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How Repealing the Corporate Income Tax will Attract
Investment, Reduce Cronyism, and Benefit Workers

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EXECUTIVE SUMMARY

In recent years, North Carolina has successfully carried out major changes in economic policy, including large reductions in sales and individual income tax rates and in the amount and length of unemployment benefits. Here, we estimate the impacts that eliminating North Carolina's corporate income tax would have on the state's economy, labor market, and tax revenues.

To answer these questions, we assess statistically the average relationships between corporate income tax rates and several key measures of economic performance across the 51 main U.S. jurisdictions during 2000-2017. We show that states with lower corporate income tax rates experienced higher economic growth, employment growth, and growth in real salaries. Our analysis also places in perspective North Carolina's large reductions in corporate income tax rates from 6.9% in 2013 to 3% in 2017 and its scheduled further reduction to 2.5% in 2019.

As summarized in Figure 1 below, we project that eliminateing North Carolina's corporate income tax would produce the following benefits over the next decade:

- increase state GDP by $17 billion or by 2.1%, lifting GDP per capita by $1,453,

- increase employment by 43,000 jobs or by 0.6%, and

- increase salaries by $11 billion or by 2.2%, lifting salaries per employee by $1,546.

FIGURE 1: PROJECTIONS OF THE CUMULATIVE, TEN-YEAR, IMPACTS OF ELIMINATING NORTH CAROLINA'S CORPORATE INCOME TAX, 2019-2028

	AMOUNT OF INCREASE (TOTAL) (1)	AMOUNT OF INCREASE (PER CAPITA) (2)
1. Economic growth (or GDP)	$17 billion	$1,453
2. Growth in employment (or number of jobs)	43,000 jobs	N.A.
3. Growth in labor compensation	$11 billion	$1,546

I. INTRODUCTION

In recent years North Carolina has implemented major changes in economic policy. In Crofton and Dopico (2016), we found that North Carolina's very large reductions in sales tax rates, individual income tax rates, and the size and length of unemployment insurance benefits had large positive impacts on the state's economy and labor markets.

Here, we estimate the long-term impacts of eliminating North Carolina's corporate income tax rates on the state's economy, labor market, and tax revenues. To enhance comparability between this report and Crofton and Dopico (2016), here we follow the structure and approach of the earlier report to the extent possible.

To answer these questions, in section II of this report, we briefly review the academic and professional literatures on the relationship between states' corporate income tax rates and the performance of their economies and labor markets. For instance, while policy makers must make decisions about the level of services that governments will provide, the literature shows that higher tax rates detract from businesses' and entrepreneurs' incentives to engage in economic activity, and thus detract from economic growth and employment growth.

Drawing on that literature review, section III presents the methodology we use in this report. We collected data that summarize corporate income tax rates and key aspects of economic performance across the 51 main U.S. jurisdictions during 2000-2017. We focus on key measures of economic performance, including: economic growth, employment growth, and growth in real labor compensation (hereinafter: salaries). We briefly explain why the study controlled for state GDP per capita and nationwide macroeconomic conditions.

In section IV, we explore corporate income taxes across states during 2000-2018 to place in perspective the magnitude of North Carolina's recent economic policy changes. North Carolina's reductions in its corporate income tax rates, from 6.9% in 2013 to 3% in 2017, with a further reduction to 2.5% scheduled for 2019, are by far among the largest implemented across states during 2000-2018.

In section V, we present our findings about the average relationships between corporate income tax rates and several key measures of economic performance across states during 2000-2017. Confirming the findings of earlier literature, we find that states with lower tax rates experience more favorable economic performance. For instance, states with tax rates that are 1% lower experience annual economic growth rates that are 0.083% higher, annual employment growth rates that are 0.026% higher, and annual growth in real salaries that are 0.087% higher.

In section VI, we present ten-year projections of the impacts of eliminating North Carolina's corporate income tax. These reductions in tax rates would increase GDP by $17 billion or by 2.1%, lifting GDP per capita by $1,453. Further, these reductions in tax rates would increase employment by 43,000 jobs or by 0.6%. Also, these reductions in tax rates would also increase real salaries by $11 billion or by 2.2%, lifting salaries per employee by $1,546.

Our estimates are based on the nationwide average impacts of having corporate income tax rates that are lower by 2.5% (i.e., from reducing tax rates from 2.5% to 0%). However, here we do not formally estimate the benefits to businesses, and their employees, of dismantling the corporate income tax. After all, reducing corporate income tax rates from, for instance 5% to 2.5% or from 2.5% to 0%, both involved reductions of 2.5%, but only the later involves dismantling the corporate income tax rate.

Eliminating the corporate income tax likely would have additional benefits beyond those that we estimate here. For instance, North Carolina would save on resources dedicated to negotiating targeted incentive packages to attract and retain out-of-state and in-state investments. By eliminating its corporate income tax, North Carolina would take many steps ahead of other states in attracting business investment and jobs. While other states might seek to attract out-of-state investments through offers of corporate income tax concessions, North Carolina would be sending a clear signal that it is business-friendly, transparent, and open for business. In North Carolina, businesses and entrepreneurs, large and small, foreign or domestic, out-of-state or in-state, would not have to wonder whether others negotiated more preferential corporate income tax deals.

By eliminating the corporate income tax, North Carolina would be sending a clear signal that it welcomes all businesses to expand their operations and create jobs in the state. In turn, increased business investment and more and better paying jobs would improve economic conditions for North Carolina workers and families. In addition, we show that while North Carolina would forgo revenues from corporate income taxes in the short term, by shifting to a more transparent, business-friendly tax structure, total tax revenues would be higher over the long term. In particular, we project that lower corporate tax rates would lift economic activity by enough that, in less than two decades, resulting increases in revenues from personal income and sales taxes would be larger than the forgone corporate income tax revenues.

Section VII briefly summarizes the report.

II. DATA SOURCES AND A BRIEF REVIEW OF THE LITERATURE

Estimating the impacts of large changes in economic policy is complex. Common methodologies used to estimate such impacts involve collecting data across multiple units of analysis (countries, states, counties, cities, businesses, banks, individuals, etc.) over multiple periods of time (years, quarters, or months) to form "panels of data."

Common contributions in the government and professional literatures involve developing, updating, and distributing new panels of data across U.S. states over time. These panels cover a growing variety of not only measures of economic performance, but also of measures of economic, fiscal, regulatory, and legal policy. For instance, the U.S. government's Bureau of Economic Analysis (BEA 2018) and Bureau of Labor Statistics (BLS 2018) routinely release panels with much of the data on economic performance and demographics that we use in this report. These data include economic production (i.e., nominal and real [inflation-adjusted] gross domestic product, GDP), population, employment, salaries, and unemployment rates. These data serve to form the key variables that we seek to explain (the "dependent variables") and some of our independent (or control) variables. These include:

- Economic growth

- Employment growth

- Growth in real salaries

- The unemployment rate

- GDP per capita

The Tax Foundation (2013) and the Tax Policy Center (2018) maintain separate (state-year) panels about state tax systems that yield our key independent (or explanatory) variables. These include:

- State income tax rates for corporations in the top income bracket,

- State income tax rates for corporations earning $100,000, and

- The number of income brackets in state corporate income taxes.

As a further example of the growing number of panels available, the Cato Institute's Freedom in the 50 States project includes over 60 measures of fiscal and regulatory policy annually during 2000-2016 (Cato 2018). Academic, private, and government analysts commonly assess panels of data for a variety of both indirect and ultimate purposes. An example of an indirect use of data, and another common contribution from the professional literature, involves combining multiple variables into indices, hopefully helping turn complex data into more intelligible, simpler, and useful measures. Ultimately, many analysts use data panels and indices (1) to explore the links between economic policies and economic performance in general and/or (2) to focus on the experience of a single state, often as a guide to that state's policymakers.

For instance, the Tax Foundation combines data about state corporate income taxes, individual income taxes, sales taxes, property taxes, and unemployment insurance taxes to yield a single State Business Tax Climate Index. In turn, this index may be used to highlight how tax policy evolved for a single state over time. Following its recent, major tax policy reforms, North Carolina's ranking improved from 44th to 16th within a single year, between the 2014 and 2015 editions of the index, and has retained a ranking between 11th and 12th for the 2016-2019 editions (Walczak et al. 2018).

Panels of data may be used to assess economic policies and their links with economic performance both informally (e.g., "visually" looking for broad patterns in the data) and formally (i.e., applying statistical techniques to analyze data). Two indices compiled by the American Legislative Exchange Council (ALEC) can be used to provide an example of an informal assessment of the links between economic policy and economic performance for a single state, i.e., North Carolina.

The ALEC-Laffer State Economic Competitiveness Index project includes two key indices. First, the Economic Outlook Index combines fifteen variables describing state economic policy. Among others, these variables include: individual and corporate income tax rates for the top brackets, a measure of the progressivity of income tax systems, measures of sales, property, inheritance, and other taxes, as well as measures of labor policies such as the minimum wage. Second, the Economic Performance Index combines, as its name implies, simple measures of performance: economic growth, domestic migration, and employment growth.

"Visually" comparing the recent evolution of North Carolina's ranking in these two indices provides clear, if informal, indications that lowering taxes (and reducing other forms of government intervention in the economy) had favorable impacts on economic performance. In recent years, as North Carolina reformed its tax and unemployment insurance mechanisms (lowering tax rates and unemployment benefits) its ranking in the Economic Outlook Index (again: a measure of lighter levels of government intervention) climbed markedly from 23 in 2012 annually to 22, 6, 4, and 2 by 2016. Subsequently, North Carolina's ranking in the Economic Performance Index has followed a similar upward path from 27 in 2012 annually to 15, 12, 10, and 8 in 2016 (Laffer 2012-2018). Most recently, North Carolina has somewhat changed policy direction, with its Economic Outlook Index falling from 2 in 2016 to 3 in 2017 and 7 in 2018. Concomitantly, its Economic Performance Index also fell from 8 in 2016 to 9 in 2017 and 11 in 2018.

Beyond informal assessments, the academic and professional literatures routinely apply statistical techniques to panels of data (i.e., panel data techniques) to carry out formal economic and policy analyses. Examples of these applications range very widely. For instance, Jayaratne and Strahan (1996) explore whether bank branch deregu-lation improves bank performance. Anderson et al. (2009) explore whether minimum wages affected high school dropout rates across counties and ethnic groups in Maryland. Crofton and Parker (2012) explore whether social media affected tourism outcomes in Atlantic Canada. Dopico and Wilcox (2013) explore whether mortgage lending affects credit union performance. Dopico (2014) explores whether government assistance programs affect the performance of small credit unions. Dopico (2018) explores what factors affect credit union asset growth.

Focusing again on corporate income taxes and economic performance, the academic literature has long found that, while optimal design of tax systems depends on many factors and can differ from state to state and from country to country, higher corporate income tax rates detract from economic performance. For instance, Kneller, Blealy and Gemell (1999), Wildman (2001), Lee and Gordon (2005), Gemell, Kneller and Sanz (2006), Poulson and Kaplan (2008), Myles (2009), Dackehag and Hansson (2012), and McNabb (2018) found that higher personal and corporate income tax rates or relying more on income taxes than on consumption taxes reduced economic growth across U.S. states and across a variety of developed and developing countries and time periods. While these results are broadly robust, other studies point out, of course, that tax burdens and tax structures have impacts that may differ across states, countries, time periods, and circumstances, such as levels of development (across countries), fiscal policy (deficits), and stages in the business cycle. Nonetheless, Schwellnus and Arnold (2008) and Vartia (2008) similarly find negative impacts of corporate taxes on productivity and investment across individual firms and industries across OECD countries.

Many studies provide evidence that shifting taxation away from labor (e.g., wage income) and capital (corporate income, dividends, and capital gains) and toward consumption and property (sales taxes and real estate) improve economic performance. For instance, the results from Arnold (2008) and Macek (2014) point to the following ranking of types of taxes: from corporate income taxes, as the most harmful to economic growth to individual income taxes, payroll taxes, sales taxes, and property taxes, with the latter as the least harmful to economic growth. In sum, rev-enue-neutral growth-oriented tax reform would seek to lower tax rates and shift revenues away from income taxes (particularly corporate ones) and toward consumption and property taxes (particularly real estate ones).

III. A BRIEF REVIEW OF OUR METHODOLOGY

Drawing on the examples from past literature (Amiel 2012, Walczak et al. 2018, Laffer et al. 2018), we apply panel data techniques to explore the links between corporate income tax rates and several measures of economic performance, and then highlight the case of North Carolina. In particular, in section V below, first, we assess whether, during 2000-2017, states with lower (or higher) corporate income tax rates (i.e., the independent variable) experience lower (or higher) economic growth rates, employment growth rates, and growth in real salaries (i.e., the dependent variables).

We used annual data for individual states for the period of 2000-2017 for several reasons: First, the period is reasonably long, including a variety of stages in the business cycle: two recessions, two expansions, and, of course, among them, the recent housing boom, housing and financial crises, and the ongoing recovery. Second, the period is sufficiently short that its data are relevant to current conditions. And, third, the period is long enough that it includes substantial variation in economic policies, not only across states, but also within several individual states. We focused on annual data, instead of using higher frequencies, such as monthly or quarterly data, because while there were some changes in economic policy (e.g., tax rates), most such changes only take place every few years.

We experimented with a variety of model specifications including, among others:

- Pooled panels using ordinary least squares (OLS) vs. panels using fixed effects regressions

- Models entering variables as levels or as first differences

- Including lagged values of the dependent variables as an independent variable and not doing so

- Several lags for independent variables, and

- Several combinations of additional independent, or control variables, such as the inflation rate

Ultimately, we selected a single core specification that we applied across our several dependent variables and key independent variables. Also, all results were adjusted for heteroskedasticity and autocorrelation as necessary.

- In particular, our core specifications each include:

- One key measure of economic performance (i.e., a dependent variable)

- The one-year lag of that dependent variable

- At least one measure of economic policy (i.e., the key independent variable)

- Some additional independent "control" variables: real GDP per capita, to control for the level of economic development in the state, as well as a rough proxy of voters' demand for public services and/or the effectiveness of those services,[1] and

- Annual dummy variables, to control for the evolution of nationwide economic conditions and their impacts on local economic conditions.

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1   The predicted impact of real GDP per capita on economic performance is ambiguous. Wealthier states may have greater demands for various public services (e.g., education, healthcare, and other services) and be more willing and able to bear higher levels of taxation, since the same tax rate leaves more after-tax dollars than in poorer states. These public services may contribute or detract from economic performance, while higher tax rates may detract from economic performance by weakening economic agents' incentives to work (Amiel 2012).

Finally, in section VI, we take the analysis one step further. Section V provides us with average nationwide relationships between corporate income tax rates and several measures of economic performance. These relationships may readily be used as estimates of the per unit "impacts" of policy changes. Armed with these per unit "impacts," we may combine them with measures of the magnitude of specific changes in policy in North Carolina and develop estimates of the impacts that these changes had on the state's economy.

IV. PLACING NORTH CAROLINA'S CHANGES IN CORPORATE INCOME TAX RATES IN PERSPECTIVE

In recent years, North Carolina has carried out major changes in economic policy including large reductions in corporate income tax rates. To help place these changes in perspective, in this section we compare North Carolina's tax rates and its changes with those of all U.S. states during 2000-2018.

The details of economic policy are complex with, for instance, tax laws and regulations that run for hundreds, if not thousands, of pages. Among many other factors, corporate income taxes across states may differ in the number of income brackets that they use, the tax rates that apply to each bracket, and the income levels at which each bracket begins and ends. However, to assess the impacts of economic policy, statistical techniques require both (1) that all differences be readily quantifiable in a comparable manner, ideally across a large number of units (states) and a large number of periods of time, and (2) that complex differences be boiled down to relatively simple measures, such as focusing on one or two key tax rates, the number of income brackets, or some index that combines the many components of each tax system into a single measure.

In the remainder of this section, we present some of the key measures that we have used to readily compare corporate income taxes in North Carolina and other states. In particular, we explore: (1) the tax rate for corporations in the top income bracket, and (2) the tax rate for corporations with $100,000 in income.

Figure 2 presents corporate income tax rates for the top income bracket (hereinafter: maximum tax rates) during 2000-2018. We present and explore maximum rates first for several reasons. In 31 states, corporate income taxes use a flat rate, i.e., there is a single rate for all levels of income. In many states, the maximum rates become effective at relatively low-income levels, including $10,000 in Mississippi, $25,000 in Vermont, $50,000 in Kansas and North Dakota, and $100,000 in four other states. Thus, large fractions of tax revenues are paid by taxpayers in the top brackets.

FIGURE 2: STATE CORPORATE INCOME TAXES, MAXIMUM RATES, 2000-2018

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
AL	5.00	5.00	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
AK	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40
AZ	8.00	7.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.50	6.00	5.50	4.90	4.90
AR	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
CA	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84
CO	4.75	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63
CT	8.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
DE	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70
FL	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
GA	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
HI	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
ID	8.00	8.00	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.40	7.40	7.40	7.40	7.40	7.40
IL	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	9.50	9.50	9.50	9.50	7.75	7.75	7.75	9.50
IN	7.90	7.90	7.90	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.00	8.00	7.00	6.50	6.25	6.00
IA	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
KS	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.05	7.05	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
KY	8.25	8.25	8.25	8.25	8.25	8.25	7.00	7.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
LA	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
ME	8.93	8.93	8.93	8.93	8.93	8.93	8.93	8.93	8.93	8.93	8.93	8.93	8.93	8.93	8.93	8.93	8.93	8.93	8.93
MD	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	8.30	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25
MA	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	8.75	8.25	8.00	8.00	8.00	8.00	8.00	8.00	8.00
MI	.	.	.	.	.	.	.	.	4.95	4.95	4.95	4.95	6.00	6.00	6.00	6.00	6.00	6.00	6.00
MN	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
MS	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
MO	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
MT	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75
NE	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81
NV	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NH	7.00	8.00	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.20	8.20
NJ	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
NM	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.30	6.90	6.60	6.20	5.90
NY	9.00	8.00	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.10	7.10	7.10	7.10	7.10	7.10	7.10	6.50	6.50	6.50
NC	7.00	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	**6.90**	**6.90**	**6.00**	**5.00**	**4.00**	**3.00**	3.00
ND	10.50	10.50	10.50	10.50	10.50	7.00	7.00	7.00	6.50	6.50	6.40	6.40	5.20	5.15	4.53	4.53	4.31	4.31	4.31
OH	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	.	.	.	.	.	.	.	.	.	.
OK	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
OR	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	7.90	7.90	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60
PA	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99
RI	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	7.00	7.00	7.00	7.00
SC	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
SD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TN	6.00	6.00	6.00	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
TX	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
UT	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
VT	9.75	9.75	9.75	9.75	9.75	9.75	9.75	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50
VA	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
WA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
WV	9.00	9.00	9.00	9.00	9.00	9.00	9.00	8.75	8.50	8.50	8.50	8.50	7.50	7.00	6.50	6.50	6.50	6.50	6.50
WI	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90
WY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DC	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.40	9.40	9.00	8.25
Unweighted average																			
	7.37	7.34	7.34	7.37	7.37	7.29	7.26	7.23	7.18	7.16	7.14	7.17	7.16	7.13	7.07	6.92	6.85	6.79	6.80

Sources: Tax Foundation (2013) and Tax Policy Center (2018).

Notes: South Dakota and Wyoming do not levy state corporate incomes taxes, and are thus entered here as having tax rates of zero. Nevada, Texas, and Washington (as well as Michigan and Ohio for part of this period) have corporate tax systems whose rates and tax bases are not directly comparable to those of other states in this figure, and are thus entered here as ".".

Figure 2 highlights that, during this period, despite some differences in corporate income tax systems, most states levied somewhat similar rates. There were 34 states with maximum tax rates that, during 2000-2018, averaged between 6% and 8.99%. Only six states had higher tax rates, between 9% and 12%. Another six states had lower tax rates, between 3% and 5.99%. Two states (South Dakota and Wyoming) did not levy corporate income taxes during this period.[2]

Maximum tax rates were relatively stable for most states during this period. Aside from the two states without corporate income taxes, 21 other states never changed their maximum tax rates. Out of the 846 state-year cases (i.e., 51 jurisdictions multiplied by 18 years, excluding 72 state-years whose corporate tax systems are not directly comparable), 796 involved maximum tax rates that did not change from year to year (92% of cases), 11 were increases (1%), and 57 were decreases (7%). The unweighted average of maximum corporate income tax rates across states (including states without corporate income taxes) decreased somewhat from 7.37% in 2000 to 6.80% in 2018. Among states changing their corporate income tax rates, most changes were relatively small. Out of the 11 increases, four were smaller than 1% and seven were in the 1-3% range. Out of 57 decreases, 42 were smaller than 1% and 15 were in the 1-3% range.

Thus, North Carolina's decreases in its corporate income tax rates from 6.90% in 2013 to 6% in 2014, 5% in 2015, 4% in 2016, and 3% in 2017 (for a total decline of 3.90% over four years) are both among the few changes in state corporate income tax rates and among the largest changes across states during 2000-2018. North Carolina is also scheduled to further reduce its corporate income tax rate to 2.5% in 2019.

Figure 3 presents income tax rates for corporations earning $100,000, across states during 2000-2018. We present rates for corporations earning $100,000 since these tax rates might be more indicative of conditions for small businesses.[3] Small businesses account for large fractions of economic activity and employment in the U.S., have historically been key factors in entrepreneurship and economic innovation, and may be more affected than large businesses by the fixed-cost aspects of government regulation and taxation. In section V, we explore separately whether changes in maximum tax rates or changes in tax rates for corporations earning $100,000 each have impacts on macroeconomic and labor market performance.

However, the differences between maximum tax rates and those for corporations earning $100,000 have generally been relatively small. As we mentioned above, 31 jurisdictions use flat corporate income tax rates, two do not have corporate income tax rates, and five (during at least part of this period) do not have comparable corporate tax systems. Among the remaining 13 states, tax rates differed for the maximum tax bracket and that for corporations earning $100,000 in between five and seven states per year. The gaps ranged from quite small (0.6% in Maine and 0.75% in Connecticut) to small (1% in Louisiana and Oregon) to quite large (2% in Iowa, 2.8% in New Mexico until 2013 and 4.45% in Alaska). The unweighted average of income tax rates for corporations earning $100,000 across states (including states without corporate income taxes) behaved similarly to that for maximum tax rates, decreasing somewhat from 7.14% in 2000 to 6.57% in 2018. The gap between maximum tax rates and those for corporations earning $100,000 remained rather stable throughout this period, ranging between 0.23% and 0.27%.

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2   Nevada, Texas, and Washington (as well as Michigan, and Ohio for part of this period) have corporate tax systems whose rates and tax bases are not directly comparable to those of other states. In our calculations and statistical analyses, we do not include the state-year observations for which tax rates are not comparable.

3   Recall that 31 states have flat rate corporate income taxes, not including the two states without corporate income taxes. Also, as discussed above, several states have maximum tax rates that become effective at income levels of $100,000 or below.

FIGURE 3: STATE INCOME TAXES RATES FOR CORPORATIONS EARNING $100,000, 2000-2018

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
AL	5.00	5.00	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
AK	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
AZ	8.00	7.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.50	6.00	5.50	4.90	4.90
AR	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
CA	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84	8.84
CO	4.75	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63
CT	8.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
DE	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70
FL	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
GA	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
HI	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40
ID	8.00	8.00	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.60	7.40	7.40	7.40	7.40	7.40
IL	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	7.30	9.50	9.50	9.50	9.50	7.75	7.75	7.75	9.50
IN	7.90	7.90	7.90	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.00	8.00	7.00	6.50	6.25	6.00
IA	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
KS	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.35	7.05	7.05	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
KY	8.25	8.25	8.25	8.25	8.25	8.25	7.00	7.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
LA	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
ME	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33
MD	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	8.30	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25
MA	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	8.75	8.25	8.00	8.00	8.00	8.00	8.00	8.00	8.00
MI	.	.	.	.	.	.	.	.	4.95	4.95	4.95	4.95	6.00	6.00	6.00	6.00	6.00	6.00	6.00
MN	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
MS	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
MO	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25
MT	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75
NE	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81
NV	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NH	7.00	8.00	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.20	8.20
NJ	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
NM	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80
NY	9.00	8.00	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.10	7.10	7.10	7.10	7.10	7.10	7.10	6.50	6.50	6.50
NC	7.00	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.00	5.00	4.00	3.00	3.00
ND	10.50	10.50	10.50	10.50	10.50	7.00	7.00	7.00	6.50	6.50	6.40	6.40	5.20	5.15	4.53	4.53	4.31	4.31	4.31
OH	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	.	.	.	.	.	.	.	.	.	.
OK	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
OR	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60
PA	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99
RI	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	7.00	7.00	7.00	7.00
SC	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
SD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TN	6.00	6.00	6.00	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
TX	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
UT	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
VT	9.75	9.75	9.75	9.75	9.75	9.75	9.75	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50	8.50

VA	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
WA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
WV	9.00	9.00	9.00	9.00	9.00	9.00	9.00	8.75	8.50	8.50	8.50	8.50	7.50	7.00	6.50	6.50	6.50	6.50	6.50
WI	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90	7.90
WY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DC	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.98	9.40	9.40	9.00	8.25
Unweighted average																			
	7.14	7.11	7.11	7.14	7.14	7.06	7.04	7	6.95	6.9	6.88	6.92	6.89	6.86	6.81	6.66	6.6	6.55	6.57

Sources: Tax Foundation (2013) and Tax Policy Center (2018).

Notes: South Dakota and Wyoming do not levy state corporate incomes taxes, and are thus entered here as having tax rates of zero. Nevada, Texas, and Washington (as well as Michigan and Ohio for part of this period) have corporate tax systems whose rates and tax bases are not directly comparable to those of other states in this figure, and are thus entered here as ".".

V. AVERAGE RELATIONSHIPS BETWEEN CORPORATE INCOME TAX RATES AND ECONOMIC PERFORMANCE ACROSS STATES, 2000-2017

Confirming the findings of earlier literature, we find that states with lower tax rates experience more favorable economic performance. Figure 4 presents nationwide average relationships between our two measures of corporate income tax rates and key measures of economic performance across states during 2000-2017. In the figure, we present our two measures of corporate income tax rates across the columns: those for corporations in the top income bracket (columns 1 and 2) and those for corporations earning $100,000 (columns 3 and 4). We present the measures of economic performance across rows: economic growth, employment growth, and growth in real salaries.[4] For each measure of corporate income taxes, we present results from two statistical techniques: ordinary least squares (OLS, or pooled panels) and fixed effects.

Figure 4 shows that, during 2000-2017, states with lower corporate income tax rates have experienced more favorable economic performance. The differences in performance across states with lower vs. higher tax rates are large. For instance, states with maximum corporate income tax rates that were 2% lower (by about one standard deviation of cross-state variation or, for instance, tax rates of 5% instead of 7%) experienced annual economic growth rates that were 0.16% higher, annual employment growth rates that were 0.05% higher, and annual growth in real salaries that was 0.17% higher. Over a ten-year period, for an economy of the size of North Carolina (i.e., with GDP of $538 billion, 5.9 M workers, and $319 billion in salaries), these differences would result in GDP being larger by $9 billion, employment being larger by 30,000 jobs, and salaries being larger by $6 B. Alternatively, one could express these differences as GDP per capita being $778 higher or annual salaries per employee being $945 higher. We found broadly similar impacts on economic performance whether we used income tax rates for corporations in the top income bracket of for those earning $100,000; compare for instance columns 1 and 3.

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4   In Crofton and Dopico (2016), we explored the impacts of sales tax rates, individual income tax rates, and the size and length of unemployment benefits on economic growth, employment growth, and growth in real salaries, as here, as well as unemployment rates. We found lower sales tax rates and smaller and shorter unemployment benefits across states to be statistically associated with lower unemployment rates, but we did not find a statistically significant link (either positive or negative) between individual income tax rates and unemployment rates. Here, we also tested for a relationship between corporate income tax rates and unemployment rates. Like for individual income tax rates, we did not find a statistically significant (either positive or negative) relationship between corporate income tax rates and unemployment rates.

FIGURE 4: AVERAGE RELATIONSHIPS BETWEEN CORPORATE INCOME TAX RATES AND KEY MEASURES OF ECONOMIC PERFORMANCE (ABRIDGED RESULTS), ACROSS STATES DURING 2000-2017

	INCOME TAX RATE FOR CORPORATIONS				
	IN THE TOP BRACKET			EARNING $100,000	
	OLS (pooled panel) (1)	Fixed effects (2)		OLS (pooled panel) (3)	Fixed effects (4)
1. Economic growth	-0.083***	-0.438*		-0.088***	-0.477*
2. Employment growth	-0.026**			-0.023**	
3. Growth in real salaries	-0.087***			-0.101***	

Note 1:

   * denotes significance at the 10% level (or somewhat reliable results),

  ** denotes significance at the 5% level (or reliable results),

 *** denotes significance at the 1% level (or very reliable results).

   Empty cells denote that results were not significant at the 10% level.

Note 2: The abridged results in each cell in this figure are each from a separate model that included one measure of economic performance (i.e., a dependent variable) and one measure of corporate income taxes (a key independent variable) as well as the following other "control" independent variables: a lag of the dependent variable, annual dummy variables, and real GDP per capita. In this figure, we present only the coefficient (i.e., impact) of the key independent variable on the dependent variables.

Note 3: The abridged results presented in this figure were extremely robust across many model specifications. We obtained largely the same results with (1) univariate regressions of the dependent variables and only the corporate income tax rates as the independent variables, (2) whether we included a lagged dependent variable as an independent variable, or not, (3) whether we included real GDP per capita, or not, and (4) whether we included independent variables contemporaneously, or lagged by one, two, or three years. The results we included are those lagged by one year.

We interpret results from our OLS (pooled panel) regressions to be informative about the long-term relationships between economic policy and economic performance. For instance, we find evidence that states with lower corporate income tax rates experience higher economic growth rates. Again, states with tax rates that are lower by 2% would, over the long term, experience annual economic growth rates that are sustainedly 0.16% higher. In contrast, we interpret results from our fixed effects regressions to be informative about the short-term impacts that changes in economic policy may have on economic performance. For instance, we find evidence that states that reduce their corporate income tax rates by 1% can expect their economic growth rates to be 0.44% higher over the short term, or on a one-time basis. This implies that policymakers considering reductions in corporate income tax rates should consider both the long-term impacts of lower tax rates (through improved incentives for economic production) and the short-term, stimulative, but durable, impacts of lower tax rates (through for instance bringing forward economic projects and greater mobilization of economic resources).[5]

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5   In contrast to the relationship between corporate income tax rates and economic growth, that was robust across both OLS and fixed effects models, we found corporate income tax rates to be statistically linked with employment growth and growth in real salaries only in OLS models, i.e., a relationship over the long term, but not in fixed effects models. Thus, states changing their corporate income tax rates can only expect impacts on employment and salaries over the long term, not over the short term.

VI. THE LONG-TERM IMPACTS OF ELIMINATING NORTH CAROLINA'S CORPORATE INCOME TAX

To estimate the long-term impacts of eliminating North Carolina's corporate income tax, we apply the nationwide average relationships between corporate income tax rates and economic performance that we computed in section V to the specifics of North Carolina. As we showed in Figure 4 above, states with corporate income tax rates that are lower by 1% on average have annual real GDP, employment, and real salary growth rates that are higher, respectively, by 0.083%, 0.026%, and 0.087%. To develop our estimates of long-term impacts, we first computed projections that extrapolate North Carolina's GDP, employment, and total salaries during 2019-2028, assuming each maintains its average growth rate during 2004-2013, i.e., before the state's corporate income tax reform. Next, we computed projections that reflect faster growth, from having reduced tax rates to 2.5%, as current law calls for, and from further reducing the tax rate to 0%, i.e., from eliminating the tax.

In Figure 5, we present our estimates of the long-term impacts of eliminating North Carolina's corporate income tax, which we compute as the differences after ten years, i.e. in 2028, between the projections that assume tax rates of 2.5% and those that assume tax rates of 0%. Results for economic growth, employment growth, and salary growth are presented in rows 1-3. Column 1 presents how much larger each economic variable would be in billions of dollars or in number of jobs, again after ten years. Column 2 presents the same differences in per capita, or per employee, terms. Column 3 presents them as percentages.

FIGURE 5: PROJECTIONS OF THE CUMULATIVE, TEN-YEAR, IMPACTS OF ELIMINATING NORTH CAROLINA'S CORPORATE INCOME TAX, 2019-2028

	AMOUNT OF INCREASE (TOTAL) (1)	AMOUNT OF INCREASE (PER CAPITA) (2)
1. Economic growth (or GDP)	$17 billion	$1,453
2. Growth in employment (or number of jobs)	43,000 jobs	N.A.
3. Growth in labor compensation	$11 billion	$1,546

What, then, are our estimates of the long-term impacts of eliminating North Carolina's corporate income tax, i.e., during 2019-2028?

A. STATE GDP WILL INCREASE BY AN ADDITIONAL $17 BILLION

By reducing its corporate income tax rates to 0% from 2.5%, annual economic growth rates in North Carolina would be 0.21% higher than they would be otherwise (= 0.083 * 2.5%). At the end of a ten-year period, these annual advantages would cumulate to GDP being larger by $17 billion or by 2.1%, and GDP per capita being higher by $1,453.

Note that these economic impacts would take place in addition to the 10-year benefits of having reduced corpo-

rate income tax rates from 6.9% to 2.5%, which we separately estimate as GDP being larger by an additional $32 billion or by 3.9% and GDP per capita being higher by $2,712.

B. AN ADDITIONAL 43,000 NORTH CAROLINIANS WILL BE EMPLOYED

By reducing its corporate income tax rates to 0%, annual employment growth rates in North Carolina would be 0.07% higher than they would be otherwise (= 0.026 * 2.5%). At the end of a ten-year period, these annual advantages would cumulate to employment being larger by 43,000 jobs or by 0.6%.

Note that these economic impacts would take place in addition to the 10-year benefits of having reduced corporate income tax rates from 6.9% to 2.5%, which we separately estimate as employment being larger by an additional 82,000 jobs or by 1.2%.

C. SALARIES WILL INCREASE BY AN ADDITIONAL $11 BILLION

By reducing its corporate income tax rates to 0%, annual growth rates for real salaries in North Carolina would be 0.22% higher than they would be otherwise (= 0.087 * 2.5%). At the end of a ten-year period, these annual advantages would cumulate to total salaries being larger by $11 billion or by 2.2%, and salaries per employee being higher by $1,546.

Note that these economic impacts would take place in addition to the 10-year benefits of having reduced corporate income tax rates from 6.9% to 2.5%, which we estimate as total salaries being larger by an additional $20 billion and salaries per employee being higher by $2,934.

D. ELIMINATING THE CORPORATE INCOME TAX INCREASES TOTAL TAX REVENUE OVER TIME

Figure 6 presents North Carolina's corporate income tax rates during 2000-2019 (including next year's budgeted rate) and corporate income tax revenues as a percentage of state GDP during 2000-2017. The period of 2000-2013 highlights that tax rates are not the only determinant of tax revenues. During a period when North Carolina's corporate income tax rates were largely unchanged,[6] corporate income tax revenues exhibit a clearly pro-cyclical behavior, falling along with corporate incomes during recessions and their aftermaths (2001-2002 and 2008-2009) and climbing along with corporate incomes during economic expansions (2002-2007 and, less clearly, 2009-2013).

Since 2013, as corporate income tax rates have fallen, from 6.9% to 3% thus far, corporate income tax revenues have concomitantly fallen, from their average level of 0.30% of GDP during 2000-2013 to 0.26% in 2015, 0.21% in 2016, and 0.14% in 2017. Exploring precisely the relationship between corporate income tax rates and corporate income tax revenues is beyond the scope of this report. However, a very cursory examination supports the hypothesis that as tax rates climb higher, revenues fail to increase one-to-one with the increases in rates. For instance, tax rates of, roughly, 6.9% during 2000-2013 yielded revenues worth 0.30% of GDP, or a ratio of 0.043 of revenues per rates (0.043 = 0.30 / 6.9). In contrast, falling tax rates during 2014-2017 (averaging 4.5%) yielded revenues worth 0.22% of GDP, or a ratio of 0.049 of revenues per rates (0.049 = 0.22 / 4.5).

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6   North Carolina's corporate income tax rates fell from 7% in 2000 to 6.9% in 2001.

FIGURE 6: NORTH CAROLINA'S CORPORATE INCOME TAX RATES AND CORPORATE INCOME TAX REVENUES AS A PERCENTAGE OF GDP, 2000-2019
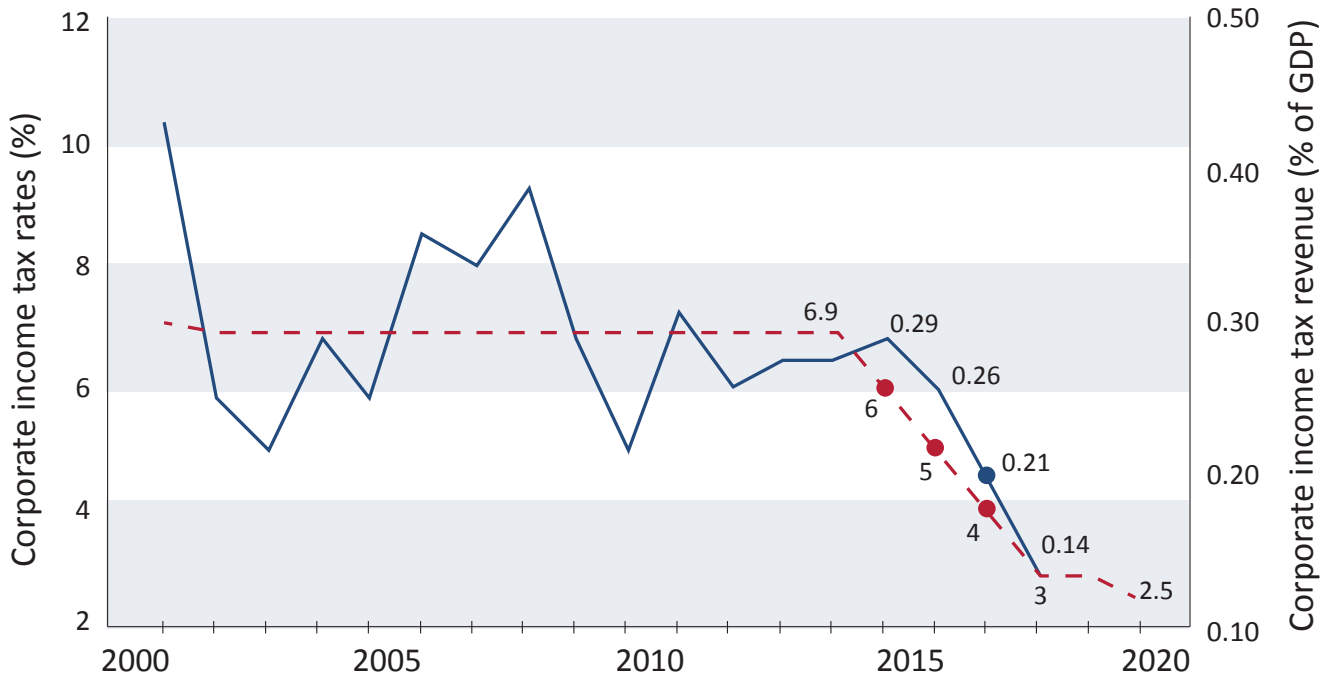

Sources: Tax Foundation (2013), BEA (2018), FRBSL (2018), Tax Policy Center (2018), and NCBM (2018).

While ever higher tax rates fail to yield revenues one-for-one as tax rates increase, Figure 5 does, however, clearly show that substantial reductions in tax rates do reduce revenues. Reducing corporate income tax rates from 6.9% to 3% (or by 57% of the initial rate) reduced revenues by less than 57% (i.e., by 53%), from 0.30% to 0.14% of state GDP, but ultimately by a very large fraction.

Further, Figure 7 presents North Carolina's corporate income tax revenue as a percentage of all tax revenue during 1992-2017. The figure shows again that corporate income tax revenues have fallen substantially following North Carolina's recent corporate income tax reforms. As a percentage of all tax revenues, revenues from corporate income taxes fell from 5.4% in 2013, before the reforms, to 2.8% in 2017, i.e., most recently.

FIGURE 7: NORTH CAROLINA'S CORPORATE INCOME TAX REVENUE AS A PERCENTAGE OF ALL TAX REVENUE, 1992-2017
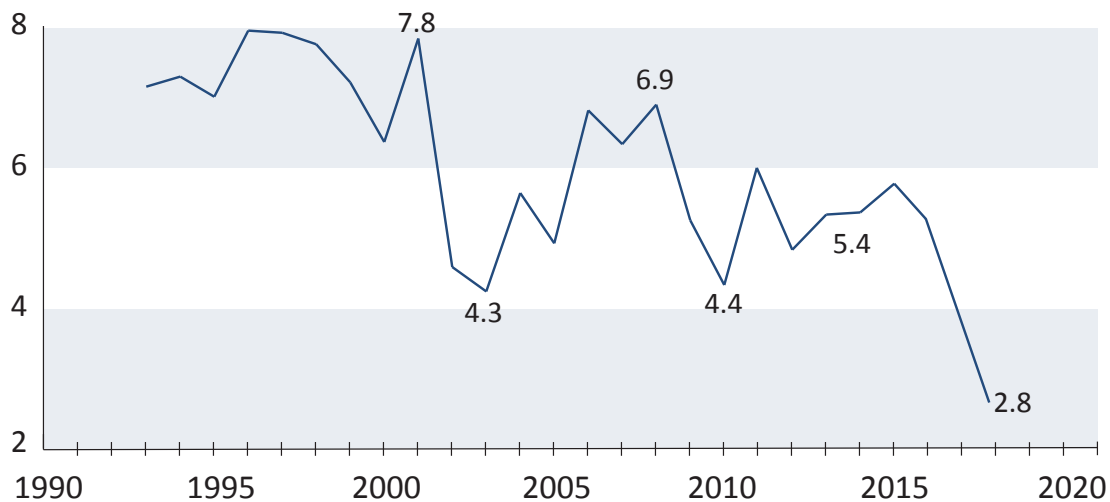
Sources: FRBSL (2018), NCBM (2018).

This figure, however, also highlights that:

Corporate income taxes have historically not been a very large component of North Carolina's tax revenues, averaging 6% during 1992-2017.

Corporate income taxes had been accounting for a declining fraction of North Carolina's revenues even before the recent corporate income tax reform. For instance, their fraction of North Carolina's tax revenues had already fallen from 7.4% during 1992-2000 to 5.5% during 2001-2013.

Corporate income taxes were a particularly volatile, procyclical, or unreliable source of tax revenues, with its fraction of total tax revenues falling, for instance from 7.8% in 2000 to 4.3% in 2002, and from 6.9% in 2007 to 4.4% in 2009.

These factors, combined, likely contribute to making corporate income taxes a prime candidate for elimination. Corporate income taxes' historically relatively small fraction of all tax revenues means that replacing them as a source of revenue would be relatively easier than for other sources of revenues, such as individual income taxes (which account for 55% of tax revenues) or sales taxes (32%) (NCBM 2018).

Corporate income taxes had been falling as a fraction of tax revenues for a wide variety of reasons including, among others: (1) increased competition for the location of corporations across states, resulting in the growing use of tax incentives that reduce the pool of available taxable corporate income nationwide, and (2) the growing use of tax-advantaged organizational structures by businesses.

Corporate incomes' procyclical nature, rising particularly during economic expansions and falling during recessions, makes corporate income taxes particularly inappropriate for states that seek to operate under balanced budgets. States that rely more on corporate income taxes find that they must otherwise find more government expenditures to cut during recessions, when policymakers might most prefer to provide additional government services and funds to their communities and economies. Other taxable bases, such as property taxes (which are not a substantial source of funds for North Carolina's state government), sales taxes, and, to a lesser extent, individual

income taxes, are all less procyclical, and thus more reliable sources of funds during recessions. Further, while eliminating corporate income taxes would eliminate their revenues, these reductions will be offset by increases in other sources of revenues. In the very short term, reductions in corporate income taxes result in greater after-tax profits and more dividend income for individual taxpayers who will, in turn, pay more individual income taxes. To the extent that shareholders of North Carolina companies live outside the state, however, this revenue source will be limited. But more importantly, as we show in section V, lower corporate income taxes result in increased incentives for economic activity and higher economic growth rates. This increased economic activity, in turn, would yield increased tax revenues for North Carolina from individual income and sales taxes.

Figure 8 shows that, because lower corporate income taxes would lift economic growth, lower corporate income tax rates likely would depress tax revenues only over the short term, but not over the long term. The figure compares North Carolina's actual corporate income tax revenues during 2015-2018[7] and two projections. As discussed above, actual corporate income tax revenues have fallen in recent years as tax rates were reduced from 6.9% to 3%. We also present an estimate of corporate income tax revenues, assuming (1) that corporate income tax rates remain at 2.5% beginning in 2019, (2) that North Carolina's economy continued to grow at the same average rate as during 2004-2013, i.e., at growth rates before tax reform, plus the economic benefit from having reduced corporate income taxes from 6.9% to 2.5%, and (3) that corporate income tax revenues continue to average 0.133% of state GDP, i.e., 2.5/3 of projected corporate tax revenues in 2018.

We also present the additional personal income and sales tax revenues that North Carolina would raise if it lowered the corporate income tax rate from 2.5% to 0% in 2019. This scenario also assumes that:

1. Lower corporate income tax rates will result in higher economic growth rates, based on the coefficients we computed in section V, i.e., that economic growth would be 0.083% higher per year for each 1% that corporate income tax rates lower,

2. The extra economic activity will generate the same amounts of individual income tax and sales tax revenues per GDP (2.4% and 1.3% respectively) as during 2004-2013.[8]

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7   For 2018, we include the value for corporate income tax revenues that is included in this year's budget.
8   Individual income tax revenues and sales tax revenues during 2014-2017 were roughly similar (2.2% and 1.3% respectively) to the earlier average. Using either set of averages would not affect the overall implications of these projections.

FIGURE 8: LOWER CORPORATE INCOME TAXES WOULD LIFT ECONOMIC GROWTH, AND REVENUES FROM INDIVIDUAL INCOME AND SALES TAXES
($ million, inflation-adjusted, expressed in 2017 dollars)
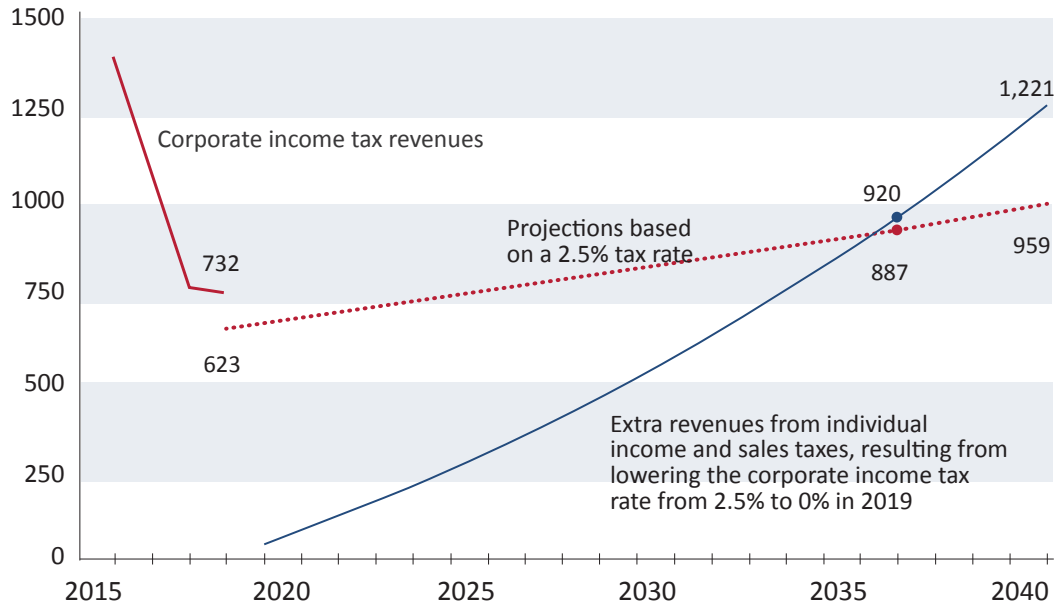
Sources: Tax Foundation (2013), BEA (2018), FRBSL (2018), Tax Policy Center (2018), and NCBM (2018).

Thus, the figure shows that eliminating the corporate income tax would, unavoidably, reduce revenues from corporate income taxes. However, while eliminating the corporate income tax would reduce tax revenues over the short term, total tax revenues would actually increase over the long term. The additional individual income and sales tax revenues resulting from additional economic activity would be larger than the forgone corporate income tax revenues in less than two decades.

VII. CONCLUSION

In this report, we assess statistically the average relationships between corporate income tax rates and several key measures of economic performance across the 51 main U.S. jurisdictions during 2000-2017. Our report confirms the findings in earlier literature, showing that states with lower tax rates experience more favorable economic performance. We also highlight that North Carolina's reductions in corporate income tax rates thus far, from 6.9% in 2013 to 3% in 2017 and its scheduled further reduction to 2.5% in 2019, are among the largest changes across states during this period.

Based on our results, we project that eliminating North Carolina's corporate income tax would have the following long-term effects, e.g., during 2019-2028:

- increase state GDP by $17 billion or by 2.1%, lifting GDP per capita by $1,453,

- increase employment by 43,000 jobs or by 0.6%, and

- increase salaries by $11 billion or by 2.2%, lifting salaries per employee by $1,546.

LIST OF FIGURES

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