



Massachusetts Tax Revenue Forecasts for FY2005 and FY2006

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At the December 8, 2003 hearing of this committee, the Beacon Hill Institute (BHI) estimated that tax revenues for fiscal year 2004 would be \$15.532 billion. This turned out to be the most optimistic of the estimates provided at that hearing or subsequently in the January 2004 consensus estimate. It also proved to be well below the mark, as actual 2004 tax revenues surged to \$15.953 billion. While BHI was quite accurate in forecasting sales and use taxes, alcoholic beverage taxes, income tax withholding and motor fuels taxes, it missed estimated tax payments, income tax refunds and income tax returns and bills by a wide margin. BHI nevertheless offered the most accurate of the most widely-quoted forecasts. See Table 1.

Table 1	
Tax Revenue Forecasts (\$ billion)	
Actual FY 2004 Tax Revenues	15.953
<i>Projected FY 2004 Tax Revenues, as of December 2003</i>	
The Beacon Hill Institute	15.532
The Massachusetts Taxpayers Foundation	15.417
Consensus Estimate (January 2004)	15.230

BHI's Forecasts for FY 2005 and 2006¹

This year BHI continues to be optimistic about the prospects for the Massachusetts economy and tax revenue collections. We forecast that tax collections will be

- \$16.813 billion in FY2005, representing a 5.4% increase over FY2004, and
- \$17.555 billion in FY2006, an increase of 4.4% over FY2005.

Table 2 shows the forecasts by year and by major tax, and Table 3 gives some additional detail. A complete breakdown of revenue forecasts by month and by the 11 tax headings is available on request.

In what follows we summarize the economic prospects of the Commonwealth over the next two years, and explain the procedures followed in arriving at our tax forecasts.

Background

Nationally, the economic expansion that began in November 2001 has continued at a rather robust rate as real GDP rose by 3.9% in the third quarter of this year. According to the most recent poll of forecasters undertaken by *The Economist*, U.S. real GDP is expected to rise by a robust 4.4% in 2004 and by 3.5% in 2005. U.S. Consumers continue to spend freely, as evidenced by retail sales that surged at an annual rate of 7.9% over the period January to September, 2004, according to the United States Census Bureau.² As oil eases back down from a lofty \$50 plus per barrel, gas and heating oil prices should follow, further aiding consumer spending power. With improving employment levels and personal income, retail sales are expected to grow, although at a more moderate pace, over the coming two years.

Belatedly, employment has begun to increase, and *Economy.com* expects non-farm employment to rise by 1.8% in 2005 and 1.5% in 2006. This will be enough to further reduce the unemployment rate, which stood at 5.5% in November and has dropped over the past year.

Massachusetts fared less well than the rest of the nation, slipping into recession in December 2000, and only emerging definitively when the decline in gross state product ended in the second quarter of 2003.³ Having ridden the high-technology boom in the 1990s, the Massachusetts economy continues to experience an uneven recovery in terms of job creation and growth in real state product, while personal income growth has strengthened.

Massachusetts saw a net increase of 10,700 payroll jobs for the first ten months of 2004, and the unemployment rate fell from a seasonally adjusted 5.6% in January, 2004 to 4.6% in October. This drop is exaggerated by the fact that nearly 26,000 workers have exited the labor force since January 2004.⁴ Meanwhile, in 2004 the national economy created 2 million jobs through November. Massachusetts real gross state product grew by 2.3% in the first half of 2004, compared to real GDP growth of 3.9% nationally.⁵ However, nominal personal income, one of the main drivers of tax revenue collections, was 4.5% higher in the second quarter of 2004 than in the second quarter of 2003. This divergence between the growth of personal income and payrolls may also reflect an increase in contract workers, which would not be captured in the payroll numbers, but would be included in personal income figures.

American corporations continued to increase their cash flow (net cash flow with inventory valuation and capital consumption adjustments) – the internal funds available to corporations for investment – which rose by \$20.4 billion in the third quarter.⁶ Corporations continue to invest this cash as nonresidential gross private domestic investment recorded a double digit percentage increase for the year through the third quarter.⁷ This increased investment will continue to benefit the high-technology sectors of the Massachusetts economy, as corporations have regained their thirst for information processing equipment. The plunging dollar is also boosting the international competitiveness of local producers, and this effect is expected to persist.

We are thus in basic agreement with the most recent forecast from the New England Economic Partnership (NEEP), which expects nominal personal income to rise by 4.3% this year.⁸ However, we believe nominal personal income will continue to increase by a robust 4% next year and in 2006. Employment has begun to increase this year, and as the local economy accelerates and the national

economy continues at its current strength, payroll gains should become more consistent from month to month. Since the decrease in the unemployment rate to the current 4.6% is partially due to a fall in the labor force as discouraged workers have ceased to look for work, the availability of this pool of labor should keep the unemployment rate steady in the next two years as these workers reenter the labor force.⁹

Revenue Forecasts

The continued improvement in the Bay State economy will translate into higher tax revenues for the state. BHI revenue forecasts assume that there will be no significant change in Massachusetts tax policy for the forecast period, which runs through the end of fiscal year 2006.

The Institute forecast revenue for eleven categories of tax for every month through June 2006. Three steps were needed to develop these forecasts.

1. Information on personal income in Massachusetts is available on a quarterly basis. Monthly estimates were obtained by interpolation. We then used our own projections of personal income to derive month-by-month growth rates of personal income, allowing us to project personal income on a monthly basis out through June 2006.
2. For each tax series, we estimated a regression equation that relied mainly on the past movement of the series to permit us to extrapolate into the future. For the major taxes (sales, income) we included personal income as an independent variable. In some cases (noted in Table 3) we included dummy variables in the regression equations in order to pick up the effect of major changes in the tax code.
3. In estimating the regressions, we paid particular attention to the structure of the errors, in order to pick up the effects of seasonal, quarterly, and monthly variations in tax collections. This was done by estimating the equations with autoregressive (AR) and moving average (MA) components. The number and nature of AR and MA lags was determined initially by examining the autocorrelation and partial correlation coefficients in the correlogram, and fine-tuned after examining the structure of the equation residuals. The details are given in Table 3.

Uncertainties

Revenue for the first five months of FY2005 grew by 5.3%. We see a slight quickening of economic activity in the months ahead, which is why we estimate that total revenue will rise by 5.4% for the full fiscal year.

For FY2006 we forecast a 4.4% increase in tax revenue. The major taxes will continue to be buoyant – income tax receipts will rise by 4.9% and sales tax revenue by 4.7%. However the statewide average will be restrained by very slow growth in revenue from the major excise taxes (cigarettes, alcohol, and motor fuel), and modest growth in business and other taxes (which are rebounding this year but will not continue to grow as rapidly in FY2006).

Table 2					
Revenue Forecasts for Massachusetts, FY2005 and FY2006					
	Actual 2002	Actual 2003	Forecast 2004	Forecast 2005	Forecast 2006
U.S. economy¹					
Personal income (\$ billion)	8575.1	8683.3	8938.1	9204.6	9460.0
% change p.a.	0.3	1.3	3.4	2.7	2.9
CPI inflation, % p.a.	1.6	2.3	2.6	2.0	1.9
Employment (millions)	130.3	129.9	131.3	133.8	135.7
% change p.a.	-1.1	-.3	1.1	1.8	1.5
Unemployment rate, %	5.8	6.0	5.6	5.4	5.4
Massachusetts					
Personal income ² (\$ billion)	251.0	253.7	264.6	275.2	286.2
% change p.a.	0.9	1.1	4.3	4.0	4.0
Real Personal income ² (\$ billion)	242.4	243.0	247.85	252.1	256.5
% change p.a.	-0.7	.3	2.0	2.3	2.3
Employment ('000) ¹	3250.0	3186.5	3176.2	3229.8	3270.6
% change p.a.	-2.4	-1.9	-0.3	1.7	1.3
Unemployment rate, % ¹	5.3	5.8	5.2	5.1	5.1
Population ('000) ¹	6421.8	6433.4	6455.2	6473.5	6490.6
% change p.a.	0.3	.2	0.3	0.3	0.3
	Actual FY2002	Actual FY2003	Actual FY2004	Forecast FY2005	Forecast FY2006
BHI forecast, MA tax revenue					
Personal income tax (\$ million)	7,913	8,026	8,830	9,350	9,805
% change p.a.	-20.1	1.4	10.0	5.9	4.9
Sales Tax	3,696	3,708	3,749	3,919	4,104
% change p.a.	-1.6	0.3	1.1	4.5	4.7
Corporation Excise	587	799	998	1,062	1,079
% change p.a.	-37.9	36.3	24.8	6.4	1.6
Business Excises	573	730	677	681	717
% change p.a.	-2.7	27.3	-7.2	0.6	5.2
Motor Fuels	667	676	684	685	692
% change p.a.	1.0	1.5	1.2	0.1	1.1
Total Taxes	14,287	14,964	15,953	16,813	17,555
% change p.a.	-14.6	4.7	6.6	5.4	4.4
Total taxes for budget	16,075	14,279	15,269	16,087	16,794
% change p.a.	-15.1	4.6	6.9	5.4	4.4

Notes: ¹ From New England Economic Partnership (NEEP), *Fall Economic Outlook*, October 2004. ² NEEP Actuals, BHI Forecast.

Table 3**Revenue forecasts, disaggregated, for FY05 and FY06, including technical estimation details**

	FY04	FY05	FY06	% change		AR	MA	Vars/Dummies	Dates
				FY05	FY06				
Income Tax									
Estimated Payments	1,695,942	1,736,933	1,801,515	2.4	3.7	12	1,3,4,11	01:1	79:6-04:11
Tax Withheld	7,371,058	7,687,254	8,110,944	4.3	5.5	4,8,12	1,4	01:1, 02:1, PI	79:6-04:11
Returns & Bills	1,170,292	1,260,392	1,333,581	7.7	5.8	PIT(-12)	12		79:6-04:11
Refunds	1,406,951	1,308,426	1,331,934	-7.0	1.8	1,2,11,12	1		79:6-04:11
Income Net	8,830,334	9,349,953	9,804,991	5.9	4.9				
Sales & Use Taxes									
Sales & Use Taxes	3,749,193	3,918,527	4,103,895	4.5	4.7	12	1,2	PI	79:6-04:11
Corporation Excise	997,602	1,061,569	1,078,789	6.4	1.6	1,12	1,3,12	-	79:6-04:11
Business Excises	677,194	681,116	716,539	0.6	5.2	3,12	1,12	-	79:6-04:11
Alcohol Beverages	67,902	69,474	69,934	2.3	0.7	1,10,12	1,4	-	93:6-04:10
Cigarettes	425,421	431,177	427,548	1.4	-0.8	12,23		83:7, 93:1, 96:10, 02:8	79:6-04:10
Motor Fuels	684,243	684,913	692,157	0.1	1.1	1,12	1	90:9	79:6-04:10
Other Taxes	521,361	616,339	661,64	18.2	7.3	12	1	-	79:6-04:10
Total Taxes	15,953,259	16,813,068	17,554,917	5.4	4.4				
MBTA	695,156	726,553	760,923	4.5	4.7				
Total Taxes for Budget	15,258,103	16,086,515	16,793,994	5.4	4.4				

Notes:

AR refers to autoregressive lags used in the regression. MA refers to moving average lags used in the regression. Vars refers to variables included in the forecast. "Dummies" gives starting dates of each dummy variable used (e.g. 01:1 is a dummy that is set equal to 1 from January 2001 onwards, and to 0 otherwise). "Dates" refers to period of data used in regression estimates." PI refers to personal income. Motor fuel revenue adjusted to reflect 20% price increase (and assumed own-price elasticity of demand of -0.15).

¹ This report was prepared by the staff of the Beacon Hill Institute at Suffolk University, including Paul Bachman, John Barrett, Jonathan Haughton and David G. Tuerck.

² <http://www.census.gov/mrts/www/data/html/nsal04.html> [Accessed December 1, 2004.]

³ Michael Goodman, "Massachusetts Economic Outlook," in New England Economic Partnership, *Economic Outlook*, October 2004.

⁴ Bureau of Labor Statistics, Local Area Unemployment Statistics, http://data.bls.gov/PDQ/servlet/SurveyOutputServlet?series_id=LASST25000005&data_tool=%22EaG%22, [accessed December 1, 2004].

⁵ Ibid, p.140.

⁶ Bureau of Economic Analysis, Gross Domestic Product and Corporate Profits, November 30, 2004.

⁷ <http://www.bea.doc.gov/bea/newsrelarchive/2004/gdp304p.htm>. [Accessed December 1, 2004]

⁸ Ibid

⁹ *Economic Outlook*, p. 56.

⁹ Bureau of Labor Statistics, Regional and State Employment and Unemployment, November 2004

<http://www.bls.gov/news.release/laus.nr0.htm>. [Accessed December 1, 2004.]