



**GLOBAL** INSIGHT

## Economic Impacts of Eliminating the Massachusetts State Income Tax

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## Executive Summary

In November 2008, Massachusetts voters will have the opportunity to vote on Question 1: a proposal to eliminate the state's individual income tax over a two-year period. This proposal will reduce Massachusetts' state revenues by an estimated \$12.5 billion. The impact on state spending will be grave if the gap is not filled by alternative revenue sources. Global Insight was asked by the Associated Industries of Massachusetts, the Greater Boston Chamber of Commerce, the Massachusetts Business Roundtable, and the Massachusetts Taxpayers Foundation to analyze the impacts on the Massachusetts economy of possible spending reductions necessary to bring the state budget into balance if the income tax is eliminated.

Question 1 goes too far. It is far more than a signal—it is a disabling blow to state and local government services. In the midst of a global financial crisis, it will close credit markets to state agencies, cities, and towns. The loss of this major revenue source will undermine the investments in education and infrastructure that are essential to a competitive business environment in Massachusetts. Private investment in the Commonwealth will be reduced, resulting in fewer jobs being created and slower economic growth. The cost to Massachusetts' residents will increase substantially in the form of higher tuition payments, new road and bridge tolls, and other user fees—expenses that will more than offset the gain from paying no income tax for most households.

### *Education and Workforce Training*

- Massachusetts residents' high educational attainment relative to national averages has significantly aided the development of a skilled-services-oriented economy, including growth in biotechnology, management consulting, venture capital, healthcare, and financial industries.
- Numerous studies have empirically proven that education has a large impact on a region's subsequent economic growth rate and on individual earnings. Education investments—beginning with early childhood education, elementary/secondary through higher education and workforce training—increase the quality of the current and future workforce and are influential in attracting businesses, valuable professionals, and skilled workers to the state.
- Massachusetts' public higher education system enrolls 260,000 students. Massachusetts students benefit from \$1 billion in state appropriations and \$94 million in financial aid.
- Removing 71% of state appropriations for higher education in the absence of the income tax will increase average full-time undergraduate tuition and fees by an estimated \$1,300 at the Commonwealth's community colleges; \$1,800 at its state colleges; and nearly \$4,500 at its University of Massachusetts campuses. Removing state financial aid will make matters worse for eligible students at public and independent colleges. Low-to-middle-income residents will not have access to affordable higher education. Foregone income tax payments will not offset the increased fees for these residents.
- State appropriations for early education and child care will also be at risk. Returns on early childhood education are very high, particularly for children of disadvantaged

families, because it compensates for an unfavorable family environment. Attempts to remedy early educational deficits later in life can be much more expensive and, possibly, too late to be effective. Early childhood development programs should be at the top of the list of economic development programs.

- Numerous ranking systems devised to grade states on their attractiveness to businesses all include the quality of education and/or the quality of the workforce as a major factor. Companies are eager to employ skilled workers that require minimal post-hire training.

### *Infrastructure*

- Elimination of income tax revenues will lead to drastic cuts in current infrastructure expenditures and sharply reduce the capacity to undertake new capital projects.
- Debt service as a percentage of total spending will quickly go well beyond the statutory limit (10%) and the target set in consultation with rating agencies (8%) to about 12%. To get debt service down to an acceptable level, the Commonwealth will have to slash new debt issuances, which could result in no net new borrowing for seven years.
- If state spending on the maintenance and repair of roads and bridges is cut drastically—departing substantially from the capital improvement program—federal matching money can be at risk, further jeopardizing spending on critical infrastructure.
- Economic studies show that infrastructure is a complement to private capital. It creates the conditions for growth by reducing costs of production and raising the returns to other capital and labor. Businesses understand this; one business survey puts transportation at the top of the list of possible impediments to business and economic performance.
- The perception of having an inadequate transportation system can downgrade the Commonwealth's attractiveness as a site for businesses expanding or seeking new locations. Higher risks from an unreliable transportation infrastructure will mean less business investment and slower growth for the Massachusetts economy.
- Infrastructure is a spending category where a funding gap can be filled by increased user fees in the form of more highway and bridge tolls. The total cost to households in added tolls and fares needed to maintain current spending on highways and regional transit could be \$150-200 per household—more than offsetting the savings from elimination of the income tax for many families.

### *Impact on the Commonwealth's Bond Rating*

- Elimination of revenue from the income tax with no offsetting tax increases will create conditions that can contribute to a substantial downgrading of the rating on Massachusetts state bonds: increased uncertainty about revenue flows, less diversity in revenue sources, and greater volatility of the Commonwealth's remaining revenue stream.
- Trumping all of these factors will be the dramatic impact on the Commonwealth's bond rating as a result of a sharp rise in the debt service ratio. At 7.5% of total spending, this ratio is already considered a "credit challenge" by the rating agencies. It can quickly rise to 12%, with prospects for only a slow reduction over time.

- Massachusetts general obligation debt is currently rated Aa2 by Moody's and AA by Standard & Poor's—lower than about 20 other states. Historically, downgrades of two or more steps are not unknown. During the severe economic downturn of 1989–91, the Commonwealth's bond rating was cut by Moody's first to Baa1, then to Baa.
- If the Commonwealth's bond rating is downgraded to junk bond status, borrowing costs can rise by 2-4 percentage points. A three-percentage-point increase will raise annual costs by over \$100 million, causing further cuts in other areas of state spending.
- But a more fundamental effect of a significant downgrading of Massachusetts' bond rating is that it could become nearly impossible for the Commonwealth to sell its bonds in the market.

Taxpayers need to understand the magnitude of the changes to both the Commonwealth's budget and their personal budgets that elimination of the individual income tax will generate.

- The income tax is the largest source of revenue to the Commonwealth. Eliminating the income tax will remove 60% of the Commonwealth's "own-source" tax revenues and 40% of its total revenue sources. Such a change will rank Massachusetts a distant last among the states in tax revenues per capita and per dollar of personal income.
- Proponents of eliminating the income tax note that taxpayers will save an average \$3,600 in 2009. Because income taxes are progressive, however, tax filers with annual income less than \$25,000 will gain approximately \$240 per year, while those with annual income greater than \$100,000 will gain \$15,000–16,000 on average.

## Economic Impacts of Eliminating the Massachusetts State Income Tax

### Introduction

In November 2008, Massachusetts voters will have the opportunity to vote on a proposal to eliminate the Commonwealth's individual income tax. The proposal was filed as an initiative petition after sponsors gathered sufficient signatures for the question to appear on the November 2008 state election ballot (Question 1). If the measure passes, it will end the 5.3% Massachusetts income tax on wages, interest, dividends, and capital gains. The proposed law will reduce the personal income tax rate to 2.65% for all categories of taxable income for the tax year beginning on or after January 1, 2009. It will eliminate the tax for all tax years beginning on or after January 1, 2010.

Question 1 will reduce Massachusetts state revenues by an estimated \$12.5 billion, or about 40% of current state revenues. The impact on state spending will be dramatic. If voter sentiment is sufficiently strong on this issue to pass the petition, it is uncertain that the legislature will offset the elimination of the income tax by raising other taxes. It is possible that user fees for certain government services (such as park admission, road tolls, or public higher education) can be instituted or raised. Where programs are funded through revenue-sharing with local municipalities, such as elementary and secondary public education (K-12), cuts in state funding can push the burden of increasing taxation down to the local level and lead to increases in property taxes.

If the income tax is eliminated, it is also unlikely that the revenue gap can be resolved by increased state borrowing. Our analysis considers the impact of reduced revenues and increased borrowing on the state's bond rating and borrowing costs, and shows that the Commonwealth's ability to borrow can also be severely constrained.

In order to evaluate the economic impact of elimination of the income tax, it is necessary to anticipate (develop a hypothesis about) which categories of state spending will be cut by the legislature in order to bring the state budget back into balance. A study by the Massachusetts Taxpayers Foundation (MTF) looks at the possible impact of elimination of the Massachusetts income tax on the operations of the state government.<sup>1</sup> The study concludes that if only spending on the Commonwealth's constitutional and legal obligations (Medicaid, Chapter 70, debt service, MBTA, and MSBA) are protected, all other state spending programs will need to be trimmed by 71%. In addition, the Commonwealth will have to freeze infrastructure spending for seven years, at a loss of \$20.4 billion, in order to meet its debt service-to-revenue cap.

While the MTF study quantifies the size of the cuts in government programs that will be required if the income tax is eliminated, it does not seek to analyze the long-term impact on the Massachusetts state economy of implementing these reductions in government programs. The Associated Industries of Massachusetts, the Greater Boston Chamber of Commerce, the

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<sup>1</sup> Massachusetts Taxpayers Foundation, *The Enormous Consequences of Question 1*, October 2008.

Massachusetts Business Roundtable, and the Massachusetts Taxpayers Foundation asked Global Insight to analyze some of the likely economic impacts on the Massachusetts economy if the petition passes and the state legislature puts the petition into effect without raising other current taxes or instituting new taxes at the state level.

The range of possible impacts of eliminating the income tax is dramatic. Some of these impacts are immediate, such as reductions in state services, state government, and state-associated jobs; the income of these workers and the associated reductions in their consumer spending; and federal matching funds. Some of these impacts will be offset to some degree by the increase in the take-home pay of all Massachusetts taxpayers due to lower taxes and taxpayers' associated increases in consumer spending. Clearly, the redistribution of income will be skewed in favor of high-income individuals.

One must also look to the longer term to appreciate the full scope of eliminating the Massachusetts state income tax on the economy and growth. The most detrimental long-term impact will be on the Commonwealth's economic development. Sharp reductions in state spending will have a negative impact on the quality of the workforce and the efficient functioning of the economy, altering the investment climate in the state. A 40% reduction in state revenues can remove much of the funds required for investment in the state's workforce, its educational system, and its infrastructure, as well as the funds required for the maintenance of the state's existing bridges, roads, schools, public safety networks, and courts.

It is difficult to envision that Massachusetts citizens will allow such cuts to occur. This report, therefore, is a provisional discussion of the long-term effects that such spending cuts will have on the cost of doing business in Massachusetts, their likely impact on business investment and location decisions within Massachusetts, and on the Commonwealth's bond rating. Our focus is on infrastructure and education spending cuts because they are directly related to the production factors that drive economic growth: the economy's capital stock and its labor force. One should still keep in mind the importance of law enforcement, the courts, and human services to the business environment, and the personal and business problems that will arise if these services were drastically cut.

## **The Role of the Income Tax in Massachusetts**

Before we begin our discussion of the impact of eliminating Massachusetts' individual income tax, it is important to understand the magnitude of the change that we are discussing and the precarious situation it will create for the state. This section will show that:

- Most states rely on a combination of sales/excise and individual income taxes.
- Between the two sources, Massachusetts relies significantly more on individual income taxes—the more progressive of the two taxes.
- Eliminating the Massachusetts individual income tax will remove 60% of the Commonwealth's tax revenues and 40% of its total revenue sources. Such a change will rank Massachusetts a distant last among the states in tax revenues per capita and per dollar of personal income.

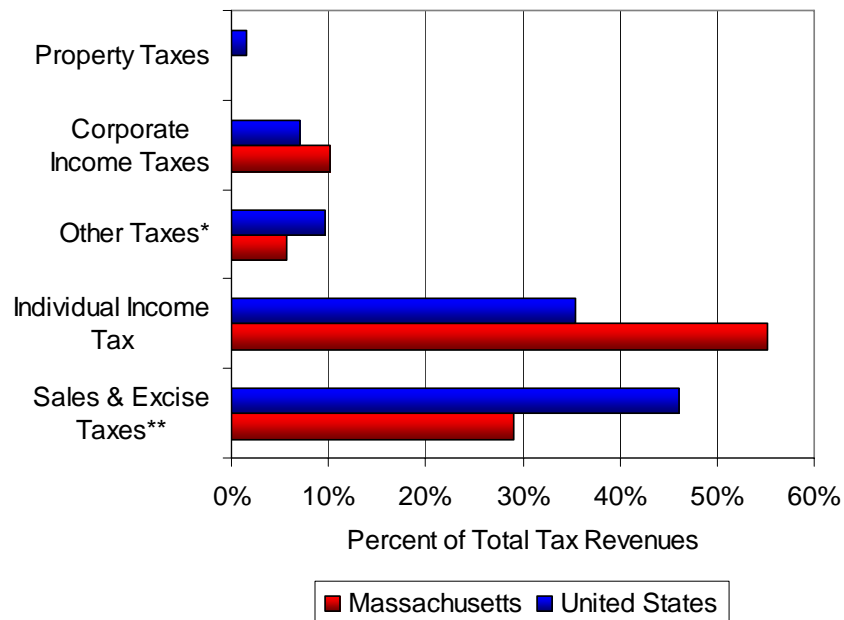


- While the disposable incomes of Massachusetts residents will rise if individual income taxes are eliminated, high-income taxpayers will be the major beneficiaries.

## **Tax Revenue Sources**

In the United States, the two major sources of tax revenues for states are the individual income tax and the sales/excise taxes. The Federation of Tax Administrators calculates that on average these two sources accounted for 82% of the states' tax revenues in 2007. Corporate income taxes generated 7% of state tax revenues, while property taxes (typically reserved for local governments) accounted for less than 2%. Other taxes, which include the severance taxes in our energy-rich states, and franchise and corporate fees, provided for the remaining 10%.

**2007 State Tax Collections by Source  
(Percent of Total Tax Revenues)**



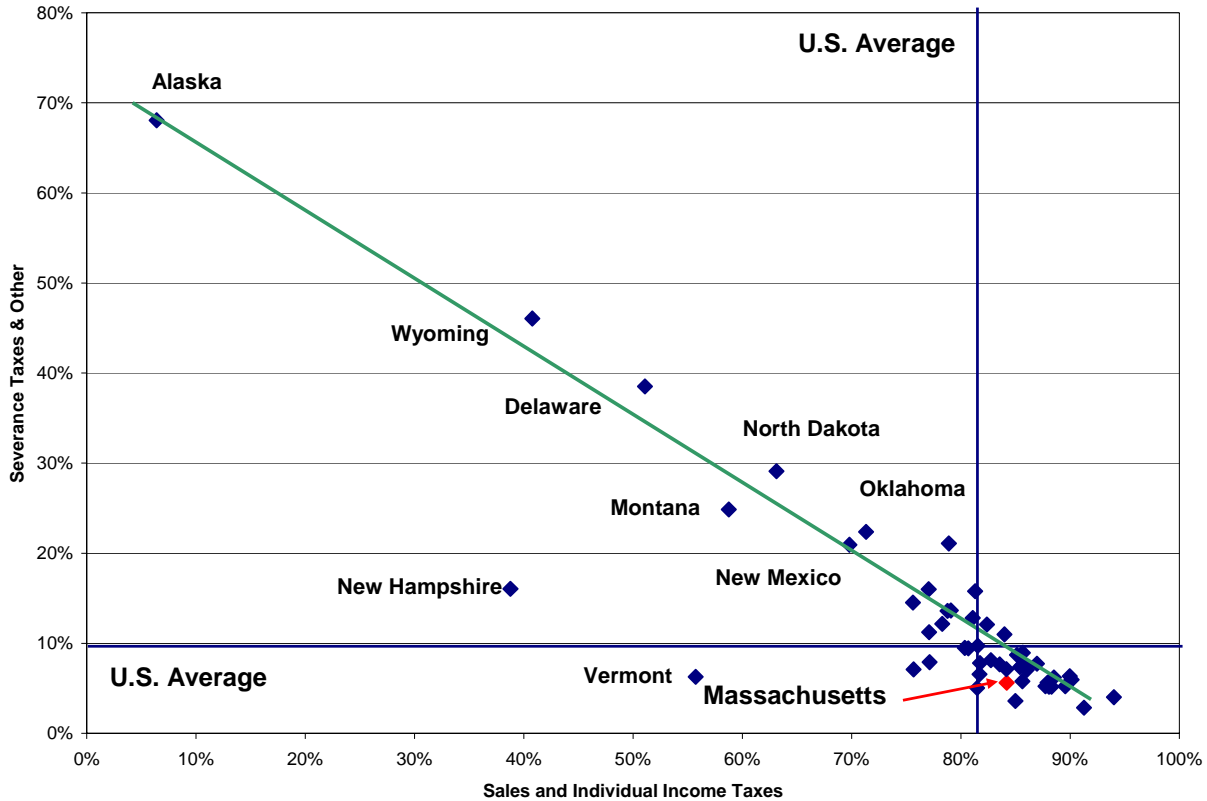
Source: Federation of State Administrators

\* Other taxes include franchise and corporate fees

\*\* Excise taxes on alcohol, tobacco, etc.

The vast majority of the states rely on individual income and sales/excise taxes for 75-90% of their tax revenues. Massachusetts lies in the middle of this cluster of states at 84%. States that can afford to collect significantly lower sales, excise, and individual income taxes are predominately states drawing large energy severance tax revenues (Alaska, Wyoming, Montana, North Dakota, Oklahoma, and New Mexico), or unusual franchise and corporate fees (Delaware). A state's dependence on sales and income taxes typically increases as these severance and other tax sources decline.

**States' Dependence on Sales and Individual Income Taxes versus  
Severance and Other Taxes\*  
(Percent of Total Tax Revenues)**



Source: U.S. Census

\* Other taxes include franchise and corporate fees

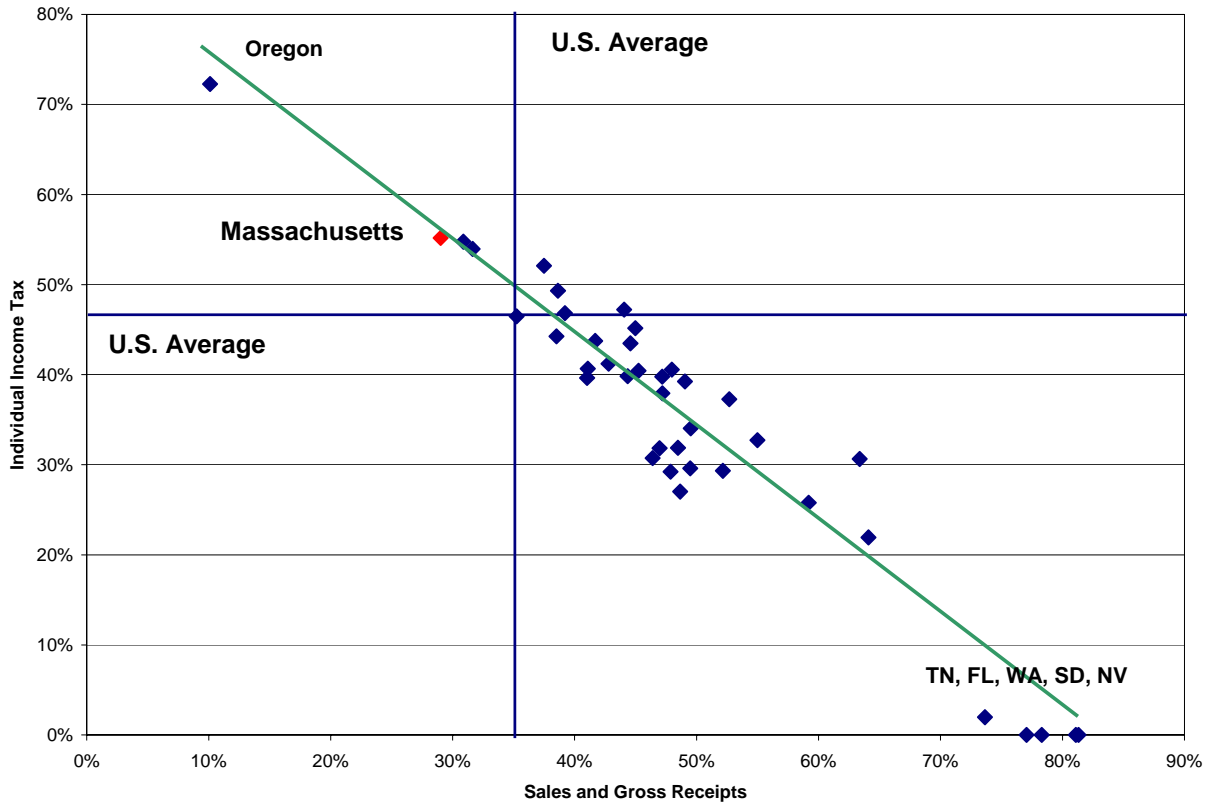
The only two outliers to this tax trade-off are Vermont and New Hampshire. Vermont and New Hampshire rely much more heavily on property taxes (35% and 18% of their tax revenues, respectively) compared with less than 2% for the states' average. In addition, 28% of New Hampshire tax revenues come from the corporate income tax. This is the highest percentage across all the states, and four times the national average. Corporate income tax rates in New Hampshire are in line with the U.S. average. The absence of individual and sales taxes in New Hampshire increases the relative importance of corporate income taxes in this low-tax state.

**Income versus Consumption Taxes**

The relative importance of individual income taxes versus sales or excise taxes (consumption taxes) varies across the states. Of the cluster of states that generates at least 75% of their tax revenues from these two sources, those more dependent on the income tax are less dependent on sales/excise taxes and vice versa. Massachusetts' dependence on the individual income tax is the second highest in the cluster and the nation at 55%, behind only Oregon. At the same time, Massachusetts' dependence on sales/excise taxes is the second lowest of the cluster at 29% and

fifth lowest in the nation. States without individual income taxes, such as Tennessee, Florida, Washington, South Dakota and Nevada, generate over 70% of their revenues from sales/excise taxes.

### The Trade-off between Income and Sales/Excise Taxes (Percent of Total Tax Revenues)



Source: U.S. Census

The mix of income and consumption taxes used by states varies for a number of reasons. The advantage to consumption taxes is that they encourage savings and draw revenues from visitors to the state. Hence, states like Florida and Nevada with a higher-than-average share of visitors and/or non-resident homeowners favor sales and excise taxes. Income taxes, on the other hand, are more progressive than consumption taxes, with the higher income individuals bearing more of the tax burden.

According to Massachusetts Department of Revenue statistics, higher income tax filers contributed increasingly more to individual income tax revenues, while representing decreasing shares of the taxpayers. Filers with income levels \$25,000 and below contributed only 3% of income tax receipts, but represented 41% of the tax filers. Filers with incomes above \$100,000, only 14% of the filers, generated 63% of the individual income tax revenues.

If the individual income tax had been repealed during calendar year 2006, tax filers would have had \$2,800 more in disposable income on average. Because the income tax is progressive, however, lower income taxpayers (65% of tax filers) would have experienced significantly lower increases in disposable income. In fact, residents living off their Social Security benefits would have experienced no income gains, as Social Security benefits are exempt from Massachusetts income taxes. On the other hand, higher income taxpayers (22% of taxpayers) would have gained significantly more than the \$2,800 average. Tax filers with income \$25,000 and under, for example, would have saved approximately \$240 on average, while those with incomes above \$100,000 would have saved an average \$12,800.

### Massachusetts Individual Income Tax Filers and Tax Payments by Income Level 2006 Calendar Year

Income	Filers		Tax Payments		
	Number	Share	Amount (\$mil.)	Share	\$ per Filer
<b>\$10,000 and Under</b>	696,332	21%	\$28	0%	<b>\$41</b>
<b>\$10,001 - \$25,000</b>	668,782	20%	\$296	3%	<b>\$442</b>
<b>\$25,001 - \$50,000</b>	789,993	24%	\$1,073	11%	<b>\$1,358</b>
<b>\$50,001 - \$75,000</b>	450,165	13%	\$1,147	12%	<b>\$2,549</b>
<b>\$75,001 - \$100,000</b>	275,214	8%	\$1,034	11%	<b>\$3,756</b>
<b>\$100,001 and Above</b>	480,031	14%	\$5,991	63%	<b>\$12,481</b>
<b>All Incomes</b>	<b>3,360,517</b>	<b>100%</b>	<b>\$9,569</b>	<b>100%</b>	<b>\$2,848</b>

Source: Massachusetts Department of Revenue

Proponents of eliminating the income tax note that this will save the average taxpayer \$3,600 in 2009. Income growth between 2006 and 2009 effectively moves taxpayers into higher income brackets and raises the average income in the above \$100,000 bracket. Consequently, the average return rises from the \$2,800 calculated above for 2006 to the estimated \$3,600 for 2009. The 2006 savings per filer in income brackets below \$100,000 will be representative of 2009 savings. However, the average saving in the above-\$100,000 income bracket will likely rise to \$15,000–16,000.

In 2004 and again in 2007, Global Insight studied the economic impact of increases in both the income tax and sales/excise taxes to close states' budget gaps.<sup>2</sup> These studies concluded that sales and excise tax increases do substantially more damage than income tax increases, for three primary reasons.

- Sales and excise taxes are regressive, with lower income residents bearing a higher tax burden than they would under an income tax.
- Sales and excise taxes feed directly into official consumer price indexes, so such increases create a sharp inflation spike.
- State income taxes are deductible from federally defined taxable income, while a parallel deduction is no longer allowed for sales and excise taxes.

<sup>2</sup> Dr. Roger Brinner and Dr. Joyce Brinner, "Fiscal Recovery for the States: Basic Facts & Good Strategies," 2004.  
Dr. Roger Brinner and Dr. Joyce Brinner, "Fiscal Realities for the States: Economic Causes & Effects," 2007.

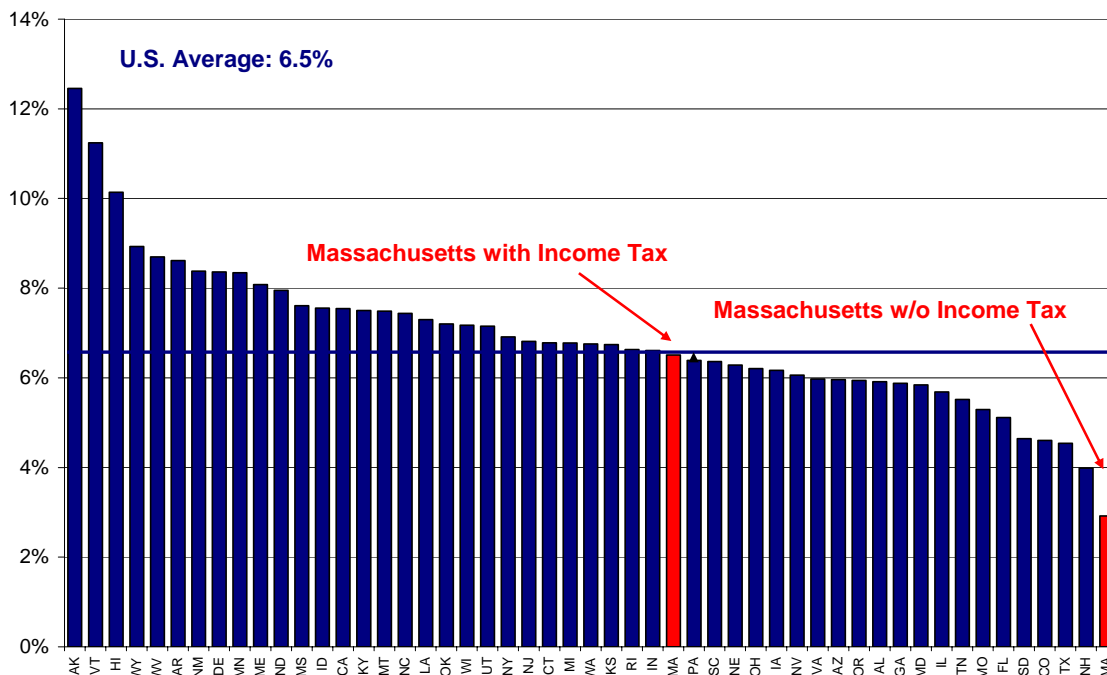
While it is true that this federal tax deductibility only applies to households itemizing their deductions, this group pays the majority of state and federal income taxes and does so at high marginal federal tax rates. Therefore, it should not go unnoticed in state tax strategy debates that this deduction passes a portion of taxpayers' state income tax burden to the federal government.

### State Tax Revenue Comparisons

The Massachusetts 2008 fiscal year (FY08) budget totaled \$31.8 billion, including supplemental spending and off-budget authorizations. Personal income taxes were by far the largest source of funding available to the Commonwealth. Personal income tax receipts amounted to \$12.5 billion in FY08, 60% of the Commonwealth's total tax revenues and about 40% of total state funding.

Massachusetts ranked 10<sup>th</sup> among the states in 2007 in terms of tax revenues per capita at \$3,200. However, this ranking does not account for differences in cost of living and incomes across states. A better measure of relative tax burdens across states is tax revenues per dollar of personal income. Massachusetts tax revenues represented 6.5% of its residents' personal income in 2007, ranking it 30<sup>th</sup> among the states and putting it on a par with the U.S. average. Removing the individual income tax would drop Massachusetts to last in both rankings. Without revenues from the individual income tax, Massachusetts tax revenues as a share of personal income would have been 55% below the national average and 27% below the next lowest state.

**State Government Tax Collections  
(Percent of Personal Income)**



Source: U.S. Census

## Impact on the State's Attractiveness for Business Investment

The private sector companies that are thriving in today's economy are those that are focused on serving a global market. From an economic development perspective, to be competitive, Massachusetts must be perceived as an attractive location for this type of company. Serving a global market requires a highly educated workforce and a well-developed transportation and communications infrastructure. Cutbacks in the state's strong education system, infrastructure, and services that affect the quality of life—social services, parks, and recreation—could reduce the attractiveness of Massachusetts as a place for businesses to invest and people to live. In this section, we examine the contributions of state spending on education/workforce training and infrastructure to economic growth, and discuss the potential impact of severe cutbacks in these areas on the state's long-term economic outlook.

### *Vital Industries in the State of Massachusetts*

The Massachusetts economy has above-average concentrations of the information, financial, professional, and business services, education, and healthcare industries, as evidenced by the high location quotients associated with these industries. These industries accounted for 44% of the state's employment in 2007. All of these industries require a well-educated workforce and an efficient infrastructure. If Massachusetts is to remain a U.S. and world leader in these highly skilled industries, it must continue to improve the quality of its workforce and the services attractive to these industries. Factors that have helped to make these industries critical to the Commonwealth's economy are summarized below.

#### Share of Massachusetts Employment by Industry and Location Quotient: 2007\*

	Share of Total	Location Quotient U.S. Avg = 100	State Employment Growth CAGR 1997-2007
Construction	4.0%	75	3.1%
Natural Resources and Mining	0.1%	9	3.1%
Manufacturing	8.7%	89	-3.3%
Trade, Transportation, and Utilities	17.3%	89	0.1%
Information	2.7%	124	-0.8%
Financial Activities	6.8%	114	0.6%
Professional and Business Services	14.8%	113	1.3%
Education and Health	19.4%	142	1.6%
Leisure and Hospitality	9.3%	95	1.6%
Other Services	3.6%	91	1.8%
Government	13.3%	81	0.5%
<b>Total</b>	<b>100.0%</b>	<b>-</b>	<b>0.7%</b>

\* Location quotient is a measure of the relative concentration of an industry in an area and is used to identify specializations in a local economy.

### Financial Services

Massachusetts has been a prime location for many jobs in financial services because of the state's supply of well-educated employees, making it possible for firms to develop the necessary employment bases to grow their businesses. Massachusetts is also an excellent center for

financial firms because of strong demand for services in the region and large supplies of available capital and loanable funds from wealthy investors in the area. Employment in the financial sector is a large contributor to income growth in the state, as most positions within the industry offer high salaries.

### **Technology-Based Industries**

Expansion in technology-based industries in Massachusetts has been aided by the Commonwealth's highly educated labor force and availability of venture capital funds for firm establishment, giving Massachusetts a great competitive advantage in the sector.

Biotechnology's footprint, in particular, has grown larger in recent years, as prominent mergers and expansions feed its emergence as one of the Commonwealth's preeminent industries.

### **Healthcare Services**

Massachusetts has some of the best teaching hospitals and healthcare resources in the country. Massachusetts' hospitals, which are affiliated with Harvard, Tufts, Boston University, and the University of Massachusetts Medical Schools, also have valuable laboratories that produce world-class research on many chronic diseases and offer pioneering treatments. This connection between the state's hospitals and universities allows the Massachusetts healthcare industry to consistently sustain strong levels of growth and consistent levels of excellence.

In an effort to provide all of its citizens with affordable healthcare, in 2006 the Commonwealth Health Insurance Connector Authority approved seven health plans for sale to uninsured residents of the state who do not qualify for low-income subsidies. In fiscal year 2008, the Commonwealth appropriated just over \$1 billion so that affordable basic coverage would be available to the state's uninsured. More than 440,000 Massachusetts residents are newly insured under healthcare reform, with over one-third of these enrolled in the seven approved health plans.

### **Education Services**

The Commonwealth's public and private higher education institutions are major employers, both in academic-oriented positions as well as in standard administrative support, and facilities maintenance jobs. In addition, their large capacities for significant research and scientific development tend to attract large numbers of private biotechnology, life sciences, and other high-tech-oriented firms that are often linked with or even established by university research scientists. Continued domestic expansions and international partnerships established by these key institutions greatly benefit the Massachusetts economy, and ultimately have the potential to provide significant direct and indirect effects on growth.

### ***Impact on Education***

Massachusetts' residents boast high educational attainment relative to national averages, both in terms of residents with high school diplomas and those with higher education experience. High educational attainment has significantly aided Massachusetts in its development of a skilled-services-oriented economy, including growth in biotechnology, management consulting, venture capital, healthcare, and financial industries.

The large returns from education expenditures on economic growth are well documented. Education investments—beginning with early childhood education, elementary/secondary through higher education, and workforce training—increase the quality of the current and future workforce and are influential in attracting businesses, valuable professionals, and skilled workers to the state. Massachusetts contributed nearly \$6 billion in fiscal year 2008 toward the education and training of its future labor force. This included \$4.3 billion for elementary and secondary education, \$1 billion for higher education, \$550 million for early education and care, and \$73 million for labor development.

Hanushek et al<sup>3</sup> provided empirical evidence supporting the long-standing belief that education has a large impact on countries' subsequent economic growth rate. The study quantified the impact on GDP per capita growth rates of school attainment and cognitive skills across 50 countries from 1960 to 2000. A "cognitive skills index" was developed for each country, as part of the study, by carefully calibrating test scores in math and science of the students eventually entering the country's work force.

Cognitive skills, school attainment, and the level of GDP in 1960 were able to explain nearly 75% of the variation in the 40-year GDP growth rate across countries. Countries with high test scores experienced far higher growth rates: on average, a 0.5 standard deviation increase in the cognitive skills index was associated with a 1% higher growth rate. (A 0.5 standard deviation was slightly less than the difference in scores between such top-performing countries as Finland and Hong Kong and the United States.) The quality of the education, not just the quantity of the education, was found to be most important for economic growth.

Three U.S. studies reported consistent estimates of the direct impact of test performance on earnings.<sup>4</sup> The studies concluded that a "one standard deviation increase in mathematics performance at the end of high school translates into 12% higher annual earnings. Education quality measurements must be distinguished from school attainment rates. School enrollment, without quality of education, will not guarantee better economic conditions." In addition, a World Bank study on education and economic growth also substantiated that educational quality, measured by test performance, has "powerful effects on individual earnings."<sup>5</sup>

According to the National Center for Education Statistics (NCES), Massachusetts ranked seventh among the states in terms of dollar expenditures per pupil in average daily attendance in public elementary and secondary schools for the 2004-05 school year. Massachusetts K-12 expenditures were 30% above the national average before adjusting for differences in costs across states, particularly wage rates.

Some of the additional education expenditures compensate for cost of living differences between Massachusetts and other states. According to the Bureau of Labor Statistics, annual salaries for

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<sup>3</sup> Eric Hanushek, Dean T. Jamison, Eliot A. Jamison and Ludger Woessmann, Education and Economic Growth, 2008.

<sup>4</sup> Mulligan (1999); Murname, Willett, Duhaldeborde, and Tyler (2000); and Lazear (2003).

<sup>5</sup> Eric A. Hanushek & Ludger Wobmann, "Education Quality and Economic Growth", The International Bank for Reconstruction and Development / The World Bank, 2007



education, training, and librarian occupations in Massachusetts were 13% above the national average. But some of the additional expenditures may also be contributing to a higher quality of education and subsequent economic growth. In 2007, all 50 states and two jurisdictions (the District of Columbia and Department of Defense Schools) participated in reading<sup>6</sup> and mathematics<sup>7</sup> assessments as part of the National Assessment of Education Progress (NAEP) at Grades 4 and 8. Massachusetts students have ranked first among the states in both reading and mathematics in both grades.

## Higher Education

Massachusetts' public higher education system enrolls approximately 260,000 students annually or approximately 150,000 full-time equivalent students (FTE) at its five University of Massachusetts campuses, its nine state colleges, and 15 community colleges. The public higher education system is fulfilling a legislated "responsibility to provide accessible, affordable, quality higher education to the students and residents of the Commonwealth." Most importantly, the system is providing higher education opportunities for qualified individuals with inadequate resources for private schools, and developing our current and future workforce.

Massachusetts appropriated nearly \$1 billion in 2008 to its public higher education system and an additional \$94 million for financial aid. Based upon the Massachusetts Taxpayers Associations, 71% of these appropriations and aid would be at risk if the state income tax was eliminated. This could move the Commonwealth back decades. In the 1960s and 1970s, Massachusetts fell below national standards in the proportion of its high school graduates going on to college. This situation was turned around largely as a result of increased state appropriations to the public higher education system.

Currently, Massachusetts residents' average undergraduate full-time tuition and fees range from \$3,600 at community colleges, to \$5,300 at state colleges, and \$9,600 at University of Massachusetts campuses. Removing 71% of state appropriations for higher education would increase these tuition and fees by an estimated \$1,300 at the Commonwealth's community colleges, \$1,800 at its state colleges, and nearly \$4,500 at its University of Massachusetts campuses. Removing state financial aid would make matters worse for eligible students with low incomes at public and independent colleges.

Those most in need of affordable, quality higher education will not see compensating savings from elimination of the income tax. Without replacement taxes, either the quality of the education will have to be reduced to hold costs at current levels and keep public education affordable to lower income residents, or enrollments will fall. The gap between the rich and the poor in the Commonwealth will widen, some residents will move to other states seeking affordable higher education, and our future workforce will decline in both quantity and quality. Elimination of the individual income tax will not be in the best interest of low or moderate income wage earners, or in the best interest of the Commonwealth's future labor force and economic growth.

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<sup>6</sup> *The Nation's Report Card, Reading 2007*, National Center for Education Statistics, U.S. Department of Education, NCES Number: 2007496, September 25, 2007.

<sup>7</sup> *The Nation's Report Card, Mathematics 2007*, National Center for Education Statistics, U.S. Department of Education, NCES Number: 2007494, September 25, 2007.

## Early Education and Child Care

The \$550 million that Massachusetts contributes to early education and child care is clearly at risk if the income tax is eliminated. Furthermore, the target recipients of this aid will not benefit from comparable increases in disposable income that will allow them to purchase these services themselves. The Commonwealth will lose an education service with possibly the highest rate of return.

Heckman developed a lifecycle model of skill formation that analyzes the return on investment in human capital at various life stages and for different socioeconomic strata. He notes that the process of learning begins very early and is heavily influenced by family environment. Furthermore, "there are critical periods for acquiring certain basis skills, certain abilities crystallize rather early and are difficult to modify later."<sup>8</sup> Heckman's model projects that returns on investment in human capital decrease with age. Returns on very early investment can be very high, particularly for children of disadvantaged families, because they "partially compensate for an unfavorable family environment at an age that is critical for the acquisition of basic skills."<sup>9</sup> Attempts to remedy early educational deficits later in life can be much more expensive and possibly too late to be effective.

Heckman summarized the benefits from 10 early childhood education programs. After completing the programs, the selected students had higher test scores on average than those that were randomized out of the programs. Seven of the programs reported effects on grade retention rates, with average and median grade retention decreases of 20% and 21%, respectively. Enough years had elapsed that three of the programs were able to calculate 17-21% increases in high school graduation rates.

One of the programs, the Perry Preschool Program, administered intensive treatment to disadvantaged subnormal IQ children at ages 4-5 and then followed the participants to about 35 years old. They had higher earnings and lower levels of criminal behavior than did comparable children randomized out of the program. The reported cost-benefit ratios for the program were substantial. The program returned \$5.70 for every dollar spent when measured through age 27, and \$8.70 through age 35. A substantial fraction (65%) of the return to the program is attributed to reductions in crime.<sup>10</sup>

Rolnick and Grunewald estimated the real (inflation-adjusted) rate of return for the Perry Prechool Program at 16%, based upon the time periods in which the inflation-adjusted dollar costs and benefits were paid or received by program participants and society.<sup>11</sup> The general public was the biggest beneficiary, with 80% of the benefits stemming from less school disruptions and less crimes. The remaining 20% was attributed to increases in after-tax earnings and fringe benefits. Because of their high public, as well as private rates of return, they argue

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<sup>8</sup> Heckman, J., "Policies to Foster Human Capital", *Research in Economics* 54, 2000.

<sup>9</sup> Angel de la Fuente, "Education and Economic Growth: A Quick Review of the Evidence and Some Policy Guidelines," Prime Minister's Office, Economic Council of Finland, September 20, 2006.

<sup>10</sup> Schweinhart, L., H. Barnes and D. Weikart, 1993. *Significant Benefits: The High/Score Perry Pre-School Study Through Age 27*, Ypsilanti, Michigan: High Scope Press.

<sup>11</sup> Rolnick, Arthur J. and Grunewald, Rob, Early Childhood Development: Economic Development with a High Public Return, The Federal Reserve Bank of Minneapolis, Fedgazette, March 2003

that early childhood development programs should be at the top of the list of economic development programs

## **Workforce Training**

Massachusetts Community Colleges work with Massachusetts companies, through the MASS\*NET initiative, to develop programs that upgrade the skills of the companies' current workforce. MASS\*NET has provided employees and/or employers low-cost, high-quality customized training, consulting, and skills upgrading at hundreds of companies throughout the Commonwealth. Cutbacks in such innovative programs could reduce the productivity of our labor force as well as the attractiveness of Massachusetts as a place for businesses to invest.

Other state programs focus on successfully folding immigrants into our schools and our labor force by making them proficient in English. Immigrants accounted for 17% of the Massachusetts labor force in 2004, up from less than 9% in 1980, according to the MassInc Center for Labor Market Studies.<sup>12</sup> Both education and the ability to speak English proficiently are essential for the success of immigrants in the Massachusetts economy. MassInc noted that adult immigrants are more than three times as likely as native-born residents to lack a high school degree. In addition, many urban immigrants have a limited ability to speak English. In Lawrence and Boston, nearly 12% and 7% of the population, respectively, have limited English skills.

Based upon 2000 U.S. Census statistics, immigrants who speak English well earned 60% more than those that did not speak English well, and 2.6 times as much as those who did not speak English at all. MassInc recommended "an increase in the capacity of English language classes" and "intensifying outreach efforts to immigrant youth" as the ways to meet the Commonwealth's human capital challenge. Elimination of the state income tax would put even the current level of expenditures at risk.

## **Education and Competitiveness**

Numerous ranking systems have been devised to grade states on their attractiveness to businesses. Nearly all of them include indicators of the quality of education and/or the quality of the workforce in addition to factors such as business costs, the regulatory environment, and the quality of life.

Businessfacilities.com, which provides industrial location information to firms that are seeking sites, publishes a number of business rankings, including an overall Business Climate ranking.<sup>13</sup> This index combines 18 factors, including the Educated Workforce and the Education Climate as a means to assess the educational aptitude of potential employees. They emphasize that "states with highly educated workforces are more likely to attract relocating businesses than areas that struggle to keep pace with educational advancements [since] companies are eager to employ skilled workers who are experts in their respective fields and who require minimal post-hire, supplementary training."

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<sup>12</sup> Andrew M. Sum, Johan Uvin, Ishwar Khatiwada, Dana Ansel, *The Changing Face of Massachusetts*, MassInc, Center for Labor Market Studies, Northeastern University.

<sup>13</sup> [http://www.businessfacilities.com/bf\\_08\\_07\\_cover.php](http://www.businessfacilities.com/bf_08_07_cover.php)

- The Educated Workforce rankings include the number of employees over the age of 25 that possess a high school diploma, a bachelor's degree, or an advanced degree. Massachusetts ranks fourth by this measure.
- The Education Climate ranking examines a broader set of criteria, including student-to-teacher ratios; public high school graduation rates; enrollment rates at institutes of higher education; federal allocations for the Head Start program; estimated expenditures per pupil at public elementary and secondary schools; and state and local government expenditures on education. Massachusetts ranks eighth in this category.

### Massachusetts Business Attractiveness Rankings Within the 50 States

	Business- Facilities.com	Milken Institute	CNBC	Beacon Hill Institute	Kaufman
<b>Overall</b>		1	15	2	1
<b>Business Costs</b>			41		
<b>Labor/Workforce/Human Resources</b>	4		34	1	
<b>Workforce Education</b>					1
<b>High-Tech Jobs</b>		1			1
<b>Scientists &amp; Engineers</b>		1			3
<b>IT Professionals</b>		1			4
<b>Managerial, Professional, Technical Jobs</b>					1
<b>Education</b>	8		1		
<b>Technology in Schools</b>					33

Source: Compiled by Global Insight

The Milken Institute developed a *State Technology and Science Index* designed to "paint a comprehensive picture of how states are performing in today's highly competitive knowledge-based economy."<sup>14</sup> The Institute notes that "in a knowledge-based economy, human capital is vital to state prosperity. Today, concentrations of talent attract firms to states as opposed to industry agglomerations and firms being the principal attraction force for people."

The index takes inventory of the technology and science assets that can be leveraged to promote economic development in each state. A total of 77 individual indicators are examined and compiled into five major composites designed to quantify the following:

- Research and Development Inputs Composite Index—the ability to attract various types of federal, industry, and academic funding
- Risk Capital and Entrepreneurial Infrastructure Composite Index—the presence of capable entrepreneurs and risk capital to support the conversion of research into commercially viable technology products and services
- Human Capital Investment Composite Index—the stock of human capital and the rate of investment
- Technology and Science Work Force Composite Index—the qualified technology and science work force

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<sup>14</sup> Devol, Ross and Charuworn, Anita with Kim, Soojung, *State Technology and Science Index, Enduring Lessons for the Intangible Economy*, Milken Institute, June 2008.

- Technology Concentration and Dynamism Composite Index—the effectiveness of policy makers and other stakeholders in transforming each state's assets into economic prosperity for its citizens.

The index was first released in 2002, and updated in 2004 and 2008. While Massachusetts has consistently ranked first among the states, its lead has diminished. There is clearly a trend toward the concentration of state scores near the mean, reflecting increased competition between states for funding and capital. The Institute expects "competition between states to intensify as technology makes jobs ever more portable." Furthermore, each state's position in the world economy will be increasingly threatened by China, India, Singapore, and other developing countries in Asia, as well as by the Scandinavian countries. Now is not the time to withdraw the support that the Commonwealth has provided to maintain its number-one ranking.

CNBC.com publishes a ranking of America's Top States for Business.<sup>15</sup> It is based on dozens of indicators organized into 10 categories, including "Workforce" and "Education."

- A state's quality of education is measured by traditional measures of K-12 education including test scores, class size and spending, and the number of higher education institutions in each state.
- Quality of the workforce is measured by the education level of the workforce, the number of available workers, and the relative success of each state's worker training programs in placing its participants in jobs.
- Massachusetts ranks first in education, but 34th in Workforce. It ranks 15th overall, being held down by the cost of living and the cost of doing business.

The Beacon Hill Institute publishes a measure of economic competitiveness that scores states in eight categories, including a broad Human Resources category that encompasses measures of education and labor force.<sup>16</sup> Massachusetts ranks second overall and first in Human Resources, helped by strong scores for proficiency in mathematics in public schools, high school graduation rates, and the share of the population in degree-granting institutions, among others.

One ranking of states, produced by the Kaufman Foundation, focuses more closely on the ability to meet the demands of high-technology industries and global competition. Education and the quality of the workforce come to the fore to an even greater extent here.<sup>17</sup> This index combines two dozen indicators to form a measure of competitiveness in a global, entrepreneurial, and knowledge-based economy. One-third of the indicators measure different dimensions of the quality of the workforce such as Workforce Education, High-Tech Jobs, Scientists and Engineers, IT Professionals, and Managerial, Professional, Technical Jobs. Massachusetts is the top-ranked state by this index.

The importance of a state's educational system and the quality of its workforce in all of these varied methodologies for assessing the economic competitiveness of states shows the critical role of state spending in these areas to the Commonwealth's ability to attract the kind of high-

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<sup>15</sup> [www.cnbc.com/id/25501924/](http://www.cnbc.com/id/25501924/)

<sup>16</sup> [www.beaconhill.org/CompetitivenessHomePage.html](http://www.beaconhill.org/CompetitivenessHomePage.html)

<sup>17</sup> <http://www.kauffman.org/items.cfm?itemID=766>

technology, growth-oriented companies that most value these factors. Sharp reductions in education and workforce training programs would have a very negative effect on the attractiveness of Massachusetts for private sector investment and job creation.

### ***Impact on Infrastructure***

An area of state spending that could experience sharp cuts if total state tax revenues are drastically reduced is spending on infrastructure. Massachusetts, like most state governments, plays an important role in funding the development and maintenance of a major component of the economic infrastructure—roads and other public transportation. In fiscal year 2008, \$228 million was budgeted for highways and regional transit. But this annual budget amount understates the financial commitment of the state to infrastructure spending, because much of the cost of public transportation is capital spending funded through bond issues. The potential impact of elimination of the income tax would be two-fold—a drastic cut in current expenditures and a sharply reduced capacity to undertake new capital projects.

Massachusetts is a vital part of the transportation and distribution channels that connect the New England region to the rest of the country. It is located along the U.S. Interstate 95 corridor, an important road that channels through the United States and New England, running from Maine to Florida. The state also has an extensive rail network that includes passenger service recently augmented by Amtrak's introduction of high-speed trains from Boston to New York and Washington, D.C. Boston also offers a deep-water harbor, with extensive container facilities, and a major international airport (Logan International). Massachusetts' major transportation links are extremely valuable to the state economy. In 2007, merchandise exports represented 7.2% of the state's total gross state product (GSP).

In early 2005, the Commonwealth unveiled a plan to improve the condition of its transportation infrastructure, including repairing bridges and widening some key sections of the state's highways. Through the end of the decade, the focus will be on spending \$1.2 billion to fix around 600 bridges in the state, many of which are considered structurally defunct. The transportation plan has allocated nearly \$12 billion to eliminate commuter bottlenecks by widening sections of major highways such as I-93, I-95, Route 128, and much of Route 2 in the western part of the state. The plan also appropriates funds for extensions of the Massachusetts Bay Transportation Authority's commuter rail and bus services. In total, state transportation costs are estimated to be \$15-19 billion over the next 20 years.

### **Bond Caps**

A critical question is whether the elimination of the income tax will jeopardize the upkeep on these vital networks and the construction of many of the aforementioned infrastructure projects. That is, would the proposed capital spending have to be reduced to hold annual debt service on all state borrowing to an acceptable percentage of the state's annual revenues? For a number of years prior to 2008, the Commonwealth capped new bonds issues (for all purposes except special authorities) at \$1.25 billion. In 2007 and again in 2008, the administration did a debt-affordability analysis to establish guidelines for annual debt issuance. The analysis concluded that the bond cap should be set so as to ensure that debt service costs do not exceed 8% of annual

state revenues. This cap was set with an eye to the opinions of the rating agencies about the acceptable level of debt service to revenue. Statutorily, no more than 10% of total appropriations in any fiscal year may be expended for payment of principal and interest on general obligation debt of the Commonwealth.<sup>18</sup> Based upon current levels of revenue and outstanding debt, this 8% ratio allowed the bond cap to rise to \$1.5 billion in 2008. Annual revenue growth of 3% annually would allow the cap to rise to \$2 billion by 2012.

If total state revenues are cut by 40% with an elimination of the income tax, however, projected debt service obligations will rise to about 12% in 2009. The Commonwealth will need to cut spending on the capital side, in addition to cutting its current budget expenditures. In order to get debt service back down in the range of 8%, the Commonwealth will have to slash new debt issuances and reduce capital spending across the board. Indeed, if the revenue loss was not replaced by new taxes, and the only additional revenue came from organic growth in other revenue sources, the implication of targeting an 8% debt service ratio is that there could be no new borrowing for seven years. According to the Massachusetts Taxpayers Association, \$20 billion in capital investments will have to be foregone between 2009 and 2015 to meet this cap if the income tax is eliminated.<sup>19</sup>

### **Federal Matching Funds**

A further complication is that many of the Commonwealth's transportation projects involve federal matching funds. The federal government frequently places conditions on matching transportation money to ensure that federal dollars are efficiently spent. The state must file a capital improvement program that demonstrates a comprehensive approach to transportation planning and lays out how matching funds are used. If state spending on the maintenance and repair of roads and bridges is cut drastically—departing substantially from the capital improvement program—federal matching money can be withheld, further jeopardizing spending on critical infrastructure.

### **Economic Impacts**

Economists have studied the linkages between investment in infrastructure and economic growth both within the context of development economics and in regional studies of states and metropolitan areas within the United States. Empirical studies of long-term development are sometimes able to estimate a direct positive relation between state investment in infrastructure and economic growth. The balance of opinion in both development economics and U.S. regional studies is that infrastructure is a complement to private capital. It does not cause growth on its own, but creates the conditions for growth by reducing costs of production and raising the returns to other capital and labor.<sup>20</sup>

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<sup>18</sup> Section 60B of Chapter 29 of the General Laws, as cited in "Information Statement," The Commonwealth of Massachusetts, August 14, 2008.

<sup>19</sup> Massachusetts Taxpayers Association, *The Enormous Consequences of Question 1*, October 2008.

<sup>20</sup> See, for example, Carolyn O'Fallon, "Linkages Between Infrastructure and Economic Growth" report prepared for Ministry of Economic Development, December 2003, pp. 1-5, and Andrew F. Haughwout, "Public Infrastructure Investments, Productivity and Welfare in Fixed Geographic Areas," *Journal of Public Economics*, Vol. 83, March 2002, pp. 405-425.

The link between state spending on infrastructure and economic growth is elusive because of its role as a complement to private capital. The quality of infrastructure has proven to be an important factor in a state's economic competitiveness. That is, the capacity and reliability of infrastructure is a key element influencing firm-location decisions, and the ability to attract new businesses leads to a healthy state economy. This aspect of the role of infrastructure is described in the economic development literature. A good example is a study conducted for the economic development agency of New Zealand.<sup>21</sup> In this study, 50 businesses were interviewed to gauge the significance of various factors as constraints to their growth. The most commonly listed constraints were:

- the availability, cost, and timeliness of transportation
- access to skills/labor
- demand for output or sales
- government regulations and compliance costs.

Transportation topped the list of the most-significant possible impediments to business and economic performance. The study argued that infrastructure problems (price volatility, cost, access, reliability, and congestion) directly and significantly raise business risks. Higher risks mean less investment, which eventually undermines growth and innovation. Reduced spending on highway maintenance in Massachusetts would likely lead to lower reliability and increased congestion. The perception of having an inadequate transportation system could downgrade the state's attractiveness as a site for businesses expanding or seeking new locations.

Studies of the contribution of infrastructure to the economic growth of states in the United States echo these findings. A report on highway infrastructure presented at a Chicago Federal Reserve Bank conference summarized the results of economic studies in this area.<sup>22</sup> Infrastructure formation encourages private sector investment. An increase in infrastructure raises the return to private capital, which causes more investment in private capital. Evidence shows that highways attract new business startups and expansions, but that highways alone cannot stimulate growth; other factors must be present. An efficient highway system promotes efficient operation of cities.

In addition to its impact on economic efficiency, spending on infrastructure, such as roads and other public transportation, has a significant impact on the quality of life in the state. This aspect of the economic impact of infrastructure has not been studied much because the benefits received by households cannot easily be quantified. But it is clear that increased congestion created by reduced spending on highways and public transportation can only have a negative impact on the attractiveness of Massachusetts as a place to live and work. Over time, such conditions could contribute to population outflow.

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<sup>21</sup> Infometrics, Generating Growth: Infrastructure, A report for the New Zealand Growth and Innovation Advisory Board, May 2003.

<sup>22</sup> Randall W. Eberts, "Highway Infrastructure: Policy Issues for Regions," paper presented at Federal Reserve Bank of Chicago Conference on *Maintaining and Financing Public Infrastructure in Tough Budgetary Times*, September, 2002.



Infrastructure is clearly a category where a funding gap could be filled by increased user fees. The construction and maintenance of the road system could be continued at its present and projected levels by introducing new highway or bridge tolls, or by increasing existing tolls and regional transit fares. Under the budget cutting scenario analyzed by the Massachusetts Taxpayers Foundation, spending on highways and regional transit will be cut by 71%, or \$162 million. To generate sufficient funds to replace this lost revenue, tolls will have to be raised by about \$70 per Massachusetts household annually. This is more than the gain in take-home pay that many low-income households will receive by elimination of the income tax.

This \$70 per household cost estimate greatly understates the amount of increased tolls that will be needed to support the current level of highway maintenance, however, because a much larger amount of highway spending comes from the capital budget. As previously discussed, the Commonwealth's ability to borrow will be severely constrained if Question 1 passes. The total cost to households in added tolls and fares needed to maintain current spending on highways and regional transit could be \$150-200 per household, or 2-3 times that which the operating budget suggests.

## **Impact on the State's Bond Rating and Borrowing Costs**

Global Insight was asked to address the impact on the Massachusetts economy of scenarios in which the Legislature responds to voters' wishes by cutting spending to bring total expenditures into line with a new lower level of annual revenue. Therefore, in this section, we examine the possible impact on the state's bond rating of large cuts in spending (and possibly some increase in user fees) to achieve budget balance. To assess the possible impact of such scenarios on Massachusetts' future bond rating and borrowing costs, we first review the principles employed by the rating agencies in rating state general obligation bonds and look at the circumstances surrounding downgrades of state ratings in the past.

### **Rating Agencies' Principles**

Both Standard & Poor's and Moody's employ a state-ratings methodology that incorporates four broad categories of rating factors—economy, finances, debt, and management.<sup>23</sup> Within this framework, each rating agency cites numerous criteria that can affect the rating assigned. Credit ratings may be changed, suspended, or withdrawn at any time as a result of changes in information or the conditions on which the rating is based.

In a recent opinion on the rating of Massachusetts general obligation bonds, Moody's Investors Service listed the upcoming voter initiative on eliminating the income tax as a "credit challenge" to be considered. They noted, however, that "such initiatives do not constitute constitutional amendments and may therefore be subject to legislative amendment or repeal at any time."<sup>24</sup> The statement assigned an Aa2 rating to \$500 million of general obligation bonds issued September 2, 2008, and affirmed the Aa2 rating on approximately \$16 billion of outstanding Massachusetts general obligation bonds.<sup>25</sup>

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<sup>23</sup> Standard & Poor's, *Public Finance Criteria 200*, p. 7; and Moody's Investor Service, p. 1.

<sup>24</sup> <http://www.mass.gov/Ctre/docs/debt/MoodysReportMAGOSeries2008A.pdf>

<sup>25</sup> *Ibid.* p.1.

Since structural budget balance is an important factor in setting a state's bond rating,<sup>26</sup> this Moody's opinion carries a presumption that passage of the initiative to eliminate the income tax will be followed in a timely fashion by action by the state Legislature to offset in some way the revenue shortfall created by the phase out of the income tax. To return the budget to balance, such action could involve repeal of the initiative, replacement of all or part of the lost revenue with other less desirable taxes, and/or crippling reductions in expenditures.

Simply the uncertainty about the ability of Massachusetts to constrain spending to revenue if the income tax initiative passes will result in a rating downgrade. Moody's rating methodology states: "The highest ratings are assigned to states that exhibit the strongest measures of financial strength with the greatest consistency and predictability."<sup>27</sup> Consistency and predictability in the Massachusetts state budget process will be undermined for an extended period of time if the Legislature does not respond by repealing the income tax initiative.

Diversity in revenue sources is viewed positively by the ratings agencies. Standard & Poor's states: "Diverse revenue sources are preferable, as they can help to strengthen financial performance and enhance stability."<sup>28</sup> Moody's expects "that states that impose all three of the broad-based taxes – corporate income tax (CIT), personal income tax (PIT), and sales tax—and a broad array of more narrowly-based taxes and fees often have the best defense should revenues weaken."<sup>29</sup> Eliminating its primary source of tax revenue will give Massachusetts a less diverse revenue base, which will contribute to a ratings downgrade.

The bond rating for Massachusetts would be negatively affected if the revenue gap caused by elimination of the income tax is filled by instituting a number of user fees associated with specific state services and targeted taxes on specific commodities. Moody's state rating methodology indicates that: "The volatility of a state's revenue stream is an important rating consideration. The sales and income taxes are generally less volatile than many of the narrower targeted taxes such as the cigarette or gasoline tax."<sup>30</sup>

One factor that keeps Massachusetts from attaining a higher bond rating currently is its high level of existing debt. Massachusetts ranks near the top among states in Moody's calculation of net tax supported debt on a per capita basis and as a percent of personal income. With the disappearance of a large share of the state's budget revenue, in a transition period, it may be necessary to seek long-term financing of the accumulated deficits. This practice of "bonding out" of financial problems is another factor that is viewed negatively by the rating agencies.<sup>31</sup>

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<sup>26</sup> Moody's Investors Service, *Moody's State Rating Methodology, November 2004*, p. 6. "A structurally balanced budget is one for which the forecast over the next three to five years shows that recurring revenues under reasonable state economic growth assumptions can support recurring baseline expenditure commitments given expected demographic trends and current policies."

<sup>27</sup> Moody's Investors Service, p. 2.

<sup>28</sup> Standard & Poor's, *Public Finance Criteria 2007*, p. 62.

<sup>29</sup> Moody's Investors Service, p. 6.

<sup>30</sup> *Ibid*, p. 7.

<sup>31</sup> Standard & Poor's, *Public Finance Criteria 2007*, p. 63.

If total state revenue is cut by about 40%, projected debt service obligations as a share of total revenue will quickly rise from 7.5% currently to about 12%. Massachusetts succeeded in getting its Aa2 rating affirmed with its current level of debt service, but the state's high-debt ratio was a "credit challenge" as listed by Moody's. One factor that will lower the rating is increased leveraging of the Commonwealth's resources to pay debt service.

### **Historical Downgrades**

As noted previously, Massachusetts general obligation debt is currently rated Aa2 by Moody's. It is rated AA by Standard & Poor's. Both agencies rate about 20 states above Massachusetts in the two higher categories of their respective rating systems (AAA/Aaa and AA+/Aa1).

What might the impact be on this rating from a massive budget shortfall that was closed by sharply curtailing various government services and limiting future revenue growth? Past downgrades of state bond ratings have been triggered mainly by the impact of an economic downturn on state finances. For example, between 2001 and 2005, Standard & Poor's downgraded 13 states.<sup>32</sup> Downgrades of two or more steps are not unknown. Tennessee was downgraded from Aaa to Aa2 over a two-year period by Moody's, as the state's tax structure could not generate sufficient revenue to meet the government's commitment to greatly expand Medicaid coverage.<sup>33</sup>

Only a few states are ever rated below Moody's Aa category. In 2004, Moody's said: "In the most serious cases of actual or projected liquidity shortfall, a rating below the A category may be appropriate. This was the case most recently with California, which faced a potentially severe liquidity crunch before state voters authorized a \$15 billion deficit bond issue to finance short-term notes. California represented only the fifth state since the early 1970s to be rated below the A category."<sup>34</sup>

The most recent case of a state being downgraded below A prior to the downgrade of California in 2003 was Massachusetts in the period 1989–91. From the beginning of 1989 to the end of 1991, the unemployment rate in Massachusetts rose from 3.4% to 9.1%, and total employment fell 11%. During that period, Massachusetts faced acute budget and liquidity problems not unlike those that could be created by a huge revenue shortfall from elimination of the income tax. Its bond rating was cut by Moody's first to Baa1 in December 1989, then to Baa in March, 1990. Standard & Poor's cut its rating for Massachusetts to BBB in December 1989 where it remained for nearly three years.

### **Cost of Future Downgrades**

A downgrading of Massachusetts' bond rating will increase the state's borrowing costs, further exacerbating the revenue shortfall created by elimination of the income tax. A downgrade from the current S&P/Moody's ratings of AA/Aa2 to AA-/Aa3 can increase borrowing costs by 5-10 basis points. A two-category downgrade can increase costs by as much as 15 basis points. Each 5-basis-point increase will add about \$10 million in borrowing costs over the life of the loan for

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<sup>32</sup> Parry Yong, "Trends in State Bond Ratings," presentation to NASACT Annual Conference, August 2005.

<sup>33</sup> Moody's Investors Service, p. 15.

<sup>34</sup> Ibid, p. 2.

each \$1 billion the state borrows. A downgrade to A+/A1 (where only California and Louisiana are currently rated) could raise borrowing costs by \$30 million per \$1 billion borrowed.

As noted above, however, Massachusetts' bond rating was three-to-four steps below A+/A1 during the severe economic downturn of 1989-1991. A cut in the Commonwealth's bond rating to that range could add about 75 basis points to current borrowing costs. If confidence in the Commonwealth's finances collapses due to elimination of income tax revenue with no off-setting action by the Legislature, the bond rating could be cut to junk bond status with borrowing costs higher by two-to-four percentage points.

The state has been operating recently under an annual bond cap of \$1.5 billion in new debt issuance. With a downgrade of the state's bond rating, borrowing costs will rise for this new debt, as well as on outstanding variable rate debt and on short-term borrowing that can be as much as \$1 billion annually. If the Commonwealth's bond rating is downgraded by one-to-two steps, the total added borrowing cost would likely be about \$5-6 million—a small added cost relative to some of the other shocks to the state's finances discussed here. A downgrade to junk bond status that boosted the interest rate by three percentage points, however, would increase annual borrowing costs by over \$100 million. This would be a significant added cost that would force even greater cuts in other areas of state spending. A more fundamental question, however, is whether the state can successfully sell its bonds in the market if its debt is severely downgraded and state finances are in disarray.

## Summary and Conclusions

The individual income tax is the largest source of revenue for the Commonwealth. Eliminating the income tax will remove 60% of the Commonwealth's "own-source" tax revenues and 40% of its total revenue sources. Such a change will rank Massachusetts a distant last among the states in tax revenues per capita and per dollar of personal income.

Eliminating the tax will save Massachusetts taxpayer \$3,600 on average. Because income taxes are progressive, however, high-income taxpayers will be the major beneficiaries. Tax filers with annual income less than \$25,000 will gain approximately \$240 per year, while those with annual income greater than \$100,000 will gain \$15,000–16,000 on average.

U.S. businesses require a well-developed transportation and communications infrastructure and a highly skilled workforce to compete in today's global economy. State spending on education and infrastructure, therefore, impacts Massachusetts' competitive position and its economic growth. Elimination of income tax revenues will lead to drastic spending cuts in both these areas and seriously hinder the Commonwealth's future economic growth.

Education investments—beginning with early childhood education, elementary/secondary, through higher education and workforce training—increase the quality of the current and future workforce and are influential in attracting businesses, valuable professionals, and skilled workers to the state. Numerous ranking systems devised to grade states on their attractiveness to

businesses, all include the quality of education and/or the quality of the workforce as a factor. Companies are eager to employ skilled workers that require minimal post-hire training.

Removing 71% of state appropriations for higher education in the absence of the income tax will increase average full-time undergraduate tuition and fees by an estimated \$1,300 at the Commonwealth's community colleges, \$1,800 at its state colleges, and nearly \$4,500 at its University of Massachusetts campuses. Removing state financial aid will make matters worse for eligible students at public and independent colleges. Low- to middle-income residents will not have access to affordable higher education. Foregone income tax payments will not offset the increased fees for these residents.

Returns on early childhood education are very high, particularly for children of disadvantaged families, because it compensates for an unfavorable family environment. Attempts to remedy early educational deficits later in life can be much more expensive and too late to be effective.

Infrastructure creates the conditions for growth by reducing costs of production and raising the returns to other capital and labor. An inadequate transportation system can downgrade the Commonwealth's attractiveness as a site for businesses expanding or seeking new locations.

Elimination of the income tax will sharply reduce the Commonwealth's capacity to undertake new capital projects financed through borrowing. Debt service as a percentage of total revenue will quickly go well beyond the statutory limit (10%) and the target set in consultation with rating agencies (8%) to 12%. To get debt service down to an acceptable level, the Commonwealth would have to slash new debt issuances—perhaps resulting in no net new borrowing for seven years. Also at risk will be federal matching funds, if the maintenance and repair of roads and bridges departs substantially from the Commonwealth's capital improvement program.

User fees can be introduced in the form of more highway and bridge tolls to fund the Commonwealth's infrastructure revenue shortfall. Massachusetts residents could be burdened with an added cost of \$150-200 per household—more than offsetting the savings from elimination of the income tax for many families.

Elimination of revenue from the income tax with no offsetting tax increases will create conditions that could contribute to a substantial downgrading of the rating on Massachusetts state bonds: increased uncertainty about revenue flows, less diversity in revenue sources, and greater volatility of the Commonwealth's revenue stream. If the Commonwealth's bond rating is downgraded to junk bond status, borrowing costs can rise by 2-4 percentage points. A 3-percentage-point increase would raise annual costs by over \$100 million. Furthermore, it could become nearly impossible for the Commonwealth to sell its bonds in the market.