

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

Pontotoc County, Mississippi

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

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 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 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 Pontotoc 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 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 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 Pontotoc County's 26,726 residents (U.S. Census Bureau, 2000) spent this average amount, more than \$86.27 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 26,726 provides estimates of potential local spending (primary healthcare) in Pontotoc County. The total spending potential is estimated to be \$61.9 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 Pontotoc 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 Pontotoc County and the state.

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

Health Care Category	Mississippi Spending Per Capita	Percent Local Spending	Local Spending Per Capita	Potential Local Spending
Hospital Care	\$1,398	61%	\$853	\$22,797,278
Physician & Other Professional Services	\$804	75%	\$603	\$16,115,778
Prescription Drugs	\$350	75%	\$263	\$7,028,938
Nursing Home Care	\$250	100%	\$250	\$6,681,500
Dental Services	\$115	75%	\$86	\$2,298,436
Home Health Care	\$106	100%	\$106	\$2,832,956
Non-Prescription Drugs and Other Medical Non-Durables	\$94	75%	\$71	\$1,897,546
Other Personal Health Care	\$77	75%	\$58	\$1,550,108
Vision Products and Other Medical Durables	\$34	75%	\$26	\$694,876
Total Spending	\$3,228	72%	\$2,316	\$61,897,416

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 Pontotoc County and Mississippi are presented in Table 5. Between 1990 and 2000, Mississippi's population increased 10.5 percent and Pontotoc County population increased at almost twice this rate (20.2%). Pontotoc County, with about 53.8 persons per square mile, has a population density relatively comparable

to the state's population density (60 persons per square mile). The county's older residents represent 12.8 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 Pontotoc County is projected through 2025 to increase by 21.1 percent while the state's population is projected to increase by 18 percent. The number of residents in the 65 and over category is expected to increase by 75.8 percent in the county, which is comparatively consistent with the state's projected population increase of 73.3 during the same time period.

According to the 2000 Census, the population of Pontotoc County was 84.4 percent white and 15.6 percent non-white. These numbers are even more skewed than those of the state. The percentage of high school graduates in the county is analogous (49.4%) to that of the state (49.5%), while the percentage of college graduates in the county (8.1%) was almost half the state percentage (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 Pontotoc County and Mississippi. The county's total annual personal income is approximately \$502.6 million, providing about \$18,767 of annual income per person (slightly less than the state's average of \$20,900). The median household income in Pontotoc County is \$28,991, which is slightly higher than the state income value (\$28,527). The county's poverty rate is 12.7 percent, about five percent less than the state's rate (18.1%).

The civilian labor force in the county is estimated to be 13,239 with 1,163 people employed by governments, and 448 unemployed (US Census Bureau MapStats, 1999 data). All

types of local enterprises generate 12,132 jobs. Persons employed in non-farm, private sector jobs total about 9,420. This indicator has increased by 22.8 percent since 1990, and is substantially lower than the state indicator (31.2%). Average earnings per job are about \$19,392 per year compared to about \$23,388 for the state.

Table 5. Selected Demographic Data for Pontotoc County and Mississippi

Item	County	State
Population, 2000	26,726	2,844,658
Population, percent change, 1990 to 2000	20.2%	10.5%
Persons per square mile, 2000	53.8	60.6
Populations by age, percent of total, 2000		
Under 20 years	30.4%	30.7%
20 to 64 years	56.9%	57.3%
65 years and over	12.8%	12.0%
Population projection, percent change to 2025		
Total population	21.1%	18.2%
65 years and over	75.8%	73.3%
Race:		
White	84.4%	61.4%
Non-white	15.6%	38.6%
Persons over 25 graduating from high school, 1990		
	49.4%	49.5%
Persons over 25 graduating from college, 1990		
	8.1%	14.7%
Households, 2000	10,097	1,046,434
Median Household money income, 1997	\$28,991	\$28,527
Persons below poverty, % 1997	12.7%	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 Pontotoc County and Mississippi

Item	County	State
Personal Income, 2000 (\$1,000)	\$502,599	\$59,545,076
Personal Income per capita, 2000	\$18,767	\$20,900
Civilian Labor Force, 1999	13,239	1,269,955
Unemployment, 1999	448	64,666
Full-time and part-time employment by place of work, 1997	12,132	1,425,691
Employment in government, 1997	1,163	253,888
Local government employment, full-time equivalent, 1997	901	122,256
Private non-farm employment, 1999	9,420	948,883
Private non-farm employment, percent change 1990 to 1999	22.8%	31.2%
Average earnings per job, 1997	\$19,392	\$23,388
Private non-farm establishments with paid employees, 1999	469	59,834
Private non-farm establishments with less than 20 employees, 1999	399	51,931
Nonemployer establishments, 1999	1,468	130,932
Retail sales, 1997 (\$1,000)	\$120,236	\$20,774,508
Retail sales per capita, 1997	\$4,852	\$7,605

Source: Bureau of Economic Analysis, Regional Accounts Data, CA-05 and CA-34

There are 469 private non-farm establishments with paid employees, but 399 of these have less than 20 employees. There are 1,468 businesses, which do not have any paid employees (proprietorships). Retail sales in the county were more than \$120.2 million in 1997. This is about \$4,852 per person but is notably lower than the state average (\$7,605).

Table 7 shows sectors of employment in Pontotoc County and the state. Manufacturing (47.4%), services (13.9%), and retail trade (11.5%) were the three most significant 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 Pontotoc County and Mississippi, 2000

	County	Percent of County	State	Percent of State
Farm Employment	827	5.8%	54,784	3.7%
Ag. Services, Forestry, Fishing	(D)		21,168	1.4%
Mining	(L)		7,767	0.5%
Construction	(D)		87,199	5.8%
Manufacturing	6,810	47.4%	239,692	16.0%
Transportation/Public Utilities	454	3.2%	70,664	4.7%
Wholesale Trade	276	1.9%	50,991	3.4%
Retail Trade	1,652	11.5%	244,648	16.3%
Finance, Insurance, Real Estate Services	455	3.2%	78,564	5.2%
	1,994	13.9%	376,690	25.1%
Government				
Federal Civilian	68	0.5%	27,385	1.8%
Federal Military	171	1.2%	35,453	2.4%
State	90	0.6%	64,303	4.3%
Local	929	6.5%	141,036	9.4%
Total Employment	14,380	100.0%	1,500,344	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.

(L) Less than 10 jobs, 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 69.3 percent of total personal income in 2000 came from total earnings (adjusted to place of residence) with transfer payments contributing 18 percent. Other data show that 80.1 percent of the total earnings that originate in employment within the county are from wages and salaries. Finally, 42 percent of transfer payments were made for retirement/disability while 37.2 percent were made for medical purposes. Incidentally, during fiscal year 2001, the state's

Division of Medicaid paid providers in Pontotoc County a total of \$15,404,901 or 0.7% 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 Pontotoc County, and Mississippi, 2000

Source	County Total (\$1,000)	County Percent	State Percent
Total Personal Income ¹	\$502,599		
Earnings by Place of Residence ²	\$348,337	69.3%	64.9%
Transfer Payments	\$90,668	18.0%	18.6%
Total Earnings ³	\$318,589		
Wages and Salaries	\$255,089	80.1%	78.1%
Proprietors Income	\$34,680	10.9%	11.7%
Other Labor Income	\$28,820	9.0%	10.3%
Transfer Payments	\$90,668		
Retirement and Disability	\$38,055	42.0%	37.4%
Medical Payments	\$33,773	37.2%	38.6%
Other	\$18,840	20.8%	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 availability of healthcare service providers in Pontotoc County was lower than the state in most categories.

Table 9. Availability of Selected Medical Providers in Pontotoc County

Provider Type	County Number	County Rate/1000	State Rate/1000
Hospitals (2000)	1		
Licensed Hospital Beds	58	2.2	4.2
Nursing Home (2001) Beds	3 164	0.1 6.1	
Health Care Practitioners: (2001)			
M.D.s	14	0.5	2
Family Practice	8	0.3	0.2
Internal Medicine	3	0.1	0.3
Other	3	0.1	1.4
Dentists	5	0.2	0.4
Nurse Practitioners	4	0.1	0.5
Emergency Medical Personnel (2001)			
EMT Basics & Intermediates.	8	0.3	0.6
Paramedics	11	0.4	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. Pontotoc County has one hospital. There are five Mississippi counties that border Pontotoc, and each one has a hospital. There are a total of 1,030 hospital beds in these surrounding counties with 554 beds in Lee County alone, while Pontotoc Hospital has 58 licensed beds. Table 10 contains data showing where county residents go to receive hospital care (out-flow). Approximately 89 percent of Pontotoc County residents obtained some form of hospital care outside of the

Table 10. Hospital Discharge of Pontotoc County Residents by Hospital

Name of Hospital	Number ¹	Percent
North MS Medical Center	325	59.6%
Baptist Memorial Hospital Union County	76	13.9%
Baptist Memorial Hospital North MS	63	11.6%
Pontotoc Hospital	60	11.0%
Parkwood Behavioral Health Systems Olive Branch	5	0.9%
Magnolia Regional Health Center	4	0.7%
University Hospital and Clinics	3	0.6%
Gilmore Memorial Hospital, Inc.	2	0.4%
MS Baptist Medical Center	2	0.4%
Baptist Memorial Hospital Booneville	1	0.2%
Bolivar Medical Center	1	0.2%
North MS State Hospital Crisis Intervention	1	0.2%
North Oak Regional Medical Center	1	0.2%
Trace Regiona Hospital	1	0.2%
Total	545	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

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). Pontotoc Health Services, Inc. (hospital) had approximately 74.1 percent of its patients from Pontotoc County, with the remaining 25.9 percent from Lee County (13.6%), Chickasaw County (8.6%), Calhoun County, Tishomingo County and the state of Tennessee. The latter three regions comprised a total of only 3.6 percent of the total number of patients discharged from Pontotoc Hospital. In Table 11A, the patient mix of the local hospital during the same period shows that 87.7 percent of the patients discharged were covered by Medicare, about 6.2 percent were covered by commercial insurance, with only about 3.6 percent of patients covered by Medicaid and 2.5 percent with no insurance coverage.

Table 11. Discharges by Hospital by County of Residence

Pontotoc Hospital	Frequency ¹	Percent
Pontotoc County	60	74.1%
Lee County	11	13.6%
Chickasaw County	7	8.6%
Calhoun County	1	1.2%
Tennessee	1	1.2%
Tishomingo County	1	1.2%
Total	81	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. Discharges by Hospital by Insurance Type

Pontotoc Hospital	Number of Discharges	Percent of Total
Medicare	71	87.7%
Commercial	5	6.2%
Medicaid	3	3.6%
Self Pay	2	2.5%
Total	81	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 showing Pontotoc Health Services, Inc. (hospital) patient discharge diagnoses during four, 2-week study periods between April 2001 and January 2002. Diagnoses during that time showed that of 8 percent were for circulatory diseases which includes all types of heart diseases (hypertension, heart attacks, arteriosclerosis, etc.) and 48 percent for respiratory diseases, which represents the top

two reasons for hospitalization of county residents. This data is somewhat consistent with the diagnoses of county residents that sought hospital care outside the county during the same time period, which is shown below in Table 12.

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

Disease Group	Number ¹	Percent
Circulatory	94	17.25%
Respiratory	74	13.58%
Digestive	58	10.64%
Live newborns	52	9.54%
Pregnancy, childbirth	48	8.81%
Mental Disorders	34	6.24%
Injury/Poisoning	30	5.50%
Endocrine, Immun	22	4.04%
Genitourinary	20	3.67%
Musculoskeletal	12	2.20%
All other categories	101	18.53%
TOTAL	545	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

Information concerning hospital discharges, Medicare and Medicaid enrollment, and selected birth and death statistics are detailed in Table 13. Pontotoc Health Services, Inc. had 523 discharges for FYE 2001. The county had an equivalent percentage (14.5%) of residents enrolled in Medicare relative to those in the state (aged and disabled combined); however, the county's Medicaid statistics were more slightly lower (16.1%) than the state's

values (19.5%). These Medicaid values are consistent with the rather moderate population of residents in Pontotoc County living at or below the poverty level (12.7%) as compared to the

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

Status or Indicator ¹	County Number	County Percent/Rate	State Percent/Rate ⁴
Hospital Discharges	0	0.0%	N/A
Medicare Enrollment (98)			
Aged (65 and over)	3061	11.5%	11.5%
Disabled (Under 65)	797	3.0%	2.9%
Medicaid Eligible (2000)	4306	16.1%	19.5%
Infant Mortality (1996-2000) ²	3	7.1	10.5
Live Births to Unmarried Mothers	116	28.8%	46%
Teenage Pregnancy (2000) ³	85	42.1	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)

state's poverty level (18.1%). The rate of infant mortality was less than the state's rate, as was the percentage of live births to unmarried mothers in the county (28.8%). The teenage pregnancy rate in the county was nearly the same (42.1) as the state's rate (42.9).

Table 14 contains the eleven most common causes of death among Pontotoc County residents in 2000. Cardiovascular disease, cancer, accidents, automobile accidents, and chronic lung diseases 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 Pontotoc County

Causes of Death	Pontotoc County		State of Mississippi	
	Number ¹	Rate ²	Number ¹	Rate ²
Cardiovascular Diseases *	102	381.6	1,119	58.1
All Types of Cancer	48	179.6	11,792	414.5
Accidents (all types)	26	97.3	612	21.5
Automobile Accidents	18	67.4	804	28.3
Chronic Lung Diseases	14	52.4	1,303	45.8
Diabetes Mellitus	6	22.4	6,080	213.0
Liver Diseases	6	22.4	613	32.9
Pneumonia & Influenza	5	18.7	670	23.6
Kidney Diseases	3	11.2	291	10.2
Suicide	3	11.2	215	11.0
Homicide	2	7.5	246	8.6

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 Pontotoc County.

Table 15 reports the estimated impact of the local hospital on Pontotoc County's economy. Based on 1999 IMPLAN model data and primary data gathered from FYE 9-30-01 hospital financial reports, the county's hospital provides 123 jobs and these jobs create the need for 25 additional local jobs in other employment sectors within the county.

Table 15. Estimated Contribution of Pontotoc Health Services¹ to the Pontotoc County Economy

Category	Unit of Measure	Initial Impact of Hospital	Additional Impact of Hospital	Total Impact of Hospital	Hospital County Total	Hospital as a Percent of Total
Employment	jobs	123	25	148	13,239	1.1%
Personal Income	\$	3,570,080	1,635,235	5,205,315	473,630,000	1.1%
Indirect Business Taxes ²	\$	30,000	4	116,719	22,246,000	0.5%

¹Hospital portion of Pontotoc Medical Services, Inc. only; nursing home portion reflected in Table 16

²Indirect 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 Pontotoc Medical Services, Inc.

Thus, Pontotoc Health Services, Inc. (hospital) generates an impact of 1.1 percent of the total county employment or 148 jobs. Likewise, the hospital creates \$3.57 million in personal income directly, and about \$1.63 million indirectly, for a total of \$5.205 million of the county's personal income (1.1%). Indirect business taxes in the county of approximately \$116 thousand are generated by the existing hospital as it creates secondary economic activity.

In Table 16, three additional components of the healthcare sector (doctors/dentists, nursing homes and others) have been combined with the figures from the county's hospital. These additional components employ 263 people resulting in a total of 386 people employed directly by the county's healthcare sector with 58 people employed as a result of the healthcare

sector (indirectly). Total payroll for the entire sector is estimated to be nearly \$10.6 million.

The total employment impact of Pontotoc County's healthcare sector is an estimated 284 jobs

Table 16. Estimated Contribution of the Local Health Care Sector to the Pontotoc 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	386	58	444	13,239	3.4%
Personal Income	\$	10,592,080	1,079,896	11,671,976	473,630,000	2.5%
Indirect Business Taxes ¹	\$	219,000	203,837	422,837	22,246,000	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 Pontotoc Medical Services, Inc.

that results in a total income of more than \$11.67 million or 2.5 percent 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 \$422 thousand or nearly 2 percent of the total in the county.

The existing healthcare sector has a significant impact on personal income in Pontotoc County, although the percentage impact of total numbers of people employed is less than what has been seen in other counties that have been evaluated using this same method. This may be due to the fact that the largest employment sector, which is manufacturing, accounts for an incredible 46.4 percent of the total county employment (6,810 jobs) with the service sector accounting for just 13.9 percent (1,994 jobs). Remember, healthcare jobs fall into the category of the service sector.

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 Pontotoc County economy.

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 Pontotoc County are delivered to residents and non-residents alike. This creates substantial direct and indirect impacts on the local economy by providing residents (and possibly non-residents) with employment and income opportunities.

Financial interrelationships captured in an economic model indicate that the total impact (direct and indirect combined) of the hospital component of the healthcare sector in Pontotoc County results in the employment of 148 workers and \$5.2 million in personal income. The total

healthcare sector impact on employment increases from 1.1 percent to 3.4 percent of the county's total workforce being employed either directly in or indirectly because of the healthcare sector. (Again, these percentages are smaller than what has been seen previously in other counties and is attributed to the incredibly large manufacturing sector that represents 47.4 percent of the total county employment.) These additional impacts cause personal income to increase from \$5.20 million to more than \$11.67 million or 2.5 percent of the county's total income. Indirect business taxes are affected in a similar manner, increasing from \$116 thousand (0.5%) to \$422 thousand or 1.9 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: Mainly 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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