THE TAX ADEQUACY PROBLEM IN THE NEW ENGLAND STATES: WHAT CAN BE DONE ABOUT IT?

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ABSTRACT

The fiscal crisis of state governments precipitated by the Great Recession and the economic hard times that followed have thrown the inadequacy of state tax revenues into sharp relief. But the tax adequacy problem of state governments both predates the current fiscal crisis and will persist even after the economic trauma induced by the Great Recession has subsided. This paper examines the tax adequacy problem — the failure of the tax base of state governments to generate revenues that keep pace with the growth of their economies — faced by the six New England state governments.

Each of the major state taxes — the personal income tax, the corporate income tax, and the general sales tax — has its drawbacks as a tool for remedying the array of fiscal problems confronting New England state governments. Still we find the personal income tax to be uniquely well suited to address the problems plaguing the financing of state governments: tax adequacy, the regressive character of state taxes, and their current budget gap. In addition, we identify a group of services, consumed disproportionately by upper-income households, that if added to the base of the sales tax, would contribute to resolving the tax adequacy problem of New England state governments. This extension of the tax base would also lessen the regressivity of state tax codes if taxing those services was accompanied by a reduction in the sales tax rate. We also find that with the erosion of its tax base, the corporate income tax in most New England states no longer generates revenues that keep pace with the growth of the economy.

Accordingly, our analysis points to four reforms that would go a long way toward assuring the adequate long term growth of state taxes: First, states need to shift the composition of state taxes toward the one tax that already grows along with the economy over time, the personal income tax. Second, states need to expand the base of the corporate income tax by dismantling the loopholes and credits that have shrunk the base of the tax. Third, states also need to broaden the base of the sales tax by taxing selective services and at same time reducing the sales tax rate. Fourth, to improve the stability of state tax revenues, states need to put in place more expansive rainy day funds that automatically capture the surge in state tax revenue that typically occurs during economic expansions.

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1. INTRODUCTION

For several decades New England state governments have struggled to make do with a tax base that has failed to grow along with their economy. The collapse of state government revenues in the wake of the Great Recession brought considerable attention to the effort of these state governments to balance their budgets while sustaining vital public services. With the onset of the recession in 2008 and the financial crisis that followed, each New England state dramatically cut its budget, and most also enacted some tax increases to generate new revenues. Yet budget shortfalls have continued even as the U.S. economy slowly recovers (Boyd, 2010).

Concerns over the long-term adequacy of state and local government finances will remain long after state governments manage to shake off the lingering effects of the Great Recession. In addition to recession-induced budget shortfalls, states are facing longer-term pressures that threaten to drive large gaps between the revenue that their tax systems generate and the cost of providing public services. The tax base of most major state taxes – the corporate income tax, the general sales and use tax, as well as the taxes on gasoline, tobacco products, and alcohol – grows far more slowly than the economy. The one major tax with a tax base that does keep up with the growth of the economy is the personal income tax.[1]

Beginning in the early 1980s, increases in income tax rates (personal and corporate income taxes) gave way to tax cuts and increases in sales tax rates became less frequent. Tax revenue as a share of personal income first leveled off and then fell during the last decade, unmasking the tax adequacy problem. By 2007, even before the onset of the Great Recession, the tax collections of the New England states were close to $1 billion ($901.8 million, 2.0 percent of total taxes) below where they would have been if tax revenues were the same share of income as they had been during the 1990s.

1 We use the increase in personal income adjusted for capital gains and residence to measure the growth of the economy (see page 6 for further explanation). The phrase "keep up with the growth of the economy" in the paper means keep up with the growth of personal income adjusted for capital gains and residence. Below we explain in detail how we have adjusted personal income to account for capital gains and residence.

For tax revenues to be adequate over the long term without resorting to increases in tax rates, the state tax base must expand at least as quickly as the economy. Meeting that requirement is a conservative estimate of what is necessary for an adequate tax system that could still fall short of providing the revenues necessary to pay for the growing need for public services. Reliance on public services and the cost of providing them, especially the cost of healthcare services, have increased along with, and in some cases faster than, the economy (see Appendix A, "The Rising Rate of Use and the Rising Cost of Public Sector Services").

Tax reform could improve the long-term adequacy of state tax revenues. Shifting the overall tax system toward the personal income tax would substantially improve the long-term adequacy of state tax revenues. The personal income tax is uniquely well suited to address the problems plaguing the financing of state government: tax adequacy, the regressive character of state taxes, and their current budget gap. The personal income tax is the one tax that generates revenues that keep pace with the growth of the economy over the long term. Also the burden of the personal income tax falls more heavily on high-income households than low-income households. Finally, because it is the largest state tax, increases in the personal income tax could remedy the current shortfall in state revenues. Increased reliance on the personal income tax, however, would add to the volatility of state tax revenues, especially during recessions. Enlarging state rainy day funds could counteract the revenue shortfalls brought about by the decline in the state tax revenues in economic downturns even with a greater reliance on the personal income tax. But state reserve funds would need to be larger than they have generally been. Also, elected officials would need to be willing to tap into those reserves to avoid budget cuts during economic downturns.

Extending the sales tax to selective services could also improve the adequacy of state taxes. But expanding the sales tax cannot both improve the fairness of state taxes and contribute to closing the current revenue gap in state budgets. Taxing selective services, carefully excluding essential services such as health care and educational services, would push sales tax revenues closer to keeping up with income growth over time and add much needed revenues to state budgets. But even this selective broadening of the sales tax would increase the share of state taxes collected by the sales tax, which would make an already regressive state tax code yet more regressive. If taxing these services were accompanied by a cut in the sales tax rate, total collections from the sales tax would not increase, and by extension, the share of all tax collections contributed by the inherently regressive sales tax would not rise. Thus, extending the sales tax to these selective services and at the same time lowering the sales tax rate would make state taxes less regressive. But that revenue neutral change in the sales tax would not generate revenues needed to correct the current shortfall in state revenues.

Broadening the base of the corporate income tax could also improve the long-run adequacy of state taxes without disproportionately raising taxes on low-income households.

Broadening the base of the corporate income tax could also improve the long-run adequacy of state taxes without disproportionately raising taxes on low-income households. Eliminating some of the exemptions and deductions that have been adopted by legislatures and changing other rules of the corporate income tax are good targets for reform. That would also help to restore the tax base of the corporate income tax to what it was in an earlier period, when the tax generated revenues that expanded as quickly as the economy. This base broadening, however, would likely have a limited effect because corporate income taxes are only the smallest of the three major state taxes, and would do little to undo the current revenue shortfall in state budgets. Also increasing the corporate income tax, the most volatile of the major state taxes, would add to the cyclical swings in state tax revenues.

Below we survey the dimensions of the tax adequacy problem of New England states and assess different approaches to remedying it. The first section of the paper presents our analysis of the tax adequacy problem of those six states. We begin by describing the growth of tax collections for major state taxes in New England from 1959 to 2010. Next we consider the changes in tax rates and their effect on tax collections of New England state governments over that period. In addition, we explore the cyclical volatility of state tax revenues in the region and especially the likely shortfall in tax revenues in economic downturns. We then develop a statistical analysis that measures the growth of the underlying tax bases of state taxes by controlling for changes in tax rates. In this way we are able to separate the effect of income increases on tax revenue from the effect of changes in tax rates on tax revenue. More specifically, we assess the income elasticity of each of the major state taxes – the personal income tax, the corporate income tax, the general sales tax, and selective sales taxes – for the New England states. In other words, we predict how total tax collections for each of the major taxes would respond to an increase of personal income assuming its tax rate remains unchanged. We conduct a similar exercise to assess the volatility of the tax base of the New England states and its major taxes.

The second half of the paper discusses a variety of tax reforms that could improve the long-term growth of revenue through the region's tax systems. We begin with a discussion of increasing the reliance of New England state governments on the personal income tax and promoting their use of larger rainy day funds to deal with cyclical volatility of state tax revenues. Next we consider extending the sales tax to selective services along with a revenue neutral reduction in sales tax rates and its likely impact in the New England states. We then turn to the corporate income tax and measures that would reverse its steadily declining tax base. The last section of the paper explores strategies for combining the various tax reform options, such as increasing the income tax, along with increasing the base and cutting the rates of the sales tax to improve the adequacy of the state tax code without adding to its regressiveness. Because New England state governments, with the exception of Vermont, are required to balance their (operating) budgets, the impact of tax

adequacy reforms on state spending, especially spending on services for low-income families, also needs to be considered.

2. THE TAX ADEQUACY PROBLEM

A truly adequate tax system must generate revenues that grow apace with the economy, for as the economy grows, so does the need for public services. An adequate tax system must also generate enough revenues, including tax revenues and reserve funds, to maintain public services during economic downturns, for the need for public services persists unabated even as the economy loses output during a recession.

To assess the adequacy of the tax systems of New England state governments, we compare the growth of their tax revenues to that of the economy over the last five decades and gauge how well those tax revenues have held up in economic downturns. We do that in two steps. In section 2A we look at these tax revenue trends without taking into account changes in tax policy and tax rates. In section 2B we examine the same trends controlling for changes in tax rates to isolate the tax adequacy question: does the tax base of the economy expand as quickly as the economy? In both sections we look at the tax revenue trends for the New England region as whole, for individual states, for different taxes, and in the context of whether tax revenues hold up in an economic downturn.

A. TAX REVENUE GROWTH WITH CHANGES IN TAX RATES

Our analysis of the tax adequacy problem focuses on the ratio of tax revenues to personal income adjusted for capital gains and residence (as explained just below) for the six New England states from 1959 to 2010. Personal income reflects changes in the economy as well as changes in population. Still, personal income as measured by the Bureau of Labor Statistics has its shortcomings as a measure of the economic activity and the potential tax base of a state. For instance, personal income excludes income from (realized) capital gains, an important source of income often taxed by states. In addition, personal income reports the income of the residents of a state (even when they work out-of-state) rather than income earned in state (by residents and nonresidents). The latter (income earned in the state) is a better measure of a state's capacity to raise revenue through taxes, and state governments typically tax income earned within their own borders.[2]

2 To correct personal income for the exclusion of (realized) capital gains and the failure to capture the income generated in-state (regardless if residents or non-residents earn it) we follow the method outlined by Igor Popov and Jennifer Weiner of the Federal Reserve Bank of Boston in "Assessing Alternative Measures of State Income: Memorandum to Dr. Anya Rader Wallack, Executive Director, Massachusetts Medicaid Policy Institute, and Noah Berger, Executive Director, Massachusetts Budget and Policy Center, July 30, 2008. Data for capital gains by state can be found in Historic Table 2: Individual Income and Tax Data by State and Size of Adjusted Gross Income from *The Statistics of Income* published by the Internal Revenue Service. The

A tax adequacy problem is not immediately evident in the ratio of tax revenues to adjusted personal income over time. For most of the last five decades tax collections of the six New England states as a group increased roughly along with the economy. From 1970 to 2010, state tax revenues averaged a rather steady 6.1 percent share of adjusted personal income (and state and local tax revenues were a similarly stable 10.3 percent of adjusted personal income from 1980 to 2010). (See Figure 1, page 7, which reports on New England state government revenues as a share of adjusted personal income from 1959 to 2010, and the sum of New England state and local government revenues as a share of adjusted personal income from 1976 to 2010, represented by the dotted line in the figure.)

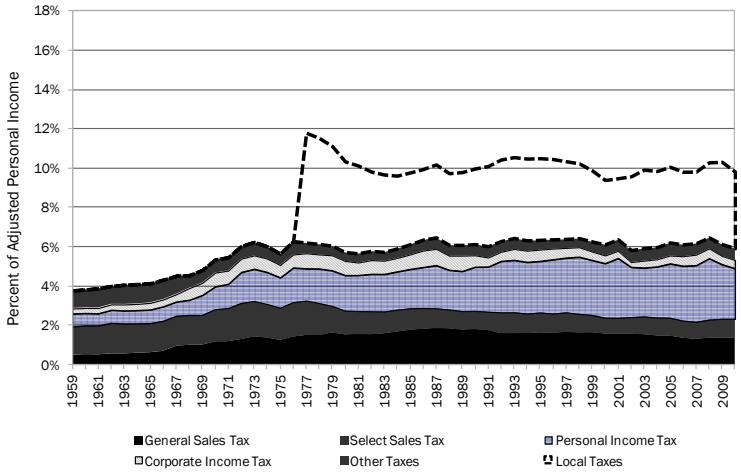
The pattern of regional tax revenues, however, is not as stable as it appears (even without taking into account changes in tax policy). The share of tax revenues does vary by decade, if not dramatically. The tax share of adjusted personal income for the entire six-state New England region crept upward from 5.9 percent of adjusted personal income during the 1970s, to 6.0 percent during the 1980s, to 6.3 percent in the 1990s, before falling back to 6.1 percent during the 2000 to 2009 decade.

In [2007] tax collections of the New England states were close to $1 billion — $901.8 million, or 2.0 percent, less than they would have been if tax revenues were the same share of income as they were during the 1990s.

By 2007, before the onset of the Great Recession, the tax adequacy problem of the region had emerged. In that year tax collections of the New England states were close to $1 billion — $901.8 million, or 2.0 percent, less than they would have been if tax revenues were the same share of income as they were during the 1990s. That drop off in revenues compared to the 1990s prior to the onset of the Great Recession was confined to Massachusetts and Connecticut, the two largest economies in New England. For instance, the shortfall for the region is twice as large when Vermont's tax revenues are excluded from the data. In 1997 Vermont replaced the local school property taxes with a state property tax that pushed Vermont's state tax share up to an average of 9.3 percent of adjusted personal income. Without Vermont revenues, the tax revenues of the remainder of the New England states in 2007 would have been $1.8 billion — $1,819 million, or 4.3 percent, lower than they would have been if tax revenues had been the same share of income as they were during the 1990s.

table contains data on net capital gains, a subcategory of adjusted gross income. Net capital gains data by state are available online going back to 1978 at http://www.irs.gov/uac/SOI-Tax-Stats---Historic-Table-2. We collected the older data, back to 1959, from scans of paper documents. Personal income can be adjusted to capture income generated in-state by subtracting the residence adjustment used to calculate personal income. That residence adjustment can be found in the Bureau of Economic Analysis, Regional Economic Accounts, available for downloading in the large personal income zip folder at Regional Economic Accounts: Download CSV (State Personal Income Accounts, Annual data) url: http://www.bea.gov/regional/downloadzip.cfm.

FIGURE 1: NEW ENGLAND STATE AND LOCAL TAXES AS A SHARE OF ADJUSTED PERSONAL INCOME



Sources: State tax data are from Bureau of The Census, State Government Tax Collections, Historical Dataset available at http://www.census.gov/govs/statetax/historical_data.html. State Personal Income data are from the Bureau of Economic Analysis, Regional Accounts, State Personal Income accounts, available as zip file at http://www.bea.gov/regional/downloadzip.cfm. The steps we followed and the sources we used to adjust personal income for capital gains and for income generated within a state are described in detail in footnote 2.

CHANGES IN TAX POLICY

Much of the apparent stability of the state tax share is the product of changes in tax policies. State tax revenue kept up with economic growth because increases in the rates of most major taxes added to the revenues they collected and because new taxes introduced new sources of revenues to the tax base. Starting in the 1980s the tax revenue share leveled off, as increases in sales tax rates became less frequent and cuts to personal and corporate income tax rates were more frequent. (See Figure 2, page 8. The figure depicts how many of the six New England states changed tax rates in a given year for the four major state taxes: the general sales tax, the corporate income tax, the personal income tax, and selective sales taxes.)

For a long period those changes in tax policy and tax rates obscured the tax adequacy problem of the region — the inability to keep tax revenues growing with the economy without repeatedly raising tax rates. The tax revenue share remained stable for most of three decades until it began to decline during the first decade of this century, exposing the underlying tax adequacy problem plaguing the state governments of the region.

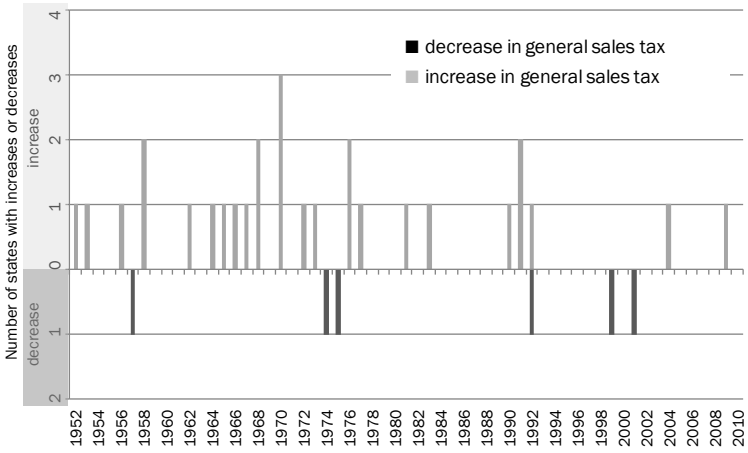
VARIATIONS AMONG THE SIX NEW ENGLAND STATES

The level and composition of state taxes varies substantially among the New England states. The New England states, with one exception, New Hampshire, collect

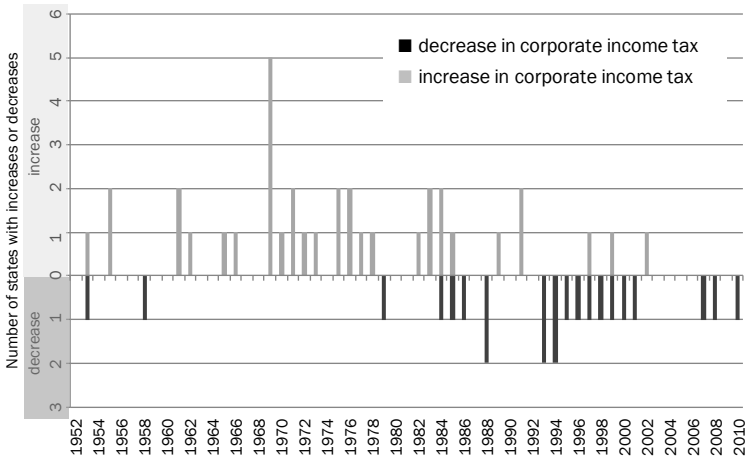
the great bulk of their tax revenues from the four taxes in Figure 2, page 8: the general sales tax, corporate income tax, the personal income tax, and selective sales taxes. Connecticut, Maine, Massachusetts and Rhode Island each collected about 6 percent to 7 percent of adjusted personal income in state taxes from the early 1970s to 2007. Maine's tax revenues were somewhat greater relative to adjusted personal income than tax revenues in the three other states, at times approaching 8 percent.

FIGURE 2: NEW ENGLAND STATES WITH TAX RATE INCREASES OR DECREASES

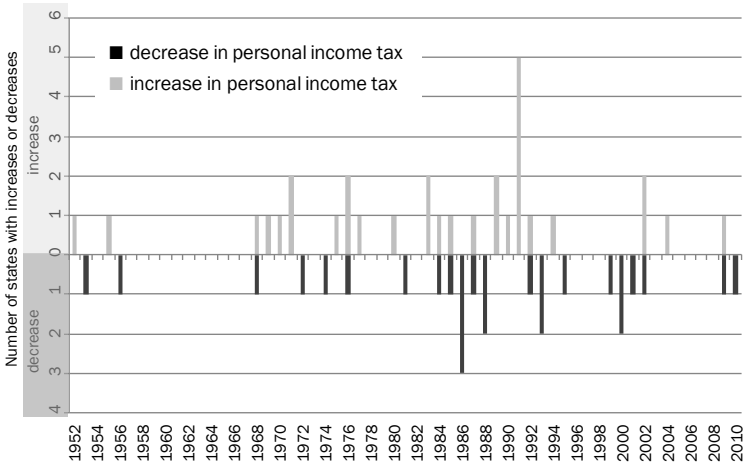
A. GENERAL SALES TAX



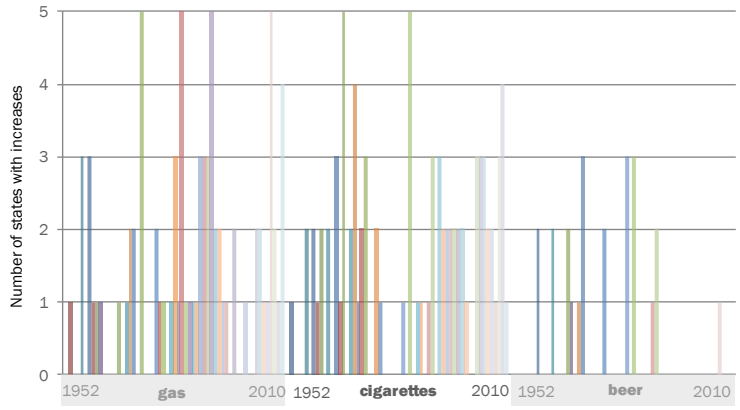
B. CORPORATE INCOME TAX (TOP RATE)



C. PERSONAL INCOME TAX (TOP RATE)



D. SELECTIVE SALES TAX INCREASES



Source: Federation of Tax Administrators

In each of these states the personal income tax contributed about half of tax revenues, while the general sales tax contributed the bulk of the other half of tax revenues. All these states increased their reliance on personal income taxes during the decades from 1970 to 2000, particularly Connecticut, which introduced a broad-based personal income tax for the first time in 1991. While Connecticut's reliance on the income tax continued to increase, the other three states cut their top income tax rate, reducing reliance on the personal income tax after 2000, a trend that began earlier in Massachusetts. Also all of these states, save Rhode Island, cut

corporate income tax rates in the last decade. (See Figure 3, page 11, which reports on the tax revenues of each state as a share adjusted personal income.)[3]

New Hampshire is alone among the New England states in not having a general sales tax or a broad-based income tax. Instead New Hampshire collects most of its revenues from its business profits tax, a statewide property tax, selective sales taxes, and a tax on dividend and interest income. In addition, New Hampshire's total tax collections are substantially lower than New England states' relative to adjusted personal income. The New Hampshire tax revenue share was 3.2 percent of adjusted personal income on average from 1959 to 2010, well below the 5.7 percent average of New England states for that time period. Vermont, on the other hand, collected tax revenues that are a substantially larger share of adjusted personal income (7.2 percent) than other New England states for that time period. That is in large part because Vermont levies a statewide property tax to fund public schools.

Of the six states, Massachusetts suffered the first and most steady decline in its tax revenue share.

The six states vary as well in the degree to which they have cut tax rates, when they began cutting tax rates, and the extent that those tax cuts have unearthed an underlying tax adequacy problem. Of the six states, Massachusetts suffered the first and most steady decline in its tax revenue share. Massachusetts state revenues reached 7.0 percent of its adjusted personal income in the mid-1980s. The tax revenue share then declined with each decade from the 1980s to 1990s to 2000s. The tax share of the corporate and personal income taxes fell off sharply, especially after 2000 when the corporate income tax and personal income tax rates were cut. By 2007, again before the onset of the Great Recession, tax revenues for Massachusetts were $20.7 billion — $2 billion ($2,019 million or 9.8 percent of state taxes) less than they would have been if the state's tax revenues had been the same share of income as they were during the 1990s.

In New Hampshire and Vermont tax revenue shares saw sizeable increases from the 1990s to the last decade. New Hampshire tax revenues averaged 4.0 percent of adjusted personal income from 2000 to 2010, a higher share than in any decade since 1959, although still just two-thirds of the average of New England states during that time period. During that decade, New Hampshire boosted corporate income tax rates, and in 1999 imposed a statewide property tax for the purpose of supporting local education. In 2009 that tax raised $363 million. But while the revenues from this state-wide property tax appear on the books of the state and appear in our calculations in the category other taxes, they are retained by each city and town and have not added to the budget of the New Hampshire state government.[4]

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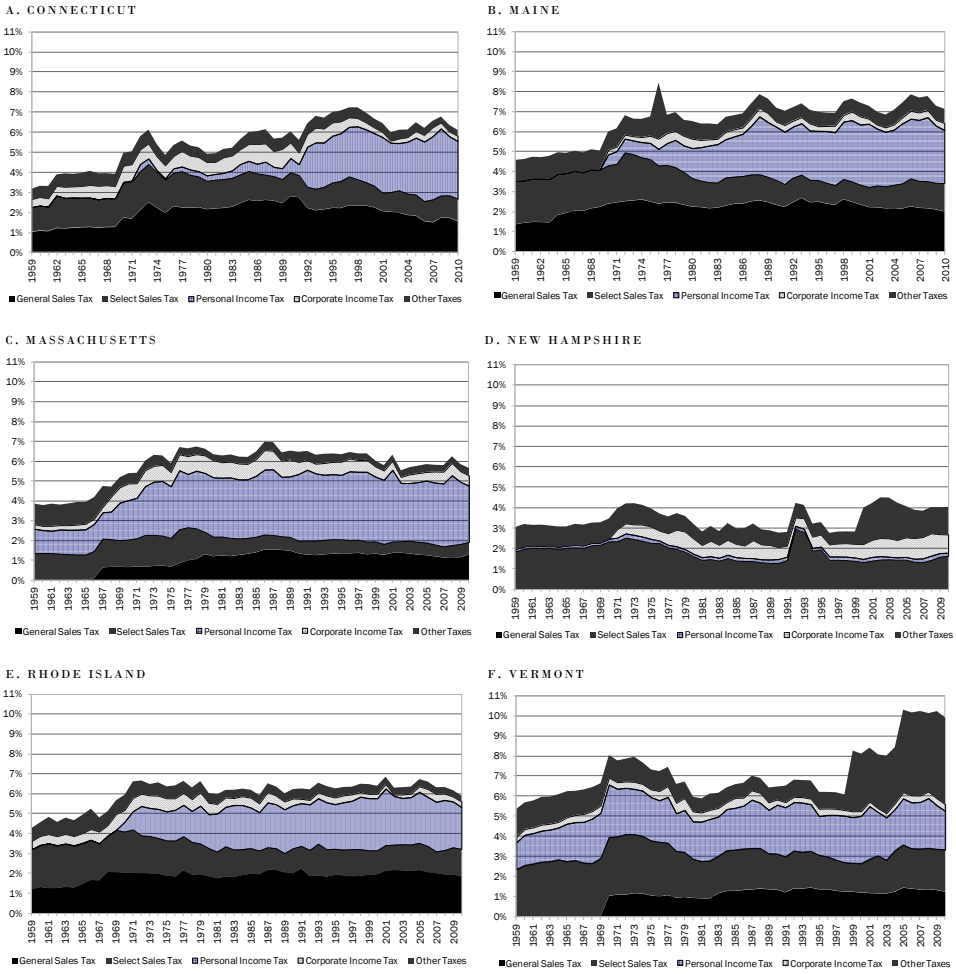
3 The years shown in the figures are fiscal years, which run through June 30 in all six states. So 2008 on the figures, for example, represents the second half of calendar year 2007 and the first half of calendar year 2008.

4 For a fuller discussion of the New Hampshire state property tax see, "An Overview of New Hampshire's Tax System," New Hampshire Fiscal Policy Institute, December 2010, available at: http://www.nhfpi.org/research/state-tax/an-overview-of-new-hampshires-tax-system.html.

FIGURE 3: TAX REVENUES AS A SHARE OF ADJUSTED PERSONAL INCOME



Sources: Same sources as for Figure 1. PERI analysis.

The Vermont case is quite similar. In Vermont, the state tax share averaged 6.7 percent of adjusted personal income during the 1990s, but 9.3 percent of adjusted personal income in the next decade. By 2010 the total of Vermont state and local tax revenues had reached 11.6 percent of adjusted personal income, considerably above the New England average for that year of 9.8 percent. The rise in the tax revenue share was due almost entirely to Vermont's Equal Educational Opportunity Act of 1997. That act transferred primary responsibility for funding education to the state and replaced the local school property taxes with a state property tax in

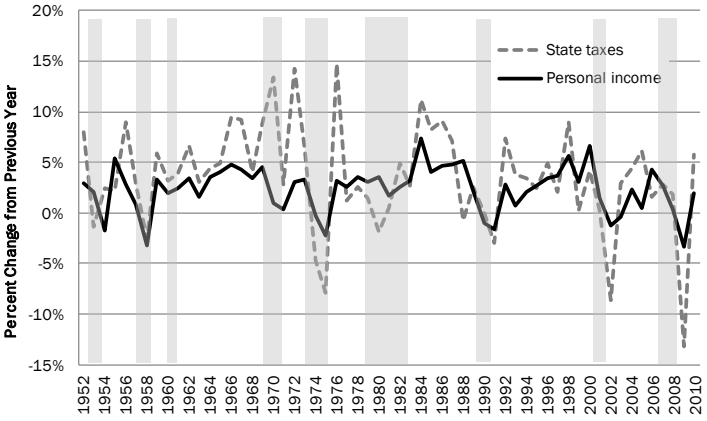
an effort to equalize per pupil funding across the state. Without the state property tax Vermont's tax share would have been no higher after 2000 than it had been during the 1990s. (A hike of the state sales tax in 2003 arrested the relative decline of its tax share, but lower personal and corporate income tax rates cut into the state's tax revenue share.)

THE VOLATILITY OF TAX REVENUES WITH CHANGES IN TAX RATES

State tax revenues have fluctuated more widely than per capita income from year to year since the 1950s. The pattern of these year-to-year changes, however, is noticeably different today and presents more of a problem for tax adequacy than it has in the past. Prior to 1973, state tax revenue consistently grew faster than income, rising faster during economic expansions and falling less during recessions. Between 1951 and 1973 tax collections rose as quickly as income in all but one year. That pattern fueled the steady expansion of the state tax share during that period (see Figure 4).

Starting in the 1970s, when the period of expanding state and local government was coming to an end, the relationship of year-to-year changes in state tax revenues and per capita income took on a different pattern. Since the 1970s state tax revenues have become decidedly more sensitive to the swings of the business cycle. In the 1970s and 1980s state tax revenues fell more than income during recessions but rose farther than income during periods of economic growth. Since the mid-1990s, state government tax revenues have grown more or less in-line with income during economic expansions, but have dropped off far more sharply than income during recessions. State sales tax revenues, personal income tax revenues, and

FIGURE 4: FLUCTUATION IN NEW ENGLAND REAL, PER-CAPITA INCOME AND STATE TAX REVENUE



Sources: State tax data are from Bureau of the Census, State Government Tax Collections, Historical Dataset available at http://www.census.gov/govs/statetax/historical_data.html.
State Personal Income data are from the Bureau of Economic Analysis, Regional Accounts, State Personal Income accounts, available as zip file at, http://www.bea.gov/regional/downloadzip.cfm.

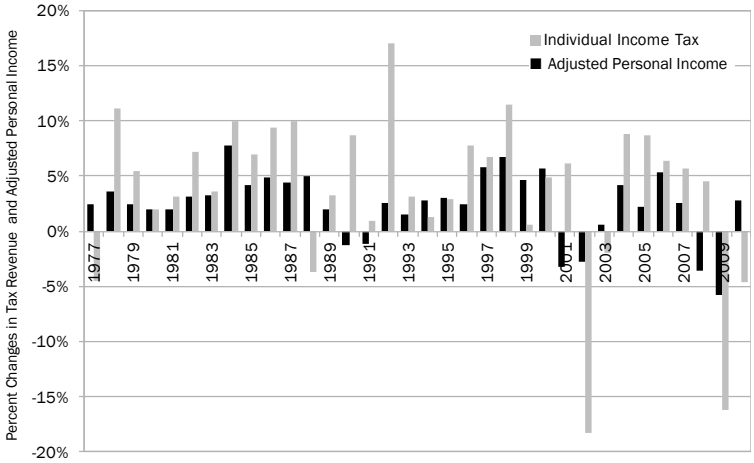
corporate income tax revenues all declined by more than income during the mild recession of 2001. During the Great Recession of 2008, personal income and corporate income tax revenues both fell by more than adjusted personal income.

Cyclical fluctuations in tax collections are evident in personal income tax, general sales tax, and corporate income tax collections in New England. Figure 5 (page 13) depicts the annual fluctuations in the revenues raised by those taxes alongside the annual change in adjusted personal income from 1977 to 2010. The recessions and economic expansions of the business cycle pushed up or drew down the revenues of each tax. The cyclical fluctuations of the corporate income tax are the most pronounced of the three taxes and are far greater than the cyclical swings in adjusted personal income. Revenues from the corporate income tax dropped by 20 percent or more during each of the last three recessions — the recessions of the early 1990s and early 2000s and the Great Recession that began in 2008. Its revenue swings were similarly violent during economic expansions, shooting up by nearly 20 percent in the economic growth periods of the 1980s and 1990s, and by far more than that during the economic expansion of the last decade (see Figure 5, Panel C, page 14).

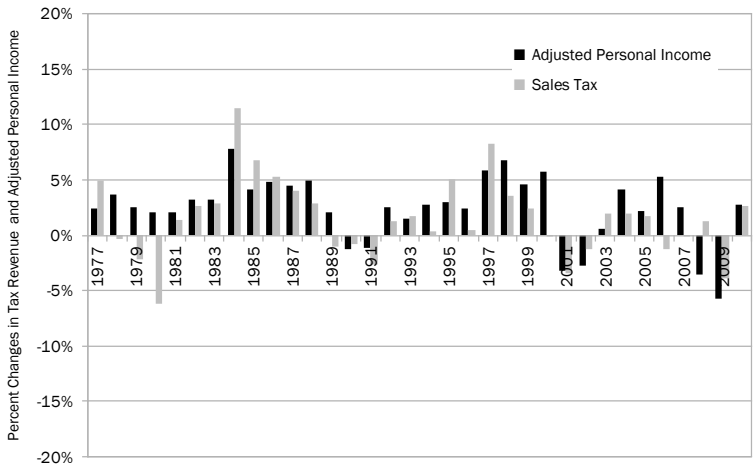
Cyclical variations in the revenues of other state taxes, while less dramatic, are still striking. Of the two largest state government taxes, the cyclical fluctuations in the revenues of the personal income tax are more pronounced than those of the general sales tax. Personal income tax collections fell more dramatically than sales tax collections during the two recessions of the last decade and by considerably more than adjusted personal income. But in both downturns, personal income tax revenues

FIGURE 5: TAX VOLATILITY IN NEW ENGLAND BY TAX TYPE, 1977-2009: CHANGES IN TAX REVENUE AND ADJUSTED PERSONAL INCOME
(YEAR OVER YEAR PERCENTAGE CHANGE IN INFLATION-ADJUSTED, PER-CAPITA FIGURES)

A. PERSONAL INCOME TAX

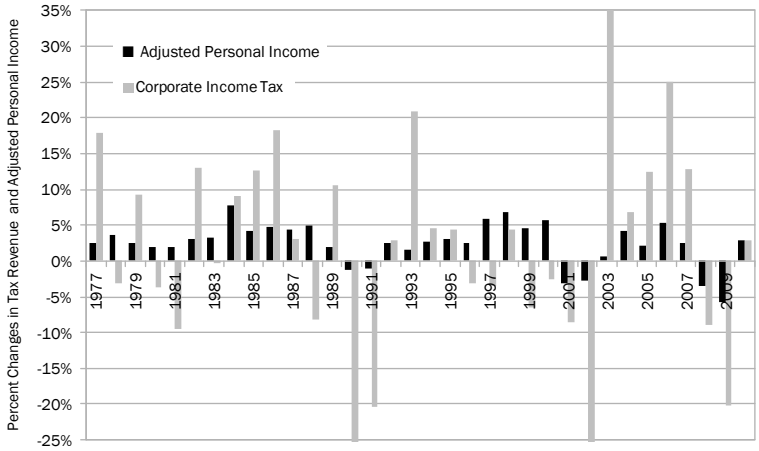


B. SALES TAX



C. CORPORATE INCOME TAX

Comment [MSOffice1]: I need to see real thing, not just place holder



Sources: Same sources as for Figure 1. PERI analysis.

did continue to rise after the onset of the recession. During economic expansions, personal income tax collections rose by more than adjusted personal income. When the economy expanded during the last decade, sales tax revenues rose far more slowly than adjusted personal income (see Figure 5, Panels A and B, page 13-14).[5]

5 The volatility of the tax base of the major state taxes is assessed precisely below using econometric techniques to compensate for changes in tax rates.

Our first look at the relationship between tax revenues and income in New England states yields valuable insights into their tax adequacy problem – the failure of taxes to grow with the economy without boosting tax rates. But to properly assess the adequacy of the tax system of these states requires looking closely at the relationship between state tax revenues and income after controlling for changes in tax policy. That's the topic of the next section.

B. A SECOND LOOK AT THE TAX ADEQUACY PROBLEM

GROWTH AND VOLATILITY ESTIMATES: CONTROLLING FOR RATE CHANGES

In this section we take a closer look at the tax adequacy problem controlling for changes in tax rates. We begin by estimating the long-term relationship between economic growth and state tax revenues accounting for changes in tax rates. Those long-term estimates tell us how well the tax base of a particular tax will generate tax revenues that keep pace with increases in personal income. We then estimate the short-term relationship between revenues generated by state taxes and economic fluctuations. The short-term estimates tell us how volatile a particular tax is relative to business cycle fluctuations in the economy. We refer to the long-term relationship as the "growth" measure and to the short-term relationship as the "volatility" measure.

To evaluate the capacity of the state tax systems in the New England region to generate revenues that grow along with the economy, and the volatility of the tax system, we use regression analysis to control for the influence of changes in tax rates on the level of collections. This method allows us to estimate the responsiveness of the state's tax base to changes in personal income. We calculate these growth measures for the tax base of each major state tax for each of the New England states as well as for the overall region.

This section presents three sets of figures to illustrate the implications of our findings for the tax adequacy problem and the volatility of state tax revenues. The first two sets of figures, the tax adequacy figures, illustrate the increase in the revenues generated by the tax base of each major state tax compared to the average growth rate of personal income over time. The third set of figures, the volatility figures, compares the changes in tax revenues of the four major state taxes in economic expansions and economic contractions with the rate of change of personal income over the business cycle. The Technical Appendix at the end of the paper reports the formal results of our regression analysis and describes in the detail the sources of our data and the method we used to calculate the growth measures and the volatility measure.

Our analysis of the four major state taxes accounts for approximately 90 percent of all taxes levied by states in New England, and approximately 60 percent of their "own-source" revenues (revenues raised directly by states, including state taxes and

fees but not funds received from the federal government). To control for changes in tax rates we used the top marginal income tax rate, the general sales tax rate, the top marginal corporate income tax rate, and the tax rates on beer, cigarettes, and gasoline in our statistical analysis.[6]

GROWTH ESTIMATES CONTROLLING FOR CHANGES IN TAX RATES: NEW ENGLAND REGION

We find that the tax base of the personal income tax in the New England states tends to grow faster than personal income over time, or is income elastic – i.e., has income elasticity greater than one.[7] In other words, personal income tax revenues increased by $1.40 for each $1.00 increase in personal income during the 1981 to 2010 period. Our findings are consistent with research examining the income elasticity of the income tax in other states and regions (Felix, 2008, Bruce et al., 2006). That relationship is clearly illustrated in Figure 6 (page 17), where the personal income tax bar is the only one higher than the line indicating the average growth of personal income over the period.

The tax base of the general sales, corporate income, and selective sales taxes all increased more slowly than personal income from 1981 to 2010.

No other state tax is income elastic. That is, the tax base of the general sales, corporate income, and selective sales taxes all increased more slowly than personal income from 1981 to 2010, or were income or growth inelastic. The tax base of the general sales tax, however, was less inelastic than that of either the corporate income tax or that of selective sale taxes. (In Figure 6, page 17, the bar for each tax does not reach the blue line indicating the average growth of personal income in the period.) But the income elasticity of the general sales tax was on the decline. In the earlier period from 1951 to 1980 the general sales tax in the New England States had generated $0.93 in revenues for a $1.00 increase in personal income as opposed to just $0.91 in the 1981 to 2010 (see Technical Appendix C, page 50). In addition, as untaxed services have grown as a proportion of consumption over the last two decades, the income elasticity of the general sales tax going forward is likely to be lower than during the 1951 to 2010 period.

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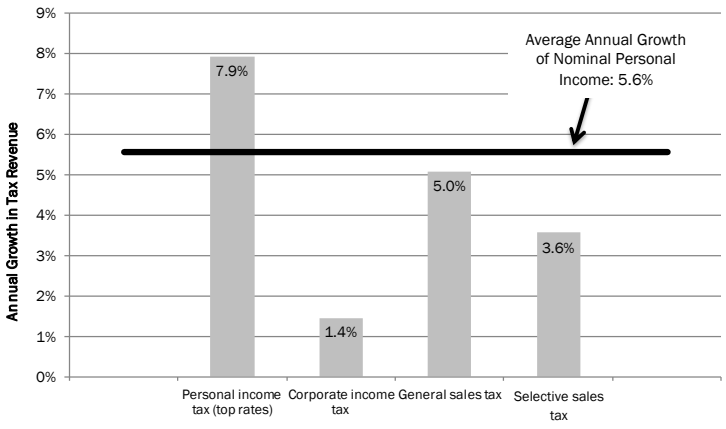
6 For New Hampshire, revenues from the "business enterprise tax" are included along with revenues from the state's version of the standard corporate income tax, called the "business profits tax." Because the business enterprise tax is a value-added tax with a broader base than corporate profits, our measure overstates how much the New Hampshire corporate income tax proper generates revenues that keep up with the growth its economy. In fiscal year 2011, 41.5 percent of total corporate income taxes in New Hampshire came from the business enterprise tax. Including the revenues from the business enterprise tax with corporate income tax revenues also dampens our estimate of the volatility of corporate income tax revenues in New England. But this is probably a rather small effect since even with revenues from the business enterprise tax included, New Hampshire corporate income tax revenues made up just over one-eighth (13.4 percent) of New England corporate income tax revenues in 2010.

7 An elasticity of exactly one is considered "unit elastic," and percent changes in the independent variable are matched precisely by changes in the dependent variable. All values below one (in absolute value) are considered "inelastic" and all values above one (in absolute value) are considered "elastic."

The corporate income tax results are quite surprising. In the decades from 1951 to 1980, the base of corporate income taxes was decidedly income elastic, generating $1.68 in revenues for each additional $1.00 of personal income. (See Appendix B, page 45 for more on this point.) The tax base of the corporate income tax is now quite income inelastic for the region, generating just $0.22 for every $1.00 increase in personal income, even though the base for the corporate income tax, corporate profits, has climbed from 9 percent relative to personal income in 1981 to 13 percent in 2010. The income inelasticity of the corporate income tax suggests that its shrinking tax base substantially reduced corporate income tax collections. Our finding is consistent with the well-documented steady erosion of the corporate income tax through increased corporate tax avoidance and adoption of corporate tax credits and other tax policy changes (MassBudget, 2003, Cornia et al., 2005).

FIGURE 6: HOW MUCH DOES TAX REVENUE GROW AS INCOME GROWS?
NEW ENGLAND 1981 – 2010



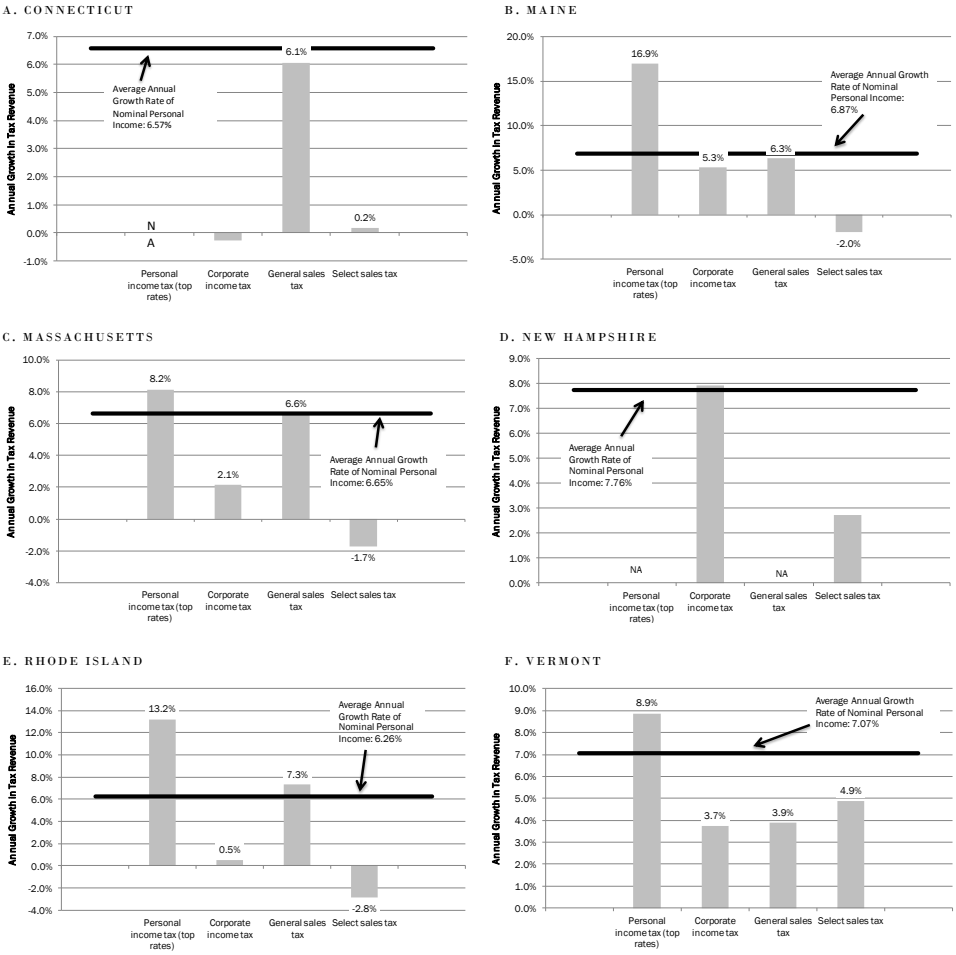
Sources: The figure is derived from the regression results presented in A2: Growth Tax Elasticities for New England by Tax Type in Appendix B: Technical Notes (page 48).

Comment [MSOffice2]: Need to fix this table----get rid of these long numbers after decimal points.----NEW COMMENT: Make the number in the figure 5.6%----no need to go beyond one decimal point.

GROWTH RESULTS BY STATE

State-specific results for each of the major taxes generally reinforce our findings for these taxes for the region as a whole. The growth measures show that the tax base of the personal income tax revenue grew faster than personal income in the period from 1971 to 2010 in each of the four New England states that have had a long standing personal income tax. In the panels for Maine, Massachusetts, Rhode Island, and Vermont in Figure 7 (page 18), the bar for the personal income tax rises above the blue line indicating the growth of personal income for that period in each state. (There are no results for Connecticut, which only adopted its personal income tax in 1991, or New Hampshire, which does not have a broad-based personal income tax.)

FIGURE 7: HOW MUCH DOES TAX REVENUE GROW AS INCOME GROWS? BY STATE 1981 – 2010



Sources: The figure is derived from the regression results presented in Table A3: Growth Tax Elasticities for New England by Tax Type and State in Appendix B: Technical Notes (page 48).

In several states selective sales taxes – once we control for the frequent increases in tax rates–appeared to decline as personal income grew. These estimates, however, were not statistically significant and therefore not reliable. The income or growth elasticity of the general sales tax varies widely across New England states, ranging from a low of a $0.55 increase in general sales tax revenues for every $1.00 increase in personal income in Vermont to a high of a $1.20 increase with every additional dollar of personal income in Rhode Island. Rhode Island is the only state where the general sales tax bar exceeds the personal income line. But these figures are for the

forty year period from 1971 to 2010, and just like for the New England wide results, the current income elasticity of the general sales tax going forward in these states is likely lower than what is depicted in the figure (see Figure 8, page 20).

The base of the corporate income tax failed to grow at the same pace as personal income in five of the six New England states during the 1971 to 2010 period. In each state the base of the corporate income tax was income inelastic, and the corporate income tax bars in Figure 7 (page 18) did not reach the growth rate of personal income. Only in New Hampshire did the growth rate of corporate income tax revenues match that of personal income. But that result is due in large part to including revenues from New Hampshire's business enterprise tax, a tax levied against the value added by corporations in forms such as wages and salaries, with the revenues from its more traditional corporate income tax, the business profits tax.

VOLATILITY RESULTS

Even after adjusting for changes in tax *rates*, the major state taxes, with the exception of selected sales taxes on items such as gas, cigarettes, and beer, appear to be more volatile than personal income.

Even after adjusting for changes in tax *rates*, the major state taxes, with the exception of selective sales taxes on items such as gas, cigarettes, and beer, appear to be more volatile than personal income. The volatility measures in this section are consistent with the analysis of volatility of the four major state taxes without correcting for tax changes in previous section (depicted in Figure 5, pages 13-14).

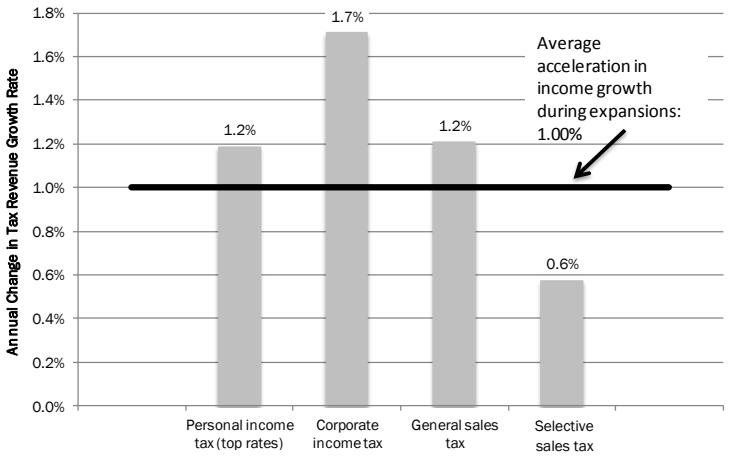
In this section we illustrate the findings of our statistical analysis of the volatility of the revenues of the tax base of each of the four major state taxes in New England during economic expansions and economic contractions (or recessions) from 1971 to 2010. Our measure of volatility is the rate at which revenue *growth* for a tax changes during a business cycle. For each state tax, the question is: Does the growth rate in revenue collected from the tax vary more or less dramatically than the growth rate of personal income varies over the business cycle? We find that the volatility of state tax revenues in the economic *expansions* of a business cycle differs from its volatility in the *recessions* of a business cycle. The growth rates of state tax revenues appear to decline more during recessions than they rise during expansions, even after controlling for changes in tax rates.

Panels A and B of Figure 8 (page 20) present the rate of change in revenues growth for each of the major state taxes during the business cycles in the time period of 1971 – 2010, in comparison to the rate of change in average income growth in New England during those business cycles. Panel A illustrates the average *increase* in the growth rate of each tax compared to the average *increase* in the growth rate of personal income during economic expansions. Panel B illustrates the *decline* in the growth rate of each tax compared to the *decline* in the growth rate of personal

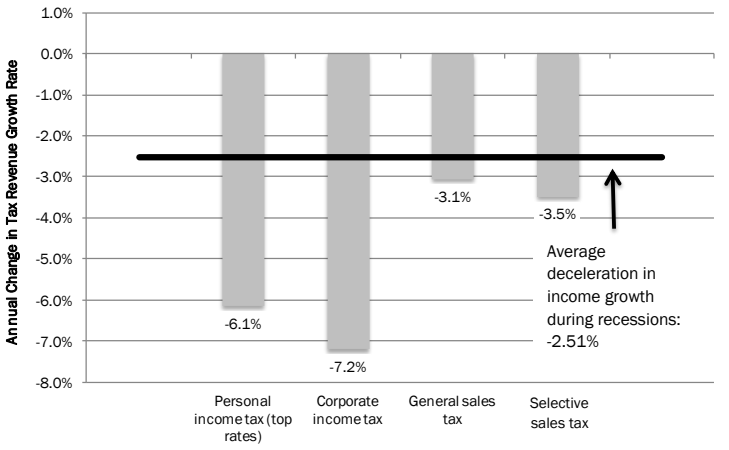
income during an economic contractions or recessions.[8]) The corporate income tax was the most volatile of the major state taxes during the 1971 to 2010 period. In economic expansions, the increase in the growth rate of revenues generated by the corporate income tax far outpaces the average increase in the growth rates of

FIGURE 8: VOLATILITY IN TAX REVENUE DURING ECONOMIC ACCELERATION AND DECELERATION

A. MEASURING VOLATILITY ACROSS NEW ENGLAND: EXPANSIONS, 1971 – 2010

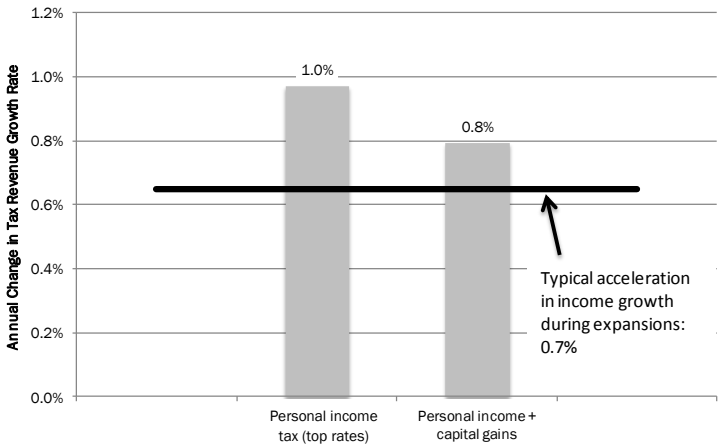


B. MEASURING VOLATILITY ACROSS NEW ENGLAND: RECESSIONS, 1971-2010

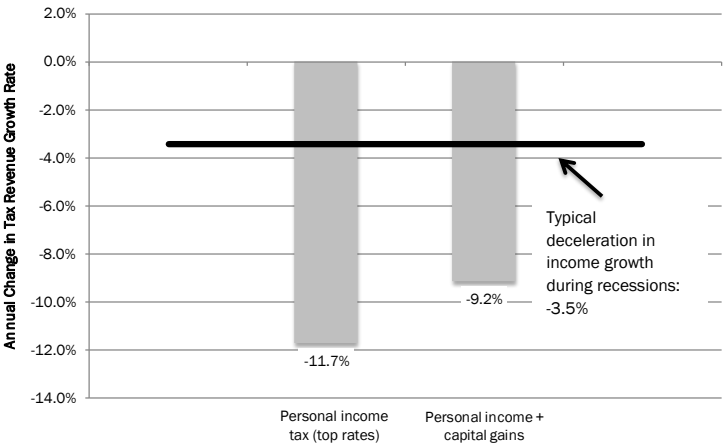


8 Figure 9 uses the National Bureau of Economic Research dates for the expansions and contractions of a business cycle to measure the changes in the rate of growth of personal income in the two phases of the business cycle.

C. MEASURING VOLATILITY ACROSS THE U.S.: EXPANSIONS, 1998 – 2009



D. MEASURING VOLATILITY ACROSS THE U.S.: RECESSIONS, 1998 – 2009



Sources: These figures are derived from the regression results presented in Table A4: Volatility Elasticities by Tax Type for New England in Appendix B: Technical Notes (page 50).

personal income. But during recessions, the rate of decline in the growth of the corporate income tax is almost three times the rate of decline in the growth of personal income during a recession.

The personal income tax was the next most volatile tax base during the 1971 to 2010 period. During economic expansions, the personal income tax was much less volatile than the corporate income tax, with a change in its rate of growth that was only slightly higher than the change in the growth rate of average personal income.

(And when personal income is adjusted for capital gains, its volatility in both economic expansions and recessions appears to be more muted.[9]) During recessions, the rate of decline in the growth rate of personal income tax is nearly as great as the rate of decline in the growth rate of corporate income tax revenues. These declines are far steeper than the average declines in the growth rate of personal income.

The growth rate of revenues generated by the state personal income tax across the nation fluctuated more widely than the growth rate of personal income accelerated or slowed during economic expansions and contractions in the period from 1998 to 2009. Still the fluctuations in the revenues generated by the base of the personal income tax continued to exceed the variations in the growth rates of personal income in contractions and expansions (see figure 8C and 8D, page 21.)

The sales tax is less volatile than the personal income tax and the corporate income tax in economic expansions and especially in economic contractions. During economic slowdowns, the rate of decline in revenues generated by the *selective* sales taxes drop off slightly more sharply than those generated by the *general* sales tax in a recession—and both drop slightly more sharply than the decline in income growth. But when the economy expands, the growth rate of selective sales tax increases by considerably *less* than that of personal income. In other words, as incomes increase, consumers do not increase their purchases of cigarettes, beer, and gasoline in the same proportion. (In addition, these taxes are levied on the quantity sold of these commodities, e.g., a gallon of gas, and not their price, which rises over time.)

Overall, revenues from state taxes are considerably more volatile than income—as a stand-in for general economic growth—declining faster than income during recessions and, for the most part, rising faster than income during expansions. (The single exception to this is selective sales taxes. Their revenues change more slowly than personal income, even during economic expansions.) The corporate income tax suffered the largest decline in its rate of growth during recessions, followed closely by the personal income tax, then selective sales taxes, and finally the general sales tax.

3. TAX REFORM AND TAX ADEQUACY

Tax reform could improve the long-term adequacy of state tax revenues. Shifting the overall composition of the tax system toward the personal income tax, the one tax

9 For instance, during the period 1951 to 2010, personal income tax revenues generated by its tax base drop off by 2.7 percent for every 1 percent slowing in the growth rate of personal income adjusted for capital gains, as opposed to 3.4 percent for every 1 percent slowing in the growth rate of unadjusted personal income. In an economic expansion, the revenues generated by the tax base of the personal income tax increase by 1.2 percent for every 1 percent increase in the growth rate of personal income adjusted for capital gains as opposed to 1.5 percent for every 1 percent increase in the growth rate of unadjusted personal income. In contrast to these results, adjusting personal income for capital gains does not have a significant impact on the income or growth elasticity of the personal income tax.

that already demonstrates long-term adequacy, would help state tax revenues expand with the economy. Relying more heavily on the personal income tax would also shift the burden of state taxes away from low-income households toward high-income households, making state taxes less regressive. Broadening the base of the sales tax and corporate income tax could also generate revenues that would bring those taxes closer to expanding along with state personal incomes. We begin with a discussion of expanding the personal income tax. Next we take up the reforms that would broaden the steadily declining tax base of the corporate income tax and the general sales tax, including a revenue-neutral change in the sales tax that extends it to selective services and cuts its tax rates. Finally we turn to measures intended to expand state rainy day funds to deal with the cyclical volatility of state tax revenues.

A. INCREASE RELIANCE ON THE PERSONAL INCOME TAX

Among the major state taxes, the income tax is uniquely well positioned to address all three of these problems plaguing the financing of state government: tax adequacy, the regressive character of state taxes, and their current budget gap.

The personal income tax has much to recommend it as a tool for resolving the tax adequacy problem. Shifting the overall tax system toward the personal income tax would substantially improve the long-term adequacy of state tax revenues. The personal income tax is one major state tax with revenues that expand along with the economy without tax rate increases. Another benefit of the personal income tax is its fairness. Using graduated rates and basic deductions, most state income taxes are structured so that affluent households pay at least as high an effective tax rate as low-income households, and frequently a higher effective tax. By reforming their tax codes to rely more heavily on the personal income tax, states could enhance both the long-run adequacy and the fairness of their tax system. In addition, because the personal income tax accounts for a sizeable 45.4 percent share of tax revenues in the five New England states with a personal income tax, an increase in income tax rates can make a substantial contribution to closing the revenue gap plaguing these states. Among the major state taxes, the income tax is uniquely well positioned to address all three of these problems plaguing the financing of state government: tax adequacy, the regressive character of state taxes, and their current budget gap.

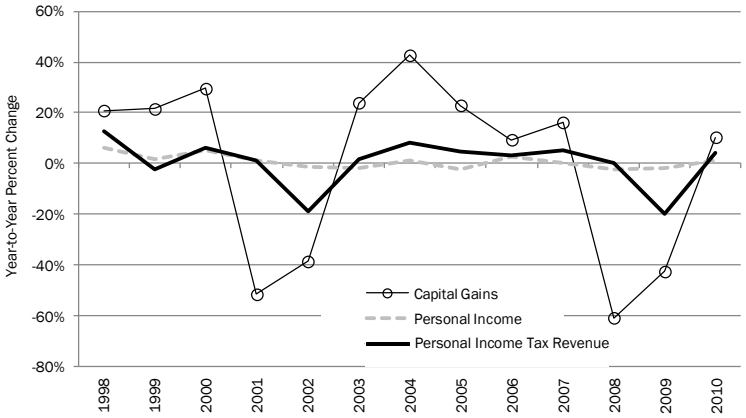
Despite these considerable strengths, using the personal income tax to improve long-term tax adequacy, however, is not without its drawbacks. The chief problem is that relying more on the personal income tax would add to the volatility of state tax revenues, especially during recessions, when personal income tax revenues decline nearly as much as corporate income tax revenues. Enlarging state rainy day funds could counteract the revenue shortfalls brought about by the decline in the state tax revenues in economic downturns even with a greater reliance on the personal income tax.

Much of the volatility of the state personal income tax comes from taxing capital gains income, which is subject to violent swings over the business cycle. That volatility is evident looking at the peak years of the 1990s economic boom, the short recession that followed in 2001, and the sluggish expansion of the last decade that

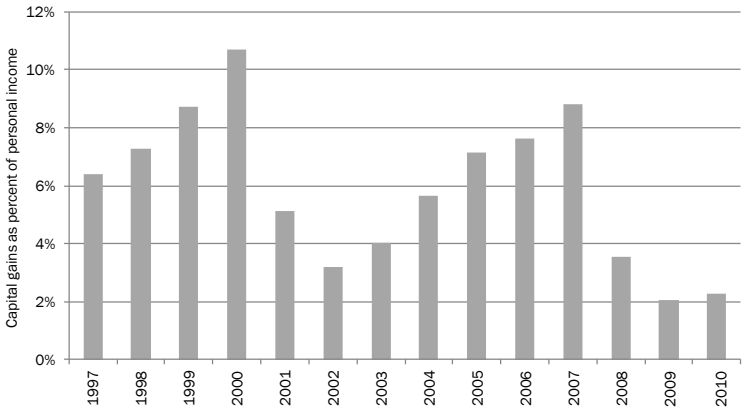
ended with the Great Recession. Capital gains income declined far more than personal income during both recessions, and grew far faster than personal income during both expansions. In the recession years from 2007 and 2009, real personal income declined 4 percent, while personal income tax collections fell 20 percent, and capital gains income plummeted 78 percent (see Figure 9, Panel A). During the two economic expansions, capital gains income accounted for a growing and important

FIGURE 9: CAPITAL GAINS INCOME IN NEW ENGLAND

A. GROWTH IN INFLATION-ADJUSTED CAPITAL GAINS, PERSONAL INCOME AND INCOME TAX REVENUE



B. CAPITAL GAINS RELATIVE TO PERSONAL INCOME



Sources: State Personal Income data are from the Bureau of Economic Analysis, Regional Accounts, State Personal Income accounts, available as a zip file at: http://www.bea.gov/regional/downloadzip.cfm. Data for capital gains by state can be found in Historic Table 2: Individual Income and Tax Data by State And Size of Adjusted Gross Income from The Statistics of Income published by the Internal Revenue Service. The personal income tax data are from Bureau of The Census, State Government Tax Collections, Historical Dataset available at http://www.census.gov/govs/statetax/historical_data.html.

portion of total taxable income. Realized capital gains income in New England was equivalent to nearly 11 percent of total personal income at the peak of the 1990s economic boom in 2000, but in the recession that followed, its share of personal income fell to just 3 percent by 2002 (see Figure 9, Panel B, page 24). As the economy recovered, capital gains income grew in importance, reaching 9 percent of personal income in 2007 at the peak of the economic expansion, before falling to 2 percent of personal income during the Great Recession.

The volatility of state tax revenues is not confined to the personal income tax. Revenues from each of the major state taxes decline sharply during recessions as states struggle to maintain vital public services (see the box: *Reducing Taxes on Investment Income,* page 26).

When the revenues from the major state taxes grow considerably faster than income during economic expansion, policy makers sometimes implement permanent tax cuts. Those tax cuts harm revenue adequacy, creating a shortfall of tax revenues in subsequent economic downturns.

The volatility of state tax revenues presents a problem not just during recessions. When the revenues from the major state taxes grow considerably faster than income during economic expansion, policy makers sometimes implement permanent tax cuts. Those tax cuts harm revenue adequacy, creating a shortfall of tax revenues in subsequent economic downturns (Johnson and Filipowich, 2006). Similarly, when policy makers enact new programs (without dedicated funding) when tax revenues are especially flush during an economic expansion, they can fail to recognize that the cyclically elevated revenues will not be able to sustain programs over the long term (Murray, et al., 2011).

But, as we will argue below, large state rainy day funds, appropriately designed and put to use, could do much to counteract the cyclical volatility of the personal income tax and state taxes in general.

B. EXTENDING TO SERVICES: BROADENING THE SALES TAX BASE

While reforms of either the state sales tax or the corporate income tax cannot simultaneously improve the long term adequacy and fairness of state taxes and at the same time reduce the current revenue gap faced by state budgets, those reforms can make a contribution to lessening those problems. We turn now to reforms of those two other major state taxes beginning with the state sales tax.

The base of the sales tax has not kept up with the growth of the economy (measured by gains in adjusted personal income) in large part because the sales tax is levied primarily on consumer goods, not services. Services accounted for just under one-half of household consumption in 1959 but two-thirds of household expenditures in 2010.[10]

10 Derived from analysis of BEA NIPA data, NIPA Table 2.3.5U.

REDUCING TAXES ON INVESTMENT INCOME: OUT OF THE FRYING PAN INTO THE FIRE

The volatility of the personal income tax has increased over the last decade. But so too has the volatility of the corporate income tax. In New England, as we have shown, state corporate income tax revenues varied more over the business cycle as whole (including the expansion and the recession) in the period from 1971 to 2010 than personal income tax revenues did. In a recent study, Rick Mattoon, an economist with the Federal Reserve Bank of Chicago, found that for the nation, the cyclical volatility of the state personal income tax tripled after 2000, but remained well below the cyclical volatility of the state corporate income tax – which doubled over the same time period. Sharp fluctuations in stock market prices and overall economic activity that caused investment income to rise and fall dramatically over the business cycle accounted for much of the increased volatility of state personal income taxes.

Some tax analysts consider the worsening volatility of the state personal income tax to be a good reason to reduce taxes on investment income. Some suggest lowering income tax rates on investment income such as capital gains, while increasing the rates of taxes on wage and salary income, which vary less year to year than investment income. Another proposed policy intended to reduce the volatility of state tax revenue is to have states reduce the tax share of the personal income tax and increase that of sales tax, which generates revenues that vary less over the business cycle than income tax revenues. In California, where state government is suffering an especially acute budget crunch, some politicians have argued that the volatility of investment income requires that the state lighten the tax burden of the rich. Republican State Senator Mimi Walters, who represents to the well-to-do Orange County area of southern California, for instance, argued last year that continuing to raise taxes on the top one percent, whose income shifts dramatically year to year, would "only serve to increase the state's revenue volatility and endanger the future fiscal stability of California."

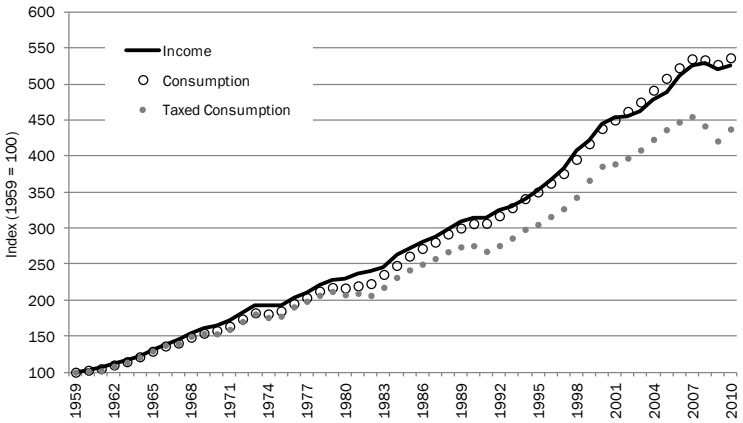
Reducing the state's reliance on the personal income tax, the most income elastic state tax, however, would further erode California's fiscal position over time, not improve it. The California Legislative Analyst's Office reports that, "any rebalancing which reduces the state's dependence on California's progressive PIT [Personal Income Tax] would likely result in less growth in revenues over the long term." Beyond worsening the adequacy of the California tax code, any policy that lowers tax rates on investment income and boosts those on wage and salary income, or increases the share of revenues collected from the sales tax, would shift more of the burden of the state taxes onto middle-income and low-income taxpayers.

Sources: "State tax revenues over the business cycle," by Leslie McGranahan and Richard Mattoon, *Chicago Fed Letter*, No. 299, June 2012; "The problem with overreliance on the top 1%," by Senator Mimi Walters, April 4, 2012; "Economic Outlook and Recent Trends in State Revenue Volatility," by Rick Mattoon, July 19, 2012; "Revenue Volatility in California," by Elizabeth G. Hill, California Legislative Analyst's Office, January 2005; and "In it for the Long Haul," by Matt Gardner, Institute on Taxation and Economic Policy, March 31, 2011.

Consumption rises along with income, but the portion of consumption typically taxed by states across the nation has fallen behind the growth of income. Between 1959 and 2010, inflation-adjusted personal income rose 427 percent and total consumption rose 437 percent, but potentially taxable consumption rose just 338

percent (see Figure 10).[11] The gap between income and taxable consumption is even greater than those trends suggest because of the growth of online shopping, much of which currently goes untaxed.[12] For the six New England states, sales tax revenues — even with repeated increases in tax taxes — grew more slowly than adjusted personal income over the last two decades, falling from 1.8 percent of adjusted personal income in 1990 to 1.4 percent in 2010.

FIGURE 10: LONG-TERM GROWTH IN PERSONAL INCOME, TOTAL CONSUMPTION, AND TAXABLE CONSUMPTION (INDEXED 1959=100)



Sources: Personal Income data are from the Bureau of Economic Analysis, Table 2.1. Personal Income and Its Disposition. Personal Consumption and Taxable Consumption data are from the Bureau of Economic Analysis, Table 2.3.5. Personal Consumption Expenditures by Major Type of Product. Taxable Consumption is defined as durables, nondurables other than food, plus food services, accommodations services, and recreation services.

In 2010 the general sales tax accounted for about 24.1 percent of tax revenues of New England states (excluding New Hampshire, which doesn't levy a general sales tax). While the exact base of the sales tax varies among the New England states, it typically includes most purchases of tangible goods, other than food to be consumed in the home, and services involving the use of tangible goods such as accommodations, food service, and vehicle rentals. As of 2007, Connecticut taxed

11 Taxable consumption is a proxy measure that includes spending on durables, nondurables other than food, plus food services, accommodations services, and recreation services. Donald Boyd (2011) proposes this formulation.

12 For instance, a recent study conducted by the Massachusetts Main Street Fairness Coalition, a coalition of retailers and trade and business associations (as well as elected officials and labor unions) found that online purchases by Massachusetts consumers reached $6 billion by 2011. The study, prepared by Cape Ann Economics and authored by Edward Moscovitch and Cameron Huff, estimates that by not subjecting these purchases to the sales tax the state lost $387 million in revenues. See "The Impact of the Internet Sales Tax Disparity on Massachusetts Tax Revenues, Sales and Jobs" at http://libcloud.s3.amazonaws.com/220/2b/7/71/final_ report_mass_ecommerce-1.pdf.

more services than any other state in New England, applying the state sales tax to 79 of 168 household services analyzed by the Federation of Tax Administrators.

Extending the sales tax to services, however, is fraught with problems. The more services that are added to the base of the sales tax, the greater the positive impact will be on its long-term adequacy. But as the sales tax is extended to services beyond those consumed disproportionately by higher-income households, the more regressive it would become. Furthermore, increasing the share of state taxes collected by the sales tax, the most regressive major state taxes, would shift yet more of the burden of state taxes onto low-income households.

Extending the base of the sales tax to non-essential services could – if the services were carefully selected — make the sales tax both more equitable and more income elastic than it currently is.

Nonetheless the sales tax will undoubtedly remain an important revenue source for states even if the progressive income tax should expand to tackle the tax adequacy problem. Since states will continue to impose a sales tax, its base needs to be designed in a way that is as equitable as possible and contributes to resolving the tax adequacy problem. Extending the base of the sales tax to non-essential services could – if the services were carefully selected — make the sales tax both more equitable and more income elastic than it currently is. That reform by itself would not resolve the tax adequacy problem, and the very fact of increasing the share of total state tax revenues contributed by the sales tax could make the state tax code as a whole more regressive. But, as we show below, when accompanied by a revenue neutral cut in sales tax rates, extending the sales tax into selective services would lessen the regressivity of the state tax code as it contributes to resolving the tax adequacy problem of state governments. By extending the sales to these selected services, revenues from the sales tax will come closer to keeping up with income growth.

We have selected a group of services to consider taxing that meet three conditions. First, they are currently untaxed in all or most New England states, but are subject to sales taxes in some states elsewhere (a condition meant to ensure the practicality of taxing these services). Second, they grow at least as fast as income over time. And third, they are more likely to be consumed by higher-income than lower-income households.

Several groups of services meet these criteria: entertainment and recreation services; financial services; professional services; personal services; internet access and related services; veterinary services; and repair services.[13] With the exceptions of entertainment (already taxed in Connecticut and Vermont), internet access (which was taxed in New Hampshire until June 21, 2012), repair services and some personal services (already taxed in Connecticut), these do not appear to be currently taxed in any New England state. With these additions, revenues generated from taxing of services would have grown 4.4 percent per year during the period from 1985 and

13 The specific definitions of these categories as well as a discussion of the distribution of expenditures on these services by income class and by state can found in Appendix C.

2010, to more than keep up with the 2.6 percent growth rate of adjusted personal income over the time period. That is also much faster than the 2.4 percent growth rate of the current sales tax base in the New England states (see Table 1).

Upper-income rather than lower-income households also disproportionately consume all of these services (see Table 2). In each of the five New England states with a general sales tax, households with incomes above $100,000 devoted a larger share of their expenditures to these services than do households with incomes between $35,000 and $50,000, who in turn devote a larger share of their expenditures to these services than households with less than $25,000 in income.

TABLE 1: GROWTH RATES OF SELECTED UNTAXED SERVICES

	Growth rate 1959-2010	*Growth rate 1985-2010*	*New England states taxing*
Entertainment services			
Recreation services	4.5	2.6	CT, VT
Performing arts and spectator sports	4.9	5.2	CT, VT
Cable and satellite television	11.0	6.3	CT, ME, RI, VT
Financial services and insurance			
Portfolio management & investment	n/a	11.5	none
Other financial services	4.6	3.3	none
Professional services			
Legal services	4.2	3.1	none
Accounting (including tax preparation)	5.8	6.0	none
Internet access and related	n/a	34.0	NH
Veterinary and other services for pets	6.6	5.9	none
Repair services			
Motor vehicle maintenance and repair	3.3	1.8	CT
Other repair services	0.6	0.9	CT
Personal services			
Laundry and dry-cleaning	-0.5	1.3	
Household services	1.0	2.4	CT (partial)
Other personal services	3.3	4.0	CT (partial)
Total additional services	3.7	4.4	
Memo			
Current sales tax base	3.5	2.4	
Adjusted personal income	4.1	2.6	

Sources: Expenditure growth rates come from the National Income and Product Accounts, Table 2.4.5U. See Appendix C for a detailed description of the definitions of the untaxed services in the table and their sources. The current tax status of services is from Federation of Tax Administrators, FTA 2007 Services Taxation Survey, Online Searchable Data Base (updated March 2010), http://www.taxadmin.org/fta/pub/services/online/default_07.html

TABLE 2: EXPENDITURE AND INCOME SHARES OF CURRENTLY UNTAXED SERVICES BY STATE AND INCOME CLASS
(ALL FIGURES ARE RATIOS)

	Share, all households	*Share, < $25k*	*Share, $35-50k*	*Share, >$100k*
Connecticut				
Total additional service expenditures	6.1	4.4	6.0	6.3
Current sales tax base	31.2	28.6	31.7	31.2
Increase in sales tax base	19.6			
Additional service expenditures as share of income		6.6	5.6	3.7
Maine				
Total additional services	8.6	7.1	8.6	9.6
Current sales tax base	29.7	27.5	30.9	29.6
Increase in sales tax base	29			
Additional service expenditures as share of income		10.7	8.1	5.6
Massachusetts				
Total additional services	9.0	6.9	8.7	9.7
Current sales tax base	28.4	26.1	29.0	28.2
Increase in sales tax base	31.7			
Additional service expenditures as share of income		10.4	8.2	5.6
Rhode Island				
Total additional services	8.8	7.0	8.6	9.6
Current sales tax base	28.3	25.8	29.1	28.5
Increase in sales tax base	31.1			
Additional service expenditures as share of income		10.6	8.1	5.6
Vermont				
Total additional services	8.4	6.8	8.3	9.3
Current sales tax base	28.5	25.6	29.4	28.8
Increase in sales tax base	29.5			
Additional service expenditures as share of income		10.2	7.9	5.4

Sources: These income to expenditure ratios are calculated from the Bureau of Labor Statistics, Consumer Expenditure Survey (CEX) of the Bureau of Labor Statistics, Table 2 and Table 2301for the year 2010. State expenditures on selective services are PERI calculations from IMPLAN data, state totals 2010.

Taxing these services, therefore, would substantially broaden the base of the sales tax. Taxing these services would add between 6.1 percent (in Connecticut) and 9.0 percent (in Massachusetts) of personal consumption to the sales tax base of these five New England states. Because the current base of the sales tax in these states is quite narrow, taxing those services is enough to increase the base of the sales tax from 19.6 percent in Connecticut to 31.7 percent in Massachusetts (see Table 2, page 30).[14] Also, based on historical trends, adding these services to the base of the sales tax would improve its income elasticity, pushing the sales tax closer to keeping up with growth of income in the New England state.[15]

Taxing the services we have identified would increase its progressivity relative to current, very regressive, sales taxes, but our broader sales tax would be unlikely to improve the overall distribution of the state tax burden unless it was combined with other reforms.

The distributional impact of broadening the sales tax in this way, however, is discouraging. Taxing the services we have identified would increase its progressivity relative to current, very regressive, sales taxes, but our broader sales tax would be unlikely to improve the overall distribution of the state tax burden unless it was combined with other reforms. That is because while our selected services make up a larger share of expenditures for high-income households than for low-income households, they do not make up a larger share of richer households' income. Households with incomes greater than $100,000 spend just 58.3 percent of their income annually, compared with 94.7 percent for households with income between $30,000 and $50,000, and 150.4 percent for households with less than $30,000.[16] Applying those spending to income ratios to the expenditure data for our selective services by income level shows that a tax on those services would be regressive. Low income households (with incomes below $25,000) spend more of their income on those services than do middle-income households (with incomes between $35,000 to $50,000) and those middle-income households in turn spend more of their income

14 These additions to the sales tax revenues are quite large. Still they are nonetheless smaller than the estimated increase in sales tax revenues that would be generated by Michael Mazarov's proposal to extend the state sales tax to all "feasibly taxable" services (excluding health, education, legal, funeral, and public transportation). Mazarov estimated that in 2007 his proposed reform would have boosted sales tax revenues in Connecticut and Massachusetts by over half, in Rhode Island by 47%, in Vermont by 37%, and in Maine by 30%. But even without taxing healthcare spending or education, Mazarov's proposal to tax services would have added to the regressivity of the sales tax. In addition to rendering the already regressive sales tax yet more regressive, his reform of the sales tax would also have added to regressiveness of state taxes by increasing the share of tax revenues raised by the sales tax.

15 There is no way to be certain that these growth rates of service expenditures will continue into the future. While entertainment and professional services are likely to continue claiming larger expenditure shares, the growth in communications services is likely to slow as the rapid increase in the share of the population consuming these services comes to an end and their prices continue to fall. Still, there is little question that a broader sales tax would come closer to keeping up with income growth than the current sales tax does.

16 This very high ratio of expenditure to income for the lowest income households reflects the high level of borrowing and the spending down of assets by households who have low incomes only temporarily. These three income-to-expenditure ratios are calculated from the Consumer Expenditure Survey (CEX) of the Bureau of Labor Statistics, Table 2 and Table 2301 for the year 2010. The additional service expenditures to income ratios in Table 2 above are approximations generated by applying these national ratios to the state service expenditure ratios reported in the table.

on those services than do upper-income households (with incomes above $100,000) five New England states with a sales tax (see Table 2, page 30).

Extending the sales tax to selective services can help to maintain the tax base over time and in that way reduce the tax adequacy problem. In addition, it can help solve the revenue gap problem, or can help improve the distribution of the state tax burden, but it cannot do both. For instance, taxing the services we have identified would increase current sales tax revenues by over one quarter. Alternatively, taxing these services would allow for a revenue-neutral reduction of in state sales tax rates ranging from one percentage point in Connecticut to 1.7 percentage points in Rhode Island (see Table 3). Simultaneously broadening the base of the sales tax into services and lowering the sales tax rate would keep the revenue share of the sales tax from rising and in that way eliminate whatever regressive effect taxing those services would have had on state taxes. Also reducing the sales tax burden of low-income households and boosting that of high-income households would make the sales tax less regressive. But again this revenue-neutral change in the sales tax would not be able to contribute to closing the immediate revenue gap faced by state governments. [17]

TABLE 3: TAX BURDEN BY INCOME CLASS OF A REVENUE NEUTRAL CHANGE IN SALES TAX BY STATE

		Change in sales tax burden (% of income)	
	Rate reduction	*Household income < $25k*	*Household income > $100k*
Connecticut	1.0	-2.0	0.1
Maine	1.1	-1.4	0.4
Massachusetts	1.2	-2.1	0.3
Rhode Island	1.7	-1.6	0.4
Vermont	1.4	-1.2	0.4

Source: PERI estimates based on IMPLAN data.

C. BROADENING THE CORPORATE INCOME TAX BASE

Broadening the base of the corporate income tax would improve the long-run tax adequacy of state taxes without disproportionately raising taxes on low-income households. In addition, some of the exemptions and deductions that have been

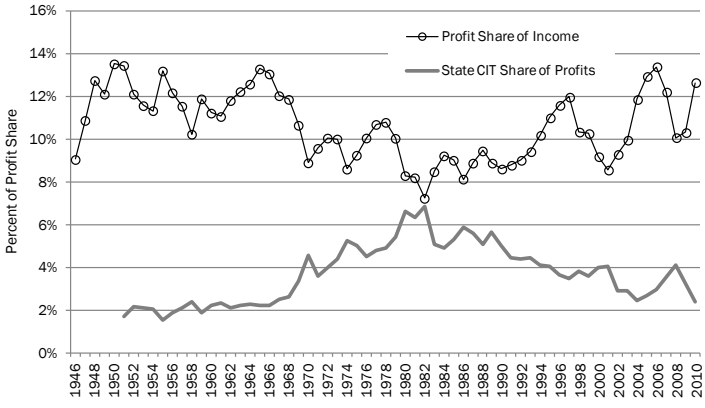
17 In 2011 policy makers in Vermont considered a comprehensive tax reform proposal that would have extended the state sales tax to most services, but at the same time cut personal income tax rates to make the proposal revenue neutral. But it received no real support among lawmakers or from the governor. Cutting income taxes rates instead of sales tax rates would have made the Vermont tax code more regressive, not progressive, counteracted whatever a broader sales tax would have done to improve the tax adequacy problem of the Vermont tax code, and undermined the ability of Vermont to build up rainy day reserves for the next economic downturn. The consensus proposal of the Vermont Blue Ribbon Tax Commission can be found at: http://www.leg.state.vt.us/jfo/reports/2011%20Blue%20Ribbon%20Tax%20Structure%20Commission%20FINAL%20REPORT.pdf.

adopted by legislatures and other rules of the corporate income tax are good targets for reform. But because corporate income taxes account for the smallest share of state tax revenues of the major taxes, broadening the base is likely to have a limited effect on state revenues. But broadening the base of the corporate income tax nonetheless could make an important contribution toward improving the adequacy of state taxes because the potential tax base of the corporate income tax — corporate profits — is a much larger share of national income today than it was thirty years ago. Expanding the corporate income tax, the most volatile of the major state taxes, however, would surely add to the volatility of state tax revenues.

Despite the dramatic increase in corporate profits in recent decades, the revenues raised by the states though the corporate income taxes have grown far more slowly than their economies. Since the early 1980s corporate profits climbed from 8 percent of national income to nearly 13 percent in 2010 (see Figure 11, Panel A). While corporate profits have risen as share of national income, state corporate income tax collections have fallen as a share of those profits. In the early 1980s, state corporate income tax revenues averaged 6 percent of total profits across the nation, but by 2010 they averaged just 2.4 percent of corporate profits.[18] That sharp decline canceled out whatever upward effect the surge in corporate profits, the tax base of the corporate income tax, would have had on tax collections. For instance, in New England, state corporate income tax collections fell from more than 0.8 percent of personal income in the mid-1980s to less than 0.5 percent in 2010 despite corporate profits increasing as a share of national income over that period (see Figure 11, Panel B, page 34).

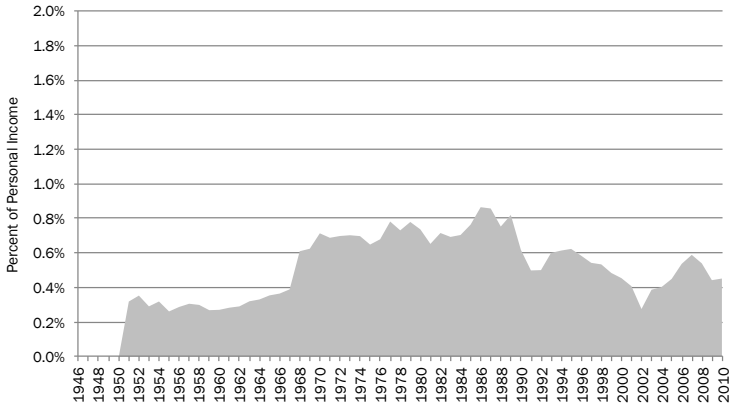
FIGURE 11: THE DECLINING STATE CORPORATE INCOME TAX

A. NATIONAL AVERAGE PROFIT SHARE OF INCOME AND CORPORATE INCOME TAX SHARE OF PROFITS



18 Corporate profits include inventory valuation adjustment and capital consumption adjustment.

B. NEW ENGLAND CORPORATE INCOME TAX COLLECTION AS SHARE OF INCOME



Sources: The sources for national data for profits, national income, and the corporate income tax are Bureau of Economic Analysis, Table 1.12, National Income by Type of Income. State corporate income tax data are from Bureau of The Census, State Government Tax Collections, Historical Dataset available at http://www.census.gov/govs/statetax/ historical_data.html. State Personal Income data are from the Bureau of Economic Analysis, Regional Accounts, State Personal Income accounts, available as zip file at, http://www.bea.gov/regional/downloadzip.cfm.

State corporate income tax revenue no longer keeps up with income growth due in large part to the increased use of aggressive tax avoidance and "tax planning" by corporations, as well as changes in tax policy. In the period from 1951 to 1980, prior to the erosion of its tax base, the revenues generated by the corporate income tax expanded along with personal income. One of the chief methods used by corporations to avoid paying state taxes is to transfer profits to subsidiaries in low-tax states (Brunori, 2001). In states that allow companies to report the profits of each subsidiary for tax purposes "separately," corporations use these transfers to reduce their state taxes (Mazerov, 2009). In recent years Vermont (2006) and Massachusetts (2008) have adopted "combined reporting," a reform that eliminates this tax avoidance scheme by requiring companies to report the profits from all of their subsidiaries. Revenue estimates suggest that adopting "combined reporting" will generate $190 million per year in additional revenue for Massachusetts (Cline, 2008). Connecticut and Rhode Island continue to allow separate reporting.[19]

State tax policy changes have also undermined the corporate income tax. Those changes typically have not lowered the corporate income tax rates but rather have eroded the base of the corporate income tax. The changes have included dramatically expanding "tax incentives" and adopting "apportionment" rules that help some companies reduce the portion of their profits that are subject to the tax. A

19 Connecticut has estimated that adopting "combined reporting" would produce approximately $90 million per year. http://www.cga.ct.gov/2010/FN/2010SB-00485-R000608-FN.htm.

comprehensive accounting of tax expenditures built into the corporate income tax code is not available for most states. Massachusetts produces the most complete tax expenditure report in New England, and the report indicates that credits, deductions, and exemptions from the "corporate excise tax" amounted to $1.3 billion in FY2013, up from $791 million in FY1998.[20] Reports from the other states, which vary in comprehensiveness, identify corporate income tax deductions ranging from $2.5 million in Vermont in 2011, to $37 million in Rhode Island in 2008, and $93 million in Maine in 2009.[21] Corporate business tax credits in Connecticut amounted to more than one-fifth of actual tax collections in 2008, and are 26 times larger than levels from 20 years earlier even after adjusting for inflation.[22]

The extent to which the corporate income tax has been undermined as a revenue source varies widely across the New England states. Connecticut, Massachusetts, and Rhode Island have each experienced substantial losses in corporate income tax revenue as a share of adjusted personal income since the 1970s and 1980s (see Figure 12, page 36). In Connecticut and Rhode Island, corporate income tax collections as a share of adjusted personal income are half as high as they were in the early 1980s. In Vermont corporate income tax revenues have also declined relative to adjusted personal income, but somewhat less so than in the other states since the early 1980s. If these states had maintained their corporate income tax revenues as a share of adjusted personal income at levels seen in at their peaks (in the mid-1980s for Connecticut and Massachusetts; and in the mid-1970s for Rhode Island and Vermont) the additional tax revenue in 2010 would have been substantial: an additional $1.2 billion in Connecticut and Massachusetts, $166 million in Rhode Island, and $54 million in Vermont.

Restoring the base of the corporate income tax by rescinding some of the credits and deductions adopted by states would push the tax base of the corporate income tax closer to growing along with the economy over the long-term.

In Maine and New Hampshire revenues from the corporate income tax have not declined as a share of adjusted personal income. In Maine there is little sign of a sustained downward or upward long-term trend in corporate income tax revenues relative to adjusted personal income. In New Hampshire, which taxes not only corporate profits but also the value added by corporations as well, corporate income tax revenues have increased as a share of adjusted personal income. Also, Maine and New Hampshire are the two New England states that have required combined reporting of corporate income for decades (see Figure 12, page 36).

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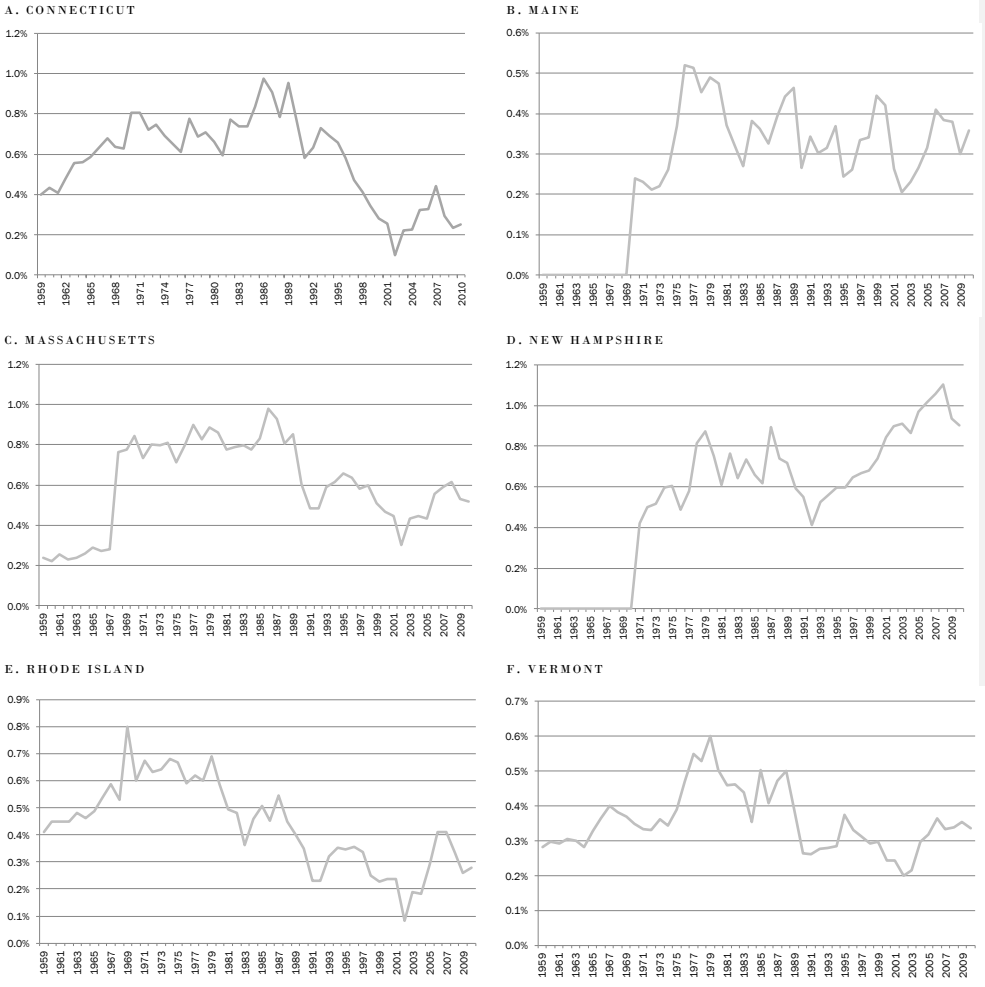
20 For Massachusetts see: http://www.mass.gov/dor/docs/dor/stats/teb/teb2013-master-summary-simplified.xls, and http://www.mass.gov/Ador/docs/dor/Stats/TEB/TEB2000.pdf, page 61.

21 For Vermont see: http://www.state.vt.us/tax/pdf.word.excel/statistics/2011/expenditurereport2011.pdf, page 28; for Rhode Island see: http://www.tax.ri.gov/reports/2008%20Tax%20Expenditures%20Report.pdf, page 2; for Maine see: http://www.state.me.us/revenue/research/tax_expenditure_report_09.pdf.

22 See http://www.ct.gov/drs/lib/drs/research/annualreport/drs_fy10_annual_report.pdf and http://www.cga.ct.gov/ofa/Documents/year/CRBD/2007CRBD-20060227_CT%20Revenue%20and%20Budget%20Data%20as%20of%20February%202006.pdf, page 52.

FIGURE 12: CORPORATE INCOME TAX COLLECTIONS AS A SHARE OF INCOME, BY NEW ENGLAND STATE

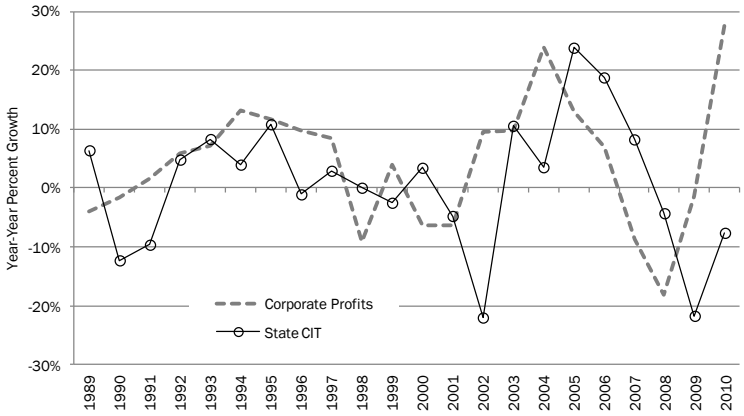


Sources: Same sources as for Figure 1. PERI analysis.

Restoring the base of the corporate income tax by rescinding some of the credits and deductions adopted by states would push the tax base of the corporate income tax closer to growing along with the economy over the long-term. Broadening the base of the corporate income tax, however, would do little to reduce its cyclical volatility, which is the greatest among the major state taxes. Nationally, corporate profits are nearly as volatile over the business cycle as state corporate income tax receipts (see Figure 13, page 37). The annual change (whether positive or negative) in state corporate income tax collections averaged 8.7 percent over the period

from1952 to 2010, compared to 9.7 percent for corporate profits.[23] On the other hand, because profits and corporate income tax collections surge during economic expansions, they can make an important contribution to building up adequate rainy day fund reserves. But increased reliance on the corporate income tax would add to the volatility of state taxes.

FIGURE 13: GROWTH IN INFLATION-ADJUSTED CORPORATE PROFITS AND STATE CORPORATE INCOME TAX COLLECTIONS



Sources: Income and corporate profits data are from Bureau of Economic Analysis, Table 1.12, National Income by Type of Income. Data on state corporate income tax collections are from U.S. Bureau of the Census, State Government Tax Collections.

D. AUTOMATIC DEPOSITS FOR RAINY DAY FUNDS

State rainy day funds offer a sound approach to counteracting the cyclical volatility of the corporate income tax, the personal income tax, and state taxes in general. Rainy day funds are designed to accumulate reserves over the course of an economic expansion and are then depleted as tax revenues decline during a recession. When handled correctly, these reserve funds can help state governments avoid cutting spending or increasing taxes during a downturn. In that way, rainy day funds allow state governments to conduct counter-cyclical fiscal policy even though their constitutions prevent them from engaging in deficit spending. Rainy day funds have existed for many years, but expanded substantially over the last decade. Still, even today most rainy day funds are too small to make major contributions to the stability of state government budgets. In addition, the funds are often underutilized.

23 The absolute value of annual change is used to calculate this average measure of volatility so that negative changes do not offset positive changes.

The vast majority of the states have rainy day funds, but most funds are too small to be a sufficient buffer against the loss of tax revenues during a recession. By the end of FY2006, states across the nation had accumulated reserve funds of nearly $70 billion (including rainy day funds and uncommitted ending balances), equivalent to nearly 12 percent of one years' worth of state expenditures (McNichol and Boadi, 2011). Most states tapped these reserves to sustain spending on public services during the last recession. By FY2010, as the recession drew to its official close, those reserves had fallen to just 2.4 percent of a year of state spending. The size of state rainy funds, and their corresponding ability to serve as an effective countercyclical stabilizer, varies considerably across states, however. In New England, all six states have rainy day funds. But prior to the onset of the Great Recession, the size of the state funds ranged from 3 percent to 13 percent of one year's worth of state spending. In Massachusetts, reserves were 12.5 percent of the state's general fund budget, 10.7 percent in Connecticut, 7.1 percent in New Hampshire, 4.7 percent in Vermont, 4.3 percent in Rhode Island, and just 3.3 percent in Maine.

Much greater reserves are needed to help states weather the budget storms during a serious recession, such as the Great Recession. States would have needed reserves equal to 18 percent of their spending to avoid substantial budget cuts or tax increases during the relatively mild 2001 recession, according to estimates by the Center for Budget and Policy Priorities. Many states, including all of the New England states, explicitly cap their reserve funds at lower levels than 18 percent of their annual spending. The reserve fund cap is 15 percent of the general fund budget in Massachusetts, 12 percent in Maine, 10 percent in Connecticut and New Hampshire, and 5 percent in both Rhode Island and Vermont.

Even if state governments had adhered to the guideline of reserving 15 percent of one year of state spending, as suggested by the Government Finance Officers Association, and if state governments had been willing to use those reserves for their intended purpose, rainy day funds would still have remained insufficient to avoid serious disruptions in a downturn as deep as the Great Recession. With a reserve fund equal to 15 percent of one year of state spending, states would have been able to offset 80 percent of the budget shortfall faced by states in the early 1990s recession, but just 28 percent of the shortfall from the 2002 recession, and only 20 percent of the shortfall faced by states between 2008 and 2011 (McNichol and Boadi, 2011).

The statutory caps on rainy day funds need to be raised, or better yet, eliminated, and deposits into those funds increased.

The statutory caps on rainy day funds need to be raised, or better yet, eliminated, and deposits into those funds increased. Budget rules that would automatically direct tax revenues above a growth threshold into reserve funds could expand those funds to the scale required to effectively help states achieve greater budget stability.

Consider this example: Had a rule requiring states to automatically deposit the tax revenues from the above average growth of income and capital gains taxes been in place in the years prior to the Great Recession, it would have generated $3.6 billion in rainy day reserves for New England states. Just about one half (49 percent) of

those deposits would have been from capital gains income. Those automatic deposits would have been the equivalent to the total reserves the New England states actually accumulated through existing deposit rules from FY2001 through the end of FY2006 (see the second and fifth column of Table 4). Four states, however, would have had considerably larger reserves in their rainy day funds with automatic deposits than the reserves they actually accumulated. Only in Massachusetts were the actually accumulated funds considerably larger than the funds that would have been accumulated under the automatic deposit rule.

TABLE 4: RAINY DAY RESERVES: ACTUAL RESERVES AND ESTIMATES FROM AUTOMATIC DEPOSITS AND MASSACHUSETTS CAPITAL GAINS SCENARIO

			Automatic deposits of taxes on above-average income growth				*Massachusetts capital gains deposit rule from 2003 – 2007 (millions $)*
			1997-2001		*2003-2007*		
	FY 2001 actual reserves (millions)	*FY 2006 actual reserves (millions)*	*Deposits (millions $)*	*Capital gains shares*	*Deposits (millions $)*	*Capital gains shares*	
Connecticut	595	1,113	649	36%	1,550	42%	940 - 1,800
Maine	117	80	148	54%	186	60%	250 – 480
Massachusetts	2,294	2,155	2,440	30%	1,580	55%	2,512*
New Hampshire	55	69	–	–	–	–	–
Rhode Island	80	95	95	41%	104	67%	4 – 7
Vermont	43	52	154	25%	161	32%	70 – 140
New England	3,211	3,564	3,486	32%	3,581	49%	3,800 – 4,900
Total U.S.	21,684	31,404	40,800	28%	62,700	39%	

*Source: NASBO Fiscal Survey of the States for FY2001 and FY2006 Actual Fund Levels. PERI analysis of IRS and BEA capital gains and personal income data for rainy day fund scenario calculations. * Massachusetts estimate based on Department of Revenue Consensus Forecast data for actual taxes collected from capital gains income.*

Currently three New England states — Connecticut, Maine, and New Hampshire — do not automatically make deposits into their reserve funds. Rather, each of these states makes deposits when they elect to direct a portion of their year-end surpluses into the fund. Rhode Island law requires the state government to make annual contributions to its stability fund. But the state government must continue to make those contributions even when the economy is in recession and while it struggles to maintain basic programs. Among the New England states, Massachusetts' cap on its reserve fund is the highest. In addition, the Massachusetts state government makes deposits to the rainy day fund not just through optional contributions from year-end reserves, but also through mandated annual contributions. Following a policy change in 2010, all capital gains tax revenue above $1 billion will be deposited into the reserve fund in Massachusetts. Had this rule been in place

following the previous recession, the state would have had $2.5 billion in rainy day fund deposits from the capital gains tax rule alone.[24] The same rule (with the threshold adjusted based on size of economy) would have generated between $940 million and $1.8 billion in deposits in Connecticut, between $250 and $480 million in Maine, and between $70 and $140 million in Vermont.[25]

These, or similar rules that require state governments to make adequate contributions to their reserves funds but are flexible enough not to mandate deposits in an economic downturn, would do much to improve the stability of state tax revenues. The need for rules and additional funds in the rainy day fund would be even greater if states were to increase the share of the personal income tax (and the corporate income tax) relative to their entire tax base to resolve their tax adequacy problems. In addition, elected officials would need to be willing to tap into those reserves to avoid budget cuts during economic downturns.

Finally, while larger rainy day funds with dedicated contributions would help states weather the budget busting effects of recessions, they still will need assistance from the federal government, especially in downturns as severe as the Great Recession. The federal government, with its ability to deficit spend, is uniquely positioned to implement economic stimulus programs that states would continue to need.

4. THE WAY FORWARD: LESSONS FOR TAX REFORM

We began our discussion of the tax adequacy problem by documenting the fiscal distress of New England state governments. While weighed down by the lingering revenue shortfalls induced by the Great Recession, states are also plagued by a tax base that fails to keep up with the growth of their economies. If not addressed, the tax adequacy problem will persist long after the states have managed to shake off the damaging effects of the Great Recession and will lead to yet larger revenue shortfalls in the future.

Our analysis points to some rather straightforward approaches to tackling the tax adequacy problem of New England state governments. We identify four measures that would go a long way toward assuring the adequate long-term growth of state taxes. First, states need to shift the composition of state taxes toward the one tax that already grows along with the economy over time: the personal income tax. Second, states need to expand the base of the corporate income tax by dismantling

24 Taxes from capital gains income are estimated by multiplying the IRS data for capital gains income by the state top tax rate for long-term capital gains.

25 The $1 billion in capital gains tax revenue threshold is adjusted for the other New England states based on 2010 state GDP. For example, total state GDP in Connecticut is 62.6 percent as high as Massachusetts GDP, so the threshold for Connecticut is set at $626 million in capital gains taxes. Estimates are calculated using IRS capital gains income data and capital gains tax rates.

the loopholes and credits that have shrunk the base of the corporate income tax. Third, states also need to broaden the base of the sales tax and at same time reduce the sales tax rate. Broadening the base of the sales tax can be accomplished by extending the sales tax to cover selective services. Fourth, to improve the stability of state tax revenues, states need more expansive rainy day funds that automatically capture the surge in tax revenue that typically occurs during economic expansions.

Nonetheless, undertaking the reforms necessary to relieve the fiscal distress of state governments will be no easy task. The task is made yet more difficult by two other constraints. The first is fairness. Fairness demands that the tax adequacy problem not be resolved by pushing yet more of the burden of an already regressive state tax code onto low-income residents. Fairness is especially a problem when it comes to reforming the highly regressive state sales tax. In addition, fairness demands that a solution to the tax adequacy problem raise revenues that can contribute to closing the current revenue shortfall in the budget of these states. Since five of the six New England states require their governments to balance their budgets each year (Vermont is the exception), revenue shortfalls can be — and have been — used to justify cuts in programs that serve the needs of low-income residents.

The second constraint is politics. A discussion of the politics of tax reform is beyond the scope of this economic analysis. But it is safe to say that unlike tax cuts, tax reform is a tough political sell. The political obstacles to reforming taxes are manifold. To begin with, restoring the base of the corporate income tax requires overcoming the influential, if dubious, claim that corporate tax incentives are important for state job creation and economic development. Also, in recent years, Rhode Island, Maine, and Vermont proposals to extend the sales tax to services have all failed. Finally, since 2000, Massachusetts, Rhode Island, and Maine have cut personal income tax rates. Massachusetts voters, however, rejected a 2008 ballot measure that would have repealed the state's income tax. And just last year, a ballot measure that would have banned the personal income in New Hampshire, the only New England state without a broad-based personal income tax, went down in defeat.

An increase in personal income tax rates would have to negotiate these political currents, but it remains the best way to attack the tax adequacy problem and make the tax code fairer.

An increase in personal income tax rates would have to negotiate these political currents, but it remains the best way to attack the tax adequacy problem and make the tax code fairer. In addition to being the one major state tax that already keeps pace with the growth of adjusted personal income, higher personal income tax rates and an increased share of tax revenues raised by the personal income tax would reduce the regressivity of state taxes. Also, because it improves the adequacy of the state tax code at the same time, and because it is quite a large tax, an increase in the personal income tax would raise revenues to meet the immediate needs of state governments without disproportionately increasing the tax burden on low-income families. Increasing the personal income tax, an act requiring great political will, would need to be accompanied by accumulating rainy day funds large enough to

ensure the stability of state revenues, another act requiring great political will.

Neither of the other two major state taxes does as well at meeting the goals of tax adequacy and improving the fairness of state taxes. Expanding the base of the corporate income tax could improve the adequacy and lessen the regressivity of state taxes. Prior to the erosion the tax base, corporate income tax revenues expanded with adjusted with personal income. But because the corporate income tax is the smallest of the three major state taxes, it is less able to raise the revenues needed to counteract the revenue shortfalls plaguing state governments. (However, the potential tax base of the corporate income tax is far greater than in the past because of the dramatic increase in corporate profits as a share of national income in recent years.) Finally, because the corporate income tax is the most volatile of the major state taxes, the above normal revenue it generates in economic expansions would need to be dedicated to building up state rainy day funds.

Extending the sales tax to the services we identified above in Table 1 (page 29) would improve the adequacy of state taxes. Consumer spending on those services has increased more quickly than adjusted personal income. But taxing that list of services will not improve the fairness of the state tax code. Those services are consumed disproportionately by the well-to-do, so taxing them will make the highly regressive sales tax less regressive. But expanding the tax share of the sales tax even in this way would leave the state tax code more regressive by virtue of the increased role the sales tax would play in overall tax collections. Pairing the taxing of these services with a reduction in the sales tax rate, however, would counteract the increase in the tax share of the sales tax.. Those two changes together, therefore, would lessen the regressivity of state taxes as well as the sales tax itself. But that sort of revenue-neutral change in the sales tax would not provide the revenues necessary to meet the immediate needs of state governments.[26]

One way to correct the tax adequacy problem and improve the progressivity of a state tax system is to raise the income tax rates and lower sales tax rates. Altering those two tax rates would have profound effect on state tax systems. Outside of New Hampshire, which has neither a general sales tax nor a broad-based personal income tax, the general sales tax and personal income tax accounted for 69.5 percent of the tax revenues of New England states in 2010. Also that combination would boost the tax share of the progressive income tax and reduce the tax share of the regressive sales tax.

APPENDIX A: THE RISING RATE OF USE AND THE RISING COST OF

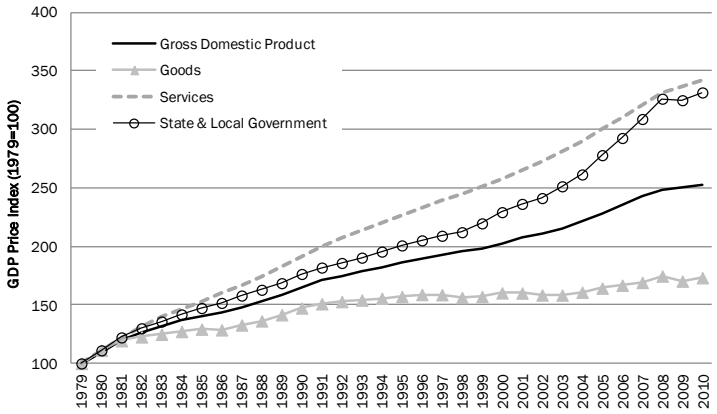
26 Analysts in some states might oppose lowering sales tax rates if it is their sense that sales tax revenues (even if regressively obtained) are spent on programs for people with low incomes. If this is the case, the net effect of those government actions—maintaining tax rates and spending taken together—could improve the progressivity of state policies (or make them less regressive than the current situation).

PUBLIC SECTOR SERVICES

The overall use of public services – from driving on public roads, to incarcerating criminals, to attending college or educating disabled children – has risen steadily for decades. From 1990 to 2008, the use of these services in each of the New England states grew faster than the rate of overall population growth (though highway lane miles is an exception) (see Table A1, page 44). In addition, the cost of providing services, whether by the private sector or the public sector, has risen considerably faster than costs across the rest of the economy. For instance, from 1979 to 2010 prices in the service sector (of the private economy) rose more quickly than prices across the economy (or for gross domestic product). Over that same time period, prices in the state and local government sector, dominated by the cost of public services, also rose more quickly than prices across the economy (see Figure A1).[27]

Some economists have argued that it is possible to restrain the rising cost of public services. For instance, two Brookings Institution economists, Jack Triplett and Barry Bosworth, found that intensive reliance on information technology has boosted productivity in the service sector since 1995. The productivity enhancing effects of these technologies are most evident in telecommunication and finance and

FIGURE A1: RISING PRICES BY SECTOR (GDP PRICE DEFLATORS)



Sources: Bureau of Economic Analysis Prices Table 1.1.4 Indexes for Gross Domestic Product, http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=3&isuri=1&903=4

27 The source of the price level estimates is the Bureau of Economic Analysis. Their GDP price deflator measures the price level in the overall economy. The price deflator for state and local government reports an implicit measure of the cost of providing state and local government services. The estimate is based on wages and salaries of state government employees and the prices of the entire range of purchases by state and local government.

TABLE A1: POPULATION AND PUBLIC SERVICE USE MEASURES

	US	*New England*	*CT*	*ME*	*MA*	*NH*	*RI*	*VT*
Public higher education enrollment								
1990	10,844,717	432,514	109,556	41,500	186,035	32,163	42,350	20,910
2008	13,972,153	483,050	118,694	48,191	205,820	42,192	42,601	25,552
change	29%	12%	8%	16%	11%	31%	1%	22%
Students with disabilities*								
1990-91	4,710,089	293,471	63,886	27,987	149,743	19,049	20,646	12,160
2007-08*	6,605,695	345,476	68,987	34,425	166,747	32,274	29,033	14,010
change	40%	18%	8%	23%	11%	69%	41%	15%
Public k-12 enrollment								
1990	41,216,683	1,925,946	469,123	215,149	834,314	172,785	138,813	95,762
2009	49,312,000	2,114,000	559,000	190,000	940,000	194,000	141,000	90,000
change	20%	10%	19%	-12%	13%	12%	2%	-6%
State prison population								
1990	708,393	25,151	10,500	1,523	8,345	1,342	2,392	1,049
2009	1,405,622	41,863	19,716	2,206	11,316	2,731	3,674	2,220
change	98%	66%	88%	45%	36%	104%	54%	112%
Highway lane miles								
1990	3,866,926	111,524	19,991	22,389	34,076	14,836	6,111	14,121
2008	4,042,778	117,125	21,363	22,828	36,105	16,005	6,403	14,421
change	5%	5%	7%	2%	6%	8%	5%	2%
Vehicle miles traveled								
1990	2,144,362	107,397	26,303	11,871	46,177	9,844	7,364	5,838
2008	2,973,509	129,340	31,737	14,559	54,505	13,040	8,187	7,312
change	39%	20%	21%	23%	18%	32%	11%	25%
Total population (thousands)								
1990	248,765	13,207	3,287	1,228	6,016	1,109	1,003	563
2008	304,060	14,304	3,501	1,316	6,498	1,316	1,051	621
change	22%	8%	7%	7%	8%	19%	5%	10%

Sources: US Census Bureau, US Department of Transportation, US Department of Justice, National Center for Education Statistics.
**Number of 3-21 year olds served under Individuals with Disabilities Education Act, Part B*

business services. But to curtail rising costs in the public sector would require boosting productivity in education and health care, the two largest sectors of public services with rapidly rising prices. Separate price indices are not available for education and health services in the public sector, but the price increases for household purchases of private-sector education and health services have been dramatic. Between 1979 and 2009 health care prices rose 480 percent, nearly twice the rate of inflation across the economy, while private-sector education prices rose 780 percent, a little more than three times the rate of inflation across the economy. Without reigning in rapidly raising healthcare costs, the difference between prices of services (public and private) and prices of GDP in general continued to increase in the post-1995 period (see Figure A1, page 43).

Until there is some evidence of significant departure from the historical record on the cost of public sector services and of the increase in the rate of use of public sector services, it would seem unwise for state governments to assume that tax adequacy can be obtained simply by maintaining tax revenues as a constant proportion of state income.

APPENDIX B: TECHNICAL NOTES

GROWTH AND VOLATILITY ESTIMATES: CONTROLLING FOR RATE CHANGES

To evaluate the underlying properties of growth and stability in the region's tax base, we use regression analysis to control for the influence of changes in tax rates on tax collections, and to obtain estimates of the responsiveness of the tax base to changes in personal income. We produce estimates of the ability of the tax base of the New England states to generate revenues that grow along with the economy over the long-term, and estimates of the stability of the tax base over the fluctuations in the business cycle.

Following previous research in public finance (Bruce, et al., 2006 and Felix, 2008), we estimate the following two equations:

Growth Equation:

$$\ln(\text{revenue}_t) = \alpha + \beta \ln(personal\ income_t) + \gamma(tax\ rate_t) + \varepsilon$$

Volatility Equation:

$$\Delta\ln(\text{revenue}_t) = \alpha + \theta\Delta \ln(personal\ income_t) + \gamma\Delta(tax\ rate_t) + \varepsilon$$

In both equations, the dependent variable "revenue" is annual tax collection for each major state tax instrument, "tax rate" is the relevant rate for that particular tax instrument, and ε is the "disturbance term." The term "Δ" in the volatility equation represents "change," and is calculated as a year-over-difference in each variable. Each of the variables in both equations changes over time, represented by "t." Both equations are estimated with Ordinary Least Squares (OLS).

The growth and volatility equations are estimated separately for each major state tax. These relationships are estimated jointly for the overall New England region for the period from 1971 to 2009, and in some cases for 1977 to 2009.[28] When possible the equations are also estimated separately by state. Estimates for the New England region include state fixed effects (a statistical technique to control for state-specific conditions correlated with the independent variables).

Tax revenue data used in the statistical analysis are the same as what is included in the graphs presented in earlier sections of the paper. They come from the Census Bureau's State Tax Collection data program and the State and Local Government Finance data program.[29] The tax rates used in the analysis include the top marginal income tax rate, the general sales tax rate, the top marginal corporate income tax rate, and the tax rates on beer, cigarettes, and gasoline. For New Hampshire, changes in the "business enterprise" tax (BET) are included along with changes in the Business Profits Tax, the state's version of the standard corporate income tax.

Public finance research regularly uses changes in the top marginal rate as the covariate to reflect tax policy changes. No model can fully incorporate all of the changes to a state's tax system, and this variable is commonly used in regression analysis. For the personal income tax, there is an alternative rate measure that does reflect policy changes other than the top marginal rate. We use that average marginal tax rate (MTR) as well as the top marginal rate in our analysis and present both results. This alternative rate measure, calculated by National Bureau of Economic Research using its TAXSIM program, reflects the combined impact of various changes to a state's income tax system (Feenberg and Coutts, 1994). The average MTR is affected not just by top rate changes, but also by changes to other rates, as well as changes in the standard deduction, bracket indexing, and other changes. The average MTR is available for each state and for different forms of income (earnings, dividends, interest, long-term capital gains) for 1979 to 2009.[30] Additional rate data included are an indicator for the sales tax treatment of groceries and an indicator for the tax treatment of capital gains income.

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28 We have tax rate data going back to 1951, but many of the states did not adopt major tax instruments until the early 1970s, including Maine and Rhode Island that adopted personal income taxes in the early 1970s. Massachusetts and Vermont adopted general sales taxes in the late 1960s and early 1970s, respectively. Systematically comparable analysis across the region for the major tax types is not possible until the early 1970s.

29 The State and Local Government Finance data is easily accessed through the Urban Institute-Brookings Institution Tax Policy Center's State & Local Government Finance Data Query System. http://www.taxpolicycenter.org/slf-dqs/pages.cfm.

30 The specific marginal tax rates are based on the fixed US distribution of income for 1995 that is run through each state's tax code. This income distribution ensures that the differences, over time and across states, are due to changes in tax policy, and not other demographic or economic shifts. See: http://www.nber.org/~taxsim/marginal-tax-rates/ for the rate data.

Because the equations are estimated in "double log" form ("ln" in the equation stands for natural log), the coefficients of interest (β and θ) can be interpreted as elasticities, and interpreted in the following way: a 1 percent increase in personal income leads to a "theta" percent increase in tax revenue. For the growth equations, coefficients with values above one (absolute value) are said to be "elastic" and indicate a tax instrument that – for the growth equations – will generate at least enough revenue to meet the rising demand for public services – to the extent that changes in income represent that need. Coefficients less than one are said to be "inelastic," and in this application indicate tax instruments the will generate a declining tax share of income over time. In the volatility equations, elastic coefficients represent relatively volatile tax instruments that rise and fall by even greater levels than income during the ups and downs of the business cycle. Coefficients less than one in the volatility equations represent relatively stable taxes, ones which rise less than income during an expansion, but fall less than income during a downturn.

REGRESSION RESULTS

Our first set of regression results estimate the income elasticity of the tax base of the four major state taxes for the New England region as whole over two different time periods, 1951 to 1980 and 1981 to 2010. The findings from our regression analysis show that the tax base of the personal income tax (PIT) is income elastic. Using its top marginal tax rate to control for changes in PIT tax rates, the income elasticity of the personal income tax over the period 1951 to 1980 is 2.2 and highly significant. The PIT remains income elastic in the more recent period, from 1981 to 2010, but the estimate of its income elasticity declines to 1.4. Using the average marginal tax rate to reflect changes in tax policy, the income elasticity of the PIT in the later period is also somewhat lower, at 1.3, but is still elastic and highly significant (see Table A2, page 48).

None of the other state taxes are income elastic for the region as a whole. The income or growth elasticities for general sales, corporate income, and selective sales taxes indicate that the tax base of each tax increased more slowly than personal income. For both selective sales taxes and corporate income taxes, the estimates of the income or growth elasticity declined from the earlier (1951-1980) to the later period (1981-2009). Selective sales tax revenue was nearly income elastic in the first three decades (0.92) but decidedly income inelastic in recent decades (0.64), while the income elasticity of the CIT plummeted from elastic to inelastic between the two periods. Our estimate of the income or growth elasticity of the corporate income tax is similar to the estimates in Felix (2009), which found income or growth elasticity for the corporate income tax for the United States of 0.53 for the period from 1965 to 2007. Our estimate of the income or growth elasticity of the corporate income tax for New England for the 1951 to 2010 period is a quite similar 0.58 (see Table A2, page 48).

TABLE A2: GROWTH TAX ELASTICITIES FOR NEW ENGLAND BY TAX TYPE, TIME PERIOD

Tax	*Rate detail*	*1951-1980*	*1981-2010*
Personal income tax	Top rates	2.227	1.424
		(0.085)**	(0.052)**
	Ave. MTRs[1]	-	1.290
		-	(0.047)**
Corporate income tax	Top rates	1.678	0.260
		(0.149)**	(0.101)*
General sales tax	Basic rate	0.928	0.913
		(0.130)**	(0.035)**
Selective sales tax		0.920	0.641
		(0.079)**	(0.078)**

*** significant at 1% level; * 5% level.*
1 Average MTR available starting in 1979.

State-specific regressions results for each of the major taxes generally reinforce the findings of our regression results for these taxes for the region as a whole. The personal income tax (PIT) is income elastic in each of the New England states (which have had a long standing personal income tax). That result held for both variables used to reflect changes in income tax rates. Specifications using the average marginal tax rates to reflect tax policy changes, available starting in 1979, produce growth measures that were consistently greater than one (see Table A3).

TABLE A3: GROWTH ELASTICITY BY TAX-TYPE AND STATE (1971-2010)

Tax	*Tax detail*	*CT*	*ME*	*MA*	*NH*	*RI*	*VT*
Personal income tax	Top rates	-	2.464	1.228	-	2.111	1.254
		-	(0.088)**	(0.041)**	-	(0.109)**	(0.116)**
	Ave. MTRs[1]	-	1.190	1.079		1.089	1.031
		-	(0.176)**	(0.079)**		(0.153)**	(0.090)**
Corporate income tax	Top rates	-0.043	0.770	0.323	1.023	0.084	0.530
		(0.144)	(0.241)**	(0.092)**	(0.118)**	(0.268)	(0.196)*
General sales tax		0.923	0.922	0.992		1.173	0.548
		(0.127)**	(0.035)**	(0.059)**		(0.078)**	(0.194)**
Selective sales tax	gas, cigarette, beer	0.029	-0.285	-0.258	0.352	-0.452	0.689
		(0.174)	(0.230)	(0.284)	(0.243)	(0.326)	(0.239)**

*** significant at 1% level; * 5% level.*
1 Average Marginal Tax Rate data available for 1979 to 2010.

The coefficients for several states indicate that the tax base of the selective sales taxes declined as income grew, but these estimates are not statistically different from zero. The income or growth elasticity of the general sales tax varies widely across New England states, ranging from a low of .55 in Vermont to a high of 1.2 in Rhode Island. The income or growth elasticities of the CIT were less than one in five of the New England states. Only in New Hampshire, with its value-added Business Enterprise tax, was the CIT income elastic (see Table A3, page 48).

Our analysis examines the volatility of these taxes during the long period from 1951 to 2010, and during the more recent years from 1971 to 2010. Also we report the results from two different methods for estimating the volatility of these taxes over a business cycle. The first approach in effect assumes that the relationship between changes in income growth rates and changes in tax revenue is the same magnitude during economic expansions and recessions, but moves in the opposite direction. These results are shown under the column heading "symmetric" in Table A4 (page 50). The results of the symmetric approach identify the corporate income tax as the most volatile state tax, with a short-term elasticity of 2.2 from 1971 to 2010. The personal income tax and the general sales tax are nearly equally volatile over the business cycle (1.4 to 1.6 and 1.5, respectively according to the results of the symmetric approach). Using this method, the only taxes that are less volatile than the change in personal income growth rates after controlling for changes in tax rates are selective sales tax (gasoline, tobacco, and alcohol taxes).

But the volatility of state tax revenue in the economic expansions of a business cycle differs from its volatility in the recessions of a business cycle. State tax revenues appear to decline more during recessions than they rise during expansions, even after controlling changes in tax rates. Following the research of Bruce, Fox, and Tuttle (2006), we use a second approach to measuring volatility of tax revenues, which allows changes in the personal income growth rate variable to interact with an indicator for economic expansions and recessions.[31] This method allows for an asymmetric relationship between changes in income growth rates and changes in tax revenue, producing different elasticities for business cycle expansions and contractions.

The results for these asymmetric specifications continue to show that corporate income taxes are the most volatile of the major state taxes, but also show that during recessions personal income taxes decline nearly as much as corporate income taxes. Over the 1971 to 2010 period, the PIT (using top rates to adjust tax policy changes) elasticity is 1.36 in expansions and 2.79 during recessions, while the elasticity of the

31 Bruce, Fox, and Tuttle (2006) estimate an Error Correction Model and calculate their interaction term so that it indicates whether the tax measure is above or below its long-run equilibrium. For ease of interpretation here, we estimate an OLS model and interact the income change term with an indicator based on the NBER business cycle dates. The indicator equals one if the economy was in recession during that year, and zero if not.

sales tax was 1.2 in both phases of the business cycle. The general sales tax is less volatile than the corporate income tax and the personal income tax, especially in recessions. Finally using the asymmetric specification, selective sales revenue is shown to decline at a faster rate than income during a recession.

Overall, the asymmetric results suggest that the major state taxes are "volatile." Over the longer period – 1951 to 2010 – the general sales tax also rises less than personal income during expansions. And the tax base of the corporate income tax was more volatile than the tax base of the other three major taxes over the business cycle, especially during economic expansions.

TABLE A4: VOLATILITY ELASTICITIES BY TAX TYPE FOR NEW ENGLAND

	Years	*Symmetric*	*Asymmetric*	
			expansion	*recession*
Personal income tax: top code	1951-2010[1]	1.94	1.45	1.45
	1971-2010	1.42	1.19	1.19
Personal income tax: MTR	1979-2010	1.56	1.36	1.36
Corporate income tax	1951-2010[2]	1.8	1.22	1.22
	1971-2010	2.24	1.71	1.71
General sales tax	1951-2010	1.17	0.91	0.91
	1971-2010	1.46	1.21	1.21
Selective sales tax	1951-2010	0.72	0.53	0.53
	1971-2010	0.69	0.58	0.58

1 PIT only available in CT starting in 1991, in Maine in 1969, and in Rhode Island in 1971.
2 CIT only available in Maine in 1969, New Hampshire in 1971. Results include rate changes for the New Hampshire's Business Enterprise Tax.

APPENDIX C: SALES TAX DEFINITIONS AND DISTRIBUTION

DEFINITIONS OF UNTAXED SERVICES CATEGORIES IN TABLE 1 (PAGE 29)

Recreation services includes: Museum, heritage, zoo, and recreational services; fitness and recreational sports center services; bowling activities; amusement parks, arcades, and gambling recreation (except casinos); and other amusements and recreation.

Performing arts and spectator sports includes: Performing arts; spectator sports; promotional services for performing arts and sports and public figures; and independent artists, writers, and performers. See NIPA Table 2.4.5, line 76 -79.

Financial services and insurance. Includes portfolio management and investment advice services as well as other financial services such as: Financial service charges

and fees; securities commissions; and trust, fiduciary, and custody activities. See NIPA Table 2.4.5, line 89.

Professional services: Includes legal services and accounting services (including tax preparation). See NIPA Table 2.4.5 line 104.

Internet access: See NIPA Table 2.4.5 line 99.

Veterinary and other services for pets: see NIPA Table 2.4.5, line 80.

Motor vehicle maintenance and repair: see NIPA Table 2.4.5, line 70.

For personal services: Includes laundry, dry-cleaning, household services, and other personal service. See NIPA Table 2.4.5, line 105.

For more on the calculation of the expenditure in each of these categories see *The NIPA Handbook: Concepts and Methods of the U.S. National Income and Product Accounts*, "Chapter 5: Personal Consumption Expenditures," November 2012. Available at: http://www.bea.gov/national/pdf/methodology/ch5%202012.pdf.

DETAILED DISTRIBUTION OF EXPENDITURES SHARES OF SELECTED UNTAXED SERVICES BY STATE AND INCOME CLASS, 2010

The tables below describe the share of personal consumption expenditures devoted to each of the services we have selected for taxation for all households and for households by income class. This table describes in detail the expenditures on each service category by income class and by state that supports the more figures for the selective services as group presented in Table 1 (page 29) in the body of the paper.

TABLE A5: EXPENDITURE SHARES OF CURRENTLY UNTAXED SERVICES, BY STATE AND INCOME CLASS

	Share, all households	*Share, < $25k*	*Share, $35-50k*	*Share, > $100k*
Connecticut				
Entertainment services				
Recreation services	0.9	0.8	0.9	1.0
Financial services and insurance				
Portfolio management & investment advice	1.4	0.9	1.7	1.1
Other financial services	1.1	0.3	0.7	1.5
Professional services				
Legal services	0.9	0.9	1.1	0.8
Accounting (including tax preparation)	0.1	0.1	0.1	0.1
Internet access and related	0.6	0.4	0.5	0.6

TABLE A5: EXPENDITURE SHARES OF CURRENTLY UNTAXED SERVICES, BY STATE AND INCOME CLASS, CONTINUED

	Share, all households	*Share, < $25k*	*Share, $35-50k*	*Share, > $100k*
Veterinary and other services for pets	0.2	0.2	0.2	0.3
Personal Services				
Laundry and dry-cleaning	0.1	0.2	0.1	0.2
Household services	0.2	0.1	0.1	0.3
Other personal services	0.5	0.6	0.5	0.5
Total Additional Services	6.1	4.4	6.0	6.3
Memo: Current sales tax base:	31.2	28.6	31.7	31.2
Maine				
Entertainment services				
Recreation services	0.9	0.8	0.9	1.0
Performing arts and spectator sports	0.3	0.2	0.3	0.3
Financial services and insurance				
Portfolio management & investment advice	1.5	1.0	1.7	1.2
Other financial services	0.9	0.3	0.7	1.5
Professional services				
Legal services	0.9	0.9	1.1	0.8
Accounting (including tax preparation)	0.1	0.1	0.1	0.1
Internet access and related	0.6	0.4	0.5	0.6
Veterinary and other services for pets	0.2	0.2	0.2	0.3
Repair services				
Motor vehicle maintenance and repair	1.3	1.1	1.3	1.6
Other repair services	0.5	0.5	0.5	0.6
Personal Services				
Laundry and dry-cleaning	0.1	0.2	0.1	0.2
Household services	0.2	0.2	0.1	0.3
Other personal services	1.1	1.3	1.1	1.2
Total Additional Services	8.6	7.1	8.6	9.6
Memo: Current sales tax base:	29.7	27.5	30.9	29.6
Massachusetts				
Entertainment services				

TABLE A5: EXPENDITURE SHARES OF CURRENTLY UNTAXED SERVICES, BY STATE AND INCOME CLASS, CONTINUED

	Share, all households	*Share, < $25k*	*Share, $35-50k*	*Share, > $100k*
Recreation services	0.9	0.8	0.9	1.0
Performing arts and spectator sports	0.3	0.2	0.3	0.3
Cable and satellite television	0.1	0.1	0.1	0.1
Financial services and insurance				
Portfolio management & investment advice	1.4	0.9	1.7	1.1
Other financial services	1.1	0.2	0.7	1.5
Professional services				
Legal services	0.9	0.9	1.1	0.8
Accounting (including tax preparation)	0.1	0.1	0.1	0.1
Internet access and related	0.6	0.4	0.5	0.6
Veterinary and other services for pets	0.2	0.2	0.2	0.3
Repair services				
Motor vehicle maintenance and repair	1.4	1.1	1.3	1.6
Other repair services	0.5	0.5	0.5	0.6
Personal Services				
Laundry and dry-cleaning	0.1	0.2	0.1	0.2
Household services	0.2	0.2	0.1	0.3
Other personal services	1.1	1.2	1.1	1.2
Total Additional Services	9.0	6.9	8.7	9.7
Memo: Current sales tax base:	28.4	26.1	29.0	28.2
Rhode Island				
Entertainment services				
Recreation services	0.9	0.8	0.9	1.0
Performing arts and spectator sports	0.3	0.3	0.3	0.3
Financial services and insurance				
Portfolio management & investment advice	1.5	1.0	1.7	1.2
Other financial services	1.0	0.3	0.7	1.5
Professional services				
Legal services	0.9	0.9	1.1	0.8
Accounting (including tax preparation)	0.1	0.1	0.1	0.1

TABLE A5: EXPENDITURE SHARES OF CURRENTLY UNTAXED SERVICES, BY STATE AND INCOME CLASS, CONTINUED

	Share, all households	*Share, < $25k*	*Share, $35-50k*	*Share, > $100k*
Internet access and related	0.6	0.4	0.5	0.6
Veterinary and other services for pets	0.2	0.2	0.2	0.3
Repair services				
Motor vehicle maintenance and repair	1.4	1.1	1.3	1.6
Other repair services	0.5	0.5	0.5	0.6
Personal Services				
Laundry and dry-cleaning	0.1	0.2	0.1	0.2
Household services	0.2	0.2	0.1	0.3
Other personal services	1.1	1.3	1.1	1.2
Total Additional Services	8.8	7.0	8.6	9.6
Memo: Current sales tax base:	28.3	25.8	29.1	28.5
Vermont				
Entertainment services				
Recreation services	0.9	0.8	0.9	1.0
Financial services and insurance				
Portfolio management & investment advice	1.5	1.0	1.7	1.2
Other financial services	0.9	0.3	0.7	1.5
Professional services				
Legal services	0.9	0.9	1.1	0.8
Accounting (including tax preparation)	0.1	0.1	0.1	0.1
Internet access and related	0.6	0.4	0.5	0.6
Veterinary and other services for pets	0.2	0.2	0.2	0.3
Repair services				
Motor vehicle maintenance and repair	1.3	1.1	1.3	1.6
Other repair services	0.5	0.5	0.5	0.6
Personal Services				
Laundry and dry-cleaning	0.1	0.2	0.1	0.2
Cooking, housecleaning, gardening, and other household services	0.2	0.2	0.1	0.3
Other personal services	1.1	1.3	1.1	1.2
Total Additional Services	8.4	6.8	8.3	9.3
Memo: Current sales tax base:	28.5	25.6	29.4	28.8

Sources: The sources for the data in the table are explained in detail in Appendix C: Sales Tax Definitions and Distribution.

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