Massachusetts
Tax Revenue Forecasts for FY 2007 and FY 2008

Beacon Hill Institute at Suffolk University
8 Ashburton Place, Boston, MA 02108
www.beaconhill.org
617-573-8750
bhi@beaconhill.org

January 16, 2007

The Beacon Hill Institute at Suffolk University is pleased offer its revenue forecast for FY 2007 and FY 2008 to the Joint Committee on Ways and Means.[1] We divide our report into four sections, beginning with a presentation of our current forecast and a summary of the forecasts we and others offered over the past two years. We follow with background information on the U.S. and Massachusetts economies and conclude with an exposition of our methodology.

Current Forecast and Past Forecasts

BHI predicts that tax revenues will be

- $19.040 billion in FY 2007, an increase of 3.0% over FY 2006, and
- $20.265 billion in FY 2008, an increase of 6.4% over FY 2007.

The forecast for FY 2007 is an update of the forecast we offered in December 2005, as shown in Table 1.

We see the difference in projected FY 2008 and FY 2007 growth as stemming mainly from the extraordinarily rapid growth (8.1%) in FY 2006 revenues. Our confidence in the projection for FY 2008 is bolstered by the following:

- The average annual growth of tax revenues for the past quarter century (FY 1981 to FY 2006) has been about 6.4%. Our projected growth for FY 2008 is consistent with that record.

- Except for recessions, state tax revenues have never increased by less than 5% for two consecutive years over the same period.

[1] The staff of the Beacon Hill Institute at Suffolk University, including Paul Bachman, Sarah Glassman, Alfonso Sanchez-Penalver, Frank Conte and David G. Tuerck assisted in the preparation of this report.

- The combination of rising demand for the state's technology products and financial services and the reversal of the state's population and employment losses will strengthen revenue growth in FY 2008.

Table 1 shows the forecasts by the Beacon Hill Institute, the Massachusetts Taxpayers Foundation and the Department of Revenue, along with the consensus forecast provided for in the state budget, for the past two fiscal years. All FY 2006 forecasts were substantially below actual 2006 revenues and all FY 2007 forecasts will be at least slightly below actual FY 2007 revenues.

Table 1:
Projected (as of December 2004 and 2005) v. Actual Tax Revenues

	Projected FY 2006 Tax Revenues, December 2004	*Projected FY 2007 Tax Revenues, December 2005*
The Beacon Hill Institute	$17,555,000	$18,951,000
The Massachusetts Taxpayers Foundation	$17,370,000	$18,920,000
Department of Revenue (average)	$17,386,000	$18,604,000
Consensus Forecast	$17,283,000	$18,969,000
Actual	**$18,487,440***	**$19,040,020****

*Actual revenue for FY 2006.
**Projected revenue for FY 2007, as of the date of this report.

Background: The U.S. Economy

The U.S. economy began calendar year 2006 with a strong start: After rising by 3.2% in 2005, real GDP expanded by an impressive 5.6% in the first quarter of 2006. This performance is even more remarkable considering the fact that the Federal Reserve Open Committee (Fed) continued to raise short-term interest rates by over 100 basis points. In addition, energy prices soared well above historic averages and the exceptionally strong residential housing market began displaying signs of weakness. These negative factors created a headwind that did take its toll on growth. Rates slowed dramatically in the second (2.6%) and third quarters (2.0%).[2]

The slowing economy allowed the Fed to suspend its campaign to raise short-term interest rates particularly in light of a retrenching housing market and the easing of oil prices in the third quarter. Following five years of record sales and price increases, the US housing market "slumped" in 2006. Home prices increased at the slowest rate since 1999 with the supply of housing "for sale" surging to the highest level since the 1991. In November 2006, sales of new homes began to increase slightly. However, observers expect that the housing market will serve as a drag on economic growth – at least throughout the early part of 2007.[3]

The labor market continues to create jobs at a moderate pace. The U.S. economy added roughly 132,000 non-farm payroll jobs in both October and November 2006, and an additional 167,000 jobs in December,

[2] U.S. Department of Commerce, Bureau of Labor Statistics, "News Release: Gross Domestic Product and Corporate Profits;" Internet; http://bea.gov/bea/newsrel/gdpnewsrelease.htm.
[3] "Housing Slump Could Be Ending," CBS News, Internet; available at http://www.cbsnews.com/stories/2006/12/27/business/main2301165.shtml; (December 27, 2006).

according to preliminary numbers reported by the Bureau of Labor Statistics.[4] Job growth was enough to hold the unemployment rate steady at 4.5% for the last two months of 2006, a declined from 5.0% unemployment at the beginning of the year.[5]

US consumers, after years of spending freely, tightened their pocketbooks sending consumption spending growth downward below 3% for two consecutive quarters. This is the first decline of such order in 3 years. In November 2006, monthly growth rates of retail sales were down by over 2% in comparison with the first six months of 2006. Driven by record levels of household debt, 131% of disposable income in the third quarter in 2006, consumers turned frugal. American families began working off this debt load. By the second quarter of 2006, however, debt payments reached 14.4% of disposable income, representing a record high since 1980. The weak housing market added to the woes of some consumers. Mortgage foreclosures grew to the highest rate since the beginning of 2005 and bankruptcies increased from 1.5 cases per 1,000 people in the first quarter of 2006 to 2.2 cases per 1,000 people in the third quarter.[6]

Looking forward to the next six quarters, at least two questions remain:

- Will there be a "soft landing?" That is to say, will the combination of the Fed's recent interest rate increases and the weakening housing market produce sustainable economic growth consistent with moderating prices? or,

- Will the economy tip into recession?

BHI predicts that the U.S. economy will be cushioned by a soft landing, a scenario favored by the Federal Reserve. This prediction is partly based on the recent experience of Great Britain and Australia where their respective economies slowed after periods of significant house price appreciation without sliding into a recession.

Background: The Massachusetts Economy

After lagging the performance of the national economy for several years, the Massachusetts economy performed better than the national economy in 2006. Between the third quarter of 2005 and 2006, Massachusetts GSP grew by 3.4%, outperforming the national economy which expanded only by 2.9% over the same period. The negative pull on consumer spending from the decline in the housing market was offset by the strong demand for products coming out of the Massachusetts technology and science sectors. As on the national economic stage, the housing market in Massachusetts experienced both softening prices and surging inventories. Single family home prices decreased by 5.3% from September of 2005 to 2006, according to the Massachusetts Association of Realtors.[7]

[4] U.S. Department of Labor, Bureau of Labor Statistics, "The Employment Situation: November 2006," Internet: available from http://www.bls.gov/news.release/archives/empsit_12082006.pdf

[5] Bureau of Labor Statistics, Internet; available from ftp://ftp.bls.gov/pub/news.release/empsit.txt.

[6] Christian Weller, "The U.S. Economy in Review 2006," The Center for American Progress (December 2006). http://www.americanprogress.org/issues/2006/12/economic_review.html.

[7] Alan Clayton-Mathews, "Massachusetts Economic Outlook: November 2006," New England Economic Partnership, October 2006, 5.

The labor market in Massachusetts improved over the course of the past year, with unemployment falling and job growth increasing. While net migration in 2006 was slightly negative, the population decline in Massachusetts stabilized in 2006 and should begin to grow again over the next few years.[8]

The pace of payroll employment growth in Massachusetts picked up significantly, expanding by an annual rate of 1% to September 2006. This rate of net job creation is well below the pace of the late 1990's, but 1% payroll employment growth is twice the rate at which jobs had been expanding between over the previous three years.[9] The unemployment rate continues to fluctuate around the relatively low rate of 5%. The number of long-term unemployed has fallen by about 50% from the 2003 average. Average unemployment duration during the first nine months of 2006 was 15.4 weeks, down from an average of 20.2 weeks for all of 2005.[10]

BHI finds itself in basic agreement with the most recent forecast from the New England Economic Partnership (NEEP). The partnership expects the Massachusetts economy nominal personal income to rise by 5% this year and increase by a slower 4.3% in 2008. However, BHI maintains that the state economy will see additional strength that will support robust consumer spending in 2008. Employment should continue to grow at a slower rate of 1% compared to a national growth rate of 1.5%. Although employment growth is relatively weak, the unemployment rate should remain at steady around 5% for the next few years. The continued strength in high technology spending should provide further support for employment and incomes.

Methodology

The continued expansion of the Bay State economy will translate into higher tax revenues for the state. BHI revenue forecasts assume that there will be no additional change in Massachusetts tax policy for the forecast period, which runs through the end of fiscal year 2008.

We prepared tax revenue forecasts for eleven categories for every month through June 2008. 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 2008.

2. For each tax series, we estimated a regression equation that relied mainly on the past movements in 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 2) 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.

[8] Ibid., 6.
[9] Ibid., 3.
[10] Ibid., 4.

Table 2 shows the forecasts by year and by major tax. Revenue for the first five months of FY 2007 grew by 3.5%. We see a slight slowing of economic activity in the months ahead, which is why we estimate

Table 2
Revenue Forecasts for Massachusetts, FY 2007 and FY 2008

NEEP, Calendar Year CY October 2006	Actual 2004	Actual 2005	Actual 2006	Forecast 2007	Forecast 2008
US economy[1]					
Personal income ($ billion)	9,731	10,240	10,964	11,512	12,145
% change p.a.	*7.0*	*5.2*	*7.1*	*5.0*	*5.5*
CPI inflation, % p.a.	2.2	3.2	3.6	2.5	2.0
Employment (millions)	131.5	133.7	136.4	137.8	139.8
% change p.a.	*1.2*	*1.7*	*2.0*	*1.0*	*1.5*
Unemployment rate, %	5.6	5.3	4.8	4.7	4.9
Massachusetts[1]					
Personal income[2] ($ billion)	260.8	273.4	288.1	302.1	315.1
% change p.a.	*5.8*	*4.8*	*5.4*	*4.9*	*4.3*
Real Personal income ($ billion)	247.7	254	259.3	265.7	272.2
% change p.a.	*3.0*	*2.5*	*2.1*	*2.5*	*2.4*
Employment ('000)	3,180	3,188	3,206	3,236	3,265
% change p.a.	*-0.02*	*0.3*	*0.6*	*0.9*	*0.9*
Unemployment rate, %	5.1	4.6	4.4	5.0	5.1
Population ('000)	6,407.4	6,398.7	6,402.9	6,422.8	6,440.9
% change p.a.	*-0.1*	*-0.1*	*0.1*	*0.3*	*0.3*
BHI forecast, MA taxes, FY					
Personal income tax ($ million)	8,830	9,690	10,483	11,029	11,828
% change p.a.	*10*	*9.7*	*8.2*	*5.2*	*7.2*
Sales Tax	3,749	3,886	4,004	4,165	4,468
% change p.a.	*1.1*	*3.7*	*3.0*	*4.0*	*7.3*
Corporation Excise	998	1,063	1,391	1,426	1,467
% change p.a.	*24.8*	*6.5*	*30.8*	*2.5*	*2.9*
Business Excises	677	643	865	686	639
% change p.a.	*-7.3*	*-5.0*	*34.5*	*-20.7*	*-6.9*
Motor Fuels	684	686	672	699	726
% change p.a.	*1.2*	*0.3*	*-2.0*	*4.0*	*3.8*
Other	1016	1119	1072	1035	1137
% change p.a.	*8.7*	*10.1*	*-4.2*	*-3.5*	*9.8*
Total Taxes	**15,954**	**17,087**	**18,487**	**19,040**	**20,265**
% change p.a.	***6.6***	***7.1***	***8.2***	***3.0***	***6.4***
Total taxes for budget	15,269	15,987	17,745	18,268	19,437
% change p.a.	*6.9*	*4.7*	*11.0*	*2.9*	*6.4*

Notes: [1] From New England Economic Partnership, "Fall Economic Outlook," October 2006.
[2] BHI Forecast. FY 2007 revenue reduced by $111 million and FY 2008 revenue reduced by $66 million due to changes in the tax laws.

that total revenue will rise by 3% for the full fiscal year. For FY 2008, we forecast a 6.4% increase in tax revenue, an increase that is identical to its historical average rate of 6.4%. The major taxes will continue to be buoyant – personal income tax receipts will expand by 7.3%, sales tax revenue by 7.3% and other tax revenue will expand by 9.2%. The statewide average will be restrained by slower growth in revenue from the major excise taxes (cigarettes, alcohol, and motor fuel, business). The historical trend suggests that these excise taxes grow more slowly. This projection is farther in the future, and inherently subject to greater uncertainty than our forecasts for FY 2007.

Table 3 provides the BHI revenue forecast in detail. The left side of the table contains the revenues and the percentage increase from the previous year broken out into the individual tax categories – the actual revenues for FY 2006 and the BHI projections for FY 2007 and FY 2008. The right side of the table provides the model specification used to forecast each tax and the timeframe for each data series used in the model.[11]

Table 3
Revenue forecasts, disaggregated, for FY07 and FY08, including technical estimation details

				% change					
	FY06	FY07	FY08	FY07	FY08	AR	MA	Vars/Dummies	Dates
Income tax									
Estimated payments	2,273,415	2,558,582	2,850,097			12	1,3,4,11	01:1, 02:1	79:6-06:11
Tax Withheld	8,122,448	8,509,361	8,994,897	4.76	5.71	1,12	1,12	01:1, 02:1, PI	79:6-06:11
Returns & Bills	1,690,301	1,719,608	1,807,468	1.73	5.11	PIT(-12),12	1,12		79:6-06:11
Refunds	1,602,727	1,758,999	1,824,278	9.75	3.71	1,2,11,12	1		79:6-06:11
Income Net	10,483,437	11,028,551	11,828,184	5.20	7.25				
Sales & Use taxes	4,004,357	4,164,935	4,467,849	4.01	7.27	12	1,3,6,9	PI	79:6-06:11
Corporation Excise	1,390,685	1,426,101	1,466,970	2.55	2.87	1,12	1,3,12	-	79:6-06:11
Business Excises	865,106	686,314	639,165	-20.67	-6.87	3,12	1,12	-	79:6-06:11
Alcohol Beverages	68,855	69,968	70,764	1.62	1.14	1,12	1,12	-	93:6-06:11
Cigarettes	435,336	435,087	433,838	-0.06	-0.29	12,23		83:7, 93:1, 96:10, 02:8	79:6-06:11
Motor Fuels	671,843	699,362	725,872	4.10	3.79	1,12	1	90:9, PI, C	79:6-06:11
Other taxes	567,823	640,253	698,851	12.76	9.15	1,12	1,12	-	79:6-06:11
Total Taxes	18,487,442	19,150,570	20,331,493	3.59	6.17				
Effects of Tax Law Changes		-110.6	-66.1						
Total Taxes	18,487,442	19,040,170	20,265,393	2.99	6.43				
MBTA/SMART	742,467	772,241	828,405	4.01	7.27				
Total Taxes for Budget	17,744,975	18,267,929	19,436,988	2.95	6.43				

Notes:
AR refers to Autoregressive lags used in the regression. MA refers to Moving Average lags used in the regression. "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 and C, a Constant variable.

[11] A complete breakdown of revenue forecasts by month and by the 11 tax headings is available on request.