New England

Fiscal Facts

How Will New Hampshire Solve Its School Funding Problem? Part 3 of 3

By Daniel G. Swaine

Ever since the New Hampshire Supreme Court decided in *Claremont II* that the local property tax used to fund K-12 public education was unconstitutional, policymakers have struggled to find a permanent solution to the school finance problem. In June 2001, after a rancorous two-year public debate, and nearly four years after the *Claremont II* decision, policymakers enacted a second plan that made the statewide property tax permanent and added sufficient supplemental revenues to finance the legislature's definition of the amount required to fund an "adequate" education. However, the school funding debate is far from over. First, the statewide property tax is extremely unpopular with many residents. Second, as pointed out in the previous issue of *Fiscal Facts* (Fall 2001), the statewide property tax remains vulnerable to legal challenges, despite a state Supreme Court ruling upholding its constitutionality. Third, a recent lawsuit filed by the original *Claremont* group challenges the legislature's definition of the amount needed to fund an "adequate" education.

Several policymakers, including Governor Shaheen, have proposed using other broad-based taxes, such as a sales tax or personal income tax, to help solve the school funding problem and reduce the state's reliance on the property tax. A blue-ribbon commission appointed by Governor Shaheen – the New Hampshire Commission on Education Funding – evaluated an array of tax alternatives. In this issue of *Fiscal Facts*, we review some of the commission's research and explain some of its results. In par-

ticular, we focus on the commission's evaluation of tax alternatives in terms of fairness and allocative efficiency.

Alternative Revenue Sources and the New Hampshire Commission on Education Funding

The New Hampshire Commission on Education Funding was charged with analyzing the economic effects of various tax alternatives to fund K-12 education. Each option had to raise the $825 million in revenues that the legislature deemed necessary to fund an adequate education in FY2000. The alternative revenue options were assessed according to six criteria often used to rank tax alternatives: (1) fairness, (2) adequacy, (3) competitiveness, (4) exportability, (5) neutrality (or allocative efficiency), and (6) administrative simplicity.[1] The commission's final report and supporting documents analyze all six criteria.[2] Here, we focus on the issue of *allocative efficiency* – to what extent does each tax alter how resources are allocated across different sectors of economic activity, both within the state and outside the

---

[1] *Fairness* concerns an evaluation of the burdens borne by different groups of taxpayers as a result of the imposition of the tax. *Adequacy* concerns the ability of the tax to generate a sufficient and stable revenue stream over time. *Exportability* concerns the ability of the state government to structure a tax in ways that will shift some of the tax burden from residents, who vote, to nonresidents, who don't vote. *Competitiveness* concerns the degree to which a tax regime attracts employers, consumers, and residents to the taxing jurisdiction. *Neutrality* or *allocative efficiency* concerns the degree to which a tax distorts the allocation of economic resources. *Administrative simplicity* concerns the real resource costs that are incurred in administering and complying with the tax laws, that is, the need to shift resources away from economically productive sectors to an economically unproductive sector – government administration.

state's borders. Because economics is primarily concerned with the allocation of scarce resources, the issue of allocative (or economic) efficiency is important, even though it is often overlooked in policy discussions, which tend to focus on a state's competitiveness. We also address the issue of *equity* – how each tax affects the distribution of welfare burdens across income classes.

Social Welfare Analysis

Comparing different types of tax policies is an exercise in social welfare analysis – in determining whether households are better off or worse off as a result of a policy change. If a household is better off, it experiences a gain in welfare; if it is worse off, it suffers a loss in welfare. A policy change can affect the welfare of different households differently – some can be better off (winners) and some can be worse off (losers) as a result of the same policy change. An improvement in economic efficiency occurs when the welfare gains accumulated by all the winning households outweigh the welfare losses accumulated by all the losing households. In this case, society is better off, and experiences a welfare gain. Conversely, a loss in economic efficiency occurs when the welfare losses accumulated by all the losing households outweigh the welfare gains accumulated by all the winning households. In this case, society is worse off, and suffers a welfare loss.

Welfare is a broader concept than tax burden, which is defined as the amount of resources surrendered to the government through the tax. The welfare loss (gain) from an increase (decrease) in a tax can be decomposed into three parts: (1) the loss (gain) from an increase (decrease) in the tax burden; (2) the loss (gain) from additional (decreased) distortions in the allocation of resources caused by the incentive or disincentive effects that are implicitly built into a tax;[3] and (3) the gain (loss) from the receipt of benefits associated with additional (decreased) government spending from increased (decreased) government revenues.[4]

Economists measure welfare gains and losses by applying the principle of compensation to place a monetary value on them. For a household that suffers a welfare loss as a result of a change in tax policy, economists ask the question, how much money would the household be willing to pay to avoid the policy change? The answer gives the monetary value of the household's welfare loss. Conversely, for a household that experiences a welfare gain as a result of a change in tax policy, economists ask, how much money would that household have to be paid to avoid (forego)

[2] *Report of the New Hampshire Commission on Education Funding: An Analysis of Various Revenue Options that Will Generate $825 Million to Fund K-12 Education in New Hampshire*, January 8, 2001. This report, as well as many supporting documents, can be found at www.nhpr.org/static/programs/nhtoday/focus_point/blue_ribbon/commission.htm, the web site of New Hampshire Public Radio.

[3] These distortions mean that people choose to spend, save, and work differently depending on the tax consequences of their actions. To illustrate, consider the distortionary effects of an income tax. By taxing labor income, an income tax reduces the effective hourly wage rate that an employee receives for each hour worked – the after tax wage rate. This effective wage rate is an implicit price for the use of time. By reducing the price of time, an income tax provides a disincentive to spend time at work and a corresponding incentive to increase the amount of time used for leisure activities. This incentive effect also causes consumers to reduce their overall level of consumption and to change their mix of consumption goods by substituting away from goods and services that are used during work (or complementary with work) towards the consumption of goods and services that are complementary with leisure, thereby affecting the allocation of economic resources.

Virtually all types of taxes have incentive and disincentive effects. For example, a property tax increases the price of owning a home relative to the price of renting a home and relative to the prices of other goods and services, causing economic resources to be shifted away from the production of homes and home-improvement merchandise towards the production of rental units and other goods and services. Similarly, a sales tax narrowly imposed on tangible goods but not on intangible services increases the prices of products relative to services, causing economic resources to be shifted away from goods toward services.

[4] The New Hampshire Commission on Education Funding was charged with analyzing the replacement of the property tax with another tax that would raise the same amount of revenue, $825 million. Therefore, the component of the welfare loss or gain associated with the receipt of benefits from government spending is zero for all alternatives considered, because the level of government spending and the distribution of benefits did not change across tax options. Similarly, since the total amount of revenues raised from each tax alternative did not change, then the tax burden component of the overall social welfare gain or loss is zero. However, each tax alternative can distribute tax burdens differently across households. Thus, the tax burden component of the welfare gain or loss for an individual household is not zero. Consequently, in the aggregate, the overall social welfare gain or loss of replacing one tax with another tax raising the same amount of revenues and not changing the level or distribution of benefits is solely due to changes in the distortion of the allocation of resources. However, at the individual household level, the welfare gain or loss from replacing one tax with another tax that does not change the distribution of benefits results from changes in the distribution of the tax burden across households as well as from changes in the distribution of distortions in household choices.

the policy change? The answer gives the monetary value of the household's welfare gain. Economists call this value an *avoidance cost measure*. In this article, we use the avoidance cost measure to compare the various tax policies against fairness and allocative efficiency criteria.

To illustrate the concept of avoidance cost, consider a modernized version of the biblical story of Job. Suppose that Satan had the power to cause Job to have a serious accident. Satan tells Job that he will experience such an accident unless Job makes an extortion payment. Then Satan asks Job *how much money he would be willing to pay to avoid* the accident. Job should be willing to pay Satan some portion of the costs incurred as a result of the accident once it occurs – this would include the costs of lost life, hospital and medical costs, the costs to repair property, foregone labor income while recuperating from the accident, and the costs of mental anguish caused by the accident. Assume these expenses are uninsured. The amount that Job would *willingly pay to avoid* the accident depends upon his psychological (i.e., welfare) valuation of an additional $1 in income – this dollar would normally be used to purchase goods and services that enhance his welfare (well-being), but instead, Job would forego these purchases to pay for the accident. If Job's psychological valuation of an additional $1 is large, he will experience a relatively large welfare loss from the cost burden imposed by the accident and would willingly pay a correspondingly large amount to avoid it. Conversely, if Job's psychological valuation of an additional $1 is small, he will experience a relatively small welfare loss from the cost burden imposed by the accident and would willingly pay a correspondingly small amount to avoid it. The psychological value of an additional $1 tends to be large for low-income households, but declines as household income increases. Even though this measure is sensitive to income distribution, it should be stressed that the compensation principle is based on *willingness to pay*, which depends upon an individual's psychological valuation of a change in income, rather than on *ability to pay*, which depends upon the absolute size of an individual's income and the market's valuation of his resources.

What types of policy changes yield small welfare effects versus large welfare effects? Holding the psychological valuation of an additional $1 of income constant, a large change in the cost burden imposed by a policy yields a relatively larger welfare effect by taking away more income than will a small change in the cost burden. For a given change in cost burden, a household that has a large psychological valuation of an additional $1 in income will experience a relatively larger welfare effect than will a household that has a small psychological valu-

ation of an additional $1 in income. This implies that tax policy changes making only small changes in tax burden, and in its distribution, will have small welfare effects. Further, since the psychological valuation of an additional $1 of income declines as household income increases, tax policy changes that are more progressive will cause smaller welfare effects than will policy changes that are more regressive.

For the commission's research, the total tax burden did not change; thus, changes in the distortion of household choices caused by the tax policy change determine its overall welfare impact.[5] Price distortions are a result of the implicit incentives and disincentives that are built into a tax (see footnote 3). A change in tax policy causes the prices on products affected by the tax to change relative to prices on products unaffected by the tax, forcing consumers to alter the quantities and mix of goods they purchase. The welfare impact of relative price changes depends upon the income effect from a price change. The income effect of a relative price change can be illustrated as follows. Suppose a consumer purchases $100 of food every week. Now suppose that the price of food doubles; the consumer would need $200 to purchase the same amount of food. If the amount of the consumer's food budget is fixed, he will have to purchase a smaller amount of food to fit his fixed $100 food budget. If the amount of food purchased by the consumer is fixed, then he will have to reduce his purchases of other goods and services to shift funds to the food budget in order to fit his fixed weekly income. In either case, it should be clear that the consumer's welfare has been harmed.

However, the psychological ability to more easily substitute products unaffected by the tax for the purchase of goods affected by the tax (the substitution effect from the price change) limits this impact. To illustrate, suppose hoof and mouth disease causes beef prices to skyrocket and suppose the price of poultry is unaffected by the disease. If consumers view poultry and beef as reasonably good substitutes, they will switch from beef to poultry and avoid the increased beef prices; however, if consumers view poultry and beef as poor substitutes, they will not switch from beef to poultry as easily, and will be unable to avoid the increased beef prices. In other words, the larger is the substitution effect from a price change, the smaller is the income effect from the price change (and the welfare effect), and vice versa.

---

[5] Tax policy changes were designed to be revenue neutral before behavioral effects. Because tax policy distorts relative prices, consumers respond to changes in tax policy by behaviorally altering the mix of their spending. After these behavioral effects have been taken into account, the tax policy changes considered by the commission may not have been revenue neutral.

What types of price distortions yield small welfare effects versus large welfare effects? Large relative price changes on products accounting for a large share of the consumer's budget and for which there are few substitution possibilities imply large income effects and large welfare impacts. Conversely, small relative price changes on products accounting for a small share of the consumer's budget and for which there are many substitution possibilities imply small income effects and small welfare impacts. Housing accounts for a large share of many consumers' budgets, and thus a large property tax will have a relatively large distortionary impact on consumer welfare. Similarly, since food and clothing account for a large share of the budgets of many consumers, a large sales tax imposed on these products will have a large distortionary impact on welfare.

Tax Alternatives Analyzed

The commission analyzed three different income tax options and four different sales tax options; in this article, we review all income tax alternatives and three of the four sales tax alternatives. Two income tax options are based on adjusted gross income (AGI) reported by taxpayers on their federal income tax returns, while the third is based on the federal definition of taxable income. The first AGI tax option allows no exemptions or deductions from AGI, while the second allows no deductions but allows generous personal exemptions. The taxable-income option implicitly incorporates all of the federally allowed exemptions and deductions. Each income tax option applies a flat statutory tax rate to the taxable base in computing an individual's tax liability. Although the statutory tax rate is the same for all taxpayers, differences in tax base definition imply differences in the structure of *effective tax rates*. Effective tax rates – an individual's tax liability divided by the amount of income an individual receives – will vary among individuals as well as across income classes. The manner by which effective income tax rates vary across income classes determines the degree of progressivity in the tax.

The three sales tax options differ in the range of sales transactions that are taxed. The broadest option taxes all tangible products, including food and clothing, as well as all services with the exception of housing services. The second option taxes all tangible products, including food and clothing, but exempts all services. The third option taxes most tangible products, but exempts food, clothing, and all services.

Social Welfare and the Commission's Research Analysis

As discussed above, a change in tax policy has welfare effects on society as a whole – allocative efficiency effects – as well as welfare effects on different groups of households – equity, or distributional, effects. If a policy change benefits everyone and no household is worse off, then the policy change is said to be Pareto superior. However, a policy change rarely benefits everyone; some groups are harmed, while others benefit. In other words, a policy change typically creates both winners and losers. The commission's researchers constructed a tax analysis model designed to answer two fundamental questions:

1. Is society as a whole better off or worse off as a result of the policy change?

2. Which groups gain and which groups lose as a result of the policy change?

The tax analysis model estimated the behavioral responses of households with respect to (1) purchases of various kinds of consumer goods and services, (2) the amount of time the household spends working, which determines the household's labor income, and (3) the amount of income the household saves for future consumption. The prices of the various consumer goods and services depend on the costs of firms producing these products, including the cost of the sales and property taxes imposed by state governments.[6] Effective wage rates depend upon income taxes levied, as does the amount of the household's disposable nonlabor income; pretax nonlabor income was assumed to be fixed. Data on the distribution of consumer purchases across various products were obtained from the consumer expenditure survey conducted by the Bureau of Labor Statistics. Data on income and income sources were obtained from the Minnesota IMPLAN group. These data were benchmarked to aggregate gross state product totals compiled by the Bureau of Economic Analysis (BEA). Data on existing tax collections and government spending were drawn from the annual government finances survey conducted by the Census Bureau. Data summarizing the degree of substitution possibilities between various types of products, between labor and leisure and these products, and between present and future consumption were

---

[6] The rental cost of the owner-occupied house was treated as a purchase of housing services, and the property tax was an excise tax on this purchase. This rental cost also counts as income for the owner. Rented housing was treated as a purchase of rented-housing services. The property tax affects the price of rented housing through its impact on the costs of firms that rent property. The impact of the property tax on owner-occupied housing and the impact on rented housing differ, because rental firms incur labor expenses in addition to property costs, accounting for 50 percent of the rental price. For owned housing, the imputed rent accounts for 100 percent of the housing cost, since labor costs incurred by the owner are nonmarket expenses.

obtained from the economic literature.[7] Data on the costs of firms were obtained from input-output tables developed by the BEA for the nation, but were benchmarked to New Hampshire industrial totals presented in the gross state product.

The results for each option contain a mixture of two opposing effects. Since the property tax is being replaced, property tax rates decline, which reduces the distortions from the property tax and enhances welfare. However, the property tax is being replaced by a new tax, either sales or income – an action that raises a tax rate from zero to some positive rate, which adds a new set of distortions and reduces welfare. If, for a given household, the welfare gain from property tax reduction outweighs the welfare loss from a sales or income tax hike, then the household has a net welfare gain. Similarly, if, for a given household, the welfare loss from a sales or an income tax hike outweighs the welfare gain from property tax reduction, then the household suffers a net welfare loss. The results presented here report the net change in household welfare due to the complete policy change – a reduction in property tax rates combined with an increase in income or sales tax rates.[8]

A Summary of the Commission's Analysis

Table 1 lists the net welfare gains and losses for each of the three income tax options, while Table 2 does the same for each of the three sales tax options. Recall that when a welfare loss occurs, the avoidance cost measure represents the amount of money that a household would be willing to pay to avoid having the policy implemented. Conversely, when a welfare gain occurs, the avoidance cost measure represents the amount of money that a household would have to be paid to avoid having the policy implemented. Thus, in Tables 1 and 2, if a net welfare gain results from an option, its corresponding avoidance cost value is positive – this represents the amount of money that individuals would have to be paid to avoid having the tax option implemented. On the other hand, if a net welfare loss results from an option, its corresponding avoidance cost value is negative – this represents the amount of money that individuals would be willing to pay to avoid having the tax option implemented. In column A of Tables 1 and 2, the overall net welfare gain or loss – that is, the economic efficiency gain or loss – is listed for each tax option. Because efficiency gains and losses concern all taxpayers that are affected by the policy change, the efficiency gain or loss that is reported accrues to all households (com-

bined) in New Hampshire and its three neighboring states, Maine, Massachusetts, and Vermont. For example, the flat effective income tax rate option in Table 1 shows an overall net welfare loss of $31 million.

Columns B and C in Tables 1 and 2 report the distributional effects of each tax option – that is, the distribution of net welfare gains and losses across the winners and losers. For each option, we assess how the net welfare gains and losses are split between New Hampshire residents and bordering state residents. Because New Hampshire policymakers will be more concerned with the welfare of their own residents, the welfare gain or loss reported for New Hampshire residents is the most relevant in determining the specific policy ultimately chosen by policymakers. We also assess how the net welfare gains and losses are split among lower- and higher-income groups within the state of New Hampshire.

Consider the first income tax rate option listed in Table 1. For this option, New Hampshire residents suffer a welfare loss of $46.7 million (column C), while bordering state residents register a welfare gain of $15.7 million (column B). Also, New Hampshire residents earning more than $70,000 per year register a welfare gain of $6.1 million (column B), while New Hampshire residents earning less than $70,000 suffer a welfare loss of $52.8 million (column C).

It may seem odd that bordering state residents gain from an income tax imposed on New Hampshire residents. This occurs because the income tax is replacing the statewide property tax. Approximately 30 percent of property taxes are paid by business property owners. A reduction in property taxes reduces their cost of doing business; to the extent that they reduce their selling prices as a result, bordering state residents will benefit from lower prices when purchasing goods and services in New Hampshire.[9,10] Note that bordering state residents are better off in the amount of $15.7 million across all income tax options.

---

[7] These data are called substitution elasticities. See the bibliography in the commission's report for further information.

[8] The results generated from the tax analysis model were presented in a different form in the commission's final report. A modified presentation of these results can be found in the commission's final report in sections that discuss each tax option with regard to fairness and neutrality (efficiency) criteria.

[9] Impacts on business firms eventually are passed back to households in the form of changes in the prices of goods and services that households purchase, the wages that households are paid, and the capital income (dividends, rent, and interest) that households receive. The welfare analysis undertaken by the commission includes these pass-through effects. For more information on the commission's tax analysis model, see Daniel G. Swaine, "The New Hampshire Commission on Education Funding's Tax Analysis Model," Technical Appendix (available upon request).

Table 1
Welfare Gains and Losses for Income Tax Options

	Column A	Column B		Column C	
	Net Welfare Gain or Loss	Winners	Winners' Gains	Losers	Losers' Losses
	$ Millions		$ Millions		$ Millions
1. **Flat Effective Tax Rate** **Federal Adjusted Gross Income** (no personal exemptions) **Net Welfare Loss**	– 31.0	Neighboring State Residents	15.7	New Hampshire Residents	– 46.7
		NH Residents $70,000+	6.1	NH Residents < $70,000	– 52.8
2. **Moderately Progressive** **Effective Tax Rates** **Federal Taxable Income** **Net Welfare Gain**	74.4	New Hampshire Residents	58.6		
		Neighboring State Residents	15.7		
		NH Residents < $70,000	58.3		
		NH Residents $70,000+	0.3		
3. **Very Progressive** **Effective Tax Rates** **Federal Adjusted Gross Income** (generous personal exemptions) **Net Welfare Loss**	– 23.6	Neighboring State Residents	15.7	New Hampshire Residents	– 39.3
		NH Residents < $40,000	43.7	NH Residents $40,000+	– 83.0

Among the three income tax options, the net welfare gains and losses and how they are distributed depend on the degree of progressivity built into the tax. Because the structure of exemptions and deductions differs across the three income tax options, the degree of progressivity also varies.[11] The first option in Table 1, which has no exemptions from federal AGI, results in a proportional tax with flat effective tax rates across different income groups. The second option, which incorporates all federally allowed exemptions and deductions, results in a moderately progressive tax with effective tax rates that increase with income; the increase, however, is less steep than under the very progressive tax of the third option. With generous personal exemptions from federal AGI, the third option results in effective tax rates that increase sharply with income.

For the flat-rate income tax, low- and middle-income households in New Hampshire bear the brunt of welfare losses, and these losses swamp the combined net gains accrued by high-income households in New Hampshire and bordering states. On the other hand, the highly progressive income tax with generous exemptions imposes a welfare burden on households in New Hampshire and bordering states earning more than $40,000 per year, and these net losses swamp the combined net gains of lower-income households in New Hampshire and bordering states.

In the moderately progressive income tax option that uses federal taxable income as the base, all households experience a net welfare gain. In other words, this option is a Pareto superior alternative; it also produces the

---

10 The business portion of the model was underdeveloped because of time constraints resulting from the deadline for the commission's report. This forced model developers to impose restrictions on the technology used by business firms to produce their respective goods and services, such that firms were not allowed to adjust the mix of inputs that they use as the tax structure changes. Such changes in input mix can occur because alternative tax systems impose different tax burdens on the various inputs. But, as the tax structure changes, production costs change, causing firms to change their selling prices, and this is captured by the model in the pass-through effect on product prices discussed in footnote 9. Even so, the inability of firms to adjust input mix implies that the pass-through effects on product prices may be overestimated. For further details, see the technical appendix mentioned in footnote 9.

11 Progressivity concerns how steeply effective tax rates rise as the income of a household increases. If effective tax rates decline as household income increases, the tax is regressive. If effective tax rates are the same for households having different income levels, the tax is flat, or proportional. If effective tax rates rise as household income increases, the tax is progressive. The more steeply that effective tax rates rise as income increases, the more progressive is the tax.

Table 2

Welfare Gains and Losses for Sales Tax Options

	Column A	Column B		Column C	
	Net Welfare Gain or Loss	Winners	Winners' Gains	Losers	Losers' Losses
	$ Millions		$ Millions		$ Millions
1. **Comprehensive Sales Tax on All Tangible Products and All Services** (except housing) **Net Welfare Gain**	11.8	**New Hampshire Residents** NH Residents $10,000+	107.1 108.4	**Neighboring State Residents** NH Residents < $10,000	– 95.3 –1.3
2. **Intermediate-Based Sales Tax on Tangible Products Including Food and Clothing** (exempts all services) **Net Welfare Gain**	31.7	**New Hampshire Residents** NH Residents $10,000+ NH Residents < $10,000	127.9 127.7 0.2	**Neighboring State Residents**	– 96.2
3. **Narrow-Based Sales Tax on Tangible Products Except Food and Clothing** (exempts all services) **Net Welfare Gain**	49.0	**New Hampshire Residents** NH Residents $10,000+ NH Residents < $10,000	129.5 128.9 0.6	**Neighboring State Residents**	– 80.5

largest overall welfare gain (a gain of $74.4 million) across all income and sales tax options considered. Although the moderately progressive income tax is the most economically efficient of all the tax options considered, it does not produce the greatest welfare gain for New Hampshire residents across all tax options considered (the gain is only $58.6 million because out-of-state residents capture a $15.7 million welfare gain). The narrow-based sales tax produces the greatest welfare gain for New Hampshire residents (a gain of $129.5 million) even though it is not the most economically efficient option (the overall welfare gain is $49.0 million because out-of-state residents suffer a welfare loss of $80.5 million). Consequently, the choice of which option to implement entails a choice between economic efficiency and the distribution of the welfare gains between in-state and out-of-state residents.

It should be noted that the commission's analysis demonstrated that the current statewide property tax is a moderately progressive tax — lower-income households are not disproportionately affected by it. This is so because lower-income households tend to be renters rather than homeowners. Since a property tax contains an incentive for people to rent rather than own a home, the welfare burden imposed as a result of the price distortion is relatively minor. On the other hand, a flat effective income tax rate disproportionately distorts the work/leisure choice of lower-income households, imposing a relatively severe welfare burden on them. Conversely, upper-income households tend to be homeowners rather than renters; a property tax disproportionately distorts the own-versus-rent choice of these households, imposing a relatively harsh welfare burden on them. A very progressive income tax disproportionately affects upper-income people even more; it greatly distorts the work/leisure choice for these households, imposing a severe welfare burden on them.

All sales tax options are regressive in that effective tax rates (sales taxes paid as a proportion of income received) decline as income increases. For the three sales tax options studied, the net welfare gain depends on the breadth of

the tax base. Welfare gains decrease as the base of the sales tax gets broader. To an economist, this result may seem counterintuitive. However, we are examining an economy where there are extensive cross-border purchases. Broadening the sales tax base in only one state of a multi-state economy means that we add greater distortions of the choice between goods and services purchased in one state versus another. Thus, Table 2 shows that neighboring state residents would bear all of the net welfare losses from a sales tax imposed only on New Hampshire goods and services, and that these welfare losses increase as the number of goods and services subject to the tax gets larger. Conversely, New Hampshire residents experience relatively large welfare gains from replacing the property tax with a sales tax, but these gains come at the expense of bordering state residents. However, it needs to be stated that we are considering only two criteria in this analysis – efficiency and distribution. Other criteria (competitiveness, for example) are not being considered.

Conclusions

The *Claremont II* decision of the state Supreme Court put educational finance policy in New Hampshire at a crossroad. Although policymakers have chosen an alternative that fully funds the legislatively defined cost of an "adequate" education, the debate over educational finances is far from over. The property tax alternative that is central to the reform chosen by policymakers is itself problematic – New Hampshire residents don't like the tax, and the way that New Hampshire administers it leaves it open to constitutional challenge. A constitutional amendment favored by some parties has the potential to create multiple new conflicts.

Policymakers may want to consider either of two possible options: (1) change how the statewide property tax is administered in order to reduce the chance that a constitutional challenge will succeed, or (2) alter the tax structure, introducing one or more broad-based taxes to finance education. **FF**

Are State and Local Revenue Systems Becoming Obsolete?

from the New England Economic Review

Are State and Local Revenue Systems Becoming Obsolete?
Robert Tannenwald

New England Economic Review
Issue Number 4 – 2001

The *New England Economic Review* presents economic and public policy research by the Bank's economists and others. Topics are regional, national, and international in scope.

Issue Number 4 of 2001 features an article by Robert Tannenwald, Assistant Vice President and Economist at the Boston Fed, discussing the impact on state and local revenues of three long-term trends: the shift in the nation's mix of production and consumption from goods to services; the proliferation of electronic commerce; and the intensification of interjurisdictional competition. He concludes that state and local tax systems are increasingly out-of-sync with the economy's changing structure. He suggests possible approaches for dealing with this and urges that threats to the revenue productivity and stability of subnational revenue systems be continuously reevaluated.

The *New England Economic Review* is available on the Internet at

www.bos.frb.org/economic/neer/neer.htm.

"Are State and Local Revenue Systems Becoming Obsolete?"
is available in a PDF file at

www.bos.frb.org/economic/neer/neer 2001/neer401b.htm.

Subscriptions to the *New England Economic Review* and copies of Issue Number 4 of 2001 are available without charge. Contact the Research Library:

Research Library-D
Federal Reserve Bank of Boston
P.O. Box 2076
Boston, Massachusetts   02106-2076

e-mail: boston.library@bos.frb.org

Across *the* Region

▼

During the first four months of FY2002, tax revenue collections slowed dramatically from the healthy growth recorded during the same period in FY2001. Relative to the same period last year, four of the six New England states (Connecticut, Maine, Massachusetts, and Rhode Island) had either flat revenues (Rhode Island) or declines in tax collections. In addition, relative to the same period last year, business tax collections plummeted in all six New England states. The two states with the largest economies, Connecticut and Massachusetts, experienced steep revenue declines of 7 percent to 8 percent. Both expect fairly sizable budget deficits as a result and have responded by enacting various spending cuts and revenue enhancements. Other New England states are preparing similar plans in expectation of weak revenue growth for the foreseeable future.

Six State Review

▼

Connecticut

During the first four months of FY2002, tax collections in Connecticut plummeted 6.9 percent from the same period last year. Leading the decline was a 41 percent drop in business tax collections. Income tax collections declined 2.3 percent, while sales tax collections fell by 4.3 percent. In the spring of 2001, budget planners had predicted strong revenue growth for FY2002. In late October, the legislature's Office of Fiscal Analysis (OFA) revised its projections, predicting that tax revenues would be down $294 million from the original budget forecast of last June. In light of deteriorating revenues, OFA recently projected a $300 million budget deficit by the end of the fiscal year. In mid-November, the legislature, responding to OFA's forecast, enacted $136 million in budget savings and authorized borrowing $65 million in bond debt, leaving a projected $100 million shortfall still to be filled.

Maine
by Amanda Lydon

Through the first four months of FY2002, Maine collected $688.7 million in tax revenues, down 0.6 percent from the same period last year. Collections from income, sales, and corporate taxes all fell short of predictions, growing by 0.9 percent, -5.7 percent, and -0.2 percent, respec-

tively. It is expected that revenues will continue to fall throughout the recession. While revised revenue projections have yet to be finalized, preliminary estimates suggest a revenue shortfall of $200 million to $300 million through the end of FY2003. In order to fill the expected budget gap, policymakers are examining various spending cuts and revenue enhancements.

Massachusetts

Through the first four months of FY2002, the Commonwealth collected $4.6 billion in tax revenues, down 8.0 percent from the same period last year. Most revenue categories slumped. Income tax collections were down 8 percent, sales tax collections were down 0.3 percent, and business tax collections were off by 45.0 percent. The ballot initiative of late 2000 that cut the income tax rate from 5.85 percent in 2000 to 5.6 percent in 2001 reduced income tax collections by an estimated $119.3 million during the first four months of FY2002. Had the tax cut not been in effect, income tax collections still would have dropped by 3.9 percent.

The recession is expected to result in a $1.4 billion budget deficit by the end of FY2002. In late November, the legislature passed an $18.5 billion own-source expenditure budget, up 3.8 percent from FY2001 appropria-

Revenues from the Two Largest Taxes in Each New England State

July through October, FY2002 Compared with FY2001

Percent Change

Legend:
- Income
- Sales
- Business Profits
- Meals and Rooms
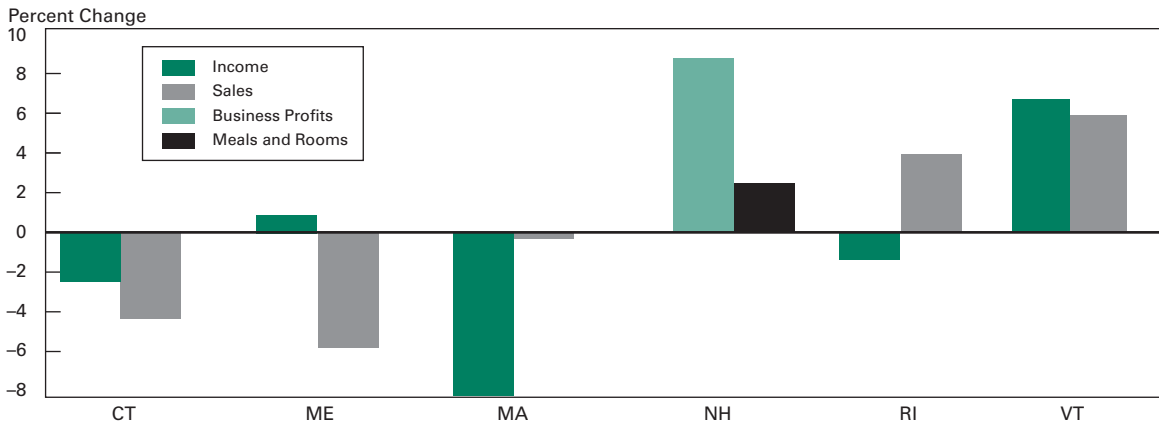
Source: Official budget documents, state financial statements, and conversations with state budget officials.

---

tions. To close the projected budget deficit, legislators reduced spending by $650 million and drew $700 million in revenues from the state's "rainy day" fund.

New Hampshire

During the first four months of FY2002, New Hampshire collected $403.6 million in tax revenues, up 8.3 percent over last year. However, this comparison is distorted by increases imposed in June in the state's two business taxes, the business profits tax and the business enterprise tax (see *Fiscal Facts*, Fall 2001). These increases resulted in extra business tax collections of $21.1 million. Had the increases not occurred, total tax collections in New Hampshire would have grown by 2.6 percent. Combined collections from the two business taxes were up by 8.5 percent during the first four months of FY2002, while the tax base actually shrank by 15.4 percent. Revenues from the meals and rooms tax increased by 2.4 percent.

Rhode Island

Through the first four months of FY2002, Rhode Island collected tax revenues of $580 million, up 0.4 percent from last year. Sales tax collections were responsible for this growth, rising 3.8 percent, while personal income tax collections were down by 1.3 percent, and corporate tax collections were down by 34 percent. In mid-November, the state's official Revenue Estimating Committee revised revenue projections downward by $65 million, while the governor warned of an impending budget shortfall of $70 million by the end of the fiscal year.

Vermont

by Amanda Lydon

Through the first four months of FY2002, Vermont collected $300.3 million in tax revenues, up 4.5 percent from the same period last year. Both income and consumption taxes were unexpectedly strong, growing 6.5 percent and 5.8 percent, respectively. Business profit tax collections fell by 6.2 percent, somewhat worse than expected. Considering the nationwide economic recession, Vermont's tax collections appear to be exhibiting healthy growth. Nevertheless, given pessimistic forecasts for the economy, revenue forecasters expect revenues to decline by 2.9 percent for all of FY2002. **FF**

Why are ticket prices **so** high?
Is anybody worth **that** much?
Why are owners and players **always** squabbling?

Peanuts & Crackerjacks

a **FREE** web-based baseball game,
answers these questions and more.

It's all on the web. Go to
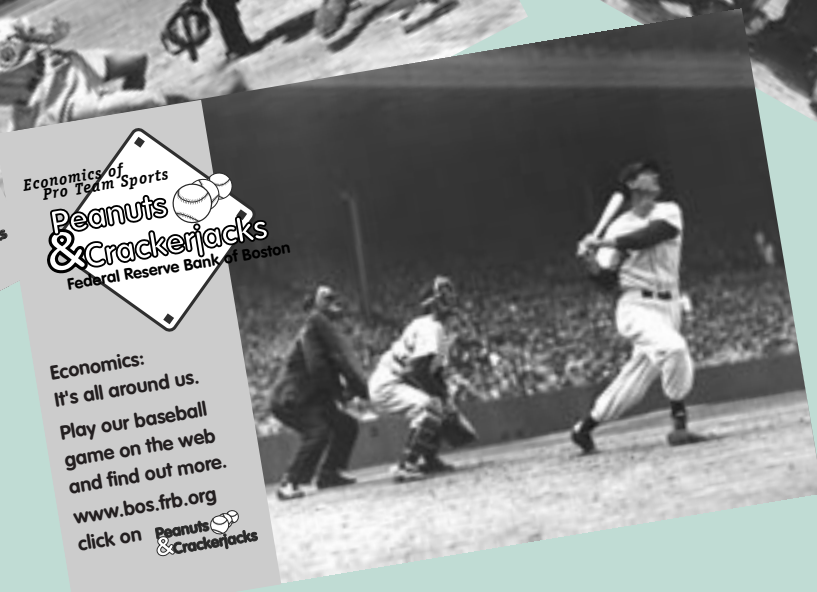www.bos.frb.org.
Click on **Peanuts & Crackerjacks**

Economics of
Pro Team Sports
Peanuts & Crackerjacks
Federal Reserve Bank of Boston

Economics:
It's all around us.
Play our baseball
game on the web
and find out more.
www.bos.frb.org
click on Peanuts & Crackerjacks

New England Fiscal Facts

Bulk Rate
U.S. Postage
Paid
Danvers, MA
Permit No. 355