

The Jobs and Economic Impact of the FY2011-13 North Carolina State Budget:

A Whole-Budget Analysis Shows Widespread Private Sector Job Losses Across all North Carolina Regions

Technical Appendix

Given a range of data and analytical limitations, economic impact modeling requires defensible assumptions. This Technical Appendix lays out these key limitations, assumptions, and, ultimately, the results of our modeling. Section 1 provides a review of our General Method; Section 2 provides the assumptions and inputs used in modeling the spending changes in the budget; Section 3 provides a similar review of the tax side of the budget; and Section 4 provides a detailed accounting of results for every model used in our analysis.

Section 1. General Method

Using industry-standard economic impact analysis, this report assesses the effects of the biennial budget's spending and tax changes as distributed across each region. In doing so, the spending side and tax side are analyzed separately and then taken together to find the net effect on each region. This analysis was conducted using IMPLAN 3.0, an industry standard input-output economic impact modeling software, coupled with the software's proprietary 2009 data for the North Carolina economy.

Input-output analysis models a final spending change in the local economy that would not have otherwise occurred in a region, such as a reduction in funding for hospitals from the previous year's levels or an increase in household income due to a new tax cut. These final spending changes are also referred to as modeling an exogenous change in final demand. In this case, the final demand changes are modeled as a reduction in state-government spending on the one hand and the infusion of tax-reduction-related household or business income on the other for each region in the state.

The power of input-output methodology comes from its ability to measure the impacts of these final changes as they ripple across a region's economy, including the *direct* effects on the industries experiencing tax or spending-related changes (e.g., the loss of Medicaid funding on the hospital industry), the *indirect* effects on inter-industry purchasing that result from the direct changes (e.g., hospitals purchase fewer medical devices and hire fewer workers), and the *induced* effects related to changes in household spending attributable to the direct and indirect impacts (e.g., lower household spending due to lower payrolls at the hospital and medical device companies that lost Medicaid funding). *Total* impact represents the sum of these three separate effects; all results provided in this report are Total impacts.

It is also important to note that IMPLAN models are static, single-year models that cannot account for structural changes in a region's economy over time or year-over-year. As a result, this analysis models FY2011-12 and FY2012-13 separately, and it assumes the impacts for FY2012-13 represent the cumulative effect of these budget changes over the biennium. Specifically, it assumes the final spending in FY2011-12 produces initial impacts that are included in the final impacts for FY2012-13.

In seeking to assess the state budget at a regional level, we chose the seven Regional Economic Development Partnerships as our study areas, partly because they represent integrated labor markets and widely recognized community identities, and partly because county-level analyses for all 100 counties would prove overly time intensive.

<insert map>

Finally, we use the state-level inputs for both the spending and tax sides of the budget (developed in our state-wide study) as the baseline values for our regional analyses. In essence, we assume that the state budget will distribute spending cuts and tax changes across all seven of these regions in differing proportions, and as a result, the budget will impact each of these regions differently. In order to take into account the leakage from out-of-region spending, we used IMPLAN’s default local purchasing assumptions for both spending and tax sides of the budget.

Section 2. Spending Changes in the State Budget

Section 2.1. Total Spending Changes

In this study, we calculated the budget’s real spending changes from the previous year’s levels (also known as the continuation budget), after accounting for inter-fund transfers and accounting gimmicks. Next, we assigned each of those changes with an IMPLAN sector code or institutional spending pattern to represent the specific industries affected by program-specific spending changes, including operations and payroll. In order to determine the specific dollar amount for each industry code within each program cut, we took the number of expected Full Time Employee layoffs for each program line and multiplied them by the state’s average wage for public employees (\$50,181 for non-healthcare employees and \$48,697 for healthcare employees according to the 2011 NC Government Salary Database)—this total became the amount of the spending change attributable to payroll changes, and the balance between payroll and the total spending change was assigned to industry-specific operations. In cases where specific program lines funded services and operations across multiple IMPLAN industry sectors, we used official Departmental program service guidelines to determine the amount of the spending change attributable to each sector. See Figure A1 for these program-specific cuts and Figure A2 for their sector codes.

Figure A1. Total Spending Changes, FY2011-2013

| Program | FY11-12 Value | FY12-13 Value |
|---|----------------------|----------------------|
| <i>Education</i> | | |
| Public Education | (\$394,040,243) | (\$408,532,300) |
| Community Colleges | (\$117,475,214) | (\$117,475,214) |
| UNC System | (\$347,117,332) | (\$335,057,688) |
| <i>Total</i> | (\$858,632,789) | (\$861,065,202) |
| <i>Health & Human Services</i> | | |
| Central Management & Support | (\$19,593,563) | (\$25,192,953) |
| Aging Division | (\$200,000) | (\$200,000) |
| Child Development* | (\$50,515,674) | (\$50,515,674) |
| Public Health* | (\$4,391,755) | (\$4,391,755) |
| Social Services | (\$7,632,911) | (\$7,632,911) |
| Medicaid, State only | (\$225,383,396) | (\$446,396,865) |
| Medicaid, Federal only | (\$413,277,403) | (\$818,541,829) |
| NC Health Choice (SCHIP), State share | (\$8,921,489) | (\$4,655,941) |
| NC Health Choice (SCHIP), Federal share | (\$27,197,900) | (\$14,194,023) |
| Services for the Blind | \$0 | (\$16,224) |
| Mental Health/DD/SAS | (\$57,962,880) | (\$12,962,880) |

| | | |
|---|--------------------------|--------------------------|
| Health Service Regulation | \$0 | \$0 |
| Vocational Rehabilitation | (\$2,058,522) | (\$2,058,522) |
| <i>Total</i> | (\$817,135,493) | (\$1,386,759,577) |
| Public Safety | | |
| Corrections | (\$83,828,422) | (\$70,456,539) |
| Crime Control & Public Safety* | (\$5,766,174) | (\$7,219,958) |
| Judicial | (\$38,269,527) | (\$42,048,468) |
| Judicial - Indigent Defense | (\$12,678,720) | (\$10,021,513) |
| Justice | (\$8,966,931) | (\$8,806,806) |
| Juvenile Justice | (\$15,701,495) | (\$20,154,622) |
| <i>Total</i> | (\$165,211,269) | (\$158,707,906) |
| Natural and Economic Resources | | |
| Agriculture & Consumer Services* | \$3,706,850 | \$444,620 |
| Commerce | \$11,944,959 | (\$5,656,918) |
| Commerce - State Aid | \$1,681,736 | (\$1,017,305) |
| DENR* | (\$23,187,514) | (\$40,824,296) |
| Clean Water Management Trust Fund | (\$88,750,000) | (\$88,750,000) |
| Labor | (\$1,005,792) | (\$1,005,792) |
| NC Biotech Center | (\$1,950,190) | (\$1,950,190) |
| Rural Economic Development Center | \$2,735,915 | \$2,735,915 |
| Wildlife Resources Commission* | \$0 | \$0 |
| <i>Total</i> | (\$94,824,036) | (\$136,023,966) |
| General Government | | |
| State education cuts, including K-12 & higher education | (\$858,632,789) | (\$861,065,202) |
| All other State spending cuts | (\$684,331,745) | (\$902,519,771) |
| Total cuts to State spending | (\$1,542,964,534) | (\$1,763,584,973) |
| Loss of Federal matching dollars (Medicaid & SCHIP) | (\$440,475,303) | (\$832,735,851) |
| Total Cuts | (\$1,983,439,837) | (\$2,596,320,824) |

Figure A2. Spending Changes by Industry Code

| Spending Changes by Department | Code Description | FY11-12 Value | FY2012-13 Value |
|--------------------------------|------------------------|-----------------|-----------------|
| Education | | | |
| Public Education (K-12) | Inst. Spending pattern | (\$394,040,243) | (\$408,532,300) |
| Community Colleges | Inst. Spending pattern | (\$117,475,214) | (\$117,475,214) |

| | | | | |
|--|----|--|---------------------|---------------------|
| UNC System | | Inst. Spending pattern | (\$347,11 7,332) | (\$335,05 7,688) |
| Total Ed | | Inst. Spending pattern | (\$858,63 2,789) | (\$861,06 5,202) |
| Health & Human Services | | | | |
| Central Management & Support - payrolls | 43 | | (\$14,452, | (\$18,582, |
| | 7 | State/Local Gov Payrolls | 128) | 214) |
| Central Management & Support - office admin | 38 | | (\$5,141,4 | (\$6,610,7 |
| | 4 | Office Administrative Services | 35) | 39) |
| Child Development - child care services | 39 | | (\$50,515, | (\$50,515, |
| | 9 | Child Care Services | 674) | 674) |
| | 43 | | (\$1,217,4 | (\$1,217,4 |
| Public Health - payrolls | 7 | State/Local Gov Payrolls | 25) | 25) |
| | 39 | | (\$3,174,3 | (\$3,174,3 |
| Public Health - physician offices | 4 | Offices of Physicians, Dentists, other | 30) | 30) |
| | 43 | | (\$100,36 | (\$100,36 |
| Social Services - payrolls | 7 | State/Local Gov Payrolls | 2) | 2) |
| | 40 | | (\$7,532,5 | (\$7,532,5 |
| Social Services - services | 0 | Individual & Family Services | 49) | 49) |
| | 43 | | (\$1,460,9 | (\$2,893,4 |
| Medicaid State Only - payrolls | 7 | State/Local Gov Payrolls | 10) | 95) |
| Medicaid State Only - home health care | 39 | | (\$6,797,6 | (\$13,463, |
| | 5 | Home Healthcare Services | 10) | 423) |
| Medicaid State Only - offices of physicians, dentists, other | 39 | | (\$77,085, | (\$152,67 |
| | 4 | Offices of Physicians, Dentists, other | 930) | 7,253) |
| | 39 | Medical and diagnostic labs and outpatient | (\$23,089, | (\$45,731, |
| Medicaid State Only - Outpatient | 6 | and other ambulatory care services | 642) | 602) |
| | 39 | | (\$63,924, | (\$126,60 |
| Medicaid State Only - Hospitals | 7 | Hospitals | 711) | 9,995) |
| Medicaid State Only - nursing and residential care | 39 | | (\$52,231, | (\$103,45 |
| | 8 | Nursing and residential care facilities | 668) | 0,624) |
| Medicaid Fed Only - home health care | 39 | | (\$12,464, | (\$24,687, |
| | 5 | Home Healthcare Services | 533) | 393) |
| Medicaid Fed Only - offices of physicians, dentists, other | 39 | | (\$145,48 | (\$288,14 |
| | 4 | Offices of Physicians, Dentists, other | 2,464) | 4,189) |
| Medicaid Fed Only - other ambulatory care | 39 | | (\$42,338, | (\$83,856, |
| | 6 | Medical and diagnostic labs and outpatient | 643) | 389) |
| | 39 | and other ambulatory care services | (\$117,21 | (\$232,16 |
| Medicaid Fed Only - Hospitals | 7 | Hospitals | 6,437) | 0,180) |
| Medicaid Fed Only - nursing and residential care | 39 | | (\$95,775, | (\$189,69 |
| | 8 | Nursing and residential care facilities | 326) | 3,678) |
| SCHIP State only - physicians offices | 39 | | (\$2,973,8 | (\$1,551,9 |
| | 4 | Offices of Physicians, Dentists, other | 30) | 80) |
| SCHIP State only - other ambulatory care | 39 | | (\$2,973,8 | (\$1,551,9 |
| | 6 | Medical and diagnostic labs and outpatient | 30) | 80) |
| | 39 | and other ambulatory care services | (\$2,973,8 | (\$1,551,9 |
| SCHIP State only - Hospitals | 7 | Hospitals | 30) | 80) |
| SCHIP Fed only - physicians offices | 39 | | (\$9,065,9 | (\$4,731,3 |
| | 4 | Offices of Physicians, Dentists, other | 67) | 41) |
| SCHIP Fed only - other ambulatory care | 39 | | (\$9,065,9 | (\$4,731,3 |
| | 6 | Medical and diagnostic labs and outpatient | 67) | 41) |
| | 6 | and other ambulatory care services | | |

| | | | | |
|---|----|---|------------|------------|
| | 39 | | (\$9,065,9 | (\$4,731,3 |
| SCHIP Fed only - Hospitals | 7 | Hospitals | 67) | 41) |
| | 39 | | | |
| Services for the Blind | 5 | Home Healthcare Services | \$0 | (\$16,224) |
| | 43 | | (\$340,87 | |
| Mental Health / DD / SAS - payroll | 7 | State/Local Gov Payrolls | 9) | (\$76,235) |
| | 39 | | (\$57,622, | (\$12,886, |
| Mental Health services | 4 | Offices of Physicians, Dentists, other | 001) | 645) |
| | 43 | | (\$243,48 | (\$243,48 |
| Vocational Rehabilitation - payroll | 7 | State/Local Gov Payrolls | 5) | 5) |
| Vocational Rehabilitation - services | 39 | Medical and diagnostic labs and outpatient and other ambulatory care services | (\$1,815,0 | (\$1,815,0 |
| | 6 | | 37) | 37) |
| Public Safety | | | | |
| | 43 | | (\$25,040, | (\$21,046, |
| Corrections - payroll | 7 | State/Local Gov Payrolls | 319) | 015) |
| | 38 | | (\$58,788, | (\$49,410, |
| Corrections - services | 7 | Investigation and security services | 103) | 524) |
| | 38 | | (\$5,766,1 | (\$7,219,9 |
| Crime Control & Public Safety* | 7 | Investigation and security services | 74) | 58) |
| | 43 | | (\$15,179, | (\$16,678, |
| Judicial Department - payroll | 7 | State/Local Gov Payrolls | 753) | 684) |
| | 38 | | (\$23,089, | (\$25,369, |
| Judicial Department - services | 7 | Investigation and security services | 775) | 784) |
| Judicial - Indigent Defense - payroll | 43 | | (\$572,06 | (\$452,17 |
| | 7 | State/Local Gov Payrolls | 3) | 0) |
| Judicial - Indigent Defense - services | 36 | | (\$12,106, | (\$9,569,3 |
| | 7 | Legal Services | 657) | 43) |
| | 43 | | (\$5,284,5 | (\$5,190,1 |
| Justice - payrolls | 7 | State/Local Gov Payrolls | 61) | 93) |
| | 36 | | (\$3,682,3 | (\$3,616,6 |
| Justice - operations | 7 | Legal Services | 70) | 13) |
| | 43 | | (\$13,980, | (\$17,945, |
| Juvenile Justice - payrolls | 7 | State/Local Gov Payrolls | 427) | 439) |
| | 36 | | (\$1,721,0 | (\$2,209,1 |
| Juvenile Justice - operations | 7 | Legal Services | 68) | 83) |
| Natural and Economic Resources - payroll | | | | |
| | 43 | | | |
| Ag & Consumer Services* | 7 | State/Local Gov Payrolls | \$401,448 | \$48,152 |
| | 43 | | \$1,003,62 | (\$475,29 |
| Commerce | 7 | State/Local Gov Payrolls | 0 | 6) |
| | 43 | | (\$8,054,5 | (\$14,180, |
| DENR* | 7 | State/Local Gov Payrolls | 52) | 969) |
| Clean Water Management Trust Fund | 43 | | | |
| | 7 | State/Local Gov Payrolls | \$0 | \$0 |
| | 43 | | (\$451,62 | (\$451,62 |
| Labor | 7 | State/Local Gov Payrolls | 9) | 9) |
| | 43 | | | |
| NC Biotech Center | 7 | State/Local Gov Payrolls | \$0 | \$0 |
| Rural Economic Development | 43 | State/Local Gov Payrolls | \$0 | \$0 |

| | | | | |
|--|----|---|--------------------------|--------------------------|
| Center | 7 | | | |
| Wildlife Resources Commission* | NA | | \$0 | \$0 |
| Natural and Economic Resources - services | | | | |
| | | | \$3,305,40 | |
| Ag & Consumer Services* | 19 | Support activities for agriculture and forestry | 2 | \$396,468 |
| | 38 | | \$10,941,3 | (\$5,181,6 |
| Commerce | 6 | Business support services | 39 | 22) |
| | 43 | | \$1,681,73 | (\$1,017,3 |
| Commerce - State Aid | 2 | Other state and local government enterprises | 6 | 05) |
| | 37 | Environmental and other technical consulting | (\$15,132, | (\$26,643, |
| DENR* | 5 | services | 962) | 327) |
| Clean Water Management Trust Fund | | | (\$88,750, | (\$88,750, |
| | 33 | Water, sewage and other systems | 000) | 000) |
| | 36 | | (\$554,16 | (\$554,16 |
| Labor | 7 | Legal Services | 3) | 3) |
| | 37 | Management, scientific, and technical | (\$1,950,1 | (\$1,950,1 |
| NC Biotech Center | 4 | consulting services | 90) | 90) |
| Rural Economic Development Center | 38 | | \$2,735,91 | \$2,735,91 |
| | 6 | Business support services | 5 | 5 |
| Wildlife Resources Commission* | NA | | \$0 | \$0 |
| | 43 | | (\$47,636, | (\$53,764, |
| General Government | 7 | | 250) | 174) |
| Total Cuts | | | (\$1,983,439,837) | (\$2,596,320,824) |

Next, we broke those changes out into three into three separate budget areas of interest, as presented in Figure A3:

- (1) Education Spending Changes, including all cuts to K-12, community colleges, and the UNC System;
- (2) All Non-Education Spending Changes, including those to Health & Human Services, Public Safety, Natural and Economic Resources, and other miscellaneous government operations;
- (3) Forgone federal matching funds related to SCHIP and Medicaid.

Figure A3. Total Spending Changes by Area of Interest, FY2011-13

| Budget Area | FY2011-12 | FY2012-13 |
|---------------------------|-----------------|-----------------|
| Total State Education | (\$858,632,789) | (\$861,065,202) |
| Total State Non-Education | (\$684,331,745) | (\$902,519,771) |
| Fed Cuts | (\$440,475,303) | (\$832,735,851) |

We then distributed the spending changes for each of these budget areas across all seven regions using methods laid out in the following three subsections.

Section 2.2. Education Spending Changes by Region

As shown in Figure A2, IMPLAN allows analysts to model changes in state education spending as changes to an overall institutional spending pattern specific to the education functions of state and local government. As a result, we simply determined each region's topline share of the total cuts to education spending and modeled them separately. In order to determine this, we used each region's share of the state's total education employment as the proxy for each region's share of the education spending cuts, simply multiplying the respective regional shares by the total education spending cuts to get the exact dollars in education-related spending cuts for each region. Figure A4 provides the specific regional shares produced by this method.

Figure A4. Education Spending Cuts by Region

| ED Region | Education Share of Employment | FY2011-12 Cuts | FY2012-13 Cuts |
|--------------------------|-------------------------------|------------------------|------------------------|
| AdvantageWest | 12.15% | (\$104,360,187) | (\$104,655,828) |
| Greater Charlotte Region | 20.56% | (\$176,493,542) | (\$176,993,529) |
| Eastern Region | 13.75% | (\$118,070,935) | (\$118,405,417) |
| Northeast Region | 4.19% | (\$35,940,427) | (\$36,042,242) |
| Piedmont Triad | 14.90% | (\$127,923,985) | (\$128,286,380) |
| Research Triangle Region | 22.22% | (\$190,827,932) | (\$191,368,526) |
| Southeast Region | 12.23% | (\$105,015,782) | (\$105,313,280) |
| All Regions | 100% | (\$858,632,789) | (\$861,065,202) |

Section 2.3. All Non-Education Spending Changes by Region

Unlike education spending, we modeled the Non-Education Spending Changes as direct changes to specific industries according to the IMPLAN industry sector codes listed in Figure A2. Since we began our spending-side analysis with a list of the state-level cuts to each industry, we worked backwards to find the aggregate share of cuts taken by each region by calculating the distribution of specific industry cuts across each region. In doing so, we again use employment as a proxy measure for determining each region's share of the state-level spending cuts. As a result, our central assumption is that the total amount of state-level spending cuts will be distributed across all seven regions according to an individual region's share of total statewide employment for each of the industries affected by the budget cuts. Figure A5 provides each region's share of statewide employment in each industry, and Figure A6 applies these percentages to the state-level budget cuts in each industry to present each region's share of the budget's spending changes across each industry. These latter values become the inputs used in IMPLAN.

Figure A5. Regional Share of Total Industry Employment

| Industry Code | AdvantageWest Share of Total Industry Employment | Charlotte Region Share of Total Industry Employment | Eastern Region Share of Total Industry Employment | Northeastern Region Share of Total Industry Employment | Piedmont Triad Share of Total Industry Employment | Research Triangle Share of Total Industry Employment | Southeastern Region Share of Total Industry Employment |
|---------------|--|---|---|--|---|--|--|
| 19 | 9% | 6% | 32% | 9% | 3% | 14% | 27% |
| 33 | 12% | 8% | 17% | 6% | 17% | 17% | 24% |

| | | | | | | | |
|-----|-----|-----|-----|----|-----|-----|----|
| 367 | 9% | 27% | 8% | 2% | 22% | 25% | 7 |
| 374 | 7% | 44% | 5% | 1% | 16% | 21% | 6 |
| 375 | 5% | 31% | 9% | 1% | 5% | 38% | 11 |
| 384 | 7% | 30% | 8% | 4% | 13% | 27% | 10 |
| 386 | 6% | 33% | 10% | 1% | 22% | 22% | 6 |
| 387 | 7% | 37% | 5% | 2% | 13% | 23% | 12 |
| 394 | 11% | 25% | 11% | 2% | 18% | 22% | 11 |
| 395 | 14% | 12% | 13% | 9% | 19% | 14% | 20 |
| 396 | 8% | 23% | 8% | 4% | 24% | 20% | 12 |
| 397 | 15% | 15% | 1% | 3% | 27% | 37% | 4 |
| 398 | 14% | 23% | 11% | 4% | 19% | 18% | 11 |
| 399 | 6% | 25% | 14% | 3% | 16% | 23% | 13 |
| 400 | 11% | 25% | 16% | 3% | 15% | 19% | 10 |
| 432 | 15% | 21% | 15% | 7% | 14% | 16% | 13 |
| 437 | 9% | 23% | 10% | 4% | 10% | 32% | 11 |

Figure A6. Regional Share of Spending Changes, FY2011-13

| Industry Code | FY2011-12 Total Spending Cuts by Industry | FY2011-12 AdvantageWest Share of Total Industry Spending Cut | FY2011-12 Charlotte Region Share of Total Industry Spending Cut | FY2011-12 Eastern Region Share of Total Industry Spending Cut | FY2011-12 Northeastern Region Share of Total Industry Spending Cut | FY2011-12 Piedmont Triad Share of Total Industry Spending Cut |
|---------------|---|--|---|---|--|---|
| 19 | \$3,305,402 | \$300,836 | \$191,815 | \$1,047,869 | \$312,349 | \$98,311 |
| 33 | (\$88,750,000) | (\$10,582,721) | (\$7,133,631) | (\$14,844,264) | (\$5,010,651) | (\$14,770,151) |
| 367 | (\$18,064,258) | (\$1,569,335) | (\$4,941,918) | (\$1,445,002) | (\$284,390) | (\$3,886,962) |
| 374 | (\$1,950,190) | (\$128,211) | (\$859,572) | (\$99,271) | (\$20,752) | (\$313,655) |
| 375 | (\$15,132,962) | (\$724,412) | (\$4,693,924) | (\$1,426,325) | (\$164,926) | (\$731,278) |
| 384 | (\$5,141,435) | (\$362,026) | (\$1,521,531) | (\$429,225) | (\$194,241) | (\$686,309) |
| 386 | \$13,677,254 | \$828,930 | \$4,480,982 | \$1,360,657 | \$199,654 | \$3,068,813 |
| 387 | (\$87,644,052) | (\$6,560,244) | (\$32,514,541) | (\$4,659,521) | (\$1,560,540) | (\$11,740,419) |
| 394 | (\$140,856,091) | (\$15,577,827) | (\$35,440,345) | (\$15,065,507) | (\$3,416,116) | (\$25,105,252) |
| 395 | (\$6,797,610) | (\$951,227) | (\$785,525) | (\$865,901) | (\$593,488) | (\$1,291,486) |
| 396 | (\$27,878,509) | (\$2,300,372) | (\$6,499,123) | (\$2,099,169) | (\$1,141,470) | (\$6,820,812) |
| 397 | (\$66,898,541) | (\$9,888,241) | (\$9,711,444) | (\$647,015) | (\$1,836,489) | (\$17,768,573) |
| 398 | (\$52,231,668) | (\$7,316,449) | (\$11,867,760) | (\$5,937,794) | (\$2,040,398) | (\$10,024,915) |
| 399 | (\$50,515,674) | (\$3,096,103) | (\$12,624,428) | (\$6,983,284) | (\$1,419,508) | (\$8,022,700) |
| 400 | (\$7,532,549) | (\$799,304) | (\$1,881,363) | (\$1,192,258) | (\$259,473) | (\$1,157,289) |
| 432 | \$1,681,736 | \$248,438 | \$354,489 | \$251,172 | \$109,800 | \$233,595 |
| 437 | (\$132,609,675) | (\$12,305,869) | (\$31,129,497) | (\$13,326,385) | (\$5,854,592) | (\$12,974,427) |
| Total | (\$683,338,821) | (\$70,784,137) | (\$156,577,313) | (\$66,361,224) | (\$23,175,231) | (\$111,893,509) |

| Industry Code | FY2012-13 Total Spending Cuts by Industry | FY2012-13 AdvantageWest Share of Total Industry Spending Cut | FY2012-13 Charlotte Region Share of Total Industry Spending Cut | FY2012-13 Eastern Region Share of Total Industry Spending Cut | FY2012-13 Northeastern Region Share of Total Industry Spending Cut | FY2012-13 Piedmont Triad Share of Total Industry Spending Cut |
|---------------|---|--|---|---|--|---|
| 19 | \$396,468 | \$36,084 | \$23,007 | \$125,687 | \$37,465 | \$11,792 |
| 33 | (\$88,750,000) | (\$10,582,721) | (\$7,133,631) | (\$14,844,264) | (\$5,010,651) | (\$14,770,151) |
| 367 | (\$15,949,302) | (\$1,385,598) | (\$4,363,320) | (\$1,275,821) | (\$251,094) | (\$3,431,878) |
| 374 | (\$1,950,190) | (\$128,211) | (\$859,572) | (\$99,271) | (\$20,752) | (\$313,655) |
| 375 | (\$26,643,327) | (\$1,275,411) | (\$8,264,195) | (\$2,511,210) | (\$290,371) | (\$1,287,500) |
| 384 | (\$6,610,739) | (\$465,485) | (\$1,956,349) | (\$551,887) | (\$249,751) | (\$882,441) |
| 386 | (\$2,445,707) | (\$148,226) | (\$801,270) | (\$243,307) | (\$35,701) | (\$548,752) |
| 387 | (\$82,000,266) | (\$6,137,801) | (\$30,420,787) | (\$4,359,474) | (\$1,460,050) | (\$10,984,402) |
| 394 | (\$170,290,208) | (\$18,833,061) | (\$42,846,167) | (\$18,213,684) | (\$4,129,967) | (\$30,351,393) |
| 395 | (\$13,479,647) | (\$1,886,281) | (\$1,557,695) | (\$1,717,080) | (\$1,176,886) | (\$2,561,015) |
| 396 | (\$49,098,619) | (\$4,051,332) | (\$11,446,019) | (\$3,696,981) | (\$2,010,316) | (\$12,012,567) |
| 397 | (\$128,161,975) | (\$18,943,560) | (\$18,604,858) | (\$1,239,530) | (\$3,518,284) | (\$34,040,434) |
| 398 | (\$103,450,624) | (\$14,491,040) | (\$23,505,419) | (\$11,760,462) | (\$4,041,234) | (\$19,855,458) |
| 399 | (\$50,515,674) | (\$3,096,103) | (\$12,624,428) | (\$6,983,284) | (\$1,419,508) | (\$8,022,700) |
| 400 | (\$7,532,549) | (\$799,304) | (\$1,881,363) | (\$1,192,258) | (\$259,473) | (\$1,157,289) |
| 432 | (\$1,017,305) | (\$150,284) | (\$214,435) | (\$151,937) | (\$66,420) | (\$141,305) |
| 437 | (\$153,249,633) | (\$14,221,209) | (\$35,974,629) | (\$15,400,562) | (\$6,765,827) | (\$14,993,824) |
| Total | (\$900,749,297) | (\$96,559,543) | (\$202,431,130) | (\$84,115,326) | (\$30,668,820) | (\$155,342,970) |

Section 2.4. Spending Changes Related to Foregone Federal Matching Funds by Region

As discussed in the body of this report, the budget spends less than the continuation budget on the state share of Medicaid and SCHIP, triggering the loss of \$440 million in FY2011-12 and \$832 million in FY2012-13 in federal matching funds for those program (the federal government matches every dollar of state money in these programs with \$2 in federal funds). As a result, these foregone matching funds represent a real spending cut that is largely unnecessary, and given the importance of the healthcare sector for the state's economy (and particularly so in several of the individual regions), these matching funds cuts are worth a separate analysis.

Using the same method as with the Non-Education Spending Changes, the federal matching program cuts were assigned industry codes and distributed across all seven regions based on each region's share of total employment for each industry. Figure A7 provides these regional employment shares and Figure A8 represents the regional share of spending cuts across each industry.

Figure A7. Regional Share of Total Industry Employment Related to Medicaid & SCHIP

| Industry Code | AdvantageWest Share of Total Industry Employment | Charlotte Region Share of Total Industry Employment | Eastern Region Share of Total Industry Employment | Northeastern Region Share of Total Industry Employment | Piedmont Triad Share of Total Industry Employment | Research Triangle Share of Total Industry Employment | Southeastern Region Share of Total Industry Employment |
|---------------|--|---|---|--|---|--|--|
| 394 | 11% | 25% | 11% | 2% | 18% | 22% | 11% |
| 395 | 14% | 12% | 13% | 9% | 19% | 14% | 20% |
| 396 | 8% | 23% | 8% | 4% | 24% | 20% | 12% |
| 397 | 15% | 15% | 1% | 3% | 27% | 37% | 4% |
| 398 | 14% | 23% | 11% | 4% | 19% | 18% | 11% |

Figure A8. Regional Share of Spending Changes Related to Foregone Matching Funds, FY2011-13

| Industry Code | FY2011-12 Total Spending Cuts by Industry | FY2011-12 AdvantageWest Share of Total Industry Spending Cut | FY2011-12 Charlotte Region Share of Total Industry Spending Cut | FY2011-12 Eastern Region Share of Total Industry Spending Cut | FY2011-12 Northeastern Region Share of Total Industry Spending Cut | FY2011-12 Piedmont Triad Share of Total Industry Spending Cut |
|---------------|---|--|---|---|--|---|
| 394 | (\$154,548,430) | (\$17,092,116) | (\$38,885,430) | (\$16,529,995) | (\$3,748,190) | (\$27,545,684) |
| 395 | (\$12,464,533) | (\$1,744,231) | (\$1,440,389) | (\$1,587,772) | (\$1,088,258) | (\$2,368,152) |
| 396 | (\$51,404,610) | (\$4,241,609) | (\$11,983,599) | (\$3,870,615) | (\$2,104,734) | (\$12,576,756) |
| 397 | (\$126,282,403) | (\$18,665,742) | (\$18,332,007) | (\$1,221,351) | (\$3,466,687) | (\$33,541,211) |
| 398 | (\$95,775,326) | (\$13,415,908) | (\$21,761,484) | (\$10,887,919) | (\$3,741,403) | (\$18,382,324) |
| Total | (\$440,475,303) | (\$55,159,606) | (\$92,402,909) | (\$34,097,652) | (\$14,149,271) | (\$94,414,126) |

| Industry Code | FY2012-13 Total Spending Cuts by Industry | FY2012-13 AdvantageWest Share of Total Industry Spending Cut | FY2012-13 Charlotte Region Share of Total Industry Spending Cut | FY2012-13 Eastern Region Share of Total Industry Spending Cut | FY2012-13 Northeastern Region Share of Total Industry Spending Cut | FY2012-13 Piedmont Triad Share of Total Industry Spending Cut |
|---------------|---|--|---|---|--|---|
| 394 | (\$292,875,530) | (\$32,390,252) | (\$73,689,463) | (\$31,325,009) | (\$7,102,971) | (\$52,200,185) |

| | | | | | | |
|--------------|------------------------|------------------------|------------------------|-----------------------|-----------------------|------------------------|
| 395 | (\$24,687,393) | (\$3,454,643) | (\$2,852,851) | (\$3,144,759) | (\$2,155,416) | (\$4,690,388) |
| 396 | (\$88,587,730) | (\$7,309,744) | (\$20,651,841) | (\$6,670,394) | (\$3,627,176) | (\$21,674,053) |
| 397 | (\$236,891,521) | (\$35,014,823) | (\$34,388,774) | (\$2,291,117) | (\$6,503,112) | (\$62,919,522) |
| 398 | (\$189,693,678) | (\$26,571,697) | (\$43,101,038) | (\$21,564,734) | (\$7,410,265) | (\$36,408,236) |
| Total | (\$832,735,851) | (\$104,741,158) | (\$174,683,966) | (\$64,996,013) | (\$26,798,940) | (\$177,892,384) |

Section 2.5. Total Spending Changes by Region

Taking together the spending changes in all three of these budget areas, we determined that the \$1.9 billion in spending cuts for FY2011-12 and \$2.6 billion for FY2012-13 will be distributed to across all seven regions in the following way, as seen in Figure A9:

Figure A9. Spending Cuts by Region, FY2011-13

| Region | FY2011-12 Education Spending Changes | FY2011-12 Non Education Spending Changes | FY2011-12 Federal Matching Changes | FY2012-13 Education Spending Changes | FY2012-13 Non Education Spending Changes |
|-------------------|--------------------------------------|--|------------------------------------|--------------------------------------|--|
| AdvantageWest | (\$104,360,187) | (\$70,784,137) | (\$55,159,606) | (\$104,655,828) | (\$96,559,521) |
| Charlotte Region | (\$176,493,542) | (\$156,577,313) | (\$92,402,909) | (\$176,993,529) | (\$202,431,111) |
| Eastern Region | (\$118,070,935) | (\$66,361,224) | (\$34,097,652) | (\$118,405,417) | (\$84,115,311) |
| Northeast Region | (\$35,940,427) | (\$23,175,231) | (\$14,149,271) | (\$36,042,242) | (\$30,668,811) |
| Piedmont Triad | (\$127,923,985) | (\$111,893,509) | (\$94,414,126) | (\$128,286,380) | (\$155,342,911) |
| Research Triangle | (\$190,827,932) | (\$171,034,755) | (\$108,725,647) | (\$191,368,526) | (\$228,055,711) |
| Southeast Region | (\$105,015,782) | (\$83,512,653) | (\$41,526,092) | (\$105,313,280) | (\$103,575,711) |
| Total | (\$858,632,789) | (\$683,338,821) | (\$440,475,303) | (\$861,065,202) | (\$900,749,211) |

Section 3. Tax Changes in the State Budget

Section 3.1. Total Tax Changes

On the revenue side, the tax cut plan included four separate pieces:

- (1) Expiration of a temporary 1-cent sales tax
- (2) Expiration of a temporary personal income surtax
- (3) Expiration of a temporary corporate income surtax
- (4) A permanent reduction in business income taxes, including an exemption of the first \$50,000 in business income

With the exception of the sales-tax expiration, each of these tax cuts are subject to federal income tax offsets of varying levels, as specified in Figure A10. Federal offsets represent the amount of additional income subject to Federal taxation due to reductions in state taxes. Taken together, these various tax changes, including federal offsets, will decrease revenue by a combined \$1.4 billion in FY2011-12 and \$1.6 billion in FY2012-13, according to the NC Department of Revenue Fiscal Research Division; we assume that the foregone revenues from expired sales taxes and personal income surtaxes will translate

into increases in household income, while revenue reductions from the expiration of the corporate income surtax and cuts in business taxes translate into additional income for industries.

Figure A10. Benefits from Tax Cut Package

| Total Tax Changes w/ Federal Offsets | FY2011-12 Foregone Revenue | FY2012-13 Foregone Revenue |
|---|-----------------------------------|-----------------------------------|
| Expiration of 1-cent Sales Tax | \$1,124,330,000 | \$1,137,970,000 |
| Expiration of personal income surcharges, less 13% federal offset | \$149,727,000 | \$151,554,000 |
| Expiration of corporate income surtax, less 35% federal offset | \$18,850,000 | \$19,045,000 |
| Reduction in business income taxes, less 5% federal offset | \$125,020,000 | \$319,580,000 |
| Total w/offsets | \$1,417,927,000 | \$1,628,149,000 |

As with the spending changes, we assumed that the benefits related to these tax changes will be distributed differently across all seven regions. In determining this distribution, we first found the amount of additional tax cut-related income spent back into the economy at the county level separately for FY2011-12 and FY2012-13, before aggregating these county-level income increases at the regional level for each fiscal year. Specifically, we used the methods laid out in the following four subsections.

Section 3.2. Sales Tax Expiration

IMPLAN allows analysts to model the economic impacts resulting from changes in household income across multiple ranges of household income based on average spending patterns in each specific income bracket.

We assume that 100% of the foregone revenue from the sales tax expiration will accrue to households at the county level in the form of additional income; we also assume that that these households will spend this additional income on sales-tax eligible retail purchases according to the pattern identified in the 2010 Consumer Expenditure Survey (CES) from BLS for each income range at the state level. In doing so, we assume that consumer spending patterns at the county level will not vary in any meaningful way from the aggregate state pattern of household consumer spending.

The additional revenue for each household income bracket also serves as the input for that specific income bracket in IMPLAN. In turn, IMPLAN models the pattern of spending for each income range and assesses the impact of these spending patterns across the entire economy. Specifically, IMPLAN models the traditional basket of goods that shape household spending according to each household income bracket. This allows a prediction of the economic impacts across multiple sectors, which are then aggregated to determine the total impact of this spending.

In order to develop the specific inputs for each income bracket, we first used the 2010 Consumer Expenditure Survey to determine the level of retail spending for each household income bracket, and then calculated the amount of total sales tax revenue that would be returned to each bracket upon expiration based on the retail spending levels for that particular bracket, as seen in Figure A11.

Figure A11. Sales Tax Reduction Model

| Household Income Category | BLS Estimates of Total Consumer Spending | Percentage of BLS Estimates of Total Retail Spending | FY2011-12 Percentage of Additional | FY2012-13 Percentage of Additional |
|----------------------------------|---|---|---|---|
|----------------------------------|---|---|---|---|

| | (in Thousands) | | Revenue to Household Category from 1% NC Sales Tax Reduction | Revenue to Household Category from 1% NC Sales Tax Reduction |
|---------------|------------------------|-------------|--|--|
| <\$10K | \$201,770,015 | 3% | \$38,296,117 | \$38,760,713 |
| \$10-\$15K | \$167,970,966 | 3% | \$31,881,030 | \$32,267,800 |
| \$15-\$25K | \$623,403,048 | 11% | \$118,322,420 | \$119,757,868 |
| \$25-\$35K | \$468,981,237 | 8% | \$89,013,031 | \$90,092,907 |
| \$35-\$50K | \$452,644,532 | 8% | \$85,912,310 | \$86,954,570 |
| \$50-\$75K | \$1,254,382,220 | 21% | \$238,082,794 | \$240,971,136 |
| \$75-\$100K | \$647,083,677 | 11% | \$122,817,023 | \$124,306,998 |
| \$100k-\$150k | \$1,057,487,292 | 18% | \$200,711,972 | \$203,146,943 |
| >\$150K | \$1,050,012,782 | 18% | \$199,293,304 | \$201,711,064 |
| Total | \$5,923,735,769 | 100% | \$1,124,330,000 | \$1,137,970,000 |

Source: October 2010 Consumer Expenditure Survey from the U.S. Bureau of Labor Statistics (BLS) and Sales tax reduction savings estimates provided by Division of Fiscal Research, N.C. General Assembly.

Note: Totals may not sum due to rounding

Next, we assumed that the county's share of expired sales tax dollars for each income bracket would mirror the county population for each of those brackets. As a result, we calculated the county's share of expired sales tax revenue in each income bracket as a proportion of the county's population for a particular income bracket to the state population in that same bracket, and then multiplied this percentage by the level of additional state-level retail spending accruing to each income bracket due to the sales tax expiration. We performed this calculation for each income bracket in each county for both FY2011-12 and FY2012-13. We then aggregated these county totals by Economic Development Region, so that we were able to model the effects of additional sales tax related income flowing to households in each of these seven regions. Once aggregated, Figure A12 provides each region's share of the state's total number of households in each household income bracket, and Figure A13 presents the regional share of sales tax benefit accruing to households in each bracket (i.e., the product of the regional share of a given income bracket and the total sales tax benefit returned to that bracket).

Figure A12. Regional Share of Household Income Brackets

| Region | Regional Share Less than \$10,000 | Regional Share \$10,000 to \$14,999 | Regional Share \$15,000 to \$25,000 | Regional Share \$25,000 to \$34,999 | Regional Share \$35,000 to \$49,999 | Regional Share \$50,000 to \$74,999 | Regional Share \$75,000 to \$99,999 | Regional Share \$100,000 to \$149,999 |
|---------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|
| Advantage West Region | 13.9% | 15.1% | 15.0% | 13.7% | 12.7% | 12.3% | 10.9% | 8.1% |
| Greater Charlotte Region | 18.2% | 20.3% | 21.0% | 22.5% | 23.5% | 24.7% | 25.2% | 26.1% |
| Eastern Region | 13.8% | 12.2% | 11.7% | 11.4% | 11.3% | 10.1% | 9.7% | 8.1% |
| Northeast Region | 5.3% | 5.0% | 4.7% | 4.0% | 3.9% | 3.8% | 3.6% | 3.4% |
| Piedmont Triad Region | 17.2% | 18.6% | 18.5% | 18.8% | 18.1% | 18.0% | 17.6% | 16.1% |

| | | | | | | | | |
|--------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Research Triangle Region | 16.6% | 15.8% | 16.4% | 17.6% | 18.9% | 20.0% | 22.9% | 27.1% |
| Southeast Region | 15.0% | 13.1% | 12.7% | 11.9% | 11.6% | 11.0% | 10.1% | 9.1% |
| | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

Figure A13. Regional Sales Tax Benefits by Household Income Bracket, FY2011-13

| Region | FY2011-12 Household Income Share Less than \$10,000 | FY2011-12 Household Income Share \$10,000 to \$14,999 | FY2011-12 Household Income Share \$15,000 to \$25,000 | FY2011-12 Household Income Share \$25,000 to \$34,999 | FY2011-12 Household Income Share \$35,000 to \$49,999 | FY2011-12 Household Income Share \$50,000 to \$74,999 |
|--------------------------|---|---|---|---|---|---|
| Advantage West Region | \$5,314,843 | \$4,819,092 | \$17,755,817 | \$12,179,192 | \$10,912,021 | \$29,262,200 |
| Greater Charlotte Region | \$6,950,861 | \$6,472,339 | \$24,832,915 | \$20,007,385 | \$20,154,386 | \$58,838,800 |
| Eastern Region | \$5,299,744 | \$3,900,264 | \$13,880,341 | \$10,159,938 | \$9,725,628 | \$24,055,100 |
| Northeast Region | \$2,045,053 | \$1,591,870 | \$5,568,846 | \$3,585,269 | \$3,370,767 | \$9,100,200 |
| Piedmont Triad Region | \$6,576,514 | \$5,914,220 | \$21,840,984 | \$16,762,045 | \$15,515,888 | \$42,954,100 |
| Research Triangle Region | \$6,354,402 | \$5,022,655 | \$19,444,546 | \$15,701,628 | \$16,232,998 | \$47,590,800 |
| Southeast Region | \$5,754,700 | \$4,160,590 | \$14,998,970 | \$10,617,574 | \$10,000,621 | \$26,281,300 |
| Grand Total | \$38,296,117 | \$31,881,030 | \$118,322,420 | \$89,013,031 | \$85,912,310 | \$238,082,700 |

| Region | FY2011-12 Household Income Share Less than \$10,000 | FY2011-12 Household Income Share \$10,000 to \$14,999 | FY2011-12 Household Income Share \$15,000 to \$25,000 | FY2011-12 Household Income Share \$25,000 to \$34,999 | FY2011-12 Household Income Share \$35,000 to \$49,999 | FY2011-12 Household Income Share \$50,000 to \$74,999 |
|--------------------------|---|---|---|---|---|---|
| Advantage West Region | \$5,379,321 | \$4,877,556 | \$17,971,225 | \$12,326,946 | \$11,044,402 | \$29,617,200 |
| Greater Charlotte Region | \$7,035,186 | \$6,550,859 | \$25,134,180 | \$20,250,108 | \$20,398,893 | \$59,552,600 |
| Eastern Region | \$5,364,039 | \$3,947,581 | \$14,048,733 | \$10,283,195 | \$9,843,616 | \$24,346,900 |
| Northeast Region | \$2,069,863 | \$1,611,183 | \$5,636,406 | \$3,628,764 | \$3,411,660 | \$9,210,600 |
| Piedmont Triad Region | \$6,656,298 | \$5,985,969 | \$22,105,952 | \$16,965,396 | \$15,704,121 | \$43,475,200 |
| Research Triangle Region | \$6,431,492 | \$5,083,588 | \$19,680,440 | \$15,892,114 | \$16,429,931 | \$48,168,200 |
| Southeast Region | \$5,824,514 | \$4,211,065 | \$15,180,933 | \$10,746,383 | \$10,121,945 | \$26,600,100 |
| Grand Total | \$38,760,713 | \$32,267,800 | \$119,757,868 | \$90,092,907 | \$86,954,570 | \$240,971,100 |

Section 3.3. Personal Income Surtax Expiration

In 2009, the Legislature enacted a temporary 2-3% surtaxes on personal income for taxpayers in certain income brackets; we are modeling the expiration of this surtax on personal income. For those married

filing jointly, the surtax applied at 2% for taxable income greater than \$100,000 but less than \$250,000, and 3% for those with taxable income greater than \$250,000, as outlined in Figure A14.¹

Figure A14. Surtax Percentage Table

| If Filing Status is | And NC Taxable Income on Line 13, Form D-400 is | The Applicable Percentage is |
|---|--|------------------------------|
| Married Filing Jointly/Qualifying Widow(er) | Greater than \$100,000 but does not exceed \$250,000 | 2% |
| | Greater than \$250,000 | 3% |
| Head of Household | Greater than \$80,000 but does not exceed \$200,000 | 2% |
| | Greater than \$200,000 | 3% |
| Single | Greater than \$60,000 but does not exceed \$150,000 | 2% |
| | Greater than \$150,000 | 3% |
| Married Filing Separately | Greater than \$50,000 but does not exceed \$125,000 | 2% |
| | Greater than \$125,000 | 3% |

Source: North Carolina Department of Revenue, <http://www.dornc.com/taxes/individual/surtax.html>

We assumed these household income levels prior to any deductions, including both standard and itemized deductions, and we then used data from the Institute for Taxation and Economic Policy to determine the percentage of households in each bracket benefitting from the surtax expiration and the resulting amount of additional income flowing to these households due to the surtax expiration. We then reduced the amount of additional income by the 13% Federal offset and multiplied this amount by the county's share of the state's population in the relevant income brackets before aggregating these county estimates at the regional level (identical to the method used in the sales tax calculation). This allowed us to model the tax cut benefits flowing to households in each region. Lastly, we assumed that the percentage of households in each bracket subject to the surtax in each county will not differ from those percentages at the state level. Estimations of the effects of this reduction are spread across household income brackets, as seen in Figure A15, and across regions, as seen in Figure A16.

Figure A15. Personal Income Surtax Expiration by Income Household Income Bracket

| Household Income | Percentage of Total Benefiting from Personal Income Surtax Expiration | FY2011-2012 Additional Revenue from Personal Income Surtax Expiration | FY2012-2013 Additional Revenue from Personal Income Surtax Expiration |
|----------------------|---|---|---|
| \$75-\$100K | 1% | \$1,497,270 | \$1,515,540 |
| \$100k-\$150k | 11% | \$16,469,970 | \$16,670,940 |

¹ Developed by the UNC Center for Competitive Economies in the paper entitled Economic Impacts of Proposed Tax Reductions in North Carolina, authored by Jason Jolley, Brent Lane, and Aaron Nousaine.

| | | | |
|--------------|-------------|----------------------|----------------------|
| >\$150K | 88% | \$131,759,760 | \$133,367,520 |
| Total | 100% | \$149,727,000 | \$151,554,000 |

Source: Total savings estimates provided by Division of Fiscal Research, N.C. General Assembly

Note: Totals may not sum due to rounding

Figure A16. Personal Income Surtax Benefit by Region, FY2011-13

| Region | FY2011-12 Household Income Share \$75,000 to \$99,9992 | FY2011-12 Household Income Share \$100,000 to \$149,9992 | FY2011-12 Household Income Share \$150,000 or more2 | FY2011-12 Total Regional Share of Revenue |
|--------------------------|--|--|---|---|
| Advantage West Region | \$163,691 | \$1,394,595 | \$9,892,832 | \$11,451,118 |
| Greater Charlotte Region | \$377,277 | \$4,415,778 | \$40,112,704 | \$44,905,759 |
| Eastern Region | \$144,703 | \$1,395,985 | \$8,443,442 | \$9,984,130 |
| Northeast Region | \$53,185 | \$499,559 | \$2,993,457 | \$3,546,201 |
| Piedmont Triad Region | \$264,177 | \$2,694,887 | \$20,084,946 | \$23,044,010 |
| Research Triangle Region | \$343,428 | \$4,506,101 | \$39,519,223 | \$44,368,752 |
| Southeast Region | \$150,808 | \$1,563,064 | \$10,713,157 | \$12,427,029 |
| Grand Total | \$1,497,270 | \$16,469,970 | \$131,759,760 | \$149,727,000 |

| Region | FY2012-13 Household Income Share \$75,000 to \$99,9992 | FY2012-13 Household Income Share \$100,000 to \$149,9992 | FY2012-13 Household Income Share \$150,000 or more2 | FY2012-13 Total Regional Share of Revenue |
|--------------------------|--|--|---|---|
| Advantage West Region | \$165,689 | \$1,411,612 | \$10,013,546 | \$11,590,847 |
| Greater Charlotte Region | \$381,881 | \$4,469,660 | \$40,602,167 | \$45,453,708 |
| Eastern Region | \$146,469 | \$1,413,019 | \$8,546,471 | \$10,105,959 |
| Northeast Region | \$53,834 | \$505,655 | \$3,029,984 | \$3,589,473 |
| Piedmont Triad Region | \$267,400 | \$2,727,771 | \$20,330,026 | \$23,325,198 |
| Research Triangle Region | \$347,619 | \$4,561,086 | \$40,001,445 | \$44,910,149 |
| Southeast Region | \$152,648 | \$1,582,137 | \$10,843,881 | \$12,578,667 |
| Grand Total | \$1,515,540 | \$16,670,940 | \$133,367,520 | \$151,554,000 |

As with the sales tax expiration, we use these inputs to model the additional income accrued to households in each region as a result of these tax changes.

Section 3.3. Corporate Income Surtax Expiration

Our basic assumption is that the additional business income generated by the expiration of the corporate surtax (less the 35% Federal offset) will be spent back into the economy according to each industry's share of total private sector output, as generated by the IMPLAN software. In essence, we assume that each industry will spend this additional income according to its share of the state's private sector

economy, a valid assumption given that gross state output is a good proxy for which industries will receive the benefit of the tax reductions. We confined our analysis to the private sector and excluded all public sector industries for the simple reason that the corporate income surtax by definition was levied on private sector businesses, and as a result, only private sector businesses will benefit. Using these assumptions, we modeled each industry's share of additional surtax-related income for each region. Given that IMPLAN uses over 400 private sector industry codes, for efficiency's sake, we have not provided the regional share for each industry in this appendix, but this breakout is available upon request. Instead, Figure A17 provides the regional share of the benefits of this particular surtax expiration.

Figure A17. Corporate Income Surtax Benefits by Region

| Region | FY2011-12 Corporate Surtax Benefit | FY2012-13 Corporate Surtax Benefit |
|-------------------|---|---|
| AdvantageWest | \$1,575,799 | \$1,592,100 |
| Charlotte Region | \$5,560,159 | \$5,617,678 |
| Eastern Region | \$1,597,957 | \$1,614,487 |
| Northeast Region | \$528,087 | \$533,550 |
| Piedmont Triad | \$3,590,828 | \$3,627,975 |
| Research Triangle | \$4,413,135 | \$4,458,788 |
| Southeast Region | \$1,584,036 | \$1,600,422 |
| Total | \$18,850,000 | \$19,045,000 |

Section 3.4. Business Income Exemption

Alongside the expiration of temporary sales and income taxes, the budget also included provisions permanently exempting the first \$50,000 of all business income from the state's corporate tax liability. After taking into account the 5% Federal offset, we anticipate that \$125 million in FY2011-12 and \$320 million in FY2012-13 will return to the state's industries as additional income, which we distribute across the state's seven regions by the same method used for the corporate income surtax expiration—according to each industry's share of the state's total private sector output. Although efficiency limitations prevent us from presenting the industry share list in its entirety, it is available upon request. Figure A18 presents the regional share of this particular tax change.

Figure A18. Business Income Exemption Benefits by Region

| Region | FY2011-12 Corporate Surtax Benefit | FY2012-13 Corporate Surtax Benefit |
|--------------------------|---|---|
| AdvantageWest | \$10,451,267 | \$26,715,852 |
| Charlotte Region | \$36,876,980 | \$94,266,079 |
| Eastern Region | \$10,598,224 | \$27,091,509 |
| Northeast Region | \$3,502,463 | \$8,953,104 |
| Piedmont Triad | \$23,815,669 | \$60,878,352 |
| Research Triangle | \$29,269,501 | \$74,819,607 |
| Southeast Region | \$10,505,896 | \$26,855,497 |
| Total | \$125,020,000 | \$319,580,000 |

Section 3.5. Total Tax Changes by Region

Taking together all four of these tax changes, we determined that the \$1.4 billion in tax cuts for FY2011-12 and \$1.6 billion for FY2012-13 will be distributed to across all seven regions in the following way, as seen in Figure A19:

Figure A19. Tax Cut Benefits by Region

| Region | FY2011-12 Sales Tax Benefits | FY2011-12 Personal Income Surtax Benefits | FY2011-12 Corp Surtax Benefits | FY2011-12 Business Income Benefits | FY2011-12 Total Tax Cut Benefit per Region |
|-------------------|------------------------------|---|--------------------------------|------------------------------------|--|
| AdvantageWest | \$125,629,114 | \$11,451,118 | \$1,575,799 | \$10,451,267 | \$149,107,297 |
| Charlotte Region | \$282,689,265 | \$44,905,759 | \$5,560,159 | \$36,876,980 | \$370,032,162 |
| Eastern Region | \$108,674,009 | \$9,984,130 | \$1,597,957 | \$10,598,224 | \$130,854,320 |
| Northeast Region | \$40,240,324 | \$3,546,201 | \$528,087 | \$3,502,463 | \$47,817,076 |
| Piedmont Triad | \$194,454,408 | \$23,044,010 | \$3,590,828 | \$23,815,669 | \$244,904,916 |
| Research Triangle | \$253,206,210 | \$44,368,752 | \$4,413,135 | \$29,269,501 | \$331,257,599 |
| Southeast Region | \$119,436,670 | \$12,427,029 | \$1,584,036 | \$10,505,896 | \$143,953,631 |
| Total | \$1,124,330,001 | \$149,727,000 | \$18,850,000 | \$125,020,000 | \$1,417,927,001 |

| Region | FY2012-13 Sales Tax Benefits | FY2012-13 Personal Income Surtax Benefits | FY2012-13 Corp Surtax Benefits | FY2012-13 Business Income Benefits | FY2012-13 Total Tax Cut Benefit per Region |
|-------------------|------------------------------|---|--------------------------------|------------------------------------|--|
| AdvantageWest | \$127,153,204 | \$11,590,847 | \$1,592,100 | \$26,715,852 | \$167,052,003 |
| Charlotte Region | \$286,118,757 | \$45,453,708 | \$5,617,678 | \$94,266,079 | \$431,456,222 |
| Eastern Region | \$109,992,406 | \$10,105,959 | \$1,614,487 | \$27,091,509 | \$148,804,362 |
| Northeast Region | \$40,728,507 | \$3,589,473 | \$533,550 | \$8,953,104 | \$53,804,634 |
| Piedmont Triad | \$196,813,464 | \$23,325,198 | \$3,627,975 | \$60,878,352 | \$284,644,990 |
| Research Triangle | \$256,278,024 | \$44,910,149 | \$4,458,788 | \$74,819,607 | \$380,466,568 |
| Southeast Region | \$120,885,636 | \$12,578,667 | \$1,600,422 | \$26,855,497 | \$161,920,222 |
| Total | \$1,137,969,999 | \$151,554,000 | \$19,045,000 | \$319,580,000 | \$1,628,148,999 |

Section 4. Results

4.1. Net Budget Results

As stated in the General Method section of this appendix, we used IMPLAN to model the direct, indirect, and induced impacts of these spending and tax changes separately for each fiscal year. Specifically, we modeled (1) all three budget areas on the spending side together; (2) all four tax cut pieces together; (3) the net effects of both spending and tax sides taken together—the Net Effects Model; and (4) the effects of the foregone federal matching funds as a pull-out analysis of special interest. It is worth noting that

version 3.0 of IMPLAN makes it possible to analyze the spending and tax effects simultaneously in the same model by recognizing that tax benefits have different multipliers than spending cuts, rather than by simply assuming that a majority of the effects wash out as inter-regional transfer payments. Secondly, it is also important to note that the federal matching funds piece is included in the Net Effects Model, but we ran a separate model for these effects for policy reasons; we wanted to see the effects of the unnecessary loss of matching funds. Finally, the results for FY2012-13 are considered inclusive of the results for FY2011-12, since the FY2012-13 numbers take into account changes from the continuation budget baseline over both years. We do not sum these results together over time, as this would represent double counting.

The results for the Net Effects Models for each region are provided below in Figures A20-A26.

Figure A20. Net Impact Model Results for AdvantageWest

| Impact Type | FY2011-12 | | | | FY2012-13 | | | |
|-----------------|------------|-----------------|-----------------|-----------------|------------|-----------------|-----------------|-----------------|
| | Employment | Labor Income | Value Added | Output | Employment | Labor Income | Value Added | Output |
| Direct Effect | -3,289.40 | (\$153,717,502) | (\$171,691,014) | (\$222,634,387) | -3,981.70 | (\$187,021,425) | (\$205,721,323) | (\$279,912,028) |
| Indirect Effect | -287.6 | (\$8,237,396) | (\$14,546,051) | (\$24,964,698) | -444 | (\$12,415,027) | (\$22,319,184) | (\$37,619,201) |
| Induced Effect | -282.1 | (\$10,904,971) | (\$15,978,219) | (\$23,542,581) | -686.8 | (\$25,215,811) | (\$39,331,548) | (\$60,447,483) |
| Total Effect | -3,859.10 | (\$172,859,868) | (\$202,215,284) | (\$271,141,667) | -5,112.60 | (\$224,652,263) | (\$267,372,055) | (\$377,978,711) |

Figure A21. Net Impact Model Results for the Greater Charlotte Region

| Impact Type | FY2011-12 | | | | FY2012-13 | | | |
|-----------------|------------|-----------------|-----------------|-----------------|------------|-----------------|-----------------|-----------------|
| | Employment | Labor Income | Value Added | Output | Employment | Labor Income | Value Added | Output |
| Direct Effect | -5,854.10 | (\$286,731,802) | (\$316,918,591) | (\$393,940,668) | -6,815.00 | (\$337,262,539) | (\$362,730,523) | (\$462,085,749) |
| Indirect Effect | -564.9 | (\$24,001,324) | (\$42,581,698) | (\$67,575,295) | -800.9 | (\$32,866,395) | (\$59,372,834) | (\$93,071,084) |

| | | | | | | | | |
|----------------|-----------|-----------------|-----------------|-----------------|-----------|-----------------|-----------------|-----------------|
| Induced Effect | 246.2 | \$8,632,676 | \$17,911,144 | \$30,009,000 | -362.6 | (\$16,823,914) | (\$26,237,596) | (\$38,406,805) |
| Total Effect | -6,172.80 | (\$302,100,450) | (\$341,589,145) | (\$431,506,963) | -7,978.60 | (\$386,952,848) | (\$448,340,953) | (\$593,563,638) |

Figure A22. Net Impact Model Results for the Eastern Region

| Impact Type | FY2011-12 | | | | FY2012-13 | | | |
|-----------------|------------|-----------------|-----------------|-----------------|------------|-----------------|-----------------|-----------------|
| | Employment | Labor Income | Value Added | Output | Employment | Labor Income | Value Added | Output |
| Direct Effect | -3,177.40 | (\$153,390,697) | (\$171,903,840) | (\$211,996,709) | -3,727.00 | (\$176,159,233) | (\$194,098,012) | (\$244,805,604) |
| Indirect Effect | -176.3 | (\$5,684,658) | (\$9,435,571) | (\$16,827,206) | -246.6 | (\$7,719,052) | (\$12,835,360) | (\$22,370,056) |
| Induced Effect | -41.8 | (\$1,896,645) | (\$2,422,717) | (\$3,384,976) | -182.7 | (\$6,717,077) | (\$10,751,609) | (\$16,664,719) |
| Total Effect | -3,395.50 | (\$160,972,000) | (\$183,762,128) | (\$232,208,890) | -4,156.30 | (\$190,595,361) | (\$217,684,980) | (\$283,840,379) |

Figure A23. Net Impact Model Results for the Northeastern Region

| Impact Type | FY2011-12 | | | | FY2012-13 | | | |
|-----------------|------------|----------------|----------------|----------------|------------|----------------|----------------|----------------|
| | Employment | Labor Income | Value Added | Output | Employment | Labor Income | Value Added | Output |
| Direct Effect | -1,128.00 | (\$48,576,895) | (\$54,498,891) | (\$69,261,352) | -1,352.50 | (\$56,810,778) | (\$62,781,914) | (\$82,854,944) |
| Indirect Effect | -70.8 | (\$1,985,895) | (\$3,748,009) | (\$6,326,412) | -104.1 | (\$2,826,099) | (\$5,473,390) | (\$8,868,811) |
| Induced Effect | -85.6 | (\$3,113,440) | (\$4,751,715) | (\$6,976,350) | -167.1 | (\$5,767,930) | (\$9,374,289) | (\$14,218,796) |

| | | | | | | | | |
|--------------|----------|----------------|----------------|----------------|----------|----------------|----------------|-----------------|
| t | | | | | | | | |
| Total Effect | - | (\$53,676,230) | (\$62,998,616) | (\$82,564,115) | - | (\$65,404,807) | (\$77,629,593) | (\$105,942,551) |
| t | 1,284.40 | | | | 1,623.70 | | | |

Figure A24. Net Impact Model Results for the Piedmont Triad Region

| Impact Type | FY2011-12 | | | | FY2012-13 | | | |
|-----------------|------------|-----------------|-----------------|-----------------|------------|-----------------|-----------------|-----------------|
| | Employment | Labor Income | Value Added | Output | Employment | Labor Income | Value Added | Output |
| Direct Effect | - | (\$211,246,569) | (\$233,750,940) | (\$314,529,867) | - | (\$265,502,082) | (\$286,417,462) | (\$404,257,959) |
| Indirect Effect | -565.9 | (\$20,848,752) | (\$36,236,694) | (\$59,443,384) | -878.3 | (\$31,777,198) | (\$55,799,835) | (\$90,363,835) |
| Induced Effect | -223.9 | (\$9,525,455) | (\$14,236,786) | (\$20,956,435) | -1073.2 | (\$42,458,251) | (\$69,597,041) | (\$109,287,268) |
| Total Effect | - | (\$241,620,776) | (\$284,224,421) | (\$394,929,686) | - | (\$339,737,531) | (\$411,814,338) | (\$603,909,061) |
| t | 5,104.40 | | | | 7,318.30 | | | |

Figure A25. Net Impact Model Results for the Research Triangle Region

| Impact Type | FY2011-12 | | | | FY2012-13 | | | |
|-----------------|------------|-----------------|-----------------|-----------------|------------|-----------------|-----------------|-----------------|
| | Employment | Labor Income | Value Added | Output | Employment | Labor Income | Value Added | Output |
| Direct Effect | - | (\$316,628,864) | (\$352,667,647) | (\$445,675,754) | - | (\$381,902,122) | (\$416,808,020) | (\$548,693,087) |
| Indirect Effect | -562.9 | (\$23,867,385) | (\$45,056,044) | (\$71,699,452) | -840.7 | (\$34,997,404) | (\$67,807,918) | (\$106,747,735) |
| Induced Effect | -678.4 | (\$30,629,996) | (\$49,284,274) | (\$74,318,512) | -1580.6 | (\$69,276,612) | (\$114,717,297) | (\$175,984,727) |
| t | 5,694.70 | | | | 6,820.30 | | | |

| | | | | | | | | |
|--------------|---------------|---------------------|---------------------|---------------------|---------------|---------------------|---------------------|---------------------|
| Total Effect | - 6,936.00 | (\$371,126 ,244) | (\$447,007 ,966) | (\$591,693 ,719) | - 9,241.50 | (\$486,176 ,138) | (\$599,333 ,235) | (\$831,425 ,549) |
|--------------|---------------|---------------------|---------------------|---------------------|---------------|---------------------|---------------------|---------------------|

Figure A26. Net Impact Model Results for the Southeastern Region

| Impact Type | FY2011-12 | | | | FY2012-13 | | | |
|-----------------|---------------|---------------------|---------------------|---------------------|---------------|---------------------|---------------------|---------------------|
| | Employment | Labor Income | Value Added | Output | Employment | Labor Income | Value Added | Output |
| Direct Effect | - 3,207.40 | (\$153,266 ,302) | (\$172,574 ,494) | (\$222,329 ,472) | - 3,803.80 | (\$178,763 ,262) | (\$198,221 ,244) | (\$262,139 ,392) |
| Indirect Effect | -238.7 | (\$7,694,7 39) | (\$13,843, 370) | (\$23,908, 667) | -332 | (\$10,461, 257) | (\$18,987, 991) | (\$31,886, 283) |
| Induced Effect | 43 | \$999,613 | \$2,778,61 9 | \$4,957,46 8 | -125 | (\$4,887,2 59) | (\$7,624,1 09) | (\$11,448, 153) |
| Total Effect | - 3,403.10 | (\$159,961 ,428) | (\$183,639 ,245) | (\$241,280 ,671) | - 4,260.80 | (\$194,111 ,777) | (\$224,833 ,344) | (\$305,473 ,827) |

4.2. Private Sector Results

In Section 6.2 of the report, we find the top 5 private sector industries impacted by the budget in terms of job loss. In order to determine these rankings, we used the industry-level detailed impact summary provided by IMPLAN as part of the results for the Net Effects model for each region. This summary provided the direct, indirect, induced, and total number of jobs lost *in each industry* as a result of the budget's spending and tax changes. We dropped all public sector industries, including State/Local Government payrolls, and then ranked the industries by number of jobs lost. The results are provided in Figure 15 of the report. We also used this method to calculate the percentage of jobs and labor income lost in the private sector, as presented in the bar charts in the results section.