 beds per 1,000 residents. The rate of EMTs (including intermediates) was 0.4 per 1,000 residents, which is close to the state's rate of 0.6 per 1,000 residents.

### **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. Pearl River County has two hospitals. There are six Mississippi counties that border Pearl River, three of which have one hospital each; one county has two hospitals, one county has no hospital and the remaining county has six hospitals. There are a total of 1,958 licensed hospital beds in these surrounding counties and a total of 119 beds in Pearl River County.

Table 10 contains data showing where county residents go to receive hospital care (out-flow). L.O. Crosby Memorial Hospital operates 95 licensed beds and Pearl River County Hospital operates 24 licensed beds. About 41 percent of Pearl River County residents obtained some form of hospital care *outside* the county during the time period studied.

**Table 10. Hospital Discharge of Pearl River County Residents by Hospital**

Name of Hospital	Number <sup>1</sup>	Percent
<b>L.O. Crosby Memorial Hospital</b>	419	48.4%
Forrest General Hospital	197	22.7%
<b>Pearl River County Hospital</b>	92	10.6%
Wesley Medical Center	41	4.7%
Hancock Medical Center	34	3.9%
University Hospital and Clinics	18	2.1%
Memorial Hospital Gulfport	15	1.7%
MS State Hospital	9	1.0%
Garden Park Community Hospital	8	0.9%
Memorial Behavioral Health	6	0.7%
South MS State Hospital	6	0.7%
MS Baptist Medical Center	5	0.6%
MS Methodist Hospital and Rehab Center	3	0.3%
Gulf Coast Medical Center	2	0.2%
Select Specialty Hospital Gulfport	2	0.2%
Biloxi Regional Medical Center	1	0.1%
Bolivar Medical Center	1	0.1%
Convington County Hospital	1	0.1%
East MS State Hospital	1	0.1%
North West MS Regional Medical Center	1	0.1%
Rush Foundation Hospital	1	0.1%
Singing River Hospital	1	0.1%
St. Dominic Hospital	1	0.1%
Stone County Hospital	1	0.1%
<b>Total</b>	<b>866</b>	<b>100.0%</b>

<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

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

Pearl River County Hospital	Frequency <sup>1</sup>	Percent
Pearl River County	92	93.9%
Lamar County	4	4.1%
Alabama	1	1.0%
Jackson County	1	1.0%
Total	98	100.0%

<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

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

L.O. Crosby Memorial Hospital	Frequency <sup>1</sup>	Percent
Pearl River County	419	95.9%
Hancock County	12	2.7%
Louisiana	2	0.5%
Wayne County	2	0.5%
Alabama	1	0.2%
Harrison County	1	0.2%
Total	437	100.0%

<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

Data in Table 11 show the county of residence of patients receiving care from both of the local hospitals (in-flow). Approximately 94 percent of Pearl River County Hospital's patients were residents of Pearl River County and nearly 96 percent of L.O. Crosby Memorial Hospital's patients were Pearl River County residents.

Table 11 A shows that patients with Medicare coverage accounted for 42 percent of the discharges at L.O. Crosby Memorial Hospital and approximately 65 percent of discharges at Pearl River County Hospital. Patients with Medicaid coverage accounted for nearly 37 percent of the discharges at L.O. Crosby Memorial Hospital and nearly 21 percent of discharges at Pearl

River County Hospital. Patients with commercial or Blue Cross insurance accounted for 11 percent at L.O. Crosby Memorial Hospital and nearly 12 percent at Pearl River County Hospital. These discharge percentages are representative of the four, two-week periods studied between April 2001 and January 2002.

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

L.O. Crosby Memorial 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

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

Pearl River Hospital and Nursing Home	Number of Discharges	Percent of Total
Medicare	60	65.22%
Medicaid	19	20.65%
Commercial	10	10.87%
Blue Cross	1	1.09%
Not Listed	1	1.09%
Self Pay	1	1.09%
Total	92	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 obtained from the Mississippi State Office of Rural Health show that during the four 2-week study periods between April 2001 and January 2002, 54 percent of discharges from both local hospitals were for respiratory problems; 30 percent for circulatory problems that includes all types of heart diseases (hypertension, heart attacks, arteriosclerosis, etc.) with 13 percent of discharges from L.O. Crosby Memorial Hospital for pregnancy & childbirth and almost 20 percent of discharges from Pearl River County Hospital were for endocrine and/or immune system disorders which can include diabetes mellitus and various diseases affecting the immune system.

**Table 12. Discharge Diagnosis of Pearl River County Residents From Hospitals in Mississippi (Four 2-week Periods April 01- January 02)**

Disease Group	Number <sup>1</sup>	Percent
Respiratory	143	16.51%
Circulatory	137	15.82%
Pregnancy, childbirth	85	9.82%
Mental Disorders	78	9.01%
Live newborns	76	8.78%
Digestive	60	6.93%
Injury/Poisoning	52	6.00%
Genitourinary	51	5.89%
Endocrine, Immun	41	4.73%
Musculoskeletal	31	3.58%
All other categories	112	12.93%
<b>TOTAL</b>	<b>866</b>	<b>100.00%</b>

<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

Data in Table 12 show the most common discharge diagnoses for residents of Pearl River County who were hospitalized at *any hospital in the state* during the same study period as

mentioned above show that 16.5 percent were for respiratory diseases, 15.8 percent for circulatory diseases, 9.8 percent for pregnancy and childbirth, and 9 percent for mental disorders.

Information concerning hospital admissions, Medicare and Medicaid enrollment, and selected birth and death statistics are detailed in Table 13. There were 2,940 discharges for FYE 2000 between both local hospitals. The county had the same percentage of residents enrolled in Medicare than the state but the county's Medicaid statistics were slightly higher than the state's. The rate of infant mortality was lower than the state's rate, as was the percentage of births to unmarried mothers in the county (35.5%) was higher than the state (46.0%), and the teenage pregnancy rate in the county (37.7) was also higher than the state's rate (42.9).

**Table 13. Health Status and Health Indicators for Pearl River County and Mississippi**

<u>Status or Indicator<sup>1</sup></u>	<u>County Number</u>	<u>County Percent/Rate</u>	<u>State Percent/Rate<sup>4</sup></u>
Hospital Discharges	2,940	6.0%	N/A
Medicare Enrollment (98)			
Aged (65 and over)	5,598	11.5%	11.5%
Disabled (Under 65)	1,619	3.3%	2.9%
Medicaid Eligible (2000)	10,313	21.2%	19.5%
Infant Mortality (1996-2000) <sup>2</sup>	2	5.9	10.5
Live Births to Unmarried Mothers	235	35.5%	46%
Teenage Pregnancy (2000) <sup>3</sup>	144	37.7	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 Pearl River County residents in 2000. Cardiovascular disease, cancer, chronic lung diseases, accidents and diabetes were the top five reasons for death among county residents. This data is somewhat consistent with state rates for two out of three of the most common causes of death.

**Table 14. Death Rates from Selected Causes for Pearl River County**

Causes of Death	Pearl River County		State of Mississippi	
	Number <sup>1</sup>	Rate <sup>2</sup>	Number <sup>1</sup>	Rate <sup>2</sup>
Cardiovascular Diseases *	173	355.8	11,792	414.5
All Types of Cancer	115	236.5	6,080	213.0
Chronic Lung Diseases	29	59.6	1,303	45.8
Accidents (all types)	26	53.5	1,119	58.1
Diabetes Mellitus	20	41.1	670	23.6
Automobile Accidents	16	32.9	613	32.9
Pneumonia & Influenza	7	14.4	804	28.3
Kidney Diseases	7	14.4	612	21.5
Suicide	6	12.3	291	10.2
Homicide	5	10.3	215	11.0
Liver Diseases	2	4.1	246	8.6

<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 Pearl River County.

Table 15 reports the estimated impact of Pearl River County Hospital on Pearl River County’s economy. Based on 1999 IMPLAN model data and primary data gathered from FYE 2000 hospital financial reports, this hospital provides 164 jobs and these jobs create the need for 29 additional local jobs within the county. Thus, Pearl River County Hospital generates an impact of 1.3% of the total county employment. Likewise, the hospital creates more than \$2.56 million in personal income directly, and about \$624 thousand indirectly, for a total of 0.4% of the county’s total income. Indirect business taxes in the county of slightly more than \$102 thousand are generated by this hospital as it creates secondary economic activity.

**Table 15. Estimated Contribution of Pearl River County Hospital to the Pearl River County Economy**

Category	Unit of Measure	Initial Impact of Hospitals	Additional Impact of Hospitals	Total Impact of Hospitals	County Total	Hospitals as a Percent of Total
Employment	# Jobs	164	29	193	14,300	1.3%
Personal Income	\$	2,566,539	624,110	3,190,649	798,159,000	0.4%
Indirect Business Taxes	\$	0	102,230	102,230	38,458,000	0.3%

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 FYE 2000 financial data obtained from hospital

Table 15A shows the same information as above for Crosby Memorial Hospital. Again, Based on 1999 IMPLAN model data and primary data gathered from FYE 2001 hospital financial reports, this hospital provides 200 jobs and these jobs create the need for 130 additional local jobs. Thus, Pearl River Regional Hospital generates an impact of 1.0% of the total county employment. Likewise, the hospital creates more than \$4.5 million in personal income directly, and about \$1.3 million indirectly, for a total of 1.2% of the county's income. Indirect business taxes in the county of more than \$110 thousand are generated by this hospital as it creates secondary economic activity.

**Table 15A. Estimated Contribution of Crosby Memorial Hospital to the Pearl River County Economy**

Category	Unit of Measure	Initial Impact of Hospitals	Additional Impact of Hospitals	Total Impact of Hospitals	County Total	Hospitals as a Percent of Total
Employment	# Jobs	200	130	330	14,300	2.3%
Personal Income	\$	9,047,353	4,670,216	13,717,569	798,159,000	1.7%
Indirect Business Taxes	\$	61,000	448,589	509,589	38,458,000	1.3%

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 FYE 2001 financial data obtained from local hospitals

Table 15B is the collective estimate of how both local hospitals affect the county's economy. When combined, both hospitals provide 364 jobs that create a need for an additional 159 jobs in the local area. The impact of these jobs accounts for 3.7% of the total county employment and creates more than \$11.6 million in personal income directly, and about \$ 5.2 million indirectly, for a total of 2.1% of the county's personal income. Indirect business taxes in

**Table 15B. Estimated Contribution of Both Local Hospitals to the Pearl River County Economy**

Category	Unit of Measure	Initial Impact of Hospitals	Additional Impact of Hospitals	Total Impact of Hospitals	County Total	Hospitals as a Percent of Total
Employment	# Jobs	364	159	523	14,300	3.7%
Personal Income	\$	11,613,892	5,279,537	16,893,429	798,159,000	2.1%
Indirect Business Taxes	\$	61,000	240,315	301,315	38,458,000	0.8%

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 FYE 2001 financial data obtained from local hospitals

the county of more than \$301 thousand are generated by both hospitals as they create secondary economic activity (0.8% of the county total).

In Table 16, three additional components of the healthcare sector (doctors & dentists; nursing and protective care; other medical & health services) have been combined with the collective figures from the county's hospitals (see Table 15B). The additional components added together employ 526 people resulting in a total of 890 people directly employed by the

**Table 16. Estimated Contribution of the Healthcare Sector to the Pearl River 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	890	289	1179	14,300	8.2%
Personal Income	\$	28,514,892	6,071,798	34,586,690	798,159,000	4.3%
Indirect Business Taxes	\$	487,000	1,068,492	1,555,492	38,458,000	4.0%

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 and 2001 financial data obtained from local hospitals

county's entire healthcare sector. Total payroll for the entire sector is estimated to be more than \$28.5 million. The existing health care sector has a significant impact on employment and

income throughout the other industries in Pearl River County. The total employment impact of Pearl River County's healthcare sector is an estimated 1,179 jobs that result in a total income of more than \$34.5 million or 4.3% 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 \$1.5 million or 4.0% of the total in the county.

## 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 Pearl River County economy. The income and employment estimates for Pearl River 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 Pearl River 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 only the hospital component of the health care sector in Pearl

River County results in the employment of 3.7% of the county's total workforce (364 jobs) and 2.1 % of the total earned personal income (\$16.8 million). When other components of the health care sector are added to the hospital component, the impact on employment increases from 3.7 % to 8.2% 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 \$16.8 million or 2.1% to more than \$34.5 million or 4.3 % of the county's total income. Indirect business taxes are affected in a similar manner, increasing from 0.8% to 4.0% 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. Additional reports that have been completed for the state of Mississippi 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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