
Budget Deficits and Business Taxes in New Hampshire

May, 2002

**Prepared for
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May 9, 2002

New Hampshire's failure to finally resolve the education funding problem has resulted in economic uncertainty. Such uncertainty in turn imposes adverse impact on the continued investment and reinvestment of capital into this state, impact felt today. Recharging our capital infrastructure is important to our state's economic stability. As bankers whose role is to invest and reinvest into our economy, we believe the early elimination of this fiscal uncertainty overhanging our state's economy is critical. We urge our elected officials to continue their struggle to do so and to do whatever may be necessary to finally resolve the education funding problem.

As bankers we also see the economic danger posed by adding to business taxation either to resolve the education funding problem or to postpone its resolution. Described by some as "temporary tweaks" to minimize their adverse political impact, their adverse economic impact is substantial. We believe the recent increases now in place are unlikely to be eliminated. But as gravely as we view the business tax expansions of our recent past, our state's immediate future causes us more concern. If business tax enhancements are enacted next year, we believe the adverse consequences to our economy will be significant and lasting.

The purpose of this study is to ask whether lawmakers are likely to face a significant deficit in the next biennium, and if so, what would be the economic impact of funding that deficit with enhanced business taxation?

Next biennium's deficit is inevitable. As one of our state's leading experts on state budgeting and finance, Charles Connor estimates a deficit that is a number close to the projections of the State Department of Revenue Administration. Dr. Lisa Shapiro, a well-known economist, then addresses the economic impact of meeting that deficit with expansion of business tax liability through increases or credit elimination. Together they demonstrate that next year will bring the budgetary hole of a structural deficit. Filling it with enhanced business taxation will seriously harm our state's economy.

Commissioned by the New Hampshire Bankers Association, this study is designed to be a resource and inform the public and prospective lawmakers, so they can plan appropriately for New Hampshire's economic future.

Gerald H. Little
President

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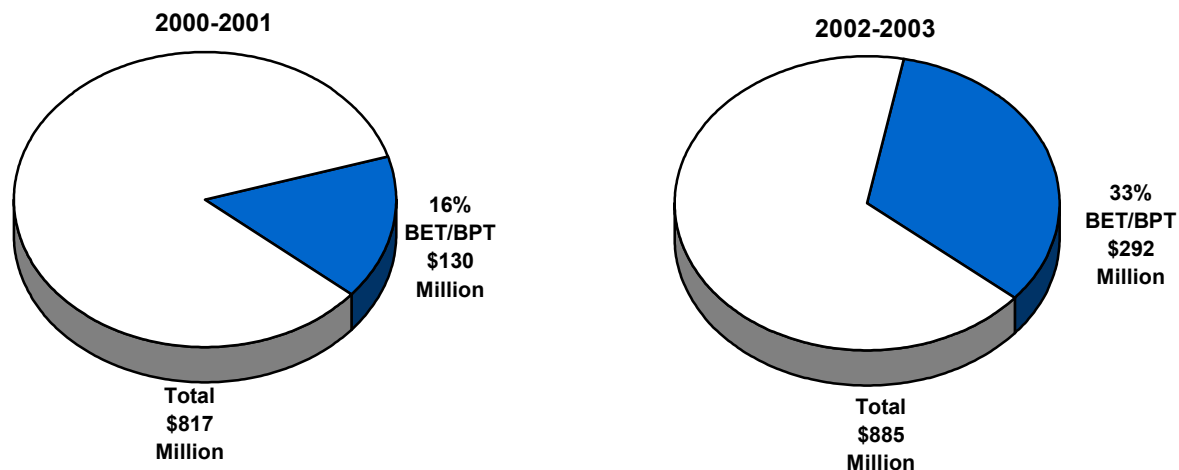
EXECUTIVE SUMMARY

During the last four years, the legislature has enacted and the governor has approved significant increases in the rates of New Hampshire's two principal business taxes. The Business Enterprise Tax (BET), at .75 percent, rose over 300 percent; and the 8.5 percent rate of the Business Profits Tax (BPT) is now among the highest in the country.

The increases were part of the legislature's response to the state's school funding obligations set out in *Claremont I* and *II*. The legislature and the governor have been unable or unwilling to satisfactorily resolve New Hampshire's growing budget deficit by drawing on and/or developing other revenue sources or by changing expenditure patterns. The New Hampshire Bankers Association commissioned this study to examine the effect of increased business taxes on the New Hampshire economy, and, specifically, to address the impact of further increasing the business tax burden to meet future state budget deficits.

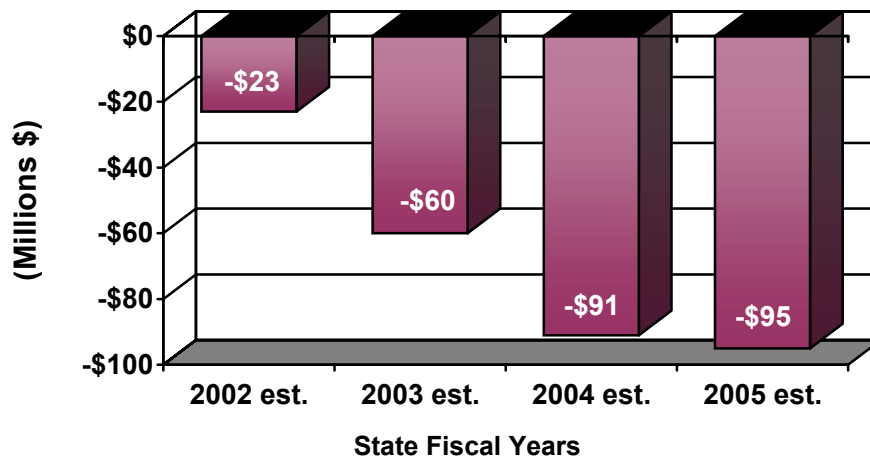
The business community's share of state grants to New Hampshire communities to comply with the *Claremont* rulings has grown dramatically, from 16% in 2000-2001, to 33% in the current biennium.

Figure 1
Business Taxes' Increasing Share
of State Grants Disbursed to Cities and Towns
(2000/2001 Biennium to 2002/2003 Biennium)



It is likely that state government will continue to consider increasing business taxes in the near future. When the new legislature takes office later this year, it will need to address budget deficits for the current biennium, and also pass a budget for the 2004-2005 biennium, which begins on July 1, 2003. State revenues collected through April, 2002, are significantly less than planned, indicating a deficit for the current biennium in the \$80-\$100 million range, prior to tapping any one-time revenue and expenditure fixes. Indicators point to an even larger deficit in the next biennium. We forecast about a \$100 million revenue shortfall per year in 2004 and 2005.

Figure 2
Annual Deficits Continue to Grow



This study addresses the impact on the New Hampshire economy of closing a \$100 million annual deficit in the next biennium through increased business taxation. These are some of the possible combinations of tax increases which could be enacted to generate \$100 million per year:

- ▶ Increase the BPT rate to 12% and retain the BET credit against the BPT
- ▶ Keep the BPT rate at 8.5% and eliminate the BET credit against the BPT
- ▶ Increase the BET rate from .75 to 1.2
- ▶ Some other combination of increased BPT and BET rates and reduced BET credit

The primary methodological approach of the study is use of an econometric model of the New Hampshire economy (built by Regional Economic Modeling, Inc., or REMI), which allows for simulations of the effects of tax increases on economic performance as compared to a control forecast where there are no business tax increases. The state's Economic and Labor Market Information Bureau, for example, used the REMI model for a study forecasting the employment, income, and migration effects of permanently closing the Berlin/Gorham Mills.

Using REMI, the study examines possible scenarios for meeting the projected \$100 million annual budget shortfall:

- ▶ Scenario A: Either increasing the BPT from 8.5% to 12%, or repealing the credit
- ▶ Scenario B: Increasing the BET from .75% to 1.2%
- ▶ Scenario C: Collecting one-half the increase from the BPT by either increasing the BPT to 10.3%, or by partial repeal of the credit, and by increasing the BET to 1%

Sensitivity analysis and several other estimates based on a review of other studies validate the results found by the REMI estimates.

The study's key finding is that even a small additional increase in business taxation leads to more than just a small bump in economic performance. Indeed, it creates a significant drag on the state's economy. It will cause crucial reductions in New Hampshire jobs, sales, investment, household earnings and gross state product as compared to a New Hampshire future without further business tax increases.

Further increasing business taxes leads to reductions in the number of jobs across all sectors. The impacts on employment inflicted by further business tax increases are significant and will expand. First year impacts are 1,200 reductions in jobs; by the 10th year, the annual change is about double that, with a 10-year cumulative change estimated at 17,000 fewer jobs, a 22 percent reduction in total job growth over the next 10 years.

For the manufacturing sector, this will accelerate the decline in manufacturing jobs. According to a recent study by Professor Gittel (UNH, 2001), manufacturing employment declined by 4.3% in New Hampshire from August, 2000 to August, 2001. Even without further business tax increases, there are expected to be 3,000 fewer manufacturing jobs in 2012 than in 2003. There are also expected to be fewer construction jobs in New Hampshire in 2012 than in 2003, even without further increases in business taxes. Increasing business taxes further thus eliminates an additional 200-250 construction jobs each year.

Fewer jobs and goods and services sold mean less money in people's pockets. The decline in household earnings (wages, salaries, other compensation, and proprietors' earnings) is immediate and noticeable. The impact grows over time. Over 10 years, the loss is almost \$800 million.

The declines in investment, sales, jobs, household earnings and gross state product also lead to a reduction in state and local revenues than what would otherwise be expected without the business tax increases. For example, as businesses invest less and consumers spend less, property taxes and meals and rooms tax revenue do not grow as fast. The estimated reduction (across all revenue sources as an off-set) is about \$11 million in 2003, growing to \$27 million in 2012, all in 2002 dollars.

New Hampshire business investment, sales, and gross state product are all reduced from levels which are forecasted without business tax increases. If New Hampshire enacts additional increases in business taxes, by 2012 the state's economic growth is forecasted to be .2 percent less. Should another recession or significant slowdown occur, those reductions will put New Hampshire into deeper negative growth and into a slower recovery from a recession.

These results support recent statements by New Hampshire's chief revenue and economic development officials.

"It would be a mistake to continue to raise the business taxes."

-Foster's Daily Democrat, 4/22/02

George Bald, Commissioner
New Hampshire Department of
Resources and Economic Development

"...the state could end up killing the 'golden goose,' by relying on business taxes to make up the deficit."

-Manchester Union Leader, 3/29/02

Stan Arnold, Commissioner
New Hampshire Department of Revenue Administration

INTRODUCTION

Purpose of Study

Recent history in New Hampshire demonstrates the willingness of the governor and the legislature to increase business taxes to meet budget shortfalls. The New Hampshire Bankers Association is concerned about the impact on the New Hampshire economy of further increasing business taxes. It commissioned this study to address the following questions:

- 1) What is the likelihood of a deficit in the next biennium?
- 2) What is the economic impact of further increasing the business tax burden to meet such a deficit?

Background

New Hampshire has two primary business taxes: the Business Profits Tax (BPT), and the Business Enterprise Tax (BET). The BPT is currently assessed at 8.5 percent of taxable New Hampshire profits.¹ By and large, corporations are the businesses which pay the BPT, because partnerships and proprietorships are able to pay out profits through compensation and dividends and thus show no taxable New Hampshire profits. To address the constitutional issues of essentially only taxing corporations, the 1993 Legislature enacted a second business tax, the BET, which is credited against the BPT for those firms which would now be subject to both taxes. The BET is currently assessed at .75 percent on compensation, dividends, and interest expenses paid by the business enterprise.

Over the last four years, the legislature has increased the rates of these taxes substantially to reach their current levels. The BET has risen over 300 percent. The rate of the BPT is now among the highest in the country.

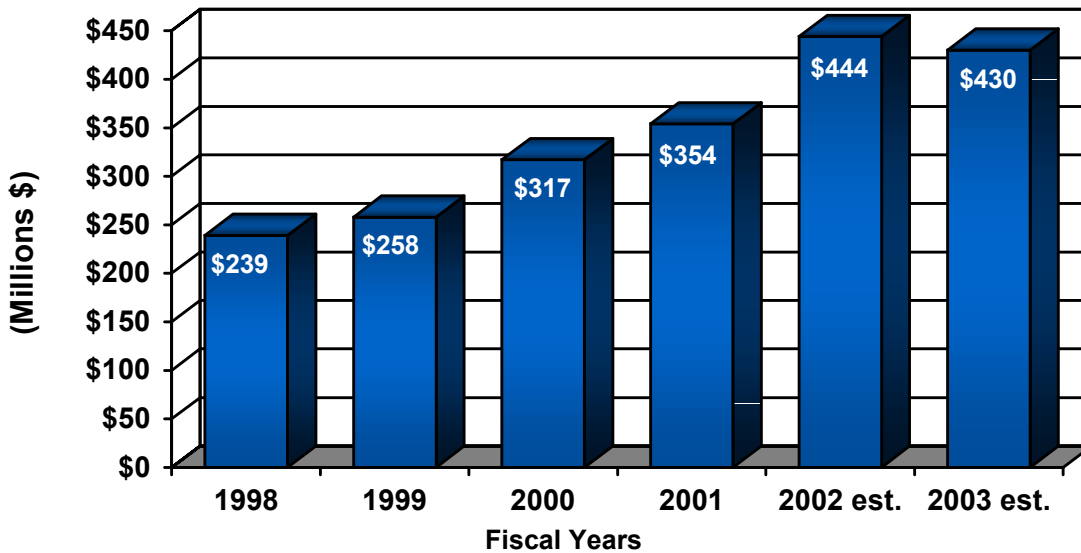
¹ For multi-jurisdictional firms, taxable New Hampshire profits are determined based on a apportionment formula with 50 percent sales, and 25 percent each for property and employment, as New Hampshire's share relative to the firm's total.

**Table 1
Business Tax Rates
Fiscal Year**

	<u>1998</u>	<u>2000</u>	<u>2002</u>
BPT (with BET credit)	7.0%	8.0%	8.5%
BET	.25%	.50%	.75%

These rate increases have led to substantial increases in business tax collections.

**Figure 1
Business Tax Collections
(BET and BPT)**



Note: Estimates for 2002 and 2003 are the official estimates adopted by the 2001 Legislature when the 2002-2003 budget was enacted and does not reflect any adjustments for economic slow down.

The driving force behind these business tax increases has been reliance on short-term solutions to the state's increased school funding obligations set out in *Claremont I* and *II*. Prior to *Claremont II*, the state disbursed about \$100 million per year to cities and towns to help fund K-12 education; the state now disburses grants totaling \$450 million. As the next figure shows, the business community's share of these disbursements has doubled in the current 2-year budget cycle, as compared to the previous cycle, when the state first made the big jump in grants to local school districts.

Figure 2
Business Taxes' Increasing Share
of State Grants Disbursed to Cities and Towns
(2000/2001 Biennium to 2002/2003 Biennium)

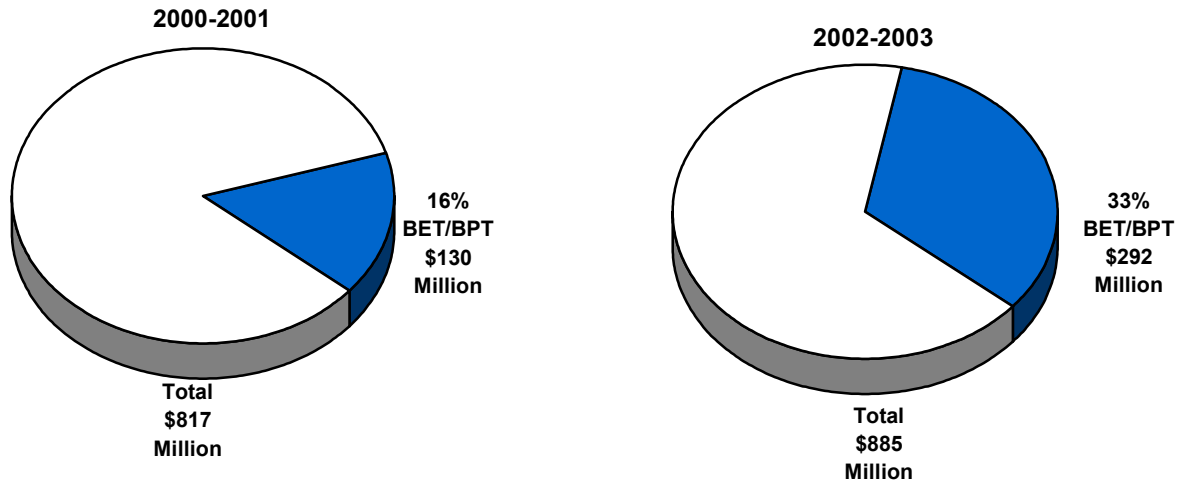
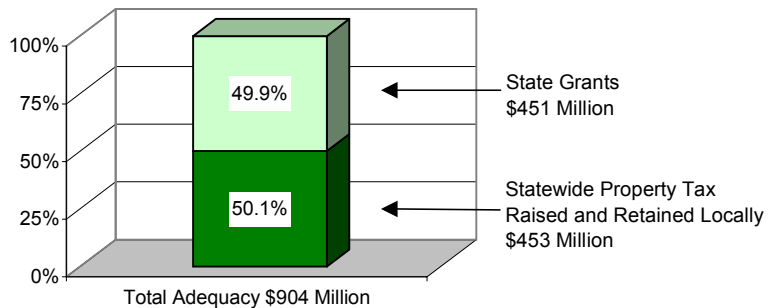


Figure 2 reflects actual money disbursed to communities.² State aid to education is based on a weighted per pupil gross-up number, which is the so-called education adequacy number. Over the four years depicted in Figure 2, total adequacy costs³ have been significantly higher. However, state disbursements have been about half that because of the role of the statewide property tax in calculating state disbursements. See Figures 3 and 4.

Figure 3
Revenue Sources for Adequate Education
(FY 2003)



² State aid disbursements to cities and towns from 1999 through 2003 (FY) are \$100 million, \$409 million, \$408 million, \$434 million, \$451 million, respectively, while total adequacy grew from \$827 million in 2000 to \$904 million in 2003.

³ Communities raise additional funds through supplemental local education property taxes to fund costs greater than adequacy; about another \$700 million per year statewide.

**Figure 4
Revenue Sources for State Grants
(FY 2003)**

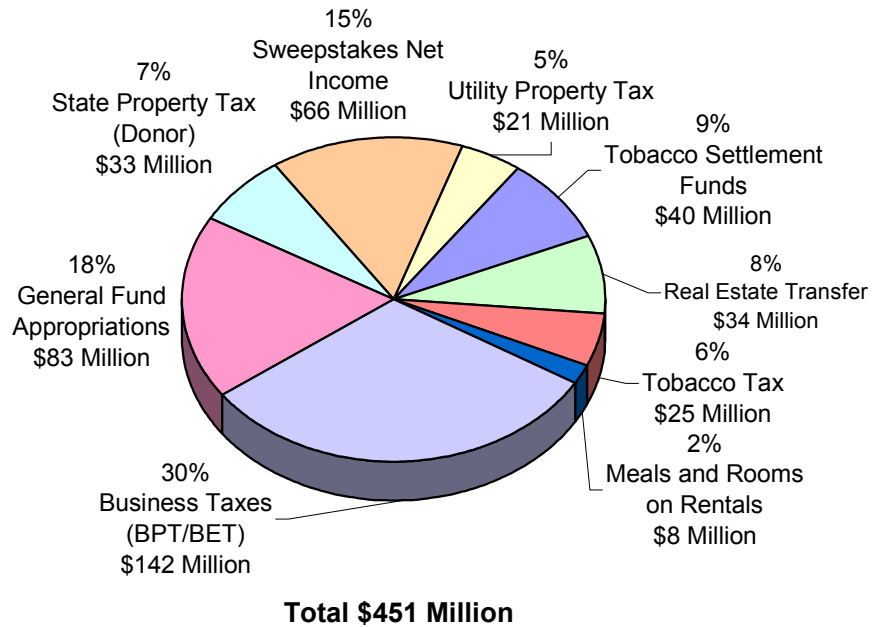
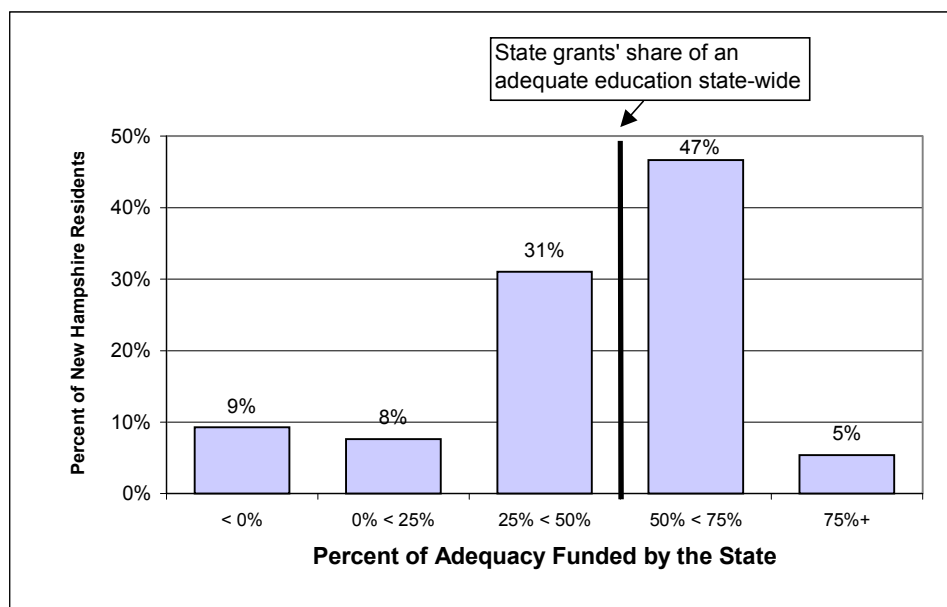


Figure 3 shows that state grants to communities cover 50% of the adequate cost of K-12 education. As Figure 5 (below) shows, however, the state's share of adequacy costs across communities varies. The distribution is clumped close to the 50% state average, indicating limited targeting of state aid. Seventy-eight percent of New Hampshire residents live in communities where state grants cover 25% to 75% of adequacy costs. Nine percent of the population lives in "donor" communities, where the state gives no grants and the communities must share their property tax base revenue with the rest of the state.

Figure 5
State's Grants' Share of an Adequate Education



Outlook on Budget Deficits

In New Hampshire, state government operates on a two-year budget cycle (biennial budget). The state's fiscal year begins on July 1st and runs through June 30th. We are currently near the end of the first year of the current (2002-2003) biennium. When the next governor and legislature take office, they will need to address budget deficits for the current biennium, and also to pass a balanced budget for the 2004-2005 biennium, which begins on July 1, 2003.

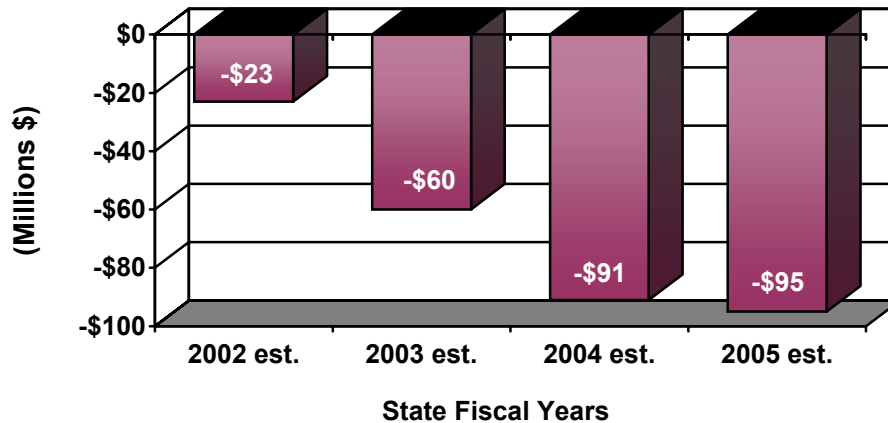
State revenues collected through April, 2002, are 9 percent greater than in the previous fiscal year, but the budget passed into law in 2001 expected greater revenues. They have not materialized. New Hampshire faces a deficit in this current biennium of an estimated \$83 million.⁴ While there are potential one-time fixes to eliminate the deficit during this current biennium (tapping into the Rainy Day fund, for example), those one-time sources will have been exhausted by the next biennium. To be sure, a rapid, very strong recovery could temper those deficits, but their elimination is highly unlikely.

For the next biennial budget, annual deficits are likely to be even larger. Assuming historical 3% increases in general operating expenditures, a 4% increase in state education aid to cities and towns, and a return to modest growth in state revenues,

⁴ Estimates prepared for this study where based on data through March 2002.

(3% - 5% range annual growth rate in dynamic revenue sources), we forecast about a \$100 million shortfall per fiscal year in 2004 and 2005.

Figure 6
Annual Deficits Continue to Grow



These estimates are consistent with recent forecasts by the Legislative Budget Assistant Office (LBAO) and the Department of Revenue Administration (DRA).⁵

Revenue and expenditure forecasts are estimates. They could be higher or lower, depending upon actual economic performance in 2004 and 2005. Table 2 reports actual revenues since 1997. For 2002 and 2003, forecasted revenues have been adjusted to reflect the recent downturn in business tax receipts and the DRA adjusted forecasts in March. Revenue forecasts for 2004 - 2005 are based on the lower revenue bases in 2003.⁶ A range of reasonable projected growth rates (3% to 7%) for the major taxes generates similar revenue estimates. See, for example, the New Hampshire LBAO presentation to the New Hampshire legislature on April 9, 2002.

⁵ DRA and LBAO estimates based on actual revenue data through March, 2002.

⁶ April revenues were somewhat stronger and could increase the 2003 revenue base used in this study, but the actual 2003 revenue base will depend on economic conditions and expenditure decisions over the biennium. Use of the Rainy Day fund or other one-time sources are not included in these estimates.

Table 2
General and Education Trust Funds Revenues
Fiscal Year Ended June 30th
(Thousands \$)

	Actual					Budgeted		Forecasted	
	1997	1998	1999	2000	2001	2002	2003	2004	2005
Beer Tax	11,366	11,442	11,783	12,090	11,656	12,112	12,212	12,200	12,200
Board and Care Revenue	13,992	12,966	11,196	11,953	13,333	10,400	10,800	10,500	10,500
Business Profits Tax	171,990	167,471	164,833	168,843	195,415	225,500	229,200	240,700	252,700
Business Enterprise Tax	38,239	71,036	93,021	148,454	158,865	168,000	162,000	170,100	178,600
Estate and Legacy Tax	40,734	43,274	54,744	56,368	59,348	61,000	56,000	18,000	14,800
Insurance Tax	57,202	54,656	62,914	59,336	66,441	75,000	76,500	78,030	79,591
Securities Revenue	18,042	20,522	22,465	25,513	28,023	27,500	28,500	27,500	28,500
Interest and Dividends Tax	52,683	61,799	63,134	65,522	76,651	77,000	77,000	80,000	81,000
Liquor and Sales Distribution	71,713	75,440	77,444	86,015	89,344	93,000	96,500	99,395	102,377
Meals and Room Tax	118,984	128,688	137,258	156,127	164,061	172,000	180,600	189,600	199,100
Dog Racing	2,213	1,011	1,026	1,058	1,262	1,200	1,200	1,200	1,200
Horse Racing	2,778	2,238	2,427	2,429	2,592	2,600	2,700	2,700	2,700
Real Estate Transfer Tax	33,330	44,162	52,925	85,010	89,223	96,500	102,500	105,575	108,742
Communications Tax	39,253	40,134	46,219	47,794	49,045	63,700	65,600	68,224	70,953
Tobacco Tax	50,436	76,128	73,784	95,472	86,363	86,000	85,000	84,000	83,000
Utility Tax	17,562	17,731	10,402	9,974	9,656	5,900	6,100	6,200	6,250
Court Fines and Fees	20,167	21,021	21,917	22,845	23,218	23,700	24,400	24,000	24,000
Other:									
Corporate Returns	698	655	659	676	681				
Interstate Vehicle Registration	2,714	2,795	2,858	2,860	2,602				
Motor Boat Registration	1,757	1,847	1,779						
Corporate Filing Fees	3,219	3,227	3,229	3,436	3,427				
Interest on Surplus Funds	181	2,990	5,978	3,201	3,754				
Reimb. of Indirect Costs	4,184	5,100	4,903	4,094	4,255				
Miscellaneous	26,266	29,991	26,192	30,801	33,092	50,000	50,400	50,000	50,000
Subtotal (TRADITIONAL SOURCES)	799,703	896,324	953,090	1,099,871	1,172,307	1,251,112	1,267,212	1,267,924	1,306,212
Additional Education Trust Revenues									
Tobacco Settlement Funds				53,750	38,745	40,000	40,000	40,000	40,000
Utility Property Tax				31,167	15,621	18,800	20,500	21,000	21,000
Sweepstake Net Income				61,517	59,348	64,000	66,000	67,650	69,341
State Property Taxes (retained and not)				442,125	442,158	483,100	485,725	510,011	535,512
				588,559	555,872	605,900	612,225	638,661	665,853
add									
Net Medicaid Enhancement Revenues	54,268	67,502	70,411	74,230	85,217	95,000	94,000	95,000	95,000
Uncompensated care Pool	43,482	9,204	15,839	12,915	12,966	13,400	13,400	13,400	13,400
Total add	97,750	76,706	86,250	87,145	98,183	108,400	107,400	108,400	108,400
Total General Fund Unrestricted Revenues	897,453	973,030	1,039,340	1,775,575	1,826,362	1,965,412	1,986,837	2,014,985	2,080,465

Higher or lower expenditure forecasts would also impact the deficit forecasts. Expenditures are assumed to grow at 3%, less than recent expenditure growth, but consistent with a longer historical horizon. Table 3 shows actual and forecasted expenditures for the major categories of government expenditures.

**Table 3
Growth in State Appropriations**

Fiscal Year	Appropriated per Session Laws						Forecasted	
	1998	1999	2000	2001	2002	2003	2004	2005
Purpose:								
General Government	184,185,221.00	200,627,941	215,316,360	226,401,343	220,157,696	234,335,127	246,098,750	258,452,908
Justice & Public Protection	147,297,651.00	149,249,908	171,690,547	174,330,881	183,874,846	186,224,503	195,405,371	205,038,856
Resource Protection & Devel	37,057,057.00	38,210,532	37,641,799	38,867,823	41,253,608	42,172,170	43,289,733	44,436,910
Transportation	2,844,137.00	2,725,079	2,968,229	2,886,323	3,289,399	3,303,865	3,412,232	3,524,153
Health and Social Services	423,676,544.00	427,413,548	467,416,637	474,234,782	502,395,069	516,076,402	537,080,712	558,939,897
Education	145,935,876.00	148,317,096	169,808,213	176,743,564	176,181,106	181,897,455	190,119,220	198,712,609
	940,996,486.00	966,544,104	1,064,841,785	1,093,464,716	1,127,151,724	1,164,009,522	1,215,406,017	1,269,105,332
Adequate Education Grants								
Adequate Education Grants			824,792,000	824,781,000	882,630,084	899,495,135	935,474,940	972,893,938
Hardship Grants			1,162,000	769,000	5,000,000	5,000,000	5,000,000	5,000,000
One-time Admin Costs			1,319,000	-	-	-	-	-
Less Lapses			(41,000)	(25,000)	-	-	-	-
Total			827,232,000	825,525,000	887,630,084	904,495,135	940,474,940	977,893,938
Funding Sources								
Education Trust Fund			729,213,000	670,497,000	821,940,000	821,075,000	855,593,250	891,277,813
General Fund*			39,584,000	40,559,000	65,690,084	83,420,135	84,881,690	86,616,126
Transfers from General Fund			58,435,000	114,469,000	-	-	-	-
Total			827,232,000	825,525,000	887,630,084	904,495,135	940,474,940	977,893,938

Putting these revenue and expenditure forecasts together generates the projected annual and cumulative deficits in Table 4.

**Table 4
Projected State Budget 2002-2005
(Thousands \$)**

	Fiscal Years			
	2002	2003	2004	2005
Balance July 1,	0	(23,276)	(83,722)	(174,443)
Add				
Revenues				
All, Including Education Trust Fund				
Unrestricted Revenue Sources	1,035,072	1,058,362	1,050,992	1,080,787
Medicaid Enhancement Revenue	108,400	107,400	108,400	108,400
Education Trust Fund	821,940	821,075	855,593	891,278
Total	1,965,412	1,986,837	2,014,985	2,080,465
Less				
Operating Budget Appropriations	1,127,152	1,164,010	1,196,573	1,230,248
Adequate Education Appropriation (note)	887,630	904,495	940,475	977,894
Legislative specials	12,615	18,138	5,000	5,000
Reductions and Adjustments	(7,293)	(6,249)	(5,000)	(5,000)
Total Appropriated	2,020,104	2,080,394	2,137,048	2,208,142
Less Lapses	(34,416)	(36,111)	(34,342)	(35,308)
Net Appropriation	1,985,688	2,044,283	2,102,706	2,172,834
Accounting Adjustments	(3,000)	(3,000)	(3,000)	(3,000)
Current Year Operating Balance	(23,276)	(60,446)	(90,721)	(95,369)
Balance June 30	(23,276)	(83,722)	(174,443)	(269,812)

Note: The amount appropriated includes the general fund contribution for education.

ECONOMIC IMPACTS OF A \$100 MILLION BUSINESS TAX INCREASE

Business Tax Increases Defined

It is likely that the state will face a deficit in the 2004-2005 biennium (beginning on July 1, 2003).⁷ We forecast a possible \$100 million per fiscal year deficit beginning in the next biennium (see previous section). This study estimates the impact on the New Hampshire economy of closing an annual \$100 million deficit through increased business taxes.⁸

As discussed previously, this study looks at the state's two major business taxes (the BPT and the BET, including the BET credit against the BPT). Together, these taxes are projected to generate over \$400 million per year and are a significant source of revenue for the state.

There are a number of different possible combinations of increases, including reduction/elimination of the BET credit against the BPT, which could generate an additional \$100 million in calendar year 2003.

Table 5 provides estimated rate increases to generate the \$100 million beginning in 2003. The reason for targeting 2003 as the start date for the tax increases is that, while the legislature may not enact an increase until May or June of 2003, some past tax increases have been made retroactive to the beginning of the calendar year. These estimates are based on the forecasted BPT and BET revenues for fiscal year 2004, and historical data on the BPT, BET, and the value of the BET credit against the BPT.⁹

⁷ Unless there is a substantial change in education funding policy in combination with very strong economic growth.

⁸ The economic impact analysis is based on calendar years beginning in 2003 to best capture the effects on businesses, households, and the economy. The revenue generated for the state during the 2004 fiscal year from these business tax increases could be greater, depending on timing of the enactment.

⁹ Potential "six-quarter" effects for the state, for fiscal year 2004, only are not included in the revenue estimates.

Table 5
\$100 Million New Revenue in 2003
Estimated Rate Increases on Business Taxes

BPT Rate Increase only	Increase from 8.5% to 12%
BET Rate Increase only	Increase from .75% to 1.2%
Rate Increase on BPT and BET	BPT: 8.5% to 10.3% • BET: .75% to 1%
BET Credit Against BPT	\$100 million; equivalent to 12% BPT

Repeal of the BET credit can be viewed as the equivalent of an increase in the current BPT rate. If the credit were repealed for calendar year 2003, businesses which pay the BPT would pay an estimated \$100 million more in taxes in calendar year 2003. That dollar amount is equivalent to increasing the BPT by 41 percent, or 3.5 percentage points, from 8.5% to 12%. The increase in combined BPT/BET tax liability is about 25 percent.

The DRA annually issues a Tax Expenditure Report indicating the total BET paid and the amount of the BET which is applied as a credit against the BPT. The most recent data (calendar year 2001) reports a \$62,216,000 credit against a total BET of \$101,891,000. Historically, this ratio has been relatively constant at about 60 percent, suggesting that BPT taxpayers' salaries and wages represent about 60 percent of the total salaries and wages paid by the private sector. Data from New Hampshire's Economic and Labor Market Information Bureau (ELMI) show that 60 percent of all compensation paid in New Hampshire is paid by firms employing more than 50 people. While certainly there are many small corporations and large non-corporations, this data is generally supportive of the 60 percent relationship found in the Tax Expenditure Reports. Government wages and salaries are not taxed under the BET. Since an estimated 20% of the BET paid is reportedly due to business dividends and interest payments, then the 60 percent estimate would be different if this were not distributed proportionately across BPT payors and not BPT payors.

Using this 60 percent as an estimate of BPT employers' share of total compensation, dividends and interest expenses in the state of New Hampshire, the \$170 million forecasted total BET revenues for fiscal year 2004, and the current economic and

fiscal conditions (which suggest some carry forward of BET credits into the next biennium), we estimate the value of the credit is \$100 million in calendar year 2003.¹⁰

The BPT base is the same base upon which the credit is applied. Thus, either raising the BPT tax rate to an estimated 12 % and retaining the credit, or keeping the BPT tax rate at 8.5 % and eliminating the credit, would increase BPT revenues about the same. Either way, business taxes go up by \$100 million in calendar year 2003.

Consider the following aggregate accounting model to illustrate the equivalency of an elimination of the credit and an increase in the BPT:

Let: t_o^p = Current BPT rate
 t_1^p = New BPT rate
P = BPT taxable base
E = BET taxable base for BPT payors
 t_o^e = Current BET rate; the BET rate does not change in period 1 in this model
 $T_o^e = t_o^e E$ = BET tax liability for BPT firms
 $T_o^p = t_o^p P - t_o^e E$ = BPT tax liability currently with BET credit against BPT
 $T_o = T_o^e + T_o^p = t_o^p P$ = Aggregate business tax liability for firms paying BPT
where $t_o^p P \geq t_o^e E$ and $t_o^p P \geq 0$ for all firms each year

A repeal of the BET credit against the BPT can be accounted for by:

Let: $T_1^e = t_o^e E$ = BET tax liability for BPT firms after the repeal of the credit (no change)
 $T_1^p = t_o^p P$ = BPT tax liability after the repeal of the credit
 $T_1 = T_1^e + T_1^p = t_o^p P + t_o^e E$ = Total business tax liability on BPT paying firms

Solving for the percentage increase in total business taxes after a repeal:

$$(1) \quad \frac{T_1 - T_o}{T_o} = \frac{t_o^e E}{t_o^p P}$$

An increase in the BPT rate can be accounted for by:

Let: $T_1^p = t_1^p P - t_o^e E$ = BPT tax liability with a new BPT tax rate, and with BET credit retained

¹⁰ Revenue estimates for the repeal of the credit are based, in part, on available data prior to the most recent BPT and BET rate increase, and thus could be significantly revised with new data released by DRA. In addition, BET and BPT liabilities are not reliably distinguished in all DRA data sources.

$T_1^e = t_0^e E = \text{BET tax liability for BPT payors}$

$$T_1 = T_1^p + T_1^e = t_1^p P - t_0^e E + t_0^e E = t_1^p P$$

Solving for the percentage increase in total business taxes after a BPT rate increase:

$$(2) \quad \frac{T_1 - T_0}{T_0} = \frac{t_1^p P - t_0^p P}{t_0^p P}$$

Solve for t_1^p by setting (1) = (2)

$$\frac{t_0^e E}{t_0^p P} = \frac{t_1^p P - t_0^p P}{t_0^p P}$$

$$t_0^e E = t_1^p P - t_0^p P$$

$$t_1^p = \frac{t_0^e E + t_0^p P}{P} = \frac{t_0^e E}{P} + t_0^p$$

Thus, a new BPT rate could be set such that the increase from the old rate is equivalent in the aggregate to the credit as a share of taxable profits.

The actual equivalency rate would depend upon net taxable business profits in calendar year 2003, compensation, interest and dividend costs for BPT-paying firms, and any losses and carry forward of credits from the previous period.¹¹

For an individual firm, the increase in tax liability from increasing the BPT from 8.5% to 12% could be more or less than the increase in tax liability from repealing the credit. Firms with BET liabilities relative to BPT liability greater than the average would see a higher increase in taxes under the repeal, whereas those with BET liabilities less than the average are likely to face a lower increase. In addition, the credits may be carried forward, and the ratio of the BET credit to the total BPT liability changes under different economic conditions, so the impacts on individual firms could vary significantly.

Methodological Approaches

Businesses make decisions about investment (new, expanded and retained equipment, land, facilities, services, employment, etc.) based on the after-tax rate of

¹¹ Including any changes in the net operating loss carry forward provisions.

return.¹² Businesses try to maximize profits, and consumers try to maximize their well-being (utility). Higher taxes, all else being equal, lower the after-tax rate of return, reduce profits, and reduce personal well-being. Lower after-tax rates of return, all else being equal, lead to negative impacts on the economy.

There are three general approaches used in this study to estimate the quantitative impacts of business tax increases on business activity, jobs, and household earnings in New Hampshire. The first approach is the primary basis for the estimates in the study; whereas the second and third provide a check on the estimates found, using the econometric model of New Hampshire employed in the primary approach.

The primary methodological approach is the use of an econometric model of the New Hampshire economy (built by Regional Economic Modeling, Inc., or REMI), which allows for simulations of the effects of tax increases on economic performance as compared to a control forecast where there are no business tax increases.

Second, the approach is to review cross-state econometric studies which have estimated the relationship between tax increases and economic performance (tax-price elasticities) and then apply those elasticities to a 25 percent business tax increase in New Hampshire, to estimate the effect on New Hampshire employment as compared to a control forecast.

Third, the approach is to look to other cross-state and cross-industry studies of how a reduction in the return on investment impacts investment decisions, and compare the REMI results to these elasticity estimates.

REMI Econometric Model

The primary estimation technique used in this study is to simulate various combinations of business tax increases – BPT rate increase/repeal of the credit only, BET increase only, and combination of BPT/repeal of the credit and BET increases – on employment, household earnings, gross state product, sales, investment, and government revenues, as compared to a control forecast without such tax increases by utilizing the REMI econometric model of the New Hampshire economy.

Econometrics uses mathematics, statistics, and economic theory to provide an empirical model and quantitative analysis to explain and forecast economic performance and the effect of policy changes on that performance.

¹² Of course, many other factors enter into the decision of where to invest; for example quality of life, concerns about future generations, environment, etc. But at the end of the day, businesses make decisions based on the expected after-tax rate of return.

Regional Economic Models, Inc. (REMI),¹³ was developed in 1980 to respond to the demand for simulation models for analysis of the economic impacts of public and private-sector projects and programs on affected areas.

Inter-industry relationships are included in the REMI model, as well as behavioral equations from econometric theory. This creates a model that will respond in a logical way to changes in an area's economy. The result of the REMI modeling technique is a representation of a regional economy that predicts demand and supply conditions across sectors, occupations, final-demand sectors, and age/sex cohorts.

In the model, businesses produce goods to sell to other firms, consumers, investors, governments and purchasers outside the region. The output is produced using labor, capital, fuel and intermediate inputs. The demand for labor, capital and fuel per unit of output depends on their relative costs, since an increase in the price of any one of these inputs leads to substitution away from that input to other inputs. The supply of labor in the model depends on the number of people in the population and the proportion of those people who participate in the labor force. Economic migration affects the population size. People will move into an area if the real after-tax wage rates or the likelihood of being employed are higher.

Supply and demand for labor in the model determine the wage rates. These wage rates, along with other prices and productivity, determine the cost of doing business for every industry in the model. An increase in the cost of doing business causes either an increase in price or a cut in profits, depending on the market for the product. In either case, an increase in cost would decrease the share of the local and U.S. market supplied by local firms. This market share, combined with the demand described above, determines the amount of local output. The model has many other feedbacks. For example, changes in wages and employment impact income and consumption, while economic expansion changes investment and population growth impacts government spending.

REMI models are estimated using data from all regions and then calibrated to the specific region. This method allows the estimation of model parameters using a large data set that produces more econometrically reliable results than would be possible using data from only a single area. The model embodies a consistent internal structure that is widely documented in academic publications.

The structure of the REMI model is based on econometric assumptions that are shared by most economic professionals, and other simplifying assumptions. The authors of the REMI model assume that businesses are motivated by profit and individuals are motivated by a desire to maximize their well-being. They assume that firms buy inputs from other firms, and that these linkages change in predictable ways over time. They also assume that firms can change the relative inputs into production based on relative cost changes. The nature of this production relationship is simplified, however, and

¹³ The description of the model is taken in almost direct quotations from *the REMI Policy Insight User Guide – Version 3.1*, Chapter 2: Introduction to the REMI Model.

could lead to some bias in the estimates. In addition, business activity is aggregated up to 10 major sectors; therefore, differences within industries cannot be discerned from the 10-sector model.

While individuals and firms in various parts of the country have similar motivations, the REMI authors realize that each area of the country has differences that influence its economy uniquely and, therefore, that these differences must be estimated individually for each industry in each area. Thus, REMI has developed a New Hampshire-specific model. Such state-specific models are widely used by consultants and government economists. More than half the states in the country utilize REMI to assist in forecasting policy analysis and simulations (what-if scenarios) of proposed policy changes. For example, ELMI uses the REMI model to assist in economic forecasting, including a study forecasting the employment, income, and migration effects of permanently closing the Berlin/Gorham Mills.

Business Tax Increase Simulations

Business costs in the REMI model are broadly divided into capital, labor, and fuel. Corporate income taxes (the BPT, and the BET credit against the BPT) are included in the capital costs. The BET is both a tax on capital (as assessed against dividends and interests) and a tax on labor (as assessed on compensation). Department of Revenue Administration estimates are that 80 percent of BET revenue is from the tax on compensation, whereas 20 percent is from interest and dividends.

Four different scenarios for business tax increases as compared to a standard control forecast are estimated using the REMI 10-sector model.¹⁴ Scenario A estimates the impact of a BPT rate increase/repeal of the credit only, to generate the \$100 million in new revenue in calendar year 2003.¹⁵ Scenario B simulates an increase in BET taxes only. Scenario C estimates half the \$100 million from BPT/repeal of the credit and half from BET increases. Scenario D is also a BPT/repeal of the credit only, but it increases the effective corporate income tax rate rather than increasing capital costs. For Scenarios A, B, and C, the increase in capital costs (through increased BPT, repeal of credit, BET tax on interest and dividends) and the increase in labor costs (through increased BET tax on compensation) are converted to percentage point increases, to capture the rate increases and repeal of the credit policy options. The advantage of modeling the tax increases in this fashion is that the tax increases are directly entered where they affect businesses: their cost of doing business. While this provides an appropriate way to estimate the aggregate impacts of a \$100 million business tax increase, the significant

¹⁴ The control forecast assumes the state budget is balanced through state spending cuts, reallocation of spending between the state and local governments, and/or other tax increases. The array of these alternative options is not explicitly modeled, although sensitivity analyses were performed. The negative economic impacts found in this study from increasing business taxes could thus be somewhat tempered or magnified depending on the specific alternative.

¹⁵ Revenues generated in the 2004 state fiscal year could be somewhat higher, depending on timing of enactment. The economic analysis is based on an annual \$100 million increase in taxes to businesses beginning in calendar year 2003.

variation across companies are not captured. The chart below summarizes the inputs used for Scenarios A, B, and C.

**Table 6
Business Tax Increases**

<u>Business Tax Increase Scenario</u>	<u>Business Tax Change</u>	<u>Model Inputs</u>	
		<u>Capital Cost Increase (Basis Points)</u>	<u>Labor Cost Increase (Basis Points)</u>
A) BPT Tax Increase/ repeal of the credit	BPT increase from 8.5% to 12% or repeal of credit	48	0
B) BET Tax Increase	BET increase from .75% to 1.2%	10	30
C) BPT/Repeal/BET	Repeal of credit/ BPT to 10.3% <u>and</u> BET to 1%	29	15

Scenario A, under which an additional \$100 million is paid through the BPT (either rate increase or repeal of credit) beginning in calendar year 2003, was modeled by increasing the capital costs in the REMI model for each of the ten sectors in New Hampshire by a specified proportion in each year of the 10-year forecast. This approach simulates the impact of applying a higher business tax uniformly to all ten sectors of the economy. The percentage point increase in capital costs for each sector was arrived at using the following general concepts:

- ▶ Sector-specific allocation factors are required in order to allocate a portion of the \$100 million increase in the BPT to each sector. These sector-specific allocation factors are calculated by weighting the ratio of capital as a portion of value added for each sector, by the share of value added for each sector, relative to the total value added for all sectors. The sector-specific allocation factors are normalized to sum to 1.0.

One exception to this step was made for the sector “Finance, Banking, Brokerage, Insurance, and Real Estate.” For this sector, we used the simple average of the weighted allocation factors for all the other sectors. We did this because capital costs as a portion of value added are overstated for this sector, and because the capital structure for real estate captures realized, appreciated values at the time of closing, plus commissions.

- ▶ Using the sector-specific allocation factors calculated above, allocate a portion of the \$100 million increase in the BPT to each sector by multiplying the \$100 million by each sector-specific allocation factor.
- ▶ Next, the increase allocated to each sector is reduced by 20 percent to account for the federal corporate income taxes that New Hampshire businesses, on average, will avoid as a result of higher state taxes
- ▶ Last, the percent increase in capital costs for each sector due to the imposition of either the repeal of the credit, or an increase in the BPT tax rate in order to generate an additional \$100 million in state revenues, is calculated by dividing each sector's final allocation of the \$100 million increase in the BPT by the sector's total capital costs.

Scenario B, under which an additional \$100 million is collected through the BET beginning in 2003, was modeled by increasing both non-wage labor costs and capital costs (80%/20%) for each major sector in New Hampshire by a specified proportion in each year of the forecast. This approach simulates the impact of applying a higher business tax uniformly to all sectors. With respect to increases in non-wage labor costs, the proportion for each sector was arrived at using the following general concepts.

- ▶ Sector-specific allocation factors are required in order to allocate to each sector a portion of the \$80 million increase in non-wage labor costs due to the increase in the BET. These sector-specific allocation factors are calculated based on the ratio of wage and salary disbursements for each sector relative to the total wage and salary disbursements for all sectors.
- ▶ The sector-specific allocation factors are then used to allocate a portion of the \$80 million increase in BET taxes.
- ▶ The increase allocated to each sector is reduced by 20 percent to account for the federal corporate income taxes that New Hampshire businesses, on average, will avoid as a result of higher state taxes.
- ▶ Lastly, the percent increase in labor costs for each sector is calculated by dividing each sector's final allocation of the BET increase by the sector's total wage and salary disbursements.

With respect to increases in capital costs from the portion of the BET that is imposed on interest and dividends paid by businesses, each percentage increase was arrived at using the same general process used for allocating increases in the BPT and was the same value for all but the "Finance, Banking, Brokerage, Insurance, and Real Estate" sector, as discussed earlier.

Scenario C, under which half the increase comes from the BPT/repeal of the credit and half from the BET, was modeled using the same principles laid out for

Scenarios A and B. The total increase was allocated between BPT and BET, with BET between capital and labor, weighted shares were calculated, federal tax offsets were taken into account, and lastly, the allocated increases were converted into permanent percentage increases in capital and labor costs to account for the 10-year increases in business taxes.

There are two ways in which REMI simulates the impacts of an increase in the BPT/repeal of the credit. Under Scenario A, the tax increase in 2003 is converted to a percentage point increase in total capital costs (which includes state corporate income taxes). An alternative policy variable, used in Scenario D, is to increase the average effective corporate income tax rate. Calibrating the increase to the after-federal tax effects and the standard control forecast leads to an input change of increasing the New Hampshire corporate income tax rate by 2.025 percentage points in 2003.

The estimates of the changes in economic activity from enacting increased business taxes through higher BPT rate, higher BET rate, repeal of the BET credit against the BPT, or some combination of all, specified in Scenarios A, B, C, and D, are measured as compared to a standard control forecast. Sensitivity analysis of the economic impacts of business tax increases starting from a different standard control forecast was performed; the economic impacts due to the business tax increases simulated in this study do not significantly change. Detailed results of each scenario and the standard control forecast can be found in the Appendix.

Key Findings

A small additional increase in business taxation leads to more than just a small bump in economic performance. Indeed, it creates a significant drag on the state's economy. It will cause crucial reductions in New Hampshire jobs, sales, investment, household earnings and gross state product. Table 7 below summarizes the impacts for the combined business tax increase, of a BPT increase/repeal of the credit, and BET increase.

Table 7
\$100 Million Annual Business Tax Increase
Economic Impacts
(Dollars in Millions 02)

<u>Economic Indicator</u>	<u>First Year</u>	<u>10th Year</u>	<u>Cumulative</u>
Jobs	-1,112	-1,989	-16,580
Household Earnings	-\$45	-\$82	-\$670
Sales	-\$110	-\$266	-\$2,003
Gross State Product	-\$63	-\$156	-\$1,162
Investment	-\$93	-\$116	-\$1,084

The BPT increase/repeal of the credit, in combination with the BET increase, is the mid-point estimate. The economic impact of raising business taxes through greater reliance on the BET (Scenario B) as compared to the BPT/repeal of the credit (Scenario A), is within range and the pattern and differences are not surprising.

Increases in the BPT liability have greater impacts in the first couple of years – larger job losses, and greater reductions in household earnings, sales, gross state product, and investment – because of the significant dislocation effects, and reduced incentives for expansion, induced by such large increases in capital costs. But the negative impacts from the BET accelerate even more rapidly. The negative impact of BET tax liability is greater for most economic indicators by the end of the forecast period. Reductions in total investment, and job losses in construction and wholesale trade, however, remain greater under the BPT increase/repeal of the credit scenarios. Table 8 summarizes the range of economic impacts for scenarios A through D. (See the Appendices for detailed results from each Scenario.)

Table 8
Increasing Business Taxes by \$100 Million
Range of Economic Impacts
(Dollars in Millions 02)

<u>Economic Indicator</u>	<u>First Year</u>	<u>10th Year</u>	<u>Cumulative</u>
Jobs	-1,019 to -1,351	-1,425 to -2,551	-13,753 to -19,390
Household Earnings	-\$40 to -\$56	-\$57 to -\$108	-\$561 to -\$780
Sales	-\$94 to -\$142	-\$241 to -\$291	-\$1,915 to -\$2,139
GSP	-\$55 to -\$80	-\$139 to -\$172	-\$1,098 to -\$1,241
Investment	-\$16 to -\$179	-\$56 to -\$182	-\$403 to -\$1,828

These results support recent statements by New Hampshire’s chief revenue and economic development officials.

“It would be a mistake to continue to raise the business taxes.”

-Foster’s Daily Democrat, 4/22/02

George Bald, Commissioner
New Hampshire Department of
Resources and Economic Development

“...the state could end up killing the ‘golden goose,’ by relying on business taxes to make up the deficit.”

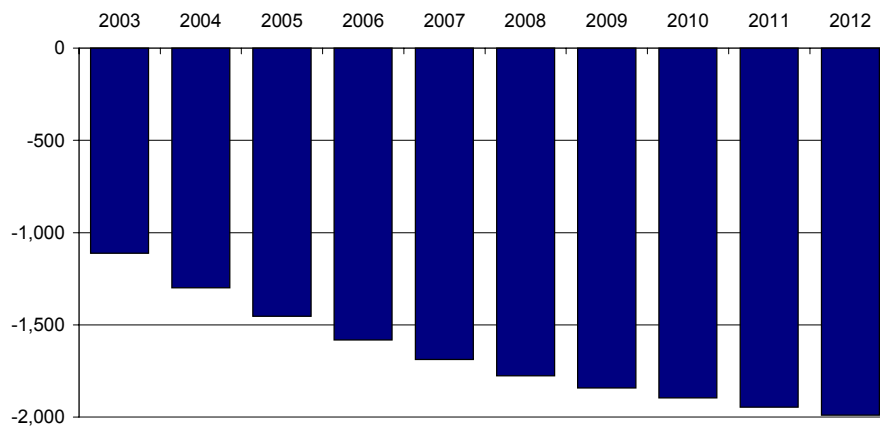
-Manchester Union Leader, 3/29/02

Stan Arnold, Commissioner
New Hampshire Department of Revenue Administration

Job Losses

Employment impacts from further business tax increases are significant and growing.¹⁶ First year impacts show a reduction in the number of jobs in New Hampshire of about 1,100, as compared to a control forecast, whereas by the 10th year, the annual reduction is about double that. The 10-year cumulative reduction is estimated at 16,580 jobs, a 22 percent reduction in job growth over the next 10 years.

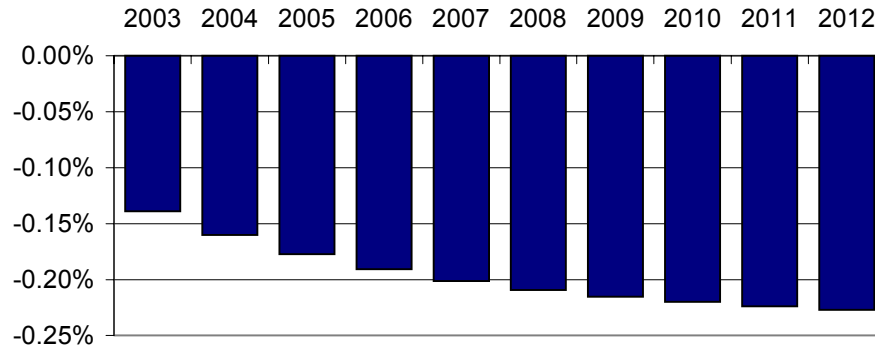
Figure 7
\$100 Million Business Tax Increase
Annual Job Losses



¹⁶ All analyses in the Key Findings section are based on the combined business tax increases, Scenario C, and are for calendar years, as compared to a standard control forecast. For detailed results for each Scenario, see Appendices. The negative impacts stabilize to a new equilibrium, although in most cases this is at a time beyond the 10-year forecast period reported in the Appendices.

The changes in the number of jobs is as compared to what is forecasted to happen in the New Hampshire economy without further tax increase. Figure 8, below, reports these job losses as percent changes. By 2012, the increased business tax burdens are dragging job growth by more than .2 percent.

Figure 8
\$100 Million Business Tax Increase
Annual Percentage Job Losses



Further increasing business taxes leads to reductions in the number of jobs across all sectors. Changes are significant and growing over time for most sectors.

Table 9
\$100 Million Business Tax Increase
Changes in Numbers of Jobs

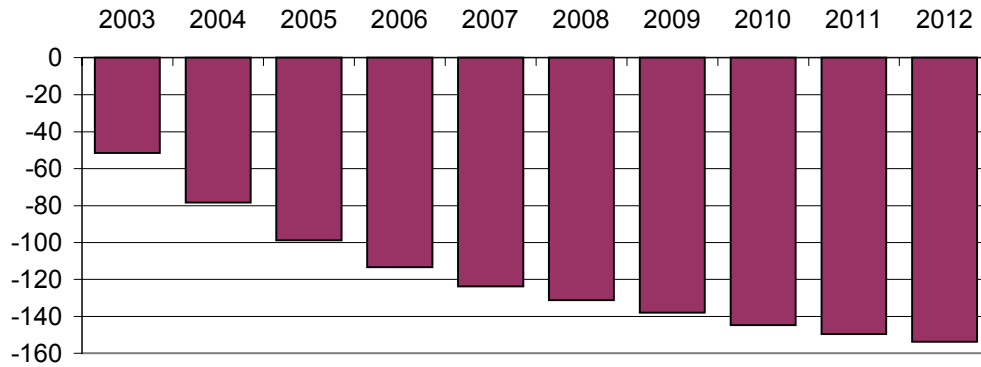
Jobs	First Year	10th Year	Cumulative
Manufacturing	-52	-154	-1,183
Construction	-239	-205	-2,294
Transportation & Public Utilities	-35	-71	-572
Finance & Insurance & Real Estate	-48	-87	-731
Retail Trade	-277	-405	-3,592
Wholesale Trade	-49	-86	-738
Services	-378	-761	-6,072
Agriculture & Forest & Fish Services	-10	-23	-178

Manufacturing and Construction Accelerated Job Losses

For the manufacturing sector, increasing business taxes will accelerate the decline in manufacturing jobs. Even without further business tax increases, there are expected to be 2,895 fewer manufacturing jobs in 2012 than in 2003. Increasing business taxes

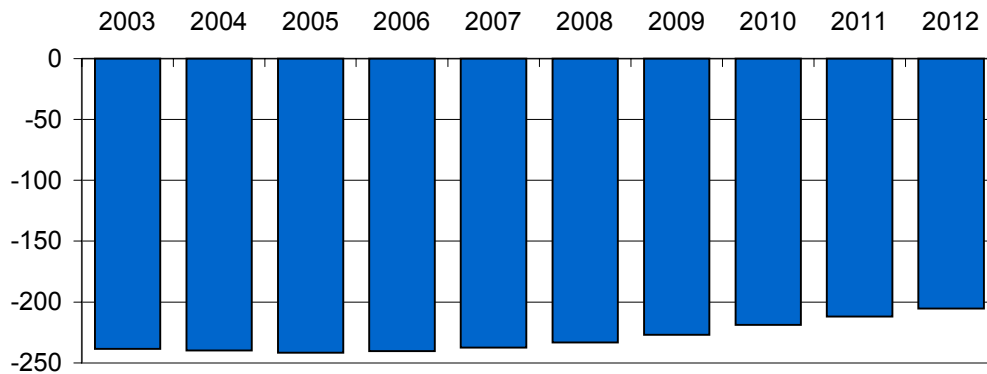
further increases job loss in the sector. For the manufacturing sector, this will accelerate the decline in manufacturing jobs. According to a recent study by Professor Gittell, (UNH, 2001), manufacturing employment declined by 4.3% in New Hampshire from August, 2000, to August, 2001.

Figure 9
\$100 Million Business Tax Increase
Additional Annual Job Losses in Manufacturing
(10-year cumulative = -1,183)



Growth in construction jobs in the control forecast is stagnant, even without further increases in business taxes. Increasing business taxes further through increases in the BPT/repeal of the credit, and BET increases, eliminates an additional 200-250 construction jobs each year.

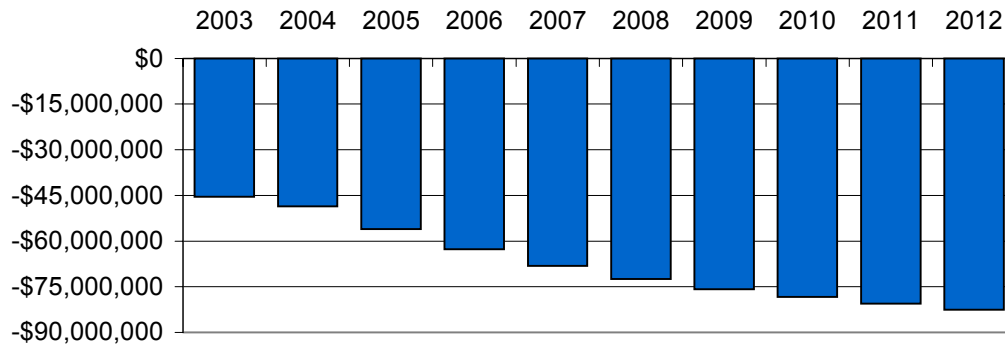
Figure 10
\$100 Million Business Tax Increase
Additional Annual Job Losses in Construction
(10-year cumulative = -2,294)



Household Earnings

As economic growth slows in some sectors and declines in others, fewer jobs and sales mean less money in people's pockets.¹⁷ The reduction in household earnings (wages, salaries, other compensation, and proprietors' earnings) as compared to the control forecast is significant. The impact grows over time.¹⁸

Figure 11
\$100 Million Business Tax Increase
Annual Loss of Household Earnings
(2002 \$)



Government Revenue Impacts

Although the business tax rate increases are set to generate \$100 million in new revenue in 2003, the declines in investment, sales, jobs, household earnings and gross state product lead to a reduction in state and local revenues than what would otherwise be expected without the business tax increases. For example, as businesses invest less and consumers spend less, property taxes and meals and rooms tax revenue do not grow as fast. The estimated reduction (across all revenue sources) is about \$11 million in 2003 (as an offset to the \$100 million), growing to \$27 million in 2012, all in 2002 dollars.

Business Activity

New Hampshire business investment, sales and gross state product are all reduced from the level which is forecasted without business tax increases.¹⁹ Increases in business taxes during a recovery from a recession could jeopardize a strong recovery. Should another recession or significant slowdown occur, those reductions will put New Hampshire into deeper negative growth. By 2012, New Hampshire will be losing nearly .2 percent of economic growth. Business investment, the key to New Hampshire's

¹⁷ Some of these losses would be exported to out-of-state residents who work in New Hampshire.

¹⁸ Until they stabilize to a new equilibrium sometime beyond the forecast period.

¹⁹ These aggregate results would be somewhat tempered by the benefits to some businesses with the net operating loss cap increased and lengthened.

current economic recovery, is reduced by between .8 and 1.5 percent annually, depending on which business tax is increased.

Figure 12
\$100 Million Business Tax Increase
Annual Loss of Gross State Product
(2002 \$)

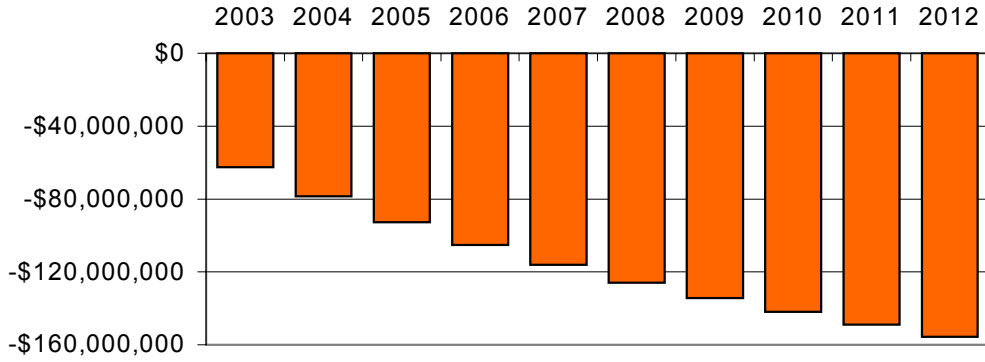


Figure 13
\$100 Million Business Tax Increase
Annual Percentage Loss of Gross State Product

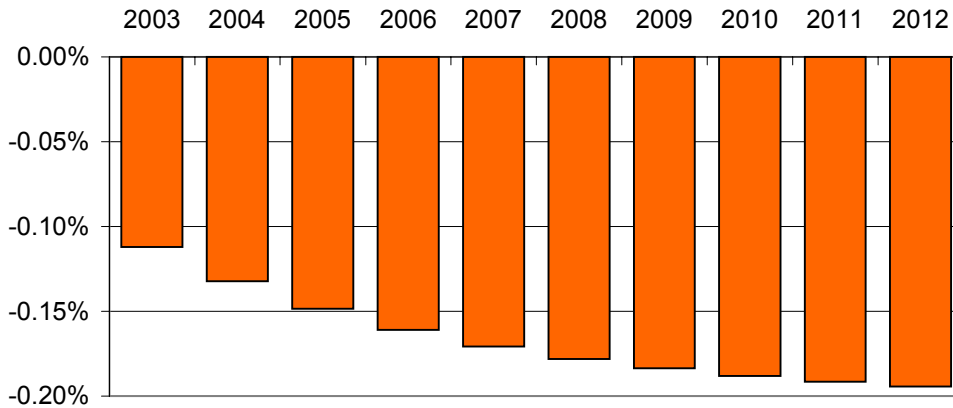


Figure 14
\$100 Million Business Tax Increase
Annual Sales Losses
(2002 \$)

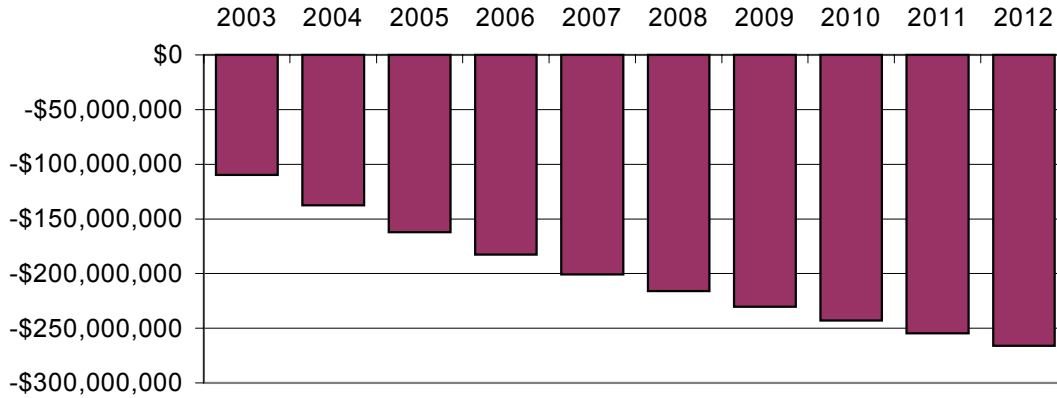
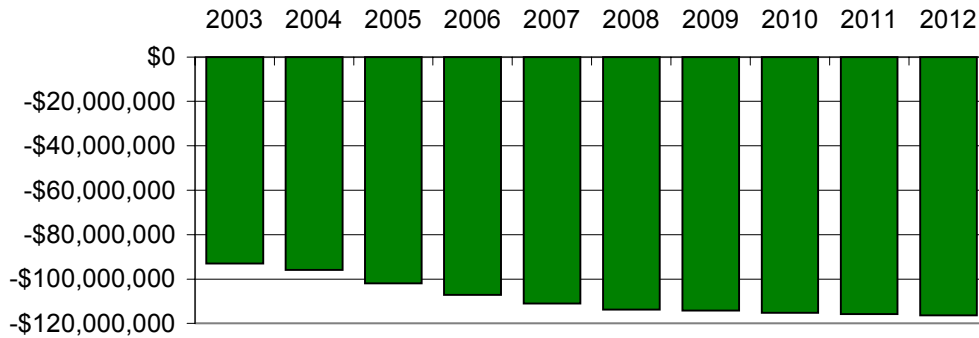


Figure 15
\$100 Million Business Tax Increase
Annual Loss of Investment
(2002 \$)



Results in Context

In order to provide some check on the magnitude of economic losses predicted by further increases in business taxes, we reviewed the literature on the response of employment to changes in taxes. A review of elasticity estimates as part of the 1999 Statewide Property Tax study (“The Economic and Fiscal Impacts of a Uniform Statewide Property Tax,” January, 1999 -- see review in study, and citations therein to seminal work in the area), suggested an elasticity estimate of -.25: for each 10 percent increase in taxes, on average there is a 2.5 percent reduction in employment.

Viewing the overall annual \$100 million business tax increase analyzed in this study as a 25 percent increase in taxes, then using mid-range elasticity estimates found in the literature, predicts a change in employment of 5 percent off from forecasted results. Using trends from the New Hampshire Economic and Labor Market Information Bureau's employment forecasts for covered employment leads to an estimated job loss of about 27,000.²⁰ Thus, while ELMI forecasts 10-year, 90,673 growth in private employment without the business tax increase, using average elasticity estimates predicts job growth of 27,000 less than the forecast. This is a somewhat higher job loss impact than predicted by the REMI estimates; however, the REMI estimates are consistent with the low range of elasticity estimates found in the literature.

Another check on the results was done by estimating the job loss from an \$80 million (after federal tax offset) increase in capital costs using the input-output model called IMPLAN. IMPLAN is an economic impact assessment software package. IMPLAN is used to develop local level input-output relationships that estimate the economic impact of changes in public policies or economic conditions. Because it is an input-output model, IMPLAN does not generate results that include iterative, or feedback, effects, and therefore it is not well suited to generating future forecasts. But it is widely used in the planning and consulting profession to estimate static economic impacts. Here the one-year job loss estimates were close to the REMI first-year results.

A third check on the results was done by looking to the literature on how increases in taxes impact businesses' after-tax rates of returns, and then how rates of return relate to investment spending. An important advantage of this approach is that it takes into account the way any cost changes affect after-tax rates of returns, and that those changes affect different businesses differently. It is beyond the scope of this study to build up the change in after-tax rates of returns for all businesses based on the different ways New Hampshire can increase business taxes by \$100 million in the aggregate. As the Ernst and Young analysis shows in the Tax Commission report (New Hampshire Commission on Education Funding, Robert Tannenwald – Director, "An analysis of various revenue options that will generate \$825 million to fund K-12 education in New Hampshire," January 8, 2001), an increase in taxes affects businesses quite differently.

To estimate the impact on economic performance, one also has to allow for compensating price changes where they are likely to occur. For example, while the income tax scenario with a 25 percent pass-through to businesses considered by the NH Education Funding Commission (which is pretty close to the wage parameter changes induced by the BET increase considered in this study) affects the after-tax rate of return for General Merchandise companies most significantly, such a static accounting approach does not appear to factor in the extent to which some business activity (for example, those serving primarily local markets where all competitors face the same cost structure) will be able to pass the cost increases onto consumers. In more competitive export or border markets, businesses may not be able to adjust prices to keep after tax rates of return constant.

²⁰ Forecasts for 2009-2012 are extrapolated from ELMI's 1998 to 2008 employment projections.

Studies using large data sets of businesses across industries and states are able to provide elasticity estimates of the impact of after-tax rates of return on investment activity. (See, for example, Papke, 1987, and Tannenwald and Kendrick, 1995, and Tannenwald, 1996.) For example, in some of these analyses, a one-percent increase in the return on investment leads to a 13 percent increase in capital investment per production worker. Other analyses show a weak and insignificant relationship.

Using an ad hoc sample of business investment projects, and some simplifying assumptions, we estimate that the \$100 million business tax increases analyzed in this study would lead to a .5 to .1 percent decline in the after-tax return on investment. Consider the following example of how a 3.5 percentage point increase in the BPT could lead to a .5 to .1 percentage point reduction in the return on investment.

- Let: P = Net present value of profits from new investment
 I = Initial cost of new investment
 t_0 = Combined federal and state corporate income tax rate where state rate is discounted for federal offset and is prior to an increase in the BPT rate
 t_1 = Combined federal and state corporate income tax rate where state rate is discounted for federal offset and is after an increase in the BPT rate to 12%
 ROI_0 = Calculation of expected return on investment prior to BPT increase
 ROI_1 = Calculation of expected return on investment after the BPT increase of 3.5 percentage points to 12 percent.

$$ROI_0 = (1 - t_0) \frac{P}{I}$$

$$ROI_1 = (1 - t_1) \frac{P}{I}$$

Estimating the reduction in the return on investment, $ROI_1 - ROI_0$, for a range of plausible parameters, yields an estimated reduction of .5 to 1 percentage point reduction in the return on investment. To properly estimate the change in the return on investment induced by the various ways of increasing business taxes by \$100 million, a broad range of firms and specific tax-raising options would have to be considered. As the Ernst and Young analysis shows (see New Hampshire Commission on Education Funding, pp. 108-111), as well as studies in the literature (see, Papke, 1987 and Tannenwald and Kendrick, 1995), the impact on the return on investment can vary significantly across industries.

For the purposes of checking the estimates against other ballpark approaches, we use a 1 percentage point reduction in the return on investment for all private employers as a proxy for the \$100 million business tax increase New Hampshire-wide.

Based on elasticity estimates found in some of the studies, (although others find a weak relationship between the variation in return on investment and the rate of investment), a 1 percent decline in the after-tax rate of return would lead to a 13 percent decline in investment. The REMI estimates for the BPT rate increase/repeal of the credit scenario find around a 14 percent decline in investment over the 10-year forecast period, within the range of the studies that find such a relationship.

APPENDICES

10-Year Standard Control Forecast ¹
(without any tax increases)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Employment										
Number	800,235	810,907	820,008	828,887	838,424	848,194	854,855	861,540	868,507	876,069
Percent Change	1.2%	1.3%	1.1%	1.1%	1.2%	1.2%	0.8%	0.8%	0.8%	0.9%
Household Earnings										
Amount (Billions 02\$)	\$29.431	\$30.310	\$31.158	\$32.020	\$32.910	\$33.823	\$34.658	\$35.489	\$36.305	\$37.133
Percent Change	2.9%	3.0%	2.8%	2.8%	2.8%	2.8%	2.5%	2.4%	2.3%	2.3%
Gross State Product										
Amount (Billions 02\$)	\$59.706	\$62.233	\$64.544	\$66.851	\$69.202	\$71.488	\$73.706	\$75.836	\$77.979	\$80.185
Percent Change	4.5%	4.2%	3.7%	3.6%	3.5%	3.3%	3.1%	2.9%	2.8%	2.8%
Output										
Amount (Billions 02\$)	\$104.378	\$108.489	\$112.101	\$115.617	\$119.177	\$122.565	\$126.709	\$130.533	\$134.386	\$138.385
Percent Change	4.3%	3.9%	3.3%	3.1%	3.1%	2.8%	3.4%	3.0%	3.0%	3.0%
Investment										
Amount (Billions 02\$)	\$12.350	\$13.248	\$14.024	\$14.804	\$15.625	\$16.461	\$16.978	\$17.761	\$18.553	\$19.442
Percent Change	8.2%	7.3%	5.9%	5.6%	5.5%	5.3%	3.1%	4.6%	4.5%	4.8%
Employment by Sector										
Manufacturing										
Number	105,101	104,798	104,017	103,024	101,880	100,827	100,720	101,484	101,796	102,206
Percent Change	-1.0%	-0.3%	-0.7%	-1.0%	-1.1%	-1.0%	-0.1%	0.8%	0.3%	0.4%
Mining										
Number	675	661	644	628	612	596	597	597	595	594
Percent Change	-1.3%	-2.1%	-2.6%	-2.5%	-2.5%	-2.6%	0.2%	0.0%	-0.3%	-0.2%
Construction										
Number	49,894	49,910	49,656	49,363	49,240	49,252	48,925	48,480	48,230	48,173
Percent Change	0.1%	0.0%	-0.5%	-0.6%	-0.2%	0.0%	-0.7%	-0.9%	-0.5%	-0.1%
Transportation & Public Utilities										
Number	27,102	27,504	27,826	28,132	28,444	28,725	29,061	29,391	29,714	30,046
Percent Change	1.9%	1.5%	1.2%	1.1%	1.1%	1.0%	1.2%	1.1%	1.1%	1.1%
Finance & Insurance & Real Estate										
Number	59,792	60,647	61,415	62,243	63,073	63,857	63,955	64,243	64,535	64,807
Percent Change	1.5%	1.4%	1.3%	1.3%	1.3%	1.2%	0.2%	0.5%	0.5%	0.4%
Retail Trade										
Number	148,826	149,382	149,722	150,023	150,522	151,102	151,167	150,947	151,012	151,291
Percent Change	0.3%	0.4%	0.2%	0.2%	0.3%	0.4%	0.0%	-0.1%	0.0%	0.2%
Wholesale Trade										
Number	34,353	34,353	34,212	33,956	33,719	33,449	33,346	33,386	33,432	33,499
Percent Change	-0.5%	0.0%	-0.4%	-0.7%	-0.7%	-0.8%	-0.3%	0.1%	0.1%	0.2%
Services										
Number	270,252	278,512	286,556	294,758	303,390	312,094	317,790	322,672	327,835	333,226
Percent Change	3.0%	3.1%	2.9%	2.9%	2.9%	2.9%	1.8%	1.5%	1.6%	1.6%
Agriculture & Forest & Fish Services										
Number	9,562	9,671	9,724	9,750	9,754	9,737	9,931	10,221	10,489	10,765
Percent Change	1.6%	1.1%	0.5%	0.3%	0.0%	-0.2%	2.0%	2.9%	2.6%	2.6%
Farm										
Number	4,501	4,406	4,313	4,216	4,118	4,023	3,983	3,943	3,904	3,865
Percent Change	-2.0%	-2.1%	-2.1%	-2.2%	-2.3%	-2.3%	-1.0%	-1.0%	-1.0%	-1.0%
Government										
Number	90,177	91,063	91,924	92,794	93,671	94,533	95,380	96,175	96,964	97,597
Percent Change	1.0%	1.0%	0.9%	0.9%	0.9%	0.9%	0.9%	0.8%	0.8%	0.7%

¹ Standard control forecast by REMI. Note Employment defined as Bureau of Economic Analysis (BEA) concept based on place of work, and includes full-time and part-time employees and self-employed. Individuals may have more than one job and therefore be counted twice. Alternative control forecasts were also considered, however did not significantly impact the estimated economic impacts of increasing business taxes.

Scenario A
Increasing the BPT to 12% or Repealing the Credit
Changes In Economic Activity As Compared to Control Forecast¹
(Dollars in Millions, 2002)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Employment										
Annual Differences	-1,202	-1,288	-1,346	-1,384	-1,408	-1,422	-1,426	-1,426	-1,426	-1,425
Percent Difference	-0.15%	-0.16%	-0.16%	-0.17%	-0.17%	-0.17%	-0.17%	-0.17%	-0.16%	-0.16%
Cumulative Difference	-1,202	-2,490	-3,836	-5,220	-6,628	-8,050	-9,476	-10,902	-12,328	-13,753
Household Earnings										
Annual Differences	-\$50.4	-\$50.8	-\$54.3	-\$56.7	-\$58.1	-\$58.7	-\$58.6	-\$58.2	-\$57.7	-\$57.0
Percent Difference	-0.17%	-0.17%	-0.17%	-0.18%	-0.18%	-0.17%	-0.17%	-0.16%	-0.16%	-0.15%
Cumulative Difference	-\$50.4	-\$101.3	-\$155.5	-\$212.3	-\$270.4	-\$329.1	-\$387.7	-\$445.9	-\$503.6	-\$560.7
Gross State Product										
Annual Differences	-\$70.2	-\$82.6	-\$93.0	-\$101.9	-\$109.7	-\$116.6	-\$122.7	-\$128.3	-\$133.7	-\$139.0
Percent Difference	-0.12%	-0.13%	-0.14%	-0.15%	-0.16%	-0.16%	-0.17%	-0.17%	-0.17%	-0.17%
Cumulative Difference	-\$70.2	-\$152.8	-\$245.8	-\$347.7	-\$457.4	-\$574.1	-\$696.7	-\$825.0	-\$958.7	-\$1,097.7
Output										
Annual Differences	-\$125.3	-\$146.4	-\$163.9	-\$178.6	-\$191.2	-\$202.0	-\$212.6	-\$222.3	-\$231.6	-\$240.8
Percent Difference	-0.12%	-0.14%	-0.15%	-0.16%	-0.16%	-0.17%	-0.17%	-0.17%	-0.17%	-0.17%
Cumulative Difference	-\$125.3	-\$271.7	-\$435.6	-\$614.3	-\$805.5	-\$1,007.5	-\$1,220.0	-\$1,442.3	-\$1,673.8	-\$1,914.6
Investment										
Annual Differences	-\$169.8	-\$172.0	-\$175.6	-\$178.0	-\$179.4	-\$179.8	-\$177.7	-\$177.4	-\$176.9	-\$176.7
Percent Difference	-1.38%	-1.30%	-1.25%	-1.20%	-1.15%	-1.09%	-1.05%	-1.00%	-0.95%	-0.91%
Cumulative Difference	-\$169.8	-\$341.8	-\$517.4	-\$695.4	-\$874.8	-\$1,054.6	-\$1,232.3	-\$1,409.7	-\$1,586.6	-\$1,763.3
Employment by Sector										
Manufacturing										
Annual Differences	-56	-73	-85	-92	-96	-98	-100	-103	-104	-105
Percent Difference	-0.05%	-0.07%	-0.08%	-0.09%	-0.09%	-0.10%	-0.10%	-0.10%	-0.10%	-0.10%
Cumulative Difference	-56	-129	-213	-305	-401	-499	-600	-703	-806	-911
Mining										
Annual Differences	-1	-2	-2	-2	-2	-2	-2	-2	-2	-2
Percent Difference	-0.22%	-0.24%	-0.26%	-0.27%	-0.27%	-0.27%	-0.27%	-0.26%	-0.26%	-0.25%
Cumulative Difference	-1	-3	-5	-6	-8	-10	-11	-13	-14	-16
Construction										
Annual Differences	-321	-308	-295	-280	-265	-250	-236	-221	-208	-196
Percent Difference	-0.64%	-0.62%	-0.59%	-0.57%	-0.54%	-0.51%	-0.48%	-0.46%	-0.43%	-0.41%
Cumulative Difference	-321	-629	-923	-1,203	-1,468	-1,718	-1,954	-2,174	-2,382	-2,578
Transportation & Public Utilities										
Annual Differences	-38	-42	-45	-47	-49	-49	-50	-50	-51	-51
Percent Difference	-0.14%	-0.15%	-0.16%	-0.17%	-0.17%	-0.17%	-0.17%	-0.17%	-0.17%	-0.17%
Cumulative Difference	-38	-79	-124	-172	-220	-270	-320	-370	-421	-472
Finance & Insurance & Real Estate										
Annual Differences	-43	-46	-48	-49	-49	-48	-47	-46	-45	-44
Percent Difference	-0.07%	-0.08%	-0.08%	-0.08%	-0.08%	-0.08%	-0.07%	-0.07%	-0.07%	-0.07%
Cumulative Difference	-43	-89	-137	-186	-234	-283	-330	-376	-421	-464
Retail Trade										
Annual Differences	-281	-288	-293	-294	-293	-291	-287	-283	-279	-276
Percent Difference	-0.19%	-0.19%	-0.20%	-0.20%	-0.19%	-0.19%	-0.19%	-0.19%	-0.19%	-0.18%
Cumulative Difference	-281	-569	-861	-1,155	-1,448	-1,739	-2,027	-2,310	-2,589	-2,865
Wholesale Trade										
Annual Differences	-66	-70	-74	-75	-76	-76	-75	-75	-74	-73
Percent Difference	-0.19%	-0.20%	-0.22%	-0.22%	-0.23%	-0.23%	-0.23%	-0.22%	-0.22%	-0.22%
Cumulative Difference	-66	-136	-209	-285	-361	-437	-512	-587	-661	-734
Services										
Annual Differences	-364	-398	-425	-445	-462	-475	-485	-493	-500	-507
Percent Difference	-0.13%	-0.14%	-0.15%	-0.15%	-0.15%	-0.15%	-0.15%	-0.15%	-0.15%	-0.15%
Cumulative Difference	-364	-762	-1,186	-1,631	-2,093	-2,568	-3,053	-3,545	-4,045	-4,553
Agriculture & Forest & Fish Services										
Annual Differences	-10	-11	-12	-13	-13	-13	-14	-14	-15	-15
Percent Difference	-0.10%	-0.12%	-0.12%	-0.13%	-0.14%	-0.14%	-0.14%	-0.14%	-0.14%	-0.14%
Cumulative Difference	-10	-21	-33	-46	-59	-73	-87	-101	-116	-131
Government										
Annual Differences	-23	-50	-70	-88	-104	-118	-130	-140	-149	-156
Percent Difference	-0.02%	-0.06%	-0.08%	-0.09%	-0.11%	-0.12%	-0.14%	-0.15%	-0.15%	-0.16%
Cumulative Difference	-23	-73	-143	-231	-335	-453	-583	-723	-872	-1,029

¹ Control forecast found in Appendix A. Note that alternative control forecasts were also considered, however did not significantly impact the estimated economic impacts of increasing business taxes.

Scenario B
Increasing the BET to 1.2%
Change in Economic Activity as Compared to Control Forecast¹
(Dollars in Millions, 2002)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Employment										
Annual Differences	-1,019	-1,307	-1,560	-1,778	-1,965	-2,127	-2,256	-2,365	-2,462	-2,551
Percent Difference	-0.13%	-0.16%	-0.19%	-0.21%	-0.23%	-0.25%	-0.26%	-0.27%	-0.28%	-0.29%
Cumulative Difference	-1,019	-2,326	-3,886	-5,664	-7,629	-9,756	-12,012	-14,377	-16,839	-19,390
Household Earnings										
Annual Differences	-\$40.4	-\$46.2	-\$57.8	-\$68.6	-\$78.0	-\$86.2	-\$92.8	-\$98.5	-\$103.3	-\$107.9
Percent Difference	-0.14%	-0.15%	-0.19%	-0.22%	-0.24%	-0.26%	-0.27%	-0.28%	-0.29%	-0.29%
Cumulative Difference	-\$40.4	-\$86.5	-\$144.4	-\$213.0	-\$290.9	-\$377.1	-\$469.9	-\$568.4	-\$671.7	-\$779.6
Gross State Product										
Annual Differences	-\$54.6	-\$74.5	-\$92.4	-\$108.3	-\$122.5	-\$135.2	-\$145.7	-\$155.3	-\$163.9	-\$172.2
Percent Difference	-0.09%	-0.12%	-0.14%	-0.16%	-0.18%	-0.19%	-0.20%	-0.21%	-0.21%	-0.22%
Cumulative Difference	-\$54.6	-\$129.1	-\$221.5	-\$329.8	-\$452.4	-\$587.5	-\$733.2	-\$888.5	-\$1,052.4	-\$1,224.6
Output										
Annual Differences	-\$94.0	-\$128.6	-\$159.8	-\$186.6	-\$209.8	-\$229.9	-\$247.8	-\$263.5	-\$277.8	-\$291.3
Percent Difference	-0.09%	-0.12%	-0.14%	-0.16%	-0.18%	-0.19%	-0.20%	-0.20%	-0.21%	-0.21%
Cumulative Difference	-\$94.0	-\$222.7	-\$382.4	-\$569.1	-\$778.9	-\$1,008.8	-\$1,256.6	-\$1,520.1	-\$1,797.8	-\$2,089.1
Investment										
Annual Differences	-\$15.8	-\$19.5	-\$28.1	-\$36.0	-\$42.4	-\$47.5	-\$50.5	-\$52.8	-\$54.5	-\$55.6
Percent Difference	-0.13%	-0.15%	-0.20%	-0.24%	-0.27%	-0.29%	-0.30%	-0.30%	-0.29%	-0.29%
Cumulative Difference	-\$15.8	-\$35.2	-\$63.3	-\$99.3	-\$141.8	-\$189.3	-\$239.8	-\$292.6	-\$347.1	-\$402.7
Employment by Sector										
Manufacturing										
Annual Differences	-47	-84	-113	-135	-152	-164	-176	-187	-195	-203
Percent Difference	-0.04%	-0.08%	-0.11%	-0.13%	-0.15%	-0.16%	-0.17%	-0.18%	-0.19%	-0.20%
Cumulative Difference	-47	-131	-243	-378	-530	-694	-870	-1,056	-1,251	-1,454
Mining										
Annual Differences	-1	-1	-1	-1	-1	-2	-2	-2	-2	-2
Percent Difference	-0.08%	-0.13%	-0.17%	-0.21%	-0.23%	-0.25%	-0.27%	-0.28%	-0.29%	-0.30%
Cumulative Difference	-1	-1	-2	-4	-5	-7	-8	-10	-12	-14
Construction										
Annual Differences	-156	-171	-188	-201	-209	-216	-218	-217	-216	-214
Percent Difference	-0.31%	-0.34%	-0.38%	-0.41%	-0.43%	-0.44%	-0.45%	-0.45%	-0.45%	-0.44%
Cumulative Difference	-156	-327	-515	-716	-925	-1,140	-1,358	-1,575	-1,791	-2,006
Transportation & Public Utilities										
Annual Differences	-33	-44	-53	-61	-68	-74	-79	-83	-87	-91
Percent Difference	-0.12%	-0.16%	-0.19%	-0.22%	-0.24%	-0.26%	-0.27%	-0.28%	-0.29%	-0.30%
Cumulative Difference	-33	-77	-130	-191	-259	-333	-412	-495	-582	-672
Finance & Insurance & Real Estate										
Annual Differences	-53	-68	-80	-91	-101	-109	-116	-121	-126	-131
Percent Difference	-0.09%	-0.11%	-0.13%	-0.15%	-0.16%	-0.17%	-0.18%	-0.19%	-0.20%	-0.20%
Cumulative Difference	-53	-121	-201	-292	-393	-503	-618	-740	-866	-997
Retail Trade										
Annual Differences	-271	-320	-367	-406	-439	-467	-488	-505	-520	-533
Percent Difference	-0.18%	-0.21%	-0.24%	-0.27%	-0.29%	-0.31%	-0.32%	-0.33%	-0.34%	-0.35%
Cumulative Difference	-271	-592	-958	-1,364	-1,803	-2,270	-2,758	-3,263	-3,782	-4,316
Wholesale Trade										
Annual Differences	-32	-46	-59	-69	-77	-83	-88	-92	-96	-99
Percent Difference	-0.09%	-0.13%	-0.17%	-0.20%	-0.23%	-0.25%	-0.26%	-0.28%	-0.29%	-0.30%
Cumulative Difference	-32	-79	-138	-206	-283	-366	-454	-546	-642	-741
Services										
Annual Differences	-391	-502	-600	-686	-764	-833	-887	-932	-974	-1,014
Percent Difference	-0.14%	-0.18%	-0.21%	-0.23%	-0.25%	-0.27%	-0.28%	-0.29%	-0.30%	-0.30%
Cumulative Difference	-391	-893	-1,493	-2,180	-2,943	-3,777	-4,664	-5,596	-6,570	-7,584
Agriculture & Forest & Fish Services										
Annual Differences	-11	-15	-18	-20	-23	-24	-26	-28	-30	-31
Percent Difference	-0.11%	-0.15%	-0.18%	-0.21%	-0.23%	-0.25%	-0.26%	-0.27%	-0.28%	-0.29%
Cumulative Difference	-11	-25	-43	-64	-86	-111	-137	-165	-194	-225
Government										
Annual Differences	-24	-56	-81	-107	-132	-155	-177	-198	-217	-234
Percent Difference	-0.03%	-0.06%	-0.09%	-0.12%	-0.14%	-0.16%	-0.19%	-0.21%	-0.22%	-0.24%
Cumulative Difference	-24	-81	-162	-269	-400	-555	-733	-930	-1,147	-1,380

¹ Control forecast found in Appendix A. Note that alternative control forecasts were also considered, however did not significantly impact the estimated economic impacts of increasing business taxes.

Scenario C
Increasing the BPT to 10.3% (Or Partial Repeal of the Credit) and Increasing the BET to 1%
Changes in Economic Activity as Compared to Control Forecast¹
(Dollars in Millions, 2002)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Employment										
Annual Differences	-1,112	-1,299	-1,454	-1,581	-1,687	-1,775	-1,842	-1,896	-1,945	-1,989
Percent Difference	-0.14%	-0.16%	-0.18%	-0.19%	-0.20%	-0.21%	-0.22%	-0.22%	-0.22%	-0.23%
Cumulative Difference	-1,112	-2,411	-3,865	-5,446	-7,133	-8,908	-10,750	-12,646	-14,591	-16,580
Household Earnings										
Annual Differences	-\$45.4	-\$48.5	-\$56.1	-\$62.7	-\$68.1	-\$72.5	-\$75.8	-\$78.4	-\$80.5	-\$82.5
Percent Difference	-0.16%	-0.16%	-0.18%	-0.20%	-0.21%	-0.21%	-0.22%	-0.22%	-0.22%	-0.22%
Cumulative Difference	-\$45.4	-\$94.0	-\$150.1	-\$212.8	-\$280.8	-\$353.3	-\$429.0	-\$507.4	-\$588.0	-\$670.4
Gross State Product										
Annual Differences	-\$62.5	-\$78.6	-\$92.7	-\$105.2	-\$116.2	-\$126.0	-\$134.3	-\$141.9	-\$149.0	-\$155.7
Percent Difference	-0.11%	-0.13%	-0.14%	-0.16%	-0.17%	-0.18%	-0.18%	-0.19%	-0.19%	-0.19%
Cumulative Difference	-\$62.5	-\$141.1	-\$233.8	-\$339.0	-\$455.2	-\$581.2	-\$715.5	-\$857.3	-\$1,006.3	-\$1,162.0
Output										
Annual Differences	-\$109.8	-\$137.6	-\$162.0	-\$182.8	-\$200.7	-\$216.1	-\$230.4	-\$243.1	-\$254.8	-\$266.2
Percent Difference	-0.11%	-0.13%	-0.15%	-0.16%	-0.17%	-0.18%	-0.18%	-0.19%	-0.19%	-0.19%
Cumulative Difference	-\$109.8	-\$247.4	-\$409.4	-\$592.2	-\$792.9	-\$1,008.9	-\$1,239.3	-\$1,482.4	-\$1,737.2	-\$2,003.4
Investment										
Annual Differences	-\$93.0	-\$95.9	-\$102.0	-\$107.1	-\$111.0	-\$113.8	-\$114.2	-\$115.3	-\$115.8	-\$116.3
Percent Difference	-0.75%	-0.72%	-0.73%	-0.72%	-0.71%	-0.69%	-0.67%	-0.65%	-0.62%	-0.60%
Cumulative Difference	-\$93.0	-\$188.9	-\$290.9	-\$398.0	-\$509.0	-\$622.8	-\$737.1	-\$852.3	-\$968.1	-\$1,084.4
Employment by Sector										
Manufacturing										
Annual Differences	-52	-78	-99	-113	-124	-131	-138	-145	-149	-154
Percent Difference	-0.05%	-0.07%	-0.09%	-0.11%	-0.12%	-0.13%	-0.14%	-0.14%	-0.15%	-0.15%
Cumulative Difference	-52	-130	-229	-342	-466	-597	-735	-880	-1,029	-1,183
Mining										
Annual Differences	-1	-1	-1	-1	-2	-2	-2	-2	-2	-2
Percent Difference	-0.15%	-0.19%	-0.21%	-0.24%	-0.25%	-0.26%	-0.27%	-0.27%	-0.28%	-0.28%
Cumulative Difference	-1	-2	-4	-5	-7	-8	-10	-11	-13	-15
Construction										
Annual Differences	-239	-240	-242	-240	-237	-233	-227	-219	-212	-205
Percent Difference	-0.48%	-0.48%	-0.49%	-0.49%	-0.48%	-0.47%	-0.46%	-0.45%	-0.44%	-0.43%
Cumulative Difference	-239	-478	-720	-960	-1,198	-1,431	-1,657	-1,876	-2,088	-2,294
Transportation & Public Utilities										
Annual Differences	-35	-43	-49	-54	-58	-62	-64	-67	-69	-71
Percent Difference	-0.13%	-0.16%	-0.18%	-0.19%	-0.21%	-0.21%	-0.22%	-0.23%	-0.23%	-0.24%
Cumulative Difference	-35	-78	-127	-181	-240	-301	-366	-433	-502	-572
Finance & Insurance & Real Estate										
Annual Differences	-48	-57	-64	-70	-75	-79	-81	-84	-86	-87
Percent Difference	-0.08%	-0.09%	-0.10%	-0.11%	-0.12%	-0.12%	-0.13%	-0.13%	-0.13%	-0.13%
Cumulative Difference	-48	-105	-169	-239	-314	-393	-474	-558	-643	-731
Retail Trade										
Annual Differences	-277	-304	-330	-350	-366	-379	-388	-394	-400	-405
Percent Difference	-0.19%	-0.20%	-0.22%	-0.23%	-0.24%	-0.25%	-0.26%	-0.26%	-0.26%	-0.27%
Cumulative Difference	-277	-581	-911	-1,260	-1,627	-2,006	-2,393	-2,787	-3,187	-3,592
Wholesale Trade										
Annual Differences	-49	-58	-66	-72	-77	-80	-82	-83	-85	-86
Percent Difference	-0.14%	-0.17%	-0.19%	-0.21%	-0.23%	-0.24%	-0.24%	-0.25%	-0.25%	-0.26%
Cumulative Difference	-49	-107	-174	-246	-322	-402	-483	-567	-652	-738
Services										
Annual Differences	-378	-451	-512	-566	-613	-655	-686	-713	-738	-761
Percent Difference	-0.14%	-0.16%	-0.18%	-0.19%	-0.20%	-0.21%	-0.22%	-0.22%	-0.22%	-0.23%
Cumulative Difference	-378	-828	-1,341	-1,906	-2,519	-3,174	-3,860	-4,573	-5,311	-6,072
Agriculture & Forest & Fish Services										
Annual Differences	-10	-13	-15	-17	-18	-19	-20	-21	-22	-23
Percent Difference	-0.11%	-0.13%	-0.15%	-0.17%	-0.18%	-0.19%	-0.20%	-0.21%	-0.21%	-0.22%
Cumulative Difference	-10	-23	-38	-55	-73	-92	-112	-133	-155	-178
Government										
Annual Differences	-24	-53	-76	-98	-118	-137	-154	-169	-183	-195
Percent Difference	-0.03%	-0.06%	-0.08%	-0.11%	-0.13%	-0.14%	-0.16%	-0.18%	-0.19%	-0.20%
Cumulative Difference	-24	-77	-152	-250	-368	-504	-658	-827	-1,010	-1,205

¹ Control forecast found in Appendix A. Note that alternative control forecasts were also considered, however did not significantly impact the estimated economic impacts of increasing business taxes.

Scenario D
Increasing the Effective Corporate Income Tax Rate by 2.025 Percentage Points
Changes in Economic Activity as Compared to Control Forecast¹
(Dollars in Millions, 2002)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Employment										
Annual Differences	-1,351	-1,436	-1,496	-1,534	-1,558	-1,571	-1,575	-1,575	-1,574	-1,573
Percent Difference	-0.17%	-0.18%	-0.18%	-0.19%	-0.19%	-0.19%	-0.18%	-0.18%	-0.18%	-0.18%
Cumulative Difference	-1,351	-2,787	-4,283	-5,817	-7,375	-8,946	-10,521	-12,096	-13,670	-15,243
Household Earnings										
Annual Differences	-\$56.3	-\$55.2	-\$58.6	-\$61.1	-\$62.5	-\$63.0	-\$62.9	-\$62.3	-\$61.7	-\$60.9
Percent Difference	-0.19%	-0.18%	-0.19%	-0.19%	-0.19%	-0.19%	-0.18%	-0.18%	-0.17%	-0.16%
Cumulative Difference	-\$56.3	-\$111.5	-\$170.1	-\$231.3	-\$293.8	-\$356.8	-\$419.6	-\$481.9	-\$543.6	-\$604.5
Gross State Product										
Annual Differences	-\$80.3	-\$93.8	-\$105.2	-\$115.2	-\$124.0	-\$131.7	-\$138.5	-\$144.8	-\$150.8	-\$156.9
Percent Difference	-0.14%	-0.15%	-0.16%	-0.17%	-0.18%	-0.18%	-0.19%	-0.19%	-0.19%	-0.20%
Cumulative Difference	-\$80.3	-\$174.1	-\$279.4	-\$394.6	-\$518.5	-\$650.2	-\$788.7	-\$933.5	-\$1,084.4	-\$1,241.3
Output										
Annual Differences	-\$141.8	-\$164.2	-\$183.4	-\$199.6	-\$213.4	-\$225.4	-\$237.0	-\$247.9	-\$258.2	-\$268.5
Percent Difference	-0.14%	-0.15%	-0.16%	-0.17%	-0.18%	-0.18%	-0.19%	-0.19%	-0.19%	-0.19%
Cumulative Difference	-\$141.8	-\$305.9	-\$489.3	-\$688.9	-\$902.3	-\$1,127.7	-\$1,364.7	-\$1,612.6	-\$1,870.7	-\$2,139.2
Investment										
Annual Differences	-\$179.2	-\$179.5	-\$182.8	-\$184.9	-\$186.0	-\$186.0	-\$183.5	-\$182.9	-\$182.0	-\$181.5
Percent Difference	-1.45%	-1.36%	-1.30%	-1.25%	-1.19%	-1.13%	-1.08%	-1.03%	-0.98%	-0.93%
Cumulative Difference	-\$179.2	-\$358.7	-\$541.5	-\$726.4	-\$912.4	-\$1,098.4	-\$1,281.9	-\$1,464.8	-\$1,646.8	-\$1,828.3
Employment by Sector										
Manufacturing										
Annual Differences	-59	-77	-90	-98	-102	-105	-107	-110	-112	-113
Percent Difference	-0.06%	-0.07%	-0.09%	-0.09%	-0.10%	-0.10%	-0.11%	-0.11%	-0.11%	-0.11%
Cumulative Difference	-59	-136	-225	-323	-425	-530	-638	-748	-860	-973
Mining										
Annual Differences	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
Percent Difference	-0.23%	-0.25%	-0.27%	-0.28%	-0.28%	-0.28%	-0.28%	-0.27%	-0.27%	-0.27%
Cumulative Difference	-2	-3	-5	-7	-8	-10	-12	-13	-15	-17
Construction										
Annual Differences	-357	-339	-323	-306	-289	-273	-256	-240	-225	-213
Percent Difference	-0.71%	-0.68%	-0.65%	-0.62%	-0.59%	-0.55%	-0.52%	-0.49%	-0.47%	-0.44%
Cumulative Difference	-357	-696	-1,019	-1,325	-1,614	-1,886	-2,142	-2,382	-2,608	-2,821
Transportation & Public Utilities										
Annual Differences	-40	-45	-48	-50	-52	-53	-53	-54	-55	-55
Percent Difference	-0.15%	-0.16%	-0.17%	-0.18%	-0.18%	-0.18%	-0.18%	-0.18%	-0.18%	-0.18%
Cumulative Difference	-40	-85	-133	-183	-234	-287	-340	-394	-449	-504
Finance & Insurance & Real Estate										
Annual Differences	-60	-62	-61	-60	-57	-55	-51	-47	-44	-41
Percent Difference	-0.10%	-0.10%	-0.10%	-0.10%	-0.09%	-0.09%	-0.08%	-0.07%	-0.07%	-0.06%
Cumulative Difference	-60	-122	-183	-243	-300	-355	-406	-453	-497	-538
Retail Trade										
Annual Differences	-330	-336	-342	-343	-342	-340	-335	-330	-326	-321
Percent Difference	-0.22%	-0.22%	-0.23%	-0.23%	-0.23%	-0.22%	-0.22%	-0.22%	-0.22%	-0.21%
Cumulative Difference	-330	-666	-1,007	-1,351	-1,693	-2,032	-2,368	-2,698	-3,024	-3,345
Wholesale Trade										
Annual Differences	-72	-77	-81	-83	-84	-84	-82	-82	-81	-80
Percent Difference	-0.21%	-0.22%	-0.24%	-0.24%	-0.25%	-0.25%	-0.25%	-0.24%	-0.24%	-0.24%
Cumulative Difference	-72	-149	-230	-313	-397	-481	-563	-645	-726	-805
Services										
Annual Differences	-394	-431	-459	-481	-500	-517	-529	-539	-550	-560
Percent Difference	-0.15%	-0.15%	-0.16%	-0.16%	-0.16%	-0.17%	-0.17%	-0.17%	-0.17%	-0.17%
Cumulative Difference	-394	-825	-1,283	-1,764	-2,265	-2,781	-3,310	-3,849	-4,399	-4,959
Agriculture & Forest & Fish Services										
Annual Differences	-12	-13	-14	-15	-15	-16	-16	-17	-17	-18
Percent Difference	-0.12%	-0.14%	-0.15%	-0.15%	-0.16%	-0.16%	-0.16%	-0.16%	-0.17%	-0.17%
Cumulative Difference	-12	-25	-39	-54	-69	-85	-101	-118	-135	-154
Government										
Annual Differences	-25	-56	-77	-97	-114	-130	-143	-154	-163	-171
Percent Difference	-0.03%	-0.06%	-0.08%	-0.10%	-0.12%	-0.14%	-0.15%	-0.16%	-0.17%	-0.18%
Cumulative Difference	-25	-81	-158	-255	-370	-499	-642	-796	-959	-1,130

¹ Control forecast found in Appendix A. Note that alternative control forecasts were also considered, however did not significantly impact the estimated economic impacts of increasing business taxes.

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