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## **Concerns About the Debate Over Massachusetts' Tax Competitiveness**

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## **Concerns About the Debate Over Massachusetts Tax Competitiveness**

Robert Tannenwald\*

In my opinion, the long-running debate about tax competitiveness in Massachusetts has generated too much heat and too little light. Many state legislators have trouble making sense of the jumble of testimony, reports, and rhetoric on this topic. This confusion is understandable, since the issue is complicated and the stakes are high.

For those who have struggled to give policymakers relatively impartial, clear insights into this issue, recent developments have been discouraging. Protagonists in the debate have gotten tangled up in a thicket of jargon and statistics whose significance and relevance are often obscured (not necessarily intentionally). As a result, too many policymakers lack the data and analytical framework they need to make informed decisions. This morning, I am going to discuss a few of the more confusing statistics that have been presented during the debate on tax competitiveness over the past year..

I realize that my paper does not squarely address the topic that appears by my name in the program for this conference: "Are State and Local Revenue Systems Becoming Obsolete? The Role of Interstate Tax Competition". You can read about my thoughts on this subject in a recently published article (Tannenwald, 2001). Besides, I have done little recent original work on this topic; many other people, including some

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attending this conference, have done much more. It is important to address the issue of tax competition within the framework recently established by lobbyists and therefore most familiar to policymakers.

Two caveats are necessary. First, I am speaking for myself only, not the Fed. Second, after listening to me for 22 years, my colleagues have asked me to announce that neither the Federal Reserve Bank of Boston nor the Board of Governors of the Federal Reserve System necessarily thinks that my jokes are especially funny.

## **I. “Business’ Share” and Business’s Tax Burden**

Perhaps no other tax statistic has been more widely cited and misunderstood than “business’ share” of state and local taxes (“BS” for short). The now defunct United States Advisory Commission on Intergovernmental Relations first stimulated interest in this statistic in a study published 22 years ago (U.S. Advisory Commission on Intergovernmental Relations, 1981). BS purports to estimate the share of state and local taxes for which businesses, as opposed to households, are “nominally” liable. If the financial officer of a business writes the check for the tax bill in question, the tax falls nominally on a business and, therefore, is classified as a business tax. An unambiguous example is the corporate income tax. By contrast, if a household is responsible for the tax bill, the tax is a household tax. An example is the property tax on owner-occupied housing.

When I first heard about BS, I was perplexed. One of the first lessons I learned in my introductory public finance course was that “businesses bear no tax burdens”. Only people bear tax burdens. Businesses are groups of people organized to produce goods, to distribute goods, or to provide services. Consequently, while the financial officer of

business might write a check to the taxing authority, initially the burden of a “tax on business” is actually borne by business owners, business employees, business customers, or business creditors. Ultimately, after everyone adjusts his or her behavior in response to the tax, the Lord only knows who bears the burden of taxes, whether “business” or “household” in origin.

Nevertheless, active participants in the debate over state business taxes continue to produce estimates of their state’s BS and to draw prescriptive conclusions from them. In states where BS is low, public interest groups conclude that “business is not paying its fair share,” the business tax climate is competitive, or state and local taxes on business could be raised without harming the state’s competitive standing. In states where BS is high, business groups warn that business is being unfairly overburdened with taxation or that business taxes should not be raised—indeed, they should be lowered—to make the state competitive in this age of globalization and footloose producers and consumers.

According to statistics supplied by business groups, Massachusetts’ BS is low relative to the nation’s. Recently, the Associated Industries of Massachusetts Foundation (AIM) commissioned Ernst & Young (E&Y) to estimate BS in Massachusetts for several years (Saviano and Cline, 2003). According to E&Y’s estimate, in Fiscal Year 2002 businesses’ were liable for 40 percent of all taxes levied by the Commonwealth’s state and local governments. Taxes on business include corporation excise taxes, taxes on property other than owner-occupied real estate (so, taxes on rental housing are business taxes according to this definition), business excise taxes (such as those on insurance and banking), sales taxes on business inputs (including a share of motor fuel taxes), unemployment insurance taxes, severance taxes, and workers compensation fees. In one

version of its estimates, E&Y includes personal income taxes paid by partners and owners of Subchapter S corporations in its business tax totals.

AIM commissioned this study in response to an analysis of the Commonwealth's corporate excise tax performed by the Massachusetts Budget Policy Center (BPC)(St. George and McLynch, 2003). BPC found that, as a percentage of total *state* taxes, the corporate excise tax fell from 16 percent in 1968 to 4 percent in FY2001. BPC found in the corporate tax's declining share evidence of a tax base eroded by business tax breaks, in turn a reflection of the revenue-sapping effects of intensifying interstate fiscal competition.<sup>1</sup> Since BPC's analysis impressed several lawmakers on Beacon Hill, AIM felt compelled to counter by showing that the corporate excise tax is only one of several taxes that "business pays", and hardly the largest one at that.

Since the late 1970s, state and local corporate income tax revenues have been declining as a share of total state and local tax revenues nationwide as well. Just as AIM decided to respond to this trend in Massachusetts with its business' share study, so the Committee on State Taxation (COST), a business interest group with a nationwide focus, asked Ernst & Young to estimate business' share of state and local taxes nationwide. Using a methodology almost identical to that employed in its Massachusetts study, E&Y

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<sup>1</sup> BPC's analysis is misleading in that it focuses on state taxes only. According to U.S. Census data, between FY1968 and FY2000 the fraction of the Commonwealth's state and local taxes accounted for by corporate income taxes shrank from about 7.8 percent to 5.3 percent, not as dramatic. In addition, BPC's analysis invites comparisons between Massachusetts and the United States. According to Census data, the corporate income taxes share of *state* taxes nationwide was only 6.9 percent, less than half of Massachusetts' 16 percent. Why should the corporate income tax's share have been *so* much higher in Massachusetts than in the nation as a whole. (The same discrepancy is evident in figures based on state and local taxes; the share in the U.S. is less than one-half the share in Massachusetts). This huge difference in the corporate income tax's share suggests that perhaps the Commonwealth's relied too heavily on the corporate income tax in 1968. Also, in comparing U.S. and Massachusetts trends, one should note that the corporation income tax's share peaked later in the U.S. than in the Commonwealth. A comparison of trends from peak to current values, however, still shows that the share in Massachusetts has fallen more sharply than in the U.S. See Figures 7 and 8.

determined that business' share nationwide was higher in FY2002 (42 percent) than in the Commonwealth (40 percent) (Cline et. al., 2003).

In its conclusion E&Y's Massachusetts study, strongly implies that BS is a meaningful indicator of "burden" and, therefore, competitiveness. Th E&Y study draws, among others, the following two "business tax policy" implications:

- "The combined Massachusetts state business tax *burden* is significant. From an *economic development* perspective, Massachusetts policymakers should carefully evaluate the competitiveness of the state and local business tax structure, including all of the business taxes identified in this study (italics added)".
- "The corporate excise tax is but one part of the total state and local tax burden imposed on businesses in Massachusetts. The combined burden of all business taxes should be the focus of state business tax reform efforts."

If one follows E&Y's advice, and if BS is a meaningful gauge of the Commonwealth's tax competitiveness, then Massachusetts is plenty competitive. Table 1 presents **very very** preliminary estimates of BS for all fifty states and the District of Columbia. The methodology (to be described in subsequent versions of this paper) is somewhat different from that employed by Ernst & Young—at least I think so, because E&Y has yet to publish (to my knowledge) a comprehensive methodological appendix. According to my estimate, the gap between business share in Massachusetts and in the U.S. was 7 percentage points (37 percent as opposed to 44 percent), while Ernest and Young found the gap to be two percentage points (40 percent versus 42 percent). According to my estimates, Massachusetts' BS ranked 48<sup>th</sup>.

In fact, Massachusetts' low BS is in large part a passive reflection of the structure of its economy. It does not necessarily reveal that its business tax climate is attractive that businesses in Massachusetts are "paying their fair share". Specifically, BS is a

reflection largely of the relative *labor intensity* of its economy (see Tannenwald 1994). Labor intensive industries—professional business services, health care, education, info-tech, financial services—account for a relatively large share of our economy. Even our manufacturing industries are labor intensive relative to manufacturing as a whole. Although we specialize in the manufacture capital goods (silicon chips, computers, telecommunications equipment, instruments, machine tools), making machinery is a capital-intensive endeavor relative to oil refining, chemicals, paper, etc. Because our economy is labor intensive, the bases of taxes paid by households are large relative to the bases of taxes paid by businesses. Our low BS has little to do with how intensively we tax one set of tax bases or the other.

As an illustration of this point, consider a hypothetical state with only one for-profit businesses—a chemical manufacturer. Another hypothetical state has only a temporary help agency. Assume that each firm earns the same rate of return on assets. Suppose that you had the balance sheet and income statement of each firm. Which firm would have the higher ratio of wage bill to profit? The temporary help agency. A large percentage of its expenses consists of wages and salaries to its employees. By contrast, the chemical company has few employees relative to the extensive and expensive plant and equipment that it uses—pumps, pipes, meters, towers, distillers, precipitators, trucks, pollution control devices, etc. Profit is the return to capital. So the *aggregate* profits (not *rate* of profit) of the chemical plant are high relative to its aggregate wage bill. The opposite is true for the temp agency. Profit is the base of an important business tax. Wages are the most important component of the personal income tax base. In addition, the chemical plant owns a lot of taxable nonresidential property (the base of a business

tax). By contrast, in the state with the temp agency, there is not much commercial and industrial property (maybe an office building, some office equipment, telephones). However, there is a lot of residential property (the base of a large household tax) since all those workers need a place to live and many of them own rather than rent (property taxes on rental housing are considered to be business taxes).

Evidence that business share is a function of capital intensity is provided in the following cross-sectional ordinary least-squares regression equation estimated from 2000 data on the 50 states and the District of Columbia:

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$$BS = .0756(K/L) + 12.65(NPYT) + 33.99 \quad R^2 = .75$$

(6.73)\*\*
(6.60)\*\*
(28.88)\*\*

where:

BS = business taxes as a percentage of total taxes, for FY2000. Business taxes and total taxes exclude severance taxes. With severance taxes excluded, the coefficient on the capital/labor ratio is even larger and equally statistically significant.

K/L = capital labor ratio of state's private sector economy,  
imputed physical capital (\$millions)/employees (thousands)<sup>2</sup>

NPYT = a dummy variable, equal to 1 if a state has no broad-based personal income tax.

Numbers in parentheses are t-statistics

\*\*significant at the .001 level, two-tailed test

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A well-known business leader, the late John Gould, made the point captured in this equation in testimony before the Legislature's Committee on Taxation in 1995. He

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<sup>2</sup> Methodological details of regression analysis and derivation of state-specific capital/labor ratios are available from the author upon request.

asked, “Why is Massachusetts so dependent on personal taxes? Not because business fails to pay its share, but because Massachusetts pays so much of its income to its employees...the proportion of our state revenues derived from business taxes, though low by national standards, results from the structure of our economy, not from low business tax burdens.” (Gould, 1995). At the time he gave this testimony, Mr. Gould was president of the Associated Industries of Massachusetts.

However, let us accept at face value the contention of this AIM-sponsored study that all business taxes should be taken into account in evaluating Massachusetts business tax burden. Another report issued by business interest groups suggests, contrary to the AIM report, that BS is not the best indicator of business tax burden. This report was co-sponsored by AIM, the Massachusetts Taxpayers Foundation (MTF), and the Greater Boston Chamber of Commerce (GBCC).<sup>3</sup> Entitled “Fragile Progress: Reining in Massachusetts’ High Business Costs”, it evidently embraces BPC’s contention that the “least worst way” to assess the burden of the Commonwealth’s corporate excise tax is to divide it by statewide personal income and compare this ratio with its counterparts in other states. According to this statistic, in Fiscal Year 2000 (FY2000) the tax’s burden was 26 percent above the national average and ranked 11<sup>th</sup> among the states and the District of Columbia. So, the point is that, while the corporate tax burden may have declined in Massachusetts [as the BPC has also pointed out (St. George and McLynch , 2003)], it is still high relative to the comparable burden in other states.

The report notes that in FY1992, the Commonwealth’s ratio of corporate excise tax collections to personal income was only 9 percent above average. In its executive summary (the only part that most people read), the report states that the Commonwealth

has “lost some ground” in corporate income taxes, an assertion presumably referring to the widening gap since 1992 between the U.S. and Massachusetts corporate tax burden. However, the text of the report is more equivocal, cautioning that “these swings [in relative corporate tax burden] reflect the state of the economy and corporate profit levels as much as changes in the state’s tax code.” The authors of the report caution that

Massachusetts’ relatively better standing in 1992 may be attributable to the recession of the early 1990s, which hit the Commonwealth harder than almost any other state, *an example of the difficulties of comparing corporate income tax burdens* (italics added). (p. 28)

In a footnote (footnote 29, p. 44), the authors note that Massachusetts’ corporate license taxes, an alternative to corporate profits taxes levied by such states as Texas and Washington, are very low. When one includes these license taxes in the comparison, Massachusetts’ corporate tax burden was only 7 percent above the national average in FY2000.

However, as the reports issued by AIM and COST argue, we should be looking at all business taxes, not just “corporate taxes”. Fair enough. Let’s do it.

As a first step, consider the following question, couched as a possible problem for a standardized high school math test:

If  $(a/b) < (c/d)$  and  $(b/e) < (d/f)$ , then

1.  $(a/e) > (c/f)$
2.  $(a/e) = (c/f)$
3.  $(a/e) < (c/f)$
4. Can’t tell from information given

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<sup>3</sup> “Fragile Progress: Reining In Massachusetts’ High Business Tax Costs”, February 2003.

The answer is 3, since  $(a/b)*(b/e) = (a/e)$  and  $(c/d)*(d/f) = (c/f)$  and if 1) you have an inequality and 2) you multiply each side by a number, and 3) the number you multiply the lesser value in the inequality by is lower than the number you multiply the greater value by, then by the laws of mathematics, the direction of the inequality does not change.

If this is confusing, consider an alternative question

The share of total state and local taxes paid by business is lower in Massachusetts than in the United States as a whole. Total state and local taxes are roughly the same share of personal income in Massachusetts as in the United States as a whole. State and local taxes paid by business as a share of personal income in Massachusetts are

1. higher than in the nation as a whole
2. the same as in the nation as a whole
3. lower than in the nation as a whole
4. can't tell from the information given
5. This is Taxachusetts. Business burdens must be higher!

According to the same mathematical reasoning used to solve the earlier abstract problem, the answer is number 3. This conclusion follows from that fact that 1) business's share is relatively low and 2) according to U.S. Census data Massachusetts total state and local tax burden (total state and local taxes as a percentage of personal income) is about the same as the U.S. average, (actually, according to Census data, slightly below the average and virtually right at the median).

In a recent report, the Massachusetts Budget and Policy Center used the same logic to reach the same conclusion (BPC, 2003). By my estimates, derived from Census tax data, E&Y figures, and personal income data from the Bureau of Economic Analysis, in FY2000 the business tax burden in Massachusetts was 9 percent below the national average (Figure 1). In FY1991, it was only 4 percent below the national average. Not only was the business tax burden in Massachusetts low in FY2000, but the gap between it

and the nation widened over the course of the 1990s. The BPC report found the same trend.

When I use my own data on business taxes for the 50 states and the District of Columbia, I estimate that business taxes as a percentage of personal income are 20 percent below the national average. Please, keep in mind that these are very preliminary estimates. I suspect that the gap is actually smaller than that. But, I also surmise that, after I refine my estimates, Massachusetts business tax burden will still come out relatively low.

## **II. “It Was Better This Time Around Because We Cut Taxes”**

A few months ago, a Boston business leader asked me (rhetorically): “If tax cuts (and change in the regulatory environment) enacted over the past few years have not had their intended effect, why was the recession in Massachusetts so much milder in 2001 than it was in 1989-1992?” I heard the same question a few months earlier from an intelligent, savvy, policymaker. Evidently, some influential people are concluding from the inverse correlation between depth of employment contraction and changes in “tax and regulatory climate” that the latter significantly influenced the former. Let’s explore this hypothesis.

Clearly, the percentage decline in employment, peak to trough, was much greater in Massachusetts during the late 1980s and early 1990s than since 2001, both absolutely and relative to the contraction in the nation as a whole. In the 1989-1992 recession, the Commonwealth suffered through four straight years of declining employment (Figure 2). From peak to trough, employment fell by 12.4 percent. By contrast, the national recession was shorter and shallower. From peak to trough, nationwide employment fell by only 1.5

percent. Over the course of the last recession, the Commonwealth's has fallen by only 4.7 percent since the peak, in early 2001 to this past August, the largest percentage decline in any of the 50 states. It remains to be seen whether we are at the trough. By comparison, U.S. employment fell by 2.1 percent from its peak in March to August. It ticked up slightly in September, although it is not clear yet whether U.S. employment has bottomed out as well.

As pro-tax cut advocates such as the Beacon Hill Institute have pointed out, Massachusetts' statutory tax rate on wage and salary income has been correlated with the growth rate in the Commonwealth's employment (Figure 2). Just as employment growth started to enter negative territory in 1989, the tax rate rose. When the economy eventually improved, the tax rate fell. Most of the variation in the tax rate took place during the period of the sharpest contraction in employment. The tax rate stayed at a very high level (5.95 percent, only 0.3 of a point below peak) during most of the boom period during the latter half of the 1990s. Then it was reduced just as employment began to decelerate in early 2000, and was reduced again as the Commonwealth slid into recession. Some have argued that the increase in the tax rate in the late 1980s helped to make the recession so severe and the cuts in the early 2000s helped to moderate the downturn.

Of course, there is plenty of evidence that the direction of causality went the other way. As the economy deteriorated in the late 1980s for reasons that had nothing to do with state fiscal policy, the Commonwealth incurred a large deficit. The legislature raised the tax rate in order to stem the flow of red ink. The deteriorating economy probably induced the tax increase, not vice versa. Still, it is possible that the increase in

the tax rate aggravated a contraction that was caused largely by forces outside of the Commonwealth's control.

While a possibility, it is highly unlikely that the tax increase had any such deleterious effect. The reasons why the economic contraction in Massachusetts was so much more severe in 1989-1992 are revealed in Figures 3 and 4. In Figure 3, note that as early as 1987, while the personal income tax rate was actually *falling*, the incidence of non-performing loans in Massachusetts' FDIC-insured depository institutions was rising sharply. The percentage of loans outstanding that were non-performing soared continuously throughout the boom of the late 1980s and most of the subsequent recession. Yet from 1993 until 2001, a period of sustained economic growth in the Commonwealth, the incidence of non-performing fell steadily. Today it is at its lowest percentage in almost 20 years.

What could have caused the sharp deterioration in the balance sheet of Massachusetts banks almost 15 years ago? Clues lie in Figure 4. Construction employment almost doubled from 1984 to 1989, and then dropped to almost half its peak level within four years. From 1989 through 1992, the Commonwealth lost 70,000 construction jobs. Since then construction employment has almost reached its 1989 peak. It grew steadily throughout the most recent recession. What is it about the Commonwealth's tax policy that caused construction employment to contract so sharply during the late 1980s and early 1990s, but to grow so steadily since?

In fact, the ups and downs of construction employment have had little, if anything, to do with tax policy. Rather, in the late 1980s and early 1990s, they reflected the building of a huge speculative real estate bubble that burst with a vengeance. The

bubble began when strong economic growth stimulated demand for housing, but, for a variety of reasons too complicated to go into here, supply did not keep pace. People began to trade up to make a quick profit. Banks, seeing similar opportunities to make money, lent liberally to developers, especially those constructing condominiums. When the bubble burst, many banks, large and small, were in serious trouble. One of the largest in the state, the Bank of New England, failed. Bank regulators clamped down on lending activity to force financial institutions to resolve their problem loans and deepen their cushion of capital. The ensuing “credit crunch” forced many businesses, already hurting from the recession, to cut back operations even further. That’s why “things were so much worse” last time around. State tax policy had very little to do with it. Indeed, one could argue that the cuts in the state personal income tax rate in the latter half of the 1980s were fiscally irresponsible because they stoked the boom instead of restraining it according to the standard Keynesian formula.

The tax simulation model used by the Beacon Hill Institute (BHI) fails to control for these idiosyncratic factors that depressed Massachusetts’ employment so heavily between 1989 and 1992 (although BHI does control for the impact of national economic conditions).<sup>4</sup> Much of the variation in the personal income tax rate took place during this period, as well as much of the variation in employment. The model in effect estimates the correlation between rising tax rate and falling employment, controls only for national business conditions, and extrapolates the partial conditional correlation forward. As a result, it projects serious negative consequences if the personal income tax were to increase (and great benefits if it were to be reduced). However, in the language of econometrics, the BHI model is “misspecified”. A key omitted variable (the real estate

boom-bust”) is positively correlated with the key explanatory variable (the personal income tax rate) and negatively correlated with the dependent variable (employment). Under such conditions, the estimate of the impact of the tax variable is dramatically overstated. Yet, policymakers in both the executive and legislative branch recognize the Beacon Hill model as the preeminent tax policy analysis model in the Commonwealth today. In fact, it is the *only* technical, mathematically elaborate model used to model Massachusetts tax policy alternatives today. The Massachusetts Department of Revenue used to have one, but the Weld administration failed to maintain it and discontinued its use.

### **III. The Tax Foundation’s Ranking of States by State and Local Tax Burden**

About a year ago, I was caught in a traffic jam in downtown Boston, listening to the news on the radio. The commentator quoted Lt. Governor Kerry Healy as saying that Massachusetts had the second highest tax burden in the nation. Lt. Governor Healy reportedly cited this statistic as evidence that Massachusetts should not raise its taxes and, if anything, should lower them further. If the Lt. Governor has cited this statistic, and the media has reported it, then it probably is having some effect on policymakers.

The Lt. Governor was citing a statistic provided by the Tax Foundation, “Tax Freedom Day”. TF calculates the ratio of federal, state, and local taxes to income for the nation as a whole and each state and then multiplies each ratio by 365 (366 in a leap year). The resulting product is the number of days that the average American (or the average resident of state “X”) has to work to pay off her or his taxes. Starting with January 1, TF then uses this estimate to gauge the date on which the average taxpayer is

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<sup>4</sup> See Tuerck, et.al., (2003), for a description of this model.

“free” to earn money that is not gobbled up by taxes (Tax Foundation, 2003). TF estimates that in 2003 Massachusetts had the second latest Tax Freedom Day among the 50 states.

A number of organizations, such as the Center on Budget and Policy Priorities, have questioned the validity of conclusions frequently drawn from this statistic (Lav, Friedman, and Sly, 2001). For example, Massachusetts burden in 2003 was ranked second largely because the federal tax burden of the Commonwealth’s residents is so high. Consequently, CBPP argues, it is difficult to draw conclusions from this statistic about state and local tax policy. According to TF, Massachusetts state and local tax burden ranked 13<sup>th</sup> in 2003. TF’s analysis has also been criticized on the grounds that it imperfectly takes into account the degree to which each state exports the burden of the taxes that imposes and imports the burden of taxes imposed by other states. TF attempts to estimate net exporting/importing only of corporate income taxes, sales taxes, and severance taxes. They make no attempt to incorporate property taxes and income taxes into their analysis. TF estimates that on net Massachusetts is a slight importer of taxes, which raises its state and local tax burden slightly.

Rather than get in the middle of the debate between TF and CBPP, I would like to focus on another problem with TF’s estimates that I have not seen discussed. This problem first become evident in their interstate comparisons of state and local tax burdens for 2002.

When I began to analyze TF’s methodology, I immediately ran into difficulty. Its methodology is not explained thoroughly in any publicly available document. So I called up one of TF’s economist and asked him how TF arrives at its estimates. Although he

was very helpful and provided me with some background data, I still do not have a firm handle on all the methodological details. TF incorporates statutory changes in state tax structures as reported by the National Conference of State Legislatures. Its estimates for all of the last three years are based on projections, not actual data. This makes sense, even for 2001 and 2002, because the Census Bureau, the only source of state and local tax data comparable across all the states, has published numbers only through FY2000. I was more troubled that TF does not clearly indicate on its website, where the interstate comparisons for several years are posted, that its 2001 and 2002 tax burdens are old projections that have yet to be revised. In my opinion, most members of the public accessing the website would conclude that the numbers record actual, not projected, historical relative tax burdens.

I proceeded to examine how TF has ranked Massachusetts tax burden in the past, especially in years for which corroborative Census data were available. From calendar years 1991 through 2000, Massachusetts has ranked between 18<sup>th</sup> and 29<sup>th</sup>. These rankings are roughly comparable to those found in Census data, which have historically ranked the burden in Massachusetts, without net tax exporting/importing, in the mid-twenties. However, since then the Tax Foundation has reported a dramatic increase in the rank of the Commonwealth's tax burden, jumping from 24<sup>th</sup> in 2001 to 15<sup>th</sup> in 2002 and continuing its ascent to 13<sup>th</sup> by 2003 (Figure 5). This dramatic shift, taking Massachusetts to its highest rank in 17 years, comes as a surprise given the magnitude of recent tax cuts in the Commonwealth.

In further exploring these anomalous results, I estimated the rate of growth in state and local tax revenues in Massachusetts and the U.S. implied by the Tax Foundation

data (The TF was kind enough to supply the data). According to the TF's numbers, state and local tax revenues in Massachusetts grew by 2.4 percent in 2002. We have actual state and local tax collections for Massachusetts for 2001 and 2002 from the Massachusetts Department of Revenue. According to DOR figures, state and local tax collections dropped in 2002 by 8 percent. For 2003, TF projects growth in Massachusetts state and local tax revenues of 6.4 percent, whereas I estimate (on the high side) that they will grow by 4.9 percent (Figure 6). However, the large measurement error in 2002 appears to have propagated measurement errors in 2003. I estimate that TF has overestimated the state and local tax burden in Massachusetts by four-tenths of a percentage point. Analysis of TFs forecasting errors for other states suggests that they are much smaller, except for California. This suggests that the source of the measurement error lies in the inability of TF's model to capture sharp swings in tax revenue related to capital gains. (Both states were among the hardest hit by the stock market boom/bust.)

I don't find fault with TF for having such a large forecasting error for 2002. Most forecasters made similar errors. However, I believe that TF should identify more clearly which of their interstate comparisons available on their website are part of their historical series and which are forecasts—even out-of-date forecasts. Without such clear labeling, policymakers, and their analysts, can be misled (unintentionally) and conclude that an extremely inaccurate forecast of the past is actually a statistic recording what actually happened. I also suggest that TF modify its forecasting techniques so that it can better incorporate new information into its projections. The Census Bureau has already published actual state tax collections, by state, through 2003:Q1. While statistics on actual local tax collections for all states are not yet available beyond FY2000, recent state

data could be used to modify 2001 and 2002 estimates. In the absence of such updating, TF's forecasts for Massachusetts' tax burden will probably continue to be inaccurate until the Census Bureau publishes data on local tax collections for all states for 2002, and TF uses it to revise its estimate for that year. Since the Census Bureau only publishes data on a fiscal year basis, data need to estimate state and local tax collections by state for calendar year 2002 will not be available until data for FY2003 are published. That might not happen until 2006 or 2007. Until then, state and local policymakers could easily base their policy decisions on misinterpreted TF data.

#### **IV. Conclusion**

The debate over tax competitiveness in Massachusetts is not helping policymakers make informed decisions. Interest groups joust, using statistical analysis as one tactic in their strategic arsenal. While some of this statistical jousting takes place at committee hearings, these hearings rarely produce informative in-depth debates with a lot of give and take. No impartial group or individual routinely critiques the output of these interest groups. Members of the press generally lack the background or are too pressured by deadlines and other constraints to perform this function. Analysts committed to fostering open, informed debate need to combine forces to make sure that the Commonwealth's policymakers get the information and analysis they need.

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