

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

## **Walthall 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 Hospital Association  
Mendal Kemp, Rural Health Flexibility Coordinator

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

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**Measuring the Impact of the Health Sector on a Local Economy:  
Walthall 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 Walthall 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 Walthall County's 15,156 residents (U.S. Census Bureau, 2000) spent this average amount, more than \$48.9 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 primary healthcare 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 15,156 provides estimates of potential local spending (primary health care) in Walthall County. The total spending potential is estimated to be more than \$35.1 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 Walthall County.

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

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

Health Care Category	Mississippi Spending Per Capita	Percent Local Spending	Local Spending Per Capita	Potential Local Spending
Hospital Care	\$1,398	61%	\$853	\$12,928,068
Physician & Other Professional Services	\$804	75%	\$603	\$9,139,068
Prescription Drugs	\$350	75%	\$263	\$3,986,028
Nursing Home Care	\$250	100%	\$250	\$3,789,000
Dental Services	\$115	75%	\$86	\$1,303,416
Home Health Care	\$106	100%	\$106	\$1,606,536
Non-Prescription Drugs and Other Medical Non-Durables	\$94	75%	\$71	\$1,076,076
Other Personal Health Care	\$77	75%	\$58	\$879,048
Vision Products and Other Medical Durables	\$34	75%	\$26	\$394,056
<b>Total Spending</b>	<b>\$3,228</b>	<b>72%</b>	<b>\$2,316</b>	<b>\$35,101,296</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 Walthall County and the state.

### **Demographics**

Population information detailing historical growth and future projections, population density, current age distribution, and household information for Walthall County and Mississippi are presented in Table 5. Between 1990 and 2000, Mississippi's population increased 10.5 percent and Walthall County also experienced an increase of 5.6 percent. Walthall County has a population density of 37.5 persons per square mile, which indicates it extremely rural nature. The

county's older residents represent slightly more (14.0%) than the state average of 12.0 percent. Population in Walthall County is projected through 2025 to increase by only 8.1 percent while the state's population is projected to increase by 18 percent. The number of residents in the 65 and over category, however, is expected to increase by 60 percent in the county and by more than 73 percent in the state.

According to the 2000 Census, the population of Walthall County was 54.6 percent white and 45.4 percent non-white. These numbers are considerably different than those of the state. The percentage of high school graduates in the county (44.9%) is lower than that of the state (49.5%), and the percentage of college graduates is less in the county (10.1%) than in the state (14.7%). These educational statistics are from the 1990 Census and may be higher or lower, based on 2000 Census data which has not been made available to the public at the time of this writing.

### **Economic Indicators**

Data presented in Table 6 give general observations of economic activity in Walthall County and Mississippi. In 2000, the county's annual personal income was more than \$229 million, providing slightly more than \$15,000 of annual income per person, which is about \$5,700 less than the state average of \$20,900. The median household income in Walthall County is \$20,201, which is about \$8,326 lower than the state's income value (\$28, 527) and the county's poverty rate at 27.2% percent is markedly higher than the state (18.1%). The civilian labor force in the county is 6,154 with about 870 people employed by the state and local governments. All types of local enterprises generate 5,529 jobs. Persons employed in non-farm, private sector jobs total about 2,575. This indicator has increased by 89.6 percent since

1990, and is 58.4 percent higher than the state (31.2%). Average earnings per job are \$15,810 per year, which is \$7,578 less than the state average at \$23,388.

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

Item	County	State
Population, 2000	15,156	2,844,658
Population, percent change, 1990 to 2000	5.6%	10.5%
Persons per square mile, 2000	37.5	60.6
Populations by age, percent of total, 2000		
Under 20 years	31.6%	30.7%
20 to 64 years	54.3%	57.3%
65 years and over	14.0%	12.0%
Population projection, percent change to 2025		
Total population	8.1%	18.2%
65 years and over	60.0%	73.3%
Race:		
White	54.6%	61.4%
Non-white	45.4%	38.6%
Persons over 25 graduating from high school, 1990	44.9%	49.5%
Persons over 25 graduating from college, 1990	10.1%	14.7%
Households, 2000	5,571	1,046,434
Median Household money income, 1997	\$20,201	\$28,527
Persons below poverty, % 1997	27.2%	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 Walthall County and Mississippi**

Item	County	State
Personal Income, 2000 (\$1,000)	\$229,017	\$59,545,076
Personal Income per capita, 2000	\$15,146	\$20,900
Civilian Labor Force, 1999	6,154	1,269,955
Unemployment, 1999	341	64,666
Full-time and part-time employment by place of work, 1997	5,529	1,425,691
Employment in government, 1997	870	253,888
Local government employment, full-time equivalent, 1997	624	122,256
Private non-farm employment, 1999	2,575	948,883
Private non-farm employment, percent change 1990 to 1999	89.6%	31.2%
Average earnings per job, 1997	\$15,810	\$23,388
Private non-farm establishments with paid employees, 1999	220	59,834
Private non-farm establishments with less than 20 employees, 1999	189	51,931
Non-employer establishments, 1998	619	125,634
Retail sales, 1997 (\$1,000)	\$56,237	\$20,774,508
Retail sales per capita, 1997	\$3,929	\$7,605

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

There are 220 private non-farm establishments, but 189 of these have less than 20 employees. There are 619 non-employer establishments (proprietorships), which do not have any paid employees. Retail sales in the county were more than \$ 56.2 million in 1997. This is slightly more than \$3,929 per person per year and about one-half of the state average of \$7,605.

Table 7 shows types of employment in Walthall County and the state. Manufacturing, farm employment, services, local government and retail were the five leading employment sectors in 2000. 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 58.9 percent of total personal income came from total earnings (adjusted to place of

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

Industry	Percent of		Percent of	
	County	County	State	State
Farm Employment	827	16.0%	55,203	3.7%
Ag. Services, Forestry, Fishing	(D)		19,256	1.3%
Mining	(D)		8,101	0.5%
Construction	278	5.4%	84,954	5.7%
Manufacturing	959	18.6%	250,824	16.8%
Transportation/Public Utilities	220	4.3%	67,269	4.5%
Wholesale Trade	230	4.5%	51,052	3.4%
Retail Trade	592	11.5%	244,023	16.3%
Finance, Insurance, Real Estate	215	4.2%	76,283	5.1%
Services	805	15.6%	371,730	24.9%
Government				
Federal Civilian	38	0.7%	26,033	1.7%
Federal Military	95	1.8%	35,129	2.4%
State	24	0.5%	62,085	4.2%
Local	705	13.7%	141,499	9.5%
Total Employment	5,162	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 27.9 percent. Other data show that 64.9 percent of the total earnings that originate in employment within the county are from wages and salaries. Finally, 33.6 percent of transfer payments were made for retirement/disability while 41.2 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 \$13.4 million and represents 0.6% of the total amount paid (\$2.08 billion) to providers across the state during FY 2001.

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

Source	County Total	County Percent	State Percent
	(\$1,000)		
Total Personal Income <sup>1</sup>	\$229,017		
Earnings by Place of Residence <sup>2</sup>	\$134,935	58.9%	64.9%
Transfer Payments	\$63,996	27.9%	18.6%
 Total Earnings <sup>3</sup>	 \$103,447		
Wages and Salaries	\$67,110	64.9%	78.1%
Proprietors Income	\$27,080	26.2%	11.7%
Other Labor Income	\$9,257	8.9%	10.3%
 Transfer Payments	 \$63,996		
Retirement and Disability	\$21,490	33.6%	37.4%
Medical Payments	\$26,391	41.2%	38.6%
Other	\$16,115	25.2%	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 Walthall County was lower than the state in most categories, however the rate of nursing home beds at 8.8 per 1,000 residents was higher when compared to the state's rate of 6.2 beds per 1,000 residents. The rate of EMTs (including intermediates) and paramedics was very close to the state's rates for these medical providers.

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

Provider Type	County Number	County Rate/1000	State Rate/1000
Hospitals (2000)	1		
Licensed Hospital Beds	49	3.2	4.2
Nursing Home (2001) Beds	2 133	8.8	6.2
Health Care Practitioners: (2001)			
M.D.s	9	0.6	2
Family Practice	3	0.2	0.2
Internal Medicine	2	0.1	0.3
Other	4	0.3	1.4
Dentists	4	0.3	0.4
Nurse Practitioners	3	0.2	0.5
Emergency Medical Personnel (2001)			
EMT Basics & Intermediates.	7	0.5	0.6
Paramedics	9	0.6	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. Walthall County has one hospital. There are four Mississippi counties that border Walthall, three of which have one hospital each with one county having two hospitals. There are a total of 451 licensed hospital beds in these surrounding counties and a total of 49 beds in Walthall County.

Table 10 contains data showing where county residents go to receive hospital care (out-flow). Walthall County General Hospital operates 49 licensed beds. About 56 percent of

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

Name of Hospital	Number <sup>1</sup>	Percent
Walthall County General Hospital	183	43.3%
Forrest General Hospital	95	22.5%
South West MS Regional Medical Center	87	20.6%
University Hospital and Clinic	10	2.4%
Wesley Medical Center	9	2.1%
Beacham Memorial Hospital	6	1.4%
Kings Daug Medical Center- Brookhaven	5	1.2%
MS State Hospital	5	1.2%
Saint Dominic Hospital	5	1.2%
Marion General Hospital	4	0.9%
Vicksburg Medical Center	4	0.9%
Central MS Medical Center	2	0.5%
Field Memorial Community Hospital	2	0.5%
MS Baptist Medical Center	2	0.5%
Biloxi Regional Medical Center	1	0.2%
Delta Regional Medical Center	1	0.2%
MS Methodist Hospital and Rehab Center	1	0.2%
Parkview River Regional	1	0.2%
<b>Total</b>	<b>423</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

Walthall County residents obtained some form of hospital care *outside* the county during the time period studied (four two-week periods between April 2001 and January 2002).

Data in Table 11 show the county of residence of patients receiving care from the local hospital (in-flow). During the sample period studied as mentioned above, approximately 78 percent of Walthall County General Hospital's patients were residents of Walthall County with 9 percent of patients being residents of Pike County and 8 percent of patients being residents of Marion County.

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

Walthall County General Hospital	Frequency <sup>1</sup>	Percent
Walthall County	183	77.5%
Pike County	22	9.3%
Marion County	19	8.1%
Louisiana	4	1.7%
Amite County	2	0.8%
Forrest County	2	0.8%
Lawrence County	2	0.8%
Hinds County	1	0.4%
Lincoln County	1	0.4%
Total	236	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 A shows that patients with Medicare coverage accounted for almost 67 percent of the discharges at the local county hospital. Patients with Medicaid coverage accounted for

nearly 14 percent of the discharges; patients with commercial or Blue Cross insurance accounted for 8 percent. These discharge percentages are representative of sample period mentioned above.

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

Walthall County General Hospital	Number of Discharges	Percent of Total
Medicare	158	66.95%
Medicaid	33	13.98%
Commercial	14	5.93%
Not Listed	10	4.24%
Self Pay	9	3.81%
Blue Cross	6	2.54%
Workmens Comp	4	1.69%
Other Government	2	0.85%
Total	236	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 during the sample period between April 2001 and January 2002, that 25 percent of discharges from Walthall County Hospital were for circulatory problems that includes all types of heart diseases (hypertension, heart attacks, arteriosclerosis, etc.); 20 percent were for respiratory problems; 10 percent of discharges were for digestive disorders with 7 percent of discharges for endocrine (including diabetes) and 7 percent for genitourinary disorders.

Data in Table 12 show the most common discharge diagnoses for residents of Walthall County who were hospitalized at *any hospital in the state* during the same study period as mentioned above show that 21 percent of discharges were for circulatory diseases, almost 11

percent were for respiratory diseases, 10 percent for digestive diseases and almost 9 percent for conditions occurring during a pregnancy or child birth and 6 percent for mental disorders.

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

Disease Group	Number <sup>1</sup>	Percent
Circulatory	89	21.04%
Respiratory	46	10.87%
Digestive	43	10.17%
Pregnancy, childbirth	37	8.75%
Mental Disorders	26	6.15%
Injury/Poisoning	25	5.91%
Live newborns	23	5.44%
Genitourinary	20	4.73%
Endocrine, Immun	16	3.78%
Musculoskeletal	13	3.07%
All other categories	85	20.09%
<b>TOTAL</b>	<b>423</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

Information concerning hospital admissions, Medicare and Medicaid enrollment, and selected birth and death statistics are detailed in Table 13. There were 1,567 discharges for FYE 2001 at the local county hospital. The county had nearly the same percentage of residents enrolled in Medicare as the state but the county's Medicaid statistics were higher than the state's by nearly 8 percent. This may be because of the higher poverty rate in the county as compared to the state. The rate of infant mortality was slightly higher than the state's rate for the 5-year average; however, there were no infant deaths during the year 2000. The percentage of births to unmarried mothers in the county was slightly higher (47.7%) than the state (46.0%), and

the teenage pregnancy rate in the county (45.8 per 1,000) was also higher than the state's rate (42.9 per 1,000).

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

Status or Indicator <sup>1</sup>	County Number	County Percent/Rate	State Percent/Rate <sup>4</sup>
Hospital Discharges	1,567	10.3%	N/A
Medicare Enrollment (98)			
Aged (65 and over)	1687	11.1%	11.5%
Disabled (Under 65)	507	3.3%	2.9%
Medicaid Eligible (2000)	4144	27.3%	19.5%
Infant Mortality (1996-2000) <sup>2</sup>	0	11.7	10.5
Live Births to Unmarried Mothers	106	47.7%	46%
Teenage Pregnancy (2000) <sup>3</sup>	55	45.8	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 5-year 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 Walthall County residents in 2000. Cardiovascular disease, cancer, accidents, diabetes and chronic lung diseases were the top five reasons for death among county residents. This data is somewhat consistent with state rates for three out of four of the most common causes of death.

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

Causes of Death	Walthall County		State of Mississippi	
	Number <sup>1</sup>	Rate <sup>2</sup>	Number <sup>1</sup>	Rate <sup>2</sup>
Cardiovascular Diseases *	85	560.8	11,792	414.5
All Types of Cancer	37	244.1	6,080	213.0
Accidents (all types)	10	66	1,119	58.1
Diabetes Mellitus	8	52.8	670	23.6
Chronic Lung Diseases	6	39.6	1,303	45.8
Automobile Accidents	6	39.6	613	32.9
Suicide	4	26.4	291	10.2
Kidney Diseases	3	19.8	612	21.5
Pneumonia & Influenza	2	13.2	804	28.3
Homicide	1	6.6	215	11.0
Liver Diseases	0	0	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 Walthall County.

Table 15 reports the estimated impact of Walthall County General Hospital on the county's economy. Based on 1999 IMPLAN model data and primary data gathered from FYE 2001 hospital financial reports, this hospital provides 187 jobs and these jobs create the need for 36 additional local jobs within the county. Thus, Walthall County Hospital generates an impact of 4.0% of the total county employment. Likewise, the hospital creates more than \$4.3 million in personal income directly, and about \$690 thousand indirectly, for a total of 2.2% of the county's total income. Indirect business taxes in the county of slightly more than \$90 thousand are generated by this hospital as it creates secondary economic activity.

**Table 15. Estimated Contribution of Walthall County General Hospital to the Walthall 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	187	36	223	5,529	4.0%
Personal Income	\$	4,337,957	690,666	5,028,623	229,017,000	2.2%
Indirect Business Taxes	\$	0	90,840	90,840	9,708,000	0.9%

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 2001 financial data obtained from hospital

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 hospital. The additional components added together employ 306 people resulting in a total of 495 people directly employed by the county's entire healthcare sector. Total payroll for the entire sector is estimated to be more than \$13.9 million. The existing health care sector has a significant impact on employment and income throughout the other industries in Walthall County. The total employment impact of Walthall County's

healthcare sector is an estimated 574 jobs that result in a total income of more than \$14.8 million or 6.5% 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 \$460 thousand or 4.7% of the total in the county.

**Table 16. Estimated Contribution of the Healthcare Sector to the Walthall 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	495	79	574	5,529	10.4%
Personal Income	\$	13,986,957	887,137	14,874,094	229,017,000	6.5%
Indirect Business Taxes	\$	235,000	225,358	460,358	9,708,000	4.7%

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

## 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 Walthall County economy. The income and employment estimates for Walthall 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 Walthall 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

Walthall County results in the employment of 4.0% of the county's total workforce (223 jobs) and 4.0 % of the total earned personal income (\$5.02 million). When other components of the health care sector are added to the hospital component, the impact on employment increases from 4.0 % to 10.4% 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 \$5.02 million for just the hospital sector (2.2%) to more than \$14.8 million, which is 6.5 % of the county's total income. Indirect business taxes are affected in a similar manner, increasing from \$ 90,840 or 0.9% to \$460,358 or 4.7% 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://msucare.com/health/health/rh\\_economics.html](http://msucare.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. One of the major changes which affected small rural hospitals in a negative fashion was changing Medicare reimbursements from a cost-based methodology to one related to a patient’s condition (DRG or diagnosis related group) regardless of the cost involved to effectively treat the patient.

**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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