MISSISSIPPI
HEALTH ADVOCACY
PROGRAM

An Economic Analysis

of the State and Local Impact of Medicaid Expansion in Mississippi

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Introduction

In 2012 the United States Supreme Court upheld the Affordable Care Act (ACA), ruling that the individual mandate was constitutional based upon the congressional power to "lay and collect taxes." However, in its majority opinion, the Court also ruled that Congress had overstepped its authority by threatening to withhold existing Medicaid funding to states that did not expand their programs as required under the ACA. As a result, the decision to expand Medicaid to individuals with family incomes up to 138% of the federal poverty level (FPL) was left to the states. Although the Supreme Court limited the power of Congress, the funding structure for the Medicaid expansion provides substantial incentives for states to enact the now-

optional coverage expansion to begin as early as January 1, 2014. Despite these strong financial incentives, Mississippi is one of 23 states which currently have elected not to participate in the expansion.

This project is designed to inform ongoing public discourse regarding Medicaid expansion in Mississippi. Our report covers three major topic areas. First, it provides a comprehensive assessment of the role of the health care sector in Mississippi's economy. This section of the report provides an overview of the health care system in Mississippi, including the availability of various types of resources such as hospitals and physicians, and health care employment and payroll at both the state and county level. Second, it provides a comprehensive analysis of the economic impact of Medicaid Expansion. This analysis examines the impact of expansion on Mississippi Medicaid enrollment, total state economic activity and job creation, and the impact on the Mississippi tax revenue. The analysis frames this issue from the state's perspective and how the decision of whether or not to participate in Medicaid expansion impacts the Mississippi economy. Third, the analysis estimates the more localized impact of Medicaid expansion. For each multi-county region the report estimates the number of new expansion enrollees, and the economic activity and jobs created as a result of Medicaid expansion. The goal of our analysis is to provide a factual presentation of what the health care sector and Medicaid expansion mean to the economy of the state of Mississippi.

SECTION 1: HEALTH CARE AND THE MISSISSIPPI ECONOMY

The United States has the most technologically advanced health care system of the world, with health spending accounting for nearly 18 percent of gross domestic product and a similar share of total employment. Over the coming decades the health care industry will continue to be a major driver of economic and employment growth in the United States. This section provides an overview of the health care sector in Mississippi and its importance to economic activity in the state. It uses data from the Census Bureau's annual County Business Patterns to provide a detailed overview of the health care sector in Mississippi, including counts of establishments, employment and annual payroll by various elements of the health care sector. Next it documents the contribution of the health care industry to economic and employment growth over the past decade. Lastly, it provides an overview of the health care sector at the county level throughout Mississippi.

The Mississippi Health Economy

Table 1 highlights the importance of the health care sector in the state of Mississippi as of 2011. It presents counts of establishments, employment and annual payroll for each 4-digit North American Industrial Classification System (NAICS) code within the two-digit NAICS code 62. "Social assistance" is included because it is included in the Bureau of the Census classification. The analysis is principally interested in the contribution of the health care related industry groups (621-623), thus, where possible it is netted out the totals reported for the industry group. In 2011, the 4,642 health care related establishments in the state employed 136,809 Mississippians and generated nearly $6 billion in payroll. These figures correspond to over 15 percent of the state's employment and over 20 percent of the total payroll in the state. Nearly half of this employment is in the state's 113 hospitals, which employed over 66,000 people and paid just under $3 billion in payroll. Ambulatory care centers, which include physician offices, outpatient care centers and dentists' offices, account for another 45,500 jobs and $2.4 billion in payroll. Finally, nearly 25,000 Mississippians are employed in nursing and residential facilities, which account for just under $600 million in annual payroll.

Table 1: Health Care Sector and the Mississippi Economy, 2011

Service Category	Employment	Annual Payroll ($1000s)	Establishments
621 -- Ambulatory Health services	**45,529**	**2,396,902**	**4,114**
6211 -- Physician Offices	18,657	1,349,118	1,659
6212 -- Dental Offices	5,494	229,700	871
6213 -- Offices of Other Health Practitioners	5,025	179,883	826
6214 -- Outpatient Care Centers	5,689	212,023	325
6215 -- Medical and Diagnostic Laboratory	865	54,558	107
6216 -- Home health care services	7,993	301,272	264
6219 -- Other Ambulatory health care services	1,806	70,348	62
622 – Hospitals	**66,822**	**2,975,907**	**113**
6221 -- General Medical Surgical Hospitals	60,439	2,743,117	92
6222 -- Psychiatric/Substance Abuse Hospitals	4,488	154,336	9
6223 -- Specialty Hospitals	1,895	78,454	12
623 -- Nursing and Residential Facilities	**24,458**	**588,067**	**415**
6231 -- Nursing Facilities	18,822	477,449	194
6232 – Resident. Mental/Sub. Abuse Facilities	2,038	39,518	44
6233 -- Community care facilities for elderly	2,958	57,116	140
6239 -- Other Residential Facilities	640	13,984	37
624 -- Social Assistance	**20,257**	**312,712**	**1,440**
Total -- Health Care and Social Assistance	**157,066**	**6,273,588**	**6,082**
Total -- Health Care (excluding social assistance)	**136,809**	**5,960,876**	**4,642**
Total – Mississippi Economy	**887,772**	**29,585,310**	**58,592**
Health Care Share of Mississippi's Economy	**15.4%**	**20.1%**	**7.9%**

Source: 2011 US Census Bureau's County Business Patterns (http://www.census.gov/econ/cbp/). Health care and social assistance is defined by North American Industry Classification system (2-digit code 62).

The current importance of the health care sector to Mississippi's economy is clear from Table 1. However, health care became a significantly more important economic force in Mississippi since the turn of the twenty-first century. Table 2, reports trends in employment and payroll for each of the 3-digit health care industry codes. The data present a striking picture of the Mississippi economy. Between 2001 and 2011, health care related employment in Mississippi increased by 22.9 percent, while payroll increased by 35.7 percent. During this same time period overall employment in the state decreased by 4.2 percent and payroll increased by only 2.5 percent. The growth in the health care employment was concentrated in ambulatory care services (50 percent increase) and nursing/residential facilities (24.3 percent) as hospital based employment rose by a more modest 8.9 percent. In a single decade the health care sector's share of total employment in the state rose from 12.0 percent to 15.4 percent. This was an increase of over 25,400 net jobs.

Table 2: Trends in Health Care Sector Employment and Payroll in Mississippi (2001-2011)

	2001		2006		2011		Change 2001 - 2011	
	#	Annual Payroll	#	Annual Payroll	#	Annual Payroll	#	Annual Payroll

Service Category	Workers	($1000s)	Workers	($1000s)	Workers	($1000s)	Workers	($1000s)
621 – Ambulatory Health services	30,350	1,674,017	38,946	2,006,307	45,529	2,396,902	50.0%	43.2%
622 – Hospitals	61,350	2,298,107	64,536	2,756,447	66,822	2,975,907	8.9%	29.5%
623 – Nursing/Residential Facility	19,638	419,249	21,421	508,816	24,458	588,067	24.5%	40.3%
624 – Social Assistance	15,068	242,138	18,465	304,002	20,257	312,712	34.4%	29.1%
Total – Health Care + Social Assist	126,406	4,633,511	143,368	5,575,573	157,066	6,273,588	24.3%	35.4%
Total – Health Care	111,338	4,391,373	124,903	5,271,570	136,809	5,960,876	22.9%	35.7%
Total – Mississippi Economy	926,868	28,854,269	940,609	30,616,075	887,772	29,585,310	-4.2%	2.5%
Healthcare % of MS Economy	12.0%	15.2%	13.3%	17.2%	15.4%	20.1%	28.3%	32.2%

Source: 2001, 2006, 2011 US Census Bureau's County Business Patterns (http://www.census.gov/econ/cbp/). Annual payroll is reported in 2011 real dollars.

Unlike other industries which have a narrower footprint within states, the health care sector plays a critical role in the economy of each of Mississippi's 82 counties. The Data Appendixes at the end of this report provide a series of tables which show the count of establishments, employment and annual payroll within the health care sector (NAICS code 62) and for each 3-digit NAICS code. These data are somewhat incomplete because the Census Bureau does not publish employment and payroll data from smaller counties in order to protect the confidentiality of individual responding firms. The two-digit industry totals are available for a relatively larger set of counties, but this includes social assistance employment (NAICS code 624). Nonetheless, these county-specific tables provide an sense of the importance of the health care sector throughout the state of Mississippi.

SECTION 2: STATE ECONOMIC IMPACT OF MEDICAID EXPANSION

This section provides a comprehensive economic analysis of the aggregate impact of Medicaid expansion at the state level. The analysis examines the impact of Medicaid expansion over the 2014-2020 period and focuses on four principal areas. First it estimates the number of new Medicaid expansion enrollees in Mississippi, including the number of newly insured and those moving from private insurance to Medicaid. Second, it projects annual state and federal spending on the Medicaid expansion population over the 20142020 period. Third, it uses an economic input-output model to estimate the net impact of the coverage expansion on economic output and employment in Mississippi. Finally, it estimates the increase in state tax revenues and the net budgetary impact arising from the coverage expansion and associated boost in economic activity.

New Mississippi Medicaid Enrollment under Expansion

Under the ACA, Medicaid eligibility is expanded to adults (19-64) with family incomes less than 138% of the FPL (133% with a 5% income disregard) who are not currently eligible for Medicare. Legal immigrants who have lived in the United States fewer than 5 years and all undocumented immigrants are not eligible for Medicaid coverage. Table 3 presents the estimates of the number of new Mississippi Medicaid enrollees under varying assumptions regarding the take-up (enrollment) behavior of the newly eligible population

Table 3: Estimated Number of New Mississippi Medicaid Enrollees under ACA Expansion

	2014	2015	2016	2017	2018	2019	2020	Average 2014-20
High Take-up	370,297	368,112	360,526	354,920	353,152	352,207	350,719	358,562
Intermediate Take-up	224,217	222,893	218,300	214,906	213,835	213,263	212,362	217,111
Low Take-up	178,012	176,961	173,314	170,619	169,770	169,315	168,600	172,370

To construct these estimates data from the 2011 American Community Survey (ACS) are used to estimate the newly eligible population and its distribution of health insurance status. The ACS is a national survey conducted by the U.S. Bureau of the Census. Among the newly eligible residents in Mississippi in 2011, approximately 256,000 were uninsured, another 104,000 had employer-sponsored (group) coverage and 18,000 had privately purchased non-group health insurance. All of these 378,000 individuals would be newly eligible for Medicaid coverage in 2011. Next, demographic and employment forecasts, together with estimates of the proportion of the uninsured who gain private coverage as the economy expands are used, to project the newly eligible expansion population through 2020. Not everyone who is newly eligible for an expanded Medicaid program will take the coverage. We apply the take-up rates reported in Table 4 to estimate the Medicaid expansion enrollment under three alternative scenarios.

Table 4: Alternative Take-Up Scenarios

	Uninsured	Private Group Coverage	Private Non-Group Coverage
High Take-up	100%	100%	100%
Intermediate Take-up	75%	25%	60%
Low Take-up	57%	25%	54%

The "high take-up" scenario is designed to provide an upper bound estimate of enrollment and costs, as it assumes complete take up among the uninsured and full crowd-out of private insurance. The preferred specification is the "intermediate take-up" scenario which is derived from the Urban Institute's Health Insurance Policy Simulation Model. It assumes a 75 percent take-up by the uninsured, a 60 percent takeup by those currently buying non-group coverage and a 25 percent take up by those who currently have group coverage. In contrast, the low-take up scenario (based on Congressional Budget Office projections), assumes lower take-ups: 57 percent for the uninsured, 54 percent for the non-group buyers and 25 percent for those with group coverage. Overall our estimates suggest that the eligibility expansion would lead to approximately 220,000 new Mississippi Medicaid enrollees, with 83.8 percent of these being previously uninsured individuals. Additional details on these enrollment projections are shown in the technical appendix. It is worth noting that the enrollment projections decline only modestly from year to year. This is because the Census Bureau's population model and the CBO estimates of improvements in the national economy over this period, while included in the analysis, are both modest.

State and Federal Costs of Medicaid Expansion

The number of new enrollees from Table 3 together with estimated per capita health care expenditures and administrative costs are used to project the aggregate state and federal costs of the Medicaid expansion from 2014-2020. Under the ACA, Mississippi would receive a significantly higher Federal Matching Assistance Percentage (FMAP) for the expansion population than the 73.4 percent it currently receives for the non-expansion population. The ACA provides for a uniform FMAP to all states of 100 percent in 2014-2016, 95 percent in 2017, 94 percent in 2018, 93 percent in 2019 and 90 percent in all years thereafter. In addition to a share of the direct costs associated with the coverage expansion,

Mississippi will also be responsible for new administrative costs related to the expansion. Historically, administrative costs for Mississippi Medicaid have been equal to 2.3 percent of medical claims costs. This percentage is applied to new program benefit costs[1-2]. See the technical appendix for details of these administrative cost estimates.

The estimates of health spending for the expansion population are derived using the Medical Expenditure Panel Survey (MEPS) from 2008-2010. The MEPS is a national survey of households conducted for the U.S. Agency for Health Care Research and Quality. For the newly eligible population of adults under 138 percent of the FPL, per capita health expenditures were calculated by MEPS current insurance status. Since state of residence is unavailable in the public use MEPS data, the estimates are based upon newly eligible residents in the South Census Region. Newly insured individuals are assumed to have expenditures similar to those of the currently privately insured. As shown in the data appendix, the expenditures of the privately insured are between those of the uninsured and the publicly insured. This is not unreasonable. The uninsured are likely to use more health services once they have insurance coverage and those 19 to 64 year-olds who have public coverage are disproportionately disabled. The per capita expenditure estimates are inflated by a factor of 1.25 to account for the well-documented underestimation of expenditures in the MEPS data[3]. Table 5 presents estimated per capita health expenditures for the expansion population (in 2012 constant dollars) through 2020 based upon the assumption of 2.3 percent annual growth in real per capita health care expenditures[4].

Table 5: Estimated Per Capita Expenditure of Expansion Population (2012 $)

	2014	2015	2016	2017	2018	2019	2020
Per capita expenditure	$5,567	$5,695	$5,826	$5,960	$6,097	$6,237	$6,381

These per capita spending estimates, the projections of new Medicaid enrollees, together with the assumptions regarding administrative costs, and the annual FMAP under the ACA were used to project the aggregate costs of the Medicaid expansion to the state of Mississippi and the Federal Government from 2014 to 2020. Although the state bears none of the direct costs of the coverage expansion through 2016, the state will be responsible for a share of the administrative costs of the expansion in all years. See Table 6. Under the preferred intermediate take-up scenario, the model estimates that the state of Mississippi would be responsible for $575 million (6.2 percent) of the estimated $9.3 billion in new Medicaid program costs over the 2014-2020 period. This figure likely overstates the net costs to the state, because the analysis does not consider potential savings from reduced spending on uncompensated care, mental health care and other services currently provided to the expansion population. The $8.7 billion dollars in program costs financed by the federal government reflects an increase in direct revenues to health care providers in Mississippi. The next sections of this report project the impact of these increases in Federal spending on Mississippi's economic output and the state budget.

Table 6: Estimated State and Federal Costs Associated with Mississippi Medicaid Expansion (millions)

	2014	2015	2016	2017	2018	2019	2020	Total 2014-20
High Take-up Scenario								
Mississippi Costs	$47	$48	$48	$154	$179	$204	$275	$957
Federal Costs	$2,061	$2,096	$2,100	$2,010	$2,024	$2,043	$2,014	$14,349
Total Costs	$2,109	$2,145	$2,149	$2,164	$2,203	$2,247	$2,289	$15,306

Intermediate Take-up								
Mississippi Costs	$29	$29	$29	$94	$108	$124	$167	$579
Federal Costs	$1,248	$1,269	$1,272	$1,217	$1,226	$1,237	$1,220	$8,689
Total Costs	$1,277	$1,299	$1,301	$1,310	$1,334	$1,361	$1,386	$9,267

Low Take-up Scenario								
Mississippi Costs	$23	$23	$23	$74	$86	$98	$132	$460
Federal Costs	$991	$1,008	$1,010	$966	$973	$982	$968	$6,898
Total Costs	$1,014	$1,031	$1,033	$1,040	$1,059	$1,080	$1,101	$7,358

The aggregate cost burden of the Medicaid expansion is dependent upon the assumptions regarding takeup. If more previously uninsured or privately insured individuals elect to enroll in Medicaid, costs to the state and Federal government would be higher. If take-up were lower, the costs to the state and Federal government would be lower. However, under each of these scenarios, the state of Mississippi would be responsible for just 6.2 percent of the total cost of the expansion through 2020.

Economic Impact of Medicaid Expansion

The aggregate economic and employment effects of new federal spending on a potential Mississippi Medicaid coverage expansion are estimated using the IMPLAN input-output software model. This software provides state and industry specific multipliers which allow us to estimate both the direct and indirect effects of the initial increase in federally financed Medicaid spending. The intuition for a multiplier is that the initial direct Medicaid spending provides revenues to the health care sector (e.g physician incomes and hospital revenues) which are in turn spent on other goods and services. These purchases yield new revenues to other individuals and firms who increase spending on other goods and services. The initial increase in spending leads to successive rounds of progressively smaller spending increases as its impact ripples through the economy. The estimates of the indirect impact use health-sector industry specific multipliers (e.g. hospitals, nursing homes, etc.) which are then weighted by their projected share of annual personal health care expenditures between 2014 and 2020. All of the multipliers ranged between 0.59 and 0.64, suggesting that a $1 increase in federal Medicaid spending yields an additional 59-64 cents of indirect economic activity. These relatively modest multipliers are reflective of many states that, like Mississippi, lack a large multi-sector economy. Much of the new income generated by Medicaid expansion will be spent on goods and services from other states.

Table 7: Estimated Economic Impact of Federal Spending on Mississippi Medicaid Expansion (millions)

	2014	2015	2016	2017	2018	2019	2020	Total 2014-20
High Take-up Scenario								
Direct	$2,061	$2,096	$2,100	$2,010	$2,024	$2,043	$2,014	$14,349
Indirect	$1,292	$1,314	$1,316	$1,259	$1,268	$1,280	$1,262	$8,993
Total Impact	$3,354	$3,410	$3,417	$3,269	$3,292	$3,323	$3,276	$23,342

Intermediate Take-up								
Direct	$1,248	$1,269	$1,272	$1,217	$1,226	$1,237	$1,220	$8,689
Indirect	$782	$796	$797	$763	$768	$775	$764	$5,445
Total Impact	$2,031	$2,065	$2,069	$1,979	$1,994	$2,012	$1,984	$14,134

Low Take-up Scenario								
Direct	$991	$1,008	$1,010	$966	$973	$982	$968	$6,898
Indirect	$621	$632	$633	$605	$610	$615	$607	$4,323
Total Impact	$1,612	$1,639	$1,643	$1,571	$1,583	$1,598	$1,575	$11,221

Table 7 presents the economic impact projections for 2014-2020. In addition to the direct effect of the increase in federal spending on the Medicaid expansion ($8.7 billion in the intermediate take-up case), these flows of new federal dollars would generate an additional $5.4 billion of economic activity over the 2014 to 2020 period. Under the intermediate take-up scenario, the additional federal revenues to support the Medicaid expansion would generate over $14 billion in economic activity for the state of Mississippi through 2020. See technical appendix for additional details regarding the input-output analysis.

The IMPLAN software also allows the analysis to project the direct and indirect employment effects of the new economic activity generated by Medicaid expansion in Mississippi. Using the sector specific increases in direct health care spending, the model uses average industry specific wages to estimate the increase in employment by industry. Table 8 shows the number of new direct and indirect jobs created under the preferred intermediate specification. This specification yields the estimate that Medicaid expansion would increase employment in Mississippi by just under 20,000 workers during the 2014-2020 period.

Table 8: Estimated Employment Impact of Mississippi Medicaid Expansion (Intermediate Scenario)

	2014	2015	2016	2017	2018	2019	2020	Average 2014-20
Direct	12,524	12,750	12,775	12,229	12,323	12,439	12,269	12,473
Indirect	7,216	7,339	7,353	7,034	7,084	7,150	7,049	7,175
Total Impact	19,740	20,089	20,128	19,263	19,407	19,589	19,318	19,648

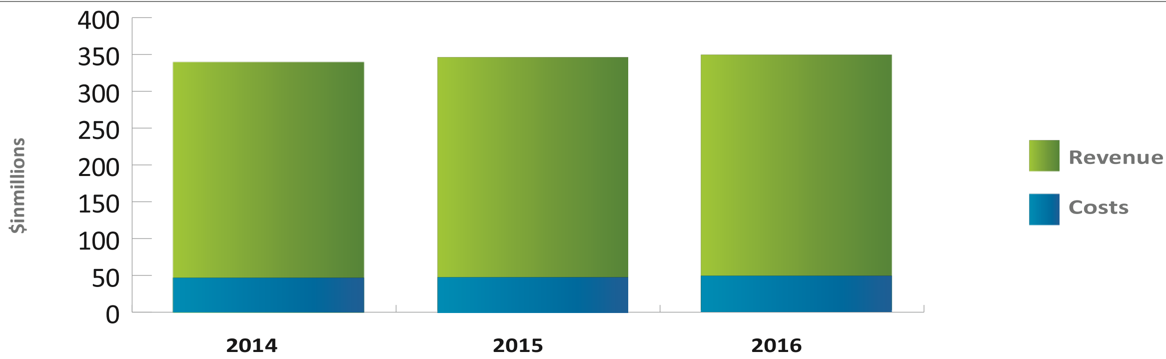
Although our analysis suggests that approximately two-thirds of these jobs will be in health care related fields, the distribution of direct and indirect jobs requires some additional consideration. The new Federal dollars to support Medicaid expansion are effectively a financial windfall to the state and new Medicaid beneficiaries. The true direct impact of expansion on the health care sector will be the difference between the new level of health spending for the expansion population and the prior level of spending paid directly by these individuals. However, the total direct impact remains equal to new federal financed health spending on Medicaid enrollees. For example, if the average expansion enrollee spent $1,000 on health care prior to having Medicaid coverage and $5,000 annually with new Medicaid coverage, the direct impact on the health care sector would be $4,000. However, the newly covered individual would have an additional $1,000 that would generate new direct spending in other sectors of the Mississippi economy. Although there might be differences in the multipliers depending on the distribution of the initial direct spending, this should have little impact on either our economic impact or employment estimates.

State Budgetary Impact of Mississippi Medicaid Expansion

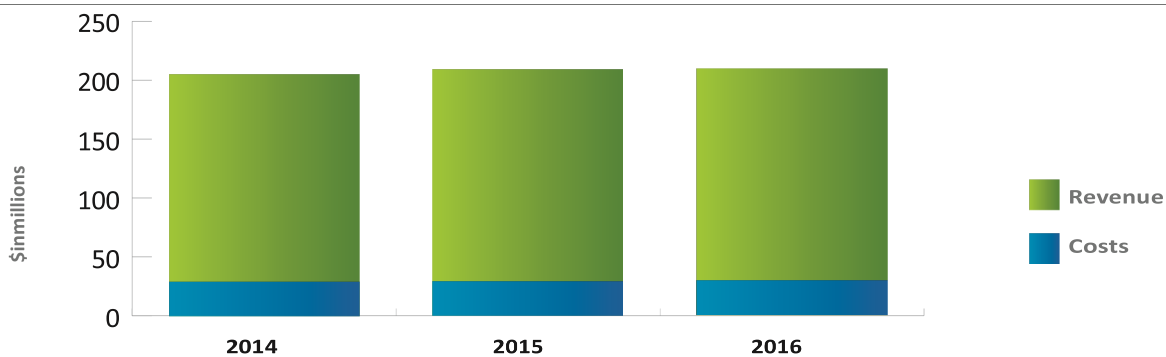
Table 9 concludes the economic analysis by projecting the state tax revenue impact of the potential Medicaid expansion and then subtracting out the state cost of the expansion. The intermediate takeup scenario estimates that the federal spending to support the coverage expansion would generate over $14 billion in increased economic activity in Mississippi between 2014 and 2020. The Federation of Tax Administrators (FTA) estimates Mississippi's tax burden at 10.1 percent of income8. The FTA computes the state's tax burden as taxes collected by state and local governments from residents and non-residents divided by the total incomes of Mississippi residents. Taxes include personal and corporate income taxes, sales and property taxes and other taxes. Using this 10.1 average tax rate, the model projects that the increase in federal Medicaid spending would generate over $1.4 billion in additional state tax revenues during this same period8. The costs to the state of expanding the Medicaid program are the administrative and direct benefit costs presented earlier in Table 6. Net of these costs, the Medicaid expansion would increase the Mississippi overall state revenue by $848 million between 2014 and 2020.

Table 9: Estimated Impact of Medicaid Expansion on Mississippi State Tax Revenues (in millions)

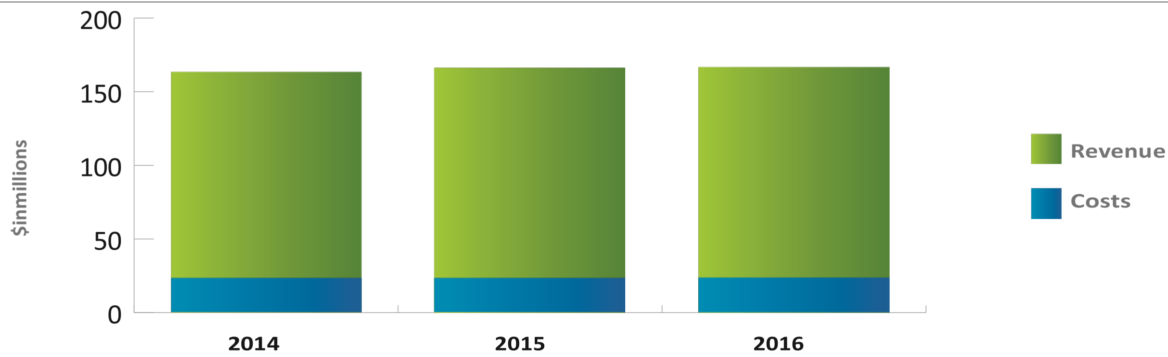
High Take-up Scenario	2014	2015	2016	2017	2018	2019	2020	Total 2014-20
MS Costs of Expansion	($47)	($48)	($48)	($154)	($179)	($204)	($275)	($957)
Increased Tax Revenues	$339	$344	$345	$330	$333	$336	$331	$2,358
Net Impact	$291	$296	$297	$176	$154	$131	$56	$1,401



Intermediate Take-up	2014	2015	2016	2017	2018	2019	2020	Total 2014-20
MS Costs of Expansion	($29)	($29)	($29)	($94)	($108)	($124)	($167)	($579)
Increased Tax Revenues	$205	$209	$209	$200	$201	$203	$200	$1,427
Net Impact	$176	$179	$180	$106	$93	$80	$34	$848



Low Take-up Scenario	2014	2015	2016	2017	2018	2019	2020	Total 2014-20
MS Costs of Expansion	($23)	($23)	($23)	($74)	($86)	($98)	($132)	($460)
Increased Tax Revenues	$163	$166	$166	$159	$160	$161	$159	$1,133
Net Impact	$140	$142	$143	$84	$74	$63	$27	$673



SECTION 3: LOCAL ECONOMIC IMPACTS OF MEDICAID EXPANSION

Although the aggregate state-level analysis presented in the previous section provides critical information to support the decision making of the Mississippi state legislature, it does not show the broad statewide effects of the expansion throughout the state. This section presents a more localized picture of the impact of Medicaid expansion by examining the effects on multi-county regions throughout Mississippi. Specifically, the report estimates of the number of new expansion enrollees, new federal health care spending and the total amount of new economic activity and jobs generated by the coverage expansion for each multi-county region in the state.

Overview of Public Use Microdata Areas

The ability to estimate local impacts is limited by the geographic data available in the American Community Survey (ACS) public use files used to estimate the expansion population. The smallest identifiable geographic area in the ACS data is the Public Use Microdata Area (PUMA). PUMAs are constructed from a set of contiguous counties and/or census tracts and must have a minimum population of 100,000. The state of Mississippi is divided into 23 PUMAs, each comprised of varying numbers of contiguous counties. The geographic size of these regions varies by population density with the Jackson metropolitan area having its own PUMA, while other PUMAs are comprised by as many as nine counties. Table 10 provides a list of the counties in each of Mississippi's PUMAs.

Table 10: Public Use Microdata Areas (PUMA) in Mississippi:

PUMA	Counties
00100	DeSoto
00200	Benton, Marshall, Lafayette, Tippah
00300	Alcorn, Itawamba, Prentiss, Tishomingo
00400	Lee, Pontotoc, Union
00500	Coahoma, Panola, Quitman, Tate, Tunica
00600	Bolivar, Washington

00700	Carroll, Humphreys, Leflore, Sunflower, Tallahatchie
00800	Attala, Calhoun, Choctaw, Grenada, Montgomery, Webster, Yalobusha
00900	Chickasaw, Clay, Oktibbeha, Winston
01000	Noxubee, Lowndes, Monroe
01100	Clarke, Kemper, Lauderdale, Newton
01200	Jasper, Leake, Neshoba, Scott, Smith
01300	Rankin
01400	Hinds (Jackson)
01500	Hinds (Outside Jackson), Madison
01600	Holmes, Issaquena, Sharkey, Warren, Yazoo
01700	Copiah, Claiborne, Covington, Jefferson, Jeff Davis, Lawrence, Lincoln, Simpson
01800	Greene, Jones, Perry, Wayne
01900	Lamar, Forrest
02000	Adams, Amite, Franklin, Marion, Pike, Walthall, Wilkinson
02100	George, Hancock, Pearl River, Stone
02200	Harrison
02300	Jackson

PUMA-Level Analysis of Medicaid Expansion

For the analysis of Medicaid expansion at the PUMA level, the same basic approach is employed as was used in the state-level analysis. For simplicity of presentation, we report our estimates only for the preferred intermediate take-up scenario. The ACS data are used to identify the newly eligible population in each PUMA, and then to estimate the expansion population from 2014 to 2020 under the intermediate take-up assumption using the same projection methods as in the state-level analysis. Table 11 presents the estimated number of new Medicaid enrollees by PUMA in all years. The number of new expansion enrollees ranges from a low of 5,615 in PUMA 08000 (Attala, Calhoun, Choctaw, Grenada, Montgomery, Webster, Yalobusha) to a high of15,889 in PUMA 01400 which consists of the city of Jackson portion of Hinds County.

Table 11: Mississippi Medicaid Expansion Enrollees by PUMA -- Intermediate Scenario

PUMA	2014	2015	2016	2017	2018	2019	2020	Average 2014-20
00100	7,079	7,037	6,892	6,785	6,751	6,733	6,705	6,855
00200	11,113	11,047	10,820	10,651	10,598	10,570	10,525	10,761
00300	7,485	7,441	7,288	7,174	7,138	7,119	7,089	7,248
00400	7,963	7,916	7,753	7,632	7,594	7,574	7,542	7,710
00500	7,305	7,262	7,112	7,002	6,967	6,948	6,919	7,073
00600	7,911	7,865	7,703	7,583	7,545	7,525	7,493	7,661
00700	13,851	13,770	13,486	13,276	13,210	13,175	13,119	13,412
00800	5,799	5,765	5,646	5,558	5,530	5,515	5,492	5,615
00900	10,003	9,944	9,739	9,588	9,540	9,515	9,475	9,686
01000	8,229	8,181	8,012	7,887	7,848	7,827	7,794	7,968

01100	9,204	9,149	8,961	8,821	8,777	8,754	8,717	8,912
01200	10,132	10,072	9,865	9,711	9,663	9,637	9,597	9,811
01300	6,996	6,954	6,811	6,705	6,672	6,654	6,626	6,774
01400	16,409	16,312	15,976	15,727	15,649	15,607	15,541	15,889
01500	7,393	7,350	7,198	7,086	7,051	7,032	7,002	7,159
01600	9,217	9,163	8,974	8,834	8,790	8,767	8,730	8,925
01700	13,260	13,182	12,910	12,709	12,646	12,612	12,559	12,840
01800	7,723	7,677	7,519	7,402	7,365	7,346	7,314	7,478
01900	11,647	11,578	11,340	11,163	11,108	11,078	11,031	11,278
02000	13,247	13,169	12,897	12,697	12,633	12,600	12,546	12,827
02100	11,781	11,711	11,470	11,291	11,235	11,205	11,158	11,407
02200	13,401	13,322	13,047	12,844	12,780	12,746	12,692	12,976
02300	7,069	7,027	6,883	6,776	6,742	6,724	6,695	6,845

Notes: See Table 10 for list of counties in each PUMA. Enrollment estimates are constructed using data from 2011 American Community Survey (ACS) Public Use Microdata Sample (PUMS), and use the intermediate take up assumptions based upon work by the Urban Institute.

Next the new Federal spending related to Medicaid expansion in each PUMA is estimated. This new spending, reported in Table 12, is equal to the number of new expansion enrollees from Table 11 multiplied by the annual per capita health expenditures estimates derived from the MEPS and the federal matching assistance percentage in the given year. Since we do not have detailed information on patient flows we assume that all health spending occurs in the PUMA in which enrollees reside. This may lead us to understate the spending in Jackson (and perhaps other areas) which provide regionalized health services. The federal spending reported in Table 12 represents the direct economic impact of Medicaid expansion and ranges from $225 to $636 million over the 2014 to 2020 period. As before, all of the dollar estimates are in constant 2012 dollars. In the Jackson area of Hinds County (PUMA 01400), Medicaid expansion would generate nearly $100 million in federally financed health care annually. Indeed, if there are significant patient flows from the more rural areas to Jackson, the effect would be larger here and commensurately lower in the areas with fewer specialized medical services.

Table 12: Federal Spending on MS Medicaid Expansion by PUMA -- Intermediate Scenario ($ millions)

PUMA	2014	2015	2016	2017	2018	2019	2020	Total 2014-20
00100	39.4	40.1	40.2	38.4	38.7	39.1	38.5	274.3
00200	61.9	62.9	63.0	60.3	60.7	61.3	60.4	430.6
00300	41.7	42.4	42.5	40.6	40.9	41.3	40.7	290.1
00400	44.3	45.1	45.2	43.2	43.5	43.9	43.3	308.6
00500	40.7	41.4	41.4	39.6	39.9	40.3	39.7	283.1
00600	44.0	44.8	44.9	42.9	43.2	43.7	43.0	306.6
00700	77.1	78.4	78.6	75.2	75.7	76.4	75.3	536.8
00800	32.3	32.8	32.9	31.5	31.7	32.0	31.5	224.7
00900	55.7	56.6	56.7	54.3	54.7	55.2	54.4	387.6
01000	45.8	46.6	46.7	44.7	45.0	45.4	44.8	318.9
01100	51.2	52.1	52.2	49.9	50.3	50.8	50.1	356.6

01200	56.4	57.4	57.5	55.0	55.4	55.9	55.1	392.6
01300	38.9	39.6	39.7	38.0	38.2	38.6	38.1	271.1
01400	91.3	92.9	93.1	89.1	89.7	90.5	89.3	635.9
01500	41.2	41.9	41.9	40.1	40.4	40.8	40.2	286.5
01600	51.3	52.2	52.3	50.0	50.4	50.9	50.1	357.2
01700	73.8	75.1	75.2	72.0	72.5	73.2	72.1	513.8
01800	43.0	43.7	43.8	41.9	42.2	42.6	42.0	299.3
01900	64.8	65.9	66.1	63.2	63.7	64.3	63.4	451.3
02000	73.7	75.0	75.1	71.9	72.4	73.1	72.1	513.3
02100	65.6	66.7	66.8	63.9	64.4	65.0	64.1	456.5
02200	74.6	75.9	76.0	72.7	73.2	73.9	72.9	519.3
02300	39.4	40.0	40.1	38.4	38.6	39.0	38.5	273.9

Notes: See Table 10 for list of counties in each PUMA. All expenditures are in 2012 dollars. Federal spending estimates are based upon projected enrollment from the American Community Survey and per capita expenditures from the Medical Expenditure Panel Survey. See text for additional details on projections.

Table 13 shows the total economic impact of Medicaid expansion by PUMA, which includes the direct health spending and the indirect economic activity generated by the new federal health spending in Mississippi. As with the state totals these estimates were generated using the IMPLAN input-output model, using a uniform set of economic multipliers for the entire state of Mississippi. Over the first seven years (2014-2020) the total economic impact of Medicaid expansion ranges from $365 million in PUMA 00800 to over $1 billion in the Jackson portion of Hinds County (PUMA 01400). In the Jackson area, the new Federal spending on Medicaid expansion would generate nearly $150 million of new economic activity annually.

Table 13: Total Economic Impact of Medicaid Expansion by PUMA -- Intermediate Scenario ($ millions)

PUMA	2014	2015	2016	2017	2018	2019	2020	Total 2014-20
00100	64.1	65.2	65.3	62.5	62.9	63.5	62.6	446.2
00200	100.6	102.3	102.5	98.1	98.8	99.7	98.3	700.5
00300	67.8	68.9	69.1	66.1	66.6	67.2	66.2	471.8
00400	72.1	73.3	73.5	70.3	70.8	71.5	70.4	501.9
00500	66.2	67.3	67.4	64.5	64.9	65.6	64.6	460.5
00600	71.7	72.9	73.0	69.8	70.3	71.0	70.0	498.7
00700	125.4	127.6	127.8	122.3	123.2	124.3	122.5	873.1
00800	52.5	53.4	53.5	51.2	51.6	52.0	51.3	365.5
00900	90.6	92.1	92.3	88.3	88.9	89.8	88.5	630.6
01000	74.5	75.8	75.9	72.6	73.2	73.9	72.8	518.7
01100	83.4	84.8	84.9	81.2	81.8	82.6	81.4	580.2
01200	91.8	93.3	93.5	89.4	90.1	90.9	89.6	638.7
01300	63.4	64.4	64.6	61.8	62.2	62.8	61.9	441.0
01400	148.6	151.1	151.4	144.9	145.9	147.3	145.2	1,034.3
01500	67.0	68.1	68.2	65.3	65.7	66.4	65.4	466.0
01600	83.5	84.9	85.1	81.4	82.0	82.7	81.5	581.0

01700	120.1	122.1	122.4	117.1	117.9	119.0	117.3	835.8
01800	69.9	71.1	71.3	68.2	68.7	69.3	68.3	486.8
01900	105.5	107.3	107.5	102.8	103.6	104.5	103.0	734.2
02000	120.0	122.0	122.2	116.9	117.8	118.9	117.2	835.0
02100	106.7	108.5	108.7	104.0	104.7	105.7	104.2	742.6
02200	121.4	123.4	123.7	118.3	119.1	120.3	118.6	844.7
02300	64.0	65.1	65.2	62.4	62.9	63.4	62.5	445.6

Notes: See Table 10 for list of counties in each PUMA. Economic activity is reported in constant 2012 dollars. The total economic impact is the sum of the direct federal spending on Medicaid expansion and the indirect economic activity generated by this federal spending.

Finally, the IMPLAN model is used to project the total number of jobs (direct + indirect) that would be created under Medicaid expansion in each of Mississippi's 23 PUMAs. As with the statewide economic output analysis, two main assumptions are used to generate these estimates. First, the model assumes that the health expenditures associated with the expansion occur in enrollees' PUMA of residence. This is a reasonable assumption for most health services in most PUMA areas, but will overstate the impact in PUMAs that have few health related resources, and will understate the impact in county-areas that see an inflow of patients. Second, by using a common multiplier across the 23 PUMA regions we further assume that all of the indirect economic activity also remains in the PUMA of enrollee residence. Incorporating detailed patient flow and consumer spending patterns at the PUMA level is well beyond the scope of this analysis. Subject to these qualifications, Table 14 presents the number of additional jobs in each PUMA in 2014 through 2020 as a result of Medicaid expansion. The estimated number of jobs created ranges from 511 to 1,455 with the largest employment effects occurring in the Jackson area of Hinds County (PUMA 01400).

Table 14: New Jobs Created by MS Medicaid Expansion by PUMA -- Intermediate Scenario

PUMA	2014	2015	2016	2017	2018	2019	2020	Avg. 2014-20
00100	623	634	636	608	613	618	610	623
00200	978	996	998	955	962	971	957	978
00300	659	671	672	643	648	654	645	659
00400	701	713	715	684	689	696	686	701
00500	643	654	656	628	632	638	629	643
00600	697	709	710	680	685	691	682	697
00700	1,219	1,241	1,243	1,190	1,199	1,210	1,193	1,219
00800	511	520	521	498	502	507	500	511
00900	881	896	898	859	866	874	862	881
01000	724	737	739	707	712	719	709	724
01100	810	825	826	791	797	804	793	810
01200	892	908	910	870	877	885	873	892
01300	616	627	628	601	605	611	603	616
01400	1,445	1,470	1,473	1,410	1,420	1,434	1,414	1,445
01500	651	662	664	635	640	646	637	651
01600	811	826	827	792	798	805	794	811
01700	1,167	1,188	1,190	1,139	1,148	1,158	1,142	1,167

01800	680	692	693	663	668	675	665	680
01900	1,025	1,044	1,046	1,001	1,008	1,018	1,003	1,025
02000	1,166	1,187	1,189	1,138	1,147	1,157	1,141	1,166
02100	1,037	1,056	1,058	1,012	1,020	1,029	1,015	1,037
02200	1,180	1,201	1,203	1,151	1,160	1,171	1,155	1,180
02300	622	633	635	607	612	618	609	622

Notes: See Table 10 for list of counties in each PUMA. Includes both the direct and indirect employment effects of the increased Federal spending in Mississippi for Medicaid expansion.

DISCUSSION

This analysis is designed to provide a thorough economic analysis of Medicaid expansion from the state's perspective. As such, it is framed around the costs and benefits to the state of participating in Medicaid expansion. The report may understate the economic case for expanding the Mississippi Medicaid program in at least three respects. First, the analysis does not consider potential cost savings to the state associated with reductions in state funds used for mental health services, prison health care and uncompensated care for the uninsured. In as much as populations could be covered under a Medicaid expansion, there would be savings to the state treasury. Depending on the size of these potential savings, the cost of expansion to the state could be considerably lower than the $579 million projected over the 2014-2020 period. Reductions in Medicaid and Medicare DSH Payments

Second, the additional Federal spending in Mississippi shown in Table 6 will be partly offset by reductions in Medicaid and Medicare Disproportionate Share (DSH) payments over the coming decade. However, the majority of these reductions in DSH payments will occur regardless of whether the state of Mississippi elects to expand its Medicaid program[5]. As such, they do not belong in an analysis of the decision to expand Medicaid. Independently, however, these reductions are important and have significant implications to health care providers in the state. Table 15 shows the projected reductions in Medicare and Medicaid DSH payments to Mississippi through 2020. These estimates are derived from Congressional Budget Office projections of national reductions in Medicare and Medicaid DSH spending in each year multiplied by Mississippi's share of Medicaid DSH spending reported by the State Health Access Data Assistance Center[6-7]. See the technical appendix for more details of the projected DSH cuts. The ACA reduced these payments on the premise that all states would expand their Medicaid program. The Supreme Court decision on this matter effectively means that in states that do not expand their Medicaid program, the DSH cuts occur, but the expanded coverage does not. This leaves the providers, the patients or other public programs in the community at risk for these costs.

Table 15: Estimated Change in Mississippi Medicare and Medicaid DSH Revenues (in millions)

	2014	2015	2016	2017	2018	2019	2020
Change in DSH Revenue	$0.0	($40.9)	($54.5)	($81.7)	($109.0)	($136.2)	($122.6)

Medicaid Expansion and Health

In contrast to the cost estimates of the coverage expansion, which involve relatively straight-forward calculations, it is far more difficult to quantify the potential benefits of expanded health insurance coverage. Credible evidence of the cause-and-effect link between coverage and health has

proven elusive within the field of health economics. The central challenge is that health insurance status is likely correlated with unobservable person specific factors that independently affect health. This raises questions about the value of observational based studies that simply compare the utilization and health outcomes of insured versus uninsured populations[9]. The most compelling evidence comes from a smaller number of experimental and quasi-experimental studies.

The most influential research on the consequences of health insurance comes from the RAND Health Insurance Experiment of the 1970s10. In this large scale social experiment, individuals were randomly assigned to health insurance plans with varying coinsurance rates. Overall, individuals in the high-coinsurance plans had significantly lower health care expenditures, but did not experience higher rates of major adverse health outcomes (e.g. mortality). However, among individuals with low-incomes and/or health status, increased out-of-pocket exposure was associated with a range of adverse health outcomes including inferior blood pressure control and dental health. This is precisely the population that would gain health insurance coverage through Medicaid expansion in Mississippi.

A number of recent studies have found evidence suggesting health benefits of expanded Medicaid coverage. A particularly relevant study of the link between health insurance and health comes from the recent experiences of the Oregon Medicaid program11. In 2008 Oregon opened its Medicaid waiting list to a limited number of low-income adults who were selected by a lottery from the pool of eligible adult applicants. Researchers from the Oregon Health Study Group have used the random assignment from the lottery to study the effects of Medicaid coverage on the health care utilization, debt burden and health of low-income adults. The study found significant effects of insurance on the use of all forms of health care services, including primary and preventative care. However, in ongoing work, the study team found that the randomized controlled study "showed … no significant improvements in measured physical health outcomes in the first two years, but…did raise rates of diabetes detection and management, lower rates of depression, and reduce financial strain."15 In contrast, another study, published in the New England Journal of Medicine in 201216, found that states that expanded eligibility in their Medicaid programs to non-disabled childless adults saw declines in mortality relative to neighboring states that did not expand coverage. In addition to mortality reductions, Medicaid recipients in the states that expanded coverage had better self-reported health and were less likely to delay seeking care.

CONCLUSIONS

This report provides an overview of the health care industry's role in the Mississippi economy and a detailed assessment of the potential impact of an expansion of state's Medicaid program under the Affordable Care Act. It provides estimates of the number of new expansion enrollees, the costs of the coverage expansion to state and federal governments, the impact of the expansion on the Mississippi economy and employment, and the budgetary impact on the state during the first seven years of the program (2014-2020). Using the "intermediate" scenario a Medicaid expansion would provide coverage to 217,000 Mississippians and reduce the state's uninsured population by 182,000. It would generate over $14 billion in new economic activity, create approximately 20,000 new jobs and provide a $848 million increase in net state and local tax revenues.

REFERENCES

1. Kaiser Commission on Medicaid and the Uninsured. 2002. *The Medicaid Resource Book*, Table 4-1 accessed 11/2/2012 at http://www.kff.org/medicaid/2236-index.cfm

2. Heritage Foundation. 2012. "State Lawmaker's guide to Evaluating Medicaid Expansion Projections." *Issue Brief* 3720 (September 7).

3. Hadley J and J Holohan. "Covering the Uninsured: How Much Would it Cost?" *Health Affairs* 2003;22:w250-w265.

4. Center for Medicare and Medicaid Services. "National Health Expenditure Projections 2011-2021" accessed 10/24/2012 at http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/Proj2011PDF.pdf.

5. State Health Access Data Assistance Center. "ACA Data Note: Hospitals, Medicaid Expansion, and Disproportionate Share Hospital (DSH) Payments" accessed 10/24/2012 at http://www.shadac.org/blog/acadata-note-hospitals-medicaid-expansion-and-disproportionate-share-hospital-dsh-payments.

6. Congressional Budget Office (CBO). 2012. "Estimated Annual Reductions in Medicare Spending by the ACA." Table 1. accessed 10/24/2012 at http://www.cbo.gov/sites/default/files/cbofiles/attachments/43471hr6079.pdf.

7. State Health Access Data Assistance Center (SHADAC). 2012. "ACA Data Note: Hospitals, Medicaid Expansion, Disproportionate Share Hospital (DHS) Payments." accessed 10/24/2012 at http://www.shadac.org/blog/aca-data-note-hospitals-medicaid-expansion-and-disproportionate-share-hospital-dsh-payments.

8. Federation of Tax Administrators. 2010. "2010 State & Local Revenue as a percentage of Personal Income." accessed 10/24/2012 at http://www.taxadmin.org/fta/rate/10stl_pi.html.

9. Levy H and D Meltzer. "The Impact of Health Insurance on Health," *Annual Review of Public Health* 2008;29:399-409.

10. Newhouse JP. Free for all? Lessons from the RAND Health Insurance Experiment. Cambridge, MA: Harvard University Press, 1993.

11. Finklestein A, Taubman S, Wright B, et al. 2012 "The Oregon Health Insurance Experiment: Evidence from the First Year" NBER working paper 17190

12. U.S. Census Bureau. "Interim State Projections of Population for Five-Year Age Groups: July 1, 2004 to 2030" accessed 10/24/12 at www.census.gov/population/www/projections/files/DownldFile3.xls.

13. Cawley, J., A.S. Moriya, and K.I. Simon. 2011 "The Impact of the Macroeconomy on Health Insurance Coverage: Evidence from the Great Recession." NBER working paper 17600.

14. Congressional Budget Office. "An Update to the Budget and Economic Outlook Fiscal Years 2012 to 2022" accessed 10/24/2012 at http://www.cbo.gov/sites/default/files/cbofiles/attachments/08-22-2012-Update_to_Outlook.pdf.

15. Baicker, K., Taubman, S.L., Allen, H.L., et al. 2013. "The Oregon Experiment – Effects of Medicaid on Clinical Outcomes," *New England Journal of Medicine* 368:1713-1722.

16. Sommers, B.D., Baicker, K., and Epstein, A.M. 2012. "Mortality and Access to Care among Adults after State Medicaid Reform," *New England Journal of Medicine* 367:1025-1034.

TECHNICAL APPENDIX

A. Enrollment Projections

The estimates of the number of new Medicaid enrollees in Table 1 are derived using the 1-year American Community Survey (ACS) Public Use Microdata Sample (PUMS) files from 2009-2011. The PUMS data allow us to estimate the size of the newly eligible population (adults 19-64, <138% FPL, resident of US>5 years) and to characterize the current distribution of health insurance coverage. Appendix Table 1 shows the potential expansion population in Mississippi and the distribution of health insurance coverage from 2009 to 2011.

Appendix Table 1: Potential Mississippi Medicaid Expansion Population (2009-2011)

	2009	2010	2011
Newly Eligible Population			
Number of Individuals, N	509,728	551,363	563,585
Annual Growth Rate, %	---	8.2%	2.2%
Insurance Status			
Uninsured Currently (SE)	220,424	248,279	256,134
	(6,133)	(7,404)	(7,467)
Insured – Private Group (SE)	95,845	101,986	103,822
	(4,007)	(4,154)	(4,303)
Insured – Private Non-Group (SE)	23,449	20,561	18,363
	(2,083)	(1,921)	(2,272)
Insured – Public/Other (SE)	170,010	180,537	185,266
	(5,451)	(6,050)	(5,391)

Source: American Community Survey 1-Year Public Use Micro Files. Estimates are based on the population of 1964 year olds with family incomes below 138% of the Federal Poverty Level, who have resided in the United States for at least 5 years.

To project the expansion population forward through 2020 we must address two principal issues: 1) Trends in the working-age population; and 2) The impact of economic recovery on the % eligible for the Medicaid expansion. First, we used the 2005 Interim State Population Projections from the US Census Bureau to project trends in the 19-64 year old population in Mississippi through 202012. The working age population in Mississippi declines from 2011 onward as the as the baby boomer cohort begins to reach retirement age. Second, we account for account for the impact of macroeconomic conditions on the size on the expansion eligible population. As mentioned previously, the 2009 -2011 data suggest that increases in unemployment are associated with an increase in the percentage of the 19-64 year old population who are eligible for the Medicaid expansion. Based on work by Cawley et al. (2011), we estimate that a 1% decrease in the unemployment rate will leads to a 0.57 percent reduction in the share of 19-64 year olds who are eligible for the Medicaid expansion13. We then use national unemployment rate projections from the Congressional Budget Office (2012) to estimate the fraction of the working age population who will be eligible for the Medicaid expansion in 2014-202014.

B. Administrative Costs of Medicaid Expansion

Nationally, administrative costs to run the state's Medicaid program account for approximately 5.5 percent of benefits costs2. The federal match for administrative costs does not vary by state and is set at 50/50 for most functions. However, for some functions, the federal government pays 75 percent. Overall, the federal government pays approximately 55 percent of administrative costs and the state pays 45 percent2. Thus, nationally, states incur approximately 2.48 percent of benefits costs as the costs of running Medicaid.

The Medicaid Resource Book reports that Mississippi's share of Medicaid administrative costs in 1997 were 2.3 percent of benefit costs1. We multiply this 2.3 percent figure by the direct medical costs of the expansion to come up with an estimate of the total administrative costs of the expansion to the state of Mississippi.

C. Expenditure Projections

Our estimates of the per capita expenditures of newly eligible Medicaid beneficiaries in Table 2 are derived from the 2008-2010 Medical Expenditure Panel Survey (MEPS) data. The primary assumption in projecting expenditures and total program costs is that expansion Medicaid enrollees will have expenditures similar to those of low-income privately insured individuals. Appendix Table 2 shows the annual MEPS expenditure data by insurance status for 2008 to 2010. Owing to the imprecision of the 1-year MEPS estimates we used the pooled 2008-2010 mean (multiplied by the adjustment factor of 1.25) as our baseline level of per capita expenditure. The adjustment factor is used to account for the well known underreporting of expenditures in the MEPS3. Appendix 2 highlights the inappropriateness of using the per capita expenditures of the uninsured or the publicly insured population to estimate the cost of the expansion enrollees. The overwhelming majority of publicly insured 19-64 year olds are disabled, thus the average expenditures of publicly insured working age adults are much higher than adults with private coverage. With Medicaid coverage, the expenditures among the currently uninsured should become reasonably similar to those of the privately insured population. We project these expenditures forward through 2020 based upon 2.3% annual growth in real per capita health expenditures.

Appendix Table 2: Per Capita Total Health Expenditures, Expansion Population in South Census Region (2008-10)

Population	Mean Expenditure[1] (95% CI)		
	2008	2009	2010
Full-year Uninsured	$1,399	$1,491	$1,656
	(969,1829)	(1144,1840)	(1103,2208)
Ever privately insured in year	$3,894	$4,645	$3,662
	(2985,4802)	(2511,6778)	(2856,4467)
Ever publicly insured in year	$7,653	$7,222	$6,260
	(5457,9849)	(5769,8676)	(5266,7255)
Overall	$3,631	$3,846	$3,525
	(2925,4336)	(3073,4620)	(3088,3962)

Notes: 1) Converted to 2012 dollars using CPI index (all items)

D. Disproportionate Share Expenditures

The Medicare and Medicaid DSH revenue reductions for Mississippi are computed using data from the Congressional Budget Office6. The CBO reported their estimated annual reductions for 2014 through 2020. SHADAC reports that Mississippi average share of total federal Medicaid DSH payments for the years 2008 through 2010 was 1.36%7. We applied this share to the combined Medicare and Medicaid DSH annual reductions estimated by CBO.

E. IMPLAN Input-Output Model

The IMPLAN analytic software provides a comprehensive set of data and analytic tools to conduct sophisticated regional economic impact analyses. Most relevant to our report are the input-output multipliers which allow us to estimate the aggregate impact of additional federal spending on the potential Medicaid expansion.

These multipliers capture the extent to which an initial increase in direct spending (federal spending on the Medicaid expansion) leads to additional economic activity, including demands for intermediate goods by the health care sector and the increase in consumption driven by resultant increases in household incomes. Appendix Table 3 presents the distribution of health care expenditures by industry sector and the multipliers provided by IMPLAN. Using this information, we allocate direct spending to industry sectors and use the industry specific multipliers to estimate the indirect effects of increased federal spending on the Mississippi economy.

Appendix Table 3: Health Sector Multipliers and Personal Health Care Expenditure Projections (2014-2020)

	2014	2015	2016	2017	2018	2019	2020	Multiplier
Professional Services	30.7%	30.6%	30.5%	30.6%	30.6%	30.6%	30.6%	0.637
Hospital Services	37.5%	37.4%	37.5%	37.4%	37.3%	37.2%	37.1%	0.637
Pharmacy Services	15.6%	15.7%	15.6%	15.7%	15.7%	15.7%	15.7%	0.619
Other Health Services	16.2%	16.3%	16.3%	16.4%	16.5%	16.5%	16.6%	0.591
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Source: Centers for Medicare and Medicaid Services (2012). National Health Expenditure Projections. 2011-2021. Baltimore, MD Retrieved 10/30/2013 from http://www.cms.gov/Research-Statistics-Data-and-Systems/StatisticsTrends-and-Reports/NationalHealthExpendData/Downloads/Proj2011PDF.pdf

DATA APPENDIX 1: Health Care and Social Assistance ESTABLISHMENTS by County, 2011

COUNTY	PUMA REGION	Ambulatory Services (621)	Hospitals (622)	Nursing/ Residential Care (623)	Social Assistance (624)	Total # of Establishments
ADAMS	02000	65	2	8	12	87
ALCORN	00300	76	1	6	17	100
AMITE	02000	5	0	1	5	11
ATTALA	00800	15	1	4	5	25
BENTON	00200	4	0	1	4	9
BOLIVAR	00600	57	1	6	24	88
CALHOUN	00800	13	1	1	7	22
CARROLL	00700	3	0	0	2	5

CHICKASAW	00900	13	1	1	6	21
CHOCTAW	00800	2	1	1	3	7
CLAIBORNE	01700	6	1	1	6	14
CLARKE	01100	11	1	2	5	19
CLAY	00900	21	1	3	4	29
COAHOMA	00500	47	2	8	26	83
COPIAH	01700	22	1	2	7	32
COVINGTON	01700	20	1	2	7	30
DESOTO	00100	182	2	10	49	243
FORREST	01900	137	2	13	50	202
FRANKLIN	02000	3	1	1	2	7
GEORGE	02100	17	1	6	9	33
GREENE	01800	5	0	2	4	11
GRENADA	00800	53	1	4	14	72
HANCOCK	02100	55	1	2	8	66
HARRISON	02200	321	7	14	87	429
HINDS	01500/01400	475	9	38	202	724
HOLMES	01600	13	0	1	17	31
HUMPHREYS	00700	7	1	1	9	18
ISSAQUENA	01600	1	0	0	1	2
ITAWAMBA	00300	19	0	4	7	30
JACKSON	02300	202	2	14	55	273
JASPER	01200	10	1	0	1	12
JEFFERSON	01700	7	1	0	7	15
JEFFERSON DAVIS	01700	8	1	0	5	14
JONES	01800	72	1	11	22	106
KEMPER	01100	3	0	1	4	8
LAFAYETTE	00200	95	2	4	21	122
LAMAR	01900	98	1	10	30	139
LAUDERDALE	01100	149	7	17	37	210
LAWRENCE	01700	14	0	3	4	21
LEAKE	01200	13	0	4	7	24
LEE	00400	184	1	19	65	269
LEFLORE	00700	52	2	5	18	77
LINCOLN	01700	49	1	7	10	67
LOWNDES	01000	107	1	14	41	163
MADISON	01500	172	1	18	46	237
MARION	02000	27	1	5	12	45
MARSHALL	00200	18	1	3	7	29
MONROE	01000	48	2	7	18	75
MONTGOMERY	00800	13	2	1	7	23

NESHOBA	01200	25	2	5	10	42
NEWTON	01100	15	1	3	5	24
NOXUBEE	01000	5	1	2	4	12
OKTIBBEHA	00900	58	1	9	18	86
PANOLA	00500	46	3	4	11	64
PEARL RIVER	02100	65	1	8	21	95
PERRY	01800	12	1	1	4	18
PIKE	02000	87	2	6	32	127
PONTOTOC	00400	22	1	5	11	39
PRENTISS	00300	31	1	5	5	42
QUITMAN	00500	6	1	1	5	13
RANKIN	01300	270	4	13	40	327
SCOTT	01200	20	2	5	11	38
SHARKEY	01600	6	1	1	3	11
SIMPSON	01700	34	3	6	11	54
SMITH	01200	4	1	1	1	7
STONE	02100	13	1	3	4	21
SUNFLOWER	00700	21	2	3	35	61
TALLAHATCHIE	00700	9	1	0	5	15
TATE	00500	20	1	2	11	34
TIPPAH	00200	22	1	3	6	32
TISHOMINGO	00300	21	1	4	7	33
TUNICA	00500	9	0	1	6	16
UNION	00400	34	1	5	11	51
WALTHALL	02000	10	0	2	8	20
WARREN	01600	68	2	6	39	115
WASHINGTON	00600	94	2	10	58	164
WAYNE	01800	13	1	4	4	22
WEBSTER	00800	6	1	2	3	12
WILKINSON	02000	7	1	1	5	14
WINSTON	00900	15	2	5	9	31
YALOBUSHA	00800	6	1	1	8	16
YAZOO	01600	25	1	2	12	40

DATA APPENDIX 2: Health Care and Social Assistance EMPLOYMENT by County, 2011

COUNTY	PUMA REGION	Ambulatory Services (621)	Hospitals (622)	Nursing/ Residential Care (623)	Social Assistance (624)	Total # of Establishments
ADAMS	02000	574	725	517	192	2,008
ALCORN	00300	659	1,271	372	184	2,486
AMITE	02000	41	0	--	25	--
ATTALA	00800	207	159	218	103	687
BENTON	00200	--	0	--	--	--

BOLIVAR	00600	689	406	435	312	1,842
CALHOUN	00800	111	--	--	--	514
CARROLL	00700	--	0	0	--	--
CHICKASAW	00900	90	--	--	36	--
CHOCTAW	00800	--	--	--	--	189
CLAIBORNE	01700	--	--	--	--	458
CLARKE	01100	--	--	--	--	--
CLAY	00900	118	--	--	--	664
COAHOMA	00500	543	612	389	311	1,855
COPIAH	01700	220	--	--	61	703
COVINGTON	01700	169	--	--	49	540
DESOTO	00100	2,194	1,896	518	714	5,322
FORREST	01900	3,222	3,603	723	701	8,249
FRANKLIN	02000	--	--	--	--	--
GEORGE	02100	175	379	77	62	693
GREENE	01800	--	0	--	--	--
GRENADA	00800	369	453	372	107	1,301
HANCOCK	02100	408	--	--	--	1,010
HARRISON	02200	3,122	7,775	1,059	1,070	13,026
HINDS	01500/01400	7,316	13,554	2,148	3,252	26,270
HOLMES	01600	119	0	9	156	284
HUMPHREYS	00700	66	--	--	--	275
ISSAQUENA	01600	--	0	0	--	--
ITAWAMBA	00300	--	0	--	79	539
JACKSON	02300	1,921	2,192	806	488	5,407
JASPER	01200	--	--	0	--	--
JEFFERSON	01700	--	--	0	67	303
JEFFERSON DAVIS	01700	--	--	0	--	--
JONES	01800	921	1,763	331	217	3,232
KEMPER	01100	--	0	--	37	157
LAFAYETTE	00200	944	--	--	--	2,473
LAMAR	01900	1,312	1,167	350	337	3,166
LAUDERDALE	01100	2,001	4,756	876	403	8,036
LAWRENCE	01700	85	0	92	30	207
LEAKE	01200	73	0	169	--	309
LEE	00400	2,236	3,696	916	731	7,579
LEFLORE	00700	475	1,170	551	602	2,798
LINCOLN	01700	433	513	511	177	1,634
LOWNDES	01000	938	1,099	726	312	3,075
MADISON	01500	1,290	171	1,325	484	3,270
MARION	02000	214	175	361	138	888
MARSHALL	00200	187	--	--	--	1,375

MONROE	01000	388	--	523	--	1,687
MONTGOMERY	00800	--	--	--	--	638
NESHOBA	01200	174	--	--	--	1,229
NEWTON	01100	93	--	--	36	556
NOXUBEE	01000	--	--	--	--	286
OKTIBBEHA	00900	492	569	416	188	1,665
PANOLA	00500	506	421	197	165	1,289
PEARL RIVER	02100	392	--	--	207	997
PERRY	01800	67	--	--	--	273
PIKE	02000	1,085	1,014	372	187	2,658
PONTOTOC	00400	172	--	--	--	761
PRENTISS	00300	262	--	--	--	1,107
QUITMAN	00500	45	--	--	--	--
RANKIN	01300	2,884	4,096	778	592	8,350
SCOTT	01200	195	329	192	168	884
SHARKEY	01600	34	--	--	--	233
SIMPSON	01700	630	608	1,000	119	2,357
SMITH	01200	--	--	--	--	--
STONE	02100	88	--	--	--	448
SUNFLOWER	00700	127	--	--	245	--
TALLAHATCHIE	00700	--	--	0	--	--
TATE	00500	179	--	--	67	552
TIPPAH	00200	177	--	--	31	626
TISHOMINGO	00300	216	--	252	--	661
TUNICA	00500	81	0	--	--	202
UNION	00400	320	--	--	--	1,224
WALTHALL	02000	45	0	157	21	223
WARREN	01600	854	1,180	405	361	2,800
WASHINGTON	00600	803	955	461	783	3,002
WAYNE	01800	95	--	--	--	--
WEBSTER	00800	--	--	--	26	--
WILKINSON	02000	--	--	--	--	369
WINSTON	00900	185	--	--	83	619
YALOBUSHA	00800	35	--	--	31	331
YAZOO	01600	--	--	--	149	883

Notes: To prevent the identification of specific firms, the Census Bureau does not report establishment counts, employment and payroll for all counties. These missing values are reported as "—" in the table.

DATA APPENDIX 3: Health Care and Social Assistance ANNUAL PAYROLL (in $1000) by County, 2011

COUNTY	PUMA REGION	Ambulatory Services (621)	Hospitals (622)	Nursing/ Residential Care (623)	Social Assistance (624)	Total # of Establishments
ADAMS	02000	26,914	26,683	10,873	3,428	67,898
ALCORN	00300	30,343	54,979	8,743	1,227	95,292
AMITE	02000	1,852	0	2,374	268	4,494
ATTALA	00800	5,463	6,235	5,122	941	17,761
BENTON	00200	--	0	--	--	4,090
BOLIVAR	00600	26,822	17,784	9,333	4,508	58,447
CALHOUN	00800	4,884	--	--	183	14,120
CARROLL	00700	--	0	0	--	--
CHICKASAW	00900	3,701	--	--	446	--
CHOCTAW	00800	--	--	--	--	5,473
CLAIBORNE	01700	2,592	--	--	--	10,545
CLARKE	01100	2,832	--	--	170	--
CLAY	00900	6,160	--	--	--	23,539
COAHOMA	00500	26,238	22,582	8,664	4,123	61,607
COPIAH	01700	6,917	--	--	999	18,857
COVINGTON	01700	7,474	--	--	593	19,134
DESOTO	00100	102,274	86,260	13,695	9,433	211,662
FORREST	01900	223,448	159,015	18,484	10,692	411,639
FRANKLIN	02000	--	--	--	--	--
GEORGE	02100	5,946	18,220	1,687	936	26,789
GREENE	01800	--	0	--	--	--
GRENADA	00800	15,678	17,286	8,890	1,215	43,069
HANCOCK	02100	17,809	--	--	--	40,104
HARRISON	02200	150,197	423,386	28,122	24,062	625,767
HINDS	01500/01400	456,840	687,591	53,066	63,502	1,260,999
HOLMES	01600	4,602	0	133	2,317	7,052
HUMPHREYS	00700	2,969	--	--	339	8,638
ISSAQUENA	01600	--	0	0	--	--
ITAWAMBA	00300	6,209	0	7,996	650	14,855
JACKSON	02300	102,451	105,287	20,811	8,661	237,210
JASPER	01200	2,334	--	0	--	--
JEFFERSON	01700	5,782	3,343	0	808	9,933
JEFFERSON DAVIS	01700	1,424	--	0	--	--
JONES	01800	47,211	67,196	7,496	2,465	124,368
KEMPER	01100	--	0	--	274	3,208
LAFAYETTE	00200	48,937	--	--	1,790	101,942

LAMAR	01900	67,699	48,195	6,937	4,748	127,579
LAUDERDALE	01100	128,769	192,868	20,071	5,697	347,405
LAWRENCE	01700	2,386	0	1,997	361	4,744
LEAKE	01200	3,224	0	3,670	995	7,889

LEE	00400	157,457	173,324	24,366	10,569	365,716
LEFLORE	00700	22,537	59,452	13,961	6,593	102,543
LINCOLN	01700	21,384	22,748	11,647	1,304	57,083
LOWNDES	01000	46,340	43,126	17,376	3,236	110,078
MADISON	01500	54,155	7,933	35,536	8,340	105,964
MARION	02000	8,742	6,548	9,581	3,088	27,959
MARSHALL	00200	6,348	--	--	--	30,363
MONROE	01000	19,154	19,872	13,986	1,900	54,912
MONTGOMERY	00800	--	--	--	--	20,447
NESHOBA	01200	6,742	--	--	728	44,555
NEWTON	01100	3,415	--	--	480	15,768
NOXUBEE	01000	--	--	--	629	8,564
OKTIBBEHA	00900	21,371	26,546	8,230	1,892	58,039
PANOLA	00500	19,230	12,895	5,419	4,105	41,649
PEARL RIVER	02100	16,872	--	--	4,492	31,961
PERRY	01800	2,199	--	--	--	8,269
PIKE	02000	51,986	43,044	8,343	2,304	105,677
PONTOTOC	00400	6,907	--	--	1,070	20,633
PRENTISS	00300	8,632	--	--	--	24,068
QUITMAN	00500	1,536	--	--	--	6,786
RANKIN	01300	169,038	148,642	20,537	8,801	347,018
SCOTT	01200	8,380	11,325	4,906	2,159	26,770
SHARKEY	01600	1,337	--	--	--	6,577
SIMPSON	01700	20,675	19,537	16,243	2,287	58,742
SMITH	01200	811	--	--	--	--
STONE	02100	3,711	--	--	302	15,032
SUNFLOWER	00700	4,189	--	--	3,788	--
TALLAHATCHIE	00700	1,383	--	0	--	--
TATE	00500	9,065	--	--	620	18,598
TIPPAH	00200	6,784	--	--	542	18,309
TISHOMINGO	00300	7,689	5,827	5,850	447	19,813
TUNICA	00500	2,023	0	--	--	4,894
UNION	00400	12,768	--	--	1,807	38,297
WALTHALL	02000	1,374	0	3,669	436	5,479
WARREN	01600	45,195	47,992	10,607	5,765	109,559
WASHINGTON	00600	30,789	51,254	11,110	10,054	103,207

WAYNE	01800	3,414	--	--	201	--
WEBSTER	00800	--	--	--	359	--
WILKINSON	02000	1,051	--	--	--	11,591
WINSTON	00900	8,326	9,276	372	472	18,446
YALOBUSHA	00800	1,066	--	--	342	9,723
YAZOO	01600	8,378	--	--	1,933	25,460

Notes: To prevent the identification of specific firms, the Census Bureau does not report establishment counts, employment and payroll for all counties. These missing values are reported as "—" in the table.