

Measuring the Impact of the Healthcare Sector on a Local Economy:

Quitman County, Mississippi

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Introduction

Communities often overlook the economic influence of the healthcare 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 healthcare sector. In a rural community, this particular sector ly 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 healthcare 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 healthcare 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 healthcare 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 healthcare 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 healthcare systems already in place. Attracting retirees to a community is

also more successful when there are quality healthcare 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 healthcare 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 healthcare sector to the Quitman County economy.

Healthcare Expenditures in Mississippi

Consistent with national trends, data in Table 1 show that healthcare 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 healthcare services represent a growing component of the state's economy as well. In 1980, healthcare 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 healthcare 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 healthcare 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 healthcare 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 Healthcare Spending, Mississippi, Selected Years, 1980-1998

Healthcare 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 Healthcare	10.90	45	85	178	348	293
Nonprescription Drugs and Other Medical Nondurables	2.38	170	212	236	249	260
Other Personal Healthcare	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 Healthcare Financing Administration

physician and other professionals, prescription drugs, and home health services. The data in Table 2 show more money was spent on home healthcare 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 healthcare. The trends in growth of the healthcare 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 Healthcare Spending Per Capita, Mississippi, Selected Years, 1980-1998

Healthcare 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 Healthcare	10.36	18	33	69	129	106
Nonprescription Drugs and Other Medical Nondurables	1.89	67	82	91	93	94
Other Personal Healthcare	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 Healthcare Financing Administration

Potential Demand for Healthcare

People require different types of healthcare equipment (goods) and services, some of which may not be available locally. The amount of spending on different types of healthcare services retained within a local economy depends on a diverse set of factors. The size and types of healthcare 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 healthcare goods or services is defined as being a local provider if it is located inside the county. In , 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 healthcare sector within the county.

As shown previously in Table 3, the average annual per capita expenditure on healthcare in Mississippi in 1998 was \$3,228. If Quitman County's 10,117 residents (U.S. Census Bureau, 2000) spent this average amount, more than \$32 million would have been spent for healthcare services in the county. The first column in Table 4 presents Mississippi per capita expenditures by major healthcare 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 10,117 provides estimates of potential local spending (primary healthcare) in Quitman County. The total spending potential is estimated to be \$23.4 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 Quitman County.

By comparing the potential local expenditures with actual local spending, the opportunity to expand local healthcare services may be assessed. For example, an existing hospital will generate a certain amount of revenue every year. If this figure is below the potential value, there may be room to expand hospital services and retain more dollars within the local economy. Knowledge of where residents actually acquire various healthcare 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 healthcare sector. The following sections present various types of information for Quitman County and the state.

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

Health Care Category	Mississippi Spending Per Capita	Percent Local Spending	Local Spending Per Capita	Potential Local Spending
Hospital Care	\$1,398	61%	\$853	\$8,629,801
Physician & Other Professional Services	\$804	75%	\$603	\$6,100,551
Prescription Drugs	\$350	75%	\$263	\$2,660,771
Nursing Home Care	\$250	100%	\$250	\$2,529,250
Dental Services	\$115	75%	\$86	\$870,062
Home Health Care	\$106	100%	\$106	\$1,072,402
Non-Prescription Drugs and Other Medical Non-Durables	\$94	75%	\$71	\$718,307
Other Personal Health Care	\$77	75%	\$58	\$586,786
Vision Products and Other Medical Durables	\$34	75%	\$26	\$263,042
Total Spending	\$3,228	72%	\$2,316	\$23,430,972

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 Quitman County and Mississippi are presented in Table 5. Between 1990 and 2000, Mississippi's population increased 10.5 percent and Quitman County experienced a decrease of 3.6 percent. Quitman County, with about 25 persons per square mile, has less than one half of the population density as Mississippi

(60 persons per square mile), indicating its extremely rural nature. The county's older residents represent 13.1 percent of the population, which is slightly higher than the state, with 12.0 percent of its total population aged 65 and older. Population in Quitman County is projected through 2025 to decrease by nearly 20 percent while the state's population is projected to increase by 18 percent. The number of residents in the 65 and over category is also expected to decrease by 3.7 percent in the county while increasing by 73.3 percent in the state.

According to the 2000 Census, the population of Quitman County was 30.5 percent white and 69.5 percent non-white. These numbers are vastly different than those of the state. The percentage of high school graduates in the county is much lower (36.5%) than that of the state (49.5%), and the percentage of college graduates in the county (9.0%) was also lower than the state (14.7%). NOTE: The high school and college graduate information is from the 1990 US Census population and is the most recent data available; educational attainment levels may actually be higher or lower at the time of this writing.

Economic Indicators

Data presented in Table 6 give observations of economic activity in Quitman County and Mississippi. The county's annual personal income is more than \$149.2 million, providing slightly more than \$14,800 of annual income per person (about \$6,000 less than the state average). The median household income in Quitman County is \$18,118, which is about \$10,409 lower than the state income value (\$28,527). The county's poverty rate is 31.5 percent, which is considerably higher than the state's rate (18.1%).

The civilian labor force in the county is estimated to be 3,218 with about 499 people employed by governments, and 285 unemployed (1999 US Census Bureau MapStats). All types of local enterprises generate 3,034 jobs. Persons employed in non-farm, private sector jobs total

about 1,235. This indicator has increased by 11.5 percent since 1990, and is markedly lower than the state indicator (31.2%). Average earnings per job are slightly more than \$15,700 per year compared to about \$23,388 for the state.

Table 5. Selected Demographic Data for Quitman County and Mississippi

Item	County	State
Population, 2000	10,117	2,844,658
Population, percent change, 1990 to 2000	-3.6%	10.5%
Persons per square mile, 2000	25.0	60.6
Populations by age, percent of total, 2000		
Under 20 years	34.9%	30.7%
20 to 64 years	52.0%	57.3%
65 years and over	13.1%	12.0%
Population projection, percent change to 2025		
Total population	-19.7%	18.2%
65 years and over	-3.7%	73.3%
Race:		
White	30.5%	61.4%
Non-white	69.5%	38.6%
Persons over 25 graduating from high school, 1990	36.5%	49.5%
Persons over 25 graduating from college, 1990	9.0%	14.7%
Households, 2000	3,565	1,046,434
Median Household money income, 1997	\$18,118	\$28,527
Persons below poverty, % 1997	31.5%	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 Quitman County and Mississippi

Item	County	State
Personal Income, 2000 (\$1,000)	\$149,288	\$59,545,076
Personal Income per capita, 2000	\$14,819	\$20,900
Civilian Labor Force, 1999	3,218	1,269,955
Unemployment, 1999	285	64,666
Full-time and part-time employment by place of work, 1997	3,034	1,425,691
Employment in government, 1997	499	253,888
Local government employment, full-time equivalent, 1997	407	122,256
Private non-farm employment, 1999	1,235	948,883
Private non-farm employment, percent change 1990 to 1999	11.5%	31.2%
Average earnings per job, 1997	\$15,771	\$23,388
Private non-farm establishments with paid employees, 1999	143	59,834
Private non-farm establishments with less than 20 employees, 1999	132	51,931
Non-employer establishments, 1999	299	130,932
Retail sales, 1997 (\$1,000)	\$44,429	\$20,774,508
Retail sales per capita, 1997	\$4,522	\$7,605

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

There are 143 private non-farm establishments with paid employees, but 132 of these have less than 20 employees. There are 299 businesses, which do not have any paid employees (proprietorships). Retail sales in the county were more than \$ 44.4 million in 1997. This is about \$4,522 per person but is \$3,083 below the state average.

Table 7 shows types of employment in Quitman County and the state. Services (23.6%), farm employment (17.8%) and manufacturing (12.6%) were the three leading employment

sectors in 2000. Most healthcare jobs are included in the services sector, while sales of drugs and other medical durables and non-durables would be included in the retail trade sector.

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

	County	Percent of County	State	Percent of State
Farm Employment	548	17.8%	55,203	3.7%
Ag. Services, Forestry, Fishing	120	3.9%	19,256	1.3%
Mining	(D)		8,101	0.5%
Construction	(D)		84,954	5.7%
Manufacturing	386	12.6%	250,824	16.8%
Transportation/Public Utilities	120	3.9%	67,269	4.5%
Wholesale Trade	56	1.8%	51,052	3.4%
Retail Trade	289	9.4%	244,023	16.3%
Finance, Insurance, Real Estate Services	189 727	6.1% 23.6%	76,283 371,730	5.1% 24.9%
Government				
Federal Civilian	41	1.3%	26,033	1.7%
Federal Military	65	2.1%	35,129	2.4%
State	47	1.5%	62,085	4.2%
Local	384	12.5%	141,499	9.5%
Total Employment	3,074	100.0%	1,493,441	100.0%

Source: Bureau of Economic Analysis, Regional Accounts Data

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

A more detailed view of personal income sources is presented in Table 8. The data indicate that 65.4 percent of total personal income came from total earnings (adjusted to place of residence) with transfer payments contributing 34.6 percent. Other data show that 75.3 percent of the total earnings that originate in employment within the county are from wages and salaries. Finally, 27.8 percent of transfer payments were made for retirement/disability while 42.4 percent were made for medical purposes. Incidentally, during fiscal year 2001, the state's Division of

Medicaid paid providers in Quitman County a total of \$10,524,010 or 0.5% of the state total of \$2.089 billion for services rendered to patients with Medicaid as their health insurance carrier.

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

Source	County Total (\$1,000)	County Percent	State Percent
Total Personal Income ¹	\$149,288		
Earnings by Place of Residence ²	\$77,708	65.4%	64.9%
Transfer Payments	\$51,665	34.6%	18.6%
Total Earnings ³	\$57,498		
Wages and Salaries	\$43,292	75.3%	78.1%
Proprietors Income	\$8,509	14.7%	11.7%
Other Labor Income	\$5,697	9.9%	10.3%
Transfer Payments	\$51,665		
Retirement and Disability	\$14,341	27.8%	37.4%
Medical Payments	\$21,935	42.4%	38.6%
Other	\$15,389	29.8%	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 (2000 Data)

Healthcare Availability and Utilization

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

Table 9. Availability of Selected Medical Providers in Quitman County

Provider Type	County Number	County Rate/1000	State Rate/1000
Hospitals (2000)	1		
Licensed Hospital Beds	36	3.6	4.2
Nursing Home (2001)	1	0.1	
Beds	60	5.9	6.2
Health Care Practitioners: (2001)			
M.D.s	4	0.4	2
Family Practice	3	0.3	0.2
Internal Medicine	1	0.1	0.3
Other	0	0.0	1.4
Dentists	1	0.1	0.4
Nurse Practitioners	2	0.2	0.5
Emergency Medical Personnel (2001)			
EMT Basics & Intermediates.	6	0.6	0.6
Paramedics	1	0.1	0.4

Note: Rate per 1000 based on 2000 Census Bureau county population data.

Sources: Mississippi State Department of Health, Division of Health Facilities Licensure & Certification; Mississippi State Department of Health, Emergency Medical Services Division; Mississippi State Board of Medical Licensure; Mississippi State Board of Nursing; Mississippi State Board of Dental Examiners; Mississippi Medical Association

Hospital Utilization

Fifty-five of Mississippi's eighty-two counties have only one hospital and 9 counties do not have any hospitals. The other eighteen counties have two or more hospitals. Quitman County has one hospital. There are four Mississippi counties that border Quitman, three of which have one hospital each and the remaining county has no hospital. There are a total of 254 hospital beds in these surrounding counties with 175 of them in one county, 70 in another, while

Quitman County Hospital has 36 licensed beds. Table 10 contains data showing where county residents go to receive hospital care (out-flow). About 72 percent of Quitman County residents

Table 10. Hospital Discharge of Quitman County Residents by Hospital

Name of Hospital	Number ¹	Percent
North West Regional Medical Center	138	43.0%
Quitman County Hospital	90	28.0%
Baptist Memorial Hospital North MS	45	14.0%
Tri Lakes Medical Center	17	5.3%
Delta Regional Medical Center	5	1.6%
Baptist Memorial Hospital Desoto, Inc.	4	1.2%
Baptist Memorial Hospital Union County	3	0.9%
MS State Hospital	3	0.9%
North MS Medical Center	3	0.9%
Parkwood Behavioral Health Systems Olive Branch	2	0.6%
Bolivar Medical Center	1	0.3%
Central MS Medical Center	1	0.3%
Grenada Lake Medical Center	1	0.3%
Gulf Coast Medical Center	1	0.3%
MS Methodist Hospital and Rehab Center	1	0.3%
North Oak Regional Medical Center	1	0.3%
University Hospital and Clinics	5	1.6%
Total	321	100.0%

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

Source: Mississippi Office of Rural Health

obtained some form of hospital care outside the county during the time period studied. Data in Table 11 show the county of residence of patients receiving care from the local hospital (in-flow). Quitman County Hospital had approximately 73.8 percent of its patients from Quitman County; almost 10 percent from Tunica County (where there is no hospital) and almost 5 percent

from Bolivar County during the time period being studied. In Table 11A, the patient mix of the local hospital during the same period shows that almost 65 percent of the patients discharged were covered by Medicare, 24 percent were covered by Medicaid, and nearly 7 percent were self-pay, with only 3 percent of patients having commercial insurance coverage.

Table. 11 Discharges by Hospital by County of Residence

Quitman County Hospital	Frequency ¹	Percent
Quitman County	90	73.8%
Tunica County	12	9.8%
Bolivar County	6	4.9%
Coahoma County	5	4.1%
Tallahatchie County	5	4.1%
Panola County	4	3.3%
Total	122	100.0%

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

Source: Mississippi Office of Rural Health

Table 11A. Discharge by Hospital by Insurance Type

Quitman County Hospital	Number of Discharges	Percent of Total
Medicare	79	64.75%
Medicaid	30	24.59%
Self Pay	9	7.38%
Commercial	4	3.28%
Total	122	100.00%

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

Source: Mississippi Office of Rural Health

Discharge Diagnoses

Data was obtained from the Mississippi State Office of Rural Health of Quitman County Hospital's patient discharge diagnoses during four, 2-week study periods between April 2001 and January 2002. Diagnoses during that time showed that 31 percent were for respiratory diseases; 17 percent for genitourinary conditions; 13 percent each were for circulatory problems, which includes all types of heart diseases (hypertension, heart attacks, arteriosclerosis, etc.) and endocrine system diseases (diabetes mellitus, thyroid and other metabolic diseases. This data is somewhat consistent to the diagnoses of county residents that sought hospital care outside the county during the same time period, which is shown below.

Table 12 shows the most common discharge diagnoses for residents of Quitman County who were hospitalized *at any hospital in the state* during the same study period as mentioned

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

Disease Group	Number ¹	Percent
Respiratory	43	13.40%
Circulatory	40	12.46%
Pregnancy, childbirth	40	12.46%
Live newborns	38	11.84%
Digestive	28	8.72%
Endocrine, Immun	21	6.54%
Injury/Poisoning	17	5.30%
Genitourinary	11	3.43%
Mental Disorders	9	2.80%
Musculoskeletal	9	2.80%
All other categories	65	20.25%
TOTAL	321	100.00%

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

Source: Mississippi Office of Rural Health

above: 13 percent were for respiratory diseases, 12 percent for circulatory diseases, 12 percent for conditions arising with pregnancy and/or childbirth and 11 percent for live newborns.

Information concerning hospital discharges, Medicare and Medicaid enrollment, and selected birth and death statistics are detailed in Table 13. Quitman County Hospital had 733 discharges for FYE 2001. The county had a slightly higher percentage (13.5%) of residents enrolled in Medicare than the state (11.5%); however, the county's Medicaid statistics were more than twice as much as the state's values. These Medicaid values are consistent with the extremely high population of residents in Quitman County living at or below the poverty level (31.5%) as compared to the state's poverty level (18.1%). The rate of infant

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

Status or Indicator ¹	County Number	County Percent/Rate	State Percent/Rate ⁴
Hospital Discharges	733	6.9%	N/A
Medicare Enrollment (98)			
Aged (65 and over)	1367	13.5%	11.5%
Disabled (Under 65)	1166	11.5%	2.9%
Medicaid Eligible (2000)	4177	41.3%	19.5%
Infant Mortality (1996-2000) ²	3	8.0	10.5
Live Births to Unmarried Mothers	119	71.7%	46%
Teenage Pregnancy (2000) ³	42	47.8	42.9

¹ Definitions are in Appendix B, Glossary of Terms

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

³ 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)

⁴ 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)

mortality was less than the state's rate, however, the percentage of live births to unmarried mothers in the county (71.7%) was much higher than the state (46%). Finally, the teenage pregnancy rate in the county was somewhat higher (47.8) than the state's rate (42.9).

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

Table 14. Death Rates from Selected Causes for Quitman County

Causes of Death	Quitman County		State of Mississippi	
	Number ¹	Rate ²	Number ¹	Rate ²
Cardiovascular Diseases *	59	583.2	1,119	58.1
All Types of Cancer	28	276.8	11,792	414.5
Pneumonia & Influenza	6	59.3	670	23.6
Accidents (all types)	6	59.3	612	21.5
Chronic Lung Diseases	5	49.4	1,303	45.8
Automobile Accidents	5	49.4	804	28.3
Diabetes Mellitus	3	29.6	6,080	213.0
Kidney Diseases	3	29.6	291	10.2
Homicide	1	9.9	246	8.6
Liver Diseases	0	0	613	32.9
Suicide	0	0	215	11.0

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, 2000

Healthcare 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 healthcare sector for Quitman County.

The nature of operations at Quitman County Hospital consists of a hospital and a nursing home as an enterprise (proprietary) operation. Table 15 reports the estimated impact of the local hospital on Quitman County’s economy. This table contains information that only pertains to the hospital portion of the business, as the nursing home portion of the business will be

Table 15. Estimated Contribution of Quitman County Hospital to the Quitman County Economy

Category	Unit of Measure	Initial Impact of Hospital	Additional Impact of Hospital	Total Impact of Hospital	County Total	Hospital as a Percent of Total
Employment	# of Jobs	110	10	120	3,177	3.8%
Personal Income	\$	2,657,600	169,284	2,826,884	149,288,000	1.9%
Indirect Business Taxes ¹	\$	189,766	60,464	250,230	7,201,000	3.5%

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 Quitman County Hospital and Nursing Home. This table represents *only* the hospital side of the business, however, the nursing home side in conjunction with this hospital data will be shown in Table 15A.

addressed separately. Based on 1999 IMPLAN model data and primary data gathered from FYE 12-31-01 hospital financial reports, the county's hospital provides 110 jobs and these jobs create the need for 10 additional local jobs in other employment sectors.

Thus, the Quitman County Hospital (only) generates an impact of 3.8 percent of the total county employment or 120 jobs. Likewise, the hospital creates more than \$2.6 million in personal income directly, and about \$169 thousand indirectly, for a total of 1.9 percent of the county's income (\$149.2 million). Indirect business taxes in the county of more than \$250 thousand are generated by the existing hospital as it creates secondary economic activity. Again, these figures represent *only* the hospital portion of the enterprise called Quitman County Hospital and Nursing Home (QCH&NH).

In Table 15A, the estimated economic contribution of the hospital and nursing home enterprise is shown. This business (QCH&NH) employs 164 people directly, which causes the need for an additional 23 jobs in the county in other employment sectors. The hospital and nursing home creates more than \$3.7 million in personal income directly, and about \$416 thousand indirectly, for a total of 2.8 percent of the county's income (\$149.2 million). Indirect business taxes in the county of more than \$356 thousand are generated by this enterprise as it creates secondary economic activity within the local economy.

In Table 16, the last two components of the healthcare sector (doctors/dentists and others) has been combined with the figures from the county hospital/nursing home (see Table 15A). These additional components employ 43 people resulting in a total of 207 people employed directly by the county's healthcare sector and 31 indirectly. Total payroll for the sector is estimated to be slightly more than \$5.39 million. The existing healthcare sector has a significant impact on employment and income throughout the other industries in Quitman County. The

total employment impact of Quitman County's healthcare sector is an estimated 238 jobs that result in a total income of more than \$5.95 million and 7.5% of the total county employment being either directly or indirectly employed in the healthcare sector. Indirect business taxes attributed to the healthcare sector are approximately \$440 thousand or 6.1% of the total in the county.

Table 15A. Estimated Contribution of Quitman County Hospital and Nursing Home to the Quitman County Economy

Category	Unit of Measure	Initial Impact of Hosp & NH	Additional Impact of Hosp & NH	Total Impact of Hosp & NH	County Total	Hosp & NH as a Percent of Total
Employment	# of Jobs	164	23	187	3,177	5.9%
Personal Income	\$	3,708,464	416,703	4,125,167	149,288,000	2.8%
Indirect Business Taxes ¹	\$	265,134	91,793	356,927	7,201,000	5.0%

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 Quitman County Hospital and Nursing Home

Table 16. Estimated Contribution of the Local Health Care Sector to the Quitman 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	# of Jobs	207	31	238	3,177	7.5%
Personal Income	\$	5,396,464	561,073	5,957,537	149,288,000	4.0%
Indirect Business Taxes ¹	\$	312,650	127,813	440,463	7,201,000	6.1%

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 Quitman County Hospital

Summary and Conclusions

The economic influence of providing healthcare 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 healthcare sector. In a rural community, this particular sector 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 healthcare sector to the Quitman County economy. The income and employment estimates for Quitman County reinforce findings from similar research in other geographic areas.

Healthcare 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 healthcare as a percent of the state's gross product also increased from 3.23% in 1980 to 5.60% in 1999.

The demand for healthcare 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.

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

Financial interrelationships captured in an economic model indicate that the total impact (direct and indirect combined) of the hospital/nursing home component of the healthcare sector

in Quitman County results in the employment of 5.9 percent of the county's total workforce (187 jobs) and 2.8 percent of the total earned personal income (\$4.125 million). The total healthcare sector impact on employment increases from 5.9 percent to 7.5 percent of the county's total workforce being employed either directly in or indirectly because of the healthcare sector. These additional impacts cause personal income to increase from \$4.125 million or 2.8 percent to more than \$5.95 million or 4.0 % of the county's total income. Indirect business taxes are affected in a similar manner, increasing from \$356 thousand (5.0%) to \$440 thousand or 6.1 percent of the county's total.

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

Comprehensive healthcare planning is essential to develop the strongest healthcare 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 healthcare planning to answer questions such as the following. What healthcare services are needed and feasible in our community? What changes are needed in our existing healthcare sector? This can best be accomplished with an open community planning process that includes a cross section of community residents, healthcare providers and members of the business community. Technical assistance can be obtained from Land Grant Universities or Offices of Rural Health.

Comprehensive reports such as this one completed for other counties in Mississippi with hospitals eligible for Critical Access designation can be found on the Internet at:

http://msucares.com/health/health/rh_economics.html

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 healthcare 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 Healthcare (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 healthcare 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 Healthcare 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: ly refers to family physicians, practitioners, obstetricians and gynecologists, and internists. Primary care physicians provide the first level of comprehensive healthcare.

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 healthcare (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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