Fiscal Impact Analysis of the North Carolina Rural Job Creation Fund

Advanced Aerial Photography/Durham Convention & Visitors Bureau

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Methodology and Results

Economic Base Theory

The foundation of this analysis is economic base theory which states that economic growth occurs when there is an increase in the flow of money into an area through the export of goods and/or services. This "direct" impact is commonly measured in terms of the number of jobs and/or amount of income the activity represents, and can also be measured in terms of contribution to GDP ("value added") or total output[1]. However, the "direct" activity is just the beginning. The money that flows into the region is used by companies to purchase goods and services, and to the extent that those goods and services are purchased locally, they represent an increase in local employment and income, and therefore, have additional economic impact. Finally, the extent to which employees spend their income locally also generates an additional increase in local employment and income. The sum of these three represents the "total" economic impact of the economic activity under review.

When looking at economic impact, it is important to note that only new economic activity should be considered. For example, an existing company with 10 employees that is able to add 5 more employees and double sales as a result of an investment already had some economic impact in the state. For purposes of estimating the economic impact of the investment, only the 5 additional jobs, and the additional sales should be considered. An exception to this would be if the company was at risk of going out of business without the investment. In that case, it is legitimate to include retained jobs and the new employees, as well as all of the sales and wages.

IMPLAN Model

The process described above is simulated using an input-output model of the economy under consideration, which in this case, is the State of North Carolina. Specifically, the economic impact analysis was conducted using the nationally recognized model, IMPLAN, developed by the Minnesota IMPLAN Group. IMPLAN is an input-output model configurable for any multi-county region, state, or even a single county. For this analysis, an IMPLAN model was built and customized for the State of North Carolina using 2015 data[2] on industry interactions within the state, as well as commuting patterns and other demographic information.

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[1] See Appendix A for the definitions of terms.

[2] 2015 is the latest data available for the IMPLAN model.

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In this case, the economic activity to be modeled is that which results from investments made under a proposed North Carolina Rural Job Creation Fund. Unfortunately, there is no way to know in exactly which industries these investments will be made. Therefore, the next best sample would be that of investments made in other states that benefited from similar tax credit and/or grant programs. This analysis utilizes a dataset of more than $150M of investments made in dozens of companies as the result of tax credit programs across 3 states. These investments were in 43 unique industries and the mix of employment associated with these investments across these industries was used to allocate a hypothetical mix of jobs that might occur from the potential investments in North Carolina under the fund. Figure 1 shows the mix of jobs aggregated to major industry levels.

It was assumed that all jobs included here were either new jobs to North Carolina, or retained jobs that would otherwise have been lost without the investments. The largest category was services, which represented 48 percent of the jobs in the dataset. Manufacturing, and TIPU[3] represented 20 percent and 19 percent respectively.

Figure 1: Model Employment Mix
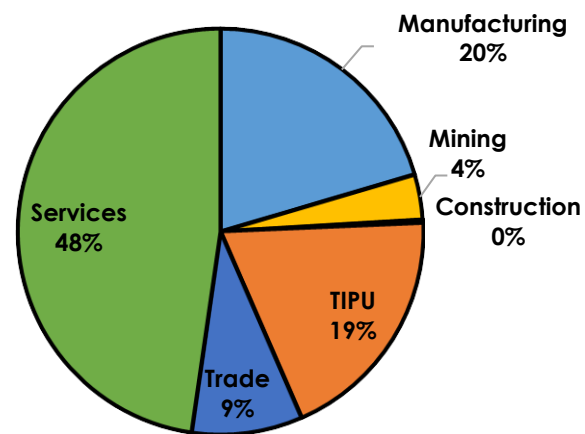
Economic and Fiscal Analysis Results

The results of the analysis show that for every new direct job created or retained in these industries, an additional 1.12 jobs are generated in other sectors of the North Carolina economy. For example, 100 new jobs in North Carolina distributed across the same 43 industries result in 112 indirect and induced jobs across the state (Table 1).

[3] TIPU stands for Transportation, Information, Power, and Utilities

Table 1: Impact of 100 Jobs In Selected Industries

	Employment	Income*	Value Added*	Output*
Direct	100	$6,749.6	$11,936.9	$22,224.2
Indirect/Induced	112	$5,281.2	$9,260.8	$16,587.6
Total	**212**	**$12,030.8**	**$21,197.7**	**$38,811.8**
Multiplier	*2.12*	*1.78*	*1.78*	*1.75*

Income, value added, and output are in thousands of dollars. Totals may not add due to rounding.

Combined, the model estimates that for every new direct job created or retained, $14,064 in state and local tax revenue is generated. Using data from the U.S. Census Bureau's *Annual Survey of State and Local Finances*, researchers estimate that 62 percent of that revenue accrues to the state in the form of sales taxes, income taxes on individuals and corporations, as well as other taxes and revenues – or just over $8,730 per *direct* job (Figure 2).

Figure 2: Distribution of Tax Revenue Per New Job
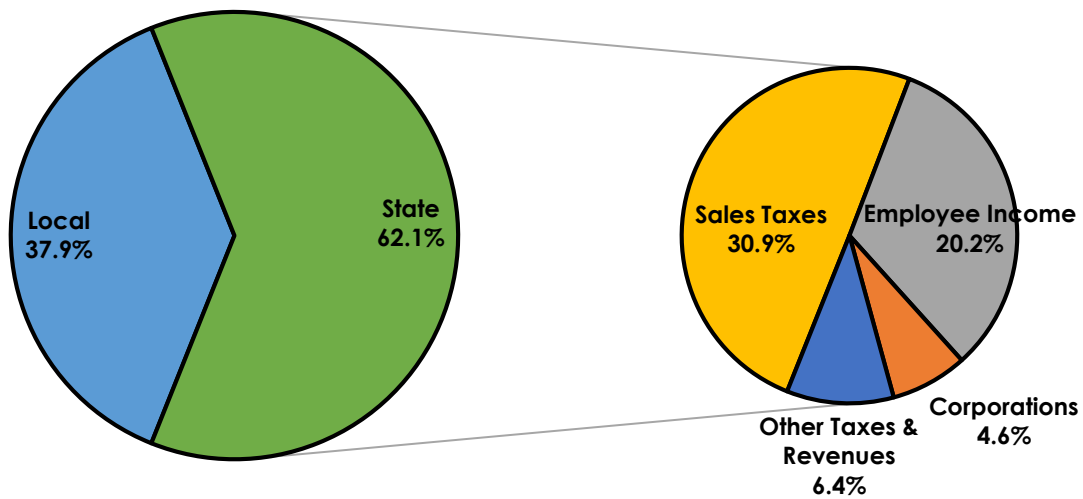
Of course, this number includes the tax revenues generated because of the indirect and induced job creation. If the state and local tax revenues are divided by the *total* number of jobs resulting from the investments — not just the direct jobs, but the direct, indirect, and induced jobs combined — the state and local tax revenue per job is approximately $6,620 — $4,100) of which would accrue to the state (Table 2).

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Table 2: State and Local Tax Revenues Per New Job

	Direct	Indirect & Induced	Total
Employment	1.00	1.12	2.12
Tax Revenue/Job	$14,064		$6,621
- *State (62.1%)*	*$8,736*		*$4,113*
- *Local (37.9%)*	*$5,328*		*$2,508*

Return on Investment (ROI)

Under the proposed North Carolina Rural Jobs Creation Fund, the state would contribute a $50M grant to be matched with at least $50M in private capital. The entire fund must be invested within 3 years and remain invested for minimum of 6 years, regardless of whether the job creation milestones are reached before the deadlines. In the three states where the investments were made that formed the basis for the analysis above, on average, one job was created for every $35,000 invested. If that held true for North Carolina, then the $100M fund fully invested could be expected to create, or cause to be retained, 2,857 jobs ($100,000,000 investment/ $35,000 investment per job = 2,857 jobs).

Researchers used the IMPLAN model for North Carolina, and distributed 2,857 jobs across the same 43 industries in the same ratio/mix that was used to allocate the jobs in the fiscal analysis above. For purposes of this ROI analysis, it was assumed that the state grant would be drawn down evenly over the first three years, and that revenues from those investments wouldn't begin until the following year.

Under those assumptions, the return ratio for the state over 10 years is 3.91 — the state would receive 3.91 times as much in revenue over 10 years as they would spend on the grant (Table 3). (This analysis is presented in real terms and does not consider the effect of inflation.) Under this scenario, the program has a positive return by year 5.

Because the grant is spent in the first three years, but the revenues occur in later years, it is appropriate to calculate the net present value (NPV) of the program. Over 10 years, the NPV of the grant is $45.4M and the NPV of the new revenue to the state is $143.1M, which results in a return ratio of 3.15. The NPV of the entire program is $97.7M.

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Table 3: North Carolina Rural Job Creation Fund
Credit Return Ratio and Net Present Value

	State Grant	Total New State Revenue	Cumulative Return Ratio
Year 1	$ 16.67	$ 0	~
Year 2	$ 16.67	$ 8.32	0.25
Year 3	$ 16.67	$ 12.48	0.42
Year 4	$ 0	$ 24.96	0.92
Year 5	$ 0	$ 24.96	1.41
Year 6	$ 0	$ 24.96	1.91
Year 7	$ 0	$ 24.96	2.41
Year 8	$ 0	$ 24.96	2.91
Year 9	$ 0	$ 24.96	3.41
Year 10	$ 0	$ 24.96	3.91
Total:	**$ 50.00**	**$ 195.51**	**3.91**
PV @ 5%:	**$ 45.39**	**$ 143.08**	**3.15**
NPV:	**$97.69**		

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Appendix A
Definitions

Direct Impacts. The initial economic activity that results from changes in production or expenditures by producers and/or consumers.

Indirect Impacts. The economic activity that results from local industries buying goods and services from other local industries. This cycle of spending continues until all the money leaks out from the regional economy.

Induced Impacts. The economic activity that results from the spending of employees' labor income. This cycle of household spending continues until all the money leaks out from the regional economy.

Economic Output. Final value of industry production. For manufacturing companies, output is sales plus/minus changes in inventory. For service sectors, output is equal to sales. For retail and wholesale trade companies, output equals gross margin, NOT gross sales.

Value Added. The difference between an industry's output and the cost of its intermediate inputs. This includes employee compensation, taxes on production, and gross operating surplus. This is the measure of the contribution to GDP made by the industry.

Wages/Income. All forms of employment income, including employee compensation and proprietor income. Employee compensation is the total payroll cost of the employee paid by the employer including wages and salary, all benefits (health, retirement, etc) and employer-paid payroll taxes (social security, unemployment, etc). Proprietor income consists of payments received by self-employed individuals and unincorporated business owners, and includes the capital consumption allowance.