

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

Lawrence County, Mississippi

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**Measuring the Impact of the Health Sector on a Local Economy:
Lawrence 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 Lawrence 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 \$ ¹)	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	

¹ 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 \$ ¹)				
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
Total Spending	5.31	3,499	4,458	5,898	7,965	8,882

¹ 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 \$ ¹)		
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
Total Spending	4.80	1,388	1,723	2,289	2,961	3,228

¹ 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 was \$3,228. If Lawrence County's 13,258 residents (U.S. Census Bureau, 2000) spent this average amount, almost \$43 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 13,258 provides estimates of potential local (health care) spending in Lawrence County. The total spending potential is estimated to be more than \$30 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 Lawrence 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

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 Lawrence County and the state.

Table 4. Estimated Potential Local Spending for Primary Health Care in Lawrence County

Health Care Category	Mississippi Spending Per Capita	Percent Local Spending ¹	Local Spending Per Capita	Potential Local Spending
Hospital Care	\$1,398	61% ¹	\$853	\$11,309,074
Physician & Other Professional Services	\$804	75% ²	\$603	\$7,994,574
Prescription Drugs	\$350	75% ²	\$263	\$3,486,854
Nursing Home Care	\$250	100% ³	\$250	\$3,314,500
Dental Services	\$115	75% ²	\$86	\$1,140,188
Home Health Care	\$106	100% ⁴	\$106	\$1,405,348
Non-Prescription Drugs and Other Medical Non-Durables	\$94	75% ²	\$71	\$941,318
Other Personal Health Care	\$77	75% ²	\$58	\$768,964
Vision Products and Other Medical Durables	\$34	75% ²	\$26	\$344,708
Total Spending	\$3,228	72%²	\$2,316	\$30,705,528

¹ 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 Lawrence County and Mississippi are presented in Table 5. Between 1990 and 2000, Mississippi's population increased 10.5 percent and Lawrence County also experienced an increase of 6.4 percent. Lawrence County has about one-half of the population density as Mississippi, indicating its rural nature. The county's older residents represent a slightly larger proportion of its total population than in the state as a whole. Population in Lawrence County is projected through 2025 to increase at a much slower rate than the state. The number of residents in the 65 and over category is expected to increase by slightly more than 83% in the county and by 73% in the state.

According to the 2000 Census, the population of Lawrence County was 66.9% white and 33.1% non-white. These numbers are somewhat consistent to those of the state. The percentage of high school graduates in the county is slightly more than that of the state while the percentage of college graduates is less in the county than in the state.

Economic Indicators

Data presented in Table 6 give general observations of economic activity in Lawrence County and Mississippi. The county's annual personal income is more than \$234 million, providing slightly less than \$18,000 of annual income per person (about \$2,000 less than the state average). The median household income in Lawrence County is \$24,574, about 14 percent lower than the state income value and the county's poverty rate (17.5%) is slightly lower than the state's (18.1%).

Table 5. Selected Demographic Data for Lawrence County and Mississippi

Item	County	State
Population, 2000	13,258	2,844,658
Population, percent change, 1990 to 2000	6.4%	10.5%
Persons per square mile, 2000	30.8	60.6
Populations by age, percent of total, 2000		
Under 20 years	30.5%	30.7%
20 to 64 years	56.2%	57.3%
65 years and over	13.3%	12.0%
Population projection, percent change to 2025		
Total population	8.7%	18.2%
65 years and over	83.24%	73.3%
Race:		
White	66.9%	61.4%
Non-white	33.1%	38.6%
Persons over 25 graduating from high school, 1990	52.7%	49.5%
Persons over 25 graduating from college, 1990	9.2%	14.7%
Households, 2000	5,040	1,046,434
Median Household money income, 1997	\$24,574	\$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

The civilian labor force in the county is more than 5,200 with 625 people employed by governments. All types of local enterprises generate 4,923 jobs. Persons employed in non-farm, private sector jobs total about 2,675. This indicator has increased by 23.2 percent since 1990, and is somewhat lower than the state (29.6%). Average earnings per job are slightly more than \$27,000 per year and are higher than the state's average earnings per job (\$23,388).

Table 6. Selected Economic Data for Lawrence County and Mississippi

Item	County	State
Personal Income, 1999 (\$1,000)	\$234,108	\$57,272,226
Personal Income per capita, 1999	\$17,917	\$20,686
Civilian Labor Force, 1999	5,273	1,269,955
Unemployment, 1999	387	64,666
Full-time and part-time employment by place of work, 1999	4,923	1,493,441
Employment in government, 1997	829	253,888
Local government employment, full-time equivalent, 1997	625	122,256
Private nonfarm employment, 1998	2,675	937,023
Private nonfarm employment, percent change 1990 to 1998	23.2%	29.6%
Average earnings per job, 1997	\$27,251	\$23,388
Private nonfarm establishments with paid employees, 1998	234	59,771
Private nonfarm establishments with less than 20 employees, 1998	218	51,949
Nonemployer establishments, 1997	707	121,668
Retail sales, 1997 (\$1,000)	\$40,058	\$10,124,822
Retail sales per capita, 1997	\$3,102	\$7,605

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

There are 234 private non-farm establishments, but 218 of these have less than 20 employees. There are 707 businesses, which do not have any paid employees. Retail sales in the county were more than \$40 million in 1997. This is about \$3,100 per person, but is about \$4,500 below the state average.

Table 7 shows types of employment in Lawrence County and the state. Manufacturing, services and retail trade were the three leading employment sectors in 1999. Most health care

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

Industry	Percent of		Percent of	
	County	County	State	State
Farm Employment	442	9.0%	55,203	3.7%
Ag. Services, Forestry, Fishing	(D)		19,256	1.3%
Mining	(D)		8,101	0.5%
Construction	324	6.6%	84,954	5.7%
Manufacturing	1347	27.4%	250,824	16.8%
Transportation/Public Utilities	258	5.2%	67,269	4.5%
Wholesale Trade	105	2.1%	51,052	3.4%
Retail Trade	621	12.6%	244,023	16.3%
Finance, Insurance, Real Estate	117	2.4%	76,283	5.1%
Services	765	15.5%	371,730	24.9%
Government				0.0%
Federal Civilian	54	1.1%	26,033	1.7%
Federal Military	87	1.8%	35,129	2.4%
State	18	0.4%	62,085	4.2%
Local	693	14.1%	141,499	9.5%
Total Employment	4923	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.

jobs are included in the services sector, while sales of drugs and other medical items 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 58.6 percent of total personal income came from total earnings (adjusted to place of residence) with transfer payments contributing 27.4 percent. Other data show that 70.1 percent of the total earnings that originate in employment within the county are from wages and salaries. Finally, transfer payments were made primarily (42.7%) for retirement/disability while 37.35 percent were made for medical purposes.

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

Source	County Total	County Percent	State Percent
	(\$1,000)		
Total Personal Income ¹	\$234,108		
Earnings by Place of Residence ²	\$137,192	58.6%	64.9%
Transfer Payments	\$64,221	27.4%	18.6%
 Total Earnings ³	 \$134,158		
Wages and Salaries	\$94,061	70.1%	78.1%
Proprietors Income	\$28,578	21.3%	11.7%
Other Labor Income	\$11,519	8.6%	10.3%
 Transfer Payments	 \$64,221		
Retirement and Disability	\$27,433	42.7%	37.4%
Medical Payments	\$24,060	37.5%	38.6%
Other	\$12,728	19.8%	23.9%

¹ Definitions are in Appendix B, Glossary of Terms

² Total earnings adjusted to reflect earnings by place of residence

³ 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 Lawrence County was less than the state in most categories. However, the rates were the same or higher than the state's for hospital and nursing home beds. The rate of EMTs (including intermediates) was 1.3 per 1,000 residents, which was slightly higher than the state's rate of 0.6 and the rate of paramedics was slightly higher at .5 per 1,000.

Table 9. Availability of Selected Medical Providers in Lawrence County

Provider Type	County Number	County Rate/1000	State Rate/1000
Hospitals (2000)	1		
Licensed Hospital Beds	53	4.0	4.2
Nursing Home (2001)	1	0.1	
Beds	60	4.5	6.2
Health Care Practitioners: (2001)			
M.D.s	7	0.5	2
Family Practice	3	0.2	0.2
Internal Medicine	1	0.1	0.3
Other	3	0.2	1.4
Dentists	3	0.2	0.4
Nurse Practitioners	1	0.1	0.5
Emergency Medical Personnel (2001)			
EMT Basics & Intermediates.	17	1.3	0.6
Paramedics	6	0.5	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. There are seven counties that border Lawrence County, which has one hospital; six border counties have one hospital each and one county has two hospitals.

Table 10 contains data showing where county residents go to receive hospital care (out-flow). Lawrence County Hospital operates 53 licensed beds with 10 designated for geriatric

psychiatric care. Almost 67 percent of Lawrence County residents obtained some form of hospital care outside the county during the time period studied.

Table 10. Hospital Discharges of Lawrence County Residents by Hospitals in Mississippi

Name of Hospital	Number ¹	Percent
Lawrence Co. Hospital	166	33.2%
Kings Daughter Medical Center Brookhaven	89	17.8%
Forrest General Hospital	61	12.2%
South West MS Regional Medical Center	57	11.4%
MS Baptist Medical Center	26	5.2%
University Hospital & Clinics	24	4.8%
Prentiss Regional Hospital	21	4.2%
St. Dominic's Hospital	20	4.0%
Central MS Medical Center	8	1.6%
Wesley Medical Center	8	1.6%
Other Hospitals	5	1.0%
Magee General Hospital	4	0.8%
River Oaks Hospital	4	0.8%
Alliance Health Center	2	0.4%
Jeff Anderson Regional Medical Center	2	0.4%
Marion General Hospital	1	0.2%
Rankin Medical Center	1	0.2%
Singing River Hospital	1	0.2%
Total	500	100.0%

¹ Aggregate Patient Origin Study, data collected during four 2-week periods from Jan 2001-Oct 2001.

Source: Mississippi Office of Rural Health

Data in Table 11 show the county of residence of patients receiving care from the local hospital (in-flow). Lawrence County Hospital had approximately 96 percent of its patients from Lawrence County during the time period being studied with almost 75% of those patients having

Medicare insurance, 10% with Medicaid and 7% with commercial insurance carriers. (Table 11A)

Table. 11 Discharges by Hospital by County of Residence

Lawrence County Hospital	Frequency¹	Percent
Lawrence County	156	95.71%
Lincoln County	5	3.07%
Copiah County	1	0.61%
Marion County	1	0.61%
Total	163	100.00%

¹ 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

Lawrence County Hospital	Number of Discharges	Percent of Total
Medicare	122	74.85%
Medicaid	16	9.82%
All Commercial Payers	12	7.36%
Self-Pay	6	3.68%
Blue Cross	5	3.07%
Other	1	0.61%
Not Listed	1	0.61%
Total	163	100.00%

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

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 January and October 2001, 27.72 % of discharges from Lawrence

County Hospital were for respiratory problems; 18.81% for circulatory problems that includes all types of heart diseases (hypertension, heart attacks, arteriosclerosis, etc.), and 8.9% for endocrine and/or immune system disorders which can include diabetes mellitus and various diseases affecting the immune system. In Table 12, discharge diagnoses for residents of Lawrence County who were hospitalized at any hospital in the state during the same study period

Table 12. Discharge Diagnosis of Lawrence County Residents From Hospitals in Mississippi

Disease Group	Number ¹	Percent
Circulatory	90	18.00%
Respiratory	56	11.20%
Digestive	56	11.20%
Pregnancy, childbirth	48	9.60%
Live newborns	35	7.00%
Genitourinary	29	5.80%
Injury/Poisoning	21	4.20%
Mental Disorders	21	4.20%
Musculoskeletal	20	4.00%
Endocrine, Immune systems	19	3.80%
Neoplasms, all types including cancer	17	3.40%
Infections & parasitic diseases	16	3.20%
All other categories	72	14.40%
TOTAL	500	100.00%

¹ Aggregate Patient Origin Study, data collected during four 2-week periods from January 2001-October 2001.

Source: Mississippi Office of Rural Health

as mentioned above show that 18.0% were for circulatory diseases; 11.2% were for respiratory diseases, 11.2% were for digestive disorders. Pregnancy and childbirth (9.6%), and live newborn deliveries (7.0%) rounded out the top five reasons for discharges from hospitals other than the local hospital in Lawrence County.

Information concerning hospital admissions, Medicare and Medicaid enrollment, and selected birth and death statistics are detailed in Table 13. Lawrence County Hospital discharged 1,241 people in FY 1999, which includes patients from the Geri-Psych unit. The county had a higher percentage of residents enrolled in Medicare than the state and a higher percent being served by Medicaid than in the state. The rate of infant mortality was significantly lower than the state's rate, however the rate of births to teens was slightly higher than the state's rate.

Table 13. Health Status and Health Indicators for Lawrence County and Mississippi

Status or Indicator ¹	County Number	County Percent/Rate	State Percent/Rate
Hospital Discharges	1,241		
Medicare Enrollment (98)			
Aged (65 and over)	2,196	16.8%	11.5%
Disabled (Under 65)	692	5.3%	2.9%
Medicaid Eligible (2000)	2,883	22.6%	19.5%
Infant Mortality (1996-2000) ²	0	6.7	21.0
Births to Teens (1996-2000) ³	43	42.8	42.9

¹ Definitions are in Appendix B, Glossary of Terms

² Number represents total resident live births and deaths for 2000; county and state rates displayed as 5-year average (1996-2000)

³ Number represents total resident live births to mothers age 12-19 for 2000; county and state rates displayed as births per 1,000 females (age 12-19)

Sources: Mississippi State Department of Health, Vital Statistics; Department of Health and Human Services, Division of Medicaid; Health Care Financing Administration; Health Resources and Services Administration, Community Health Status Report (July 2000)

Table 14 contains the eleven most common causes of death among Lawrence County residents in 1999. Cardiovascular disease, cancer, and automobile accidents were the top three reasons for death. The top 3 state rates for causes of death are cardiovascular disease, cancer, and accidents.

Table 14. Death Rates from Selected Causes for Lawrence County

Causes of Death	Lawrence County		State of Mississippi	
	Number ¹	Rate ²	Number ¹	Rate ²
All Types of Cancer	34	260.2	6,131	221.4
Diabetes Mellitus	1	7.6	589	21.3
Cardiovascular Diseases *	58	443.9	11,742	424.1
Pneumonia & Influenza	0	0.0	796	28.8
Chronic Lung Diseases	7	53.6	1,329	48.0
Liver Diseases	1	7.6	248	9.0
Kidney Diseases	4	30.6	620	22.4
Accidents (all types)	12	91.8	1,639	59.2
Automobile Accidents	9	68.9	954	34.4
Suicide	1	7.6	305	11.0
Homicide	1	7.6	312	11.3

¹ Numbers are total deaths per 1,000 population

² Rates are per 100,000 population

* Includes hypertension, cerebrovascular diseases and atherosclerosis

Source: Mississippi State Department of Health, Vital Statistics, 1999

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 Lawrence County.

Table 15 reports the estimated impact of the local hospital on Lawrence County's economy. Based on 1999 IMPLAN model data and primary data gathered from 2001 FYE financial reports, the county's hospital provides 135 jobs and these jobs create the need for 22 additional local jobs. Thus, Lawrence County Hospital generates an impact of 3.2% of the total county employment. Likewise, the hospital creates about \$2.6 million in personal income

Table 15. Estimated Contribution of Lawrence County Hospital to the Lawrence 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	135	22	157	4,923	3.2%
Personal Income	\$	2,603,290	450,372	3,053,662	234,108,000	1.3%
Indirect Business Taxes ¹	\$	0	57,694	57,705	11,703,000	0.5%

¹Indirect 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 Lawrence County Memorial Hospital

Table 16. Estimated Contribution of the Local Health Care Sector to the Lawrence 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	306	36	342	4,923	6.9%
Personal Income	\$	6,502,290	731,343	7,233,633	234,108,000	3.1%
Indirect Business Taxes	\$	122,000	102,522	224,522	11,703,000	1.9%

¹Indirect 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 Lawrence County Hospital

directly, about \$450 thousand indirectly, for a total of 1.3% of the county's income. Indirect business taxes in the county of more than \$57 thousand are generated by the existing hospital as it creates secondary economic activity.

In Table 16, three additional components of the health care sector (doctors & dentists; nursing and protective care; other medical & health services) have been combined with the figures from the county hospital (see Table 15). The additional components added together employ 171 people resulting in a total of 306 people employed by the entire health care sector. Total payroll for the entire sector is estimated to be \$6.5 million. The existing health care sector has a significant impact on employment and income throughout the other industries in Lawrence County. The total employment impact of Lawrence County's health care sector is an estimated 342 jobs that result in a total income of \$7.23 million. Indirect business taxes attributed to the health care sector amount to 1.9% of the total in the county or \$224,522.

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 Lawrence County economy. The income and employment estimates for Lawrence 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 Lawrence 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 Lawrence County results in the employment of 3.2% of the county's total workforce (157 jobs) and 1.3 % of the total earned personal income (\$3.05 million). When other components of the health care sector are added to the hospital component, the impact on employment increases from 3.2 % to 7.0% 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 1.3% to 3.1% of the county's total income. Indirect business taxes are affected in a similar manner, increasing from 0.5% to almost 2.0 % 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.

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.

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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Mississippi. "Woods & Poole does not guarantee the accuracy of this data. The use of this
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